

Capture, Transport and Reintroduction of Lower Columbia River Fall Chinook Salmon Related to Removal of Condit Dam

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Restoring Fish and Wildlife Species to the Columbia River Basin

White Salmon Working Group

- Monthly discussions between the following entities since 2006.
 - Yakama-Klickitat Fisheries Program
 - Washington Department of Fish and Wildlife
 - U.S. Geological Survey
 - PacifiCorp
 - National Marine Fisheries Service



Discussions related to:

- Pre and post Condit Dam removal monitoring
 - Opportunities to work cooperatively with partners on fisheries and habitat restoration in the basin.
 - Update of White Salmon River Restoration Plan (CBFWA 1995)
- Information sharing and identification of our role (Service NFH program) in the identified salvage effort of LCR Fall Chinook salmon.
 - Through work with partners, monitoring and evaluation as well as coordination of removal process and recovery goals became discussion topics.

Capture Transport and Reintroduction Planning – 2008 Pilot Study

- Sediment impacts of dam removal will affect year class of ESA-listed LCR fall Chinook.
- One of the key conservation measures proposed by PacifiCorp and FERC.
 - Capture of adult LCR fall Chinook salmon before Condit Dam is removed
 - Rearing their progeny for release back into the White Salmon River after the removal process is complete.
 - Use local hatcheries to rear and release progeny (Spring Creek NFH).
- Several studies and long term data sets suggested natural production in lower White Salmon River downstream of Condit Dam.
 - USGS/USFWS juvenile production studies
 - WDFW adult escapement estimates



Capture Transport and Reintroduction Planning – 2008 Pilot Study

- Through discussion over several meetings, Working Group decided that adult outplanting in the area upstream of Condit Dam would be best option to address impacts to LCR Fall Chinook salmon from Condit Dam removal

- Would allow for redd construction and potentially jumpstart restoration efforts.
- Emphasis on naturally produced fish – proven product.

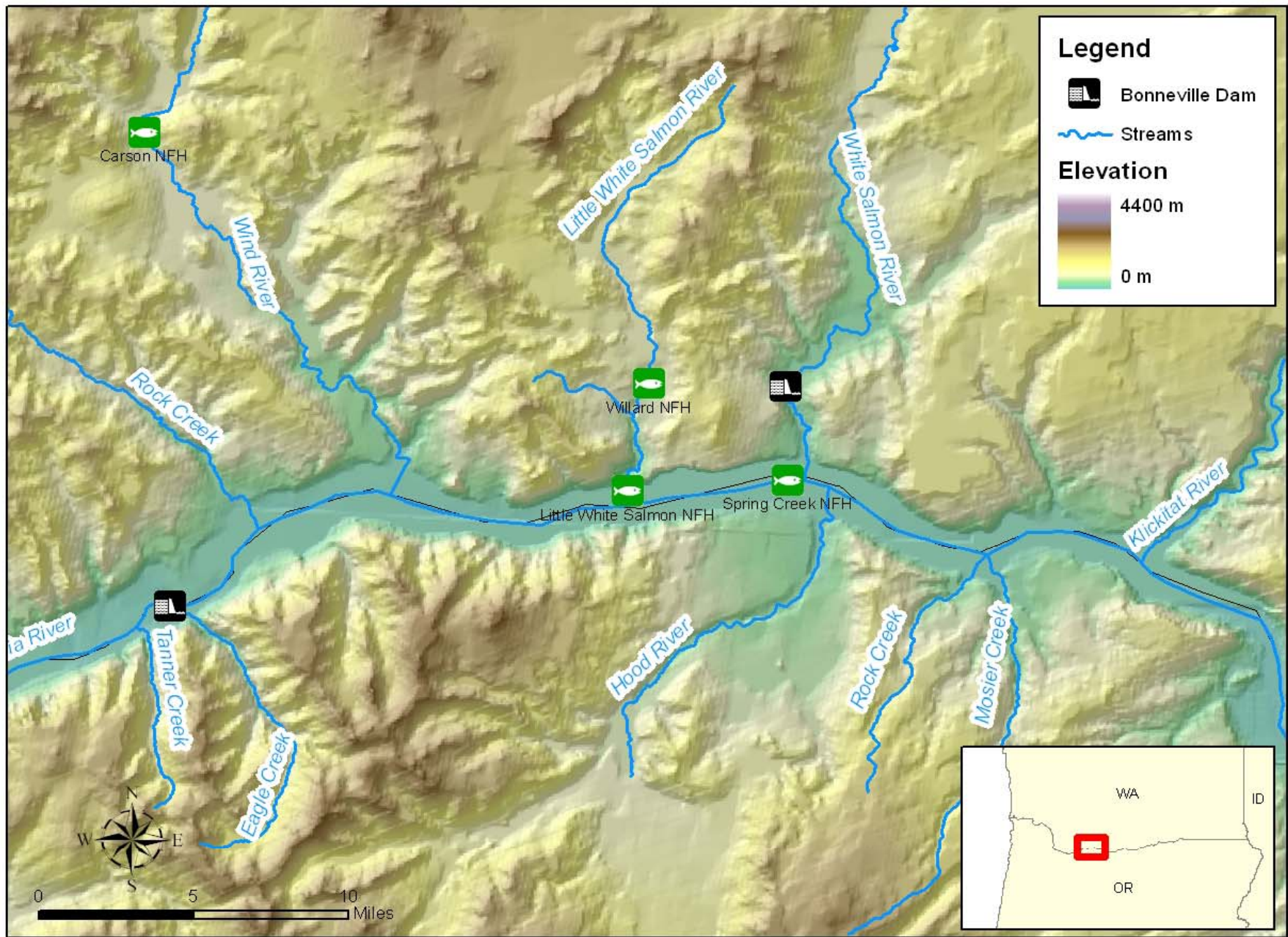
- Working Group believed a pilot effort prior to Condit Dam removal would streamline and improve the restoration action during the year of dam removal.

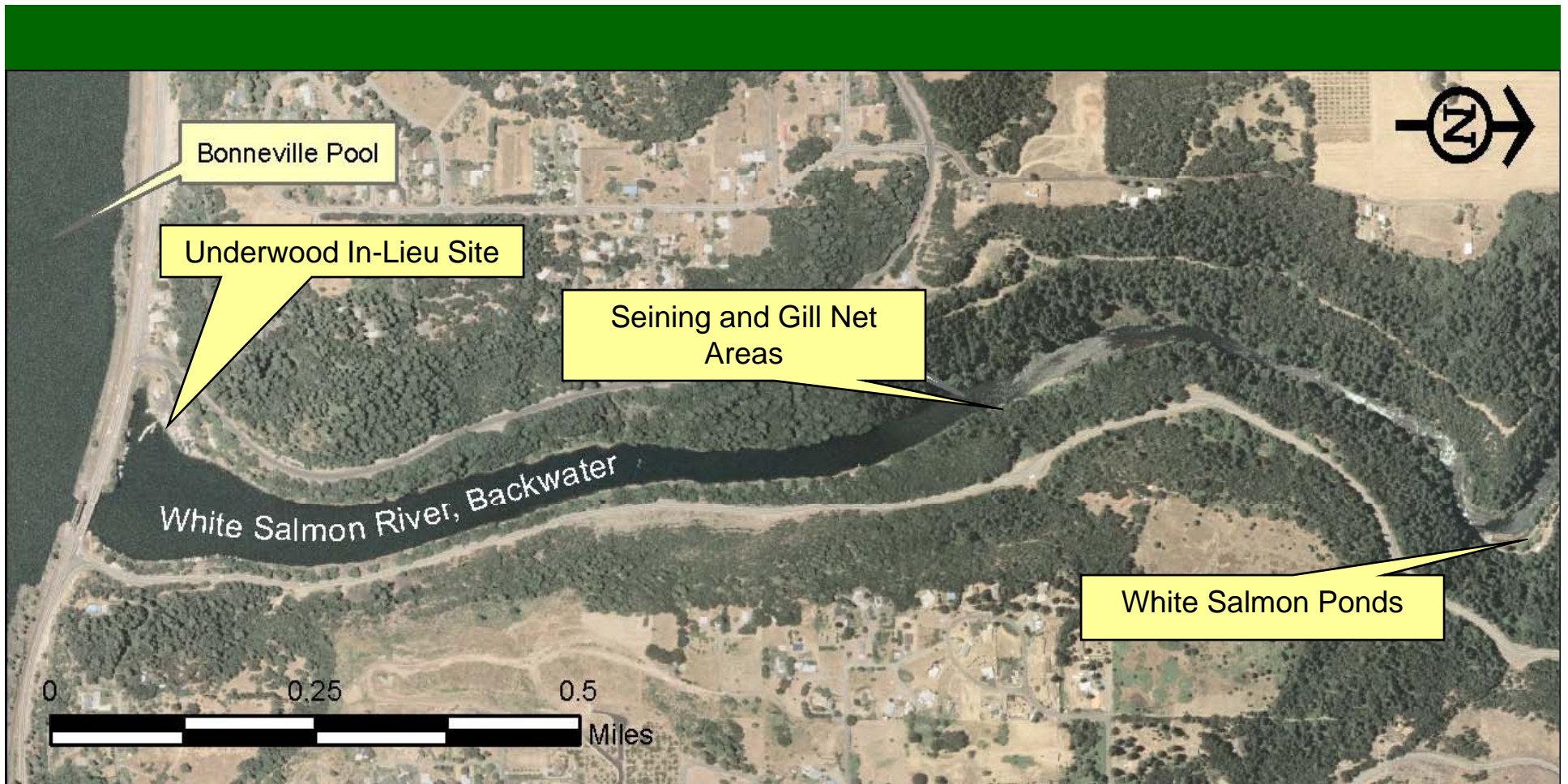


Goals and the Evaluation of Capture, Transport and Reintroduction



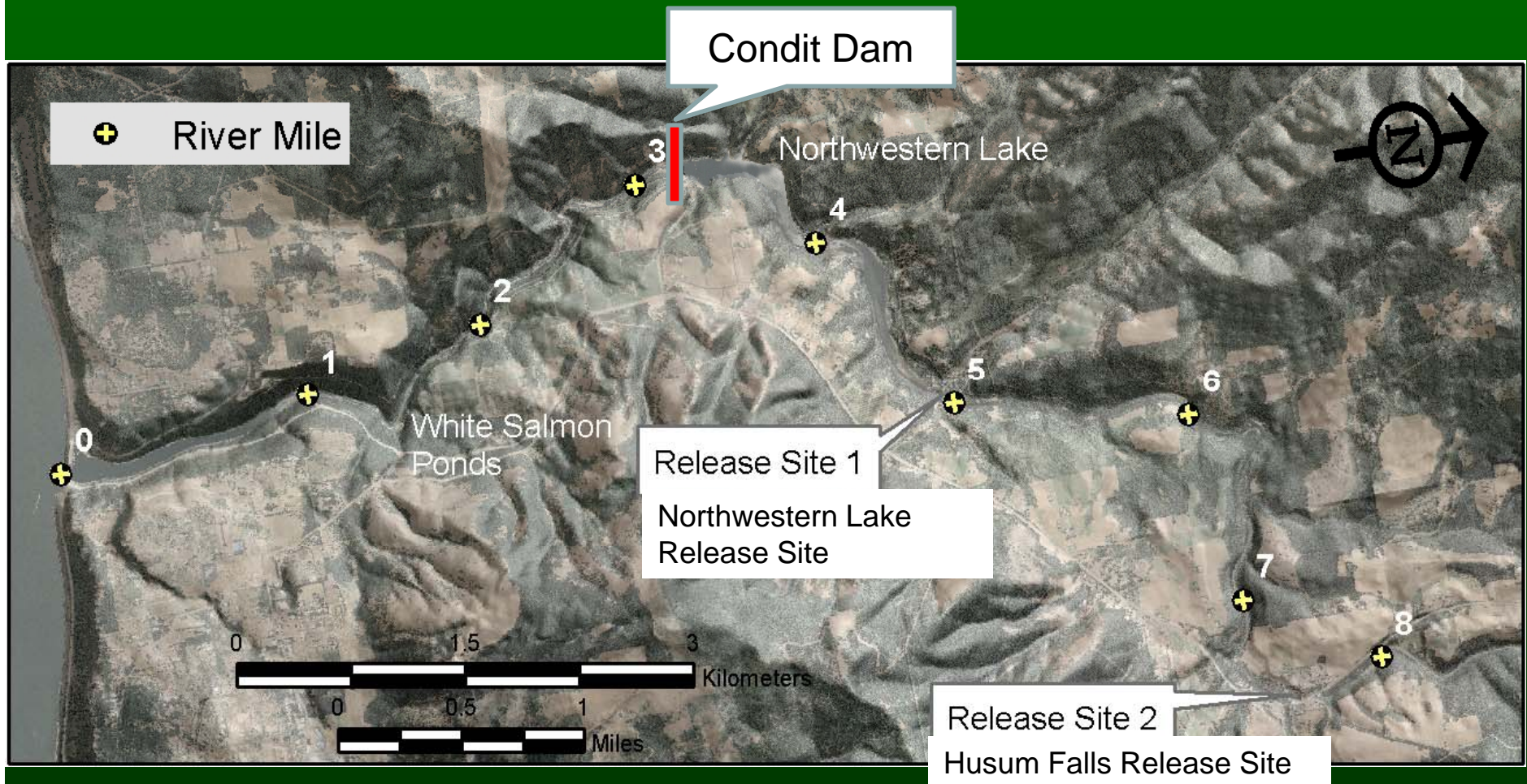
- Habitat could support 500 adults based on Ecosystem Diagnosis and Treatment Model (EDT) estimates
- 1:1 Sex Ratio.
- Leave wild fish in the river to spawn during pilot (mass marking). Use Spring Creek NFH as backup to meet adult number.
- We tested the efficacy of
 - variable-length beach seines deployed in simple arc and fast-pursuit sets
 - fixed and free-drifting 50 m nylon gill nets with 3.5 inch square panel and 6.5 inch stretch.
 - Deployment near the Bonneville Pool influence in the White Salmon River Basin (RM 0.6-0.8)
 - Spring Creek NFH staff operated the historical White Salmon brood stock collection ponds (without weir).
- Transport fish with the help of WDFW hatchery staff and transport truck.
- Outplant fish in two sites





Lower section of the White Salmon River depicting the back water from Bonneville Reservoir and the approximate location of seining and White Salmon Ponds.

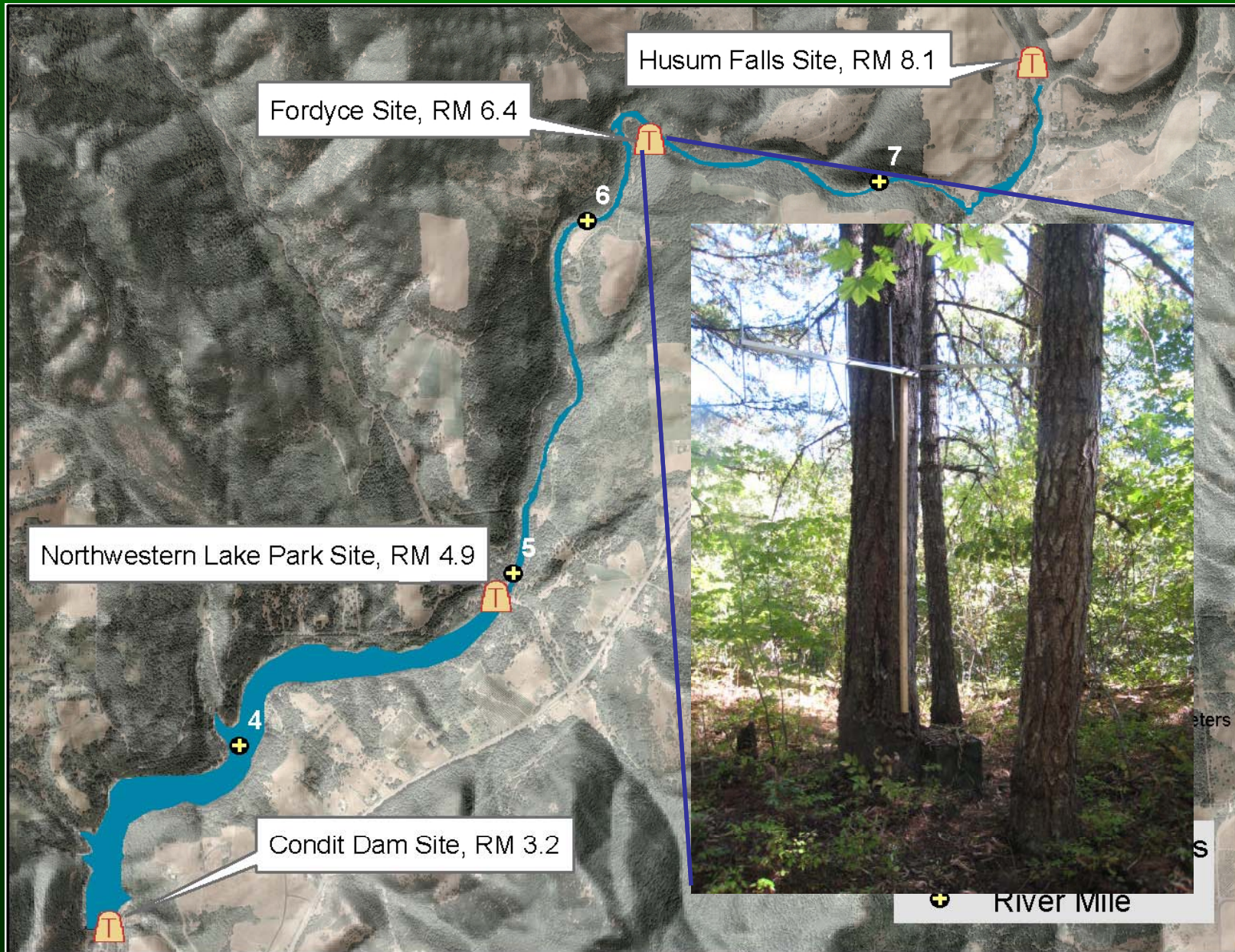
Outplant Locations



Release sites for LCR fall Chinook captured downstream of Condit Dam.
Chosen based on:

- 1) Lower and Upper available spawning area for LCR Fall Chinook historically.
- 2) Access and availability for use by large adult transport truck.

Radio-Telemetry





Results – Capture and Transport

Date	<u>Natural Origin</u>	<u>Hatchery</u>	<u>O.</u> <i>mykiss</i>	<u>Upriver</u>	<u>O.</u> <i>kisutch</i>	<u>Recaptured</u>
	<u>LCR Fall</u> <u>Chinook</u> Salmon	<u>Origin LCR</u> <u>Fall Chinook</u> Salmon		<u>Bright Fall</u> <u>Chinook</u> Salmon		<u>Natural Origin</u> <u>Fall Chinook</u> Salmon
08-Sep-08	0	0	0	0	0	0
09-Sep-08	0	0	1	0	0	0
10-Sep-08	0	0	0	0	0	0
15-Sep-08	2	4	0	0	0	0
16-Sep-08	10	13	1	0	0	0
17-Sep-08	11	24	2	1	0	1
18-Sep-08	5	21	2	1	0	0
22-Sep-08	13	23	3	0	2	5
23-Sep-08	10	6	1	1	1	2
24-Sep-08	6	5	4	0	0	5
25-Sep-08	7	3	0	0	0	3
TOTAL	64	99	14 (5)	3	3 (1)	16

Results – Capture and Transport

Release Site	Spring Creek NFH Males	Spring Creek NFH Females	White Salmon Males	White Salmon Females	TOTAL
Northwestern Ramp	95	92	19	43	249 (135)
Husum Falls	73	73	18	10	174 (83)
TOTAL	168	165	37	53	

Results – Catch Methods

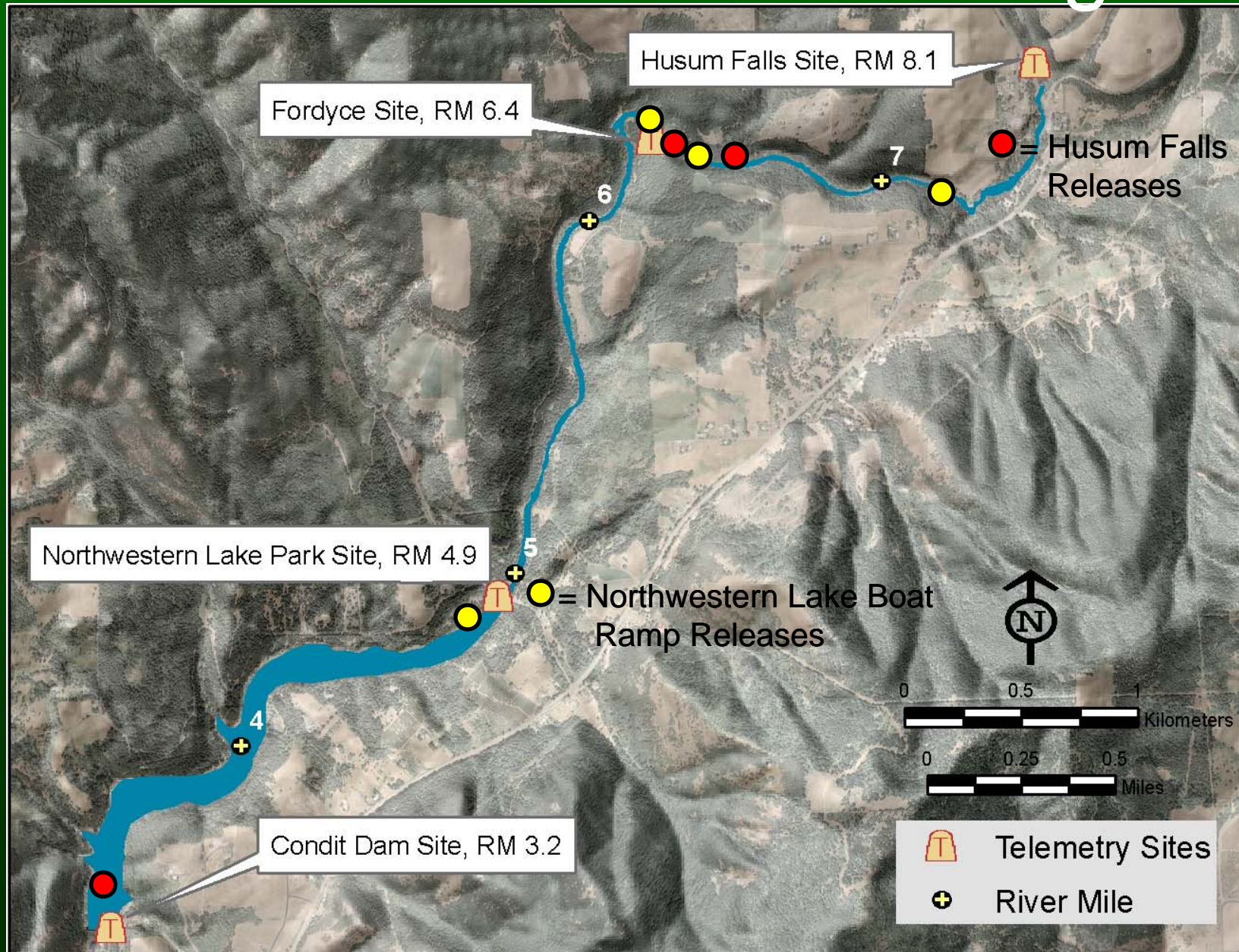
Method	Type (Active or Passive)	Unit of Deployment	Number of Deployments	NOR Fall Chinook	HOR Fall Chinook	TOTAL Fall Chinook	Total Catch/ Unit Effort (hours)
Gill Nets (2) 2.5'' mesh diamond panel 300' x 10'	Active	1 set (approx. 6 hours or 1 working day)	4 ^a	2	10	12	0.50
Seines 2.5-3.0'' mesh diamond panel	Active	1 Set (15 minutes)					
75' x 6'			4	3	2	5	5.00
175' x 6'			9	1	6	7	3.10
200' x 6'			79	56	78	134	6.78
225' x 6'			7	2	3	5	2.86
White Salmon Ponds	Passive	Days (24 hour cycle)	19 ^b	1	3	4	0.01 ^c

a - Actual number of deployments was 12 times during September 15th-18th as nets were reset after capture and periodic cleaning or set in more suitable locations after fishing for a period. Gillnetting was suspended after that period and when fish were observed actively avoiding net.

b - Ponds were attempted to be checked daily but turbidity in the White Salmon River affected visibility in the Ponds. Ponds had to be checked by dewatering to a level to allow a crowder or stick-seine to be placed in the area and pushed by staff. This occurred on a 3 occasions during September until water clarity occurred the week of September 22, 2008. Ponds were then checked by visual inspection.

c - This is considered an estimate since the actual number of fish that entered the ponds is unknown due to turbidity and the ability of fish to enter the ladder or ponds and then jump to an adjacent pond that was connected to the ladder entrance and therefore, not periodically checked. Fish were documented to be able to escape from the ponds once they entered so the actual number of fish that entered the pond could be higher than the reported catch.

Results – Radio Tracking



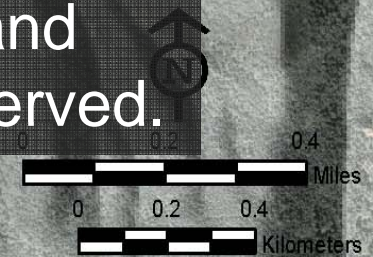
Total Tule Fall Chinook Redd Observations N=80

Redd Survey Results

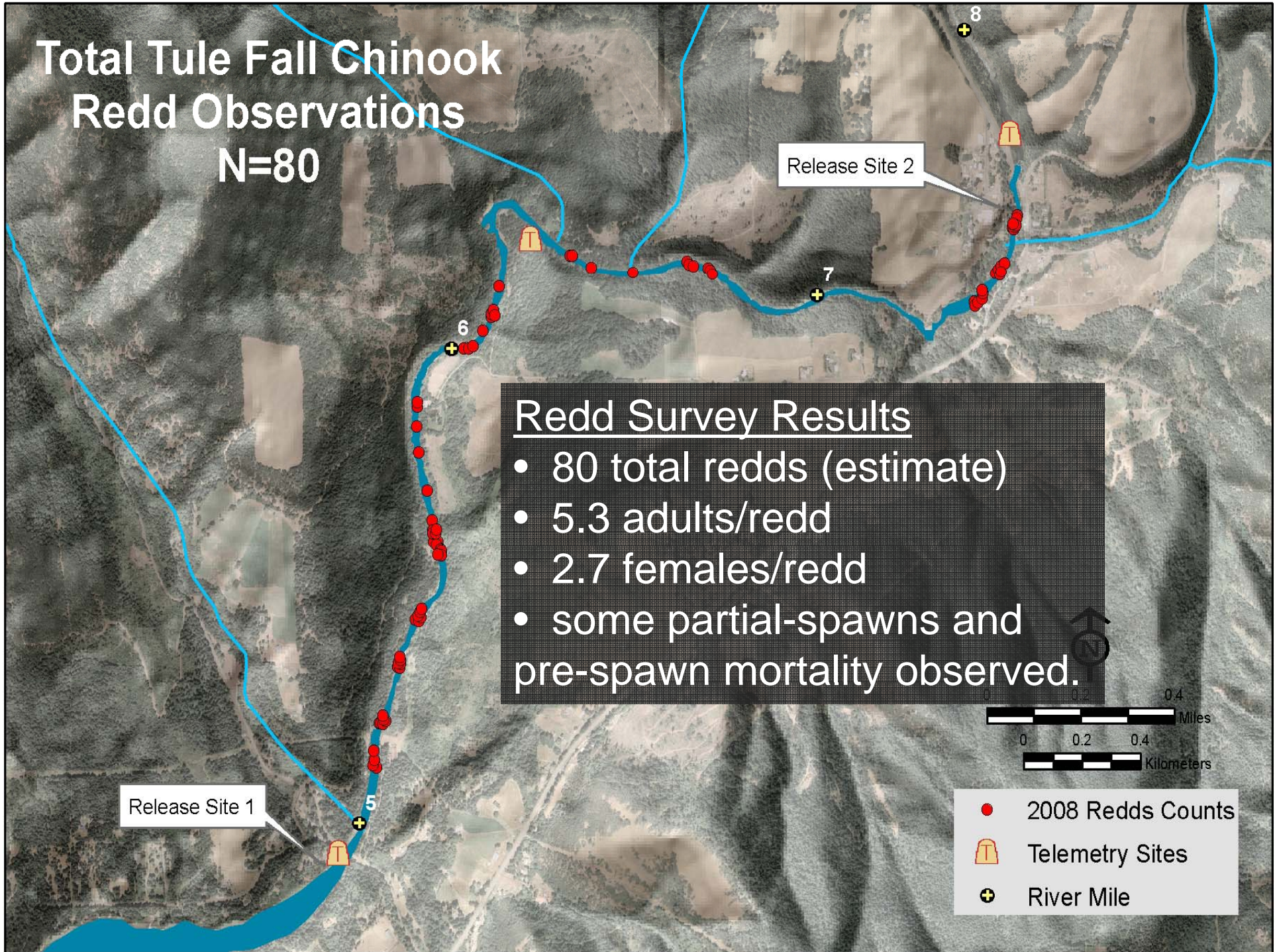
- 80 total redds (estimate)
- 5.3 adults/redd
- 2.7 females/redd
- some partial-spawns and pre-spawn mortality observed.

Release Site 1

Release Site 2



- 2008 Redds Counts
- Telemetry Sites
- River Mile

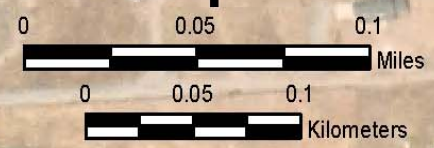


2008 Tule Fall Chinook Redd Observations for Section #1 (n=19)

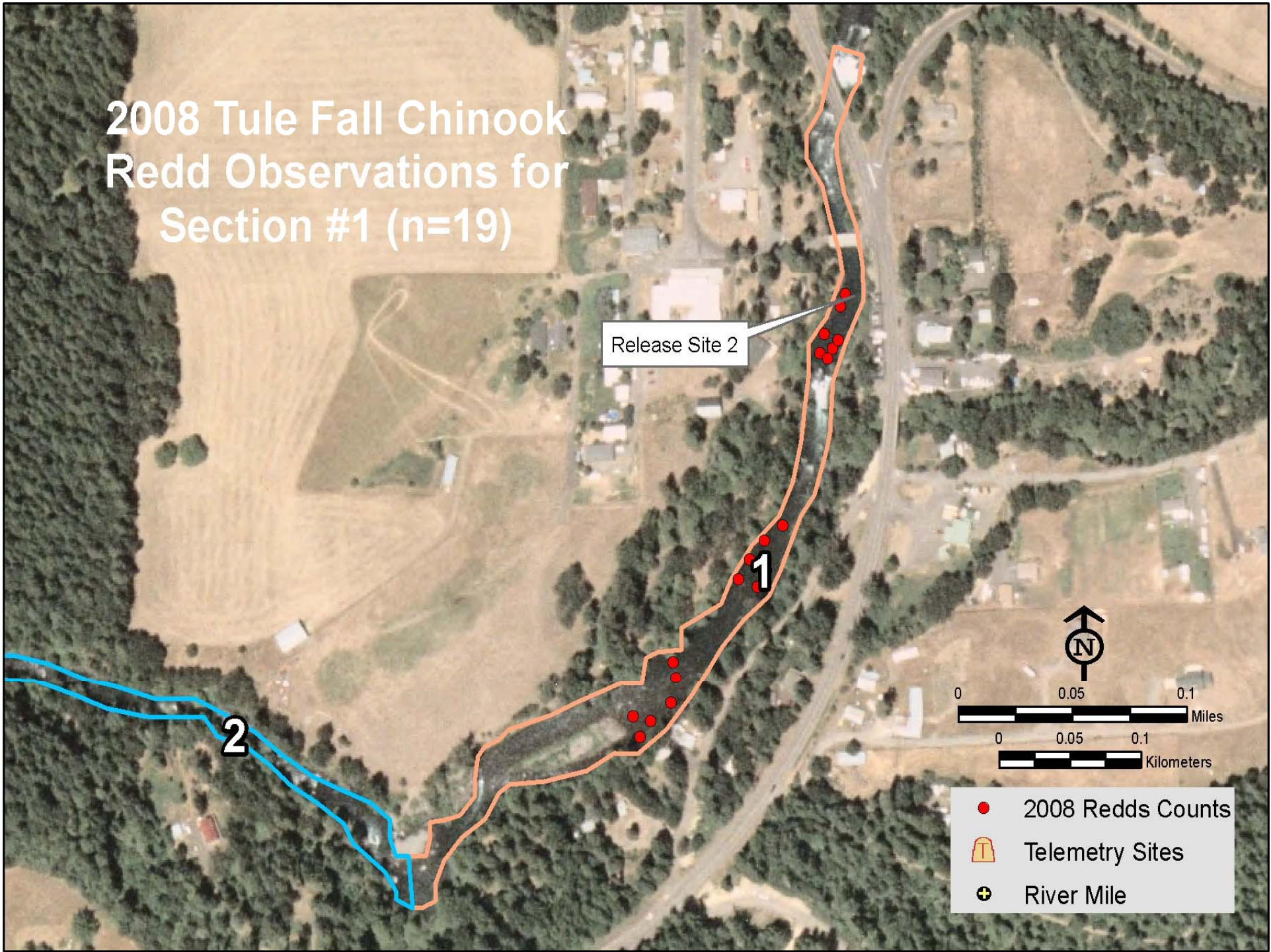
Release Site 2

1

2



- 2008 Redds Counts
- 📡 Telemetry Sites
- ⊕ River Mile



2008 Tule Fall Chinook Redd Observations for Section #2 (n=7)

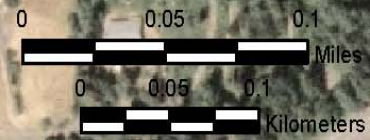


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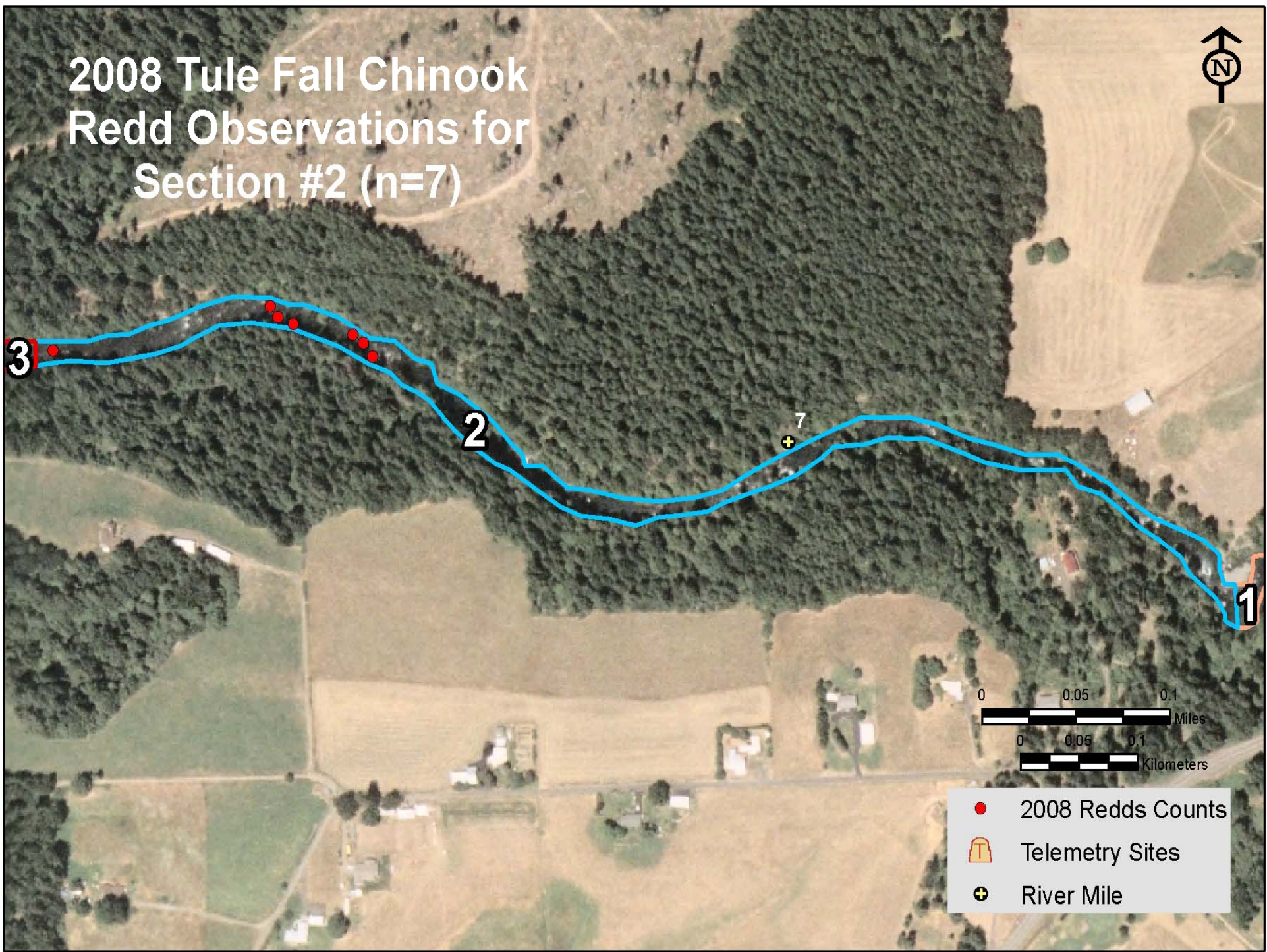
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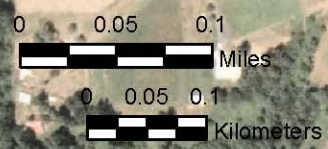
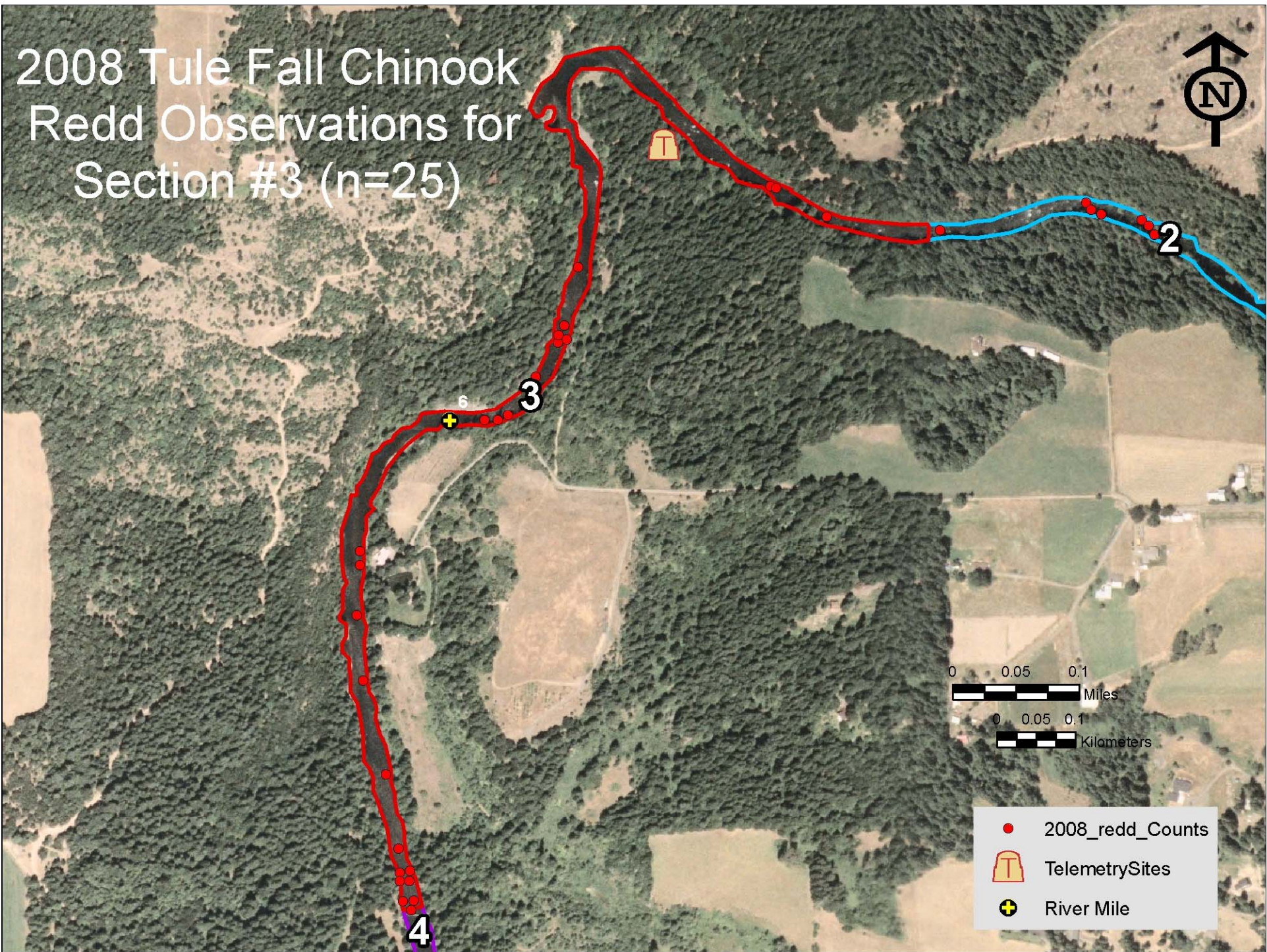
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- 2008 Redds Counts
- 📡 Telemetry Sites
- ⊕ River Mile



2008 Tule Fall Chinook Redd Observations for Section #3 (n=25)

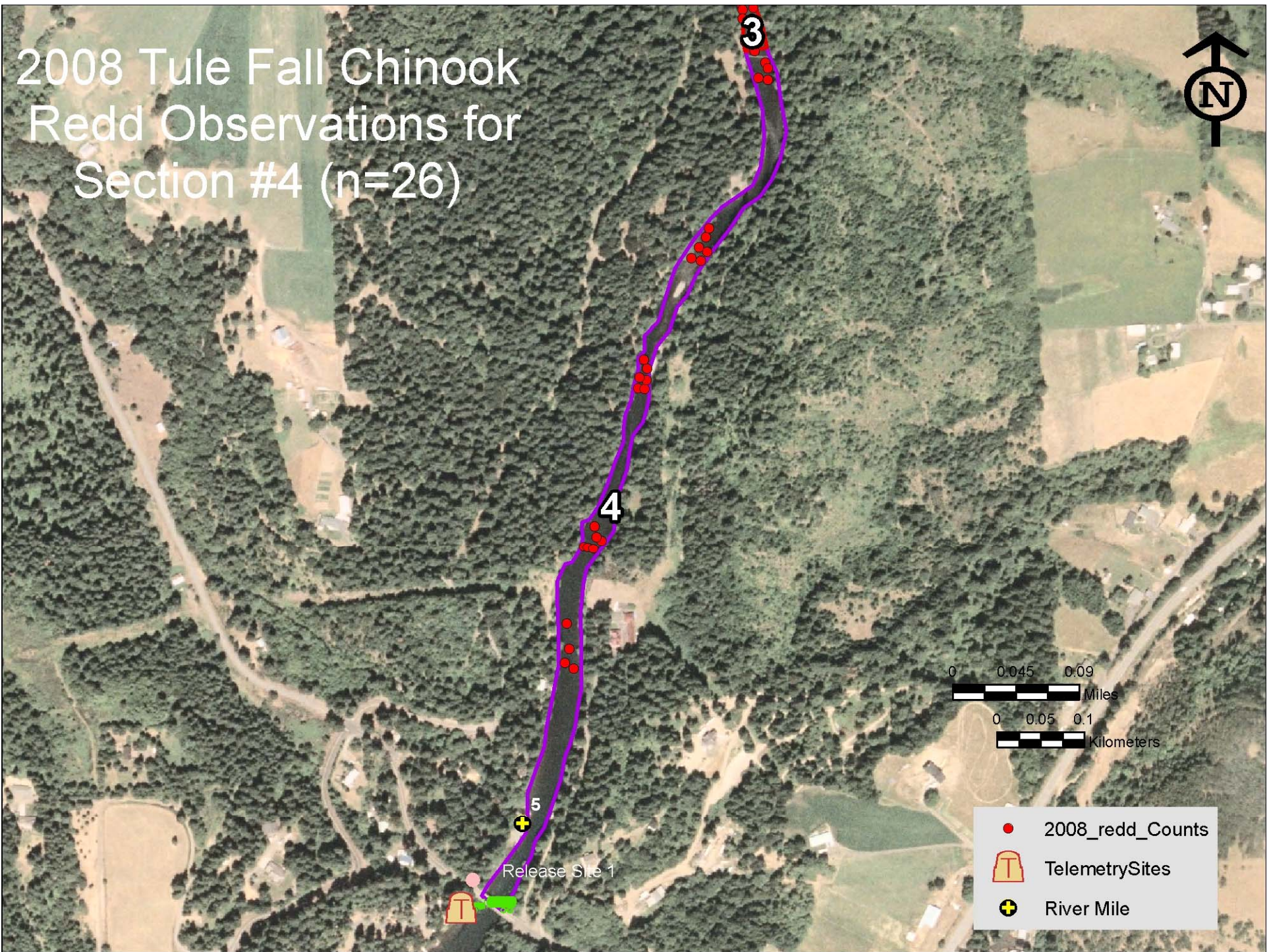


- 2008_redd_Counts
- 🏠 TelemetrySites
- ⊕ River Mile

2008 Tule Fall Chinook Redd Observations for Section #4 (n=26)



- 2008_redd_Counts
- 📡 TelemetrySites
- ⊕ River Mile



Pilot Study - Summary

- Seines to be the most successful method for the collection and capture of Lower Columbia River Fall Chinook salmon.
- Brood stock collection ponds not efficient at capture as operated in 2008.
- Some release site fidelity observed. Radio-tagged fish did not pass Husum Falls.
- Fish were successful at building redds and we observed a ratio of 2.7 females/redd. We did not observe redds above Husum Falls.
- Currently, discussions among the Working Group are related to assessing the additional use of a weir at the White Salmon Ponds more successfully meet adult capacity goals in area upstream of Condit Dam.
- The Capture, Transport and Reintroduction Plan will likely be finalized by the working group in late February 2009 and discussions on construction and evaluation of a weir are ongoing for fall 2009.

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Wet Planet Whitewater in Husum, WA

Results – Radio Tracking

Fixed Telemetry Sites

Outplant Site	Condit Dam RM 3.3	NW Lake RM 4.9	Fordyce Site RM 6.4	Tagged LCR Fall Chinook	
Husum Falls RM 7.6	NO	NO	NO	7	
N=10	NO	NO	YES	2	●
	YES	YES	YES	1	●
Northwestern Ramp RM 4.85	NO	NO	NO	1	
N=25	NO	YES	NO	5	
	NO	YES	YES	3	●
	YES	NO	NO	1	
	YES	YES	NO	15	●