

Village of Anmore Invasive Plant Management

Summary Report 2022

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1.0 Introduction

The Invasive Species Council of Metro Vancouver (ISCMV) was contracted to conduct invasive plant control and monitoring activities for the Village of Anmore municipal property during the 2022 field season. Treatments and monitoring were completed throughout August and October of 2022. Target invasive species included knotweed species, orange hawkweed, yellow flag iris, and Scotch broom.

Sites were surveyed and if necessary were either chemically treated or manually removed; Figure 1 displays all sites that were visited in 2022. Chemical treatments were conducted under the ISCMV Pesticide Use License #18943. The ISCMV will submit the required pesticide use information for work conducted on Provincial Park lands in our annual report to BC Ministry of Environment. The ISCMV follows all required regulations and the guidance provided for invasive plant management on provincial public lands as outlined in the [Invasive Plant Pest Management Plan for Provincial Crown Lands in the South Coastal Region of British Columbia \(PMP\)](#).

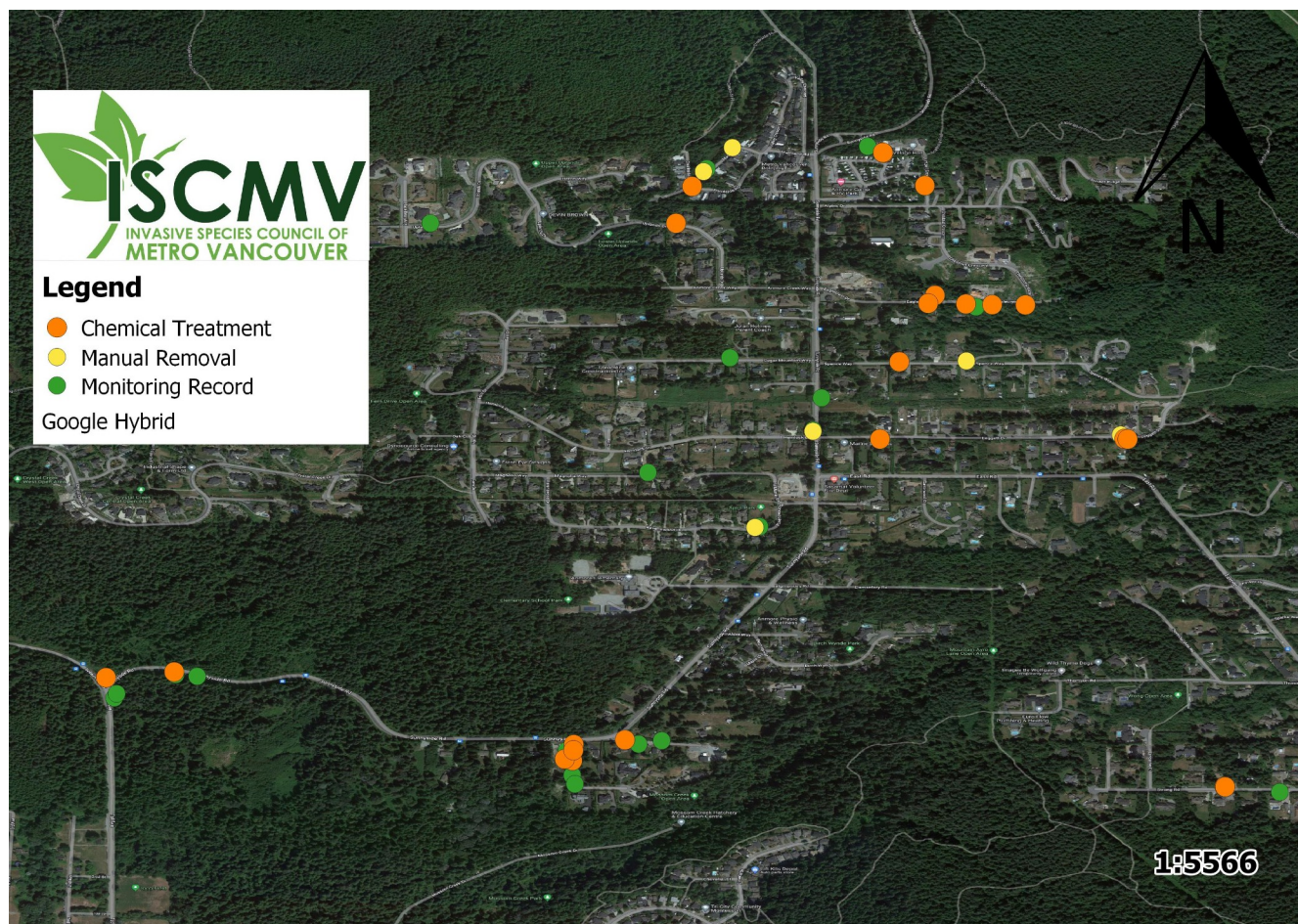


Figure 1: Map of invasive plant sites visited in 2022 including monitoring, chemical treatment, and manual treatment sites on the Village of Anmore municipal property.

2.0 Methods

2.1 Chemical Control Methods

Control of knotweed species and orange hawkweed plants was conducted using chemical control via direct foliar application using a hand sprayer. The herbicide used for control management was VP480, a non-selective herbicide with active ingredient glyphosate @ 480 g active ingredient/L.

Decisions on treatment methods were based on a number of factors that included, but not limited to:

- ecology of surrounding area
- invasive plant's stage of growth
- plant physiology
- weather
- proximity to water and the public
- public perception
- presence of native species
- age of infestation
- economic efficiency
- assessment of the seed bed
- time of year
- applicable regulations

2.2 Monitoring Methods

The ISCMV also monitored past treatment sites throughout the 2022 field season. Data collection for control and monitoring work was conducted in accordance with guidelines set out by the [Invasive Alien Plant Program \(IAPP\) Application](#) set by the BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development.

Data on herbicide treatment and use, weather conditions, area covered by invasive plant, date/time, coordinates and site number were recorded using an iPad. Photos of the site were also taken both during treatment and site follow up, if applicable. Data are stored in the ISCMV files.

2.3 Manual Control Methods

Several sites were removed by manual methods, specifically orange hawkweed and yellow flag iris plants. Manual removal of orange hawkweed sites was conducted on August 8th, 2022. Orange hawkweed plants were removed using a hand trowel, ensuring that flowers, stems, leaves and roots were not left behind. These plant parts were bagged and removed off site for disposal.

The yellow flag iris site at 1013 Ravenswood Rd that had been managed in 2021 was revisited on October 12th, 2022. The plants were dug up and removed from the ditch. Any yellow flag iris roots that were removed were collected and bagged for disposal.

3.0 Results

3.1 Chemical Treatments

In 2022, several knotweed and orange hawkweed sites were chemically treated. Some sites were previously treated in the past by the ISCMV, and a handful of new sites were identified. Chemical treatments occurred on August 8th and October 12th of 2022. Table 1 displays a summary of the invasive plant species sites that were chemically treated in 2022. Figure 2 and 3 shows the location of the chemical treatments on their respective treatment dates.

There were several new knotweed sites added to the management list in 2022 that were discovered by Anmore staff or upon monitoring Anmore property. During first treatments, the following 3 new sites were treated: south edge of the Village of Anmore works yard, plants on RV Park property but accessible via the works yard side road, and the forested front yard of 2982 Eaglecrest Dr. Three new knotweed sites were treated during the second visit on October 12th, 2022: fire-lane near private backyard of 2981 Eaglecrest Dr, centre island of the Forestview Ln cul-de-sac, and the corner of Forestview Ln and Bedwell Bay Rd. Only a portion of the island infestation was able to be treated since the knotweed plants were overarching a body of water. Unfortunately, the knotweed canes were too mature to bend away from the water body and treated. The knotweed infestation found on the west corner of Forestview Ln contributed to the dramatic increase in total area chemically treated in 2022 (approximately 450m² of knotweed was treated in 2022). The knotweed infestation is well established, thick and growing very densely. It should also be noted that this knotweed infestation may be under shared jurisdiction of Fortis BC.

Along with knotweed species the ISCMV also chemically treated orange hawkweed sites across the municipality. In 2020 the ISCMV updated the Village of Anmore inventory of orange hawkweed by surveying municipal roadsides. In 2020, an approximate area of 958m² of orange hawkweed was found throughout the village along the roads. In 2021, the orange hawkweed infestations were prioritized based on infestation size. Sites were revisited and chemically treated if necessary in 2022. Some orange hawkweed sites were left untreated by chemical means due to time and resource limitations.

On August 8th, 11 sites were treated, for a total area of 270m². During second treatments on October 12th, a total of 16 sites were chemically treated, for a total area of 805m². In combination a total area of 1075m² of knotweed and orange hawkweed was chemically treated on Village of Anmore municipal property in 2022.

Table 1. Summary of the knotweed and orange hawkweed sites chemically treated in 2022 on Village

of Anmore municipal property.

	# of Sites (knotweed spp.)	# of Sites (orange hawkweed)	Total # of Sites	Total Area Treated (m ²)
1 st Treatment (August 8 th 2022)	7	4	11	270
2 nd Treatment (October 12 th 2022)	11	5	16	805
Total:	9	18	27	1075

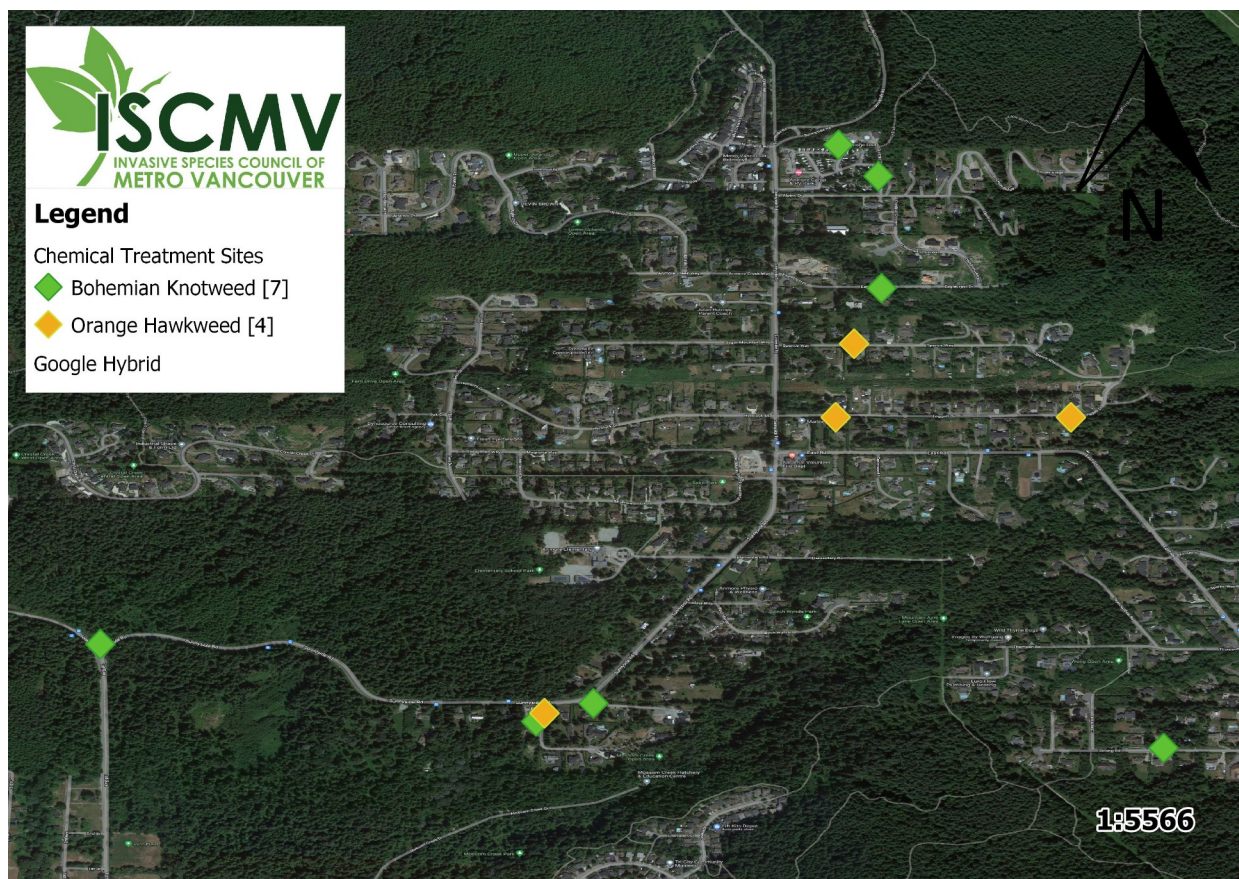


Figure 2. Location of the 11 chemically treated invasive plant sites on August 8th, 2022 on Village of Anmore municipal property.

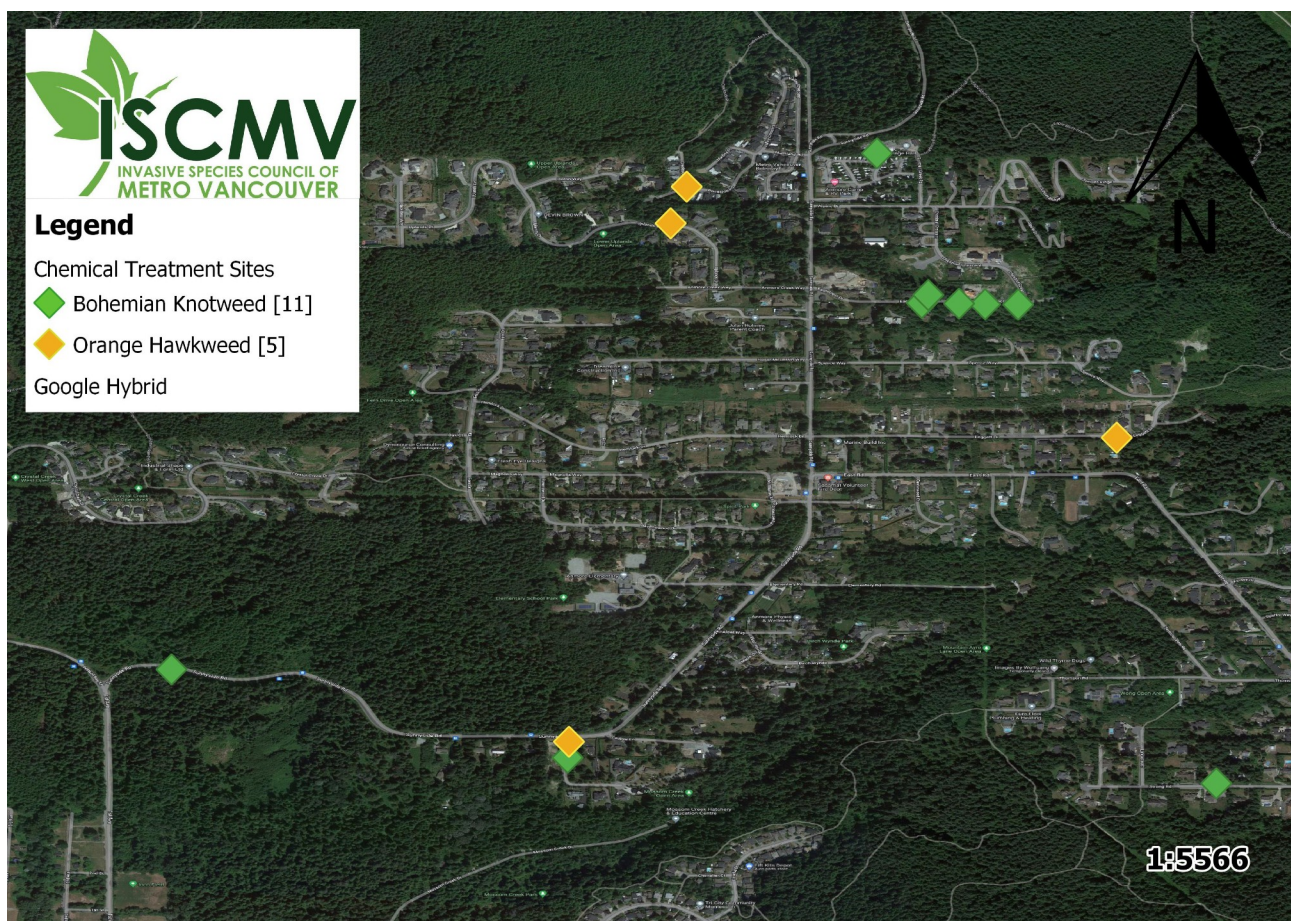


Figure 3. Location of the 16 chemically treated invasive plant sites on October 12th, 2022 on Village of Anmore municipal property.

3.2 Monitoring Sites

Several sites were also monitored over the 2022 field season. On the first site visit a total of 15 invasive plant sites were monitored: 9 knotweed sites, 4 orange hawkweed sites and 2 Scotch broom sites. On the second site visit a total of 14 sites were monitored: 9 knotweed sites, 3 orange hawkweed and 2 Scotch broom sites. These sites were historically chemically treated or manually removed by the ISCMV. These sites were monitoring sites only as the target invasive plants were no longer found at the time of visit. In total 29 invasive plant sites were monitored on Anmore municipal land in 2022.

3.3 Manual Removal Sites

Over the 2022 field season the ISCMV manually removed orange hawkweed and yellow flag iris plants. Table 2 displays the summary of the manually removed sites.

Table 2. Summary of the manual removal activity that was conducted on orange hawkweed and yellow flag iris on Village of Anmore municipal property in 2022.

	# of Sites	Total Area Removed (m ²)	Total volume removed (L)
Orange hawkweed	7	0.6	2.75
Yellow flag iris	1	1	0.2
Total:	8	1.6	2.95

On August 8th, 2022 orange hawkweed infestations that were small enough to be completely removed or that were located within a ditch were treated by manual removal. Since they were in a ditch and with in the PFZ they were not able to be treated by herbicide. A total of seven orange hawkweed sites were manually removed, totalling to 60cm² and 2.75L. It should also be noted that in 2021 the amount of orange hawkweed manually removed was substantially higher: 7m² (21.75L) of orange hawkweed. The decrease of manually removed was due to the limit of time and the prioritization of herbicide application on invasive plant infestations.

On October 12th the single yellow flag iris site on Ravenswood Drive was revisited and iris leaves were observed. The remaining yellow flag iris plants were carefully dug out and removed from the ditch. No flowers or seed pods were seen at the time of the visit. An area of approximately 1m² (0.2L) of yellow flag iris was removed.

Raw data in csv, KML and shapefile formats can be supplied upon request.

4.0 Recommendations

Invasive plant sites that were monitored and treated in 2022 should be prioritized for treatment in the 2023 field season. Monitoring of knotweed species can take place during late spring, April and May. Any knotweed re-growth should be treated as soon as possible to have the highest degree of long-term efficacy.

Orange hawkweed treatment can begin as early as May and invasive management should take place prior to the plants going to seed. For future monitoring purposes there should be careful consideration of the identification of the plants, since they can easily be mistaken for other plants. The ISCMV is currently working on a best management guide for this species for Metro Vancouver, which will be released summer of 2023. Orange hawkweed sites that were not chemically treated due to proximity to water or their location within the PFZ should be noted and prioritized for manual removal in the following year. Another recommendation for the management of orange hawkweed is to develop a mowing plan to target infested roadsides. Mowing plants will prevent the flowers from

going to seed and minimize the seed dispersal.

Although no Scotch broom plants re-infested the 2021 treatment site it is still recommended to continue monitoring the historically treated Scotch broom sites in the future seasons. It is essential to monitor for regrowth in next 3-5 years as this plant has long-lived seeds. The removal of Scotch broom in some of these sites also left bare soil, so it is also possible that other invasive plants will take over the space.

Over the 2022 the ISCMV treated several knotweed infestations where the jurisdictions were undetermined. It would be in the Village of Anmore's best interest to confirm jurisdictions prior to chemical treatments. This would help ensure that invasive plant management responsibilities are shared among the appropriate parties and perhaps the financial burden could be shared. Specifically, the knotweed infestation on the corner of Forestview Ln and Bedwell Bay Rd should be put into question. Since it is a large, well established knotweed infestation it will take several years to control and suppress the plant growth. This knotweed site will require long term management. We recommend clarifying the jurisdiction of knotweed sites prior to the next invasive plant management season.