

Wetland Restoration Project Report 2015



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1 Author's Statement

This year has been an interesting one for myself and the project. There has been some reduction in the energy and work put into the project. This has been a combination of poor health on my part and a wish to pass on the reins of the project after many years of being its coordinator.

As I wasn't sure a replacement would step up, I began making plans to have an orderly shutdown of the project, and a disposition of the remaining funds. For this reason I did not apply to many of our past donors for funds. As a result the budget of the project has been much reduced this year.

I am happy to announce that a replacement has been found and that the Wetland Restoration Project will carry on. Murray Little has stepped forward to be the new coordinator. Murray has been a valued volunteer for some years with the project and I am sure will do an admirable job as its new coordinator. Besides being a member of Comox Valley Nature, Murray has links with the Morrison Creek Streamkeepers. Like myself Murray has a forestry background. I wish him all the best and I am sure he will lead the project into new and interesting endeavors.

As for myself I will be stepping into the background but hope to continue on volunteering. In particular I will be leading volunteer work parties in the areas where I have a history and attachment.

Our efforts to remove invasive plants and restore habitat would not be possible without the generous grants from our donors. On behalf of Comox Valley Nature I would like to thank the Comox Valley Regional District from whom we receive a multi- year grant. It has been a pleasure to work with their new Manager of Parks Doug Demarzo.



Comox Valley Regional District

I would like to thank all our volunteers from Comox Valley Nature. As in many volunteer groups it seems a small group is always willing to put in the extra effort and carry more than their fair share of the work burden. A special thank you goes out to Kathleen Hennig, Bill Heidrick, Ernie Stefanik, Murray Little, Jim Boulter, and Bob Bartsch.

I would also like to thank our Contractor Ernie Sellentin and Michael McNaulty who have taken a personal interest in this project.



Lastly a special thanks to our club treasurer Isabella Erni who took care of all the financial details.

This report was written by Frank Hovenden of the Comox Valley Naturalists Society and is available on line at <http://comoxvalleynaturalist.bc.ca/>

2 Introduction

The Wetland Restoration Project is an initiative of Comox Valley Nature. We are a membership-based non-profit society which has been active in the Comox Valley for fifty years. Our parent organization is BC Nature whose mandate is "to know nature and keep it worth knowing".

The work done by this project has two pathways. The first is volunteers from the membership of Comox Valley Nature. I have started tracking the volunteer hours spent on the project to show to our sponsors. It is my hope to stay involved with the project by continuing to organize work parties with the volunteers. The second component is the paid contractors Sellentin Restoration and Michael McNaulty. By balancing the two we can have a steady and continuous effort in removing invasive plants and restoring habitat in the Comox Valley.

The Wetland Restoration Project was started by a past president of the Society Betty Lunam, when she discovered large amounts of the invasive plant purple loosestrife growing in the Courtenay River estuary. We have carried on in her large footsteps over many years and hopefully over many years to come. The problems of invasive species is not abating and the need is greater than ever.

Although my background is in Forestry, I have taken it upon myself to become acquainted with the field of Restoration Ecology. Recently I attended a colloquium on the subject put on by the Garry Oak Ecosystem Restoration Team at the University of Victoria. It is extremely helpful to see what similar organizations are doing to tackle some of the same problems we are facing here in the Comox Valley.

This report will document the work completed in 2015. This will include the numbers of plants removed and the time worked in the various areas. The financial details of the project as well as recommendations for the future direction of the project are included. We have worked closely with and have received grants from the Comox Valley Regional District.

This year we have continued the initiative against the various knotweeds (*Polygonum spp.*). This invasive plant is capable of dominating our riparian zones. We have experimented in "continuous cutting" for many years and are starting to see some success. As a measure of control has been attained on some of the sites we have expanded to new areas infested with this weed.

In 2015 the key species that the crew tackled are purple loosestrife (*Lythrum salicaria*), Scotch broom (*Cytisus scoparius*) and various members of the Knotweed complex (*Polygonum spp.*). This is a reduction from previous years where we also targeted yellow flag iris (*Iris pseudocorus*) and Himalayan blackberry (*Rubus discolor*). Concerns about budget allocation led to this reduction. It is planned to resume our control activities against these two species for the upcoming year.

Our number of volunteer hours put forward continues to increase. We have been tracking these for three years now. From within Comox Valley Nature a small and dedicated group of volunteers have emerged which have taken ownership of the project and the places where we work. The native plantings have all been done by our volunteers who have also raised much of the planting materials in their own gardens.

3 Background

The Comox Valley is situated in the Nanaimo Lowlands eco-section. This thin strip of land along the east coast of Vancouver Island is part of the Georgia Depression ecoprovince. This is a very unique area that contains great biodiversity in its natural ecosystems. We are located in a great transition zone on Vancouver Island. The Comox Valley is the most northern extent of the Garry Oak ecosystem although just remnants remain of this unique ecosystem. Just south of here the Coastal Douglas-fir biogeoclimatic zone changes to Coastal Western Hemlock (CWH). A short distance inland from here the CWH gives way to Mountain Hemlock and then Alpine biogeoclimatic zones.

Looking to the west we overlook the water bodies of Comox Harbour and Baynes Sound which are the second most important in all of B.C. for over-wintering waterfowl. It is designated as an Important Bird Area and rated as Globally Significant.

The Comox Valley is at the interface of many diverse and different ecosystems. We must recognize this and do all we can to protect biodiversity in this area.

The Nanaimo Lowlands is severely underrepresented in terms of protected areas. One of the principal reasons for this is the fact that this part of BC is made up of a large amount of privately held lands. This is a historical legacy of the E and N Railway grant in which government gave away large sections of Vancouver Island to the Dunsmuir Coal interests in exchange for building a small railroad. There is very little Crown land which could be used for protected areas. As citizens of the Comox Valley it is incumbent on us to be caretakers and stewards of this area and all the flora and fauna that depend upon it. A special responsibility is imparted on our local governments in light of our lack of protected areas in this area designated by higher levels of government.

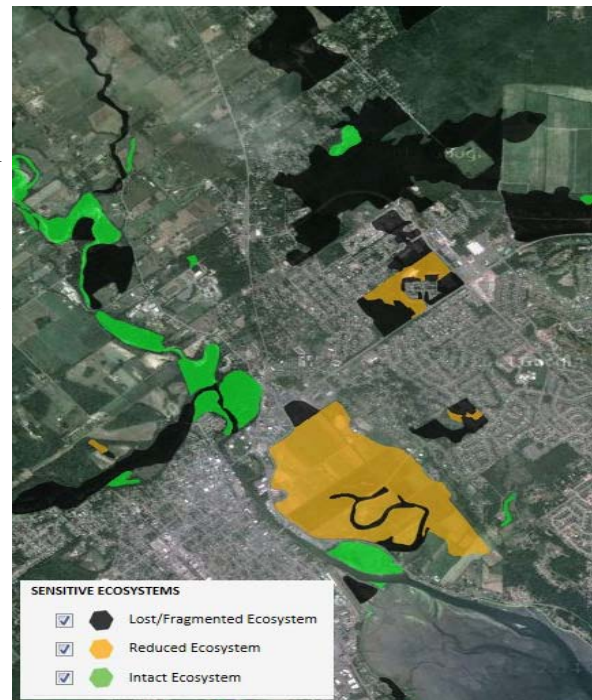


Figure 1: Project Watershed's ecosystem map

This map produced by Project Watershed shows very little of the land base is classified as intact ecosystem. It is therefore imperative that these remaining fragments be maintained with the highest level of stewardship. Nature knows no boundary and

biodiversity extends into our urban areas as shown in Figure 1. Local governments have to recognize that they have an important role to play in ecosystem management. Nature can flourish in urban areas if planning decisions are made to accommodate these values.

The Wetland Restoration Project is a small attempt to limit and control invasive plants on some of our most sensitive sites. The Comox Valley Naturalists have taken an interest in combating invasive plants on a local level. We have identified an area which has high biodiversity value (Courtenay River estuary) and which is threatened by various invasive plants. In this area is found the Henderson's Checker-mallow *Sidalcea hendersonii* which is a blue listed species in British Columbia. In this same habitat is found the invasive purple loosestrife. With our limited resources we have concentrated in keeping invasive plants at a manageable level in this area. At the request of our funders we have worked throughout the Comox Valley, although our focus remains the tidal waters and adjacent areas of the Courtenay River.

4 Summary of Work Completed

The core areas of concern surround the Courtenay River estuary and are located in the City of Courtenay and the Comox Valley Regional District (CVRD). Figure 3 is a map of our core areas. We do some work outside the core area when requested by citizens or funders. This year work was done in Seal Bay Park when an infestation of purple loosestrife was found in Melda's Marsh. The core areas are identified as priority because they are areas where historically purple loosestrife has been found and therefore where the project started in its efforts to control it.

Project Watershed recently held a public forum where they outlined their vision for the restoration of the Field's Sawmill site. (Figure 2) If this plan is successful the work we are doing in the adjacent areas will insure that invasive plants will not be given a head start in the area proposed for this restoration project.



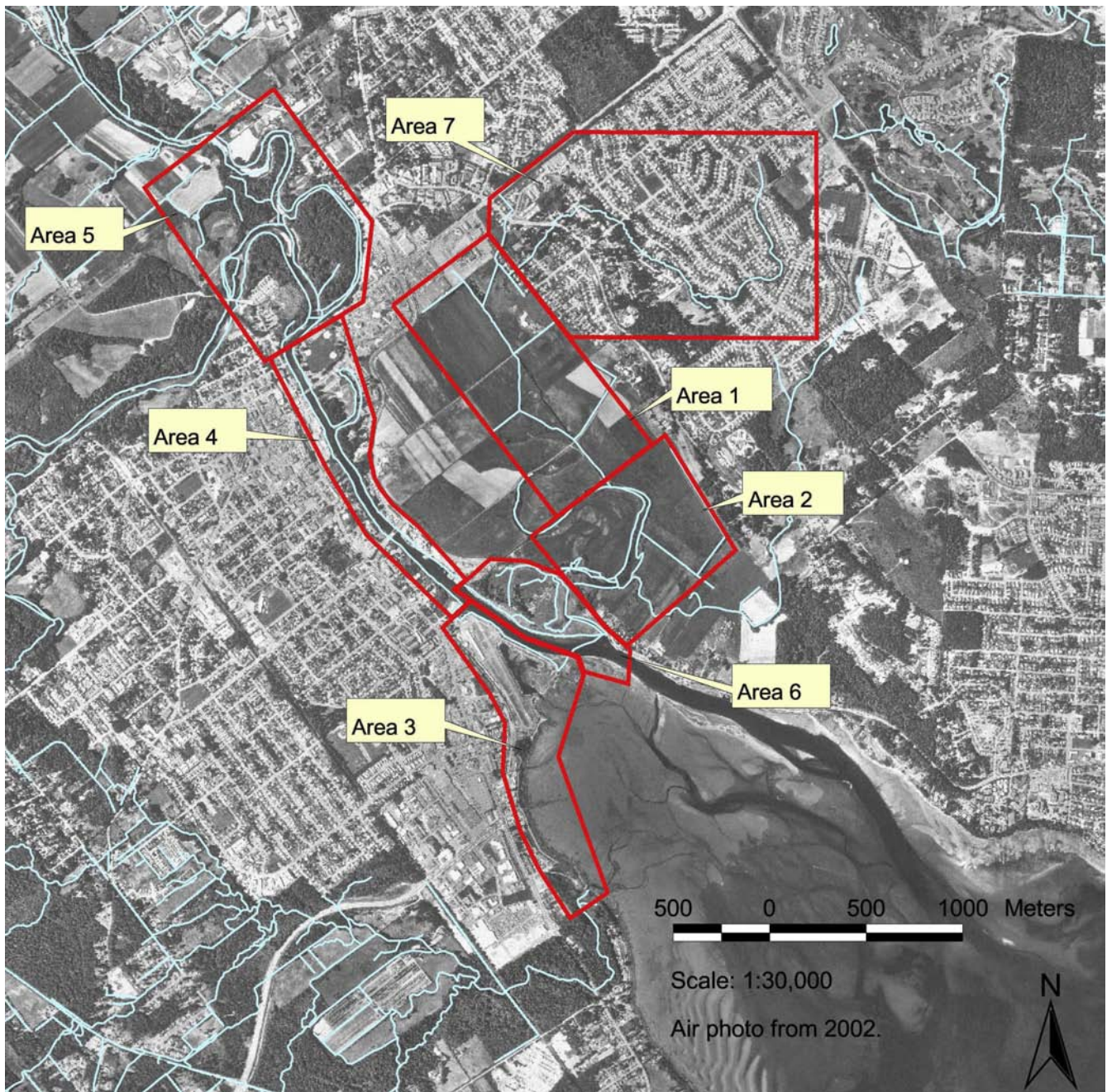
Figure 2: Field's Sawmill site

Our species of concern also include Scotch broom, yellowflag iris, knotweed, English ivy and Himalayan blackberry. In recent years we have put a greater emphasis on knotweed as it seems to be spreading at a greater rate than other invasives and occupying a wider range of sites. These can range from dry upland sites to tidal flats. Knotweed, due to its botanical characteristics, is more difficult and time consuming to control.

Our work is focused primarily on public lands, however access to private lands such as the Comox Bay Farm and the Berry farms has been established through informal agreements that must be renewed annually. A high priority is given to lands of high ecological significance such as Area 6 which is

commonly called Hollyhock Flats. This area is mapped as an intact ecosystem in Figure 1. This area is fairly undisturbed in terms of human modification and also contains the blue-listed plant Henderson's checker-mallow (*Sidalcea hendersonii*). Over 90% of the purple loosestrife removed this year by the project comes from this area. We have been successful in keeping knotweed out of area 6 despite the many infestations on the west bank of the river. The knotweed infestations that we are actively fighting are located in the adjacent areas 3 and 4.

Figure 3: Core areas of concern for the Wetland Restoration Project



The project hours were tracked by invasive species (Figure 4) and geographic area. This year Sellentin's Habitat Restoration completed a total of 257 hours of field work for the project, and Michael McNaulty 43 hours. This was considerably less than the 726 hours worked in 2014. This was due to the decreased budget available to work with. As a result we concentrated only on our most high priority invasive species this year. Sellentin's Habitat Restoration concentrated on purple loosestrife control while Michael McNaulty worked on knotweed. This separation of tasks worked well as each contractor is focused on a different area and invasive species.

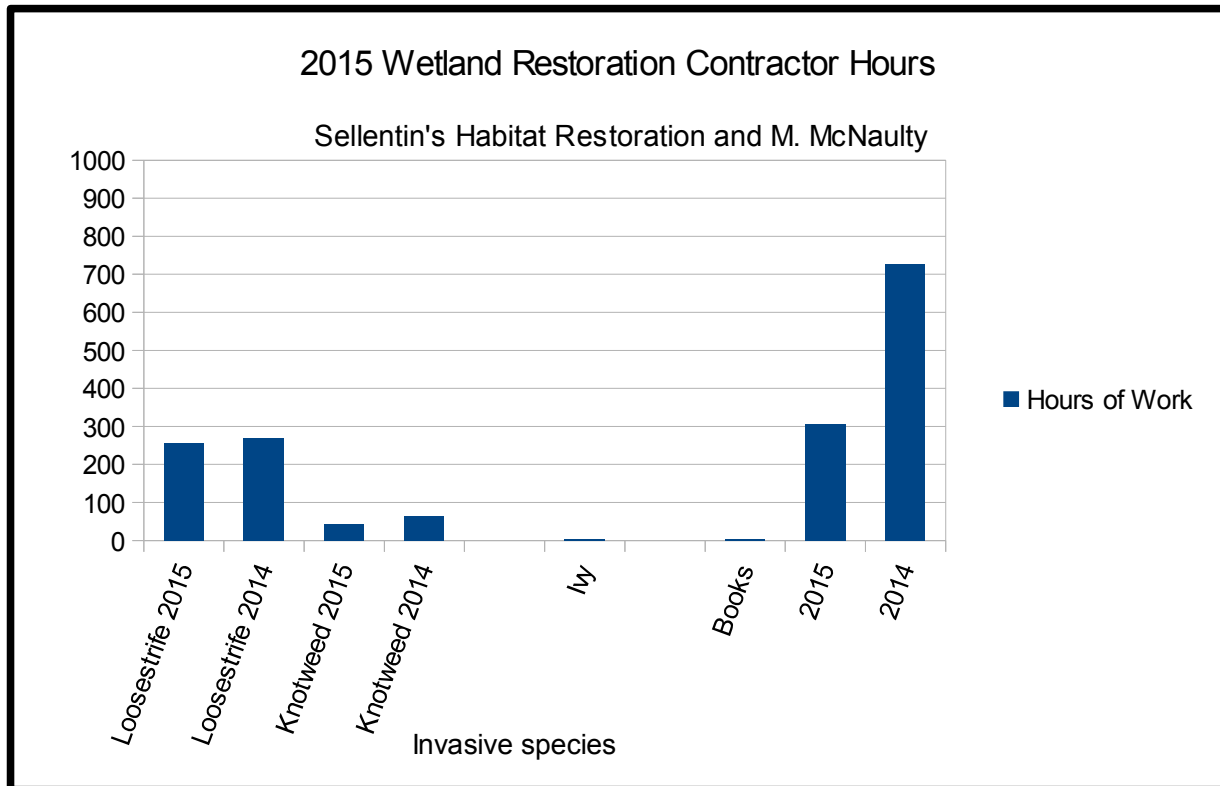


Figure 4 Project hours by species

The volunteer hours which I began tracking three years ago can be seen on page 21. The volunteers field work was mainly concentrated in the Courtenay Airpark. There are several reasons for this. The Airpark is a safe area which is highly used by the general public. It is also highly central to our volunteers which means work parties can be organized quickly. The work we do here is highly visible and gives us good opportunities to interact with the public and educate them on our restoration work. In contrast some of the areas where our contractors work are tidal and contains hazards which makes it unsafe for volunteers.

Weed Control

Purple loosestrife - *Lythrum salicaria*

The downward trend in the number of purple loosestrife plants removed continued again this year. The total number removed was 598, which is the lowest number ever since the project started. The biggest decrease is from Area 6 (Hollyhock Flats) which is our area of highest priority.

	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Total
2012	44	11	48	32	35	3194	12	190	3566
2013	7	21	60	41	28	2710	2	229	3098
2014	10	4	28	30	30	1851	4	40	1997
2015	3	21	26	5	11	477	4	52	598

Although these figures appear good they have to be tempered as slightly fewer hours were dedicated to the removal of loosestrife.

It was speculated in last year's report that many of the new plants were coming from areas where there had been disturbances. The last several winters have seen several severe high water storm events which may have contributed to an increase in the disturbed areas and thus an increase in purple loosestrife plants. It is difficult to attribute with any certainty the blip in 2012 and 2013 in what otherwise has been a steady decrease in purple loosestrife numbers.

Note that a new infestation was discovered this year along the shores of Comox Lake which I have included in Area 8 along with Seal Bay Park which is outside our core areas.

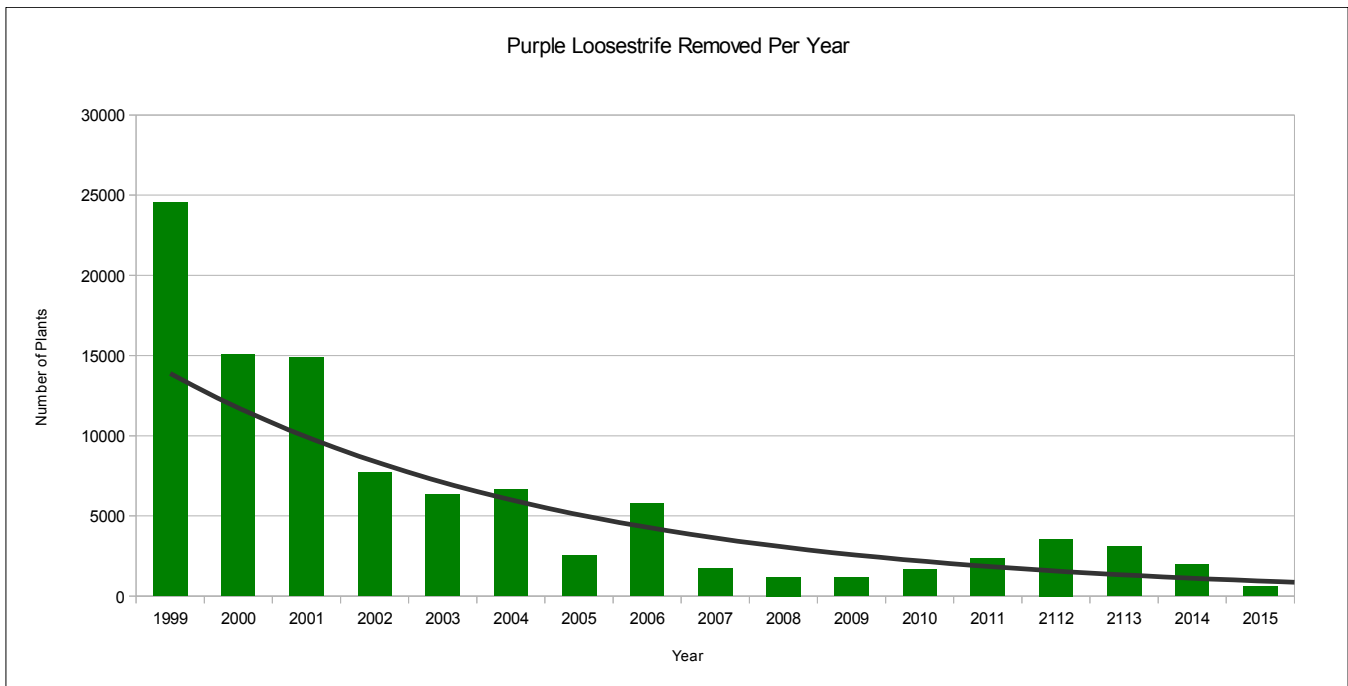


Figure 5: Trend line for purple loosestrife

Yellow-flag Iris - *Iris pseudacorus*

This year we did not devote any time to the removal of this invasive species due to budget priorities. However we expect to give renewed attention to this invasive plant in the coming year. It is a problem in the Morrison Creek headwaters and this is an area which will be focused on next year.



Figure 6: Yellow-flag iris

Scotch Broom - *Cytisus scoparius*

Scotch broom was introduced to Vancouver Island in the Sooke area over 100 years ago. Like most of our invasive species it was a deliberate introduction. It is now firmly established and control efforts have to concentrate on select areas. It thrives in disturbed areas with full sun exposure.

One of the success stories in controlling invasive plants in the Comox Valley has been the emergence of the BroomBusters. This organization started in 2006 in the Parksville/ Qualicum area is spreading on Vancouver Island. Here in the Comox Valley it is led by Bev Agur. She has done a great job in getting large numbers of volunteers out to fight Scotch broom every spring.

We have been happy to aid and assist the BroomBusters by advertising their events among our membership and coordinating our events. This is especially the case in areas where we have a common interest such as Sandpines Park. This Park which is now within the Town of Comox is a small remnant of a very unique sand dune/ Garry oak ecosystem. Comox Valley Nature is currently working with the Town of Comox and a local citizens group to continue the restoration work in this Park.

Sandpines Park was heavily infested with Scotch broom. A large work party was organized by the Broombusters over a May weekend which removed the Scotch broom from the Park. The Town of Comox later trucked away the cut broom.



Figure 7: BroomBusters working at Sand Pines Park

We have continued our efforts to control Scotch broom by sweeping both the Courtenay Airpark and our restoration area north of the Railway station this year. The Courtenay Airpark (Area 3) was dominated by the plant up until 15 years ago when our control efforts started. It is now pretty much broom free. A second area where we control Scotch broom is north of the Courtenay Railway station along the Rotary Trail. This is a small area of about one acre in size where we are in our third year of control. Both these areas are pretty much free of any blooming broom plants but still require a yearly sweep because of the seed bank in the soil.

Knotweed - *Polygonaceae*

Knotweed species are one of the most aggressive invasive plants threatening our riparian areas. They have several traits which make them very difficult to eradicate or control. They have a broad range of sites that they can occupy. These include inter-tidal zones where herbicides cannot be used due to fisheries concerns. They also have the ability to reproduce vegetatively from very small pieces of root.

Three years ago we decided to attack knotweed using a method called continuous cutting. By continuous cutting the energy reserves of the plant are slowly diminished to the point where it can no longer re sprout. Although the theory is sound, in fact



Figure 8: Knotweed clump adjacent to the floatplane ramp in Courtenay Airpark

this is a slow process. Established knotweed has a huge energy reserves stored in its rhizomes . This gives it the ability to re-sprout many times.

We have started to see positive results from our cutting program. This year our sub contractor Michael McNaulty cut the knotweed sites whenever there were sign of regrowth. When possible rhizomes were dug out and removed as well. Some sites were cut up to eight times over the course of the growing season. By comparison in 2014 some sites were cut up to 12 times during the growing season. We are making progress against knotweed, as illustrated by the sparse weak regrowth we are finding at these sites.

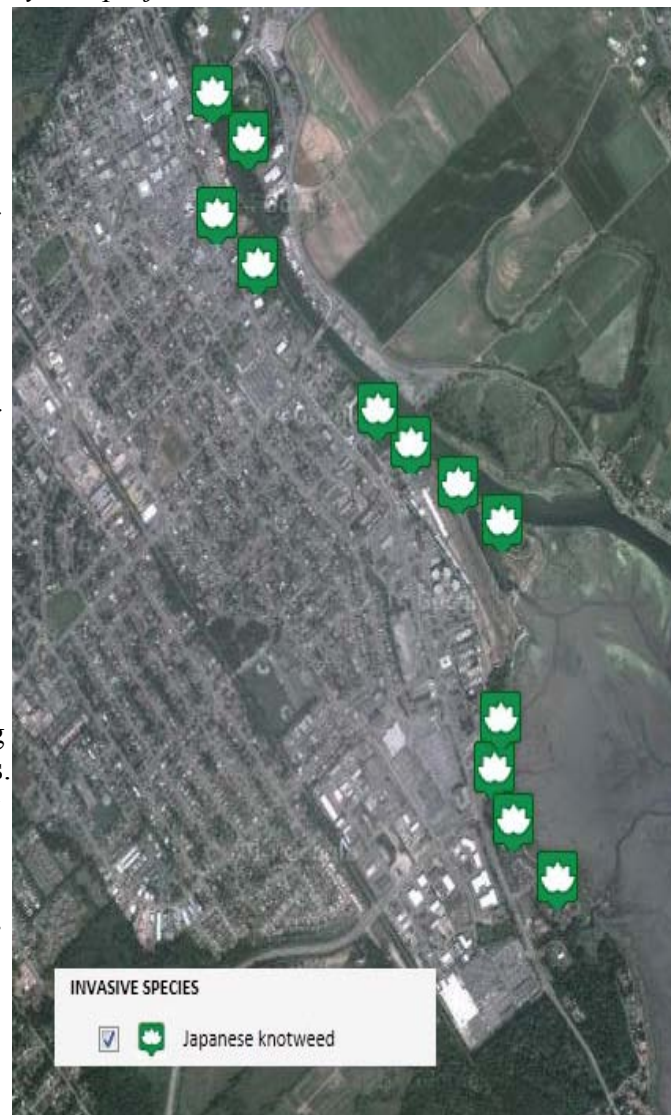
We limited our scope of our work to the twelve sites where we had worked in previous years and one new site which was discovered this year. These sites are all in the riparian zone of the Courtenay River and estuary. The only new site was a large patch adjacent to the float plane ramp in the Courtenay Airpark. At this site the large root ball was removed using an excavator. This machine was on site for the nearby culvert installation at the lagoon breach site which was administered by Project Watershed. The soil containing the rhizomes was deposited adjacent to the runway and all emerging growth subsequently removed as it emerged. This was done four times over the summer months. This will be monitored next year as well to insure that the soil is free of any viable knotweed.

Knotweed can be controlled by continuous cutting of the top growth and the removal of the rhizomes. It has been our experience that this can take three years to attain a good measure of control on a particular site. Even after this time the occasional small knotweed shoot can be seen emerging from old infestation sites. Therefore all knotweed sites will have to be checked annually for a permanent measure of control.

In my last annual report I included a table showing five very different sites with knotweed infestations. We can summarize our experience in the difficulty in controlling as follows.

- **The longer the infestation has been established, the more difficult to control.** With time the plant develops larger more elaborate rhizomes. These are capable of storing greater amounts of energy which can then be used to revive the plant after

Figure 9: Knotweed sites with active control efforts by this project



its topgrowth has been removed. With time and left unimpeded, the knotweed will form a monoculture.

- **The more competing vegetation there is on a site, the easier it is to control the knotweed.** When the knotweed is removed or weakened, competing vegetation is quick to move in and occupy the vacated habitat.
- **When established in porous substrates like rip rap knotweed control is very difficult.** On these sites the rhizomes may be difficult or impossible to remove. They travel a great distance through this substrate and new plants can emerge many metres from the parent.

Small knotweed infestations can be controlled by the continuous cutting method we are using. We are seeing good results on all our sites although on some it has taken three years. With larger sites in less sensitive areas, herbicide may be the only option at the present time. It must be noted that the knotweed is a difficult plant to kill and even with herbicides several treatments are usually required to kill an infestation. Hopefully an effective bio control will be developed in the near future.



Figure 10: Weak knotweed regrowth

As I mentioned in last year's report, the source of the knotweed infestations are not always easy to track. This plant was historically used in gardens and is sometimes called Japanese bamboo. In the Comox Valley it is often spread from nearby gardens where it was planted. It can

also be spread directly through dumping or by water transport. Small pieces of the rhizome are broken and then transported downstream where new infestations are started. In the Comox Valley where autumn flood events are common, this type of transport can be common and will spread the plant very quickly throughout a watershed. This is why we have concentrated our efforts in the riparian zones in order to stop this type of spread.

Adding to the problem are our development and land use patterns. Large cleared lots are left empty and sometimes remain undeveloped for many years. These vacant lots serve as epicentres for invasive plants. This task is all the more important here in the Comox Valley where urban areas border fish-bearing creeks and rivers.

Because of the time and manpower required, the manual control of knotweed is high. This is an expensive control which requires persistence. However as the equipment expense is low and the required expertise minimal, this is ideally suited for volunteer groups such as ours, provided the infestation site is small. We have concentrated our efforts in the riparian areas adjacent to fish-bearing waters where herbicide can not be used. Most of the knotweed sites are subject to regular flooding and thus are suited only for manual methods.

Prescribed Burn

In 2013 three small plots were burned in the Courtenay River Airpark. These areas have been monitored for the last two years. Virtually no difference can be seen between the burned plots and the adjacent areas in terms of the vegetation composition.

New Plantings

We had three planting work parties this year. In the spring we planted in the Courtenay Airpark adjacent to the end of the runway. In the fall our planting efforts were concentrated at the lagoon breach site. A list of the plants installed can be seen in Appendix I. These are all native plants many of which had been raised by our volunteers, with the remainder being purchased at Streamside Native Plants.

Project Watershed has been working on a project to breach the lagoon at the Courtenay Airpark for several years. The purpose of this breach was to restore some of the complexity that has been lost from the Courtenay River estuary and allow river water to flow through the Airpark lagoon. Over the years the lower river has been highly modified. This has been done through dredging, armouring the banks and channel redirection. This was done to increase agricultural land and aid industrial development, and as flood control measures along the banks of the river. This has resulted in notable impacts on the fish populations in the system as habitat has been decreased. It is also felt that this has led to an increase in fish predation by seals and sea lions.

Figure 11: Spring planting in Courtenay Airpark



Figure 12: Project Watershed's Lagoon breach project

The breach of the lagoon is an attempt to restore some of this complexity to the estuary. It offers migrating fish a second option to enter the river from the estuary. The installation of the large steel culvert was done this summer. Comox Valley Nature was happy to play a small role in planting native plants around the construction site. This was a challenging site because it extends from the tidal marsh at the foot of the culvert to the very xeric area along the River walkway. The selection of plants chosen (Appendix I) to revegetate this site reflects this. In addition there were safety issues to address. As the culvert is accessible it was felt that the plantings should discourage traffic from around the top edge. Prickly plants such as Nootka rose and tall Oregon grape were chosen for these areas. In the wet tidal areas sedges and Henderson's checker-mallow were planted. The latter is a blue-listed plant in BC which is found in the Courtenay River estuary. This is a native species which is of special concern. The author has propagated this plant in his garden from collected seed. It is felt that the habitat at the breach site is similar to where it is found in the rest of the estuary.

Figure 13: Author holding Henderson's checker-mallow rhizome



Old Plantings

This summer was one of record heat and dry weather in the Comox Valley. Some mortality was experienced among our plantings at the Courtenay Airpark. As the adjacent photo shows it was sporadic and difficult to predict. These shore pines (Figure 14) have been in the ground for five years, and had seemed vigorous. It was surprising to lose two trees while the remaining three remained healthy. These trees were in close proximity to each other. I have assumed it was the drought conditions that caused the mortality however I cannot be sure. More recent plantings on the Courtenay Airpark knotweed site, most notably the ninebark, sustained drought damage during the summer. However these plants rebounded with the autumnal rains and new growth flushed out.



Figure 14: Dead shore pine with healthy pine in background

There was a minor air crash by a float plane at the northern end of the runway this summer. This incident damaged several older ninebark shrubs. There was considerable damage to two of these original plantings at the Airpark. We will monitor their health next summer and replace them if necessary.

This year two work parties did clean-up and maintenance around the native plantings in the Courtenay River Airpark. This consisted of weeding and adding a general purpose fertilizer around the plants. As well sea soil mulch was added around the base of the plants.

Woody debris was placed around the camas beds to protect them from pedestrian and bicycle traffic. Driftwood is collected off the shore and then placed around sensitive areas. In order to keep it secure, it is partially buried.

As noted in the 2011 report, a small amount of seeded camas was observed flowering for the first time since being planted in 2007. This increased to over 70 plants blooming in 2012, 100 camas in bloom by 2013 and 210 blooming plants counted in 2014. A rough count of over 200 blooms was noted this year.



Figure 15: Driftwood was placed around the camas bed.

Project Watershed's breach project necessitated moving a 6 m tall Garry oak . This was done with the help of an excavator working on the site. A large root ball was moved with it and the tree was moved 50 m further south along the walkway. I admit being sceptical about the success of this move as it was undertaken at the end of June which is traditionally the start of the hottest and driest season. Although most of the foliage turned brown, checking on this tree in the autumn there was still life in it as witnessed by new buds and green cambium in the twigs. We will see next year if it has in fact survived the traumatic move.

The shrubs at our restoration site at the Courtenay Railway Station are looking very healthy and very little Scotch broom has returned. Some browse damage was noted on the smallest Garry oaks planted there last year. As it was limited to the smaller trees and not the taller ones it was assumed to be caused by the introduced cottontail rabbits. One of volunteers Kathleen Hennig made and installed some wire cages for the Garry oaks. They are protecting the smallest oaks from further browse damage. We have not had to deal with deer at either the Courtenay Airpark or the Railway station.



Figure 16: Steel cages protecting the Garry oaks

Other Activities

This year once again we did some cleanup after squatters in the Courtenay River estuary behind the Sewage Pump Station. The City of Courtenay's bylaw officer was informed of the situation and visited the site. Michael McNaulty did the cleanup and the City picked up the garbage once it had been brought to the roadside.

Two squatters were also found using the area adjacent to the Railway Station restoration site. The Bylaw Officer was informed, however no cleanup was required at that site.

The homeless using semi-wild areas close to the City is now something we are encountering every year during the summer months. This is always a difficult situation to deal with when ecological restoration meets modern social realities of homelessness in the Comox Valley. Our first priority is always the safety and security of all concerned, our volunteers, our paid crews and the homeless. We report the situation to the appropriate authorities. A cleanup is only undertaken after we have ascertained that the camp is truly abandoned.

The Courtenay River estuary (Area 6) is an important area where many of our restoration efforts are centered. Due to its accessibility and the seclusion it affords, it has been the site used by squatters. This area is tidal and on a river controlled by dams. There is a real security issue for people camping here. Water levels are subject to quick changes and this area may be subjected to flooding at any time of the year.

Public Outreach

Signage

We have erected signage at the Courtenay River Airpark, Simms Park and the Rotary trail. These are meant to be educational for members of the general public who frequent these popular areas. No damage or vandalism was noted on any of the signage this year. No new signage was installed this year however a temporary sign was installed by the camas patch in the Courtenay Airpark.

Brochures

We continue to distribute brochures on invasive plants from weatherproof brochure holder attached to the Airpark fence. One of our volunteers insures that this is well stocked with both the CVRD's "Toxic Invasive Plants", and the Coastal Invasive Species Committee published "Get to Know Invasive Species". These are both excellent publications which we have been happy to distribute to the public.

Native PLANT

Camas (camassia spp.)



The Camas is one our most beautiful native plants that is associated with the Garry Oak meadows. Historically vast fields of this plant grew in the Pacific Northwest. Early European explorers described fields so blue with camas flowers that they resembled lakes. While not endangered the camas is threatened due to human encroachment over much of its range.

The bulb of this plant was highly prized by many First Nations. It contains a complex carbohydrate which is broken down by steaming to produce a nutritious food source.

We have been planting camas through out the Courtenay River Airpark for many years. It takes 4 or 5 years for a camas plant to produce a flower.

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.

Consider planting native plants in your own garden.

Comox Valley Naturalists Society
www.comoxvalleynaturalist.bc.ca



Figure 17: Temporary signage at planted camas in Courtenay River Airpark

Community Events

Every year Comox Valley Nature celebrates Rivers Day with a clean up of the shores around the Courtenay Airpark. A variety of trash is gathered off the foreshore. This has been organized for the last several years by our new coordinator Murray Little. Nine members of the public joined him in this endeavour this year. CV Nature undertakes this event independently without a corporate sponsor.

The annual Earth Day Festival was cancelled this year and therefore we did not participate.

Cooperation with other Environmental Groups

The CVNS has existed for close to 50 years and takes pride in our close cooperation with other groups with common interests and shared goals.

This year we worked with Project Watershed to do restoration work at their breach site project in the Courtenay Airpark, as well as invasive plant removal. We revegetated the bare ground left after the installation was finished. One of the excavators they used for culvert installation was borrowed to remove a deeply root patch of knotweed nearby.

The BroomBusters group is a relatively new organization in the Comox Valley dedicated to the removal of Scotch broom. We work closely with Bev Agur, the group's local coordinator. This year we supplied several volunteers from Comox Valley Nature to assist in a broom bust at Sand Pines Park in Comox.



Figure 18: BroomBusters at Sand Pines Park in Comox.

This spring several of our volunteers helped the Morrison Creek Streamkeepers in removing English ivy from Puntledge Park in Courtenay.

Once again this year we were happy to lend our weed wrenches (Pullerbears) to the Mountaineer Avian Rescue Society for work they were doing for the CVRD in Headquarters town site. I have included a current list of the tools and supplies owned by the Project in Appendix II.

Volunteer Hours

Volunteers represent the community and their support for this

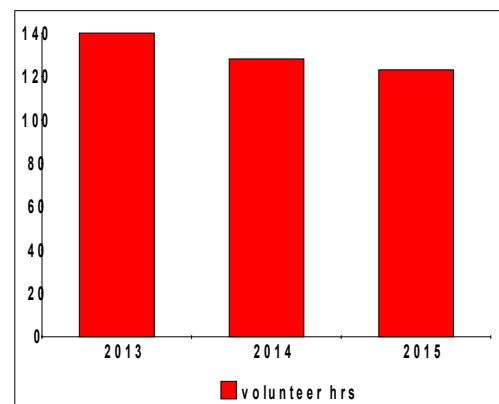


Figure 19 Volunteer hours

project is essential to its success. Two years ago I started tracking the volunteer field hours donated to the project's work parties. We have not counted the time spend growing and tending the donated plants. The numbers have remained relatively steady since I started tracking. I feel there is room to grow in these numbers. It has been easy to get volunteers to turn out for our work parties however the sticking point has been finding leaders to organize. This coming year I hope to be in a position to lead more work parties myself and increase these numbers significantly.

5 Financial Summary

The 2014 budget is presented in Table 2.

The project has historically been financed through a variety of grants from both local governments and non-profit societies. This diversity of sources has given us a degree of stability over the years.

Our budget was considerably smaller when compared to previous years. This year I was expecting to wind down the project and wanted an orderly shutdown to take place. I had planned on expending all our remaining funds remaining in the Wetland Restoration Project account. For this reason I did not seek additional funding from our past donors, the exception being the Comox Valley Regional District with whom we had a multi-year grant signed the previous year. We have a small surplus from the funding from the CVRD and will add this to next year budget.

Our biggest expense is the labour component. This limits many of the grants which often won't cover labour costs.

Table 2. 2015 CVNS Wetland Restoration Project Budget		
Labour	Hours	Total
Sellentins Restoration	261	\$5,645.73
M. McNaulty	42.5	\$850.00
CVNS Report	50	\$1,000.00
Labour Total	353.5	\$7,495.73
Vehicles, transportation, fuel		\$48.81
equipment, plants, mulch		\$161.02
office supplies, postage, signage, pamphlets		\$40.00
GST Non Refundable		\$285.94
Printing		\$125.00
Equipment and Materials Total		\$660.77
Project Total		\$8,156.50
Project Contributors		amount
Comox Valley Regional District		\$10,000.00
Total Project Funds		\$10,000.00
Surplus (2015 Wetland Fund)		\$1,843.50

6 Conclusions and Future Plans

2016 will see a new coordinator, Murray Little, for the Wetland Restoration Project. I am sure Murray will put his own stamp on the project and I look forward to seeing the new directions in which he takes the project.

I plan to continue to organize volunteer work parties. I think there is an interest within the membership of Comox Valley Nature to greatly increase the amount of volunteer hours. I hope this year to organize a volunteer work party every month of the year. In doing so I should be able to double the number of volunteer hours donated to the project. We will continue to work on our existing areas of interest at both the Courtenay Airpark and the Railway station. In addition I hope to spend some volunteer effort in one of the CVRD parks such as Seal Bay Nature Park or Little River Nature Park. We will consult with Doug Demarzo on this matter.

At the Courtenay Airpark my priority in the new year will be to replant the area disturbed by heavy machinery used to establish the new eelgrass beds. Associated with this task will be the removal of the Himalayan blackberry in this area. Most of the large vines have been removed so we will have a chance to remove the roots and prevent regrowth.

The science of restoration ecology is relatively new and advances in the knowledge base has been very rapid. I have tried to make contact with similar groups working on similar projects. This month I have learned about solarization and how it can be used to reduce the seedbeds of non-native grasses. While we had had some success in planting and growing shrubs on our restoration sites, the smaller forbs have been problematic. I feel this has been due to the competition from the non-native grasses which dominate most of the sites on which we work. Because the seed beds from these grasses last for many years, simply killing the existing plants is not a solution. Simple solarization using plastic sheeting can raise temperatures to seed killing levels. I am looking forward to experimenting with this technique next year in the Courtenay Airpark.

We have been seeing encouraging results with respect to controlling purple loosestrife and I hope we can carry on with Sellentin's Habitat Restoration taking care of this invasive with the current level of funding. I also hope to have Michael McNaulty continue in the current areas fighting knotweed. The amount of funding required is being reduced as a level of control has been reached on many of these sites. Should extra funds be obtained, this part of the project can be expanded to include new knotweed patches.

This year our loosestrife trend line is at the lowest level we seen. A level of control seems to be attained, however to expect eradication is unreasonable. This plant is widely distributed across North America so there will always be new introductions to deal with. The law of diminishing returns may dictate that we maintain current and future eradication efforts at the current level. The same may be said of yellow-flag, knotweed and most of the other invasive plants that we are dealing with. Our efforts can control these plants so that they do not dominate our ecosystems causing the extirpation of native species. However to totally eradicate them from our ecosystems is unreasonable.

Due to a reduced budget we did not spend time on removing yellowflag iris this year. However I expect that will change in the new year. Murray Little has an interest in the Morrison Creek headwaters where this plant is problematic.

In 2016 the Comox Valley Naturalists will be celebrating their 50th anniversary. This shows a remarkable tenacity for an all volunteer membership based organization. Within this organization the Wetland Restoration Project is 20 years old. There is a clear desire for our members to make the Comox Valley a better place with more biodiversity and fewer invasive species. Persistence is vital in effectively fighting invasive species and being tied to a stable organization is crucial for any kind of success in this battle. I am very happy that this project will carry on in 2016 with Murray Little at the helm as the new coordinator.

While there appears to be an increased awareness of invasive species at the local government level most of the problems I pointed out in last few reports still remain. One of the biggest problems that I see that lie within the responsibilities of local governments are the empty development lots. These serve as epicentres for invasive plants. These sites for the most part are cleared of all vegetation thus forming a perfect seed bed for invasive plants to establish and spread. The actual developments are dependent upon the vagaries of the market and thus may take many years before these sites are developed and landscaped. In the meantime future development lots are epicentres for the spread of invasive plants.

Local governments bear much of the responsibility in propagating and spreading invasive plants. Development sites are allowed to sit idle and turn into seedbeds for invasive plants. The site in Figure 19 was already dominated by invasive plants. Following complaints from neighbours the vegetation was removed from this site along the river walkway. Bulldozing a site like this does not cure the problem but rather guarantees that it will continue. The bare ground will ensure that the site remains dominated by Scotch broom, Himalayan blackberry and knotweed. However the trees removed from the site will no longer supply habitat for perching birds. It is hard to understand the rationale for this kind of land abuse.



Figure 19: Ideal invasive seed bed on freshly cleared development lot in Courtenay

We urge local governments to start the process of invasive species management with a plan and strategy. I challenge the local governments to put 1% of the budget they spend on horticultural beautification projects toward fighting invasive plants. I will add to this challenge by getting the City to put 5% of their plant purchases toward native plants. It is time we had a horticultural landscape that reflects our bioregion. Much of the plantings seem to be done with only quick growth in mind. Thus we continually see the Eastern red oak being planted rather than our native Garry oak.

This year the Coastal Invasive Species Committee is opening an office in Courtenay. I would hope that the City takes advantage of this resource for training their staff on invasive species.

Although the amount of work required in fighting invasives is endless, our manpower in terms of volunteers is limited. It is disheartening to our volunteers to see our local governments pay so little attention to the problem. Where they should be leading, they are in fact avoiding the problem. We will work strategically and encourage government agencies to step to the plate and play a greater role in this task.

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Appendix I

Plant List

Courtenay Airpark 2015

Spring Planting

Plant		Number	Pot Size
Red-flowering Currant	<i>Ribes sanguineum</i>	2	5 gal
Mock Orange	<i>Philadelphus lewisii</i>	1	2 gal
Nootka Rose	<i>Rosa nutkana</i>	1	2 gal
Evergreen huckleberry	<i>Vaccinium ovatum</i>	1	2 gal
Indian Plum	<i>Oemleria cerasiformis</i>	1	2 gal

Autumn Planting Courtenay Airpark breach site

Western Red cedar	<i>Thuja plicata</i>	4	bare root
Garry oak	<i>Quercus garryana</i>	2	5 gal
Pacific ninebark	<i>Physocarpus capitatus</i>	3	2 gal
Scouler's willow	<i>Salix scouleriana</i>	2	2 gal
Tall Oregon grape	<i>Mahonia aquifolium</i>	2	1 gal
Henderson's checker mallow	<i>Sidalcea hendersonii</i>	10 - 15	bare root
Sedge	<i>Carex spp.</i>	10	1 gal
Entire-leaved gumweed	<i>Grindelia integrifolia</i>	5	1 gal
Nootka rose	<i>Rosa nutkana</i>	10	2 gal
Black Hawthorn	<i>Crataegus douglasii</i>	2	2 gal

Appendix II

Wetland Restoration Project Tool List

Tool	Quantity
Weed wrenches (Puller Bears)	3 (1 large,2 small)
Loopers	2 (1 large, 1 small)
Ratcheting loopers	1
Hand loopers	1
Tiger torch with small propane tank	1
Sandwich board (Naturalists at Work)	1
Coroplast information board	1
Plant information signs	3
Husqvarna brush cutter (335R)	1
Harness for brush cutter	1
Tree planting spade	1
Hand pruning saw	1
Sea soil	2 bags
Bone meal	1 2kg. box