

SFEG KNOTWEED REPORT 2023

Upper Skagit Knotweed Control Program 2023 Season Ending Report December 2023



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Funders



Plant Protection Division Pest Program



America the Beautiful Challenge

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The Upper Skagit Knotweed program was initiated in 2001 by The Nature Conservancy and has been controlling knotweed in the Upper Skagit Watershed ever since. In 2009 the Skagit Fisheries Enhancement Group inherited the program and sought more funding to expand the treatment efforts. During the 2023 season, the Skagit Fisheries Enhancement Group (SFEG) and our partners within the Skagit Cooperative Weed Management Area (CWMA), or Skagit Knotweed Working Group, completed extensive surveys and treatments of rivers and streams in the Upper Skagit River Watershed. We surveyed using a prioritized watershed, top-down, landscape scale approach along waterways, and monitored a large percentage of previously recorded knotweed patches in the Upper Skagit watershed. We continued to guide treatment efforts utilizing the prioritization strategy initially developed in 2001 and updated by the Skagit CWMA in 2019. The 2019 update reprioritized some sub-watersheds based on data from previous years. SFEG contracted with the Washington Conservation Corps (WCC) crew and rafting companies to survey, monitor and treat knotweed patches in riparian areas and associated floodplains throughout the Upper Skagit Watershed. In addition, SFEG also received on-the-ground assistance in our efforts from several Skagit CWMA partners including U.S. Forest Service, Skagit County, Skagit Land Trust, and the Sauk-Suiattle Indian Tribe.

In 2023, SFEG continued its goal of treating knotweed in the floodplains of the Skagit and Sauk Rivers upstream of their confluence in Rockport, while also working in the recently expanded downstream reach. The majority of the upland areas have been surveyed in previous years and have proven to be knotweed-free. SFEG makes occasional forays into these previously checked areas to affirm the absence of knotweed, but most resources are directed at riparian areas where knotweed is more likely to be found and spread. The Washington Conservation Corps (WCC), under supervision from the Stewardship Coordinator with SFEG, spent 41 days working for the Upper Skagit Knotweed Control Program in 2023.

The Sauk-Suiattle Tribe is an important CWMA partner that also conducts field treatments of knotweed under the umbrella of the Upper Skagit Knotweed Control Program. Their work is typically conducted along the Sauk River from the Suiattle River downstream to the confluence with the Skagit, as well as in Darrington and the Sauk Prairie community. The Sauk-Suiattle Tribe is based in Darrington and can utilize local relationships that SFEG would have to spend time cultivating. The Sauk-Suiattle Tribe has been helping to control knotweed in the project area since 2011. The Sauk-Suiattle Indian Tribe (SSIT) reports its results separately, and thus this report does not include information for the areas in the Sauk watershed that they treated, unless otherwise specified. The Sauk-Suiattle Tribe, Skagit County and the US Forest Service have all been instrumental in expanding the Upper Skagit Knotweed Control Program downstream. They have conducted field work, assisted with technological details, and provided access to properties.

2023 Summary: In 2023, the Skagit Fisheries Enhancement Group (SFEG) worked with AmeriCorps youth volunteers from the Washington Conservation Corps (WCC) to treat knotweed along 34 river miles with the Skagit watershed. While traversing approximately 4,651 acres (7.26 mi²) 331 knotweed patches were encountered and treated. The total area of knotweed treated was 1,554 square meters comprised of 14,789 stems. If aggregated into one spot this conglomerate patch would cover approximately 0.38 acres. The difference of knotweed prevalence between the Upper Skagit watershed, where knotweed has been controlled since 2001 and the Middle Skagit where we have been treating knotweed since 2020 is remarkable. In the Upper Skagit watershed there was an average of 0.5 knotweed stems per acre surveyed. In the Middle Skagit reach there was an average of 18.25 knotweed stems treated per acre surveyed. This provides hope that progress can be made because the Upper Skagit watershed used to have the plentiful knotweed that the Middle Skagit reach now has, but over years doggedness and consistent treatment has led to the current minimal infestation in the Upper Skagit watershed.

The Watershed and Project Area

The Upper Skagit Knotweed Control Project focuses on the Upper Skagit River basin, which is approximately 2,960 square miles. Since a portion of the watershed is in Canada this makes the effective project area roughly 1,989 square miles, or about the size of Delaware. The focus areas are the floodplains of the Skagit and Sauk Rivers, their tributaries, plus selected upland areas as necessary (Figure 1). As the largest drainage in Puget Sound,

the Skagit River contributes approximately one third of the total amount of fresh water input to Puget Sound. Much of the Skagit River has been designated as Wild and Scenic by the United States Forest Service because of the pristine nature and ecological significance of the area. Designations have also been extended to the Sauk, Suiattle, Cascade Rivers, plus Illabot Creek, all tributaries that are within the Upper Skagit Knotweed Control Program area.

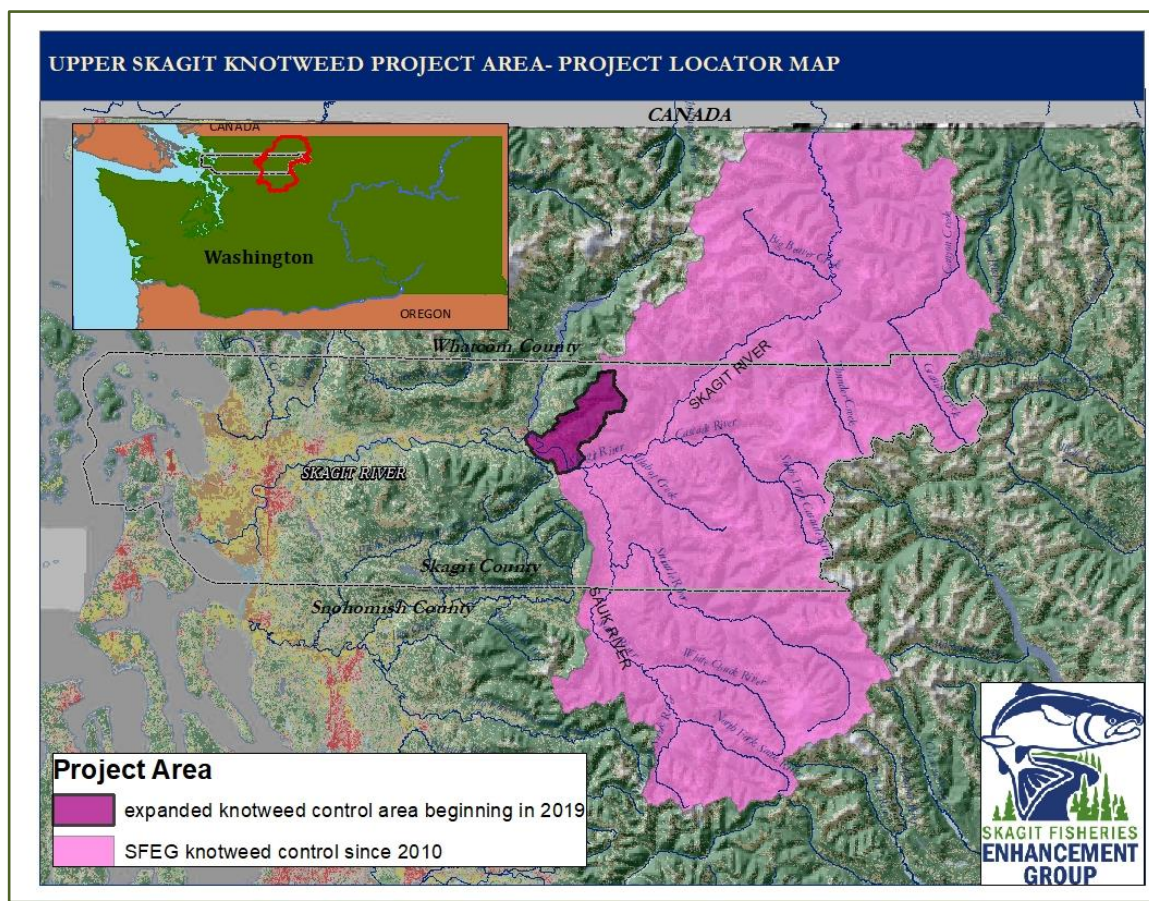


Figure 1. Upper Skagit Knotweed Program project area [YR1].

Various funding sources for various river reaches

Due to geographical restrictions from various funding sources SFEG had to weave together a patchwork mosaic of funding sources to be able to follow the tiered watershed, top-down approach in the Skagit watershed. For example, Washington Department of Agriculture funds knotweed treatment within a watershed downstream until the first landowner who would not provide access. The National Fish and Wildlife Foundations (NFWF) America the Beautiful Challenge provided funding for work specifically on US Forest Service property, both in the Upper Sauk watershed and in the Middle Skagit Reach. The initial SFEG proposal to NFWF was only for work in the Upper Sauk, but once the Sauk-Suiattle Tribe committed to filling in the gaps in the Middle and Lower Sauk and the Middle Skagit, SFEG expanded the NFWF proposal to include US Forest Service properties in this Middle Skagit. This is consistent with the top-down approach directed by the Skagit Cooperative Weed Management Area (CWMA). Figure 2 illustrates how SFEG cobbled together treatment areas from various funding sources and how the Sauk-Suiattle Tribe backfilled the gaps. Treatment areas are overlayed upon the prioritized sub-watershed map updated in 2019 by the Skagit CWMA. Without the cooperation, partnership and flexibility of the Sauk-Suiattle Tribe there is no way the entire Upper Skagit Watershed would get surveyed for knotweed.

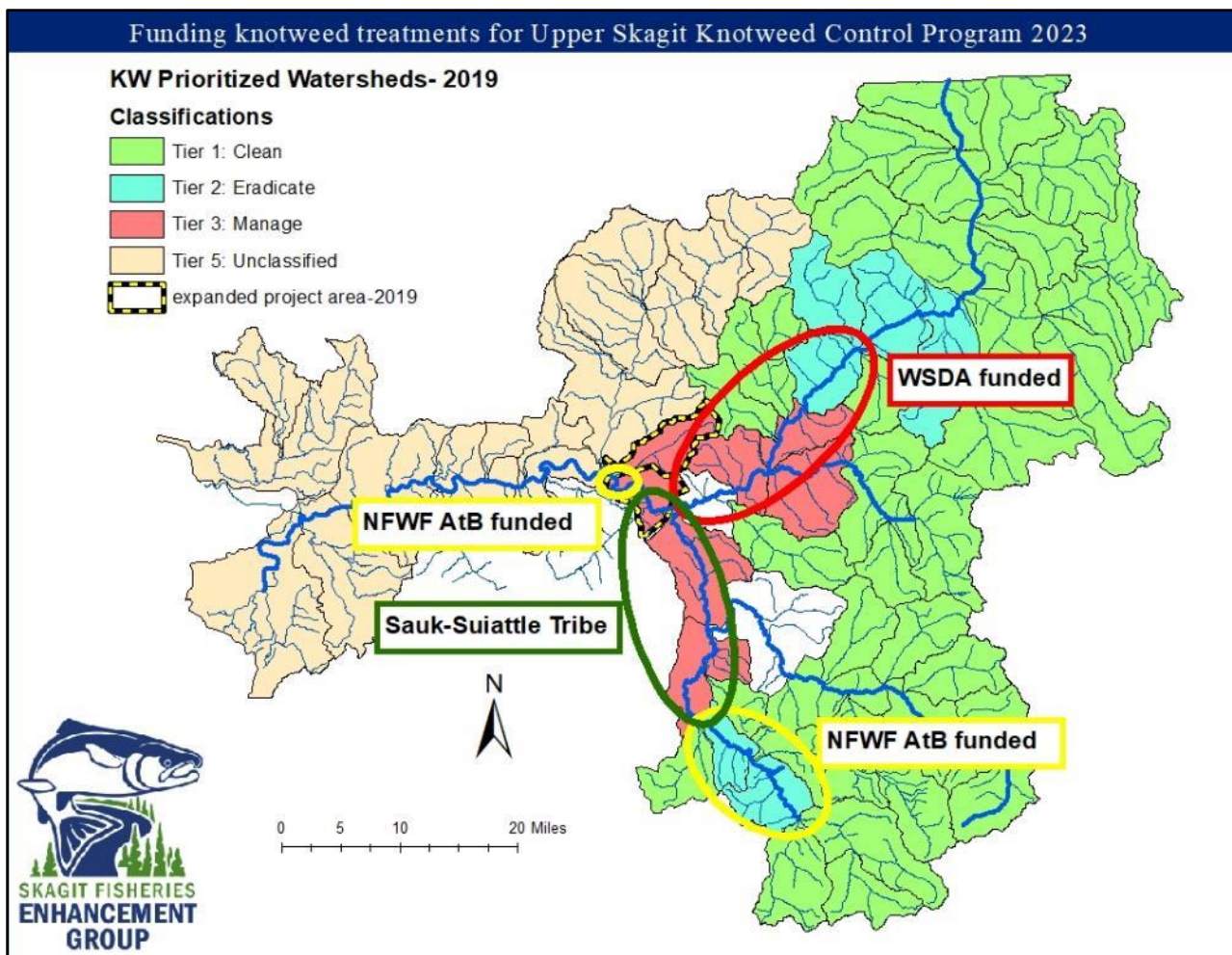


Figure 2 SFEG knotweed treatment reaches in the watershed based on funding source, overlaid over Skagit CWMA prioritized sub-watersheds.

2023 Monitoring Results

Due to the large extent of the Upper Skagit Knotweed Program project area, making separate monitoring trips after herbicide treatment is impractical. As a result, surveys, treatments, and monitoring are conducted concurrently. Monitoring of previously identified patches occurs at the same time as surveying and treatment, but the results lag by a year. For example, during the 2023 knotweed year monitoring was conducted to determine effectiveness of patches treated in 2022. If a patch treated the previous year is found to still be alive it is treated again, and the monitoring data is updated.

The monitoring results for 2023 (conducted on 2022 treated patches) continued to be positive. For example, of the 347 knotweed patches treated in 2022 only 112 required any herbicide application in 2023. This 67.7% kill rate is a decent number for knotweed. In the Upper Skagit only, four patches treated in 2022 required follow-up treatment in 2023, which is a mortality rate of 77.7%. This mortality rate does not continue into the Middle Skagit Reach, which is not surprising. One would expect a low mortality rate because 2020 was the first year of committed herbicide treatment and the knotweed patches were large and vigorous, having never experienced herbicide before. It's difficult to get complete coverage on large knotweed patches the first year as they are often larger than the capacity of the hand-held equipment. Safety is a key component when applying herbicide and SFEG has made the determination that applying herbicide to very large knotweed patches is not worth trying to get complete coverage in the first year. This is because in order to do this one must walk into the patch and spray blindly overhead. This leads to unacceptably high collateral damage due to off-site drift and the potential for human contact with herbicide from splash back and navigating knotweed patches that have wet leaves. It is much safer to spend consecutive years working from the perimeter of a knotweed patch inwards in subsequent years.

As the years go by and patches dwindle it becomes easier to treat the entire patch thoroughly, which enhances the effectiveness of the herbicide and leads to a high likelihood that a knotweed patch will die after herbicide application.

The 2023 season results are summarized in Table 1, including some conclusions drawn from the data.

Table 1. Summary of 2023 knotweed treatments, traditional area (Upper Skagit) and expanded area (Middle Skagit) separated. Treatment metrics represent only SFEG effort and are not combined with partner efforts in project area.

2023 Season			
2023 knotweed season	TOTAL	Upper Skagit	Middle Skagit
knotweed patches treated	331	84	247
new patches treated	137	44	93
old patches treated	194	40	154
river miles surveyed	34	28.5	5.5
area traversed (acres)	4,651	3,950	701
total stems treated	14,789	1,981	12,808
stems treated- new patches	7,111	806	6,305
stems treated- old patches	7,678	1,175	6,503
average stems- new patches	51.9	18.3	67.8
average stems- old patches	39.5	29.0	42.2
knotweed stems per acre surveyed	3.2	0.5	18.3
1 stem patches found	36	15	21
total area treated (m ²)	1,554	199	1,355
area treated (m ²)- new patches	737	99	638
area treated (m ²)- old patches	817	100	717
average area (m ²)- new patches	5.4	2.25	6.8
average area (m ²)- old patches	4.2	2.5	4.6
patches dead/presumed dead	1,390	1,091	299
patches visited	1,724	1,177	547
percentage of patches visited	74.9%	67.6%	97.5%

- SFEG has been treating knotweed in the Upper Skagit for years before beginning treatment in the Middle Skagit. It makes sense that there would be less knotweed encountered where treatment has been ongoing for years. There are several metrics that demonstrate this.
 - The most straightforward is simply the number of knotweed patches treated. In 2023, SFEG treated 84 knotweed patches in the Upper Skagit watershed versus 247 knotweed patches in the Middle Skagit reach. The number of knotweed stems treated also follows this trend, 1,981 knotweed stems treated in the Upper Skagit watershed against 12,808 stems in the Middle Skagit reach.
 - The difference in area between the Upper Skagit reach and Middle Skagit reach is also a factor

that comes into play when one is comparing knotweed infestations. This can be mitigated for by factoring in the area surveyed for knotweed. SFEG does this by calculating the number of knotweed stems treated per acre surveyed. In the Upper Skagit watershed, the knotweed infestation comes out to 0.5 knotweed stems per acre. By itself this less than 1 knotweed stem per acre number is unheard of in river systems that are known to have knotweed. This demonstrates that it is possible to control knotweed, but it takes a long-term concentrated effort. The knotweed stems per acre for the Middle Skagit reach is 18.3. Table 2 below compares 2023 treatment data to 2022 treatment data.

Table 2 Knotweed treatment tables comparing 2023 versus 2022.

2023 Season				2022 Season			
2023 knotweed season	TOTAL	Upper Skagit	Middle Skagit	2022 knotweed season	TOTAL	Upper Skagit	Middle Skagit
knotweed patches treated	331	84	247	knotweed patches treated	347	26	321
new patches treated	137	44	93	new patches treated	122	12	110
old patches treated	194	40	154	old patches treated	225	14	211
river miles surveyed	34	28.5	5.5	river miles surveyed	19	12.3	6.7
area traversed (acres)	4,651	3,950	701	area traversed (acres)	2,743	1,570.9	1,172.1
total stems treated	14,789	1,981	12,808	total stems treated	19,251	349	18,902
stems treated- new patches	7,111	806	6,305	stems treated- new patches	10,628	65	10,563
stems treated- old patches	7,678	1,175	6,503	stems treated- old patches	8,623	284	8,339
average stems- new patches	51.9	18.3	67.8	average stems- new patches	87.0	5.4	96.0
average stems- old patches	39.5	29.0	42.2	average stems- old patches	38.3	20.3	39.5
knotweed stems per acre surveyed	3.2	0.5	18.3	knotweed stems per acre surveyed	7	0.2	16
1 stem patches found	36	15	21	1 stem patches found	31	4	27
total area treated (m ²)	1,554	199	1,355	total area treated (m ²)	2,155	48	2,107
area treated (m ²)- new patches	737	99	638	area treated (m ²)- new patches	1,241	16	1,225
area treated (m ²)- old patches	817	100	717	area treated (m ²)- old patches	914	32	882
average area (m ²)- new patches	5.4	2.25	6.8	average area (m ²)- new patches	10	2.6	11.1
average area (m ²)- old patches	4.2	2.5	4.6	average area (m ²)- old patches	4	2.2	4.2
patches dead/presumed dead	1,390	1,091	299	patches dead/presumed dead	524	289	235
patches visited	1,724	1,177	547	patches visited	871	315	556
percentage of patches visited	74.9%	67.6%	97.5%	percentage of patches visited	53%	35.8%	73.3%

- It's also interesting to note that in the Upper Skagit in 2023 the number of knotweed stems in patches requiring retreatment was less than twice the number of stems treated in patches first discovered in 2023. In 2022 this number was four times as many.
- Total area of aggregated knotweed treated in 2023 was 1,554 square meters (0.38 acres). This was encountered while surveying 4,651 acres (7.26 square miles). Of all the knotweed stems treated in 2023 86.6% were in the Middle Skagit reach. This ratio also holds true across the total area of knotweed treated [YR2].

Herbicide usage is another metric used to gauge the amount of knotweed treated. As the amount of knotweed in the system decreases one would expect to see a similar decline in the amount of herbicide applied each year. In 2008 the Upper Skagit Knotweed Control Program switched from treating knotweed with a 5% glyphosate mixture to a 1% imazapyr mixture. This was based on research from Tim Miller at the Washington State University extension office out of Mount Vernon. He found a 1% imazapyr solution had a higher kill rate on knotweed than a 5% glyphosate mixture. To be consistent, Table 3 and Figure 3 only show herbicide application in the Upper Skagit Reach, this does not include herbicide applied in the Middle Skagit reach. Since the Middle Skagit reach was added partway through the record keeping including it now would impact the Upper Skagit numbers and add inconsistency. The Middle Skagit numbers are recorded separately and not displayed here, since there are only three years' worth of data, which is not enough for a good analysis.

Year	Gallons of herbicide mix applied	herbicide	Acres treated
2002	185	Glyphosate5%	1.9
2003	194	Glyphosate5%	1.9
2004	147	Glyphosate5%	1.5
2005	448	Glyphosate5%	4.5
2006	721	Glyphosate5%	7.2
2007	343	Glyphosate5%	3.4
2008	58	Imazapyr 1%	1.2
2009	180	Imazapyr 1%	3.6
2010	174	Imazapyr 1%	3.5
2011	65	Imazapyr 1%	1.3
2012	54	Imazapyr 1%	1.1
2013	34	Imazapyr 1%	0.6
2014	75	Imazapyr 1%	1.3
2015	42	Imazapyr 1%	0.8
2016	8.2	Imazapyr 1%	0.3
2017	17	Imazapyr 1%	0.4
2018	16.3	Imazapyr 1%	0.2
2019	26.3	Imazapyr 1%	0.2
2020	1.1	Imazapyr 1%	0.01
2021	7.1	Imazapyr 1%	0.04
2022	2.51	Imazapyr 1%	0.01
2023	1.52	Imazapyr 1% & Glyphosate 5%	0.01

Table 3 Amount and type of herbicide applied, and area of knotweed treated.

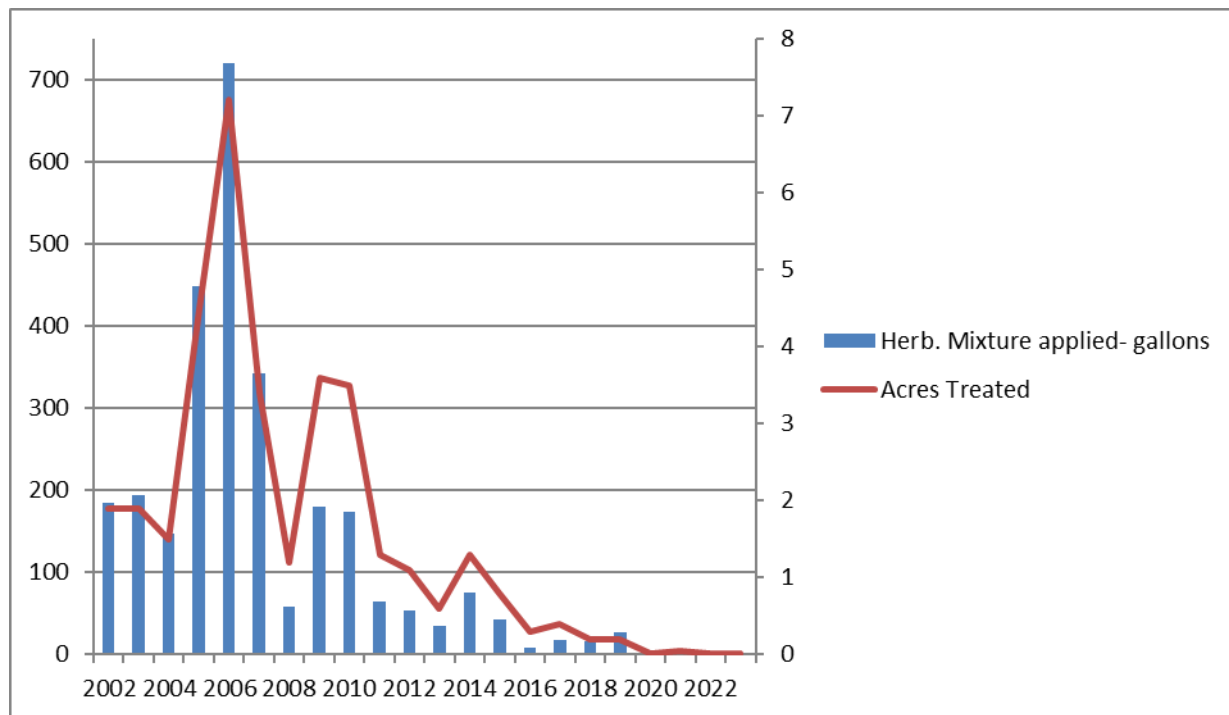


Figure 3. A graph showing the downward trend in herbicide applied and knotweed treated.

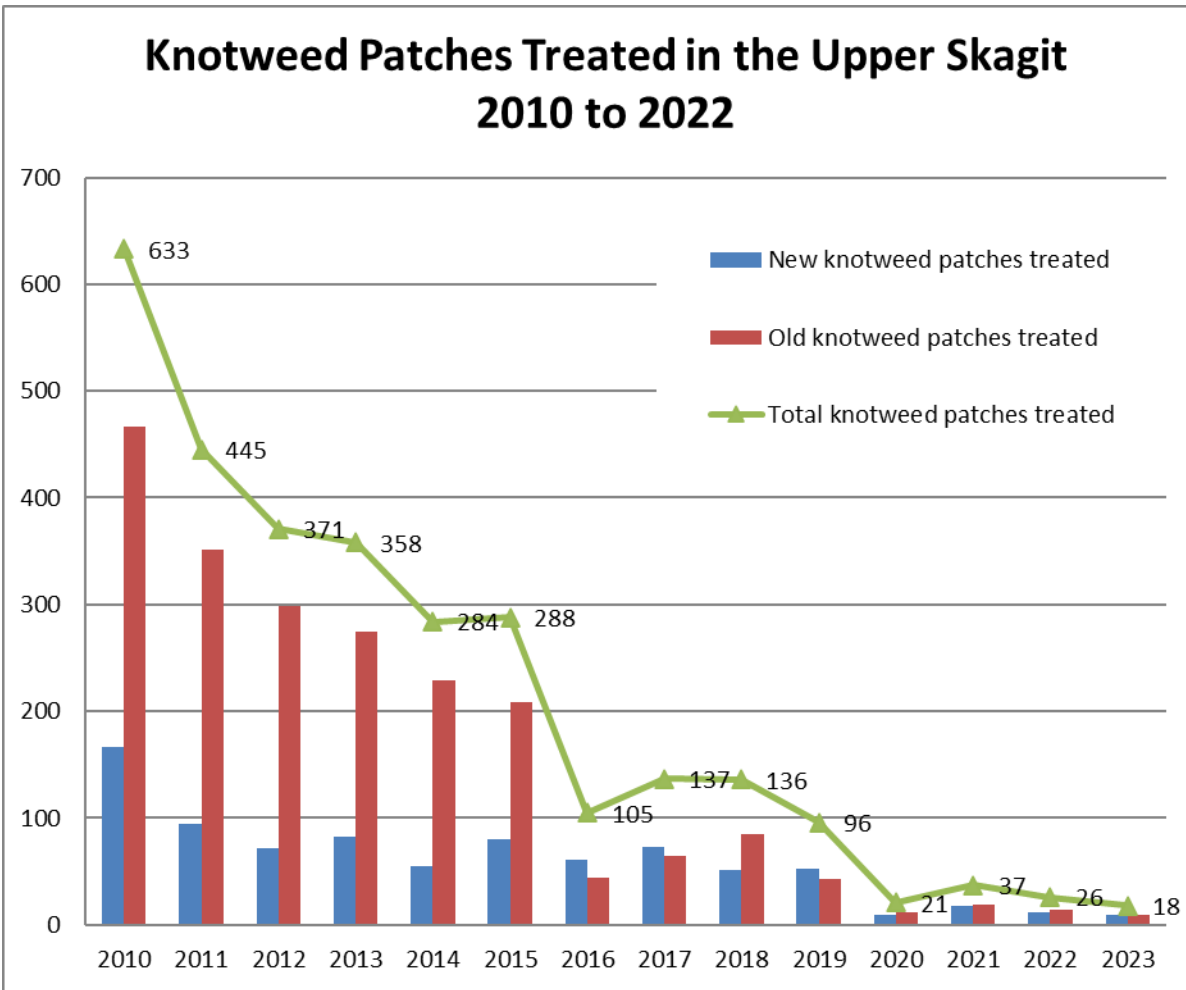


Figure 4. Knotweed patches treated, old versus new.

For the first seven years that SFEG led this program the total number of knotweed patches treated decreased, and the total number of knotweed stems treated also continued a downward trajectory, albeit with more year-to-year variability (Figures 5 and 6). Since 2016 this relationship seems to have reached a plateau, with the number of knotweed stems treated closely following the number of knotweed patches treated.

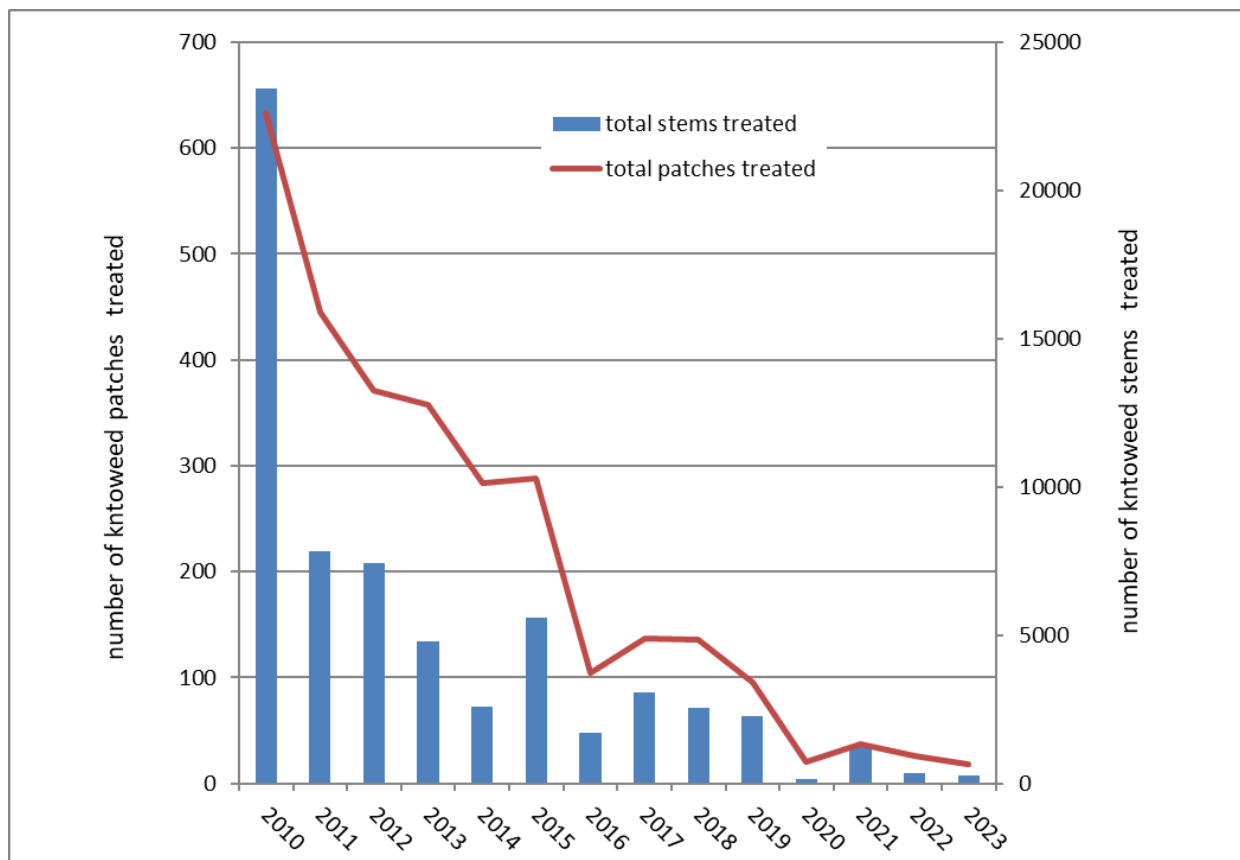


Figure 5. Knotweed stems treated in relation to total patches treated Upper Skagit Reach

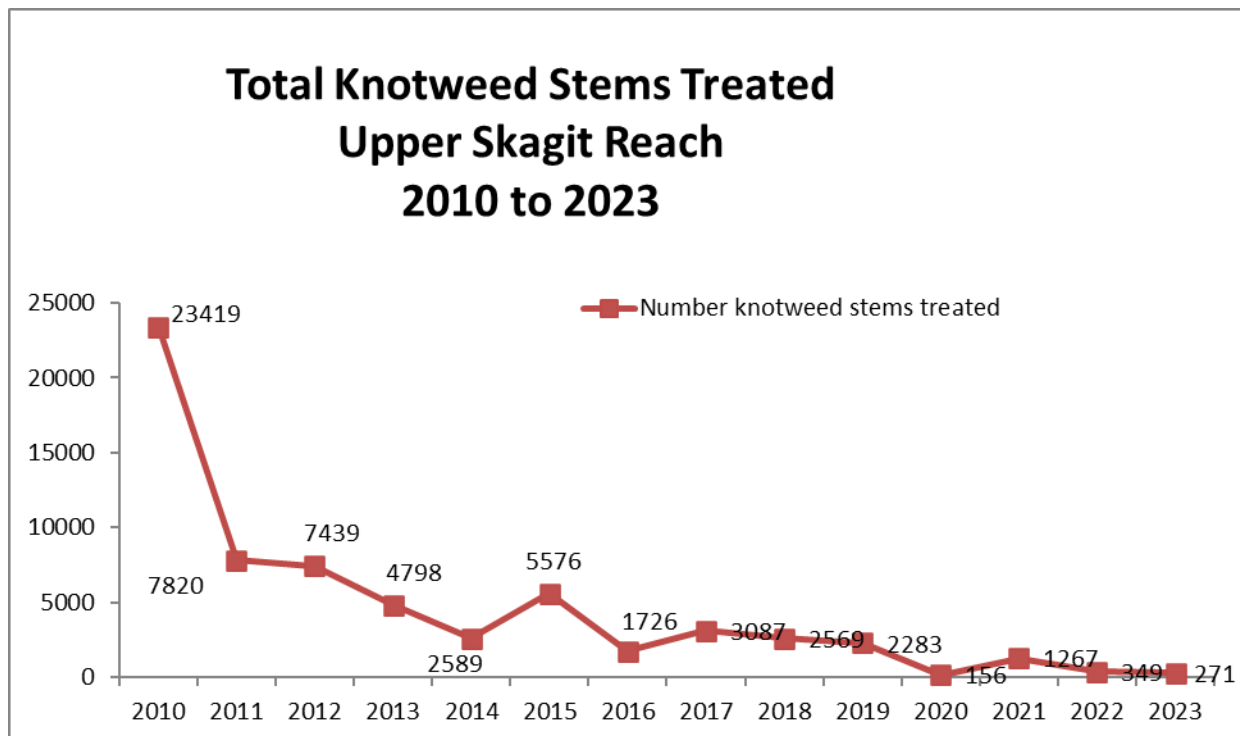


Figure 6. Knotweed stems treated Upper Skagit Reach

Treatment techniques continue to follow integrated pest management (IPM) methods and the most effective methods for killing knotweed as discussed during the annual Skagit CWMA meetings. Currently, the treatment regimen considered to be most effective for knotweed is a foliar application of 1% imazapyr (aquatic formulation preferred) mixed with 1% AgriDex as the adjuvant. SFEG applies this mixture utilizing 50-ounce handheld pump sprayers, or 4-gallon backpack pump sprayers as necessary. Herbicide application took place from June 13th 2023, through September 6th, 2023. This timeline was chosen because research indicates that herbicide is most effective against knotweed once it has established its spring foliage push and has begun to translocate sugars produced in the leaves down into the roots. Knotweed is much easier to spot in the early spring, since it is one of the first plants to emerge, but research has shown that when herbicide is applied early in the season it stunts growth but does kill the rhizomes. This timeline was also chosen to align with the Washington Conservation Corps (WCC) crew availability.

Previously documented knotweed patches are located during field surveys by running transects in areas where knotweed is likely to spread; low lying areas in the floodplain prone to flooding, side channels, back-waters, etc. Knotweed patches treated the previous year are navigated to using a handheld GPS unit. SFEG prioritizes these previous years treated points because they are the source of the monitoring data. Old points are still important because they signify past treated knotweed points, but SFEG does not use GPS to navigate to each one of these. If there is knotweed present it is observed while walking transects doing surveys. GPS location data is supplemented with aerial photos, topographic maps, and field notes. Status for previously identified patches is recorded in the field notebook and then updated in the master patch database. For new patches, a unique patch identifier is assigned, and the location is recorded using a Garmin e-trex legend GPS unit. Patch location, status and viability data are collected on a standard Upper Skagit Knotweed Project field form. The patch is flagged with its patch identifier (see Figure 7). Monitoring is conducted by taking photos of each patch treated, with the unique patch ID visible in the frame (Figure 8). Patches treated the previous year are found, and updated data and photos of patch condition are collected.

2023 was the second year that SFEG also recorded all data digitally while in the field. Data was collected on an iPad mini running iForm. iForm is a platform that allows one to customize a database for field collection of data. It is compatible with various other software to enable easy transfer of data between other programs and partner organizations. Digital data was first collected in 2022. As with all new procedures, there were some growing pains and inconsistencies in data management. In planning for this SFEG also recorded data in the traditional manner. Because of the errors encountered in the first year of digital data collection, in 2023 SFEG decided to again record data digitally, but also continue the traditional pen and paper method. This proved fortuitous, since in 2023 there were also some minor inconsistencies between digital and traditional data.



Figure 7. Knotweed patch identifier written on knotweed specific flagging.



Figure 8. Knotweed patch monitoring photo. Whiteboard identifies unique patch identifier, status and number of stems. Following the below naming convention patch MP2268G is the 34th patch of the 2022 season located along the left bank of the Skagit River documented by SFEG.

For all new patches located the following was documented:

- Patch ID#: a unique identifier was assigned to each patch (each new patch was flagged with distinct stripped flagging and unique ID#)
 - ID# generation: first two letters are the river (Sauk = AP, Skagit = KP, MP = Middle Reach of Skagit) followed by the year first identified and sequential ID number (odd number right side river even number left side river). Lastly the organization making the documentation is the initial at the end of the sequence. In the above example patch MP2268G was first observed in the Middle Skagit (MP) reach in 2022 (22). It was the 34th patch observed on the left bank (68- since odd numbers are other side of river) of the season documented by SFEG (G)
- GPS coordinates
- Patch condition: Number of stems and patch area in meters
- Herbicide use data (Time/date/location/wind/temp/waterbody/applicators/amount applied/NPDES qualified)

For previously located patches the following was documented:

- Status: alive, dead, not found, washed away
- Patch condition: Number of stems and area in meters
- Herbicide use data (Time/date/location/wind/temp/waterbody/applicators/amount applied/NPDES qualified)

Acres treated

The differences between the Upper Skagit and Middle Skagit reaches are stark when one looks at the acres of knotweed treated. This metric measures the area of knotweed treated if all individual patches were to be combined into one aggregate patch. During data collection the smallest unit SFEG collects is one square meter, because this is much easier to wrap one's head around than 0.0002 acres. In 2023 the area treated in the Upper Skagit watershed was 199 square meters (0.049 acres). Area treated in the Middle Skagit reach was 1,554 square meters (0.335 acres). Total area of knotweed treated by the Upper Skagit Knotweed Control program in 2023 was 1,554 square meters (.384 acres).

River miles surveyed and area protected

In 2023, SFEG staff, assisted by WCC crews, thoroughly surveyed 4,651 acres within the floodplain of the Skagit River and Sauk Rivers. This area included habitats such as side channels, tributaries, back channels, islands, and riparian habitats. Included in this area was 34 miles of main stem river and tributaries. 28.5 miles in the Upper Skagit and Upper Sauk reaches and 5.5 miles in the Middle Skagit reach.

Number of Private Landowners Assisted

Much of the land within the Upper Skagit Knotweed Control Program area is public. All agencies with property within the project area are members of the Skagit CWMA and have given permission for SFEG to survey/treat knotweed on their lands. In addition to the public lands, SFEG has WSDA 10-year access agreements signed by many private landowners. The vast majority of these landowners do not have knotweed anymore, so SFEG does not spend the resources to do surveys on their property every year. As such, the number of private landowners we work with is fewer than one would expect for a program of this magnitude. In 2023 SFEG worked with three private landowners. We also worked with nine entities who own land. In 2023 SFEG worked with 12 landowners.

Partners involved

The Skagit Cooperative Weed Management Area (CWMA) aka Knotweed Working Group includes 19 cooperators. The SFEG Stewardship Coordinator chaired this group until 2020 was leadership was transferred to Skagit County. Skagit Fisheries is still an active participant and plays a leadership role, but all official duties have been transferred.

Members

- WA Dept. of Fish and Wildlife
- WA Dept. of Natural Resources
- North Cascades National Park

- Seattle City Light
- Snohomish Co. Weed Board
- Skagit Co. Weed Board
- Whatcom Co. Weed Board
- The Nature Conservancy
- Skagit Fisheries Enhancement Group
- Skagit Land Trust
- Samish Tribe

Partners

- WA Dept. of Agriculture
- U.S. Fish and Wildlife
- Washington Conservation Corps (WCC)
- WSU Extension
- National Fish and Wildlife Foundation
- Upper Skagit Tribe
- Sauk-Suiattle Tribe
- US Forest Service

Selected Photos from the Upper Skagit Knotweed Control Program



Figure 8 A Conservation Corps crew member walking up a side channel surveying for knotweed. Crew members spend much of the summer with wet feet as the floodplain is crisscrossed with side channels, back waters, tributary streams and various low, wet spots. Surveying these areas is critical as this is where knotweed settles out after floods and establishes new colonies. 6/20/2023



Figure 9 SFEG tries to keep consistent spacing when walking survey transects. The distance of the spacing varies by terrain and thickness of vegetation, as well as topographic features. 6/22/2023



Figure 10 Sometimes one encounters obstructions along the survey transect. When this happens the best course of action is to find a safe way around/through/over the obstruction while continuing to keep an eye out for knotweed. 6/22/2023



Figure 11 Sometimes boats provide the most efficient transportation to treatment sites since much of the Upper Sauk River does not have convenient vehicle access. 6/26/2023



Figure 12 Even with boat access there is still much walking in the water that must be done. 6/27/2023

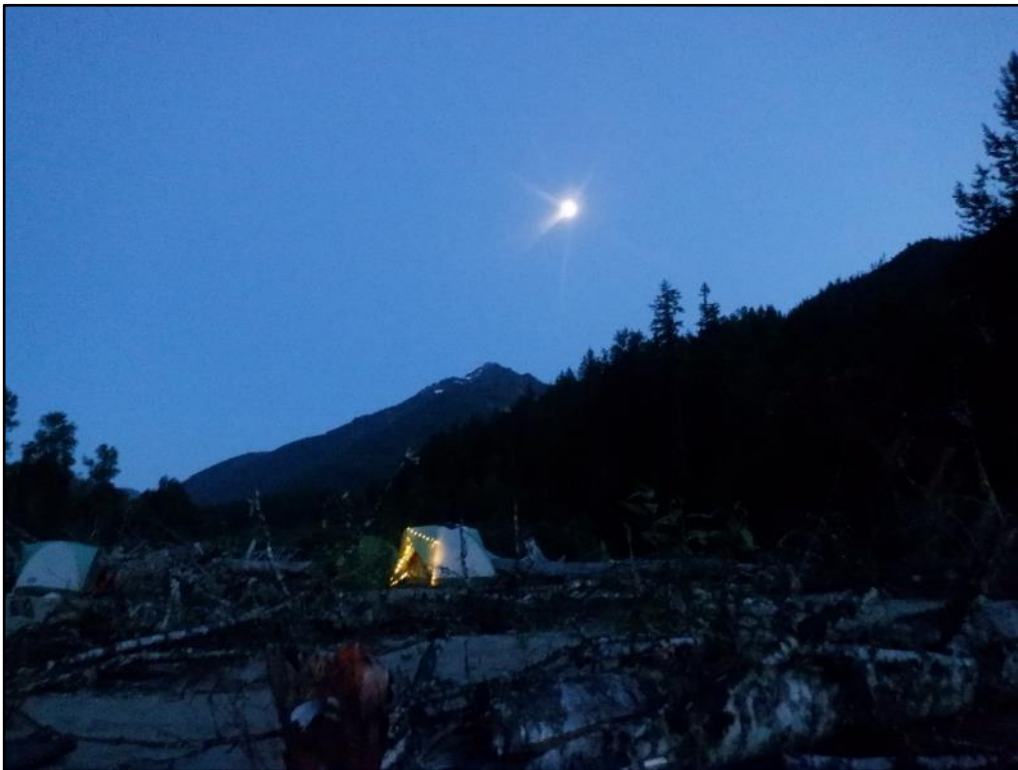


Figure 13 Each summer the Conservation Corps crew goes on a four day raft trip on the Upper Sauk where we survey for knotweed in places inaccessible from vehicles. Camping on gravel bars is one of the highlights of their year long term. 6/28/2023



Figure 13 SFEG hires skilled raft guides who can maneuver deftly and land in tight spaces, sometimes alongside logs on the riverbank. This allows SFEG quick access instead of landing downstream and bushwhacking back to a knotweed patch. 8/23/2023



Figure 14 Treating knotweed along an eroding riverbank means that less knotweed will spread downstream during high winter floods. 8.23/2023



Figure 15 While traversing across the floodplain the Conservation Corps crew encounters many beautiful scenes unfrequented by the public because of difficult access. 6/28/2023



Figure 16 Heading back to the work rig after a day of surveying for knotweed along the Sauk River. 8/7/2023



Figure 17 SFEG is very appreciative that Skagit County Noxious Weeds has a motorboat and is willing to transport SFEG crews to knotweed sites when available. This works great in the Middle Skagit reach. 8/21/2023



Figure 18 Each knotweed patch get marked by blue and white striped flagging tied in an obvious location near the patch. This helps ID the patch in subsequent years for monitoring purposes. 8/23/2023



Figure 19 2023 was the second year that data was collected digitally on an iPad mini. While this is supposed to make data collection more efficient, there were enough inconsistencies between digital data and pen-and-paper data that both methods will be utilized in 2024. 8/23/2023



Figure 20 2023 was the first year that a 30 foot canoe was utilized instead of white water rafts in the Middle Skagit reach. This resource will be utilized again in 2024 as it provided more maneuverability, agility and speed than the rafts. 8/23/2023

Before and After Photos from the Upper Skagit Knotweed Control Program



Figure 21 Patch CPNG1800 had 20 stems when it was treated in 2022.



Figure 22 Patch CPNG1800 had 2 stems in 2023. Down from 20 the previous year.



Figure 23 In 2022 Patch MP20286G had 21 stems that were treated.



Figure 24 When located in 2023 Patch MP20286G had 4 stems that required treatment.

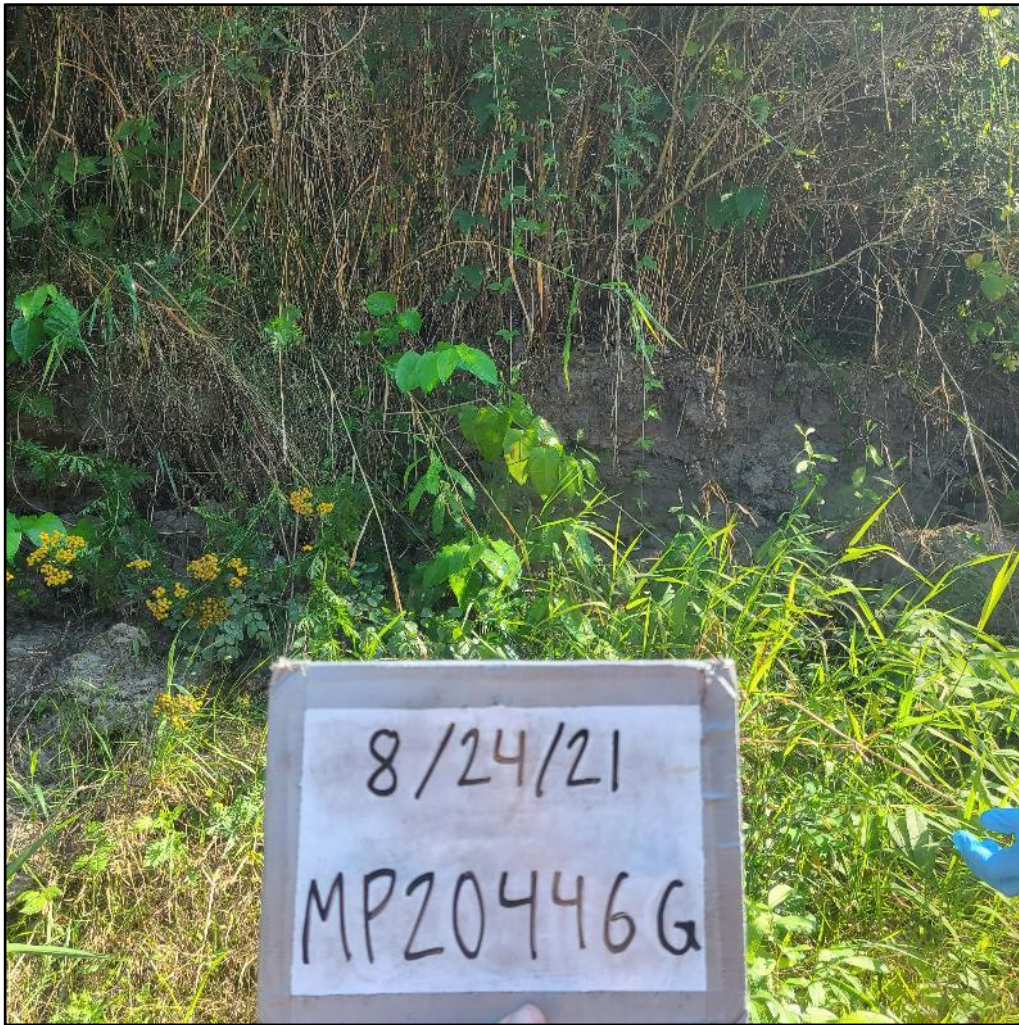


Figure 25 In the second year of treatment, in 2020, Patch MP20446G had 15 stems that were sprayed.



Figure 26 In the third year of treatment, in 2022, Patch MP20446G had grown to 20 stems



Figure 27 Finally, after three years of consecutive treatment Patch MP20446G had no shoots emerge in 2023.

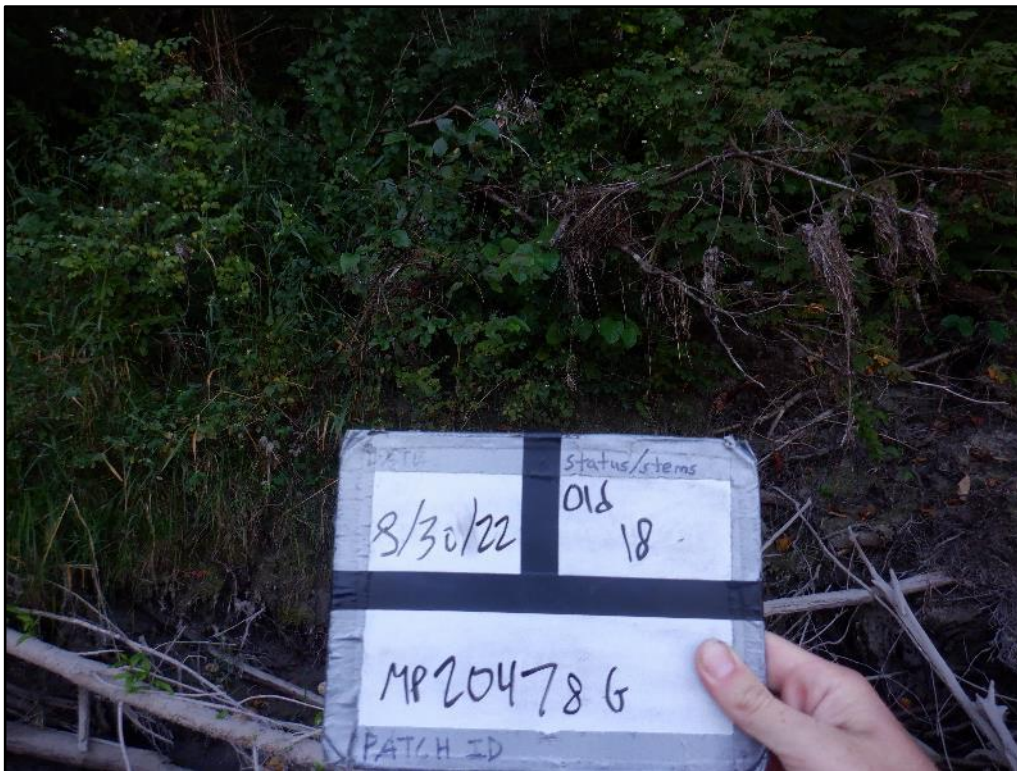


Figure 28 Patch MP20478 had 18 stems when SFEG treated it in 2022.



Figure 10 When encountered in 2023 Patch MP20478G was dead. The knotweed flag hanging on the tree in the background confirms this patch ID.

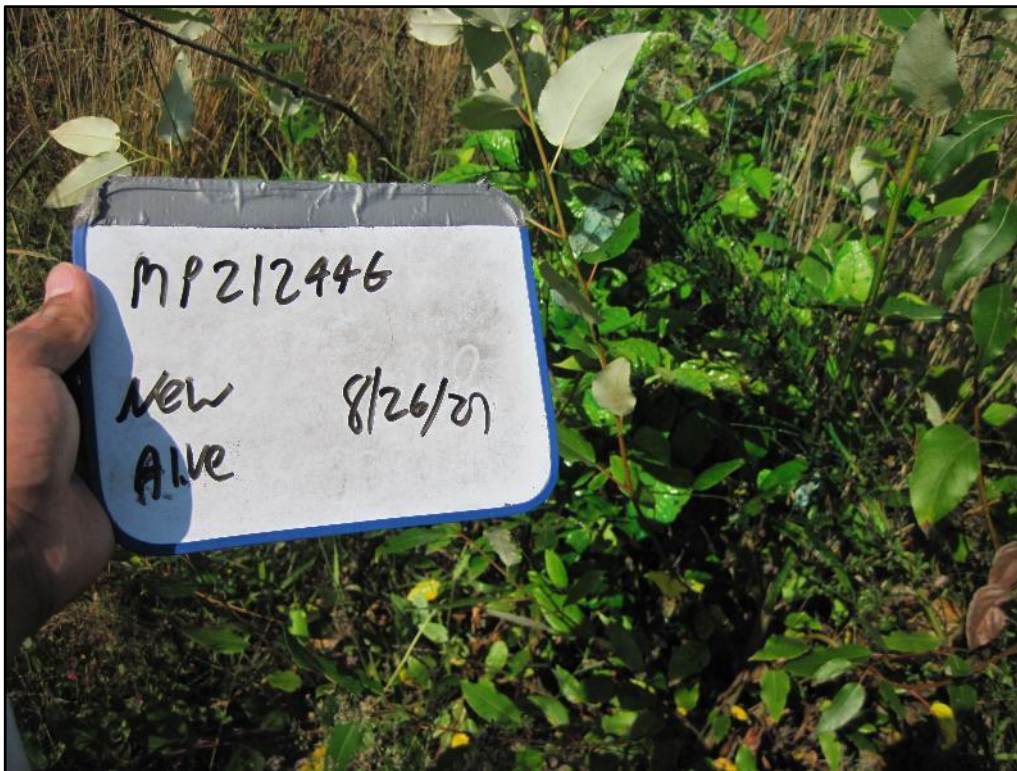


Figure 30 Patch MP21244G was first encountered in 2021. It consisted of 5 stems which were treated.

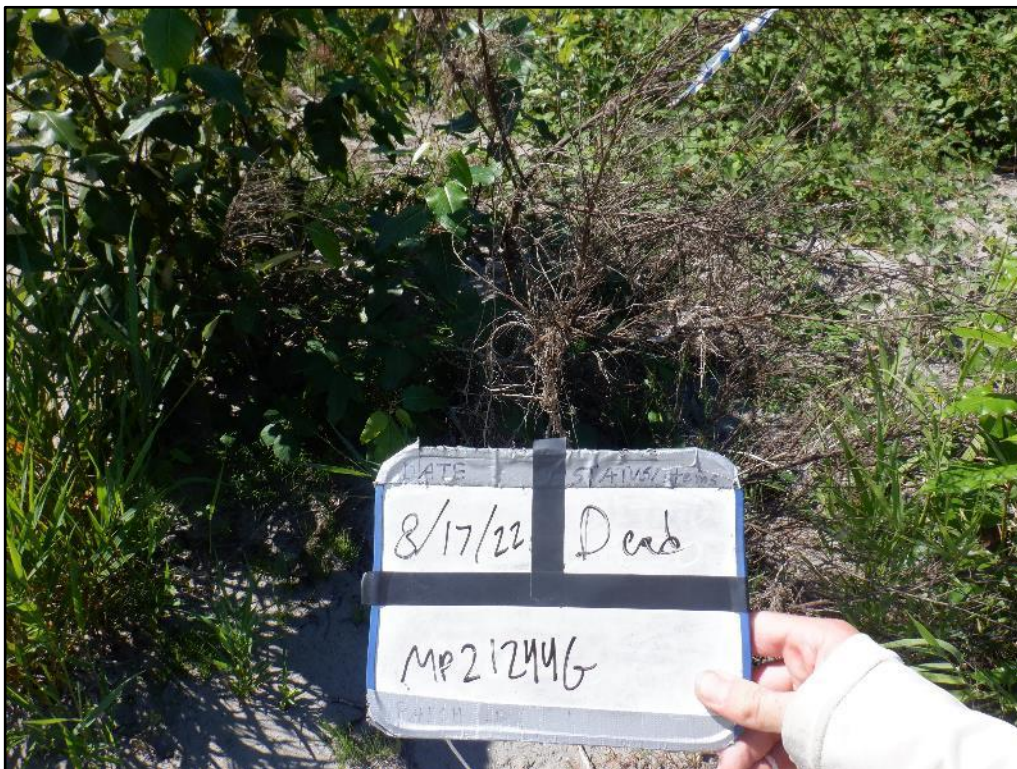


Figure 31 When encountered a year later, in 2022, Patch MP21244G was dead. The flagging in the background confirms this patch ID. A new flag was hung, because sometimes the older ones disappear.



Figure 32 Patch MP21244G was encountered, again, a year later, in 2023. This was assisted by the knotweed flag visible in the background. It had no stems 2 years after the initial treatment.

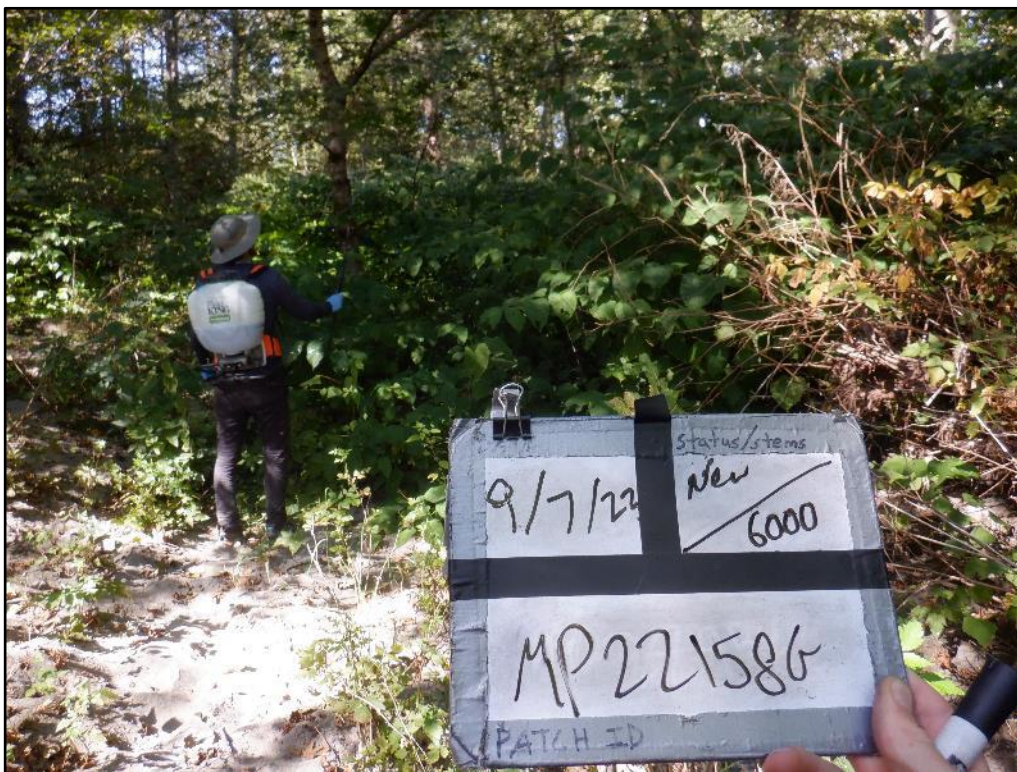


Figure 33 When Patch MP22158G was sprayed last year it was estimated to have 6,000 stems. It's difficult to get complete herbicide coverage on knotweed patches of this size without exposing oneself to herbicide drips and drift. In these instances SFGE prefers to spray the perimeter of the patch and work towards the epicenter in subsequent years.



Figure 34 After visiting the site of a knotweed patch that had 6,000 stems last year, this year it contained 200 live stems. One can see all the dead canes from the 2022 treatment in the foreground while the live stems are in the background, where the sprayer could not reach last year.