

Golden's Community Invasive Plant Program

Annual Report 2019



wildsight
Golden

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ABSTRACT

Wildsight Golden's 2019 Community Invasive Plant Program (CIPP) aimed to decrease invasive plant infestations while increasing public awareness about the environmental, social and economic impacts invasive plants bring to communities. This report outlines the actions and results achieved by the program in 2019. The CIPP works in partnership with the Town of Golden and the Columbia-Shuswap Invasive Species Society (CSISS), towards reducing invasive plant populations within the Town of Golden through public outreach, as well as a variety of non-toxic mechanical treatment methods. A total of 226 bags of invasive plants were removed during the 2019 CIPP, bringing the program's total (since its establishment in 2010), to 2,152 bags. Specific areas within the Town of Golden were designated as high priority based on invasive plants present, the ecological importance of the area, and the volume of human traffic/use. Prior to plant removals, priority sites were surveyed using the Invasive Alien Plant Program (IAPP) survey forms and methodology. Public outreach was an important element of the 2019 CIPP and included four invasive plant information tables set up at community events, private landowner outreach and two successful Community Weed Pull Events. Although the CIPP has continued to be successful at removing or managing invasive plant populations within the Town of Golden, improvements to the program should continue including a longer work term for the coordinator.

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1. INTRODUCTION

With reports this year bringing attention to the alarming rate of unprecedented loss of biodiversity, now more than ever, invasive plants and their management are a call for concern (UN Report 2019). Second to habitat loss, invasive species are the second largest cause of decline of biodiversity globally (Environment Canada 2004). Invasive plants are described as non-native plants that have been brought into our ecosystems and do not have natural pathogens or predators to keep their populations in check (Polster 2009). As invasive plants are prolific seed producers they are able to reproduce and grow rapidly and abundantly consequently allowing them to take over and destroy local ecosystems. Water quality, wildlife, wildfires, soil productivity and pH levels can also be negatively affected by the spread of invasive plants (Environment Canada, 2004; ISCBC, 2014). Invasive plants also can negatively affect communities economically. Each year the provincial government spends \$65 million dollars to rectify damage caused by invasive plants (Frid et al., 2009). Programs created at the community level such as Wildsight Golden's Community Invasive Plant Program (CIPP) are essential for managing the detrimental impacts invasive plants incur through promoting various treatment methods of removal and public education.

2. PROGRAM OVERVIEW

Since 2010, Wildsight Golden's CIPP has been operating seasonally with the aim of decreasing invasive plant populations while increasing public awareness within the Town of Golden (Harper 2018). This has been achieved through various non-toxic removal methods in priority areas, Community Weed Pull Events, providing information and best management strategies at local Farmer's Markets, offering invasive plant inventories to private landowners, and outreach at additional community events. CIPP recognizes its success is owed to strong partnerships with the Town of Golden and CSISS, as well as their valuable contribution of resources and knowledge to the program. In 2019, Wildsight Golden employed one individual to take on the position of Invasive Plant Program coordinator (Tesia Hackett) from May 21 to August 6th for 30 hours per week (330 hours total). The Coordinator was responsible for day-to-day operations of the program that included invasive plant inventories in priority areas, using the IAPP survey forms and methodology, mechanical removal of invasive plants at priority sites, attempts at restoration in these sites, planning and executing community outreach events and weed pulls. A total of 226 bags of invasive plants were removed from the Town of Golden during the 2019 CIPP, bringing the grand total of bags removed through the program to 2,152.

3. TREATMENT STRATEGIES

3.1 Priority sites

Widespread populations of numerous invasive plant species have been observed and documented in the Town of Golden. To effectively manage removals, specific sites deemed as high priority were established during previous years of the CIPP based on the level of priority. Utilizing the CSISS high-priority Golden IPMA list, consideration of an areas ecological value, along with assessing high areas of public use helped determine high-priority sites. These sites were shown to the Program coordinator by Rachel Darvill on May 21st. The 2019 CIPP focused on a total of 25 sites within the Town of Golden and they were all mechanically treated (see Appendix A).

3.2 Priority species infestations

The Golden IPMA Priority Species List for 2019 developed by CSISS was beneficial in determining which species would become the highest priority for removal. The priority invasive plant species removed by the 2019 CIPP Program coordinator included (but were not limited to) Common Tansy (*Tanacetum vulgare*), Cypress Spurge (*Euphorbia cyparissias*), Diffuse Knapweed (*Centuarea diffusa*), Leafy Spurge (*Eurphorbia esula*) and Spotted Knapweed (*Centaurea biebersteinni*). Additional species removed were: Bull Thistle (*Cirsium vulgare*), Canada Thistle (*Cirsium arvense*), Common Burdock (*Arctium Spp*) Common Comfrey (*Symphytum officinale*), Chicory (*Chicorium intybus*), Creeping Bellflower (*Campanula rapunculoides*), Dame's Rocket (*Hesperis matronalis*), Dalmation Toadflax (*Linaria dalmatica*), Glandular Baby's Breath (*Gysophila scorzonerifolia*), Hound's-Tongue (*Cynoglossum officinale*), Orange Hawkweed (*Pilosella aurantiaca*), Oxeye Daisy (*Leucanthemum vulgare*), Wormwood (*Artemesia absinthium*) and Yellow Toadflax (*Linaria vulgaris*). Due to time constraints of the program, at sites with multiple plant species found, only the higher-priority species were removed.

The first observation and recording of Leafy Spurge in Golden was in 2017 on the west bank of the Kicking Horse River and this infestation was mechanically removed by the CIPP (Cobb, 2017). During the 2018 CIPP, the small infestation had re-established itself to approximately the same size as recorded in 2017 and was again removed by hand (Harper, 2018). Once again it was found to become re-established in 2019, but in an area smaller than previously recorded (0.0002 Ha). This high-priority plant had its GPS location recorded and was removed in 2019 by careful digging to ensure minimal re-establishment.

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As recommended in both 2017 and 2018 CIPP reports, monitoring for Himalayan Balsam (*Impatiens glandulifera*), also known as Policeman's Helmet, was conducted in 2019. This invasive plant species was observed and removed in previous years of CIPP effort in two locations: Edelweiss Slough and behind the Golden Secondary School. This invasive plant species was not observed at either location in 2018 nor 2019. This suggests that mechanical treatment of Himalayan Balsam by the CIPP in past years has been successful, however, continued monitoring is still recommended given it remains a high-priority species in the Golden IPMA Priority Species List.

3.3 Invasive plant surveys and mechanical treatment methods

A fundamental approach to the CIPP was conducting cursory invasive plant surveys prior to removal using the Invasive Alien Plant Program (IAPP) survey forms. Data recorded included species found, the area, density and distribution in which it was found at the site. This information collected in the field was then re-recorded into the IAPP database under the username/BCEID Wildsight 2019. Sites previously surveyed were already assigned a site ID and could be found using the IAPP database and map display. The CIPP 2019 program coordinator was able to visit 23 sites, survey and perform mechanical removal. For areas that were mechanically treated, the invasive plants were removed either through hand pulling, digging, or pruning, were then **double** bagged in heavy duty garbage bags and were picked up by the Town of Golden after notification as to where the bags could be picked up for disposal at the Columbia Shuswap Regional District (CSRD) landfill.

3.4 Alternative invasive plant disposal method explored during 2019 CIPP

During the 2019 CIPP the program coordinator inquired to the Louisiana Pacific Mill in Golden to determine the possibility of using the incinerator. This was explored as an opportunity to decrease the amount of plastic bags to be used in the program and to lessen the logistical contribution Town of Golden provides through collection and transport invasive plant material to the landfill. After discussions with both the crew at the powerhouse that run the incinerator and with Town of Golden it was decided the bags would be stored at the Town of Golden workshop and the program coordinator would then follow the protocol required for dropping off material to be incinerated. July 10th 2019 the program coordinator brought 15 bags of invasive plants to be incinerated. Upon arrival to the powerhouse it was discovered the doors to the incinerator too small to adopt this plan (Figure 1). It was decided that the Town of Golden was to continue bringing the bags to the landfill. This disposal method proved to be unsuccessful to the program as bags intended for incineration at the time were not double bagged and consequently brought to the landfill.



Figure 1: Incinerator Room at the Louisiana Pacific Mill in Golden.

3.5 Biological agents

On July 3rd 2019, the program coordinator met with Laura Gaster from CSISS to visit two documented sites containing biological control agents (bio-agents) to observe these species in action (Figure 2). The first species to be observed was the root-crown weevil, *Cyphocleonus achates*. This bio-control agent resides in the taproot of Diffuse and Spotted Knapweed species eating the plant from the inside. The root-crown weevil was found in Knapweed species along Kicking Horse Drive. Spotted and Diffuse Knapweeds located in this area were cut down to the base of the plant to encourage stable root-crown weevil populations, as they live in the plant roots. The second site visited was at Alexander Park where the Dalmatian Toadflax stem boring-weevil, *Mecinus janthinformis*, was observed within a dense Dalmatian Toadflax population. A review of biological control monitoring was undertaken through instruction from CSISS.



*Figure 2: Left: Root-Crown Weevil (*Cyphocleonus achates*) inside Spotted Knapweed (*Centaurea biebersteinii*) found in Golden July 3, 2019. Right: Dalmatian Toadflax Stem-Boring Weevil (*Mecinus janthinformis*) found on Dalmatian Toadflax (*Linaria dalmatica*) in Alexander Park, Golden July 3, 2019.*

3.6 Monitoring strategies

The CIPP employs mechanical treatments to manage invasive plant species. Although most respond well to mechanical removal, many species, such as Common Tansy and Common Burdock are able to re-grow quickly if the roots are not completely removed (ISCBC 2014). Common Tansy will re-grow if root segments are not fully removed. Common Burdock will regrow if the plant stalk is cut down before producing seed heads. For this reason, several priority sites were revisited throughout the 2019 CIPP and additional removals were completed where needed. Locations where Himalayan Balsam was recorded in previous years were monitored twice per month to ensure re-establishment had not occurred.

3.7 Restoration attempts

At certain sites where removal of plant species required extensive digging or disturbing the soil, measures of restoration were implemented. This was to discourage the disturbed area from being targeted by other invasive plants that prefer disturbed soil. Two different methods were implemented. Along the Kicking Horse River, re-seeding of native ground cover, Yellow Mountain-avens (*Dryas drummondii*), occurred (Figure 3). The program coordinator distributed seeds saved from previous years and encouraged participants in the Community Weed Pull along the Kicking Horse River, as well as the youth in the Get Wild camps, to re-seed this native ground cover in areas where invasive plants had been removed. Throughout the CIPP, the program coordinator collected additional supplies of *dryas* seed available to be used in the future. Due to the fact *dryas* seed needs to overwinter in order to germinate, any results will not be observable until the following year. Another site restoration attempt occurred along the Rotary Trail where 14th Street South meets 6th Avenue South. This site has a dense amount of Common Tansy growing and extensive digging took place to ensure that maximum removal of roots occurred. Through the generosity of the Town of Golden, the program coordinator received prime, drought tolerant, reclamation grass-seed containing a mix of rye, wheat and fescue grasses. This reclamation mix was re-seeded after mechanical removal of Common Tansy due to the extensive area that had to be disturbed. Although successful at growing in this site, this mix was re-seeded a second time after a third mechanical removal of Common Tansy occurred. This was performed during the final week of the 2019 CIPP.



Figure 3: Yellow Mountain-Avens (Dryas Drummondii) seed-head collected and used for restoration.

4. PUBLIC OUTREACH

4.1 Golden's Farmer's Market

On two occasions during the CIPP, the program coordinator participated at a Golden's Farmer's Market by hosting an invasive plant information table to provide information about invasive plant species to residents of Golden as well as tourists. The first event occurred on Wednesday June 19th with Kim Kaiser, Outreach Coordinator for CSISS who attended and assisted in answering any questions the public had regarding invasive plants and animals. Invasive plants in their rosette stage were pressed and made into a poster as an educational reference. The second attendance at a Farmer's Market event took place Wednesday July 17th. Prior to setting up for the Farmer's Market, Wildsight Golden's outreach coordinator assisted the CIPP program coordinator in circulating a "Bring-A-Weed" poster so that residents of Golden could bring a weed that they wanted to have properly identified (Figure 4). For both market events, the program coordinator displayed a sandwich board promoting free invasive plant surveys and a bouquet of fresh cut invasive plants in their flowering stages to provide an eye-catching visual reference. The latter display was quite successful; as many individuals who came to visit the invasive plant table were surprised to ID plant species they were unaware of a being invasive, such as Oxeye Daisy and Orange Hawkweed. The continuation of having

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an invasive plant table at the Farmer's Markets in future years is encouraged as many Golden locals are quite interested in learning about best management practices for invasive plants they have growing on or around their properties. About thirty people came to inquire about the invasive plant program and invasive plants during each Farmer's Market. Using social media to promote the CIPP's presence at the market is highly recommended as locals are very much connected to those platforms.



Figure 4: Golden's 2019 Community Invasive Plant Program (CIPP) Coordinator, Tesia Hackett, attending Golden's Farmers Market July 17, 2017.

4.2 Additional community outreach events

There were two additional occasions where the program coordinator set up an invasive plant information table. The first was Saturday, June 15th at the Golden 24 Hour Bike Race. The goal of this table was to better educate recreational bikers on how they can reduce the spread of invasive plants while biking. Despite best efforts to make the invasive plant table eye-catching and draw attention, very little interest was received. The second event table was set up at Tourism Golden information centre on July 13th as a part of Tourism Golden's "Saturday Showcase Series". Only three people stopped by the information table, two of them being residents outside of Golden in the Blaeberry. However, a short video was captured by Tourism Golden and was distributed on the Facebook social media platform.

4.3 Private landowner outreach

Outreach to private landowners regarding priority invasive plants growing on their properties was completed on three separate occasions. The CIPP coordinator attempted to make face-to-face contact with the private landowners and provide two educational pamphlets which outlined why the invasive plant was negatively impacting the private landowner as well as the Golden Community, and suggestions on best practices for removal were provided. The first private landowner outreach took place on July 20th at 412 Riverglen Drive. The landowner of this property has a large infestation of Cypress Spurge among other invasive plants growing in front of his property (Harper, 2018), but infestations are located mainly on Town of Golden land. Throughout the 2019 CIPP, the program coordinator had several positive conversations with this resident who is in support of removing the invasive plants that have established densely in front and adjacent to his property. Invasive plants removed were Cypress Spurge, Glandular Baby's Breath and Creeping Bellflower. In an area densely covered with Cypress Spurge, the program coordinator carefully dug out the infestation to carefully remove as much root as possible by hand. *Dyras* seed was then re-seeded.

The second attempt at private land outreach took place on July 24th on Riverglen Drive where the neighbourhood has been found to have Orange Hawkweed growing throughout. While Orange Hawkweed was still in its flowering stage, the program coordinator took note of which residencies contained the plant growing and used that information to determine how many residencies required outreach material. Ten properties were approached and given informational pamphlets that were developed by the program coordinator. Although the majority of the residents were unavailable, one resident called the program coordinator afterwards to inquire about where the plant had been found

on his property. The following day the program coordinator met with them to point out where it was found growing and explained how to properly manage Orange Hawkweed.

The third attempt at private landowner outreach took place on July 26th at two separate properties on King Crescent where dense Common Tansy infestations have developed. At the first property, the program coordinator was able to speak with one tenant, however, as that individual was not the landowner, an explanation about the invasive plant, the importance to manage the plant and how to contact the program coordinator was discussed. The second property was met with no answer from the landowners, but pamphlets were left for them to read upon arriving home. However, during this visit to King Crescent the program coordinator did have a conversation with one resident whose property is between two Common Tansy infestations. This individual, who takes exceptional care of his land, showed the program coordinator where a gap in the fence dividing the two properties is, exposing his neighbour's backyard full of Common Tansy and Common Comfrey growing in the entirety of the yard. CSISS has been notified and the consideration of a letter citing the BC Weed Act has been initiated.

4.4 Get Wild Kids Camp

The CIPP program coordinator met with Wildsight Golden's Get Wild Kids Camp on four occasions during the 2019 CIPP. Locations, dates and times were organized with the Camp's program coordinator. This was a great and fun opportunity to teach young kids in Golden about “invasive” and “native” plants as well as about some priority invasive plant species, and also about why they should care about the removal of these plants. Each session lasted approximately one to two hours and included several invasive plant themed games in between educational discussions about invasive plants to keep the children engaged. At the end of each session the children were divided into teams to see which team could collect the most invasive plants. After each mini-weed pull competition, the children were shown some native plants, such as Yellow Mountain-avens (*Dryas drummondii*) and were each given a handful of *dryas* seed to re-seed where invasive plants had been pulled that morning. As prizes for their participation, every child was given an educational workbook about invasive and native plants.



Figure 5: Wildsight Golden's 2019 Get Wild Camp saw kids earning about invasive plants and participating in a mini-weed pull competition by Confluence Park July 19th, 2019.

4.5 Media

Media coverage, especially for upcoming events, was an effective way to get the word out in Golden about the CIPP. Press releases for the Golden Star (local newspaper) were put together by the program coordinator for the first Community Weed Pull event and an interview outlining the importance of managing Common Burdock was published as well (Appendix B). Social media (i.e.

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Facebook) was a helpful tool in bringing attention to information related to invasive plants or upcoming events. Although eager to use social media as a platform for getting more invasive plant information out to the local Golden community, the program coordinator had little experience in using such platform prior to the CIPP and instead worked collaboratively with Wildsight Golden's outreach coordinator and Rachel Darvill in getting information shared through that medium. Lacking for the 2019 CIPP was a stronger social media presence to share information on specific invasive plant species (Weedy Wednesday's could be used next year), removal techniques (taking note of best time of the season to manage plants accordingly), upcoming events, or results of events.

4.6 Signage

The use of different signs and posters around Golden was beneficial for expanding public awareness of invasive plants or invasive plant events (Appendix C, D, and E). "Restoration Site" signs that were made up by the 2018 CIPP coordinator were put up in different priority sites around town. "No Dumping of Yard/Garden Waste" signs were created and put up in three locations where evidence of garden waste was observed (near Selkirk Hill at 11th Street, the alleyway/walkway behind King Crescent and where the Rotary Trail meets 14th Street South). For both of the Community Weed Pull events, an event poster was created and distributed around town (primarily in the town's centre) at 25 different locations.

5. COMMUNITY WEED PULL EVENTS

Two Community Weed Pull Events occurred over the course of the 2019 CIPP. Both events were organized by the program coordinator and included a complimentary lunch or pizza dinner for all volunteers that attended. Each event began with a short introduction to the CIPP, invasive plant species and the best mechanical removal strategies for each targeted plant. Tools and bags needed for the events were supplied by the Town of Golden.

The first Community Weed Pull event of 2019 took place on June 29th from 9am to 11:30 am. Priority plants were removed along the Kicking Horse River from the Pedestrian Bridge to the building of the Mad Trapper (Figure 5). A total of 10 people participated in the event, including individuals from CSISS. There were a total of 15 bags of invasive plants removed over the course of the Weed Pull, with most bags containing Common Burdock or Spotted Knapweed. In an effort of restoration of native plant ecology, each participant was given *dyras* seed to re-seed along the path of the Weed Pull. A free lunch was provided at Bacchus Cafe for all volunteers.



Figure 6: Golden's Annual Community Weed Pull event along the Kicking Horse River June 29, 2019.

The second Community Weed Pull Event took place on July 8th from 6pm to 9pm. Although the program coordinator had attempted to contact one of the individuals associated with Golden's Off-Road Motorcycle Association (GORMA) during the first week (May) of the CIPP to organize a Community Weed Pull at the dirt-bike track, a response did not occur until July 2nd stating the association's intentions of maintaining the track with brush saws as soon as possible. Aiming to continue the partnership with GORMA in maintaining the dirt-bike track, while also hearing their wishes to manage the track promptly and to respect the proposed strategy of using brush saws to

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manage the wide-spread Burdock infestation, the program coordinator met with RPBio Rachel Darvill to conduct bird nest surveys prior to the Weed Pull on Monday July 8th. The dirt-bike track is directly adjacent to Reflection Lake, an area with important nesting habitat for birds, and it should be specially noted that no brush sawing should occur without this procedure in place. Ideally no brush-sawing will occur during the breeding bird season. A total of 8 people participated in this weed pull, consisting mostly of GORMA members. There were 30 bags of invasive plants removed over three hours with Common Burdock being the most targeted species (Figure 8). GORMA stated their high-interest in applying for grants to have the dirt-bike track maintained with brush sawing annually. However, if this is to occur, it should be made clear the necessity of surveying the area for birds' nests prior with someone knowledgeable in the species of birds found in the area. We do not condone brush sawing in the riparian area at Reflection Lake due to the high level of bird use.

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Figure 7: Volunteers removing burdock at GORMA's dirt-bike track through Wildsight Golden's Community Weed Pull July 8, 2019.

6. FUTURE RECCOMENDATIONS

6.1 Work term and hours

One major issue for the CIPP is that there is not enough time for the CIPP program coordinator to reach full potential with invasive plant removals or for public outreach. This is due to the short work term of 11 weeks, combined with a budget that allots for only 30 hours per week. It is recommended that the 2020 CIPP be extended to begin two weeks earlier and finish two weeks later, making the CIPP run for a total of 15 weeks. By extending the program's duration, the CIPP coordinator can create a goal orientated action plan prior to any mechanical removals of invasive plants. This goal orientated action plan would enable the CIPP coordinator to develop a solid plan of when to preform mechanical pulls at specific sites, have enough time to meet with Town of Golden to discuss their mowing schedule, and be able to perform mechanical pulls before the Town of Golden mows. It would allow for more time to determine which sites should be managed first, to help reduce time spent on revisits with subsequent mechanical pulls due to re-growth. Providing the extra two weeks at the end of the contract would allow sufficient time to ensure the 2020 CIPP concludes with successful removal of the species listed. The action plan should also include developing a CIPP Calendar of Events that the future program coordinator can outline at the beginning of their contract to ensure maximum success of outreach opportunities, media posts, and press-releases throughout the program and have them edited and looked over by the CIPP program manager.

A longer work term would also allow the CIPP program coordinator to spend enough time at sites that require extensive root digging to ensure maximum results. Extra time could also be spent improving the program by adding outreach aspects such as spring gardening/weeding workshops, invasive plant workshops for the public throughout the program, additional education partnerships with the CSRD to encourage responsible composting, restoration through encouraging the re-establishment of native plants, and hosting native seed collection workshops later in the summer. These outreach activities could greatly increase the program's success. This could potentially give the CIPP an integrated approach to not only reducing invasive plant spread by non-toxic removal, but also by incorporating restoration and more outreach programs to encourage native-plant ecology. It is also recommended that the CIPP program coordinator work with the CSRD composting program to bring in messaging about invasive plants. For instance, to explain why invasive plant materials need to be double bagged and taken to the landfill.

6.2 Continued presence at Golden's Farmer's Markets

As outlined in this report, the 2019 CIPP found the Golden's Farmer's Markets to be quite beneficial in providing information to the community regarding invasive plant species in the Town of Golden. It is recommended that the CIPP continue to have a presence at the Farmer's Markets. Wednesday's Farmer's Market sees quite a lot of local traffic and this outreach technique has been successful at engaging and educating the community about management strategies, identification, local partnerships and programs as well as highlighting the importance of protecting biodiversity in Golden. Allowing the program to be extended could allow the future CIPP coordinator to attend more of the Farmer's Markets which could enhance the program's success and achieve its aims.

6.3 Workshops and events for Golden tool lending library

On May 22, 2019 CSISS hosted an Invasive Plant Species Identification Workshop that was attended by the program coordinator and the Golden Spinners Group, as well as by several residents of the Golden community. The event was well attended and should be hosted again and advertised locally. An event put on by CSISS in Revelstoke in 2019 showcased invasive plants that had been safely harvested and prepared into edible treats to encourage a different outlook on identifying and management of invasive plants. In Invermere, participants were encouraged to bring unfamiliar weeds from their properties to be identified at their weed pull event (EKISC 2019). Similar events that have a focus on education regarding plant identification and removal techniques could be valuable for motivating private landowners to remove invasive plants on their properties. A tool lending library where community members donate tools to a lending library would also encourage those who cannot afford the tools to properly remove invasive plants could borrow them and return for the next person. The tool lending library could be a project to be discussed for the CIPP 2020 with possible partnerships with the Golden Food Bank Society or be built in a publicly accessible location approved by stakeholders. A Community Garden in Golden would be an ideal location to have a gardening/weeding tool lending library.

6.4 Reclamation/Restoration efforts

Throughout the 2019 CIPP, the program coordinator used previously collected seeds of Yellow Mountain-avens (*Dryas drummondii*) to re-seed disturbed areas. This was in an effort to encourage native plants to re-establish themselves in places where invasive plants had taken over. A reclamation grass seed mix was also used to re-seed high-priority areas where extensive digging and disruption to

the soil occurred. Continued collection of *dryas* seed, and a possible workshop to learn what other species of native plants could be re-planted for restoration would be worthy of investigating in 2020.

7. CONCLUSION

Wildsight Golden's Community Invasive Plant Program has proven to be effective in reducing invasive plant populations within the Town of Golden since its establishment in 2010. Public outreach has been a large contribution to its success through Community Weed Pull Events, Farmer's Markets, private land visits, social media, and The Golden Star has helped raise awareness in the community. This has subsequently expanded the number of people locally interested in the fight against invasive plants. The 2019 CIPP was a successful year but increasing the work term of the CIPP will allow the program to grow and become even more successful and productive. Continued partnerships with the Town of Golden and the Columbia Shuswap Invasive Species Society are also very important to the CIPP. Ongoing communication with both of these partner groups benefited all involved the CIPP. Overall, the CIPP continues to be effective for keeping invasive plant populations as manageable as possible within the Town of Golden, with public outreach becoming increasingly more important as is the idea of further reclamation/restoration efforts using native plants.

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Appendix A. 2019 CIPP invasive plant removal locations and number of bags pulled.

Location	Plant Species	# of Bags
Old Mill/Sewage treatment ponds	Common Tansy, Burdock, Spotted; Knapweed; Canada Thistle; Yellow Toadflax	32
Golden's Motocross Track (Community Weed Pull)	Burdock; Canada Thistle; Blueburr; Diffuse Knapweed; Sulphur Cinquefoil	30
Little Mittens/Road toward Old Mill	Burdock; Canada Thistle; Common Tansy; Yellow Toadflax	24
End of 14 th Street along Rotary Trail	Common Tansy; Canada Thistle; Yellow Toadflax; Burdock; Dame's Rocket; Bull Thistle	23
Alley/walkway behind King Crescent	Comfrey; Spotted Knapweed; Common Tansy	21
Rotary Trail: Pedestrian Bridge to Mad Trapper Building (Community Weed Pull)	Spotted Knapweed; Burdock; Canada Thistle; Blueburr; Western Goat's Beard	15
Kicking Horse Dr: CP Bridge to Single Lane Bridge	Spotted Knapweed; Diffuse Knapweed, Western Goat's Beard	15
Off of Rotary Trail near Alexander Park	Wormwood; Burdock;, Blueburr; Spotted Knapweed; Canada Thistle; Western Goat's Beard	13
Along River Trail near Riverglen Dr.	Cypress Spurge; glandular baby's breath; creeping bellflower; spotted Knapweed, Diffuse Knapweed, Western Goat's Beard	7
Kicking Horse Dr: From CP Bridge to 9 th Street (KH Lodge)	Spotted Knapweed; Diffuse Knapweed; Yellow Toadflax; Canada Thistle; Blueburr; Western Goat's Beard; oxeye Daisy	7
Rotary Trail: College of the Rockies to Campground	Spotted Knapweed; Western Goat's Beard; Canada Thistle; Hound's-Tongue	6
Kicking Horse Dr; From Lodge to Pedestrian Bridge	Spotted Knapweed; Diffuse Knapweed; Canada Thistle; Yellow Toadflax; Western Goat's Beard; Blueburr	4
Rotary Trail by Dojo	Burdock	4
Wooded area North of Dirt-Bike track near Reflection Lake	Burdock; Canada Thistle	4
Alley Between 11 th and 12 th	Burdock	4

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Fischer Road: Rotary Trail to CP Bridge	Spotted Knapweed; Canada Thistle	3
Rotary Trail: Adjacent to Fischer Road	Leafy Spurge; Western Goat's Beard; Spotted Knapweed, Canada Thistle, Oxeye Daisy	3
Fischer Road: CP Bridge to T of G RipRap	Spotted Knapweed; Diffuse Knapweed; Western Goat's Beard; Mullein	3
Fischer Road (Off Rotary Trail)	Spotted Knapweed, Burdock, Western Goat's Beard, Yellow Toadflax	2
Fischer Road: Confluence Park to Airport	Spotted Knapweed, Diffuse Knapweed Canada Thistle, Sulphur Cinquefoil	2
Near Selkirk Hill and 11th	Comfrey, Spotted Knapweed, Diffuse Knapweed	2
Alexander Park	Dalmatian Toadflax	1
Confluence park to CP Bridge	Spotted Knapweed, Oxeye Daisy, Western Goat's beard; Mullein	1

Total Locations: **23**

Total number of bags: **226**

Appendix B. The Golden Star newspaper article on the CIPP and burdock in, July 2019.

Page A4 Thursday, July 11, 2019 Golden Star www.thegoldenstar.net

invasive plant program removes burdock

By Keri Sculland

The burdock plant has many positive properties, but it has no place in Golden.

Known for its clinging burs, the tall and invasive biennial herb is popping up in numbers around the area. Wildsight Golden has coordinated efforts to remove it before it goes to seed. On Monday, July 8, volunteers joined Wildsight to get dirty, removing burdock in the community.

"We like burdock, just not here," says Tesia Hackett, Community Invasive Plant Program coordinator. "There have been studies that show that bats and songbirds have been threatened by the burdock burs."

Invasive plants like the burdock are also "prolific seed producers," Hackett said, explaining that the burdock outcompetes native plants around it. The large leaves cover a lot of ground, and the plant produces an egregious amount of seed.

The burs on the burdock are easily transported as they attach themselves to domestic and wild animals and trail users.

"They really like to hook onto things," she said.

The best way to ensure removal of burdock is successful is to continuously cut it down. Eventually, its seed stock will deplete, and it won't be able to grow back.

In its first year of growth, the leaves



(Left photo) Burdock is listed as an invasive species in British Columbia. (Right photo) Last year's community weed pull events collected dozens of bags of invasive plants from Golden.

PHOTOS SUBMITTED

resemble rhubarb. In the second year, it sprouts tall shoots that produce seeds.

When removing burdock, it is important to double bag the plants, and bring the bags to the landfill where they can be properly buried deep into the ground. Disposal of invasive plants and yard waste is free at the Golden Landfill.

Other invasive plants Wildsight Golden focuses on include the Canada thistle, toadflax, and orange hawkweed.

"They have a whole arsenal of defense mechanisms," Hackett said, adding that the hawkweed changes the pH level of the soil around it, so it is important not to mow it once it has gone to seed.

Anyone who lives in Golden and suspects plants on their property might be invasive is welcome to call Wildsight Golden to check them out. Or, plants can be brought to weed pull events for Hackett to inspect. Wildsight Golden is often at farmer's markets, where people can ask questions in person and get more educated about their own back yard.

If you're looking for a way to get outdoors, make new connections, learn about the landscape, and help limit the spread of invasive species, look out for future weed pull events at Wildsight Golden on Facebook.

Appendix C. Bring-a-Weed sign created by the invasive plant program coordinator.



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PRESENTS:

BRING-A-WEED WEDNESDAY!

DO YOU HAVE AN UNINVITED GUEST IN YOUR GARDEN YOU WOULD LIKE
TO IDENTIFY? BRING US A WEED YOU ARE CURIOUS ABOUT AT THE
FARMER'S MARKET AND WE WILL TELL YOU WHAT IT IS AND HOW TO
MANAGE IT'S SPREAD!

July 17th 12 -5pm CP Parking Lot

NO DUMPING

**NO YARD WASTE
NO LITTERING**

Effective February 1, 2018, all yard and garden waste is **FREE** to dispose of at any CSRD refuse disposal site, year round.



Appendix E. Free residential plant survey signage.



FREE RESIDENTIAL INVASIVE PLANT SURVEY

Learn more about invasive plants on your property and non-toxic methods you can use to manage and limit their spread.



**wildsight
golden**

Please contact Tesia Hackett at wildsightweedprogram@gmail.com or call 250-344-5530 to book your survey and consultation.

This service is available to Town of Golden residents.

Appendix F. Common Tansy infestation, before and after photos.



Common Tansy infestation found off Rotary Trail near 14th Street South and 6th Ave South, Golden. **BEFORE** June 5, 2019 (Top photo). Common Tansy infestation found off Rotary Trail near 14th Street South and 6th Ave South, Golden. **AFTER** June 5th, 2019 (Bottom photo)

Appendix G. Before and after photos of Spotted Knapweed located along the Kicking Horse River.



Spotted Knapweed infestation along Kicking Horse River by College of the Rockies **before** August 2, 2019 (Left). Spotted Knapweed infestation **after** August 2, 2019 (Right).