

Data Management

Tracking Work in the First Year and Beyond

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King County Noxious Weed Control Program

Project Tracking

- ◉ Why bother?
- ◉ Before you start, define
- ◉ 5 basics to record
- ◉ Helpful extras
- ◉ How-to; some suggestions

Fitting it all in



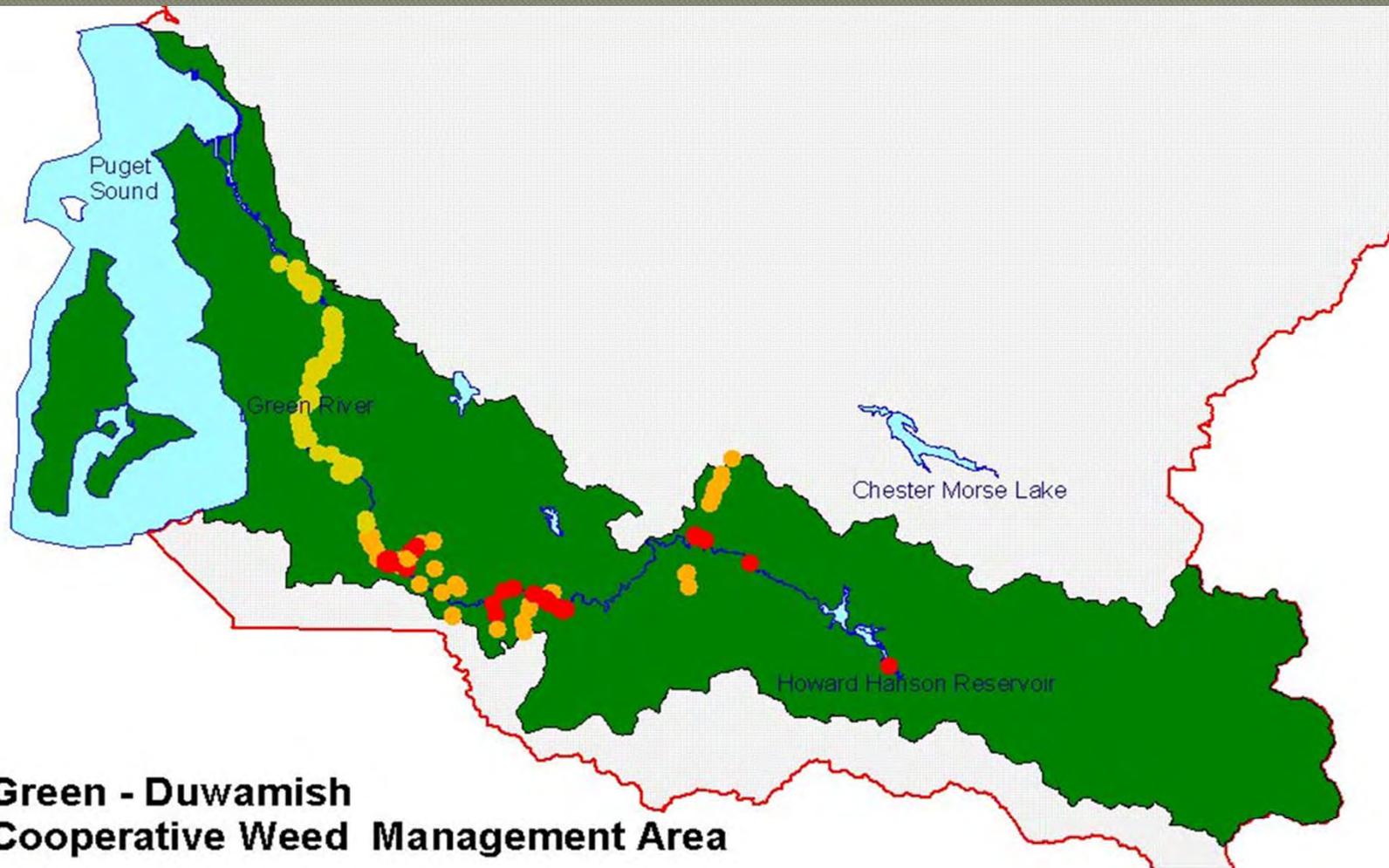
2011

January	February	March
Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 4 ● 12 ● 19 ○ 26 ○	Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 2 ● 11 ● 18 ○ 24 ○	Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 4 ● 12 ● 19 ○ 26 ○
April	May	June
Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 3 ● 11 ● 17 ○ 24 ○	Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 3 ● 10 ● 17 ○ 24 ○	Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 ● 8 ● 15 ○ 23 ○
July	August	September
Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 ● 8 ● 15 ○ 23 ○ 30 ●	Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 6 ● 13 ○ 21 ● 28 ●	Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 4 ● 12 ○ 20 ● 27 ●
October	November	December
Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 3 ● 11 ○ 19 ● 26 ●	Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 2 ● 10 ○ 18 ● 25 ●	Su Mo Tu We Th Fr Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 2 ● 10 ○ 17 ○ 24 ●





First Year



Green - Duwamish Cooperative Weed Management Area

- Japanese Knotweed - Outside Project Area
- Japanese Knotweed - Surveyed 2004
- Japanese Knotweed - Controlled 2004
- WRIA 9
- ▬ King County Boundary



< 40 Sites, ~20 treated

Second Year

	A	B	C	D	E	F	G	H	I	J	K	L	M	
1	Site Name	Site ID	Patch Location	Weed Species	Owner	Area (SF)		Acres	Stem #	Action	Weed Crew	Contractors	Notes	Con
40		31	River Bank: Right	POLBOH	1621059039	200 cc5				Inject (not treated in 2004)	Monica		Site not treated in 2004. Good injection site	
		32	River Bank: Right	POLSAC??	1621059039	875 cc2				Spray/Wipe	Monica		Width approx 25 ft, length approx 35 ft. Not a good injection site. Regrowth is along RB. R, on east edge of	
41													Gps'd area - infest in and	
42		33	River Bank: Right	POLBOH	1621059039	500 cc3				Inject???	Monica			
43		34	River Bank: Left	POLBOH	1621059039					Spray	Monica	Woodland	Site sprayed by Woodland	19-S
44	Hesse Property	16	River Bank: Both	POLBOH	1621059001	10,000sf, cc3 infested area		0.76		Inject	Monica	Earthcorps	Site missed in 2004. Some	10-J
	Markey Property	17	River Bank: Both	POLBOH	1521059066	Total area infested: 198637sf. In that area, 18769sf is the infested area - cc1		4.6		Inject/Foliar	Monica	Earthcorps/KCNWCP	Earthcorps injected along River on 11 Aug 05. Earthcorps did not control knotweed in treed area north of river. Earthcorps spoke with Mr Markey on site - he said go ahead and control the knotweed. ****King County Crew needs to return and apply foliar to regrowth from 2004. Steve, Amy, Sasha and I sprayed/injected all but one large area (26,000sf cc3 untreated)	30-A
45	Lone Property	18	River Bank: Both	POLBOH	1521059030	3400sf, cc2 infested in 17,000sf area		0.4		Inject/foliar	Monica	Earthcorps/KCNWCP	Steven Lone returned my call and gave permission to control knotweed on his property (he spoke with Suzanne). Steve, Amy, Sasha and Monica controlled via foliar and injection on 30-Aug-05.	11-J
46														
47	Green River 19	1	River Bank: Left FLAMING GEYSER ***Included below under Flaming Geyser *****	POLBOH	2721069005: WA State Parks	500sf, cc2	500	<1	50	Foliar	Sean	KCNWCP	In rocks, Sean, Roy, Karen, Dennis and John (State Parks) sprayed Flaming Geyser on 07-Sept-05	7-Se
		2	Island, East of Site 1 FLAMING GEYSER ***Included below under Flaming Geyser *****	POLBOH	2721069005: WA State Parks	40x5, cc2	200	<1	50	Foliar	Sean	KCNWCP	Sean, Roy, Karen, Dennis and John (State Parks) sprayed Flaming Geyser on 07-Sept-05	7-Se
48		3	River Bank: Right, Upland.	POLBOH	2921069002: Dorene & Raymond Foley 253-735-1508	29021sf, cc3 **2 patches, 1 is 25583sf, cc1 and was sprayed, the	58042	<1	1000-injected	Inject/Spray	Monica	KCNWCP	Site has been sprayed by owner, some skips. Upland. Monica, Steve, Sasha and	30-A

< 70 Sites

Sixth Year

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
	Waiver Signed ?	PIN	Site Address	Last Name	First Name	2008 Notes	2009 Notes	Phone Number	2008 waiver	2007 control	2008 Control	2009 control	2008 work Funded By	Completed	notes2	Mailing Address	City State	Zip	Completed 2009	spray order
1		7333000000	1551 8th ST NE			not in 2008 spreadsheet														
2																				
3	Yes	1121059073	NO ADDRESS	Anderson	Brian	okayed; vacant property	left message 9/15	253-841-8505	2008 verbal		Woodland Sprayed 08/14/08		NW0015	YES		2206 35th	Puyallup,	98374		
4	2008	1121059067	16216 SE Auburn Black Diamond Rd	Auble Sr	Charles &	Son OK's on site		no number	2008 verbal		WCC Injected					16217 Aub	Auburn, W	98092		
5	Yes	212105918	KC ROW	Auburn Black Diamond Rd adjacent to Neely Mansion			PIN is for Neely Mansion Associates; knotweed is in adjacent ROW				KCNWCP Sprayed 09/17/08		NW0015	YES						
6	Yes	7349400360	1234 PIKE ST NE	Ball	William &	not in 2008 spreadsheet		253-939-0260								1234 PIKE	Auburn, W	98002		
7	Yes	1021059042	13730 SE Auburn Black Diamond Rd	Bartlett	Eugene	okayed, Woodland sprayed 08/01/08	9/18: can park on his property there is a drive between his and Carroll's driveways that is out of the way	253-735-5421	2008 verbal	WCC Injected 08/07/07, 08/08/07 & 08/09/07	Woodland Sprayed 08/01/08		NW0015	YES		13730 Aub	Auburn, W	98002		
8	2008	1021079042	33536 SE 309th ST	Bnsf Rr		North side of Cumberland-Kanaskat, East of 335th PI SE/SE 309th St	assume we had permission in 2008 bc treatment was done and it was highlighted pink			Woodland Sprayed in 2007	Woodland Sprayed 07/28/08		NW0015	YES		PO BOX 9	Fort Worth	76161		
							assume we had permission													

~140 Sites, 260 Landowners contacted

Season Workflow

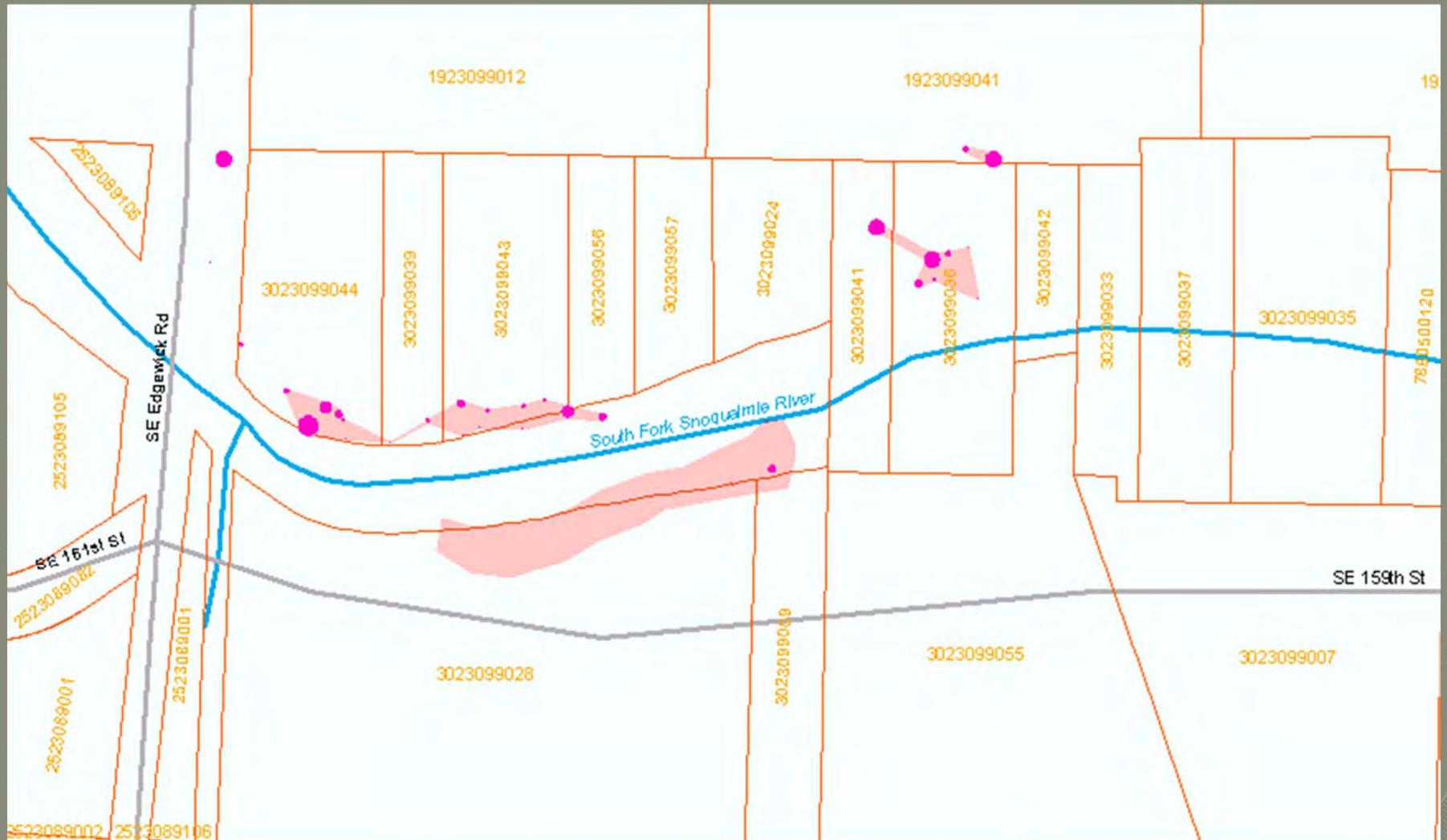
- Send permission seeking letters
- Collect/track permissions
- **Survey- collect data**
- **Treat- collect data**
- Follow-up surveys
- Data compilation
- Report

Things to Define

● Site:

- **Sites exist independently of the presence of plants.**
- Site boundaries should be set for the life of the project– they should not change over time.
- Easiest to set a pre-defined area like a single parcel or artificial grid within a park.
 - Choose a size that is both descriptive and manageable for the type of work you are doing (i.e. addresses both the need for landowner contact and locating areas in the field)
- Avoid nebulous definitions like making each “patch” a site as it will be difficult to know where these boundaries are over time and difficult to describe new sites.
- Make sure your definition will account for all areas of your landscape without gaps or overlap.
- Take the time to map out your defined site areas at the beginning of a project (this is why “parcel” is an easy definition since someone else has already done this work for you)

Sites Defined by Parcel

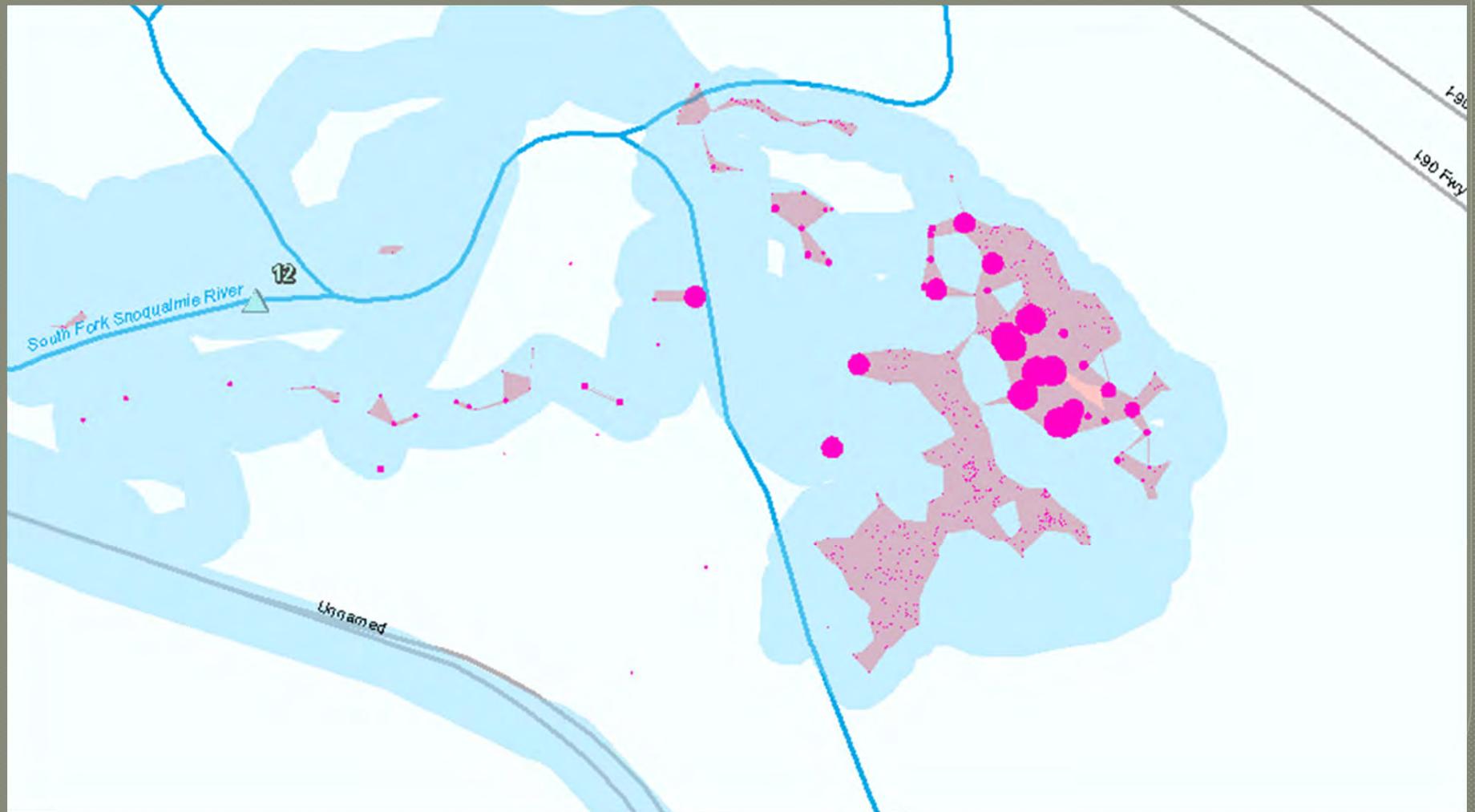


Things to Define

• Area:

- **The definition of “area” includes three parts: “area surveyed”, “area infested”, and “area treated”.**
- Decide if you are tracking net or gross area. In highly infested regions, this may be the same at the beginning of a project, but will change over time.
 - Gross area will track the total footprint of the plants on the site.
 - Net area will track the total footprint (outline) of plants on the site if they were squished into one spot and then measured.
- If using gross area consider using it in combination with a percent cover that will yield the net area when multiplied. Knotweed (and other invasives) often occupy the same overall footprint for a long time, but will decrease significantly in net area, making it easier to see progress by either tracking net area or a percent cover.
- Consider the concept of “patches” as separate from site (i.e. a single site may include several patches of knotweed), and consider how to define a total area for the site that accounts for multiple patches.
 - In this case, you may choose to define anything over a certain distance as a distinct patch, and calculate a gross footprint by adding together the areas of the patches.

Survey, Infest, and Treatment Areas



Things to Define

● Controlled:

- Differentiate between “treated”, “controlled”, and “eradicated”.
- Weed control more similarly mirrors maintenance work than capital work and should be tracked as such.
- Consider control work a repeated annual activity and determine what situations will meet this threshold. For instance, more than one treatment might be necessary at a site before calling it controlled for the season.
- The term “controlled” is usually only applicable for one growing season as this matches the plant’s natural life cycle.
- Anticipate needing to repeatedly treat and control a site. This makes it important to track the date the work is completed as “yes/no” will not give you sufficient information in succeeding years to know what was accomplished.

5 Things to Track

- Maximum area (including 0)
- **Date(s)** treated
- Who did the treatment work
- Which control method/chemical was used and at what rate
- If working on private sites, **date** permission from landowner received

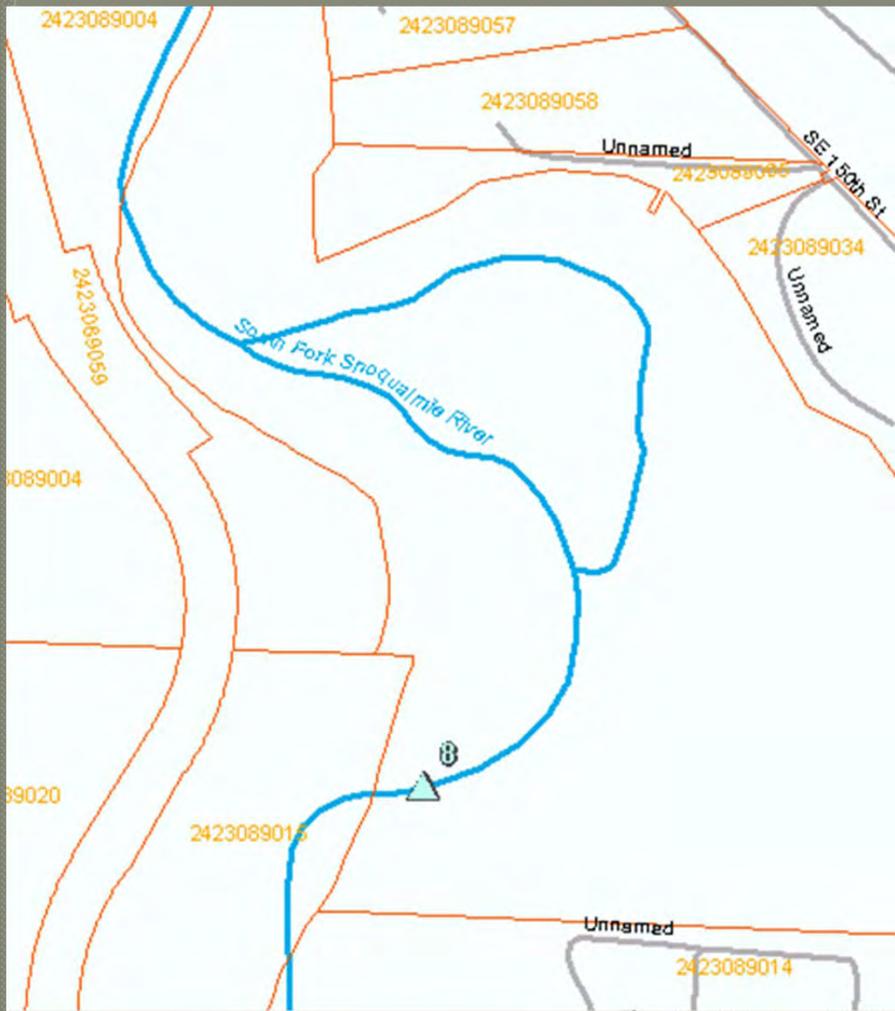
***Each item should be tracked per site per year.*

Nice Things to Know

- ◉ Area surveyed
- ◉ Who did the survey work
- ◉ Habitat type or land use (roadside, riparian, upland, etc.)
- ◉ Percent cover of plants found
- ◉ Dates of any contact with landowners
- ◉ Type of contact made with landowners
- ◉ Who gave permission to treat
- ◉ Qualitative notes

Putting it Together

Step 1: Definitions

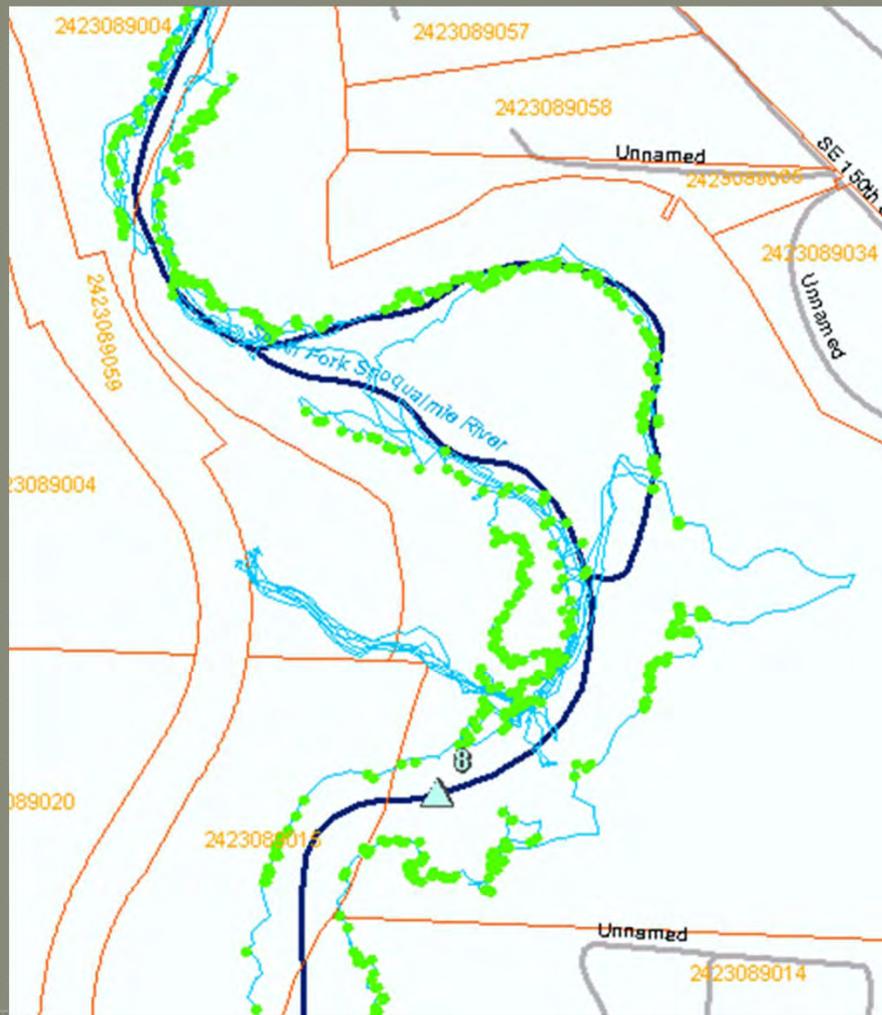


- Sites defined by parcel lines or road segments (use GIS layers)
- Infested area: gross area defined by smallest perimeter you can draw around any plants within 50 feet of each other
- Controlled: plants treated during the growing season, rechecked for efficacy where possible

Step 2: How To Collect Info

- Decide what equipment to use
 - KCNWCP uses a combination of paper records (maps with aerials and log sheets) and GPS units (Trimble units and Garmin units) to track data in the field
 - Most GPS units will run a track log without needing the user to enter any information
- Decide what information to collect: balance detail with practicality for field workers. Crews will often not do a very good job of taking lots of notes

Step 2: How To Collect Info



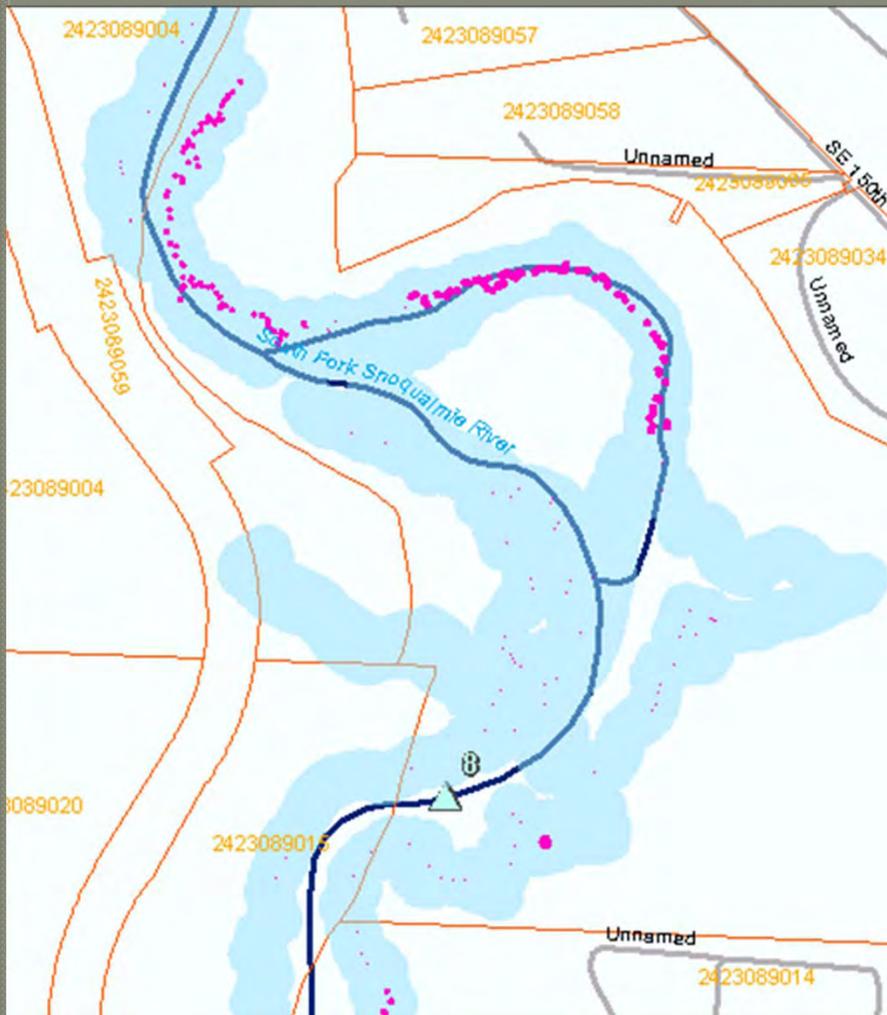
- Here, crews and staff used Garmin 76c and 78c GPS units with a tracklog running
- Each point taken was equivalent to 1 sqft of treated knotweed unless noted otherwise in the spray record for the day
- GPS records downloaded and daily paper spray logs turned in at the end of treatment

Step 2: How To Collect Info



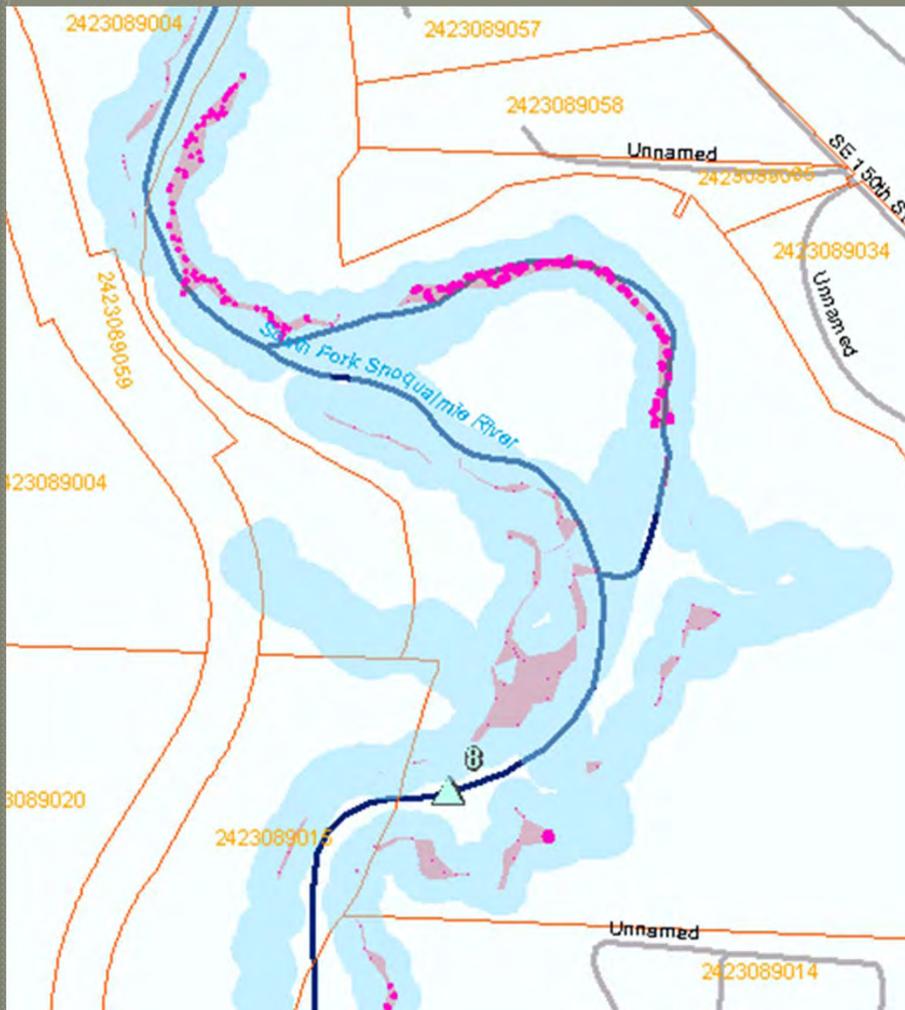
- When GPS units weren't available, crews drew maps
- Colors indicated areas treated (black), and areas of knotweed not treated (red, not present in example)
- Staff digitized these maps by hand in the office
- Maps produced this way often resemble just using tracklogs and have less detail

Step 3: Interpret Data



- All data is combined into two shapefiles: one for area surveyed, one for knotweed found
- Data was buffered into polygons to show the actual distribution on the landscape
- Tracklogs have a 50' buffer (assume people can see about that far)
- Points have a radius buffer to result in the area of the point taken (usually 1 sqft, but more where noted)
- Hand drawn areas are included in these polygon layers

Step 3: Interpret Data



- Buffered treatment polygons are aggregated together in ArcView based on area definitions: all areas within 50' of each other are grouped together
- The resulting aggregated polygons are cut apart along parcel lines and joined to their appropriate parcels

Step 4: Add Tabular Notes

- Information from spray records, field notes, and daily logs goes into the attribute table

Attributes of Treatment Areas

Injectdat	Spraydate	Shape_Length	Shape_Area	NetArea	NetAcres	MapNumber2009	RiverSystem	Notes	Year	Agency	Chemical	Treatment
<Null>	8/24/2011	1912.385257	181791.88851	181791.88851	<Null>	1.4	South Fork Skykomish River	Tye River	2011	KCNWCP	Imazapyr	Foliar
<Null>	8/31/2011	3607.447692	518295.054067	518295.054067	<Null>	<Null>	South Fork Skykomish River	<Null>	2011	KCNWCP	Imazapyr	Foliar
<Null>	8/26/2011	1086.517452	61371.662223	61371.662223	<Null>		South Fork Skykomish River	Miller confluence	2011	KCNWCP	Imazapyr	Foliar
8/22/2011	<Null>	2437.231629	281924.593833	281924.593833	<Null>	12.1,12.2	South Fork Skykomish River	8/22/11 - 8/26/11	2011	WCC	Glyphosate	Injection
8/23/2011	<Null>	7929.730061	368463.735515	368463.735515	<Null>	11.3, 11.4	South Fork Skykomish River	<Null>	2011	WCC	Glyphosate	Injection
8/24/2011	<Null>	11067.196004	464738.665909	464738.665909	<Null>	12.1	South Fork Skykomish River	Raft Survey 9/7/2011	2011	KCNWCP	Glyphosate	Untreated
9/8/2011	<Null>	6272.710891	629884.95946	629884.95946	<Null>	12.1	South Fork Skykomish River	Contractor, woodland	2011	WOODLAND,	Imazapyr	Foliar
<Null>	9/13/2011	3844.929168	191861.178732	191861.178732	<Null>	rm 6-8	South Fork Skykomish River	Tye along iron goat trail road	2011	KCNWCP	Imazapyr	Foliar
<Null>	9/13/2011	1000.912976	42655.112378	42655.112378	<Null>	rm 6-8	South Fork Skykomish River	Tye	2011	KCNWCP	Imazapyr	Foliar
<Null>	9/13/2011	197.497444	1444.953106	1444.953106	<Null>	rm 6-8	South Fork Skykomish River	Tye	2011	KCNWCP	Imazapyr	Foliar
<Null>	9/13/2011	281.132031	3641.286218	3641.286218	<Null>	r. 6-8	South Fork Skykomish River	Tye	2011	KCNWCP	Imazapyr	Foliar
<Null>	8/24/2011	1315.620429	71159.260601	71159.260601	<Null>	8.5, 9.1	South Fork Skykomish River	tye	2011	KCNWCP	Imazapyr	Foliar
<Null>	8/24/2011	531.758175	17065.882107	17065.882107	<Null>	8.5	South Fork Skykomish River	Tye	2011	KCNWCP	Imazapyr	Foliar
<Null>	9/13/2011	734.142998	25686.254379	25686.254379	<Null>	8.1	South Fork Skykomish River	Tye	2011	KCNWCP	Imazapyr	Foliar
<Null>	8/28/2011	2003.292109	235610.611093	235610.611093	<Null>	<Null>	South Fork Skykomish River	Cody w side of Miller Confluence	2011	KCNWCP	Imazapyr	Foliar
<Null>	8/25/2011	996.350799	53567.613492	53567.613492	<Null>	<Null>	South Fork Skykomish River	<Null>	2011	KCNWCP	Imazapyr	Foliar
<Null>	8/30/2011	1913.876505	79808.736888	79808.736888	<Null>	<Null>	South Fork Skykomish River	<Null>	2011	KCNWCP	Imazapyr	Foliar
<Null>	8/30/2011	66.875503	274.300915	274.300915	<Null>	<Null>	South Fork Skykomish River	<Null>	2011	KCNWCP	Imazapyr	Foliar

Step 5: Export and Upload

- Tabular data is uploaded to the program's relational database where it can be analyzed for season reporting
- Next season, the data in the database will form the site history and information for each site
- The database is used to track interactions with landowners, create mailing lists, and create daily site lists

The screenshot displays a software interface with several overlapping windows. The top window, titled 'SITE INFORMATION', contains fields for 'Select A Site', 'River', 'City Name', 'Site Address', 'Parcel Size', 'Site Notes', 'Site ID', 'Owner ID', and 'Lead Entry'. Below this is a 'Narrative' window for Site ID 0221059057, showing a table of dates and notes: 6/3/2010 (POLBOH: Received signed waiver. KEM), 8/15/2010 (POLBOH: Called and left message for Valerie that crews would be out next week), 8/17/2010 (POLBOH: Ed and I sprayed patchy areas (edges) of site with imazapyr at 1% KEM), 8/18/2010 (POLBOH: Worked with WRS to spray buffers around pond and creek edges. They were out for a week and use their ATV to access the densest areas (completely covered) and spray), and 8/25/2010 (POLBOH: Met Ken from WRS on site to finish treating property by ATV (along existing driveway) and spray the knotweed. Some central rest of site should be much better. Steve will be out until 12/31/2010 "or as long as I own the property").

The bottom window, titled 'Season's Activity for Infestation # 281', is divided into 'Landowner Contact' and 'Control Information' sections. The 'Landowner Contact' section has a table with columns for Date, Inspector, Notification Type, and Letter Name, with entries for 5/27/2010, 8/15/2010, 8/18/2010, and 8/25/2010. The 'Control Information' section includes fields for Application Date, Method, Product, Applicator, and Organization, with entries for 8/17/2010, 8/18/2010, and 8/25/2010. It also shows 'Control Date: 8/25/2010' and 'Percent Controlled: 100 %'. At the bottom, there are buttons for 'New Season' and 'Close', and a status bar showing 'Record: 4 of 5' and 'Filtered Search'.

