FISH RESEARCH PROJECT
OREGON

STEELHEAD ESCAPEMENT MONITORING IN THE UPPER GRANDE RONDE RIVER

ANNUAL TECHNICAL REPORT

CONTRACT PERIOD: August 21, 2007 to July 31, 2008

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EXECUTIVE SUMMARY

Objectives

1. Estimate redd density and spawner escapement of summer steelhead for the Upper Grande Ronde River summer steelhead population.
2. Estimate freshwater productivity (smolts/redd or smolts/adult) of summer steelhead above rotary screw trap locations.
3. Estimate spawners/redd above adult weir collection points and correlate independent counts.

Accomplishments and Findings

We sampled 33 random, spatially-balanced sites throughout the Upper Grande Ronde River basin during the spring (21 March–30 June) of 2008 to determine summer steelhead *Oncorhynchus mykiss* redd abundance and adult escapement. Survey sites encompassed 73.5 km of an estimated 1,301 km of steelhead spawning and rearing habitat within the basin. During these surveys, 22 redds and 14 live steelhead were observed resulting in a density of 0.30 redds/km. Redds were observed at 9 of the 33 sites (27.3%). Redd abundance and adult steelhead escapement estimates for the basin were 296 and 1204, respectively. No hatchery steelhead were observed on spawning ground surveys. High flow events persisted throughout much of the spawning season making redd observations difficult. High flows also inhibited comparisons to weir counts on the Upper Grande Ronde River because this weir was inoperable for much of the spawning season. No random sites were selected for the Catherine Creek watershed. Therefore, we could not draw a comparison between redd counts and weir counts in Catherine Creek. Similarly, because only two sample sites were randomly selected for the Lookingglass Creek watershed, we did not make weir and redd count comparisons for this watershed. Surveys on Deer Creek, where a permanent weir is present, indicated a 4.07 fish/redd ratio during the 2008 spawning season. Productivity measures of smolts/redd will be reported in future years when smolt abundance estimates from trap collections become available for the 2008 brood year.

Management Recommendations

1. Using the current data of steelhead spawning distribution and geographic landscape variables, refine the sampling universe for *O. mykiss* in the Upper Grande Ronde River basin to improve our knowledge of steelhead spawning distribution.

2. Determine the level of change in the escapement estimate that we would consider to be biologically and statistically significant in order to determine short- and long-term population changes.

3. Continue to manage the Upper Grande Ronde River basin exclusively for wild steelhead and determine the extent and distribution of hatchery steelhead in the basin through observations of hatchery fish during the spawning season.

ACKNOWLEDGEMENTS

We would like to acknowledge the assistance and cooperation of the many private landowners throughout the Grande Ronde River basin who allowed us access to their property. The cooperation of private landowners was essential in meeting our project objectives. Additionally, we would also like to thank Tim Baily and Jeff Zakel for providing much needed guidance and advice regarding steelhead spawning ground surveys. The information they provided was helpful for survey planning and landowner contacts. Nadine Craft provided information regarding index spawner surveys and Mike McLean provided data from weir collections. Further, we would like to acknowledge our field crew members Julie Keniry, Marika Dobos, and Jeff Zakel for their assistance. This project was funded by the U. S. National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

INTRODUCTION

The Upper Grande Ronde River basin supports a population of summer steelhead *O. mykiss* that has been defined by segregating it from the other three populations inhabiting the Grande Ronde River basin based on topographic, genetic, observational, and other evidence of interactions. Historically, the Grande Ronde River was one of the more significant anadromous fish producing rivers in the Columbia River Basin. Steelhead in the Grande Ronde River basin compose part of the Snake River DPS for summer steelhead and are listed as threatened by the ESA. Despite recovery efforts, these populations remain depressed relative to historic levels.

This project will evaluate summer steelhead population abundance for the upper Grande Ronde River summer steelhead population by conducting surveys of redds and spawning activity. These surveys will provide the data needed to estimate adult steelhead escapement, improve our understanding of habitat utilization, and contribute to productivity and survival estimates for this population. We monitored steelhead using a probabilistic sampling approach by incorporating a sample-site selection procedure similar to the Environmental Protection Agency (EPA) environmental monitoring and assessment program (EMAP). We used this EMAP or Generalized Random Tessellation Stratified design (GRTS) approach to select sample sites for status and trend monitoring of steelhead redds within the Upper Grande Ronde River watershed. This steelhead monitoring follows the Oregon Plan for Salmon and Watersheds Monitoring Program approach.

METHODS

Study Area

The Grande Ronde River flows generally northeast 212 miles from its origin to join the Snake River at river mile (RM) 169, about 20 miles upstream of Asotin, Washington and 493 miles from the mouth of the Columbia River. The Grande Ronde River begins in the Blue Mountains near the Anthony Lakes recreation area, flows north, then northeast and through the cities of La Grande and Island City (RM 157). Here, in the valley, the river slows and meanders the valley floor before continuing north-northeast. The Upper Grande Ronde watershed drains

approximately 1,650 mi^2, with a perimeter of 264 mi. and contains 917 mi of streams (798 miles of anadromous salmonid habitat). The upper Grande Ronde watershed (Figure 1) includes the Grande Ronde River and its tributaries from the headwaters to the confluence with the Wallowa River. Elevations in the watershed range from 2,312 ft. at the confluence of the Grande Ronde and Wallowa Rivers to over 7,000 ft. in the headwater areas. The upper Grande Ronde summer steelhead population is recognized as encompassing this drainage above the confluence with the Wallowa River. Fish distribution within this watershed was determined by historic and recent surveys of fish and barriers to anadromy, with additional professional judgment. Major tributaries of the river within this area include Lookingglass Creek, Catherine Creek, and Meadow Creek. Catherine Creek originates in the Eagle Cap Wilderness Area of the Wallowa Mountains and flows northwest to join the Grande Ronde at RM 140. Dry Creek, which was an outlier in the genetic analysis is included in this population. Like other outliers, this may reflect the contribution of resident fish to the sample.

Sampling Domain and Site Selection

Sites were selected using the EMAP protocol which uses a spatially balanced random sampling design (Stevens 2002). The sampling universe for EMAP surveys is based on professional knowledge of steelhead life history use in the upper Grande Ronde River basin. This knowledge is derived from ODFW biologists as well as biologists from other natural resource entities, and is currently the best information available concerning the distribution and habitat use of steelhead in the upper Grande Ronde River basin (Figure 2). All reaches upstream of known barriers to anadromous fish passage were eliminated from the sampling universe. Thirty sample sites are targeted each year. In order to balance the needs of status (more random sites) and trend (more repeat sites) monitoring, the following rotating panel design was implemented:

- 10 sites repeated every year (annual)
- 10 sites repeated once every 3 years on a staggered basis
- 10 sites new every year (new)

A Geographic Information System (GIS) incorporating a 1:100,000 digital stream network was used to insure an unbiased and spatially balanced selection of sample site. The GIS site selection process provides geographic coordinates (i.e. latitude and longitude) of each candidate site. From these site coordinates, topographic maps were produced showing the location of each sample point. Landowner contacts were then developed based on county plat maps. With the assistance of ODFW District Biologists, permission was sought from landowners for survey sites. In the field, crews used a handheld Global Positioning System (GPS) to locate the established survey reaches which encompassed the selected EMAP points. Some candidate sites were not sampled due to a lack of permission from private landowners or because sites were located upstream of previously unknown fish passage barriers. In such events, replacement sites were drawn from a pre-selected list of over-sample sites. Every year the EMAP sampling universe is refined based on field observations of previously unknown barriers and other restrictions (e.g. dry streams) that limit fish life history stages (defined as “Excluded Reaches”, or the removal of barriers (e.g. road culverts) that limited access to habitat. These stream reaches are removed or added into our sampling universe accordingly.

Steelhead Redd Surveys

Steelhead redd surveys based on standard ODFW methods (Susac and Jacobs 1999; Jacobs et al. 2000; Jacobs et al. 2001) were conducted from March to June 2008 (Table 1). Individual sites were surveyed up to seven times to quantify the number of redds constructed at each site, with approximately two week intervals between successive surveys to account for the temporal variation in spawning activity. Survey reaches were approximately 2 km in length and encompassed the sample point derived from the EMAP sampling design. Surveyors walked upstream from the downstream end of each reach and counted all redds, live fish, and carcasses observed. New redds were flagged and the location marked with a handheld GPS unit.

During each visit, surveyors recorded the number of new redds and redds that had been identified and flagged during previous surveys. Redd visibility was estimated for redds that were found during previous surveys. Ideally, each site was to be visited by different surveyors on successive visits, however this was not always logistically possible with the number of personnel available. Overall redd density (R_D) was estimated by summing observations of individual survey sites (i) as:

$$R_D = \sum_{i=1}^{n} r_i/d_i \quad (1)$$

where r_i is the number of unique redds observed at site i, d_i is the distance surveyed (km) at site i. The total number of redds (R_T) occurring throughout the basin was estimated by:

$$R_T = R_D \cdot d_u \quad (2)$$

where d_u is the total kilometers available to steelhead for spawning and rearing (988 km). Steelhead escapement (E_S) was then estimated by:

$$E_S = 4.07 \cdot R_T \quad (3)$$

where 4.07 is a fish per redd constant. This constant is developed each year from repeat redd surveys of a tributary of the Wallowa River (Deer Creek) in the Grande Ronde River basin where a known number of adult steelhead are passed above a counting weir (Flesher et al. 2005; Gee et al. 2008; Lance Clarke and Jim Ruzycki, ODFW, unpublished data). This constant or weighting value represents a single spawning year. A locally weighted neighborhood variance estimator (Stevens 2004), which incorporates the pair-wise dependency of all points and the spatially constrained nature of the design, was used to estimate a 95% confidence interval of the escapement estimate using R statistical software (R Development Core Team 2005).

Steelhead carcasses were examined to obtain population and life history information (age, sex, length, and spawner origin). For all carcasses, surveyors collected scale samples from the key scale area (Nicholas and Van Dyke 1982) for age determination, recorded sex, measured MEPS length (middle of eye to posterior scale), and determined spawner origin (hatchery or wild) by inspecting carcasses for the presence (wild) or absence (hatchery) of an adipose fin. The hatchery/wild fish ratio was calculated by dividing the total number of fin marked fish by all fish that could be observed for marks (live fish only). The number of hatchery fish straying to the basin was estimated by multiplying this proportion of hatchery and wild steelhead by our estimate of steelhead escapement.

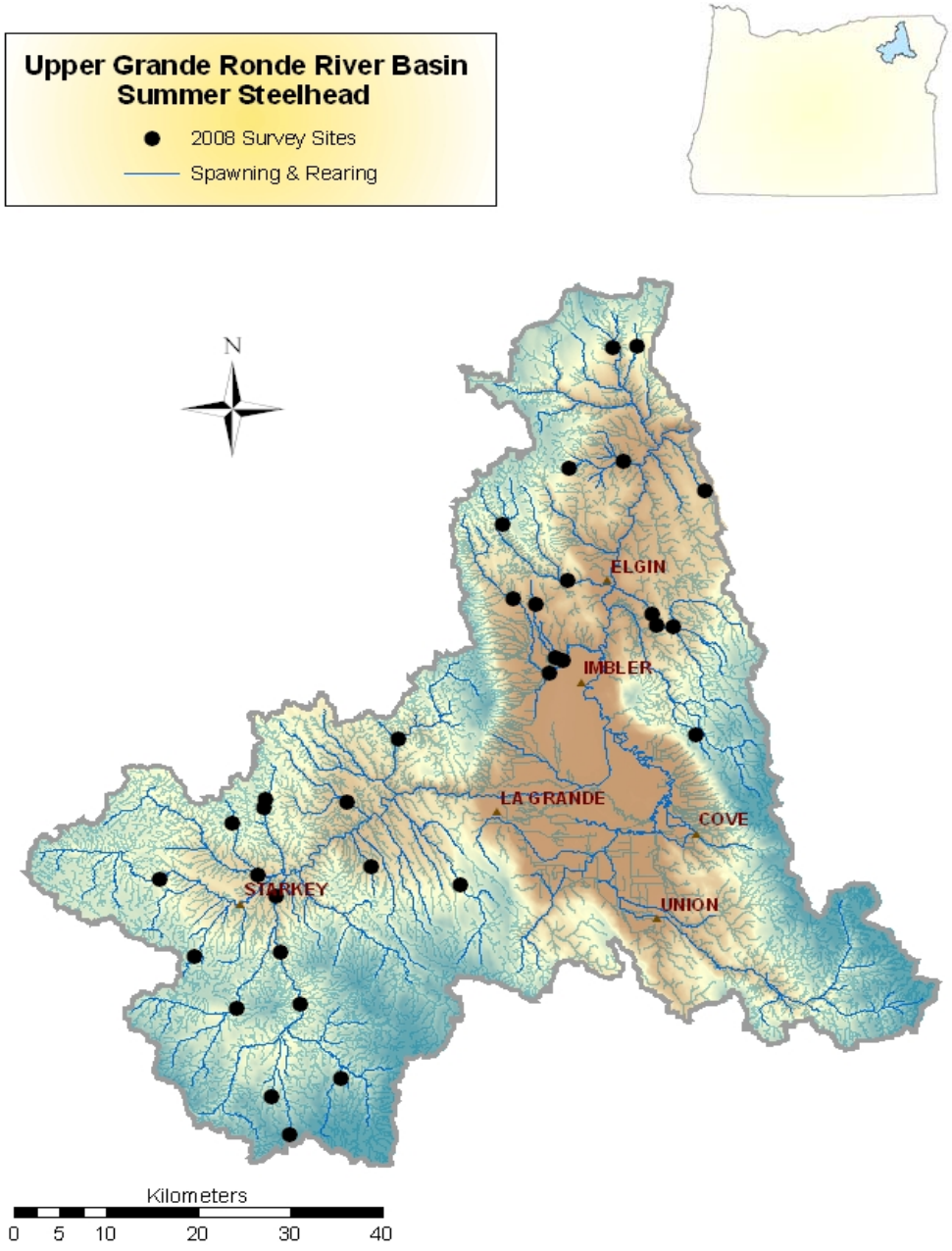

Figure 1. Map of Upper Grande Ronde River basin showing steelhead use (dark blue stream reaches) and the 33 sample sites visited during 2008.

Table 1. Stream, site identification number, site coordinates, survey distance, and dates for steelhead spawning surveys conducted in the Upper Grande Ronde River basin from March to June, 2008.

Subbasin	Site	Coordinates		Distance	Survey Dates						
Stream	ID	Latitude	Longitude	(km)	1	2	3	4	5	6	7
Duncan Canyon Creek	101	45.656776	117.778450	2.4	4/10/08	4/28/08	5/20/08				
Willow Creek	102	45.483475	117.983948	2.1	4/1/08						
Grande Ronde River	104	45.183384	118.388290	2.2	3/18/08	4/2/08	7/7/08				
East Phillips Creek	105	45.627968	118.061501	2.2	5/12/08	5/28/08	6/26/08				
Five Points Creek	106	45.404728	118.217049	2	5/2/08	5/9/08	5/29/08	6/18/08			
Burnt Corral Creek	107	45.180733	118.507324	2.4	5/7/08	5/19/08	6/2/08	6/16/08			
West Chicken Creek	108	45.031818	118.405747	2	4/29/08	5/13/08	5/28/08	6/27/08			
Clark Creek	109	45.515503	117.829659	2	3/31/08	4/11/08	4/25/08	6/10/08			
Spring Creek - Hilgard	110	45.339317	118.289253	2.6	4/2/08	4/14/08	4/28/08	5/7/08	5/16/08	6/2/08	6/24/08
Meadow Creek	111	45.263672	118.551369	2.1	3/31/08	4/11/08	4/25/08	5/16/08	6/2/08	6/13/08	
Phillips Creek	113	45.567055	117.974587	2	3/24/08	4/7/08	4/21/08	6/10/08	7/2/08		
East Little Lookingglass Creek	201	45.810776	117.866783	2.1	5/22/08						
Willow Creek	202	45.470367	118.002525	2.4	4/1/08						
South Fork Cabin Creek	205	45.684418	117.966110	2.3	5/6/08	5/20/08	6/6/08	6/30/08			
Dark Canyon Creek	206	45.344917	118.402878	2.5	5/5/08	5/19/08	6/3/08	6/17/08			
Fly Creek	207	45.125588	118.451065	2.2	4/29/08	5/13/08	5/27/08	6/12/08	6/27/08		
Chicken Creek	208	44.991444	118.381790	2	5/19/08	6/3/08	7/3/08				
Clark Creek	209	45.516441	117.851349	2.4	4/4/08	4/21/08	6/10/08				
Grande Ronde River	210	45.242260	118.391739	2	3/24/08	4/7/08	6/25/08				
Mill Creek - Summerville	213	45.542942	118.018433	2	4/1/08	4/14/08	4/29/08	5/14/08	5/29/08		
East Bear Creek	214	45.271915	118.258781	2.4	5/16/08	6/11/08					
McIntyre Creek	215	45.321106	118.449944	2.2	5/28/08	6/11/08					
Little Lookingglass Creek	301	45.810944	117.900116	2	5/15/08	6/9/08	7/8/08				
Mill Creek - Summerville	302	45.486752	117.994095	2	3/26/08						
Rock Creek	303	45.249561	118.136856	2.4	5/21/08	7/14/08					
Grande Ronde River	304	45.129013	118.361725	2.3	3/25/08	4/8/08	7/7/08				
Cabin Creek	305	45.690826	117.891678	2.5	4/10/08	4/25/08	5/23/08	6/5/08	6/30/08		
Dark Canyon Creek	306	45.336086	118.405045	2.3	5/5/08	5/19/08	6/3/08	6/17/08			
East Clear Creek	308	45.049450	118.310196	2.6	5/9/08	5/27/08	6/12/08				
Clark Creek	309	45.528256	117.857575	2.3	4/4/08	4/16/08	6/10/08				
McCoy Creek	311	45.265644	118.416328	2	3/21/08	4/7/08	4/21/08	5/9/08	5/21/08	6/2/08	6/25/08
Little Indian Creek	312	45.400032	117.804039	2.2	5/14/08	5/20/08	6/4/08				
Dry Creek	313	45.548843	118.050934	2.4	4/3/08	4/23/08	5/13/08	5/29/08	6/11/08		

RESULTS

Steelhead Redds and Escapement

We observed 22 steelhead redds while surveying 73.5 km of an estimated 1,301 km of steelhead spawning and rearing habitat within the Upper Grande Ronde River basin during 2008 (Table 2). This results in a redd density of 0.30 redds/km. By expansion, an estimated 296 observable redds were constructed within the Upper Grande Ronde River basin in 2008 by an estimated 1,204 spawners (95% CLs; 491, 1916). Redds were observed at 9 of the 33 sites (27.3%). No hatchery steelhead were observed on spawning ground surveys.

Adult steelhead were captured and passed at each of the three weirs operated by the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) on the Upper Grande Ronde River basin. Eighty nine adults were passed on Catherine Creek and 135 were passed at the weir on Lookingglass Creek. The weir on the Upper Grande Ronde River near Starkey was damaged by high flows. While 31 steelhead adults were counted and passed at this weir, high flows scoured holes under the trap during April and made the trap inoperable after 18 May 2008 (Mike McLean, CTUIR, unpublished data).

On Deer Creek, where we establish a fish per redd ratio, surveyors observed 15 new redds while conducting surveys on five separate dates from late April through late June. Sixty one adult steelhead were passed above the weir at Big Canyon resulting in a 4.07 fish/redd ratio.

Steelhead Spawning Timing

We observed new steelhead redds from late March to mid June, 2008 (Figure 3). The first new redd was observed on Philips Creek on 24 March while the last new redds were observed on Dark Canyon Creek on 17 June 2008. Seventeen of the 22 (77%) new redds were observed before May. Except on Mill Creek (site 213), new redd observations on any single reach occurred within a three week window. Highly variable stream flows during April and May likely influenced both new redd observations and visibility of previously identified redds (Figure 4).

Table 2. Total number of steelhead redds, and unmarked (wild), marked (hatchery), and unknown origin live and dead steelhead observed during spawning surveys conducted in the Upper Grande Ronde River basin from March to June, 2008.

Stream	Site ID	Redds	Live Fish				Dead Fish			
			Unmarked	Marked	Unknown	Total	Unmarked	Marked	Unknown	Total
Duncan Canyon Creek	101	0	0	0	0	0	0	0	0	0
Willow Creek	102	0	0	0	0	0	0	0	0	0
Grande Ronde River	104	0	0	0	1	1	0	0	0	0
East Phillips Creek	105	0	0	0	0	0	0	0	0	0
Five Points Creek	106	0	0	0	0	0	0	0	0	0
Burnt Corral Creek	107	0	0	0	0	0	0	0	0	0
West Chicken Creek	108	0	0	0	0	0	0	0	0	0
Clark Creek	109	2	3	0	0	3	0	0	0	0
Spring Creek - Hilgard	110	3	3	0	0	3	0	0	0	0
Meadow Creek	111	0	0	0	0	0	0	0	0	0
Phillips Creek	113	4	0	0	0	0	0	0	0	0
East Little Lookingglass Creek	201	0	0	0	0	0	0	0	0	0
Willow Creek	202	0	0	0	0	0	0	0	0	0
South Fork Cabin Creek	205	0	0	0	0	0	0	0	0	0
Dark Canyon Creek	206	0	0	0	0	0	0	0	0	0
Fly Creek	207	0	0	0	0	0	0	0	0	0
Chicken Creek	208	0	0	0	0	0	0	0	0	0
Clark Creek	209	1	0	0	1	1	0	0	0	0
Grande Ronde River	210	0	0	0	0	0	0	0	0	0
Mill Creek - Summerville	213	6	1	0	1	2	0	0	0	0
East Bear Creek	214	0	0	0	0	0	0	0	0	0
McIntyre Creek	215	0	0	0	0	0	0	0	0	0
Little Lookingglass Creek	301	0	0	0	0	0	0	0	0	0
Mill Creek - Summerville	302	0	0	0	0	0	0	0	0	0
Rock Creek	303	0	0	0	0	0	0	0	0	0
Grande Ronde River	304	0	0	0	0	0	0	0	0	0
Cabin Creek	305	0	0	0	1	1	0	0	0	0
Dark Canyon Creek	306	2	0	0	0	0	0	0	0	0
East Clear Creek	308	0	0	0	0	0	0	0	0	0
Clark Creek	309	2	0	0	1	1	0	0	0	0
McCoy Creek	311	1	0	0	2	2	0	0	0	0
Little Indian Creek	312	0	0	0	0	0	0	0	0	0
Dry Creek	313	1	0	0	0	0	0	0	0	0
BASIN TOTAL		**22**	**7**	**0**	**7**	**14**	**0**	**0**	**0**	**0**

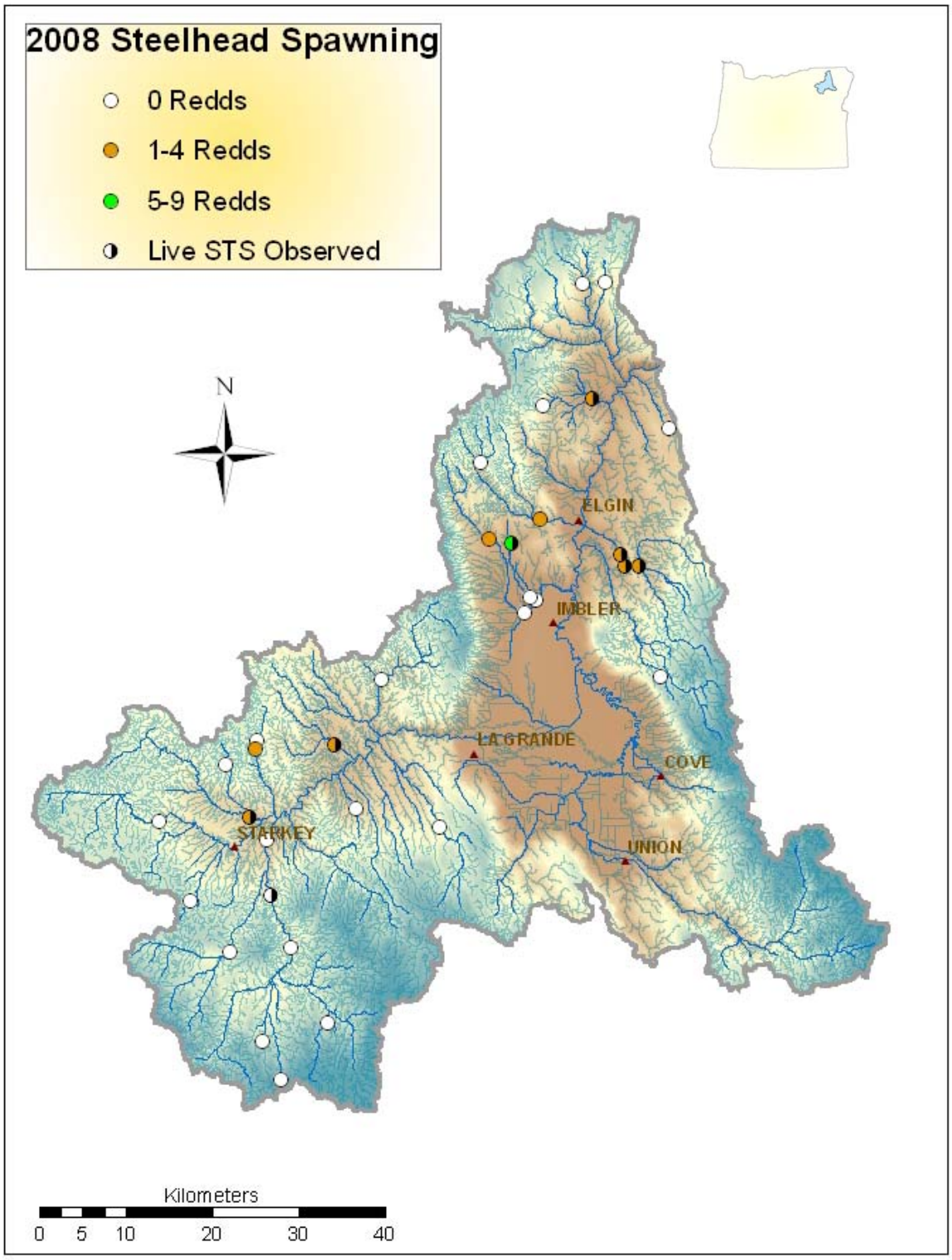

Figure 2. Map of the location and number of redds and steelhead observed in the Upper Grande RondeRiver basin during spawning ground surveys conducted during the spring of 2008.

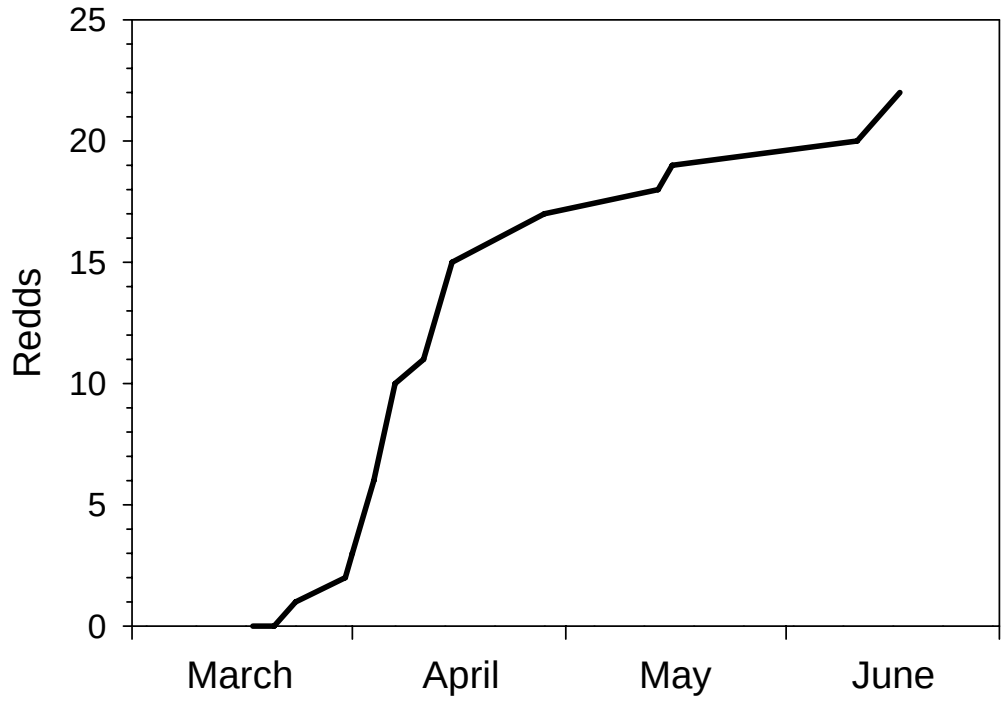

Figure 3. Cumulative number of steelhead redds observed in the Upper Grande Ronde River basin while conducting EMAP spawning ground surveys during 2008.

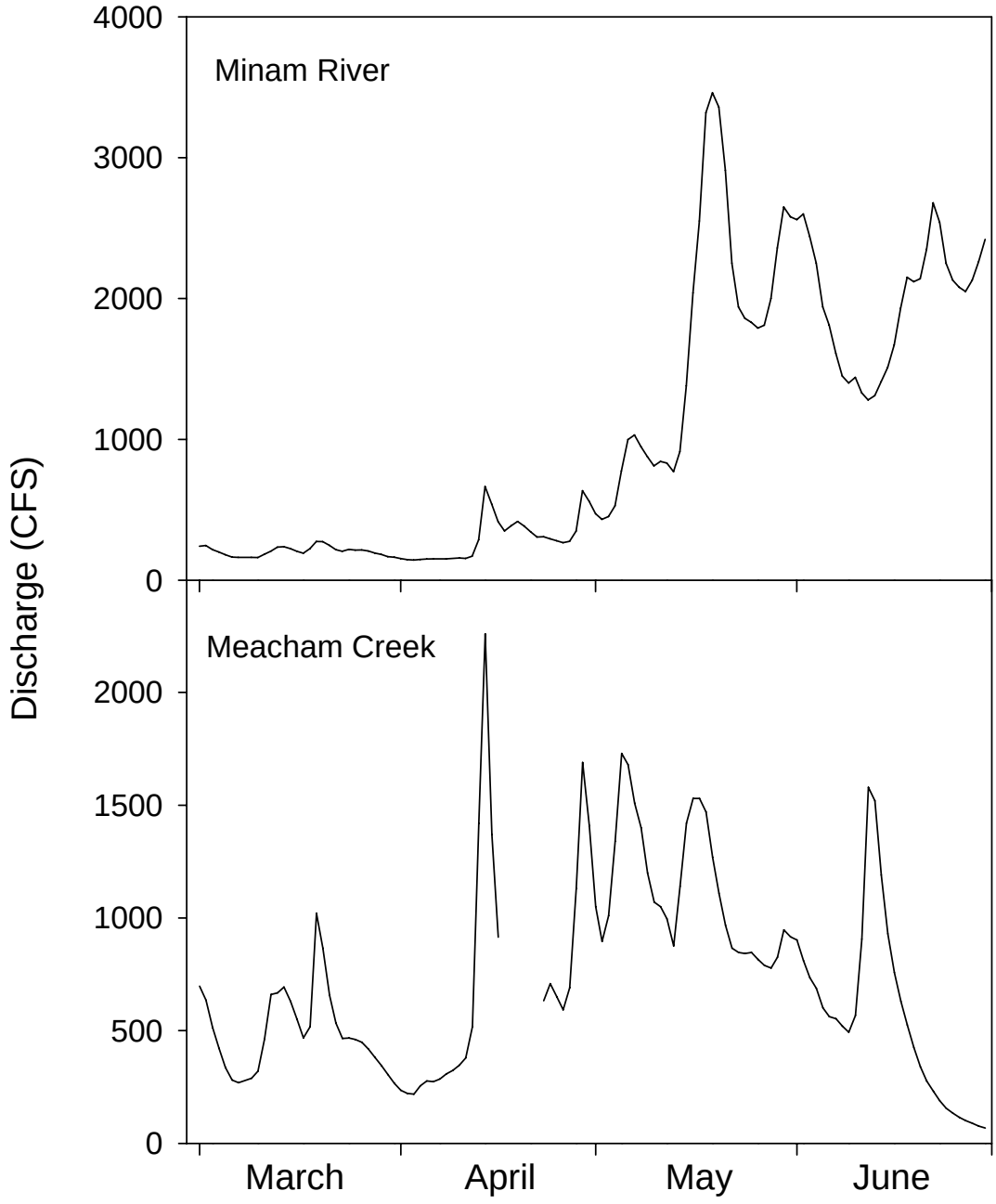

Figure 4. Mean daily discharge (ft^3/s) of two streams that border the Upper Grande Ronde River watershed, the Minam River and Meacham Creek, from March to July, 2008.

DISCUSSION

Despite poor viewing conditions, the steelhead escapement estimate for the Upper Grande Ronde River basin still exceeded 1,000 adults. Redd density estimates were low, approximately one redd for every 3 km, due to poor viewing conditions but we correct this sampling artifact by using an annual fish/redd estimate from Deer Creek, a survey with a known adult escapement above a weir. By comparison, redd density for similar a survey conducted in the John Day River basin was 0.53 redds/km or 177% of the density estimate for the Upper Grande Ronde. Snow pack in the Grande Ronde basin was above average for the 2008 water year. Cool temperatures early in the spawning season and intermittent warm periods coupled with above average snow pack resulted in high flows and relatively turbid water conditions throughout much of the survey period. Index spawning ground surveys conducted by ODFW management biologists also indicated very low redd densities likely resulting from poor viewing conditions. Redd densities from these index surveys were 20% of the five year average. Similarly, index surveys in the John Day River basin conducted by Oregon Department of Fish and Wildlife Fish Biologists in 2008 also resulted in below average redd densities These apparent decreases in observed spawning were likely a result of less than optimal surveying conditions in 2008 like those encountered in the Grande Ronde watershed.

We did not observe spawning activity at a large proportion of sites surveyed in 2008. Redds were observed at only 9 of 33 sites. This low density of redds throughout what we believe is their spawning habitat inflates the confidence intervals around our mean estimate. Current and future sampling will refine the domain but low redd densities will always affect our variance estimates. Several stream reaches may be eliminated from the spawner distribution based on our observations. Willow Creek, for example, has long reaches of soft bottom substrates and slow currents unsuitable for spawning. Many headwater streams also have inadequate habitat for spawning and only continued site visits will identify these reaches. During 2009, we will attempt to define the extent of these stream reaches unsuitable for spawning and continue to locate similar reaches when they are selected in our sample draw.

We were able to identify seven of the 14 adult steelhead that we observed on surveys. We did not identify any marked or hatchery origin steelhead. Hatchery steelhead releases of smolts in the Upper Grande Ronde River were discontinued in 1999. CTUIR also currently removes all hatchery marked steelhead at the weirs they operate on Lookingglass and Catherine Creeks and the Upper Grande Ronde River. During 2008, they removed six adult hatchery steelhead at the Lookingglass weir. No hatchery steelhead were observed at the other two weirs.

After only this initial year of observation, it is too early to relate our observations of redds with weir counts. The weir on the Grande Ronde River near Starkey failed and our random draw did not select any redds above the weir on Catherine Creek. Also, there were too few survey sites above the weir on Lookingglass Creek to draw any conclusions there. Drawing relationships between our redd counts and other steelhead metrics will become more feasible in the future when longer time series data become available.

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APPENDIX

Appendix Table 1. Survey date, number of adult steelhead and redds for each EMAP survey conducted during the Spring of 2008 on the Upper Grande Ronde River basin.

Stream	Survey Date	Panel	Live Wild	Live Unk	Total Live	Total Dead	New Redds	Site ID
Duncan Canyon Creek	4/10/2008	1	0	0	0	0	0	101
Duncan Canyon Creek	4/28/2008	1	0	0	0	0	0	101
Duncan Canyon Creek	5/20/2008	1	0	0	0	0	0	101
Willow Creek	4/1/2008	1	0	0	0	0	0	102
Grande Ronde River	3/18/2008	1	0	0	0	0	0	104
Grande Ronde River	4/2/2008	1	0	1	1	0	0	104
East Phillips Creek	5/12/2008	1	0	0	0	0	0	105
East Phillips Creek	5/28/2008	1	0	0	0	0	0	105
Five Points Creek	5/2/2008	1	0	0	0	0	0	106
Five Points Creek	5/9/2008	1	0	0	0	0	0	106
Five Points Creek	5/29/2008	1	0	0	0	0	0	106
Burnt Corral Creek	5/7/2008	1	0	0	0	0	0	107
Burnt Corral Creek	5/19/2008	1	0	0	0	0	0	107
Burnt Corral Creek	6/2/2008	1	0	0	0	0	0	107
West Chicken Creek	5/13/2008	1	0	0	0	0	0	108
West Chicken Creek	5/28/2008	1	0	0	0	0	0	108
Clark Creek	3/31/2008	1	0	0	0	0	1	109
Clark Creek	4/11/2008	1	2	0	2	0	1	109
Clark Creek	4/25/2008	1	1	0	1	0	0	109
Clark Creek	6/10/2008	1	0	0	0	0	0	109
Spring Creek - Hilgard	4/2/2008	1	0	0	0	0	0	110
Spring Creek - Hilgard	4/14/2008	1	0	0	0	0	0	110
Spring Creek - Hilgard	4/28/2008	1	3	0	3	0	2	110
Spring Creek - Hilgard	5/7/2008	1	0	0	0	0	0	110
Spring Creek - Hilgard	5/16/2008	1	0	0	0	0	1	110
Spring Creek - Hilgard	6/2/2008	1	0	0	0	0	0	110
Meadow Creek	3/31/2008	1	0	0	0	0	0	111
Meadow Creek	4/11/2008	1	0	0	0	0	0	111
Meadow Creek	4/25/2008	1	0	0	0	0	0	111
Meadow Creek	5/16/2008	1	0	0	0	0	0	111
Meadow Creek	6/2 /2008	1	0	0	0	0	0	111
Phillips Creek	3/24/2008	1	0	0	0	0	1	113
Phillips Creek	4/7/2008	1	0	0	0	0	3	113
Phillips Creek	4/21/2008	1	0	0	0	0	0	113
Phillips Creek	6/10/2008	1	0	0	0	0	0	113
E. Little Lookingglass Cr.	5/22/2008	2	0	0	0	0	0	201
Willow Creek	4/1/2008	2	0	0	0	0	0	202
South Fork Cabin Creek	5/6/2008	2	0	0	0	0	0	205
South Fork Cabin Creek	5/20/2008	2	0	0	0	0	0	205
South Fork Cabin Creek	6/6/2008	2	0	0	0	0	0	205
Dark Canyon Creek	5/5/2008	2	0	0	0	0	0	206
Dark Canyon Creek	5/19/2008	2	0	0	0	0	0	206
Dark Canyon Creek	6/3/2008	2	0	0	0	0	0	206
Fly Creek	4/29/2008	2	0	0	0	0	0	207
Fly Creek	5/13/2008	2	0	0	0	0	0	207
Fly Creek	5/27/2008	2	0	0	0	0	0	207

Stream	Date	Panel	Live Wild	Live Unk	Total Live	Total Dead	New Redds	Site ID
Chicken Creek	5/19/2008	2	0	0	0	0	0	208
Chicken Creek	6/3/2008	2	0	0	0	0	0	208
Clark Creek	4/4/2008	2	0	1	1	0	1	209
Clark Creek	4/21/2008	2	0	0	0	0	0	209
Clark Creek	6/10/2008	2	0	0	0	0	0	209
Grande Ronde River	3/25/2008	2	0	0	0	0	0	210
Grande Ronde River	4/7/2008	2	0	0	0	0	0	210
Mill Creek - Summerville	4/1/2008	2	0	0	0	0	1	213
Mill Creek - Summerville	4/15/2008	2	1	1	2	0	4	213
Mill Creek - Summerville	4/29/2008	2	0	0	0	0	0	213
Mill Creek - Summerville	5/14/2008	2	0	0	0	0	1	213
Mill Creek - Summerville	5/29/2008	2	0	0	0	0	0	213
East Bear Creek	5/16/2008	2	0	0	0	0	0	214
McIntyre Creek	5/28/2008	2	0	0	0	0	0	215
Little Lookingglass Creek	5/15/2008	3	0	0	0	0	0	301
Little Lookingglass Creek	6/9/2008	3	0	0	0	0	0	301
Mill Creek - Summerville	3/26/2008	3	0	0	0	0	0	302
Rock Creek	5/20/2008	3	0	0	0	0	0	303
Grande Ronde River	3/24/2008	3	0	0	0	0	0	304
Grande Ronde River	4/8/2008	3	0	0	0	0	0	304
Cabin Creek	4/10/2008	3	0	0	0	0	0	305
Cabin Creek	4/25/2008	3	0	1	1	0	0	305
Cabin Creek	5/23/2008	3	0	0	0	0	0	305
Cabin Creek	6/5/2008	3	0	0	0	0	0	305
Dark Canyon Creek	5/5/2008	3	0	0	0	0	0	306
Dark Canyon Creek	5/19/2008	3	0	0	0	0	0	306
Dark Canyon Creek	6/3/2008	3	0	0	0	0	0	306
Dark Canyon Creek	6/17/08	3	0	0	0	0	2	306
East Clear Creek	5/9/2008	3	0	0	0	0	0	308
East Clear Creek	5/27/2008	3	0	0	0	0	0	308
Clark Creek	4/4/2008	3	0	0	0	0	2	309
Clark Creek	4/16/2008	3	0	1	1	0	0	309
Clark Creek	6/10/2008	3	0	0	0	0	0	309
McCoy Creek	3/21/2008	3	0	0	0	0	0	311
McCoy Creek	4/7/2008	3	0	2	2	0	1	311
McCoy Creek	4/21/2008	3	0	0	0	0	0	311
McCoy Creek	5/9/2008	3	0	0	0	0	0	311
McCoy Creek	5/21/2008	3	0	0	0	0	0	311
McCoy Creek	6/2/2008	3	0	0	0	0	0	311
Little Indian Creek	5/20/2008	3	0	0	0	0	0	312
Little Indian Creek	6/4/2008	3	0	0	0	0	0	312
Dry Creek	4/3/2008	3	0	0	0	0	0	313
Dry Creek	4/26/2008	3	0	0	0	0	0	313
Dry Creek	5/13/2008	3	0	0	0	0	0	313
Dry Creek	5/29/2008	3	0	0	0	0	0	313
Dry Creek	6/11/08	3	0	0	0	0	1	313