

# Scott River Coho Salmon Spawning Ground Surveys 2024-2025 Season

Spawning Ground Survey Report ✧ March 3, 2025



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# 1. Executive Summary

During the 2024-2025 coho salmon spawning season, staff from the Quartz Valley Indian Reservation and Scott River Watershed Council conducted spawning ground surveys on 28.5 miles of 16 streams in the Scott River watershed. Between November 25, 2024, and January 16, 2025, a total of 169 observed live adult coho salmon, 111 coho salmon redds, and 39 carcasses were documented in the conducted surveys. The highest concentration of redds during the survey period was observed at the Sugar Creek Coho Salmon Refugia Project (followed by the Scott River at Sugar Creek (RKM 87.4–87.7), Lower Sugar Creek (RKM 0–1.2), Mid French Creek (RKM 2.8–4.3), and Upper Etna Creek (RKM 9.5–7.7) reaches. Notably, this season marked the first documented spawning in many years in Patterson Creek (RKM 7.3–5.3). Additionally, our first survey of Noyes Valley Creek (RKM 2.3–0) revealed a significant presence of coho salmon and their redds. These observations of coho salmon expanded the documented extent of their upper range in the Scott River Watershed.

## 2. Introduction

### 2.1. The Project

The survey activities for the 2024-2025 period were conducted within the Scott River watershed, a sub-basin situated within the Klamath River Basin. Flowing through Siskiyou County, California, the Scott River is a significant tributary that joins the Klamath River at river mile 143. It provides critical spawning and rearing habitat for coho salmon (*Oncorhynchus kisutch*), particularly in tributaries with cold groundwater inputs and complex instream structure. Coho salmon typically return to the Scott River for spawning between mid-October and early January, coinciding with overlapping runs of Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead trout (*Oncorhynchus mykiss*) occurring from mid-September through late November and November through April, respectively.

The coho salmon within the Scott River system are classified under the Southern Oregon Northern California Coast (SONCC) Evolutionarily Significant Unit (ESU). Recognizing the species' decline, the National Marine Fisheries Service (NMFS) listed SONCC coho salmon as threatened under the Federal Endangered Species Act in 1997. The ESU includes populations from Cape Blanco, Oregon, to Punta Gorda, California, and has suffered significant declines due to habitat loss, reduced stream flows, migration barriers, and other environmental stressors such as rising water temperatures and competition with non-native species. The Scott River is considered a priority watershed for SONCC coho recovery due to its remaining high-quality spawning and rearing habitat. However, challenges such as low summer flows, habitat degradation, and migration obstacles continue to threaten coho productivity.

In response, state and federal agencies have implemented recovery plans focused on habitat restoration, flow enhancement, and long-term monitoring efforts. Understanding population trends through annual surveys remains critical for guiding these conservation actions and assessing recovery progress. Recognizing the need for baseline data, the Klamath National Forest (KNF) initiated the first coordinated spawning ground surveys in 2001 (Maurer 2002). This effort, in collaboration with local landowners, agencies, and volunteers, laid the foundation for long-term monitoring of coho salmon in the watershed.

In 2004, the California Fish and Game Commission listed coho salmon as a threatened species under state law, with the designation taking effect on March 5, 2005. Since then, annual monitoring efforts have provided key insights into population trends, habitat use, and environmental factors affecting coho salmon success in the Scott River. These surveys continue to inform management strategies and restoration efforts aimed at recovering this imperiled population.

Apart from the surveys of spawning grounds, data on coho salmon population, including run size and timing, has been collected since 2007 at the Scott River Fish Counting Facility (SRFCF), overseen by the California Department of Fish and Wildlife (CDFW). Positioned at river mile 18.2, this counting station operates during the migration period of Chinook and coho salmon. It features a temporary weir that channels fish through a video flume, where their species is identified and counted. The information obtained from this video weir is integrated with downstream mark-and-recapture population estimates derived from the spawning ground surveys, contributing to the determination of escapement for the Scott River. In addition, a passive integrated transponder (PIT) tag array records movements of previously tagged individuals, allowing researchers to track migration patterns and habitat use over multiple years. A summary of the adult coho salmon PIT tag detections in the 2024-2025 season is available (5.6 PIT Tagged Adult Returns).

The annual surveys play a vital role in monitoring various parameters related to coho spawning, such as abundance, range, distribution, and timing. This continuous effort not only yields valuable data on an annual basis but also facilitates the analysis of long-term trends. For instance, past surveys have helped identify critical spawning reaches in tributaries such as Sugar Creek and French Creek, informing targeted habitat restoration projects to improve juvenile survival. Identifying established coho spawning sites also allows for pinpointing stream reaches where juvenile coho salmon may rear during the subsequent summer, particularly in low-flow conditions that can impact their growth and survival. Additionally, ongoing monitoring helps assess the impacts of environmental stressors, such as drought, changing precipitation patterns, and water diversions, on spawning success. Over the long term, the accumulated distribution data has played a crucial role in developing strategic recovery plans and guiding the design, implementation, and assessment of well-informed restoration projects throughout the Scott River watershed. All the collaborating organizations utilize standardized protocols established in 2001 (Appendix A).

## 2.2. Project Purpose and Objectives

The purpose of the annual spawning ground surveys is to gather data on run parameters including the abundance, timing, duration, age composition, hatchery contribution and redd distribution of coho salmon in the Scott River and its tributaries. This information will also identify potential locations where juvenile coho may be rearing, enabling informed management decisions during critical summer and fall months.

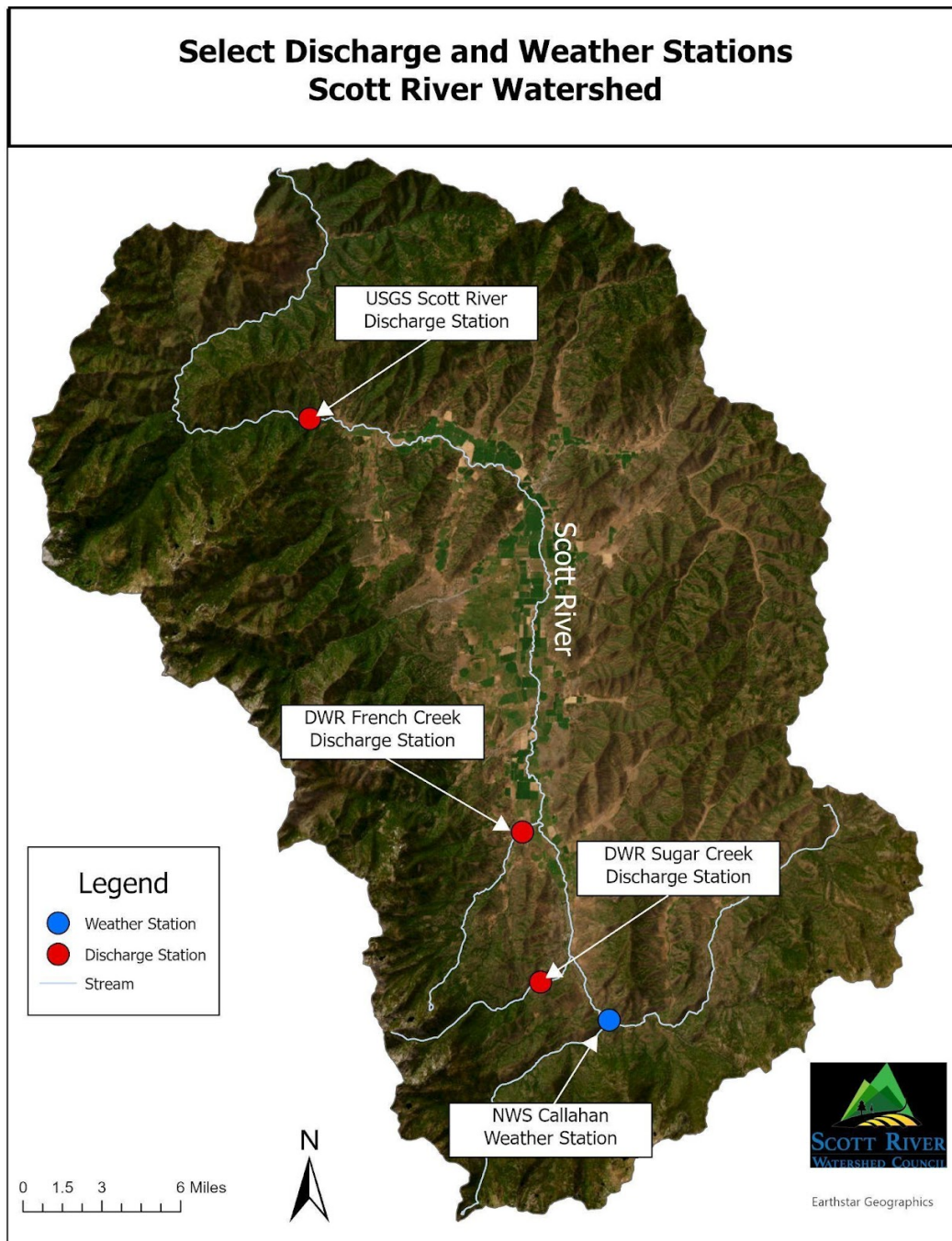
The specific objectives of the project involve conducting collaborative coho salmon spawning ground surveys in the Scott River and its tributaries throughout the 2024-2025 survey season. The aim is to comprehensively document the distribution of coho salmon spawning within their historical range. Additionally, the project seeks to capture the upper extent of spawning in each tributary where coho are identified as landowner access allows. Biological samples will be

collected from carcasses to enhance our understanding of the life history of the evolutionary significant SONCC coho salmon.

### 3. Environmental Setting

#### 3.1. Water Year, Flow Conditions and Access for Returning Adult Coho Salmon

Discharge stations are operated on the mainstem Scott River by the United States Geological Survey (USGS) and on French Creek and Sugar Creek by the California Department of Water Resources (CDWR). The United States Forest Service (USFS) and the National Weather Service (NWS) also maintains a station in Callahan, CA, near the headwaters of the Scott River (Map 1).



*Map 1. Select discharge and weather stations in the Scott River watershed.*

The Klamath National Forest’s April 1, 2024, snow survey reported snow height and snow water equivalent (SWE) in the Scott River watershed at 111% and 107% of average, respectively (KNF 2024). It is thought that snowpack influences late base flow period discharge, however, early fall discharge in the Scott River is driven largely by precipitation and runoff as well as water



management decisions. Early fall discharge in 2024 was lower than the previous year (Figure 1). In October 2024, daily average discharge gradually increased from 39.0 to 50.8 cubic feet per second (cfs) (USGS 2024).

The first coho salmon was observed at the CDFW Scott River Fish Counting Facility (SRFCF) on November 3, 2024. This timing coincides with 2023, when the first coho arrived on November 3. Although flows were slightly higher in November 2023 than in November 2024, neither year saw the significant migration delays observed in 2022, when low discharge created flow-dependent passage barriers.

In low-flow years like 2022, adult coho salmon often stage in the lower Scott River, unable to migrate upstream until sufficient precipitation increases discharge. However, flow conditions in fall 2023 and 2024 allowed relatively unimpeded passage, enabling returning coho to move through the canyon and reach the SRFCF nearly a month earlier than in 2022 (CDFW 2025).

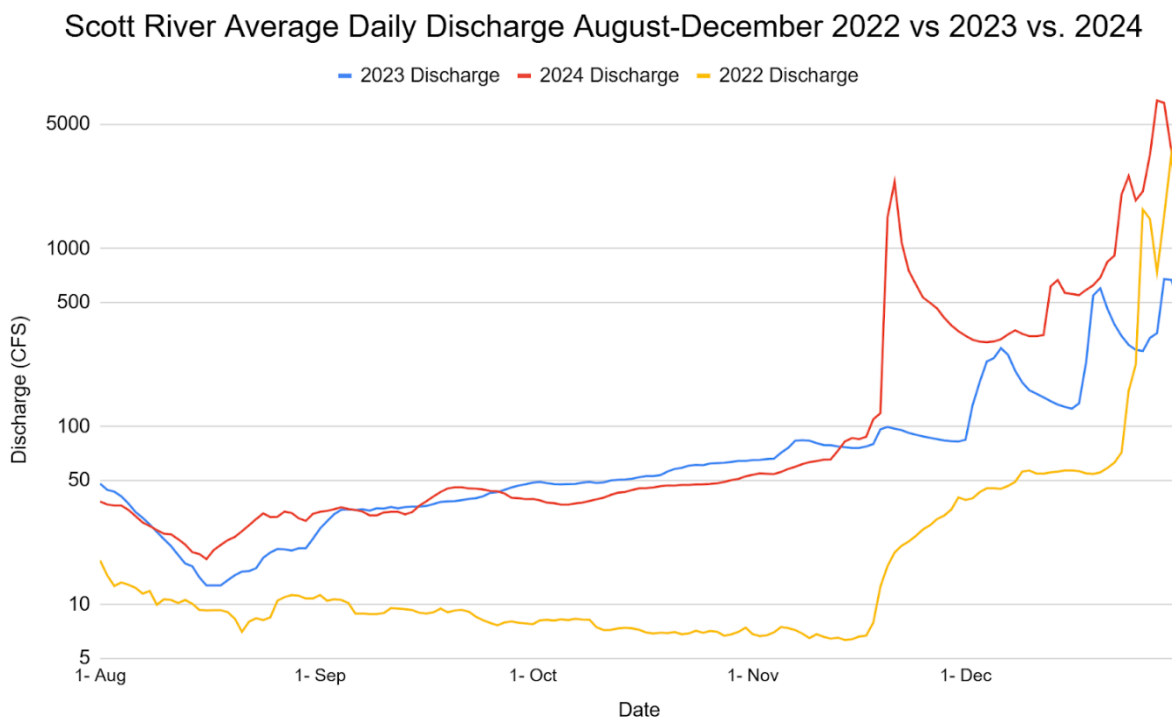


Figure 1. Daily average discharge from the Scott River (USGS gage 11519500) between August 1st and December 31st. Comparing 2022 to 2023 to 2024. 2024 coho salmon return data is preliminary.

Accumulated precipitation at the Callahan NWS station remained below historical average (WY1944 to Present) in October across all water years (WY) 2023-2025 (Figure 2). Total precipitation was also below average for WY 2023 and 2024, while WY 2025 exceeded the historical December average but fell below average in January (NWS 2025).

## Monthly Accumulated Precipitation for Callahan, CA Period of Record vs Water Year 2023/2024/2025

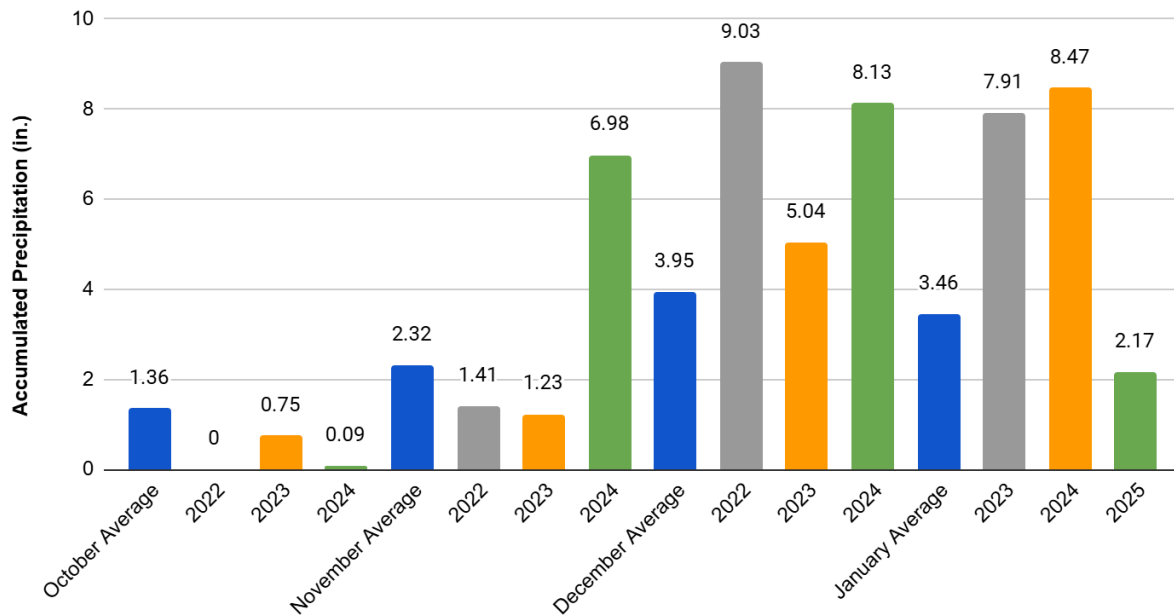


Figure 2. Monthly accumulated precipitation from Callahan NWS station. Period of record average (blue) vs water year 2023 (gray), 2024 (orange) and 2025 (green).

Utilizing the United States Geological Survey flow gage found in Fort Jones (#11519500), which has been collecting data from the Scott River since 1942 (Map 1). From November to January, the provisional daily average discharge in the mainstem Scott River ranged from 52 to 6,800 cfs. Some high-flow events were recorded, including a provisional reading exceeding 8,300 cfs on December 31, 2024, during a rain-on-snow event (USGS 2025).

Flow conditions in French Creek and Sugar Creek also fluctuated significantly from November 2024 to January 2025. The minimum daily average discharge in French Creek was 6 cfs, but the maximum exceeded the rating table limit between December 29–30 and January 3–4, surpassing 377 cfs (California 2025). Similarly, Sugar Creek discharge ranged from a minimum of 3 cfs to over 110 cfs, exceeding measurement capacity during peak flow events (California 2025). The heaviest single-day precipitation at the Callahan USFS station occurred on November 21, 2024, totaling 1.87 inches (Figure 3).

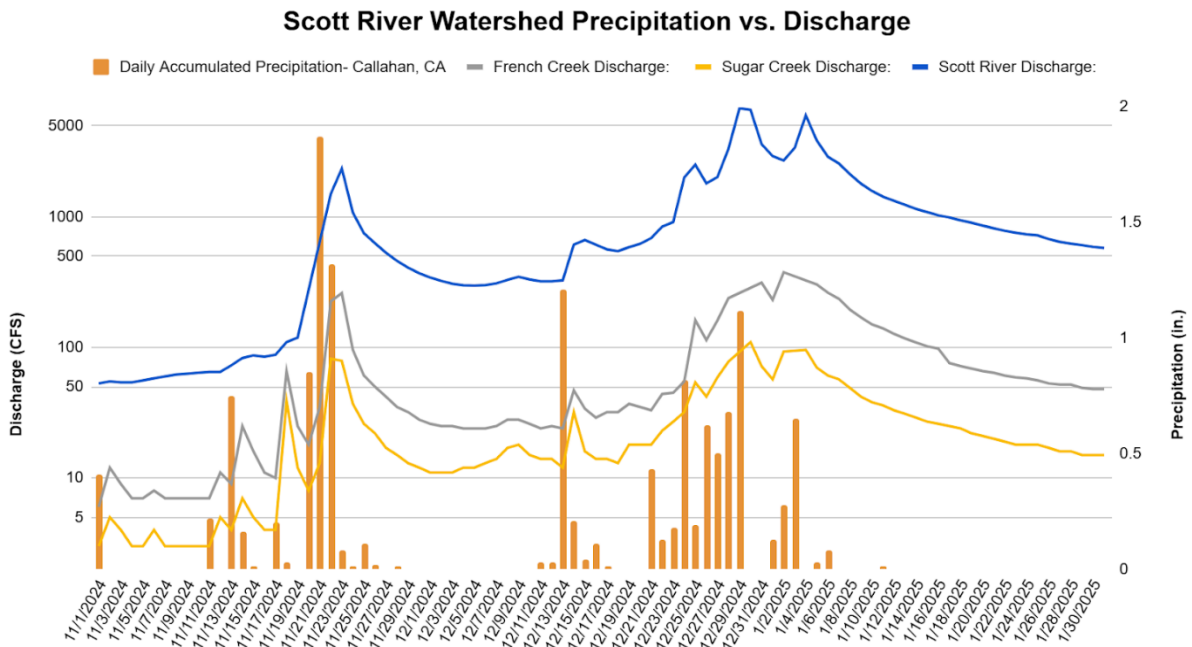


Figure 3. Daily average discharge from the Scott River (USGS gage 11519500), French Creek (CDWR gage F25650) and Sugar Creek (CDWR gage F25890) plotted against daily accumulated precipitation (NWS Callahan station) November 2024 through January 2025. Daily average discharge is not available for Sugar Creek between December 29th, 2024, and January 3rd 2025 and in French Creek on December 29th-30th 2024 and January 3rd and 4th due to flows exceeding the rating table maximum.

## 4. Baseline Conditions Assessment

### 4.1. Coho Population Trends in the Scott River Watershed

The Scott River supports a core, functionally independent population of SONCC coho salmon, recognized as one of the most productive natural stocks in the Klamath River basin. However, this population remains vulnerable to fluctuations in abundance. In 2014, the National Marine Fisheries Service (NMFS) established a depensation threshold of 242 adult coho salmon—the point at which population growth slows as numbers decline. If the number of returning spawners falls below this threshold, reproductive success may decrease due to factors such as difficulty in finding mates or suboptimal spawning conditions. To achieve long-term viability, NMFS has set a federal recovery target of 6,500 spawners for the Scott River population (NMFS 2014).

Since 2007, the California Department of Fish and Wildlife (CDFW) has monitored returning adult coho using a video counting weir at river kilometer (RKM) 29.2 on the mainstem Scott River. Over the last 18 years, coho returns have fallen below the depensation threshold on six occasions (Figure 4, Figure 5, Figure 6, and Figure 7). However, in four of those six seasons, high stream

flows forced the removal of the weir before the end of the migration period, meaning some late-arriving spawners may not have been counted. Those mentioned years were 2012, 2015, 2016, and 2022. On average, annual coho returns have reached only 9.1% of the viability target, with the highest recorded return occurring in 2013 at 25% of the target (CDFW 2024, 2025).

The vast majority of coho salmon return as three-year-old adults. Since 2007, we have monitored three distinct cohort groups of coho salmon in the Scott River watershed. The 2024-2025 spawning season observed the latest returns from “Cohort 3” (unofficial designation for demonstration purposes). This cohort shows promise with the population trend increasing. The preliminary 2024 CDFW data indicates that this cohort is continuing to experience growth (Figure 7). This potential increase could be attributed to improved water conditions in recent years, with further impacts expected to be observed in the returns of “Cohort 1” in the 2025-2026 season and “Cohort 2” in the 2026-2027 season.

In contrast, the relatively strong “Cohort 1” experienced the highest return on record in 2013 but was impacted by the droughts of 2013 -2016 and 2020 - 2022, resulting in a significant population decline and limited recovery for this cohort (Figure 5).

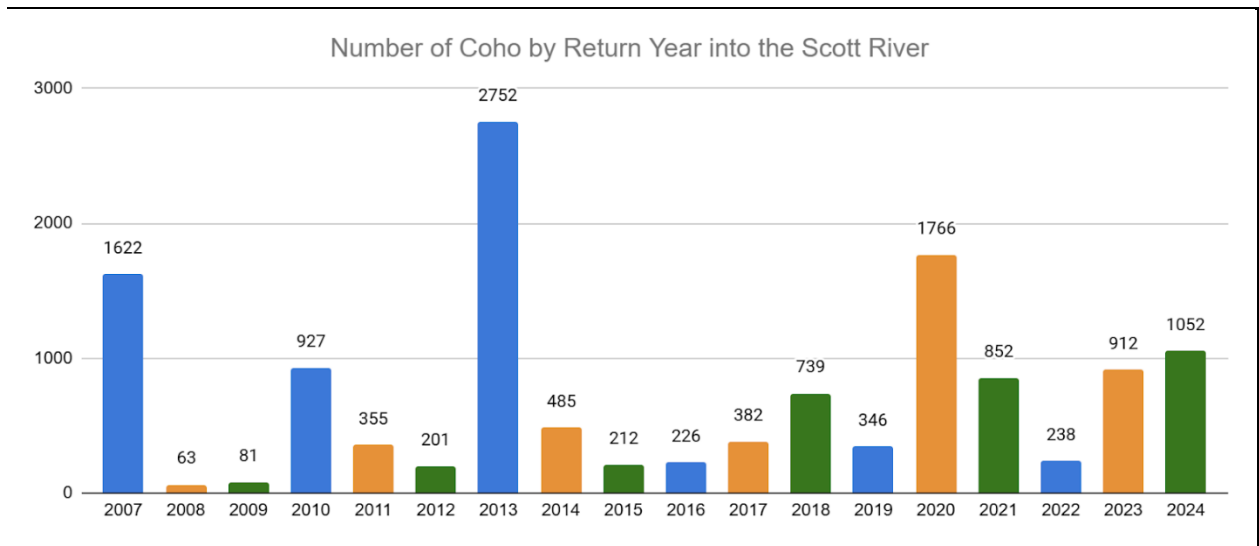


Figure 4. CDFW Scott River fish counting facility escapement by return year. 2007-2023. Early removal of the weir in 2012, 2014-2016, 2022, and 2024 may have impacted abundance estimates. 2024 data is preliminary.

Cohort 1	# of Fish	% of previous return	# of fish under/over depensation level (250)	# of fish under/over viable target (6,500)
2007	1622		1372	-4878
2010	927	57%	677	-5573
2013	2752	297%	2502	-3748
2016	226	8%	-24	-6274
2019	346	153%	96	-6154
2022	238	69%	-12	-6262

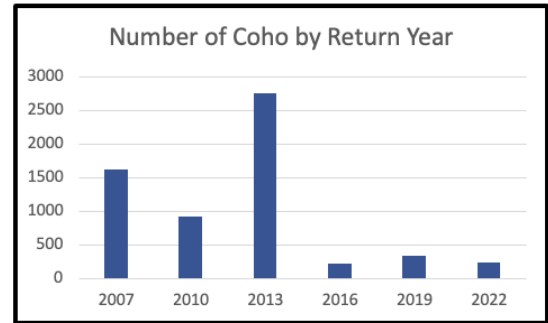


Figure 5. Scott River Coho Salmon cohort 1 escapement compared to depensation and viability values. The nomenclature of “Cohort 1” is merely for demonstration of information and not the official name for this cohort of coho salmon.

Cohort 2	# of Fish	% of previous return	# of fish under/over depensation level (250)	# of fish under/over viable target (6,500)
2008	63		-187	-6437
2011	355	563%	105	-6145
2014	485	137%	235	-6015
2017	382	79%	132	-6118
2020	1766	462%	1516	-4734
2023	912	52%	662	-5588

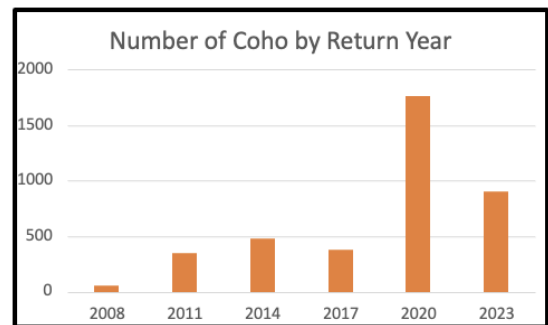


Figure 6. Scott River Coho Salmon cohort 2 escapement compared to depensation and viability values. The nomenclature of “Cohort 2” is merely for demonstration of information and not the official name for this cohort of coho salmon.

Cohort 3	# of Fish	% of previous return	# of fish under/over depensation level (250)	# of fish under/over viable target (6,500)
2009	81		-169	-6419
2012	201	248%	-49	-6299
2015	212	105%	-38	-6288
2018	739	349%	489	-5761
2021	852	115%	602	-5648
2024	1052	123%	802	-5448

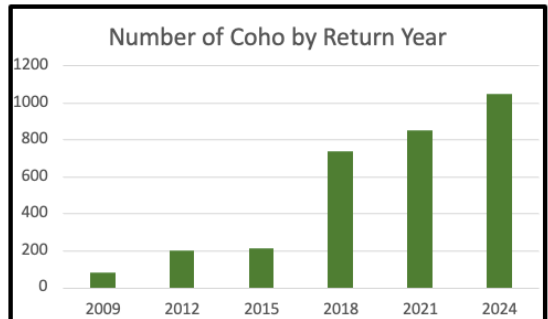


Figure 7. Scott River Coho Salmon cohort 3 escapement compared to depensation and viability values. 2024 data is preliminary. The nomenclature of “Cohort 3” is merely for demonstration of information and not the official name for this cohort of coho salmon.

## 4.2. Current Run Abundance and Timing

Throughout the salmon spawning season, the CDFW Klamath River Project provides weekly preliminary abundance updates from the Scott River Fish Counting Facility (SRFCF). In 2024, the SRFCF operated from September 13 to December 13 (Figure 8). The first coho salmon was observed at the facility between October 30 and November 5, 2024. The exact date will be available in an upcoming report to be published by the CDFW Yreka Office.

A preliminary count of 1052 coho salmon were recorded between the SRFCF camera trap and sonar camera passing through the weir, with the majority migrating upstream between November 15 and 20, 2024 (CDFW 2025).

Spawning ground survey crews first documented adult coho in French and Sugar Creeks on November 25 and in the East Fork Scott River on December 17, 2024. Surveys continued until January 16, 2025, at which point no live coho salmon were observed in the Scott River watershed.

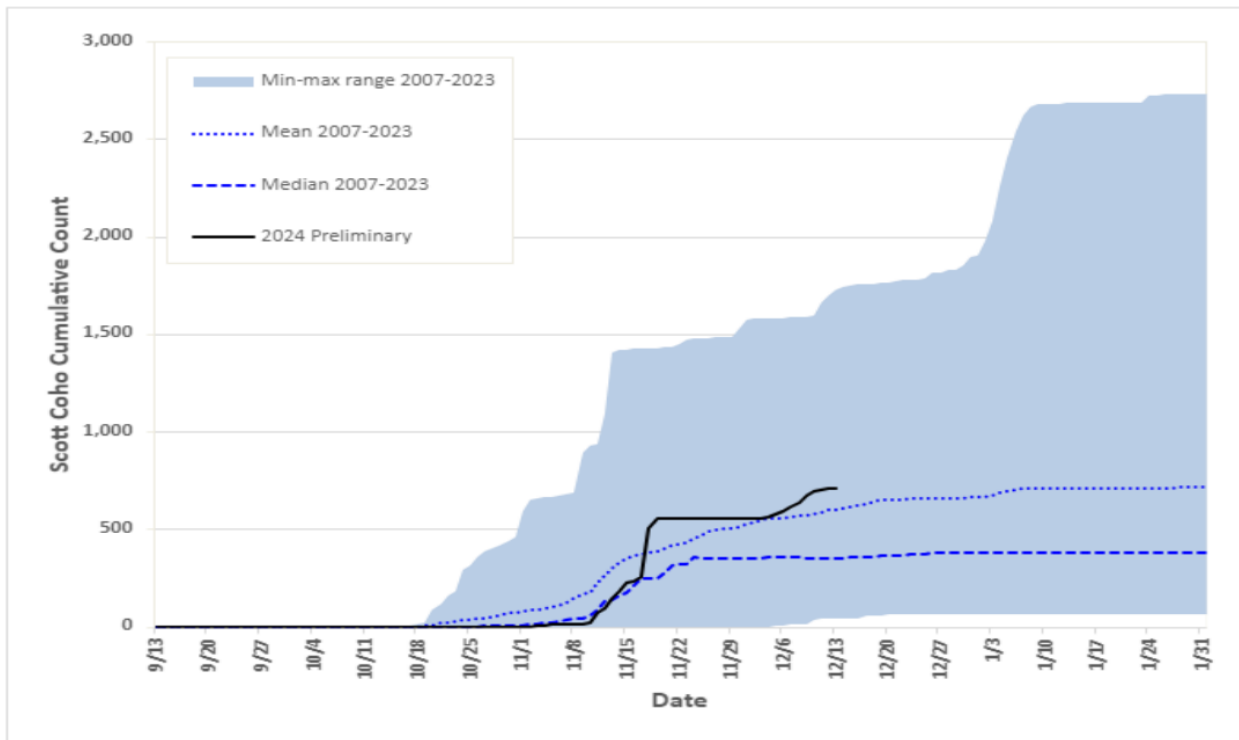
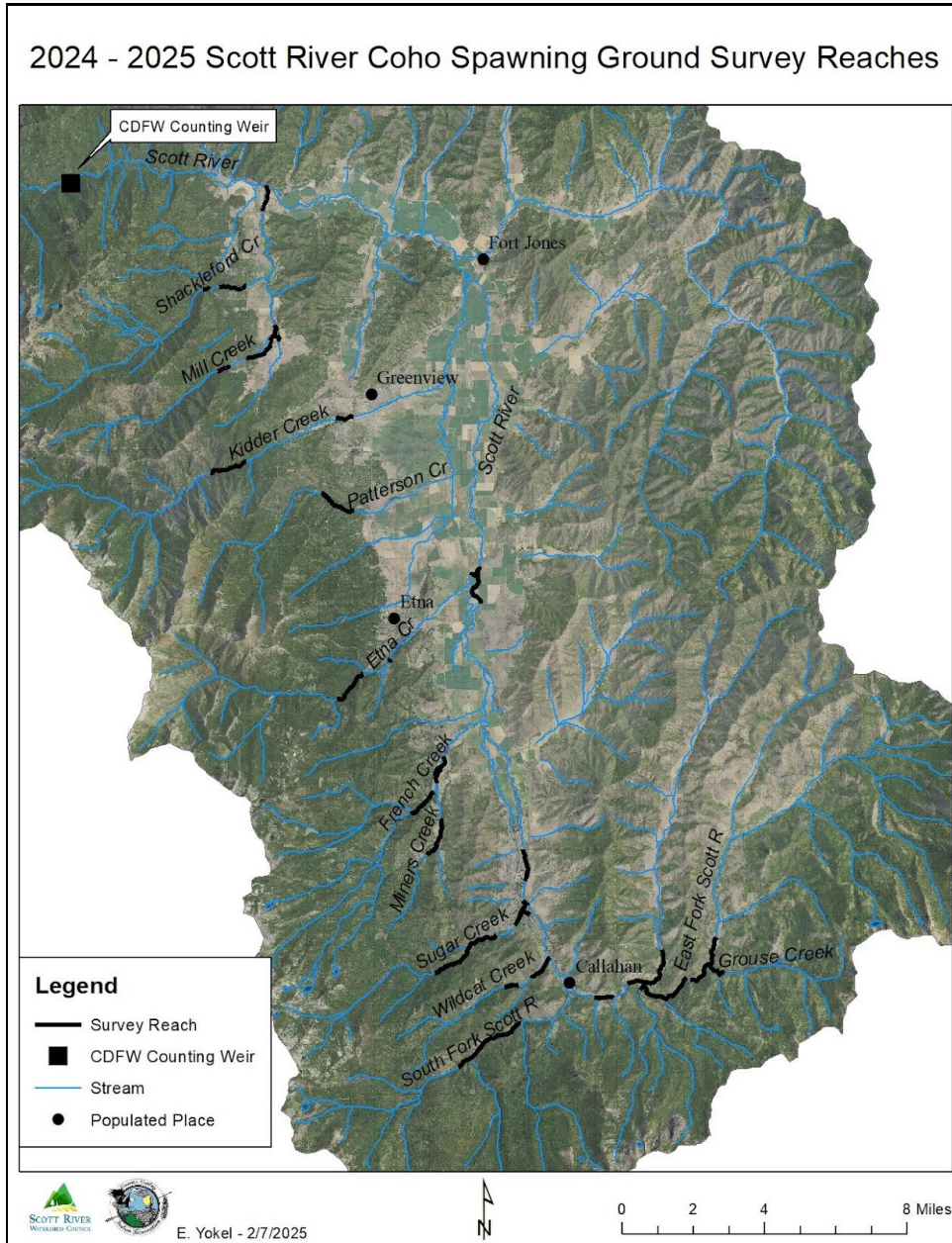


Figure 8. 2024-2025 in-season preliminary Coho Salmon observations at the Scott River adult fish counting facility compared with 2007-2023. 706 adult coho salmon had been observed through December 13, 2024. Thanks to the addition of a sonar camera from CDFW the total from the SRFCF and sonar camera counted a total of 1052 Adult coho through the end of January.



# Spawning Survey 2024/2025 Results

Spawning ground surveys were conducted on 46.2 km (28.7 mi) of 16 streams in the Scott River watershed during the 2024-2025 season (Map 2, Table 1, Table 2, and Table 3). The results from these spawner surveys will be discussed in order of downstream to upstream in the watershed.



Map 2. Reaches surveyed during the 2023-2024 coho salmon spawning ground survey season between Quartz Valley Indian Reservation and Scott River Watershed Council.

Table 1. Table of Spawning Ground Survey Reaches in the Scott River Watershed surveyed by Quartz Valley Indian Reservation and Scott River Watershed Council for the 2024-2025 season. Streams are listed as well as reaches, their land where they are located in River Kilometers (RKM), their length in miles, which organization surveys and how often.

Stream	Reach	RKM		Length (miles)	Surveyor	Frequency
		From	To			
Shackleford Creek	Upper - Falls	8.5	8.1	0.2	SRWC/QVIR	10 Days
Shackleford Creek	Upper	7.7	6.25	0.9	SRWC/QVIR	10 Days
Shackleford Creek	Lower	1.25	0	0.8	SRWC/QVIR	1-2 times
Mill Creek	Middle	5.05	2.6	1.5	SRWC	1 - 2 Times
Emigrant Creek	Lower	0.55	0	0.3	SRWC	1-2 Times
Mill Creek	Upper	6.6	5.9	0.4	QVIR	10 Days
Kidder Creek	Middle	12.05	11.15	0.5	SRWC	1 - 2 Times
Kidder Creek	Upper	19.3	17.3	1.3	SRWC/QVIR	10 Days
Patterson Creek	Upper	7.3	5.3	1.2	SRWC	1 - 2 Times
Scott River	Reach 13 - Partial	70.6	68.6	1.3	SRWC	1 - 2 Times
Etna Creek	Lower	0.35	0	0.3	SRWC	1-2 times
Etna Creek	Middle	6.25	6.05	0.1	SRWC	1 - 2 Times
Etna Creek	Upper - Etna Diversion	9.5	7.7	1.1	SRWC	10 Days
French Creek	Middle	4.3	2.8	1.6	SRWC/QVIR	Weekly
Miners Creek	Middle	3.4	1.5	1.2	SRWC	10 Days
French Creek	Upper	6.3	4.7	1.0	SRWC	1 - 2 Times
Scott River	Reach 16 - Tailings	86.5	84.9	1.0	SRWC/QVIR	10 Days
Scott River	Reach 16 - Sugar Confluence	87.7	87.4	0.1	SRWC/QVIR	Weekly
Sugar Creek	Lower	1.2	0	0.7	SRWC/QVIR	Weekly
Sugar Creek	Sugar Creek Refugia	0.4	0	0.3	SRWC	Weekly
Sugar Creek	Upper	6.0	2.2	2.3	SRWC	10 Days
Wildcat Creek	Lower	1.3	0	0.8	SRWC	10 Days

Stream	Reach	RKM RKM		Length (miles)	Surveyor	Frequency
		From	To			
Wildcat Creek	Upper	2.8	2.1	0.4	SRWC	10 Days
South Fork Scott River	Upper and Middle	7.7	3.9	2.4	SRWC	10 Days
East Fork Scott River	Lower	2.65	1.8	0.5	SRWC	1-2 Times
East Fork Scott River	Middle - Big Mill	7.4	3.75	2.2	SRWC	10 Days
Noyes Valley Creek	Lower	2.3	0	1.5	SRWC	1 - 2 Times
Big Mill Creek	Lower	0.3	0	0.2	SRWC	1-2 times
East Fork Scott River	Middle- Grouse Creek	10.5	7.6	1.8	SRWC	10 Days
Grouse Creek	Lower	1	0	0.6	SRWC	1 - 2 Times

Table 2. A table showing the coho salmon redd density in redds per mile per survey reach in descending order from highest to lowest density. Sugar Creek Refugia having the highest density and multiple reaches had zero redds in the sample frame.

Stream	Reach Description	Redds per Mile	Number of Redds	Miles
Sugar Refugia Channel	Sugar Refugia Project	95.6	24	0.3
Scott River - Sugar Confluence	Sugar Creek Confluence	54.0	10	0.2
Sugar Creek	Lower and Middle	26.3	19	0.7
French Creek	Middle	10.0	16	1.6
Noyes Valley Creek	Lower	8.3	12	1.5
Patterson Creek	Upper	4.9	6	1.2
Miners Creek	Middle	4.8	6	1.2
Etna Creek	Upper - Etna Diversion	4.5	5	1.1
East Fork Scott River	Middle - Grouse Creek	2.8	5	1.8
Kidder Creek	Middle	1.8	1	0.5
Scott River	Reach 13 Partial	1.6	2	1.3
Wildcat Creek	Lower	1.2	1	0.8
Scott River	Tailings	1.0	1	1.0
Kidder Creek	Upper	0.8	1	1.3
East Fork Scott River	Middle - Big Mill	0.4	1	2.2
South Fork Scott River	Middle	0.4	1	2.4
Shackleford Creek	Lower	0	0	0.8
Shackleford Creek	Upper	0	0	0.9
Shackleford Creek	Upper - Falls	0	0	0.2
Mill Creek	Middle	0	0	1.5
Emigrant Creek	Lower	0	0	0.3
Mill Creek	Upper	0	0	0.4
Etna Creek	Lower Confluence	0	0	0.3
Etna Creek	Middle	0	0	0.1
French Creek	Upper	0	0	1.0
Sugar Creek	Upper	0	0	2.3
Wildcat Creek	Upper	0	0	0.4
East Fork Scott River	Lower	0	0	0.5
Big Mill Creek - East Fork	Lower	0	0	0.2
Grouse Creek	Lower	0	0	0.6
			111	28.7

Table 3. Table of results from the 2024-2025 Spawning Ground Surveys including redds, live fish, and carcasses observed.

Stream	Reach	Length (miles)	Redds (Number)	Lives (Number)	Carcasses (Number)	Redds per Survey Mile
Shackleford Creek	Lower	0.8	0	0	0	0
Shackleford Creek	Upper	0.9	0	0	0	0
Shackleford Creek	Upper - Falls	0.2	0	0	0	0
Mill Creek	Middle	1.5	0	0	0	0
Emigrant Creek	Lower	0.3	0	0	0	0
Mill Creek	Upper	0.4	0	0	0	0
Kidder Creek	Middle	0.5	1	0	0	1.8
Kidder Creek	Upper	1.3	1	0	0	0.8
Patterson Creek	Upper	1.2	6	3	0	4.9
Scott River	Reach 13 - Partial	1.3	2	9	0	1.6
Etna Creek	Lower	0.3	0	0	0	0
Etna Creek	Middle	0.1	0	0	0	0
Etna Creek	Upper - Etna Diversion	1.1	5	2	0	4.5
French Creek	Middle	1.6	16	42	7	10.0
French Creek	Upper	1.0	0	0	0	0
Miners Creek	Middle	1.2	6	13	4	4.8
Scott River	Reach 16 - Tailings	1.0	1	0	0	1.0
Scott River	Scott River - Sugar Confluence	0.2	10	10	0	54.0
Sugar Creek	Lower and Middle	0.7	19	35	5	26.3
Sugar Cr Refugia Proje	Sugar Cr Refugia Project	0.3	24	27	12	95.6
Sugar Creek	Upper	2.3	0	0	0	0
Wildcat Creek	Lower	0.8	1	2	0	1.2
Wildcat Creek	Upper	0.4	0	0	0	0
South Fork Scott River	Upper and Middle	2.4	1	0	1	0.4
East Fork Scott River	Lower	0.5	0	0	1	0
East Fork Scott River	Middle - Big Mill Creek	2.2	1	4	5	0.4
Noyes Valley Creek	Lower	1.5	12	19	2	8.3
Big Mill Creek	Lower	0.2	0	0	0	0
East Fork Scott River	Middle - Grouse Creek	1.8	5	3	2	2.8
Grouse Creek	Lower	0.6	0	0	0	0
<b>Totals</b>		<b>28.7</b>	<b>111</b>	<b>169</b>	<b>39</b>	

### 4.3.1 Shackleford Creek RKM 1.25-0

On December 16, 2024, and January 9, 2025, Shackleford RKM 1.25-0 (lower) was surveyed. Between the two surveys zero redds and live fish were observed (Table 4).

Table 4. Table of observations for Lower Shackleford Creek

*Shackleford Creek -  
Lower*

<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/16/2024</i>	0	0	0
<i>1/9/2025</i>	0	0	0
<i>Totals</i>	0	0	0

### 4.3.2 Shackleford Creek RKM 8.5-8.1 & 7.7-6.25

On December 3, 2024, Shackleford Creek RKM 8.5-8.1 (Upper Falls) and RKM 7.7-6.25 (Upper) were surveyed. In this survey no redds, fish, or carcasses were observed (Table 5).

Table 5. Table of observations for Upper Falls and Upper Shackleford Creek.

*Shackleford Creek- Upper  
Falls & Upper*

<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/3/2024</i>	0	0	0
<i>Totals</i>	0	0	0



### 4.3.3 Mill Creek RKM 5.05-2.6

On December 9, 2024, Mill Creek RKM 5.05-2.6 (Middle) was surveyed. In this survey no redds, fish, or carcasses were observed (Table 6).

Table 6. Table of observations for Middle Mill Creek.

Mill Creek-  
Middle

<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/9/2024</i>	0	0	0
<i>Totals</i>	0	0	0

### 4.3.4 Emigrant Creek RKM 0.55-0

On December 9, 2024 Emigrant Creek RKM 0.55-0 (Lower) a tributary to Mill Creek was surveyed. In that survey zero coho salmon redds, live fish, or carcasses were observed (Table 7).

Table 7.. Table of observations for Lower Emigrant Creek.

Emigrant Creek-  
Lower

<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/9/2024</i>	0	0	0
<i>Totals</i>	0	0	0

### 4.3.5 Mill Creek RKM 6.6-5.9

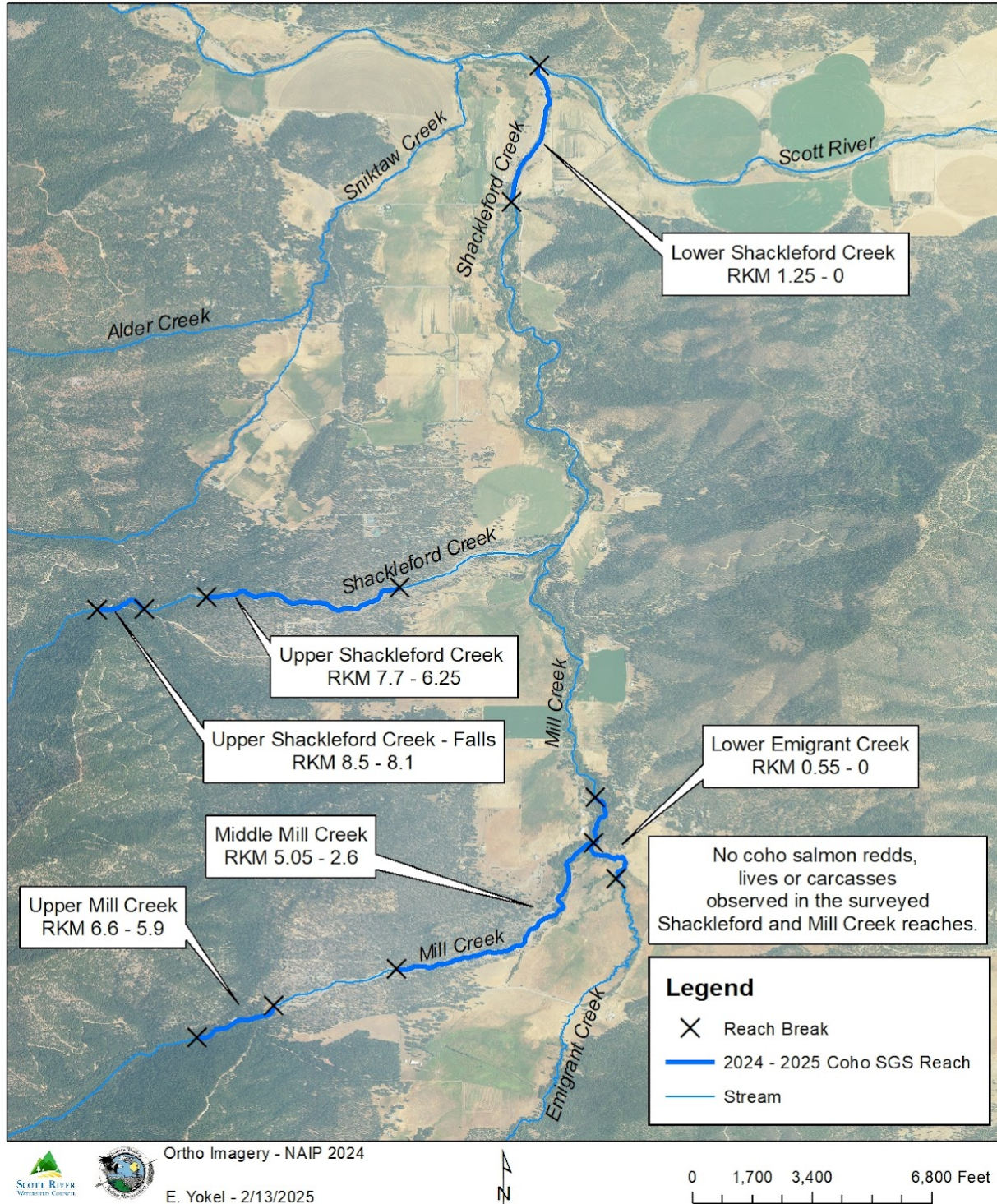
On December 4, and 31, 2024 Mill Creek RKM 6.6-5.9 (upper) was surveyed. In those surveys zero coho salmon redds, live fish, or carcasses were observed (Table 8).

*Table 8. Table of observations for Upper Mill Creek.*

Mill Creek-  
Upper

<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/4/2024</i>	0	0	0
<i>12/31/2024</i>	0	0	0
<i>Totals</i>	0	0	0

# 2024 - 2025 Coho Spawning Ground Surveys Shackleford and Mill Creek Reaches



Map 3. Map of observations in Shackleford, Mill, and Emigrant Creek tributaries.

### 4.3.6 Kidder Creek RKM 12.05-11.15

On December 12, 20, 2024 and January 10, 2025, Kidder Creek RKM 12.05-11.15 (Middle) was surveyed. Between the three surveys one coho salmon redd was observed (Table 9).

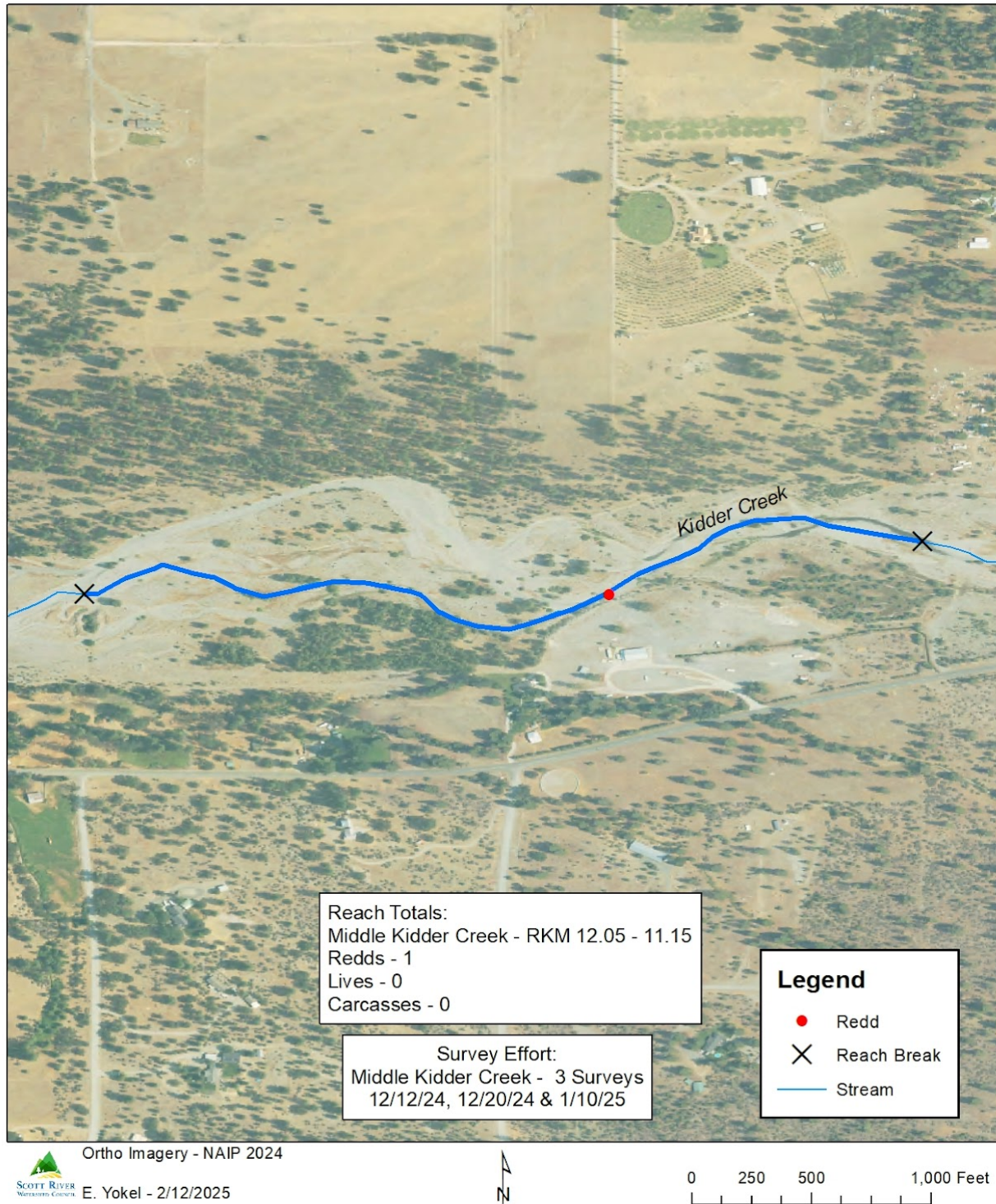
*Table 9. Table of observations for Middle Kidder Creek.*

Kidder Creek-  
Middle

<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/12/2024</i>	0	0	0
<i>12/20/2024</i>	1	0	0
<i>1/10/2025</i>	0	0	0
<i>Totals</i>	1	0	0



# 2024 - 2025 Coho Spawning Ground Surveys Middle Kidder Creek (RKM 12.05 - 11.15)



Map 4. Map of observations in Kidder Creek RKM 12.05-11.15 (Middle).

### 4.3.7 Kidder Creek RKM 19.3-17.3

On December 6, 2024, Kidder Creek RKM 19.3-17.3 (Upper) was surveyed. One coho salmon redd was observed.

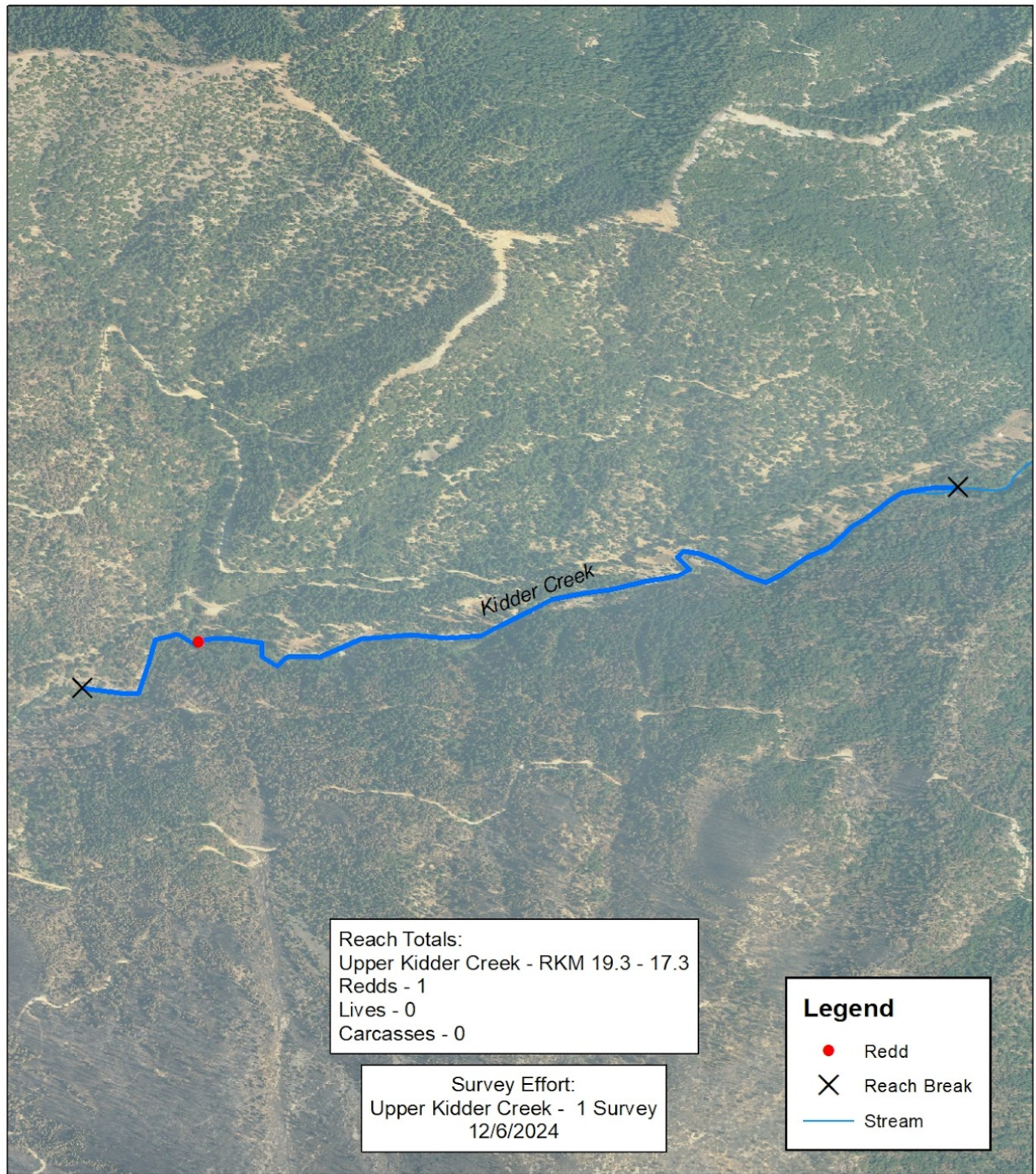
*Table 10. Table of observations for Upper Kidder Creek.*

Kidder Creek-  
Upper

<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/6/2024</i>	1	0	0
<i>Totals</i>	1	0	0



# 2024 - 2025 Coho Spawning Ground Surveys Upper Kidder Creek (RKM 19.3 - 17.3)



Ortho Imagery - NAIP 2024

E. Yokel - 2/12/2025



0 500 1,000 2,000 Feet

Map 5. Map of observations in Kidder Creek RKM 19.3-17.3 (Upper).

### 4.3.8 Patterson Creek RKM 7.3-5.3

On December 11, 18, 2024, and January 13, 2025, Patterson Creek RKM 7.3 - 5.3 (Middle) was surveyed. Between those three surveys six coho salmon redds and three live fish were observed.

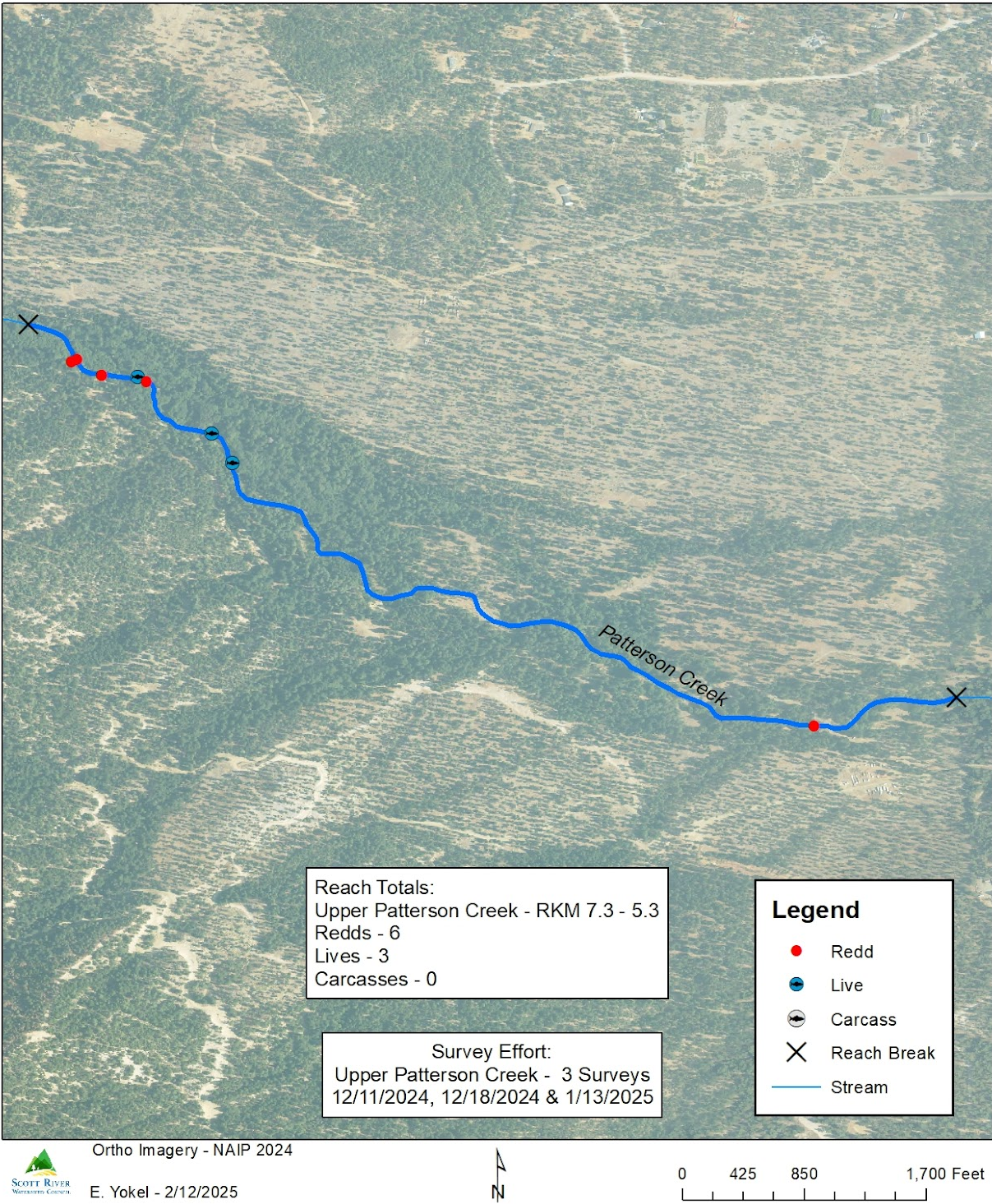
*Table 11. Table of Observations for Middle Patterson Creek.*

Patterson Creek-  
Middle

<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/11/2024</i>	4	3	0
<i>12/18/2024</i>	2	0	0
<i>1/13/2025</i>	0	0	0
<i>Totals</i>	6	3	0



# 2024 - 2025 Coho Spawning Ground Surveys Upper Patterson Creek (RKM 7.3 - 5.3)



Map 6. Map of observations in Patterson Creek RKM 7.3-5.3 (Upper).

### 4.3.9 Scott River RKM 70.6-68.6

On December 5 (spot survey) and December 10, 2024, Scott River RKM 70.6-68.6 (Reach 13) was surveyed. In these surveys two coho salmon redds were observed and nine live coho were observed (Table 12).

*Table 12. Table of observations for Scott River Reach 13-Partial.*

Scott River - Reach 13-Partial			
<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/5/2024</i>	1	2	0
<i>12/10/2024</i>	1	7	0
<i>Totals</i>	2	9	0

### 4.3.10 Etna Creek RKM 0.35 – 0

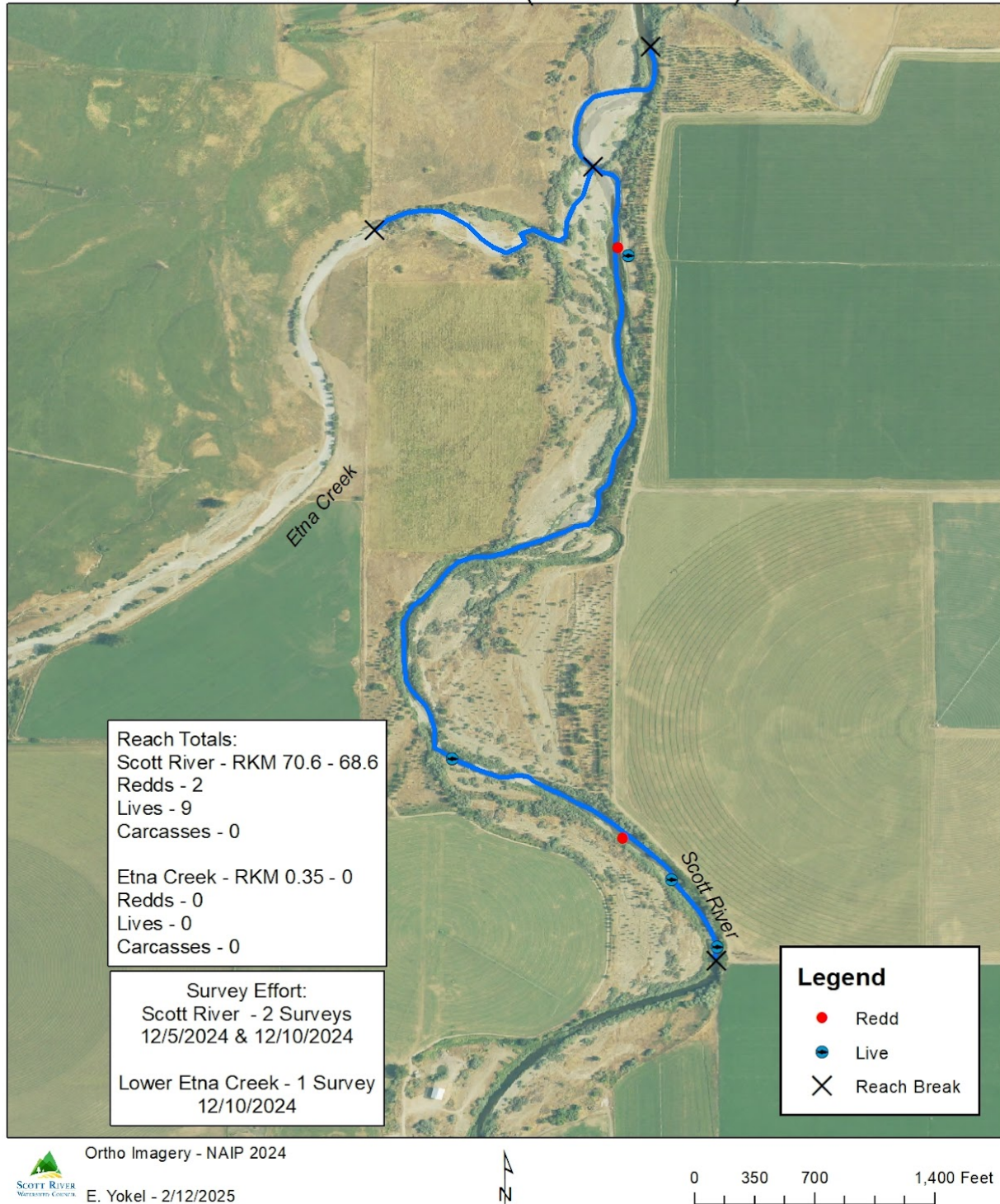
Lower Etna Creek (RKM 0.35 - 0) was surveyed on December 10, 2024. No redds, live fish or carcasses were observed in Lower Etna Creek (Table 13).

*Table 13. Table of observations for Lower Etna Creek.*

Etna Creek- Lower			
<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/10/2024</i>	0	0	0
<i>Totals</i>	0	0	0



2024 - 2025 Coho Spawning Ground Surveys  
 Scott River - Reach 13 Partial (RKM 70.6 - 68.6)  
 Lower Etna Creek (RKM 0.35 - 0)



Map 7. Map of observations in the Scott River RKM 70.6-68.6 (Reach 13- Partial) and Etna Creek RKM 0.35-0 (Lower).

### 4.3.11 Etna Creek RKM 6.25-6.05

On December 12, 2024, Etna Creek RKM 6.25-6.05 (Middle) was surveyed - no coho redds, lives or carcasses were observed (Table 15).

*Table 14. Table of observations for Middle Etna Creek.*

Etna Creek- Middle			
<i>Date:</i>	Coho Redds Observed:	Live Coho Observed:	Coho Carcasses Observed:
<i>12/12/2024</i>	0	0	0
<i>Totals</i>	0	0	0

### 4.3.12 Etna Creek RKM 9.5-7.7

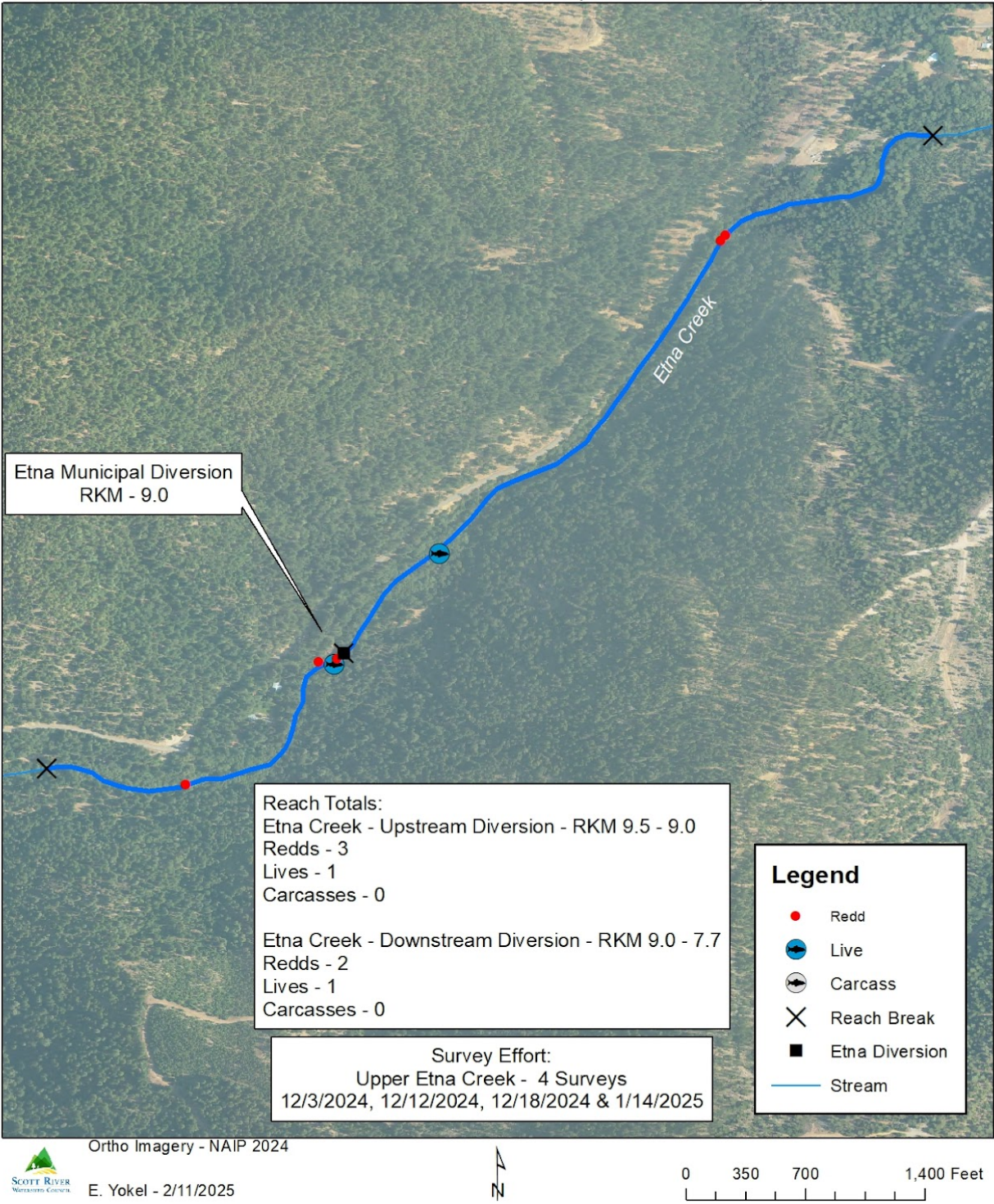
On December 3, 12, 18, 2024, and January 14, 2025, Etna RKM 9.5-7.7 (Upper-Etna Diversion) was surveyed. Between the four surveys five coho redds were observed in Upper reach as well as two live fish and no carcasses. Three of the five redds and one live coho salmon were observed upstream of the Etna City Diversion dam (Table 14).

Table 15. Table of observations for Upper Etna Creek and Etna Creek Diversion.

Etna Creek- Upper- Etna Diversion			
<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/3/2024</i>	2	0	0
<i>12/12/2024</i>	2	1	0
<i>12/18/2024</i>	1	1	0
<i>1/14/2024</i>	0	0	0
<i>Totals</i>	5	2	0



2024 - 2025 Coho Spawning Ground Surveys  
 Upper Etna Creek - Upstream Etna Diversion (RKM 9.5 - 9.0) and  
 Downstream Etna Diversion (RKM 9.0 - 7.7)



Map 8. Map of observation in Etna Creek RKM 9.5-9.0 and 9.0-7.7 (Upper, and Middle).

### 4.3.13 French Creek RKM 4.3-2.8

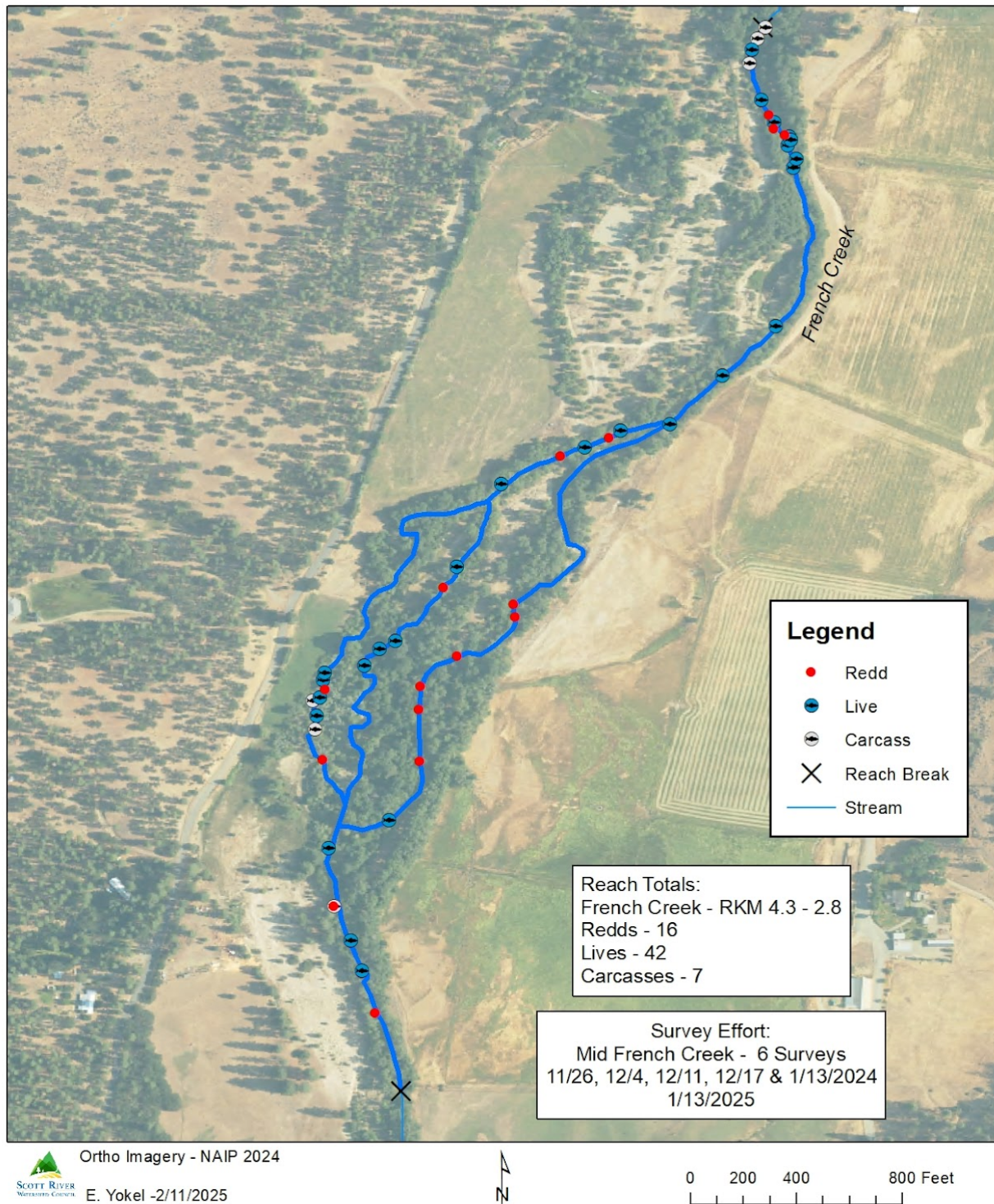
On November 26, December 4, 11, 17, and 23, 2024 and January 13, 2025, French Creek RKM 4.3-2.8 (Middle), was surveyed. Between the six surveys 16 redds were observed, as well as 42 live coho salmon and 7 carcasses (Table 16).

*Table 16. Table of observations for Middle French Creek.*

French Creek- Middle			
<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>11/26/2024</i>	2	8	0
<i>12/4/2024</i>	4	1	1
<i>12/11/2024</i>	2	3	1
<i>12/17/2024</i>	2	9	1
<i>12/23/2024</i>	5	21	4
<i>1/13/2025</i>	1	0	0
<i>Totals</i>	16	42	7



## 2024 - 2025 Coho Spawning Ground Surveys Middle French Creek (RKM 4.3 - 2.8)



Map 9. Map of observations in French Creek RKM 4.2-2.8 (Middle).

#### 4.3.14 Miners Creek RKM 3.5-1.5

On November 27, December 5, and 17, 2024 and January 9, 2025, Miners Creek RKM 3.5-1.5 (Middle) was surveyed. Between these four surveys six coho salmon redds, 13 live fish and four carcasses were observed (Table 17).

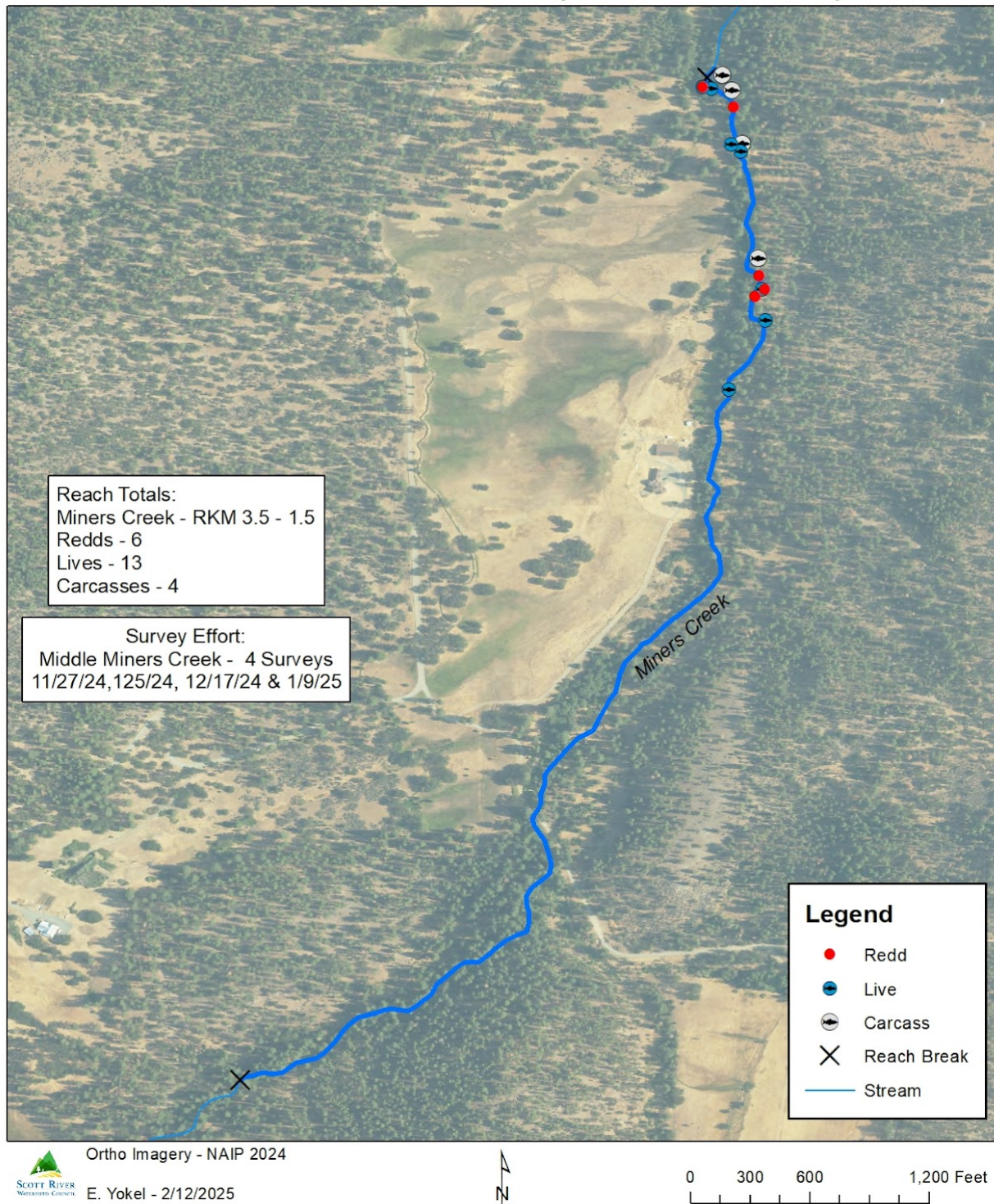
*Table 17. Table of observations for Middle Miners Creek.*

Miners Creek-  
Middle

<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>11/27/2024</i>	3	7	0
<i>12/5/2024</i>	2	1	1
<i>12/17/2024</i>	1	5	3
<i>1/9/2025</i>	0	0	0
<i>Totals</i>	6	13	4



# 2024 - 2025 Coho Spawning Ground Surveys Middle Miners Creek (RKM 3.5 - 1.5)



Map 10. Map of observations in Miners Creek RKM 3.5-1.5 (Middle).

### 4.3.15 French Creek RKM 6.3-4.7

On December 9, 2024, French Creek RKM 6.3-4.7 (Upper) was surveyed. On that survey no redds, live fish, or carcasses were observed (Table 18).

Table 18. Table of observations in Upper French Creek.

French Creek-  
Upper

<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/9/2024</i>	0	0	0
<i>Totals</i>	0	0	0

### 4.3.16 Scott River Tailings RKM 86.5-84.9

On December 11, 2024, Scott River RKM 86.5-84.9 (Tailings) was surveyed. In this survey only one coho salmon redd was observed (Table 19).

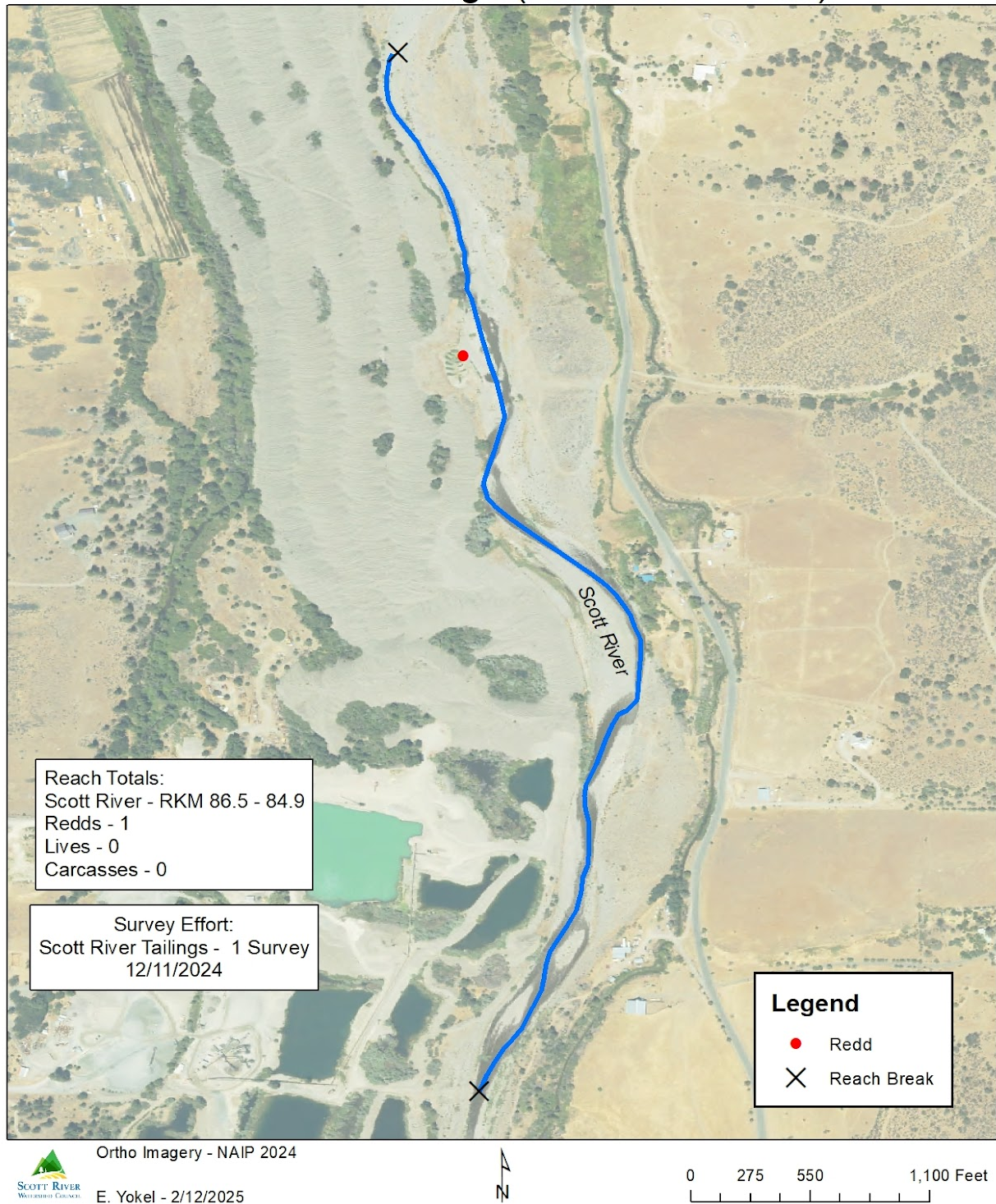
Table 19. Table of observations in the Scott River Reach 16-tailings.

Scott River - Reach 16-  
tailings

<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/11/2024</i>	1	0	0
<i>Totals</i>	1	0	0



## 2024 - 2025 Coho Spawning Ground Surveys Scott River Tailings (RKM 86.5 - 84.9)



Map 11. Map of observations in the Scott River RKM 86.5-84.9 (Reach 16-tailings).

### 4.3.17 Scott River at Sugar Creek Confluence RKM 87.7- 87.4

On November 25, December 2, 10, 16, and 19, 2024 Scott River RKM 87.7- 87.4 (Reach 16 - Sugar Creek confluence) was surveyed. Between the four surveys 10 coho salmon redds were observed and 10 live fish with no carcasses (Table 20).

Table 20. Table of observations for the Scott River Reach 16-Sugar Creek Confluence.

Scott River - Reach 16 – Sugar Creek Confluence			
<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>11/25/2024</i>	2	1	0
<i>12/2/2024</i>	1	1	0
<i>12/10/2024</i>	1	0	0
<i>12/16/2024</i>	1	2	0
<i>12/19/2024</i>	5	6	0
<i>Totals</i>	10	10	0

### 4.3.18 Sugar Creek RKM 1.2-0

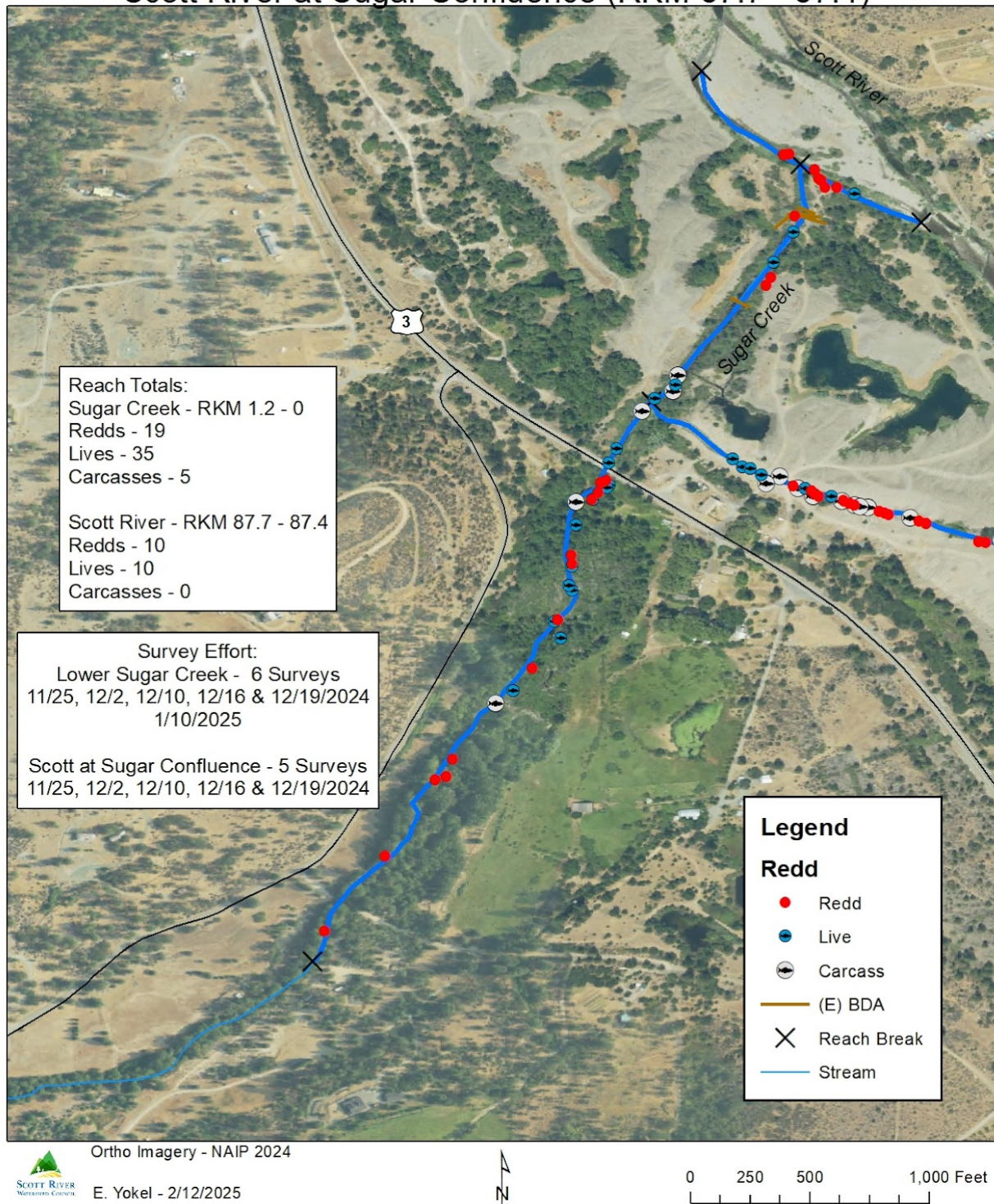
On November 25, December 2, 10, 16, and 19, 2024 and January 10, 2025, Sugar Creek RKM 1.2-0 (Lower) was surveyed. Between the seven surveys a total of 19 redds were observed and 35 live fish and 5 carcasses (Table 21).

*Table 21. Table of observations for Lower Sugar Creek.*

Sugar Creek- Lower			
<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>11/25/2024</i>	5	11	0
<i>12/2/2024</i>	6	2	0
<i>12/10/2024</i>	5	0	0
<i>12/16/2024</i>	0	10	0
<i>12/19/2024</i>	3	12	3
<i>1/10/2025</i>	0	0	2
<i>Totals</i>	19	35	5



## 2024 - 2025 Coho Spawning Ground Surveys Lower and Middle Sugar Creek (RKM 1.2 - 0) and Scott River at Sugar Confluence (RKM 87.7 - 87.4)



Map 12. Map of observations for the Scott River RKM 87.7-87.4 (Sugar Confluence) and Sugar Creek RKM 1.2-0 (Lower).



### 4.3.19 Sugar Creek Coho Salmon Refugia Project (RKM 0.4-0)

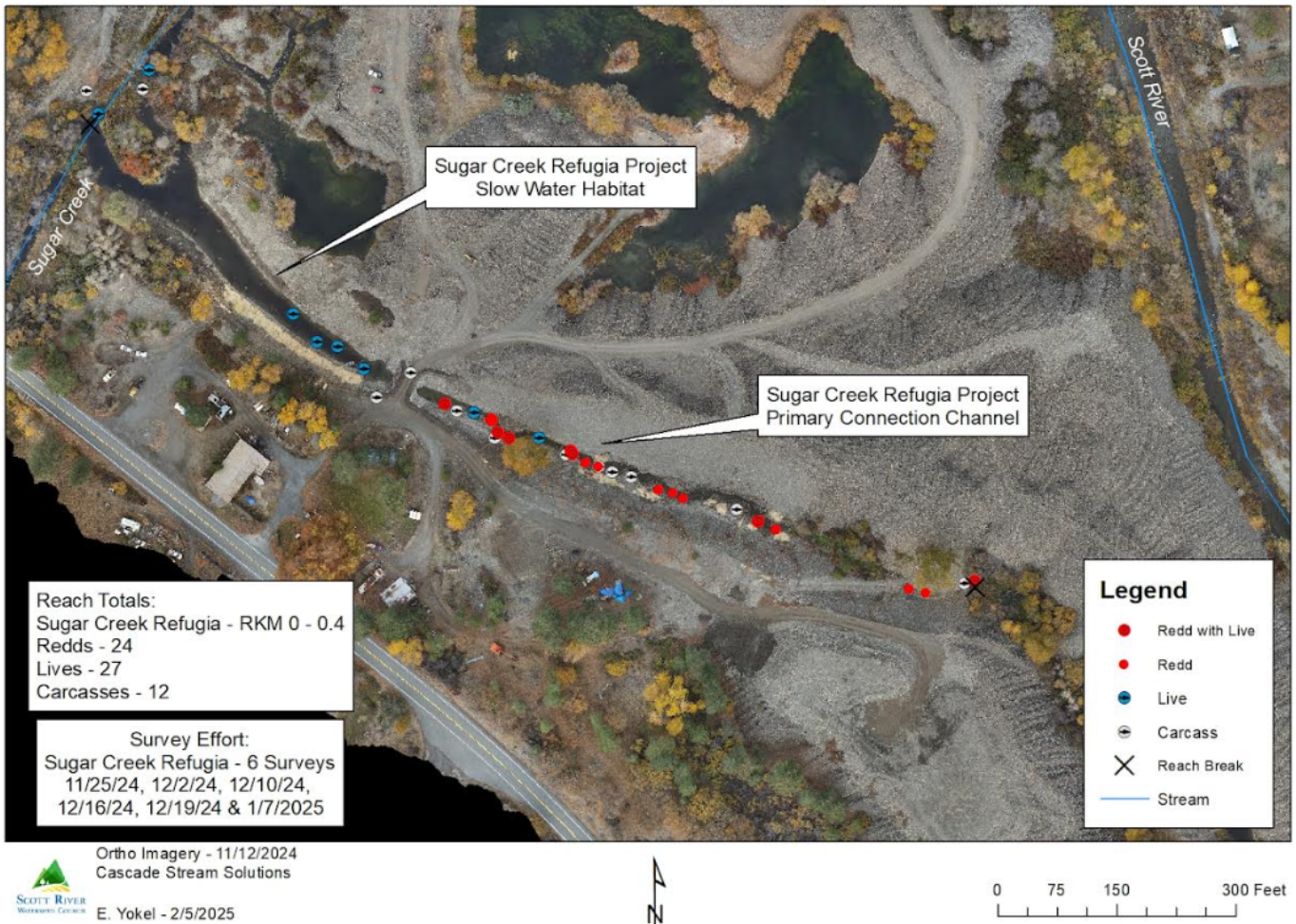
The Sugar Creek Refugia slow water habitat and primary connection channel constructed in 2024, measuring 0.3 miles, was surveyed on November 25, December 2, 10, 16, and 19, 2024 and January 7, 2025. In those surveys 24 redds were observed, along with 27 live fish and 12 carcasses (Table 22).

Table 22. Table of observations in the Sugar Creek Refugia.

#### Sugar Creek Refugia

<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>11/25/24</i>	4	5	1
<i>12/2/24</i>	3	6	0
<i>12/10/24</i>	6	7	0
<i>12/16/2024</i>	3	6	0
<i>12/19/2024</i>	5	3	1
<i>1/7/2024</i>	3	0	10
<i>Totals</i>	24	27	12

## 2024 - 2025 Coho Spawning Ground Surveys Sugar Creek Refugia Project



*Map 13. Map of observations in Sugar Creek RKM 0.4-0 (Sugar Creek Refugia).*

### 4.3.20 Sugar Creek RKM 5.8-2.2

On December 6, and 19, Sugar Creek RKM 5.8-2.2 (Upper) was surveyed. Between the two surveys no redds, fish, or carcasses were observed (Table 23).

Table 23. Table of observations for Upper Sugar Creek.

#### Sugar Creek- Upper

<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/6/2024</i>	0	0	0
<i>12/19/2024</i>	0	0	0
<i>Totals</i>	0	0	0

### 4.3.21 Wildcat Creek RKM 3-1.9 & 1.3-0

On December 9, 20, 2024 and January 8, 2025, Wildcat Creek RKM 3-1.9 (Upper) and 1.3-0 (Lower) were surveyed. No coho salmon redds, live fish, or carcasses were found in Upper Wildcat Creek. One coho salmon redd and two live fish and no carcasses were observed in Lower Wildcat Creek (Table 24 & Table 25).

Table 24. Table of observations for Upper Wildcat Creek.

#### Wildcat Creek- Upper

<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/9/2024</i>	0	0	0
<i>12/20/2024</i>	0	0	0
<i>1/8/2025</i>	0	0	0
<i>Totals</i>	0	0	0

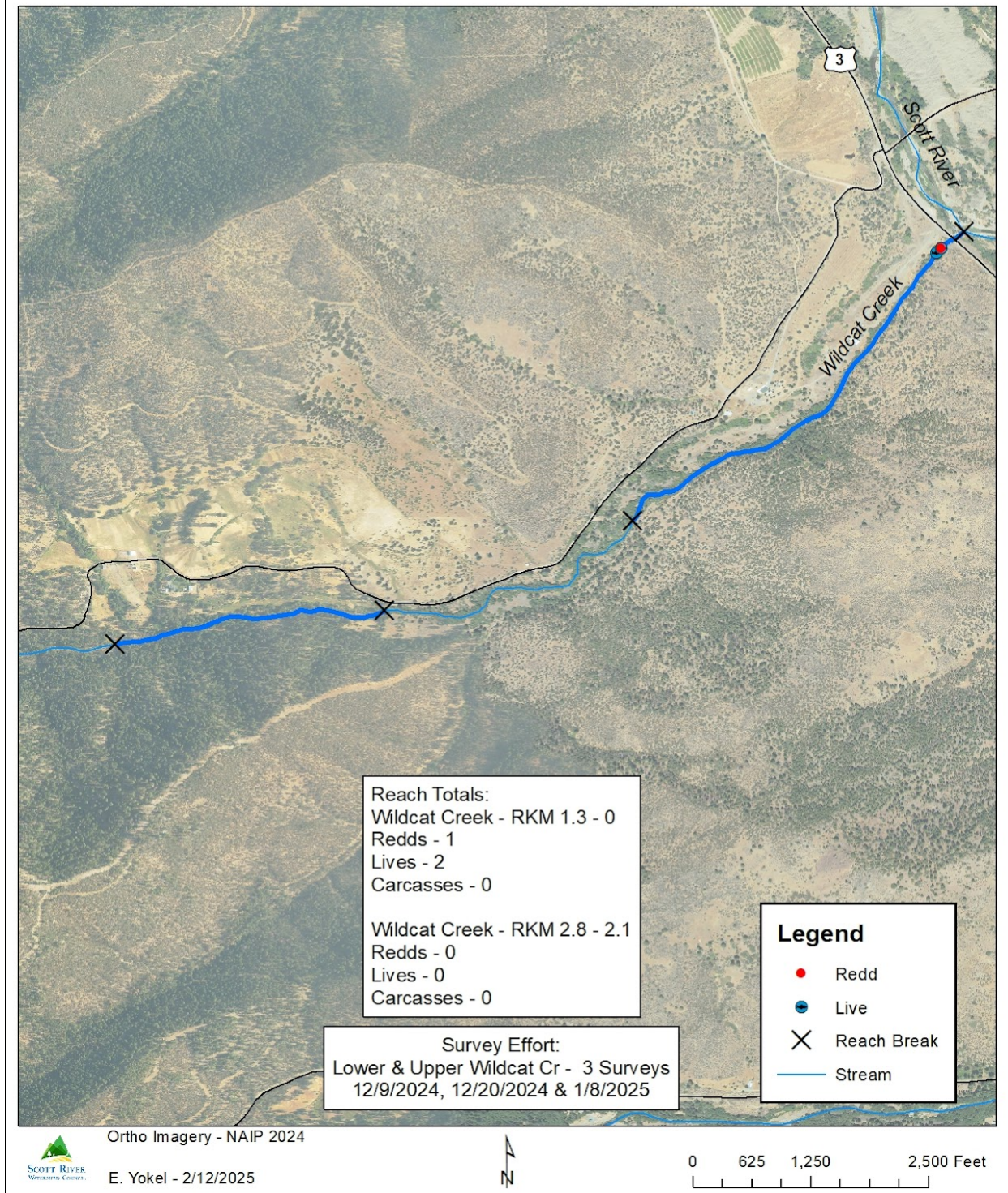
Table 25. Table of observations for Lower Wildcat Creek.

Wildcat Creek-  
Lower

<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/9/2024</i>	0	0	0
<i>12/20/2024</i>	1	2	0
<i>1/8/2025</i>	0	0	0
<i>Totals</i>	1	2	0



2024 - 2025 Coho Spawning Ground Surveys  
 Lower Wildcat Creek (RKM 1.3 - 0) and Upper Wildcat Creek (RKM 2.8 - 2.1)



Map 14. Map of observations for Wildcat Creek RKM 2.8-2.1 & 1.3-0 (Upper and Lower)

### 4.3.22 South Fork Scott River RKM 7.7 - 3.9

On December 9, and 19, 2024 and January 14, 2025, South Fork Scott River RKM 9.9-3.7 (Upper & Middle) was surveyed. Between those surveys one coho salmon redd and carcass was observed (Table 26).

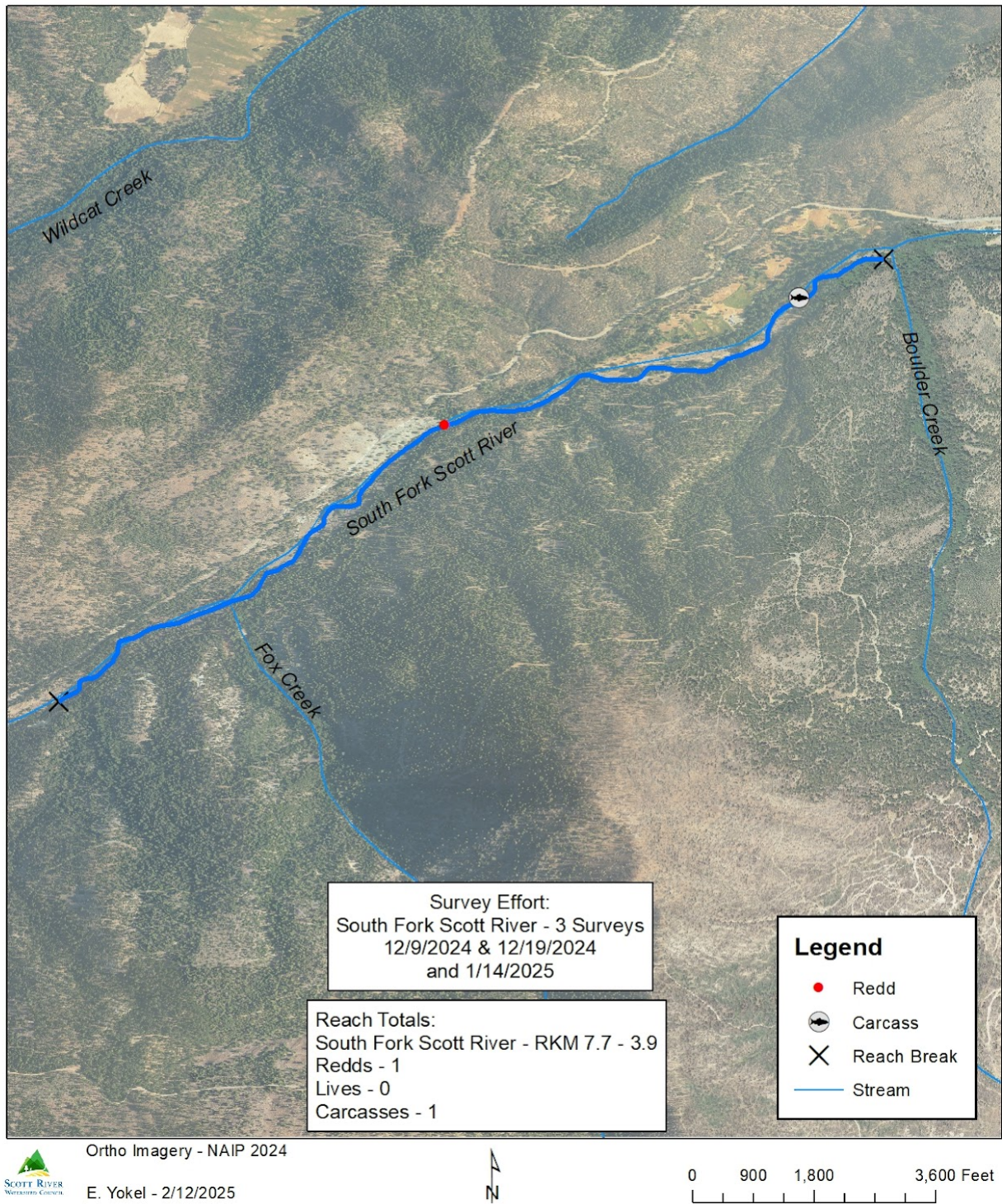
*Table 26. Table of Observations for the East Fork of the Scott River, Upper and Middle Sections.*

South Fork Scott River-  
Upper and Middle

<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/9/2024</i>	1	0	1
<i>12/19/2024</i>	0	0	0
<i>1/14/2025</i>	0	0	0
<i>Totals</i>	1	0	1



# 2024 - 2025 Coho Spawning Ground Surveys South Fork Scott River - RKM 7.7 - 3.9



Map 15. Map of observations in the South Fork Scott River RKM 7.7-3.9 (Upper and Middle).

### 4.3.23 East Fork Scott River RKM 2.65-1.8

On December 16, 2024, East Fork Scot River RKM 2.65-1.8 was surveyed. In that survey one coho salmon carcass was observed (Table 27).

Table 27. Table of observations for the East Fork of the Scott River Lower reach.

East Fork Scott River- Lower			
<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/16/2024</i>	0	0	1
<i>Totals</i>	0	0	1

### 4.3.24 East Fork Scott River RKM 7.4-3.75

On December 12, 2024, and January 14, 2025, East Fork Scott River RKM 7.4-3.75 (Middle-Big Mill) was surveyed. On this survey one redd was observed as well as four live fish and five carcasses were found (Table 28).

Table 28. Table of Observations for the East Fork of the Scott River Middle (Big Mill) reach.

East Fork Scott River- Middle Big Mill			
<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/12/2024</i>	1	4	0
<i>01/14/2025</i>	0	0	5
<i>Totals</i>	1	4	5



### 4.3.25 Noyes Valley Creek RKM 2.3-0

On December 12, 16, 18, 2024 and January 8, 2025, Noyes Valley Creek RKM 2.3-0 (Lower) was surveyed. Between these surveys 12 coho salmon redds, 19 live fish and two carcasses were observed (Table 29).

*Table 29. Table of observations for Lower Noyes Valley Creek.*

Noyes Valley Creek-  
Lower

<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/12/2024</i>	9	4	0
<i>12/16/2024</i>	3	14	0
<i>12/18/2024</i>	0	0	0
<i>1/8/2025</i>	0	1	2
<i>Totals</i>	12	19	2

### 4.3.26 Big Mill Creek RKM 0.3 – 0

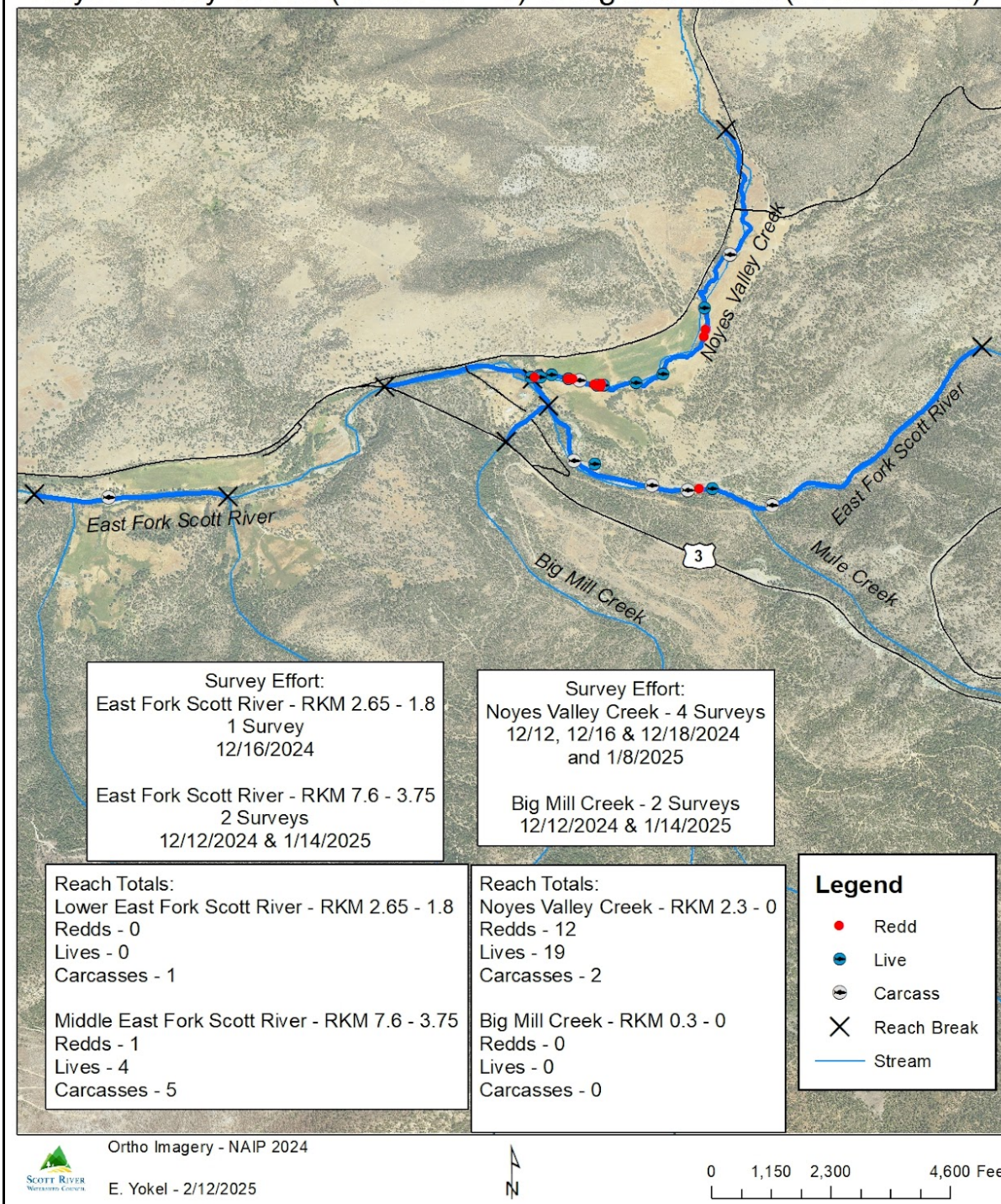
On December 12, 2024, and January 14, 2025 Big Mill Creek RKM (Lower) was surveyed. No redds, live fish, or carcasses were observed in Lower Big Mill Creek (Table 30).

Table 30. Table of observations for lower Big Mill Creek.

Big Mill Creek-  
Lower

<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/12/2024</i>	0	0	0
<i>1/14/2025</i>	0	0	0
<i>Totals</i>	0	0	0

**2024 - 2025 Coho Spawning Ground Surveys**  
**East Fork Scott River - RKM 2.65 - 1.8 & RKM 7.6 - 3.75**  
**Noyes Valley Creek (RKM 2.3 - 0) & Big Mill Creek (RKM 0.3 - 0)**



Map 16. Map of observations from the East Fork Scott River, Big Mill Creek, and Noyes Valley Creek tributaries.

#### 4.3.27 East Fork Scott River RKM 10.5-7.6 Grouse Creek RKM 1-0

On December 5, and 17, 2024, and January 16, 2025, East Fork Scott River RKM 10.5-7.6 (Middle) was surveyed. In those surveys a total of five coho salmon redds, three fish and two carcasses were observed (Table 31).

Table 31. Table of observations for the East Fork of the Scott River Middle Reach.

##### East Fork Scott River- Middle

<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/5/2024</i>	2	0	0
<i>12/17/2024</i>	3	3	0
<i>1/16/2025</i>	0	0	2
<i>Totals</i>	5	3	2

#### 4.3.28 Grouse Creek RKM 1.0 – 0

On December 17, 2024 Grouse Creek RKM 1.0 - 0 (Lower) was surveyed. No adult coho lives, carcasses or redds were observed in Lower Grouse Creek (Table 32).

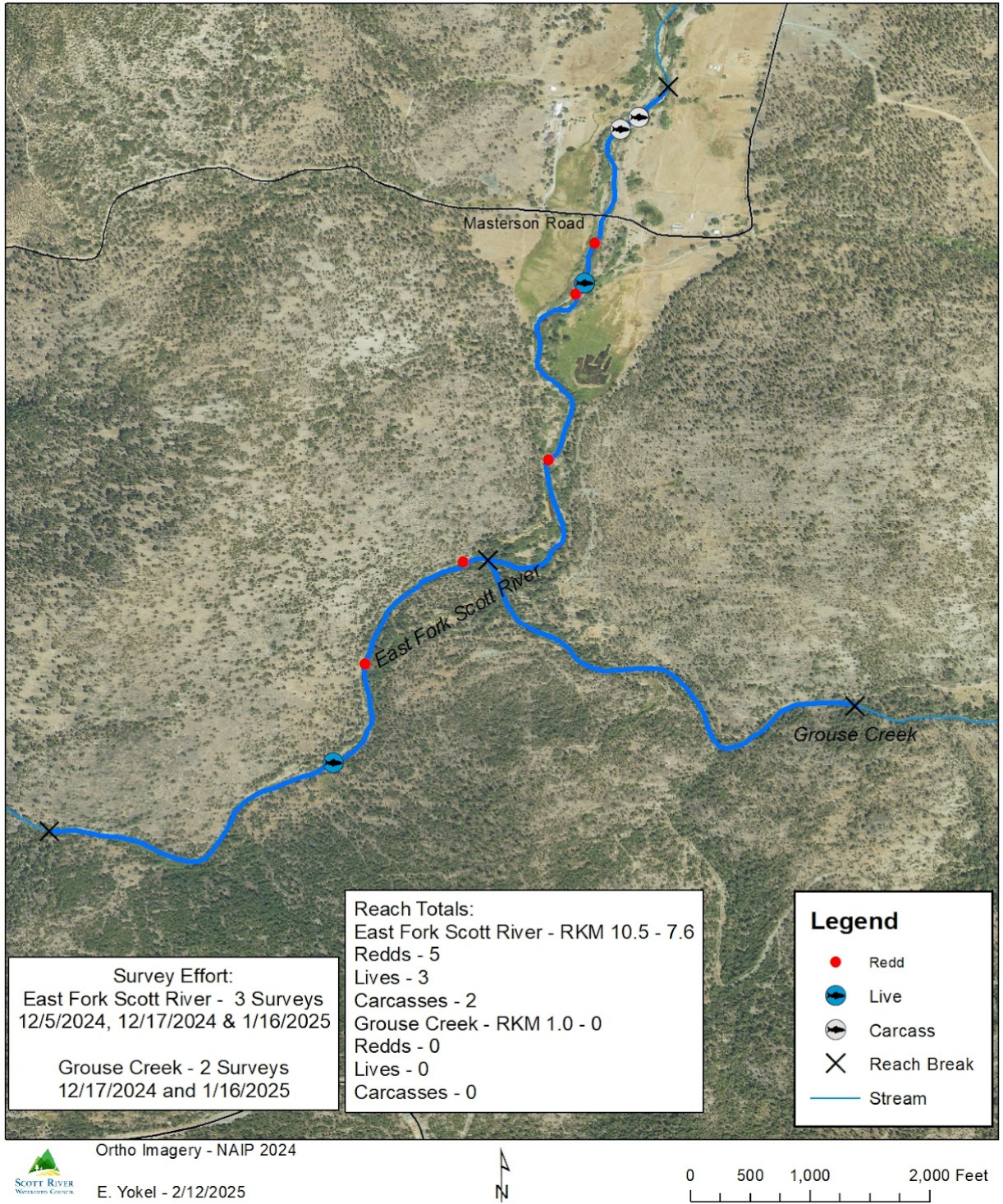
Table 32. Table of observations for Lower Grouse Creek.

##### Grouse Creek- Lower

<i>Date:</i>	Coho Redds Observed	Live Coho Observed	Coho Carcasses Observed
<i>12/17/2024</i>	0	0	0
<i>Totals</i>	0	0	0



2024 - 2025 Coho Spawning Ground Surveys  
 East Fork Scott River (RKM 10.5 - 7.6) and Lower Grouse Creek (RKM 1.0 - 0)



Map 17. Map of observations of the East Fork Scott River RKM 10.5-7.6 (Middle-Grouse) and Grouse Creek RKM 1.0-0.

## 5. Discussion

### 5.1 Season Effort

Shifts in collaboration and staff availability led to a decline in spawning ground survey reporting on both spatial and temporal scales compared to the 2023-2024 season. This report highlights the efforts of SRWC and QVIR and does not include data from other entities, such as the Siskiyou RCD, which also conducted spawning ground surveys. Despite these limitations, adequate streamflow conditions allowed for consistent survey efforts, with significant rainfall events in November facilitating early fish movement upstream. However, survey findings indicate a noticeable reduction in total redds, live fish, and carcasses observed compared to the previous season.

### 5.2 Fish Observations

During the 2023-2024 spawning season, the first live fish was observed on December 5, 2023, and the first redd was documented the following day. The last live fish was recorded on January 11, 2024, with the final redd observed on January 16, 2024. Live fish and redds were consistently present throughout the spawning season (Figure 9). In contrast, the 2024-2025 season saw an earlier arrival of coho, with the first live fish and redds recorded on November 25, 2024. However, regular observations of fish and redds ceased earlier, by January 8, 2025 (Figure 10).

Survey conditions in 2024-2025 were characterized by higher and more turbid flows, particularly between December 20, 2024 and January 7, 2025. Additionally, there were three fewer survey days in the 2024 – 2025 effort compared to the previous season, which may have contributed to the observed differences in spawning activity and counts.



## Daily Survey Totals Observed 2023-2024

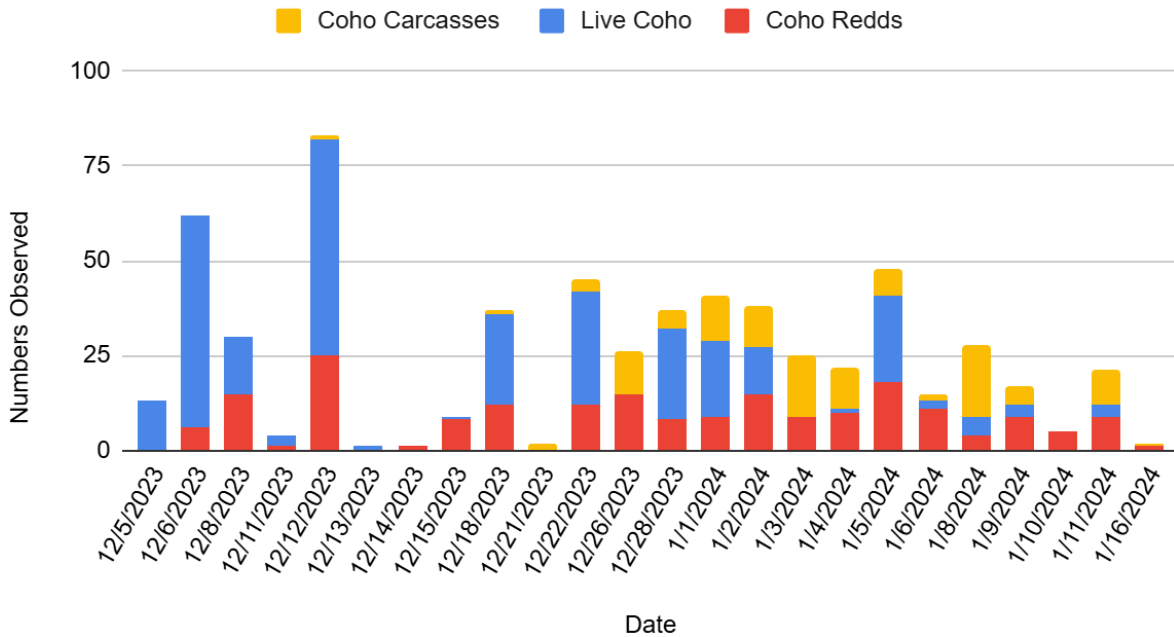


Figure 9. Chart of Daily Survey Totals Observed for Spawning Grounds Survey Season 2023-2024

## Daily Survey Totals Observed 2024-2025

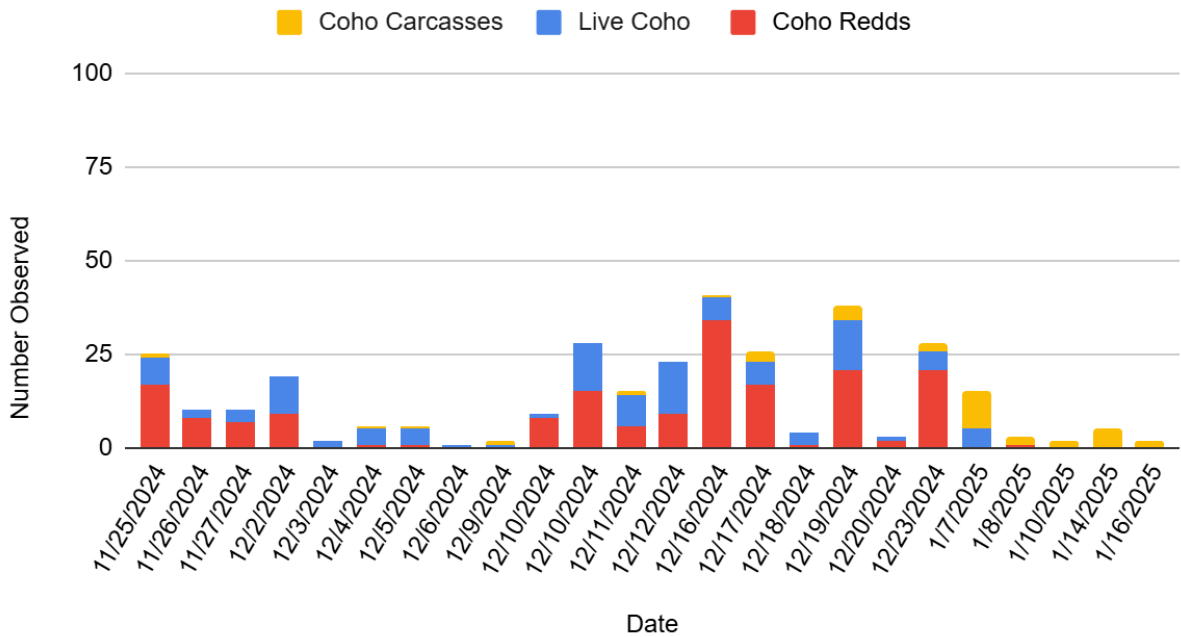


Figure 10. Chart of Daily Survey Totals Observed for Spawning Grounds Survey Season 2024-2025.

The highest density of redds and carcasses was observed in the newly constructed Sugar Creek Refugia side channel (Sugar Creek RKM 0.4-0). In this 0.3-mile reach, 24 redds were documented, equating to a redd density of 95.6 redds per surveyed mile, with 11 carcasses recovered (Maps 13 & 18). This high spawning activity highlights the importance of targeted habitat restoration projects in providing suitable conditions for coho spawning and rearing. The highest number of live coho observed was in Lower Sugar Creek (RKM 1.2-0), with 44 individuals recorded (Map 12). The success of coho utilizing these restored habitats suggests that similar efforts elsewhere in the watershed could further enhance available spawning and rearing habitat.

For the first time in many years coho salmon were observed spawning in upper Patterson Creek. This is most likely attributed to high rainfall and runoff in late November, which provided salmon access through the valley floor where Patterson Creek often remains disconnected until later in the season. This suggests that coho salmon likely had access to more of the watershed than during lower water years.

This was the first season that Noyes Valley Creek was surveyed. As a tributary of the East Fork Scott River, Noyes Valley Creek is positioned relatively high in the watershed. Whether higher flows contributed to fish access to Noyes Valley is uncertain; however, these observations have extended the known upper extent of coho salmon distribution in the Scott River watershed. The habitat in Noyes Valley Creek appears highly suitable for coho salmon spawning, characterized by slow water, a meandering channel, and abundant cover from willows, particularly in contrast to the high flows of the East Fork Scott River.

The early disappearance of live fish and lower overall abundance metrics raise important questions about distribution trends and environmental influences during this spawning season. While reduced survey effort and high flow conditions may partially explain the lower spawner crew observed counts, other contributing factors may include:

**Distribution of Spawning Fish:** Counts at the SRFCF weir recorded a preliminary count of 1052 coho, a higher returning cohort compared to previous years. The average numbers are about 734. This cohort, “cohort 3” shows a promising increasing population trend compared to “cohort 1” and “cohort 2”. Even with higher numbers of fish recorded at the SRFCF fewer numbers of fish were observed by SGS crews in the surveyed tributaries. Along with fewer fish, fewer observed redds may also indicate that fish redistributed to less accessible tributaries (e.g., Patterson Creek) or areas not surveyed (e.g., Noyes Valley Creek).

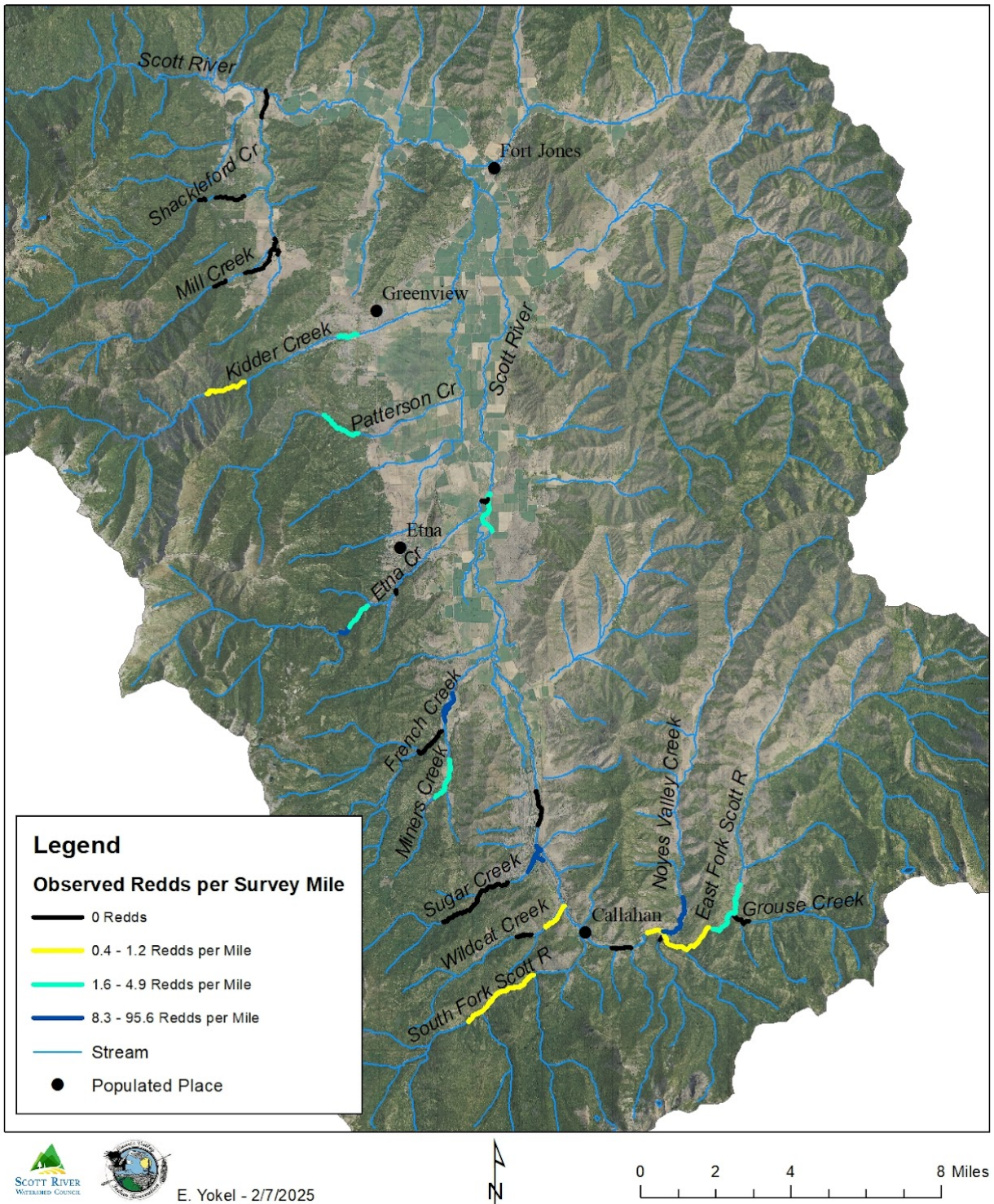
**Discharge conditions:** Unlike 2022, when low fall flows delayed fish migration, discharge in 2024 allowed for timely passage past known barriers. However, high flows in late December and early January (including a rain-on-snow event on December 28th

exceeding 6,800 cfs) may have affected spawning site selection, survey conditions and observation efficiency. High flows and turbid conditions make viewing fish more difficult as well as redds were likely flattened before they could be observed by SGS crews.

**Spatial Survey Efforts:** Monitoring efforts in the Scott River watershed are constrained by landowner cooperation, as much of the watershed is privately owned. As a result, access to key tributaries may be inconsistent between years, affecting our ability to detect trends in coho distribution and abundance. Additionally, changes in collaboration led to a reduction in survey personnel, and data from the Siskiyou Resource Conservation District were not included in this report. These limitations may have contributed to the lower observed spawner counts, as coho may have utilized areas outside of surveyed reaches. Notably, first-time surveys in Noyes Valley Creek revealed significant coho presence, suggesting that fish may have been utilizing previously undocumented habitat. This highlights the potential for additional spawning activity in unsurveyed or less frequently monitored tributaries, emphasizing the need for expanded spatial coverage in future monitoring efforts.

### 5.3 Redd Observations

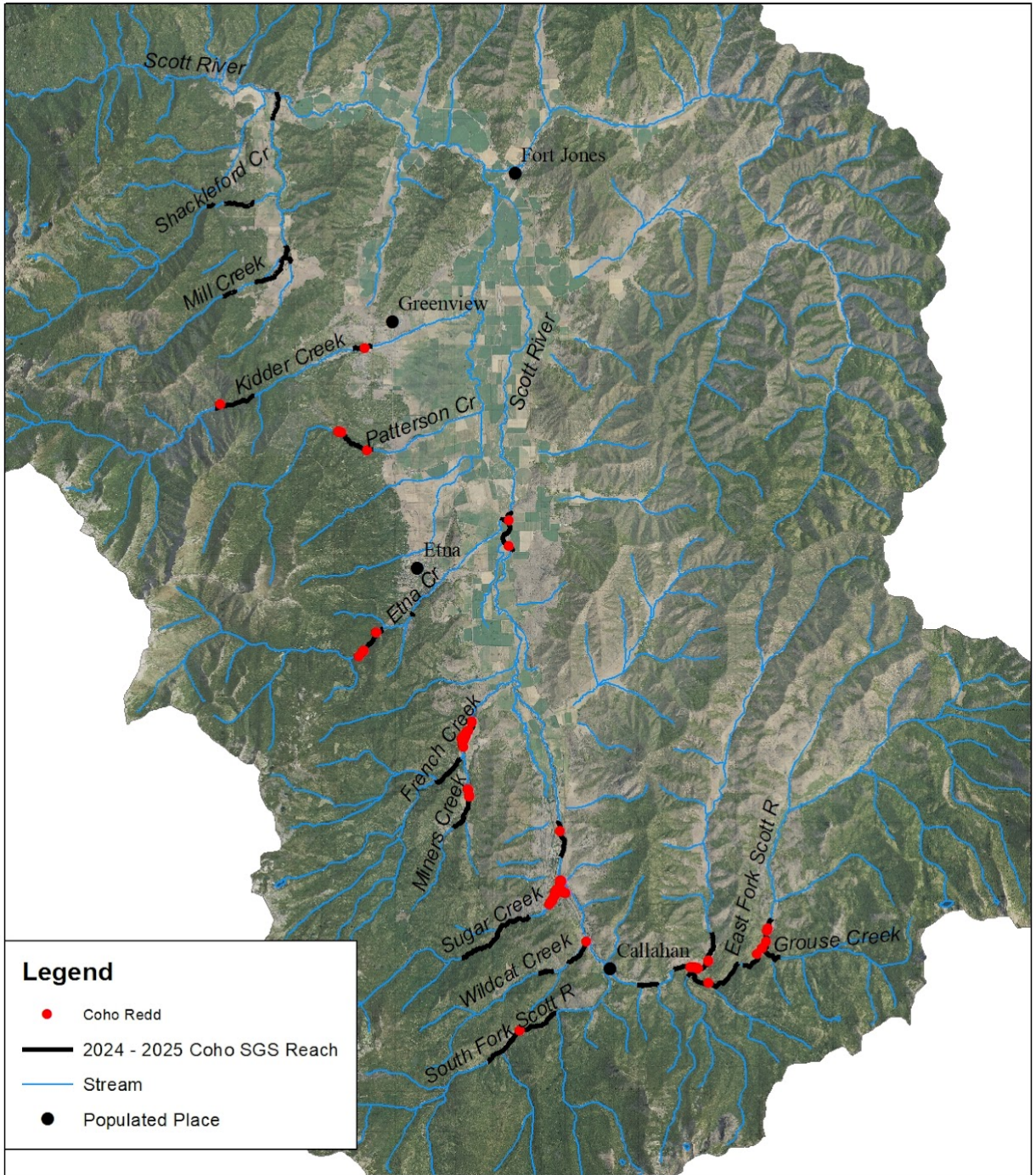
## 2024 - 2025 Scott River Coho Spawning Ground Survey Reaches Coho Redds per Surveyed Mile



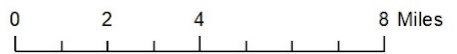
Map 18. Map of coho salmon redd density shown as observed redds per survey mile.



# 2024 - 2025 Scott River Coho Spawning Ground Survey Reaches Observed Coho Salmon Redds



E. Yokel - 2/13/2025



Map 19. Documented coho salmon redds, 2024 - 2025, spawning ground survey effort.



The average redd size observed during the 2024-2025 coho spawning season was 1.5 meters in length and 0.9 meters in width. Based on the measured redds from this season, there is little indication of significant superimposition within the watershed. The highest concentrations of spawning activity were observed in the Sugar Creek Refugia Project, the mainstem Scott River, lower Sugar Creek, and Middle French Creek.

### Redd Length and Width 2024-2025 Coho Spawning Ground Surveys

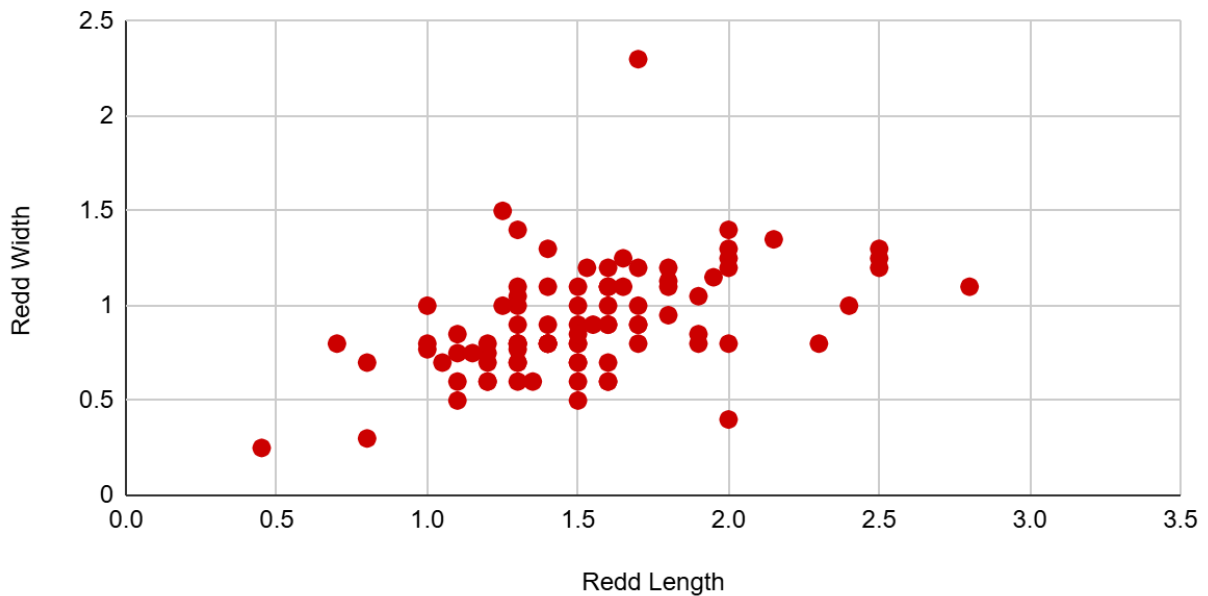


Figure 11. Scatter plot of redd length and width from all streams. The redd that is less than 0.5 m long is likely unfinished.

## 5.4 Carcass Observations

Of the 39 carcasses observed during the spawning ground survey season, fork length measurements were recorded for 35 individuals. The mean fork length was 61 cm, while the median and mode were both 61 cm. Fork lengths ranged from 27 cm to 70 cm (Figure 10). The 27 cm carcass is likely a coho salmon "jack"—a precocious two-year-old male that returned to spawn after spending only one summer in the marine environment.

## Coho Salmon Carcass Forklengths Scott River Watershed 2024-2025

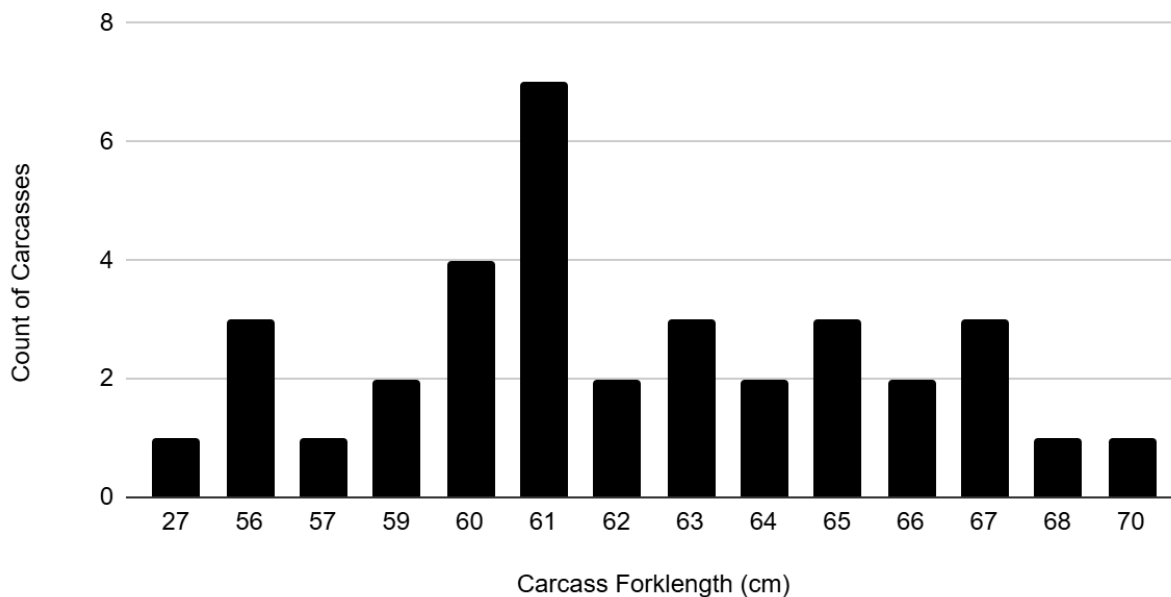


Figure 12.. Histogram of coho salmon carcass forklengths observed during the 2024-2025 season.

### 5.5 2021-2022 vs 2024-2025

The 1052 coho salmon that returned to spawn in the 2024-2025 season were the progeny of the 852 spawners from the 2021-2022 season. During the 2021-2022 season, flows in the mainstem Scott River were extremely low (8-10 cfs) until an early storm in October that bumped up flows to over 500 cfs. Flows remained above 200 cfs until the 15th of November 2021 and they did not rise above 200 CFS until the 4th of January 2022. During the 2024-2025 season, daily average discharge did not drop below 30 cfs after October 15th and did not exceed 200 cfs until November 20th 2024 when a storm increased flows to 1500 cfs. The 2024-2025 cohort experienced two significant rain events with flows peaking at 2730 cfs on November 21st and 6810 cfs on December 28th 2024.

### Scott River Daily Average Discharge WY 2022 vs WY 2025

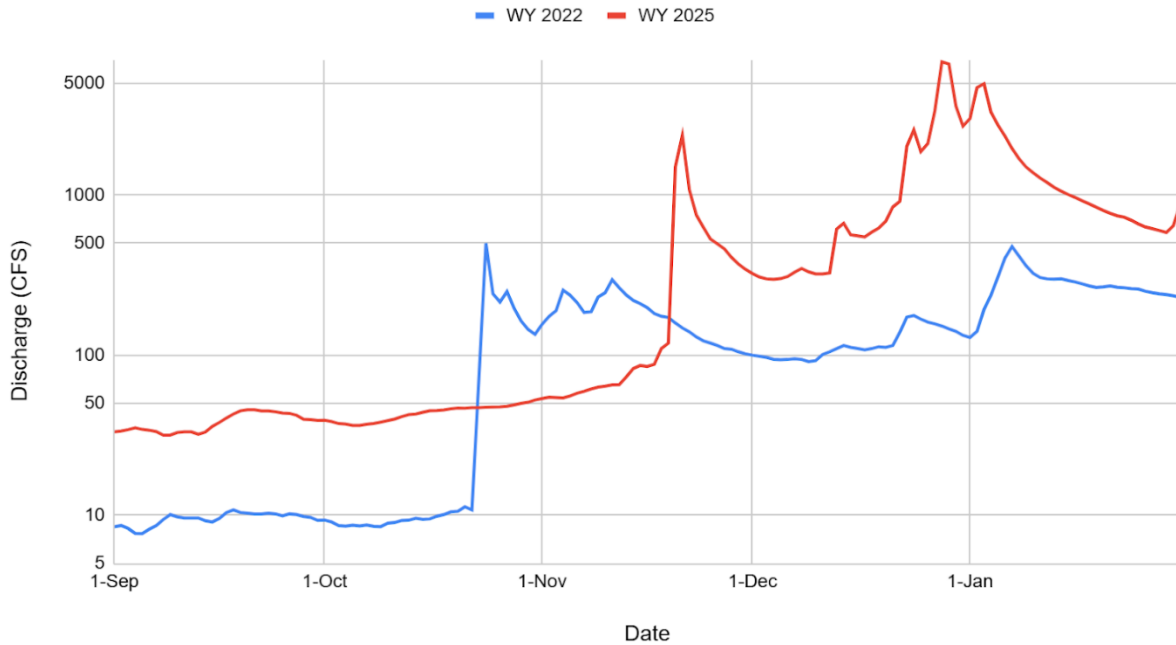


Figure 13. Scott River Discharge comparing water year 2022 to water year 2025 during the window for coho salmon spawning seasons between cohorts. Coho spawning in WY 2022 are the parents of coho spawning in WY 2025.

Both cohorts had access to spawning tributaries within their spawning seasons. The 2021-2022 cohort of coho salmon did not experience significantly high flows after the storm on October 24th which may have limited the extent to which they could access tributaries throughout the Scott River watershed. The progeny of the 2021-2022 cohort experienced very high amounts of water and access to tributaries was not a problem. For the 2024-2025 cohort of coho salmon, redd and fish detectability may have been impacted from high flows which could have scattered fish and leveled redds so they could not be observed by surveyors.

## 5.6 PIT Tagged Adult Returns

A total of 15 PIT-tagged coho salmon were detected returning to spawn during the 2024-2025 season. Of these, one returned as a “jack,” meaning it spent just one summer in the ocean before returning at age two. Notably, several fish returned to different streams than where they were originally tagged as juveniles. Two fish tagged in French Creek as juveniles in 2022 were detected spawning in Sugar Creek in 2024, while one fish tagged in Sugar Creek in 2022 returned to spawn in French Creek. These movements highlight the potential for coho salmon to utilize multiple tributaries within the Scott River watershed, emphasizing

the interconnectedness of these habitats. Two different life history strategies could explain these observations. One possibility is that these fish exhibited straying behavior, meaning they did not return to the stream where they originally spawned. Straying can contribute to genetic diversity and help colonize or recolonize available habitat.

Alternatively, these movements could be the result of “non-natal rearing,” where juveniles migrate from their natal stream to another stream to rear before outmigrating to the ocean. In this case, the fish would have returned to their original spawning stream rather than the stream where they were tagged as juveniles. Understanding these behaviors is important for assessing habitat connectivity and the factors influencing coho salmon distribution in the Scott River watershed and throughout the Klamath Basin.



Table 33. Table of PIT tagged adult coho that returned to French and Sugar Creeks in the 2024-2025 Spawner Season.

Detection Information			Tag Origin	
Stream:	Date:	PIT Tag Code	Tag Date:	Location:
Sugar Creek	11/02/2024	989001044295700	02/02/2023	Sugar - Below Natural Beaver Dam
Sugar Creek	11/18/2024	989001039966031	08/01/2022	Sugar - BDA Pond 1 - Alder Hole
Sugar Creek	11/19/2024	989001045427633	11/07/2023	Sugar - Below Natural Beaver Dam
French Creek	11/21/2024	989001041194417	08/10/2022	French - Beaver Dam Pond
French Creek	11/22/2024	989001039966514	08/02/2022	French - Beaver Dam Pond
French Creek	11/22/2024	989001039966522	08/02/2022	French - Beaver Dam Pond
French Creek	11/22/2024	989001041194464	08/10/2022	French - Beaver Dam Pond
French Creek	11/22/2024	989001044295670	02/02/2023	Sugar - OCP
Sugar Creek	11/23/2024	989001041194314	09/19/2022	Sugar - BDA Pond 1
Sugar Creek	11/24/2024	989001041195189	10/24/2022	French - Control Pool 4
Sugar Creek	11/26/2024	989001044295191	10/28/2022	Sugar - BDA Pond 1 - Alder Hole
Sugar Creek	11/28/2024	989001044295694	02/01/2023	Sugar - BDA 1 - Alder Hole
Sugar Creek	12/07/2024	989001041195076	09/22/2022	French - Control Pool 3
Sugar Creek	12/14/2024	989001041195189	10/24/2022	French - Control Pool 4
Sugar Creek	12/16/2024	989001041194828	09/20/2022	Sugar - Jensen Control - Pool 3 (Big Pool)

## 6. Recommendations

These observations underscore the need for continued long-term monitoring to detect trends in run timing, habitat use, and population viability. The high utilization of the Sugar Creek Refugia Project suggests that restoration projects provide direct benefits to coho recovery, supporting the need for additional efforts in other degraded reaches of the Scott River watershed. Moving forward, survey efforts could be adjusted to ensure full spatial coverage, extend monitoring periods, and integrate flow data more effectively to assess passage conditions for returning adults.

To enhance forthcoming surveys, the participating organizations are committed to nurturing positive relationships with landowners and extending access to additional survey locations. Potential areas of focus may encompass middle Kidder Creek, middle Patterson Creek, lower Etna Creek, a portion of Sugar Creek and additional areas in both the East and South Fork.

## 7. References

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## 8. Appendix A

### 8.1 Methods

During the coho spawning season and dependent on instream water conditions from mid-November through January. Surveyors conducted thorough assessments of stream reaches, often operating in teams of two, occasionally accompanied by landowners, moving downstream.

The surveyors meticulously recorded the number of live fish, redds, and carcasses observed, specifying the species. This information was documented on data sheets and mapped for each surveyed stream. In cases where survey activities could be performed without disturbing spawning fish, data on redd dimensions and substrate composition were gathered. To prevent double counting during subsequent surveys, flagging was strategically placed on the banks adjacent to newly identified redds.

GPS points were collected at sites of redds, carcasses, and unusual fish observations, such as those beyond the documented extent of spawning. Hand-held Global Positioning System (GPS) devices were utilized to log the precise locations of each observed redd and recovered carcass. Each documented redd and carcass received a distinct identifying code, determined by the stream and reach, date, and sequential number. This unique code was then employed to label GPS coordinates within the hand-held unit, ensuring a direct correlation with the information recorded on the data sheets. GPS coordinates were captured in the NAD 83 datum and noted on the data sheets in decimal degrees.

A Federal Endangered Species Act Section 4(d) collection permit from the National Marine Fisheries Service (NMFS) was held by the Scott River Watershed Council (#27661) for biological sample collection from salvaged coho carcasses. Both organizations also maintained the current California Endangered Species Act Memorandum of Understanding with CDFW for this effort.

From each recovered coho carcass, tissue, scales, and otoliths were collected for age determination, DNA analysis, and research conducted by the University of California, Davis. Three sets of scale samples were taken from each carcass. The preferred location for scale collection is above the lateral line between the posterior insertion of the dorsal fin and the anterior insertion of the anal fin. Scales were collected after cleaning the area with a knife. Each set of scales was placed between absorptive paper and into a separate sample envelope and labeled with the unique identifier code that matches the GPS coordinates of its recovery. Sample envelopes and data sheets also record specific information about the carcass, including species identification, fork length measurement (cm), sex determination, and a check for hatchery markings.



Tissue sampling of coho salmon carcasses was conducted in accordance with the protocol established by the NMFS, Southwest Fisheries Science Center, Santa Cruz Laboratory. A pair of tissue samples were taken from each carcass by clipping, with a hole-puncher, two disks from the operculum tissue (gill plate). The tissue samples were placed between absorptive paper and placed in one of the sample envelopes, which also contained one of the scale samples. The envelope was labeled with information about the carcass, as described above, as well as the sample contents: Tissue + Scales.

At least one otolith was collected from each coho carcass with an intact head. A sharp knife was used to section the cranium by making a transverse cut from the dorsal side of the head to roughly above the posterior edge of the preopercular margin, revealing the otic capsule. Otoliths were carefully withdrawn using forceps, placed between absorptive paper and placed in one of the sample envelopes, which also contained one of the scale samples. The envelope was labeled with information about the carcass, as described above, as well as the sample contents: Otolith + Scales.

In total, there were three sample envelopes assembled for each carcass: one with only scales, a second with tissue and scale samples, and a third with otolith and scale samples. All tissue, scale and otolith samples were submitted to the CDFW Yreka Fisheries Office for distribution to individuals performing further analysis. This included staff of the NMFS, Southwest Fisheries Science Center, Santa Cruz Laboratory. All coho carcasses were scanned for passive integrated transponder tags before being returned to the stream.

### 8.1.1 Species, Sex and Origin Identification

Positive identification of coho salmon is a crucial step in the collection of reliable data from the spawning ground surveys. All field technicians who participated in the surveys this season were experienced at distinguishing between anadromous salmonid species. Several characteristics were used to identify salmonid species in the field including size, body morphology, markings, coloration, behavior, run timing, and geographic location. Suspected coho redds encountered in the absence of spawning fish were distinguished from other species' redds by a combination of the dimensions, gravel size and habitat characteristics.

The sex of carcasses was verified by squeezing the anal opening to check for the release of milt (male) or eggs (female) or by slitting the abdomen to examine the reproductive organs. Prespawn mortality in females was determined by the visual presence of approximately 100 or more eggs.

Hatchery markings are distinct for both species of Salmon present in the Klamath River system. Hatchery Chinook lack an adipose fin while hatchery coho have a maxillary clip (right maxillary clip = Trinity River Hatchery, left maxillary clip = Iron Gate Hatchery). Any hatchery

marked carcasses encountered have the snout removed and submitted to the CDFW Yreka Fisheries Office for recovery of the coded-wire tag.

All data is captured on standardized data sheets

**2022-2023 Scott River Adult Coho Salmon Spawning Survey** **Field Data Form** Page \_\_\_\_\_ of \_\_\_\_\_

Stream \_\_\_\_\_ Reach \_\_\_\_\_ GPS # \_\_\_\_\_ Datum: \_\_\_\_\_

Date \_\_\_\_\_ Weather \_\_\_\_\_ Start Time \_\_\_\_\_ Air Temp °C \_\_\_\_\_ H<sub>2</sub>O Temp °C \_\_\_\_\_

End Time \_\_\_\_\_ Air Temp °C \_\_\_\_\_ H<sub>2</sub>O Temp °C \_\_\_\_\_

Crew \_\_\_\_\_ Notes \_\_\_\_\_

ALL		LIVE FISH/REDDS					CARCASSES					ALL		
Site #	Habitat Type*	# Fish	Redd Length m	Redd Width m	Pott Depth m	SUB* D/S	FL cm	Sex M/F Unk	Clip* Y/N Specify	Prespawn mortality Y/N	PIT Y/N	Lat	Long	Notes (superimposed, sample code, PIT #)

Habitat Type: P=Pool R=Riffle F=Flatwater PT=Pool tail crest Substrate: 1=<0.2cm 2=0.2-5cm 3=6-9cm 4=10-13cm 5=>13cm  
 S=Side Channel (i.e. S/R) SAND SM. GRAVEL LG.GRAVEL SM COBBLE LG. COBBLE  
 Clip: LM – left max, RM = right max, Ad = adipose, O=other, describe in notes.  
 Total Redds \_\_\_\_\_ Total Live \_\_\_\_\_ Total Carcasses \_\_\_\_\_

Figure 14 . An example of the data sheets utilized by SRWC and QVIR crews during every Spawning Ground Survey into 2024-2025 season.

## 9. Appendix B

Table 34. Table of PIT tag detections from returning adult coho salmon returning to spawn. These fish were tagged as juveniles in Sugar (shaded in blue) and French Creeks (shaded in pink). The things highlighted in yellow represent fish that spawned in different locations than they were tagged in or fish that returned as a two-year-old “Jack”

Detection Information				Tag Origin							
Stream	Array	Date	PIT Code	Tag date	Species	Location	Gear	Crew	Tagger	FL	Weight
Sugar Creek	1A	2024/11/18 13:30:42	989001039966031	8/1/2022	Cohsal	Sugar - BDA Pond 1 - Alder Hole	Seine	EY, CG, LB	CG	72	4.3
Sugar Creek	1A	2024/11/23 14:35:37	989001041194314	9/19/2022	Cohsal	Sugar - BDA Pond 1	Seine	HM, BS, LB	BS	75	4.5
Sugar Creek	1A	2024/12/16 01:16:59	989001041194828	9/20/2022	Cohsal	Sugar - Jensen Control - Pool 3 (Big Pool)	Seine	HM, CG, LB	CG/HM	67	3.6
Sugar Creek	1A	2024/12/07 00:47:18	989001041195076	9/22/2022	Cohsal	French - Control Pool 3	Seine	HM, BS, LB	BS/HM	70	3.7
Sugar Creek	1A	2024/11/24 08:16:17	989001041195189	10/24/2022	Cohsal	French - Control Pool 4	Seine	EY, BS, HM, LB	BS/HM	70	3.4
Sugar Creek	1A	2024/11/26 05:00:54	989001044295191	10/28/2022	Cohsal	Sugar - BDA Pond 1 - Alder Hole	Seine	EY, HM, LB	HM	68	3.7
Sugar Creek	1A	2024/11/28 03:24:18	989001044295694	2/1/2023	Cohsal	Sugar - BDA 1 - Alder Hole	Minnnow Trap	HM, SW, LB	HM	78	4.7
Sugar Creek	1A	2024/11/23 19:31:37	989001044295700	2/2/2023	Cohsal	Sugar - Below Natural Beaver Dam	Minnnow Trap	HM, SW, LB	HM	79	5
Sugar Creek	1A	2024/11/19 18:01:16	989001045427633	11/7/2023	Cohsal	Sugar - Below Natural Beaver Dam	Seine	HM, LB, EY	HM	91	8.1
French Creek	F2	2024/11/22 07:02:53	989001039966514	8/2/2022	Cohsal	French - Beaver Dam Pond	Seine	EY, BS, LB	BS	94	10.1
French Creek	F1	2024/11/22 03:29:00	989001039966522	8/2/2022	Cohsal	French - Beaver Dam Pond	Seine	EY, BS, LB	BS	93	10.4
French Creek	F2	2024/11/21 20:48:29	989001041194417	8/10/2022	Cohsal	French - Beaver Dam Pond	Seine	EY, CG, LB	CG	102	11.1
French Creek	F1	2024/11/22 05:51:01	989001041194464	8/10/2022	Cohsal	French - Beaver Dam Pond	Seine	EY, CG, LB	CG	68	3.3

Detection Information				Tag Origin							
Stream	Array	Date	PIT Code	Tag date	Species	Location	Gear	Crew	Tagger	FL	Weight
French Creek	F1	2024/12/14 21:47:40	989001041195189	10/24/2022	Cohsal	French - Control Pool 4	Seine	EY, BS, HM, LB	BS/HM	70	3.4
French Creek	F1	2024/11/22 01:52:29	989001044295670	2/2/2023	Cohsal	Sugar - OCP	Minnow Trap	HM, SW, LB	HM	93	8.7