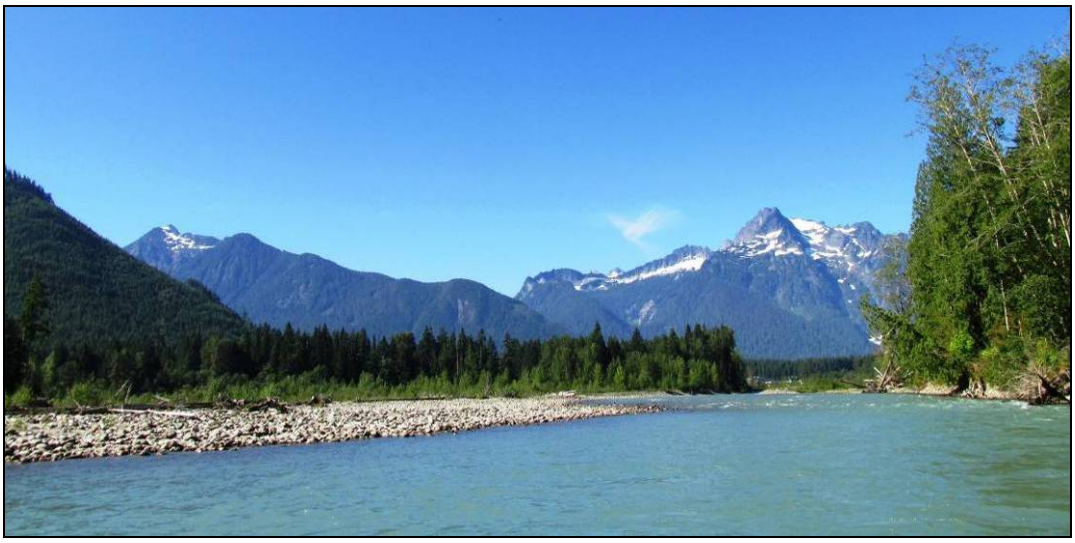
SKAGIT COOPERATIVE WEED MANAGEMENT AREA

Upper Skagit Knotweed Control Program

2013 Season Ending Report



Sauk River during 2013 knotweed surveys.

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SKAGIT FISHERIES ENHANCEMENT GROUP

Introduction

In the 2013 season, the Skagit Fisheries Enhancement Group (SFEG) and our partners with the Skagit Cooperative Weed Management Area (CWMA) or Skagit Knotweed Working Group, completed extensive surveys of rivers and streams in the Upper Skagit watershed, treating knotweed in a top-down, prioritized approach along these waterways, and monitoring a large percentage of previously recorded knotweed patches in the Upper Skagit watershed. We continued using the prioritization strategy developed in 2009 to guide where work is completed. SFEG contracted with the Washington Conservation Corps (WCC) crew and rafting companies to survey, monitor and treat knotweed patches. In addition SFEG was assisted by the DNR Aquatics Puget Sound Corps Crew (PSCC) in knotweed survey and treatment. SFEG and WCC also received on-the-ground assistance in our efforts from several Skagit CWMA partners including: U.S. Forest Service, Seattle City Light and the Sauk-Suiattle Indian Tribe. The Sauk-Suiattle Indian Tribe received a grant from the EPA in 2011 to do survey and treatment work on the Lower Sauk River and in the town of Darrington through 2013. This work was done in coordination with SFEG's Upper Skagit Knotweed Control Project.

The knotweed program met its goal of surveying and treating both the upper mainstem floodplains of the Sauk and Skagit Rivers. SFEG and WCC surveyed for knotweed from May through June and then implemented treatment from July until the first week of September. The results of the 2013 survey and treatment season show an overall reduction in the number of live knotweed patches (new and old) found from 2012 and in both the Sauk and Skagit floodplain the survey area was expanded.

Program Overview: ***In 2013, SFEG and WCC extensively surveyed within the 100-year floodplain along 53.8 mainstem river miles of the Skagit and Sauk Rivers and 22 miles of tributaries (75.8 miles of river and streams), 40.3 road miles in priority areas and treated an estimated 0.6 solid acres of upland and riparian knotweed in the Upper Skagit watershed.***

2013 WSDA PROJECT ACCOMPLISHMENTS

The Watershed and Project Area

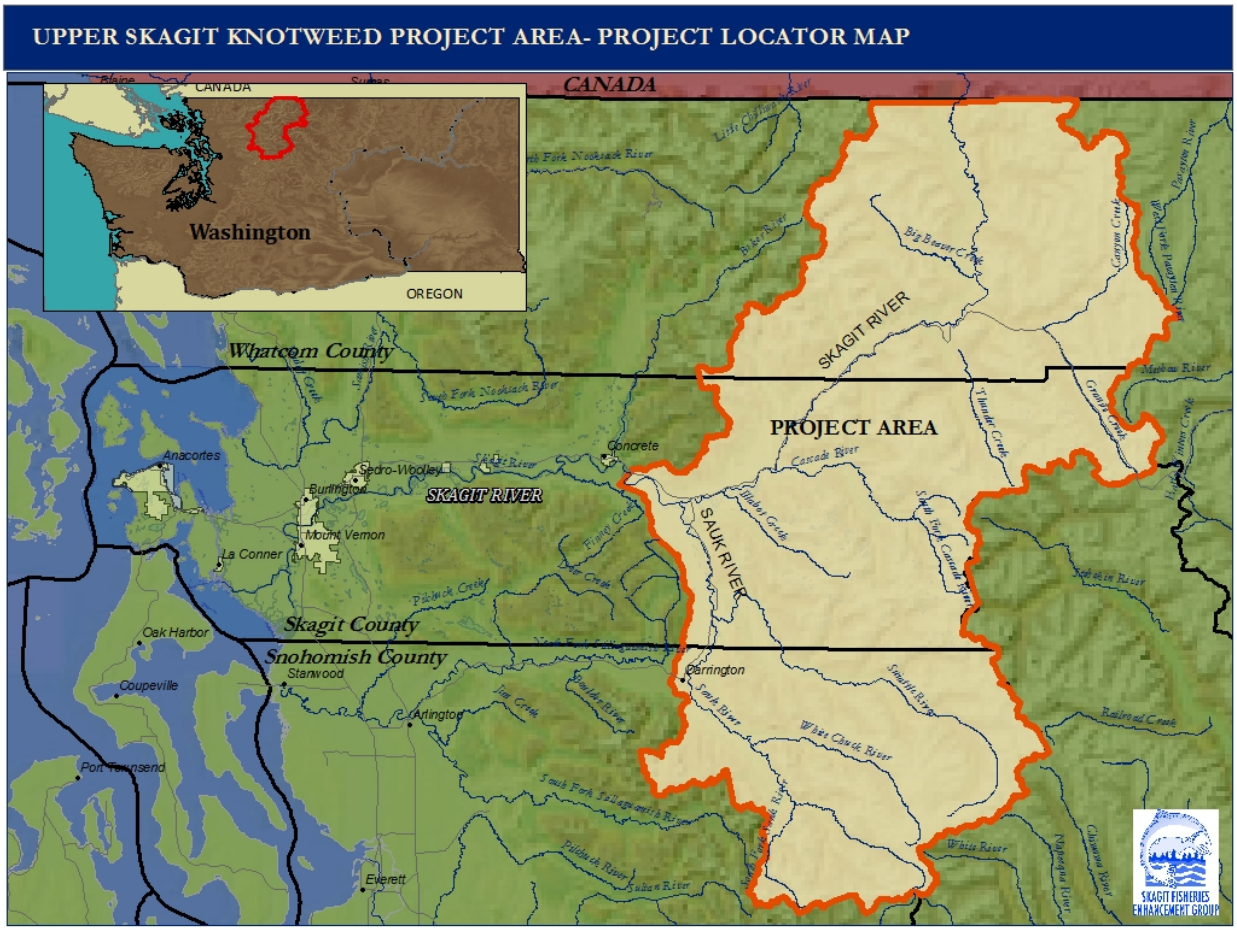
The Upper Skagit Knotweed Project focuses on the Upper Skagit River basin, approximately 2,960 square miles in size. The project area includes the Skagit and Sauk River floodplains and priority uplands from the upper portions of these watersheds to the confluence of the Skagit and Sauk rivers at the town of Rockport. The project area also contains the floodplains of the Cascade and Suiattle Rivers, as well as smaller tributaries of these reaches (Figure 1).

As the largest and most ecologically important drainage in Puget Sound, the Skagit River contributes approximately one third of the total amount of fresh water to Puget Sound and 44% of the total anadromous fish production. The Skagit watershed supports all five species of Pacific salmon plus steelhead, cutthroat, rainbow and bull trout, and contains the largest and healthiest wild Chinook and pink salmon runs in the Puget Sound. Recovery of ESA listed Puget Sound Chinook salmon is especially dependent on the Skagit watershed, as one half of the remaining Puget Sound Chinook spawn in the Skagit River and its tributaries, primarily in the upper Skagit watershed. Because of the ecological significance of this area, SFEG and other groups are dedicated to preserving the biological diversity, and in this case, specifically the biodiversity of the riparian zone. The floodplains in the Upper Skagit watershed (including the Sauk, Suiattle and Cascade Rivers) are a high priority area for protection and restoration actions in order to recover critical habitat for ESA threatened Chinook salmon in Puget Sound. The project area also contains the largest wintering bald eagle concentration in the state, and one of the four largest in the lower 48 states.

According to the ESA Recovery Plan for Skagit Chinook (the Skagit Chinook Recovery Plan, 2005), floodplains provide important freshwater habitat for all Chinook salmon fry, but more expressly for those life history

strategies that depend on freshwater habitat for extended rearing such as parr migrants and yearlings. Adult Chinook spawn in the mainstem of the Skagit, Sauk, Suiattle and Cascade Rivers. The Upper Skagit River contains the highest density of Chinook spawning areas in the entire Skagit watershed. The majority of the Chinook, pink and chum salmon that spawn in the Skagit River system spawn in the Upper Skagit area (from the Sauk River confluence to the dams operated by Seattle City Light). The off-channel sloughs and wetlands in this reach provide critical rearing habitat for Chinook and coho.

Figure 1. Project Area



Watersheds where knotweed control work was performed

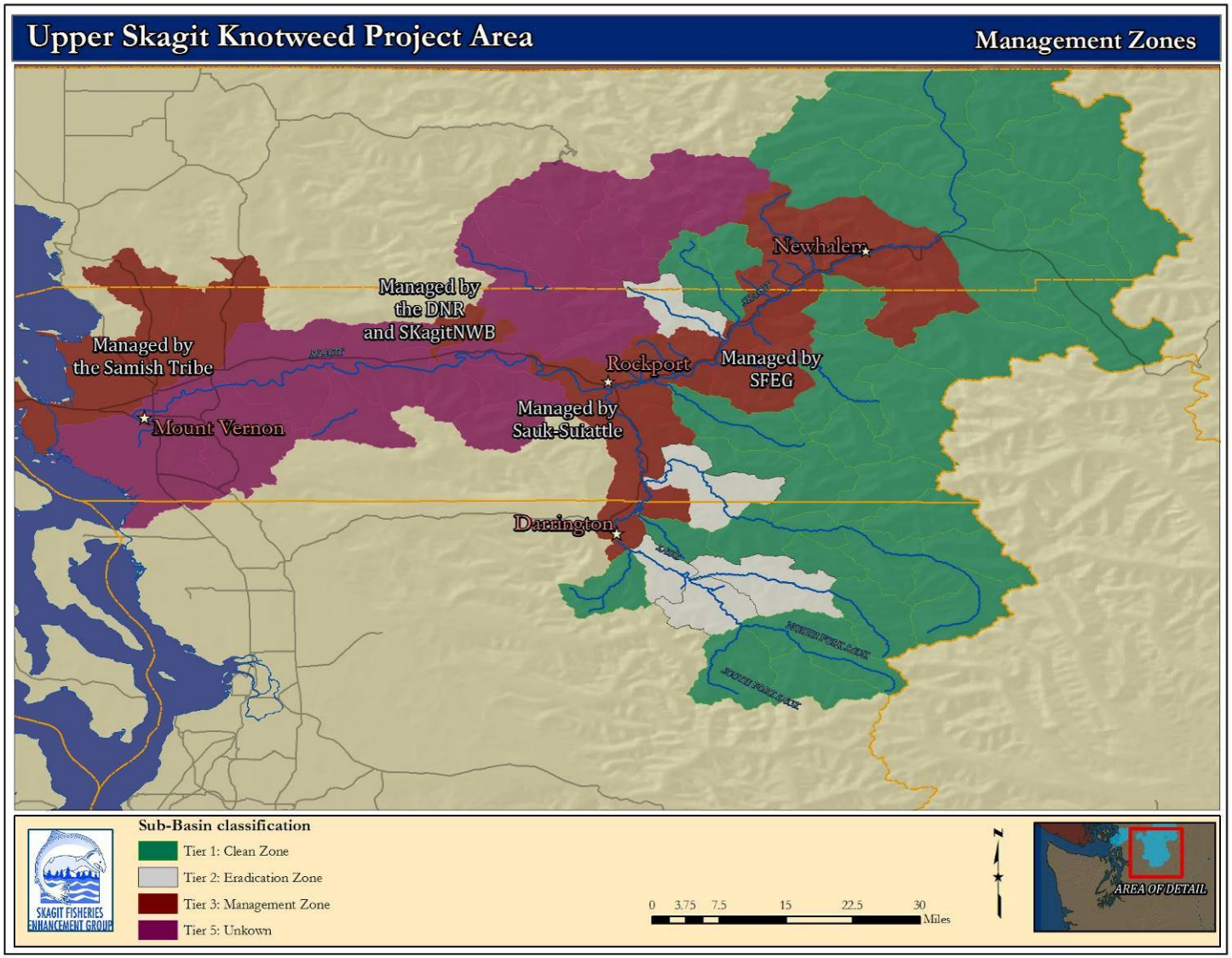
Knotweed control (treatment) work was performed in the Upper Skagit watershed, above the confluence of the Skagit and Sauk Rivers, including the Skagit River below the town of Diablo, the Sauk River below the community of Bedal and other tributaries to these rivers. Focusing on the upper portion of the watershed not only accomplishes the top down approach to control but also works to protect the most valuable salmon spawning habitat as detailed in the project area description.

In 2009, The Nature Conservancy (TNC) and the Skagit Cooperative Weed Management Area partners developed a watershed-scale prioritization strategy to help decide where to focus work in the project area. The result of that planning effort is shown below in Figure 2. SFEG continued to follow this strategy during the 2013 field season. The idea behind the strategy is to break down the larger watershed into smaller subwatersheds and show (1) knotweed-free areas (Tier 1/green), (2) areas to treat all knotweed and test the theory of eradication (Tier 2/gray), (3) management areas where treatment will only occur along tributaries and

floodplains in a top-down approach (Tier 3/red), and (4) areas of the watershed where surveys and work are not yet being completed (Tier 5/purple) (Figure 2). This project focuses only on areas defined as Tier 1, 2 or 3. Other organizations have begun knotweed control work in the Tier 5 subwatersheds including the Dike District, Samish Indian Nation, the Department of Natural Resources and the Skagit County Noxious Weed Control Board, and will be reporting on their work at our Skagit CWMA Working Group meeting in December.

SFEG will continue to refine the prioritization strategy and consider updates based on new information as it becomes available. This includes considering habitat or ecological importance. For example the upper Skagit River above Copper Creek upstream of the Sauk River confluence has been categorized as a Tier 3 area. However, because of this area's significance to ESA listed salmon populations and the relatively low occurrence of knotweed in this section SFEG will suggest to the CWMA to elevate the area of the Skagit River from Newhalem to Cooper Creek to a Tier 2 area (eradication zone). This will be done after the 2014 survey season, unless there are an increased number of new patches during that time. Along the upper Sauk River, substantially more new patches were found in 2013 than in 2012. If this trend continues in the 2014 survey season SFEG will likely not maintain this area as an experimental eradication zone (Tier 2) and reclassify it as a management zone (Tier 3).

Figure 2. Prioritization strategy for knotweed control in the Upper Skagit Project Area.



Acres treated

An estimated 0.6 solid acres of knotweed were treated in the project area in 2013. SFEG used approximately 4,643 ounces (36 gallons) of herbicide mix equaling 46.43 ounces or 0.36 gallons of Imazapyr herbicide. It is difficult to estimate the number of acres treated (solid or affected area) because most knotweed patches in the project area are very small and are sparsely spread out over large floodplain areas. Given that, we feel that the percent elimination measure may be a better indication of the success of the project (see "other notable outcomes" section).

The amount of herbicide used in 2013 has been reduced by close to half of what was used in 2012 (see Table 1 below). One of the reasons for the reduced application is that there were fewer live patches to treat in 2013 and patch size continues to be reduced. In addition the Sauk-Suiattle Indian Tribe has taken on treatment of the Lower Sauk since 2011, which is a portion of the project area with a high occurrence of knotweed and that needs concentrated treatment efforts. This has contributed to lower usage numbers from 2011 -2013 (Table 1).

Annual herbicide use data from 2008 - 2013 are based on using a 1% Imazapyr herbicide mix solution and a spray rate of 50 gallon/acre. This differs from years prior to 2008 since Glyphosate was used at a 5% rate with an estimated 100 gallon/acre spray rate (note: in 2007 Glyphosate was used in Upper Sauk and Imazapyr used in the rest of the project area). Because the U.S. Forest Service granted permission to treat knotweed on their lands with Imazapyr in early 2008, the program was able to convert entirely to Imazapyr treatments. The table below shows herbicide use and corresponding solid acres treated over the duration of the Upper Skagit Knotweed Project.

Table 1. Upper Skagit Knotweed Control program annual herbicide use

Year	Gallons of herbicide mix	Acres treated
2002	185	1.9
2003	194	1.9
2004	147	1.5
2005	448	4.5
2006	721	7.2
2007	343	3.4
2008	58	1.2
2009	180	3.6
2010	174	3.5
2011	65	1.3
2012	54	1.1
2013	36	0.6

The amount of floodplain area protected was calculated using GIS. For the purpose of this analysis, "floodplain" was identified based on a GIS-layer developed by the Skagit River System Cooperative (SRSC) for use in the Skagit Chinook Recovery Plan (depicted as SRSC floodplain on GIS maps). The acreage protected as listed in Table 2 below, represents the area of floodplain that is being protected from knotweed infestation through this program.

Table 2. – Estimated Floodplain Area Protected in 2013

Area	Acres
Upper Sauk River -Bedal to White Chuck	1,201
Upper Sauk River- White Chuck to Clear Creek	612
Middle Sauk River	2,785
Lower Sauk River	4,108

Upper Skagit River -Copper Creek to Rockport	5,627
Upper Skagit River - Newhalem to Copper Creek	1,149
Upper Skagit River - Gorge Spillway	396
Diablo	412
Cascade River	839
Suiattle River	2,153
Total estimated floodplain area protected	*19,282*

River miles surveyed and treated and knotweed-free areas

In 2013, SFEG staff assisted by WCC crews thoroughly surveyed within the 100-year floodplain along 53.8 mainstem river miles along the Skagit and Sauk rivers, and 22 miles of tributaries. In the 2013 season SFEG focused on thoroughly surveying mainstem river miles and completing tributary surveys in high priority areas. High priority tributaries include those tributaries that are ranked high in the Chinook Recovery Plan for salmon habitat value and tributaries which are clean of knotweed but are at risk for knotweed infestation due to nearby patches or roads. Tributaries with known knotweed patches are surveyed each year. The longest tributary survey done this year was Illabot Creek. Illabot Creek is identified as important for salmon habitat and identified as a high priority in the Chinook Recovery Plan. Illabot Creek also has knotweed in the lower 5 miles. A summary of the river and tributary miles surveyed is provided in Table 3.

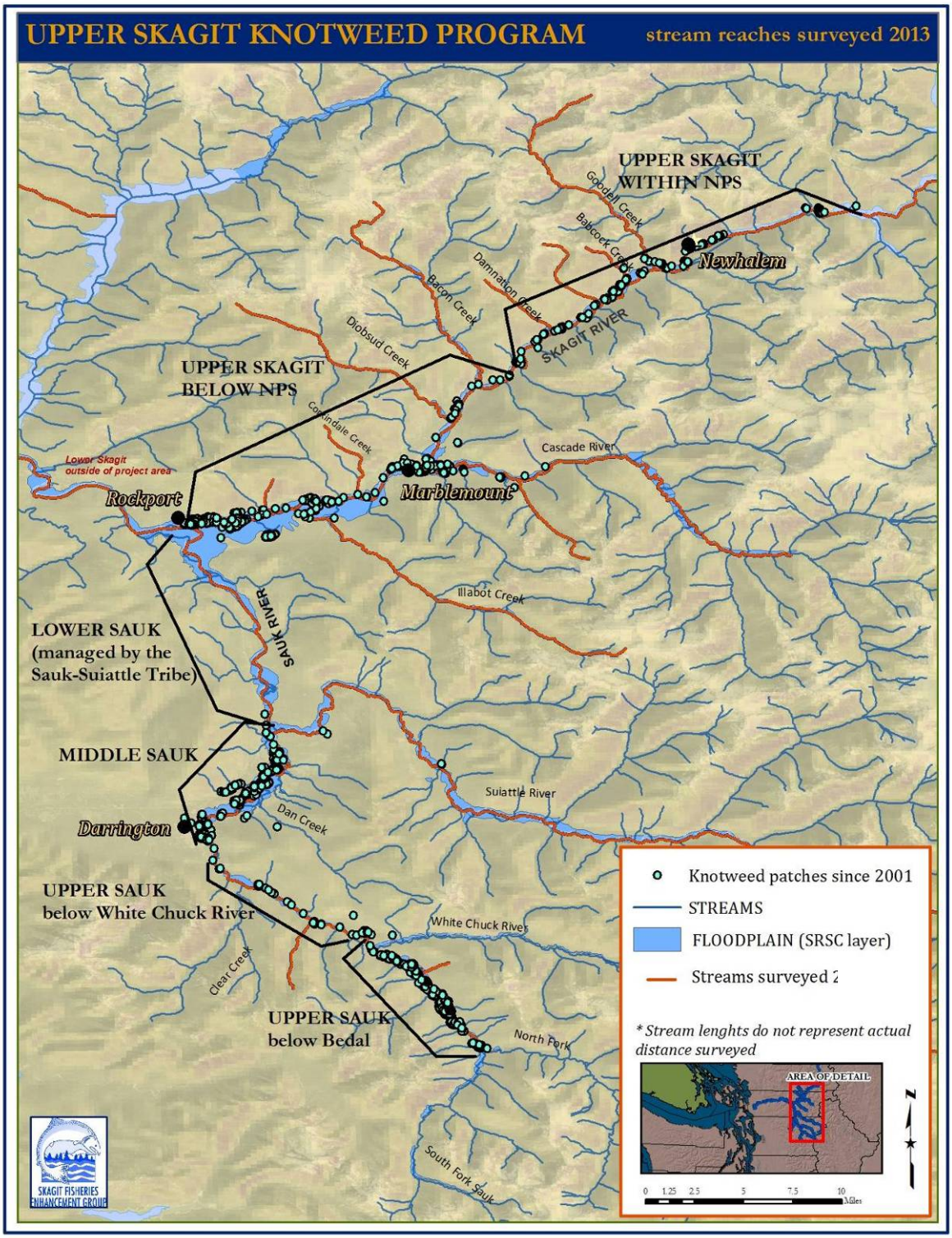
Tributary surveys were expanded this year to two major tributaries in the Middle Skagit, Day Creek and Finney Creek. Both of these tributaries have been identified as important for Salmon. Finney Creek was found to be knotweed free and Day Creek only had knotweed in the last 0.1 mile near the confluence with the Skagit River. This expansion of tributaries was completed by the Puget Sound Corps DNR aquatics crew. Surveying these new areas was made possible because of DNR's generous donation of the Puget Sound Corps Crew to the Skagit CWMA.

The overall results of tributary surveys were positive with a new knotweed patch found on only one previously designated clean tributary, Murphy Creek a tributary of the Sauk River. The project area, rivers and tributaries that were surveyed are shown in Figure 3.

Table 3. 2013 survey results for the Upper Skagit Knotweed Control Program.

Mainstem Rivers	*Miles Surveyed*	*Description*	*Knotweed Presence*
Skagit River	28.5	Diablo Dam to town of Rockport (confluence of Sauk and Skagit Rivers)	Sparse to medium sized infestations throughout
Upper and Middle Sauk River	25.3	Town of Bedal (junction of N and S Fork Sauk River) to Suiattle River/Gov. Bridge	Sparse to medium infestation throughout
Lower Sauk River	14 Sauk-Suiattle	Sauk -Suiattle Tribe surveyed lower Sauk River from 2011-2013	knotweed throughout
Total river miles:	**53.8**		
Tributaries	*Miles Surveyed*	*Description*	*Knotweed Presence*
Babcock Creek	0.7	Surveyed from new bridge to Skagit River	Sparse knotweed throughout 0.7 miles to Skagit River.
Bacon Creek	1.5	Above and below bridge to Skagit River.	Knotweed-free
Beverly Creek	1.6	Lower 1.6 miles to Sauk River.	Sparse throughout lower 1.6 miles
Boulder Creek	2	Lower 2 miles from Cascade River.	No knotweed found on river. Knotweed patch found near river on logging rd 1 mile upstream.
Cascade River	0.2	4 miles surveyed in 2012 and found knotweed free, lower river from hatchery found knotweed free in 2013	Sparse within lower 5 miles of floodplain, no live knotweed patches on river.
Corkindale Creek	0.2	From hwy 20 to Skagit River.	Knotweed-free
Diobsud Creek	0.8	Lower .8 mile	Patches only on lower section near Skagit
Day Creek	4	4 miles from SLT restoration site to Skagit River.	Upper portion knotweed-free, small knotweed infestation in lower .1 mile.
Damnation Creek	0.2	Surveyed from river to power lines	None along river, sparse along roads
Finney Creek	3.5	3.5 miles on Lower Finney Creek from LWD installation to above South Skagit hwy	Knotweed-free
Goddell Creek	0.6	Lower 0.6 miles to Skagit River	None along river, sparse along roads
Illabot Creek	5	Lower 5 miles below Rockport/ Cascade Rd	Very sparse in lower side channels
Murphy Creek	0.3	Creek surveyed below hwy 530 to Sauk River.	New knotweed patch found on creek, just above Sauk River.
Prairie Creek	0.2	Lower 0.2 miles surveyed to Sauk River.	Large patches of knotweed found in 2011
Rocky Creek	0.5	Surveyed from hwy 20 to Skagit River.	Knotweed-free
Suiattle River	0.2	14 miles surveyed in 2011 and found to be knotweed free	Knotweed-free (river) – patches along roads
Sutter Creek	0.5	Above hwy 20 to Skagit River.	Knotweed-free
Thorton Creek	0.5	Lower 0.5 miles to Skagit River	Knotweed-free
Total tributary miles:	**22**		
TOTAL RIVER and TRIBUTARY MILES:		**75.8**	

Figure 3. ***Map showing Upper Skagit project area and rivers and tributaries surveyed from 2013-2014 has shown is the knotweed patch distribution. Stream lengths do not represent actual distances surveyed. For that information, please refer to Table 3. Note the floodplain GIS layer used for this map and others in this report was developed by the Skagit River System Cooperative (SRSC) for the Skagit Chinook Recovery Plan (2005).***



Treatment techniques used

SFEG continued to follow the prioritization strategy for knotweed treatment developed in 2009 for the Upper Skagit Knotweed Control Project. This strategy follows the tiered prioritization strategy outlined in Figure 2, and also incorporates factors including location in the watershed (e.g., riparian vs. upland; upriver vs. downriver) and ownership. We first targeted the upper Sauk River for treatment and surveys, as this area is the test Tier 2 eradication zone. The Upper Sauk has a greater and more dynamic river channel and is also more difficult to traverse via raft later in the summer due to low flows. We secondly targeted the middle Sauk River from the town of Darrington to Government Bridge, Tier 3 Management Area, for pre-treatment surveys and treatment in July, because of its large gravel dynamic bars it is a difficult section to survey. Once the Sauk River surveys and treatment was completed in July we focused on the Skagit River. Though the highest priority section (between Diablo and Copper Creek) was completed later in the season to best fit the schedule of project partners. This work was done in coordination with the support of our National Park Service (NPS) and Seattle City Light (SCL) partners. In July and August we worked on the Skagit River below Copper Creek and relevant upland areas in the project area. SFEG completed all planned treatment work along the Skagit and Sauk Rivers in the project area. The lower Sauk River and the town Darrington were surveyed and treated by the Sauk-Suiattle Indian Tribe in coordination with SFEG and the CWMA. The Sauk-Suiattle's work on the lower Sauk and upland areas of the town of Darrington and Sauk Prairie allowed for SFEG to focus more on the high priority areas of the upper watershed.

Treatment techniques continued to follow integrated pest management methods including: 1) manual bending of stems taller than 1-meter during surveys in spring and early summer, followed by 2) foliar spraying a mix of 1% Imazapyr and 1% Agridex with 50 oz hand sprayers or 4-gallon backpack sprayers. Surveys took place from May through the end of September. Herbicide treatments began in late July and continued until the first freeze in mid October. We followed the protocol of waiting to begin spraying until July that has been recommended by scientists and other professionals in the field, although it does reduce our window for completing the work, and leads to not always being able to treat all patches each field season.

Previously identified patches were located using GPS location data, in combination with aerial photos, topographic maps and field notes. Status data for previously identified patches is recorded in the field notebook and then updated in the master patch spreadsheet. For new patches, a unique patch identifier was assigned and the location was recorded using Garmin etrex legend GPS units. Patch location, status and viability data are collected on a standard Upper Skagit Knotweed Project field form. A written description of the specific patch location and surroundings was also recorded and the patch is flagged with its patch identifier.

For all new patches found the following was documented:
Patch ID#: a unique identifier is assigned to each patch (note each new patch is flagged with distinct stripped flagging and unique ID#)
ID #: first two letter river (Sauk = AP, Skagit = KP) Year (13) and unique ID odd number rt side river even number left side river. Example patch AP1301, Sauk River patch found in 2013 on the right side of the river.
Location description:
Distance from water: <10m, 10-50m, >50m
Patch condition: Number of stems and patch area in meters
Herbicide use data (Time/date/location/wind/temp/waterbody/applicators/amount applied)

For previously identified patches the following was documented:
Status: alive, dead, not found, washed away
Location Description:
Patch condition: Number of stems
Herbicide use data: (Time/date/location/wind/temp/waterbody/applicators/amount applied)

Notable outcomes

The monitoring results for 2013 were positive. With an overall reduction in the amount of new patches and old

live patches found and treated. The outcomes below continue to show a reduced presence of knotweed in the watershed as a result of the Upper Skagit Knotweed Programs efforts. The following measures are based on the parameters that have been used for reporting since 2008 and are organized based on knotweed treatment and monitoring in the upper Skagit project area.

2013 Results

Patches Monitored:

Since 2011 the Sauk-Suiattle Indian Tribe has managed knotweed patches in the Lower Sauk River the Town of Darrington and the Sauk Prairie in collaboration with the Skagit CWMA and SFEG. As of 2013 the Sauk-Suiattle had 634 knotweed patches in their Project Area. Within SFEG's Project Area not including Sauk-Suiattle patches, SFEG is monitoring 1,639 patches (this includes new patches found in 2013). During the 2013 season 99% of the patches within SFEG's Project Area (1,639) were monitored (19 patches where not monitored due to lack of land owner permission).

A total of 2,273 patches have been found throughout the Upper Skagit Knotweed Project area since 2001 (patches both monitored by SFEG and Sauk-Suiattle). SFEG monitored 72% of all patches within the entire project area. Patches monitored by SFEG and Sauk Suiattle constitute 95% of all patches in the entire project area.

Live Patches:

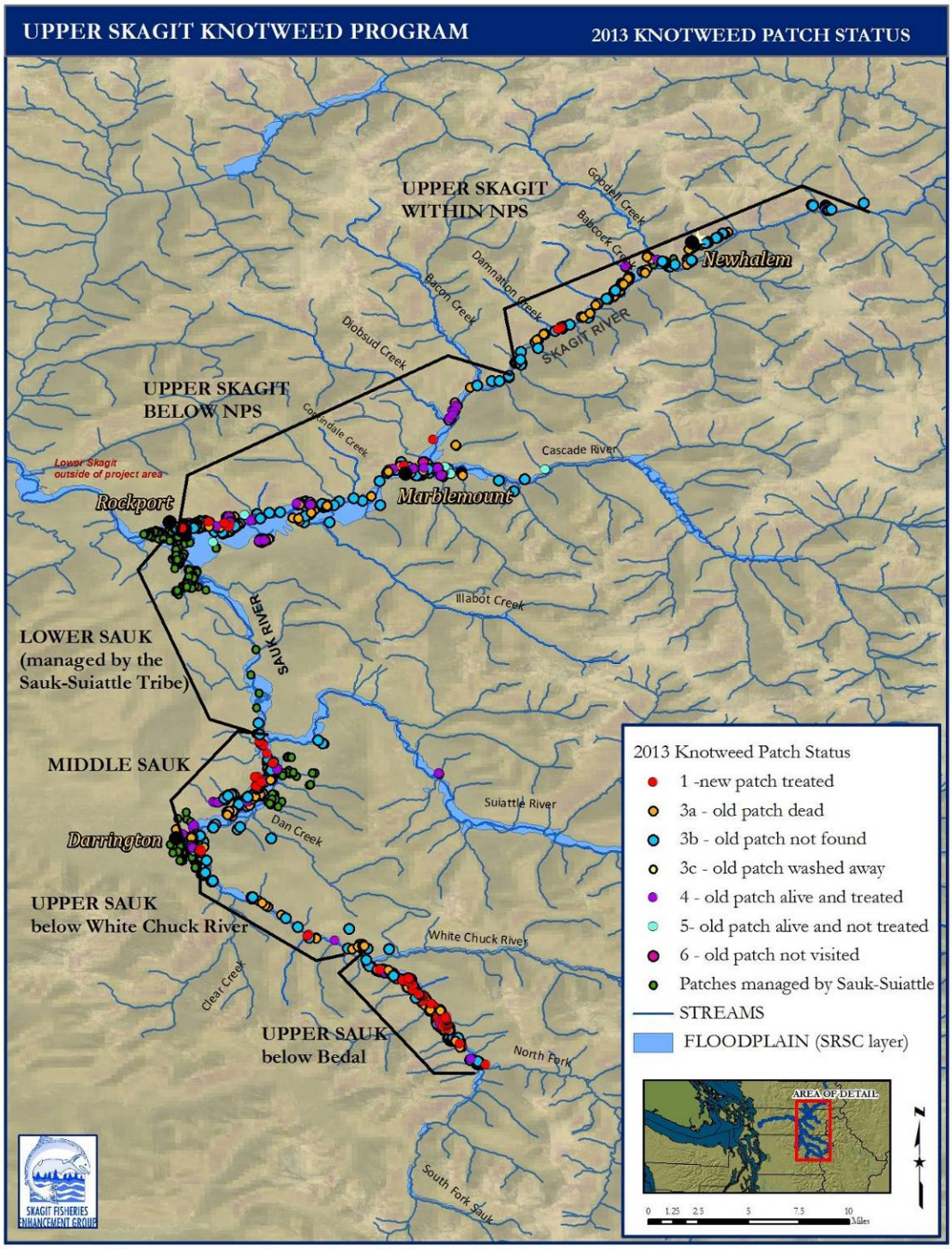
During the 2013 season 83 new patches were found in SFEG's Project Area. 55 of these new patches were found on the upper Sauk where a newly surveyed tributary and back channel were found to have 18 new patches. New patch numbers are slightly up this season from 72 in 2012 and down from 94 in 2011. However, the overall number of live (new and old) patches found in the project area was down in 2013 by 13% from 2012.

Percent Elimination:

70% of all patches identified since 2001 (1594) have been eliminated from the entire project area (all 2,273 patches) (dead, not found). This assumes that any of the patches not visited are not eliminated. This is up from 60% in 2012, and up from 56% in 2011. These numbers include patches monitored by the Sauk-Suiattle Tribe.

Of the patches within SFEG's Project Area (1,639), 81 % have been eliminated. This is in comparison to 78% in 2012 and 74% in 2011.

Figure 4. Shows the GIS/GPS data used to record and track knotweed patch data, and visually depicts where patches are eliminated, not visited, etc. Patches not visited (in pink) that are located higher in the watershed, e.g., above Marblemount or near Darrington are upland patches out of the floodplain that were not given high priority in the prioritization strategy. Shown in green are patches that were monitored by the Sauk-Suiattle Indian Tribe in 2013.



Upper Sauk Sub-Basin

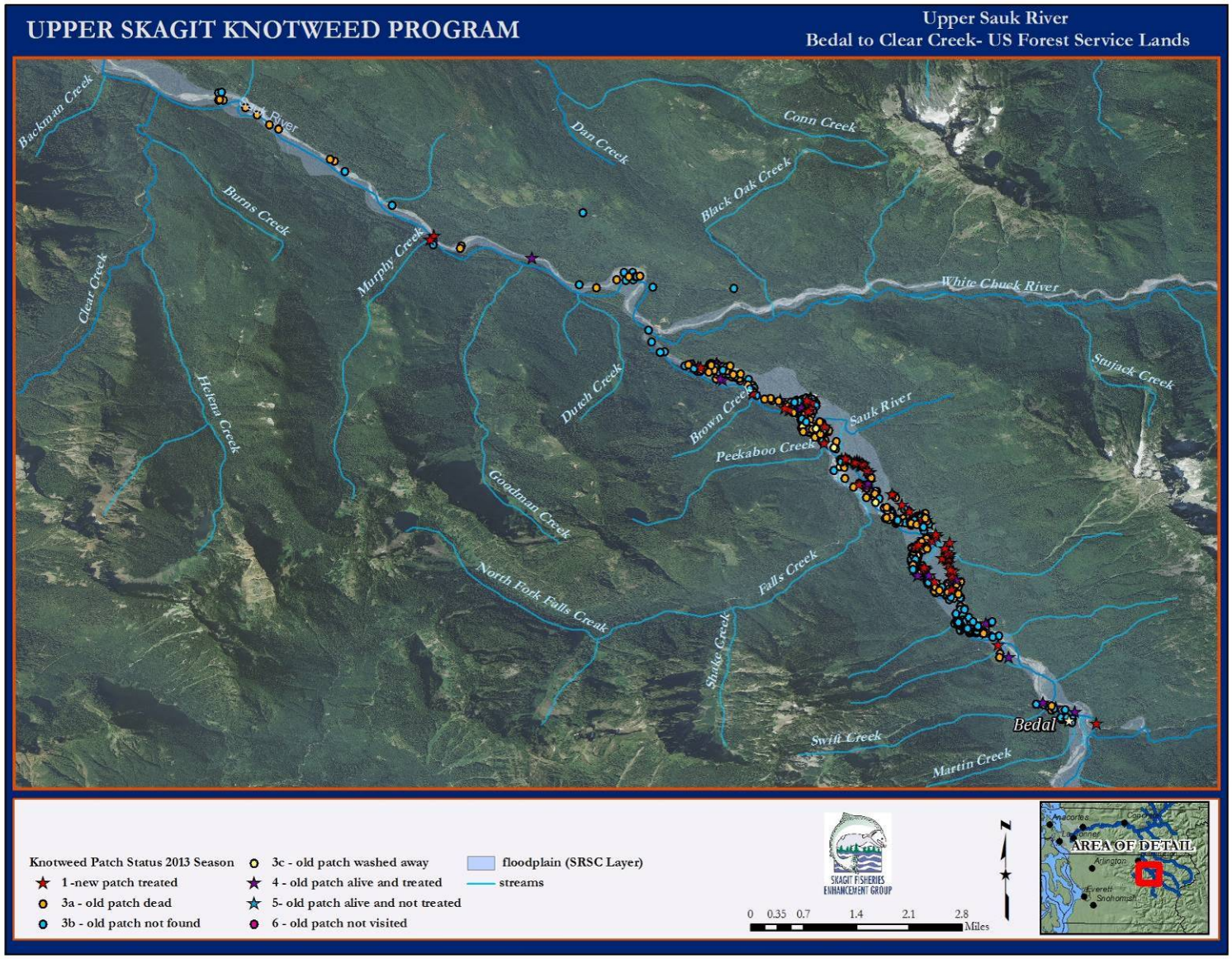
The experimental eradication zone on the upper Sauk River from the community of Bedal to the White Chuck River (Mount Baker-Snoqualmie National Forest) has been rigorously surveyed and treated since the beginning of 2006 (Figure 6). This area was not treated until the Forest Service completed an environmental assessment and associated supplement in May of 2006. In 2013, the area was again rigorously surveyed and treated in accordance with the prioritization strategy and previous efforts. This includes pre-treatment surveys beginning in late May. The Sauk River in this area has high water events and floods nearly every year. The river changes dramatically after these high waters each year, redistributing many knotweed patches, and making complete eradication a challenging task.

Highlights for the Upper Sauk subbasin, between the community of Bedal and U.S. Forest Service boundary at Clear Creek are listed below.

- 655 patches found in this area since 2006.
- 55 new patches found in 2013, 18 of these patches where found on a tributary not previously surveyed. This is an increase in new patches since 2012 (31 new patches) and a similar number of patches to 2011 (52 patches) but still a reduction from 2010 (83 patches).
- 540 patches were found dead in 2013, 509 patches were found dead in 2012 (428 dead patches were found in 2011, 76% elimination) and 83% of all patches identified since 2006 have been eliminated from this project area (dead, washed away, not found). This is up 7% from last year.
- 100% of patches in this area were treated.

Figure 5. WCC Crew surveying gravel bar on the upper Sauk River.

Figure 6. Knotweed treatment in the upper Sauk subbasin.



Upper Skagit subbasin

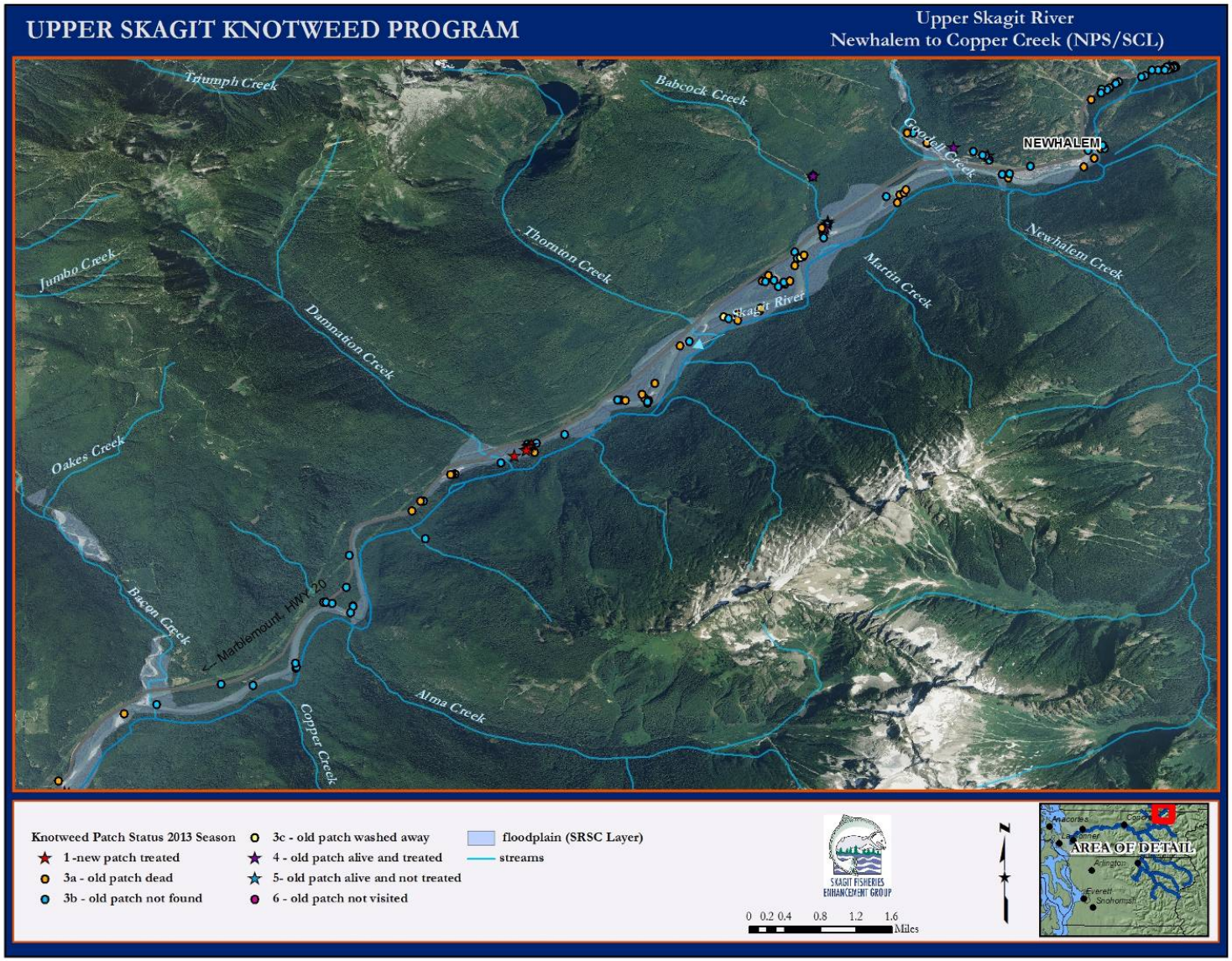
The project area in the upper Skagit River subbasin is on both National Park Service (NPS) and Seattle City Light (SCL) land. SFEG worked in collaboration with Seattle City Light (SCL) and the National Park Service (NPS), surveying and treating all areas around the towns of Diablo and Newhalem, the Gorge Spillway, and the Skagit River between Newhalem and the Copper Creek boat launch. Results from these efforts were encouraging overall, with a high success rate for patches eliminated, 89%. Also encouraging is that no old patches were found alive along the Skagit River from Newhalem to Copper Creek. Live old patches were only found in the town of Newhalem and Diablo, the Gorge Spillway and along Babcock Creek. 6 new patches were found this year, however they were all found in the same area adjacent to Damnation Creek, none of these patches where within 50 feet of the river. If similar results are found in this section in 2014 the area is proposed to be reclassified as a Tier 1 eradication zone.

Highlights for the Upper Skagit River subbasin are listed below and depicted in Figure 8.

- 148 patches found from Diablo to Copper Creek since 2001.
- 6 new patches found, all around Damnation Creek in old back channel.
- 11 old patches alive found in Newhalem, Babcock Creek and the Spillway.
- 89% of patches eliminated since project started (up from 84% in 2012)
- 100% of live patches found were treated.

Figure 7. WCC Crew and SCL staff before surveying the Gorge Spillway.

Figure 8. Knotweed treatment in the upper Skagit subbasin.



Number of Private Landowners Assisted

The vast majority of the land within the project area is public land. We have agreements to treat knotweed on public lands with all of these agencies, including the U.S. Forest Service, Washington Department of Fish and Wildlife, Washington Department of Natural Resources, National Park Service, Skagit County Parks, The Town of Darrington and Seattle City Light. The Nature Conservancy (TNC) also holds a large amount of property in the project area and SFEG has an agreement to treat knotweed on TNC property as well.

SFEG has prioritized working within the floodplain area and therefore with all landowners in this area. When SFEG began the project in 2010 we did extensive outreach with landowners in priority areas and that had previously worked with TNC. Through these efforts 17 new landowner agreements were acquired. In 2013, outreach efforts continued with 7 new landowner agreements obtained, with a total of 38 landowner agreements signed since 2010. It is important to note there are some landowners who are interested in participation but unwilling to sign an agreement form. There are also some landowners who are absentee and cannot be reached. SFEG will continue to work on obtaining more agreements during the winter season and for the 2014 survey and treatment season.

The vast majority of private landowners that The Nature Conservancy had worked with beginning in 2001 are located in the City of Darrington and other upland areas. Since the shift in focus for this project to the floodplain areas in 2008, there had been no knotweed treatment in Darrington. Starting in 2011, the Sauk Suaittle Tribe worked in partnership with Snohomish County Noxious Weed Board to perform treatment in the town of Darrington. SFEG assisted the Tribe in providing outreach materials and landowner agreement templates.

Partners involved

The Skagit CWMA Working Group includes 19 cooperators.

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

The above cooperators attend twice annual meetings to offer input related to the project, and work together to ensure treatment takes place on lands represented by these organizations. SFEG is very thankful for the assistance they received from these cooperators and would specifically like to thank several organizations for their involvement during the 2013 season. The Sauk-Suiattle Indian Tribe led treatment in the town of Darrington and the lower Sauk River. Seattle City Light also provided staff to work with SFEG and WCC during treatment in the North Cascades Park and Ross Lake National Recreation Area. Finally, our contractor WCC made the project a success with the assistance of the Puget Sound Corps Crew.

Outreach efforts

SFEG's Stewardship Manager and WCC crew visited landowners to distribute knotweed information and ask for permission to survey and treat knotweed. In addition, we also continue to mail letters, make phone calls, and visit those property owners where we have been unable to gain permission or where new knotweed patches have been found.

In addition to the landowners who have signed agreements, we have spent time doing outreach to other landowners in the project area. We have spoken with approximately 25 members of the public who own land within the upper Skagit basin. Information about knotweed has been posted at local grocery stores, gas stations and coffee shops. The knotweed brochure has also been distributed at SFEG tabling events.

SFEG will continue to hold the Skagit CWMA working group meetings in May and December of each year, and will continue to invite new organizations and individuals to participate.

Plans for next year

In 2014 the focus for the Upper Skagit Knotweed Program will continue to be surveying the tributaries and floodplains of the Skagit and Sauk Rivers, and conducting outreach to private landowners in those areas. In 2014 early season survey work from May –July will again focus on the Upper Sauk and and any high-priority tributaries. Treatment from July – October will be prioritized on the Upper Skagit and Upper and Middle Sauk rive floodplain. If time allows we may again expand our focus to survey areas outside of the Upper Skagit Project Area (into the Tier 5 areas in Figure 2). This could include important spawning tributaries to the Middle Skagit or tributaries in the Middle Skagit where extensive restoration efforts have taken place.

Select Photos from the Upper Skagit basin

The Sauk River

Figure 9. The Sauk River, above the White Chuck River, USFS land.

Figure 10. New patch, AP1377 has one small stem, which is common for new patches found in the project area. These small patches can be difficult to locate and are one of the challenges in controlling knotweed on the Sauk.

Figure 11. New Patch AP1369 found in the alder understory of the upper Sauk River. Many patches are found growing in the understory with low light.

Figure 12. New Patch AP1393, found on one of the many back channels on the upper Sauk River, backchannels are the most common place new knotweed patches are found and can be difficult to locate and survey.

Figure 13. Before: Patch AP1220 found on the upper Sauk in 2012, with 4 stems.

Figure 14. After: Patch AP 1220 found dead in 2013, was treated in 2012 (shown in figure13).

Figure 15. Before: AP 1215 found along the edge of the mainstem upper Sauk River in 2012, with a total of 15 stems.

Figure 16. After: AP1215 found dead in 2012.

Figure 17. Before: AP1229 along a side channel of the Sauk River found in 2012 with 7 stems.

Figure 18. After: AP1229 found dead in 2013.

Figure 19. Patch AP836, located on the middle Sauk River, was found dead in 2013, the patch was live and treated in 2012 with 14 stems. The Terrain on the Sauk River, as shown in this photo is very challenging this is one of the many log jams which we surveyed for knotweed.

Figure 20. New patch, AP1307A found on the middle Sauk River along the edge of the mainstem.

Figure 21. Both the WCC and the Aquatics Puget Sound Corps Crew (PSCC) on the middle Sauk River after surveying for and treating knotweed patches during the 2013 season.

The Skagit River

Figure 22. The Skagit River just below Marblemount. Much of the surveying on the Skagit is done by raft as there are not as many bars and back channels as on the Sauk River.

Figure 23. Patch K100-1 a single stem patch found on an old back channel of the Skagit just above Howard Miller Steelhead Park. This patch was originally identified in 2008, found dead after treatment in 2009 and then found live and treated from 2011-2013. In 2012 this patch had 4 stems. This patches history represents the complicated nature of knotweed treatment and the importance of rigorous re-surveying.

Figure 24. New patch KP1300 found in a back channel of the Skagit River below Marblemount. The patch was treated and had 10 stems.

Figure 25. Patch KP1101 one of the few live patches found along the Skagit River in 2011 between Copper Creek and Marblemount. This patch was found dead in 2012 with the exception of two mutitated stems with no leaves. In 2013 the mutated stems were gone and very small single stems (an average of 7 inches in height) of knotweed had emerged, none of these stems where symptomatic (chias).

Figure 26. WCC crew shown recording patch data and taking GPS points. Crew leader Rob shown reviewing maps. A GPS point and notes are taken for every new patch found, all information is also recorded on laminated maps of the project sites.

Figure 27. Before: KP1219 was the largest new patch found on the Skagit River in 2012 with and estimated 500 stems. This patch was located on a back channel that had not previously been surveyed.

Figure 28. After: Patch KP1219 only had 20 live stems reduced from 500 in 2012

Figure 29. Before: Patch KN1102 was found 2011 with 6 stems, as shown in photo. This patch is located on a back channel of the upper Skagit on NPS lands. The patchs was also found live in 2012 with 2 small stems.

Figure 30. After: Patch KN1102 was found dead in 2013 after 2 years of treatment.

Figure 31. Patch KP1211is located just off of the mainstem Skagit River and was one of 7 new live patches found on the Skagit within NPS lands in 2012, the patch had 25 stems. KP1211 was found dead in 2013, as seen in photo.

Figure 32. KP1313, was one of the new patches found during the 2013 survey season in an old back channel of Damnation Creek on NPS lands. All 6 of the new patches found on NPS lands were all in this area and small with between 1 and 4 stems.

Figure 33. Patch GB010 was one of two live patches found in the Gorge Spillway in 2013. Each patch found in the spillway had only one stem.