NORTH FORK JOHN DAY RIVER BASIN ANADROMOUS FISH HABITAT ENHANCEMENT PROJECT

Annual Report for February 2015 – January 2016

BPA Contracting Officer:
Jamie Cleveland

Prepared by:
John Zakrajsek, Fisheries Habitat Biologist, Project Lead

Confederated Tribes of the Umatilla Indian Reservation
Department of Natural Resources
Fisheries Program

Prepared for:

U.S. Department of Energy
Bonneville Power Administration
Environment, Fish and Wildlife
P.O. Box 3621
Portland, OR 97208-3621

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ABSTRACT

The Confederated Tribes of the Umatilla Indian Reservation North Fork John Day Anadromous Fish Enhancement Project continued to develop and implement habitat improvements during 014 using guidance from the Umatilla River Vision, 2008 Accords, John Day Subbasin Plan, Mid-Columbia Steelhead Recovery plan, and other plans or management documents. Cooperative efforts between private landowners and public entities such as the North Fork John Day Watershed Council, Umatilla National Forest, and Wallowa-Whitman National Forest prioritized, designed, and implemented specific habitat restoration efforts. During 2014 the project worked to finalize the 2013 ISRP Geographic Review process and collaborate with cooperators to replace two culverts forming partial passage barriers with open bottom arches, removed one failing culvert which created a complete barrier to aquatic passage, Improved the stability of Fox Creek's channel, and continued to work with the community around Ukiah, Oregon to develop interest and assess the cause of and potential treatments to excessive sediment deposition within Camas Creek. Noxious weeds were also controlled and monitoring data collected on sites where Riparian Conservation Agreements exist. Additionally, contributions to outyear efforts included input and coordination for a cooperative restoration action on Desolation Creek.

ACKNOWLEDGMENTS

The Confederated Tribes of the Umatilla Indian Reservation wish to thank the Bonneville Power Administration for funding the project and its personnel Jamie Swan, Jenna Peterson, Sean Welch, and others for their assistance. We would also like to give thanks to the North Fork John Day Watershed Council for providing a forum for tribal input and promoting the Confederated Tribes of the Umatilla Indian Reservation's habitat recovery efforts; the Umatilla National Forest and its employees (Fishery Biologists Kathy Ramsey and Allison Johnson, Hydrologists Caty Clifton and Ed Farren, Range Managers Tom Thompson and Brad Lathrop) and the Wallowa Whitman National Forest and its employees (Hydrologist Suzanne Fouty, Engineer Brett Yaw, Biological Science Technician Ray Lovisone) for assistance with cooperative restoration efforts and providing information, and Oregon Department of Fish and Wildlife's Jeff Neal, and Josh McCormick. Thanks also to Confederated Tribes of the Umatilla Indian Reservation staff, whose cooperation and contributions are evident in this report. Special thanks to Delbert Jones in assisting with monitoring efforts and implementing and maintaining improvements, to Julie Burke, Celeste Reeves, and Michelle Thompson for administrative support, and Gary James and Mike Lambert for support and guidance. We would like to acknowledge cooperating landowners, Steve Berry, Gene and Julia Engblom, Richard and Dorothy Allstott, Brian Prater, Robin, Mary Lou, Andy and Bill Fletcher, Rose Pedracinni, and Lois Hartley Cannady who supported our efforts by cooperating in habitat enhancements on their property.

TABLE OF CONTENTS

INTRODUCTION

Funding approved in 2000 by the Bonneville Power Administration charged the Confederated Tribes of the Umatilla Indian Reservation's North Fork John Day River Habitat project (The Project) with enhancing terrestrial and aquatic habitat. While the tools and strategies have evolved over time restoration has and will continue to be implemented through direct action or modifying land management strategies in the North Fork John Day (NFJD) basin (Figure 1).

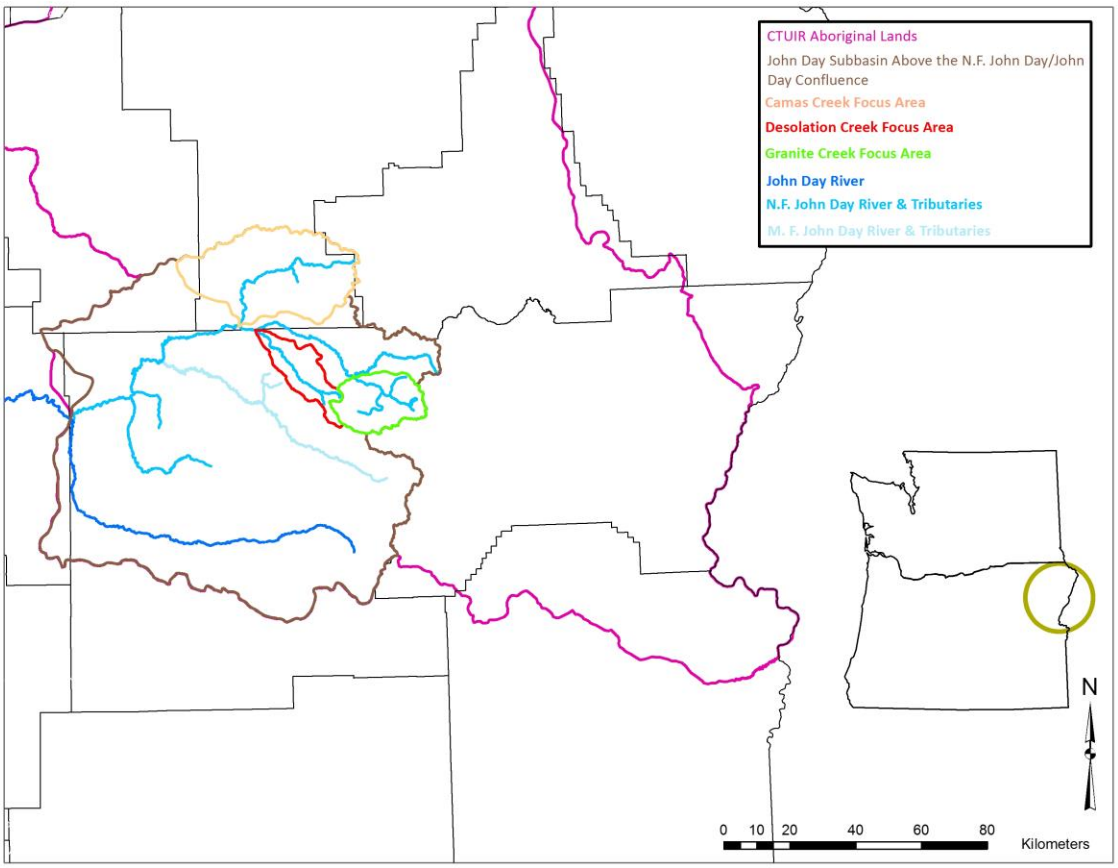

Figure 1. Map of the CTUIR ceded lands and focus basins for The Project.

Since 2000 subasin plans and recovery documents have been used as a basis for establishing The Project's strategy as they became available. However, the development of the Confederated Tribes of the Umatilla Indian Reservation's (CTUIR) First Foods (Figure 2) has more recently formed the basis for all of The Project's efforts. The First Foods are integral to native culture and religion and their perpetuation in effect provides for the continuation of CTUIR's society. In other words, they constitute the minimum ecological products necessary to sustain the CTUIR's culture. The mechanism by which the First Foods management or enhancement occurs within the CTUIR's Department of Natural Resources was developed in 2008 and published as the Umatilla River Vision (Jones, 2008). The strategy identified a holistic process driven approach enveloping five touchstones (hydrology, connectivity, geomorphology, aquatic biota, and riparian vegetation). Incorporating these touchstones into development, design, monitoring, and reporting efforts holistically perpetuates the First Foods.

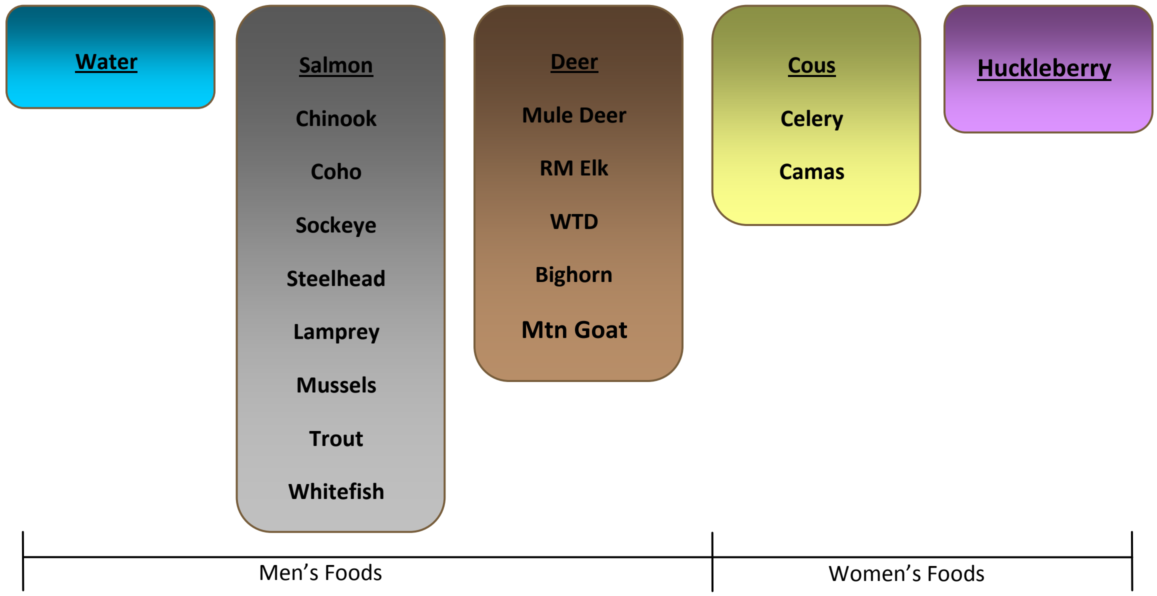

Figure 2. Characterization of the First Foods by grouping and cultural significance with respect to men's and women's foods. First Foods are listed in order of importance from left to right.

Since 2000 The Project has focused upon improving habitat for aquatic species on private lands and to that end early restoration actions were passive in nature and occurred as opportunities arose and typically included removing grazing cattle from sensitive stream channel and riparian habitats. These early efforts were in part hampered by the public's unfamiliarity with the CTUIR or habitat restoration in general. As The Project provided educational opportunities and more restoration actions were undertaken this changed to some extent. Since 2000 The Project has implemented a variety of actions (Appendix 1) influencing 243.5 stream kilometers and 5,152.6 acres through a mix of riparian fencing construction and maintenance, stock water development, passage barrier removal, native plantings, mine effluent efficiency improvements, and stream channel improvement efforts as well as several surveys and assessments. During 2015 we continued implementing measures to protect sensitive riparian, floodplain, and wetland habitats, continued design efforts, and made progress in strategic planning through the development of assessments. The cumulative effect of these actions are expected increase juvenile and adult freshwater survival resulting in greater numbers of Endangered Species Act listed Mid-Columbia River Summer Steelhead trout (*Oncorhynchus mykiss*) and Bull trout (*Salvelinus confluentus*) in addition to Spring Chinook salmon (*Oncorhynchus tshawytscha*) and redband trout (*Oncorhynchus mykiss gairdnerii)*.

The Project originally focused its efforts upon working with private landowners. However, this has proven to be difficult for a variety of reasons and as such we've began cooperating with public land management agencies. This approach was accepted by the Independent Scientific Review Panel (ISRP) during their 2006 Geographic Review process, the proposal for which, identified four 5th field HUCS (#1707020206, #1707020205, #1707020202, and #1707020204) in three tributaries to the North Fork John Day River including upper and lower Camas, Granite, and Desolation Creeks as focus basins (Figure 1). The designations were based upon Restoration and Protection Potentials contained within the John Day Subbasin Plan and other guidance documents. For the 2013 ISRP Geographic Review these same focus basins were again submitted as priority areas for restoration. The actions listed in this proposal would be implemented to the extent possible before the end of 2018 using guidance not limited to the 2005 John Day Subbasin Plan (NPPC, 2005), 2008 Mid-Columbia Steelhead Recovery Plan (NMFS, 2008), 2002 Bull Trout Recovery Plan (USFWS, 2002), and CTUIR's adoption of the First Foods policy and Umatilla River Vision (Jones, 2008). Throughout this period BPA sponsors within the John Day River Basin began communicating more effectively and The Project began working closely with cooperators such as the Umatilla and Wallowa-Whitman National Forests (UNF and WNF respectively) and the North Fork John Day Watershed Council (NFJDWC). The Project also adopted different restoration action criteria and strategies to undertake reach scale or larger efforts which were presented in the Project's 2013 ISRP Geographic Review Proposal. Under this strategy the three focus basins remain although the approach to restoration reflects the qualities of each basin.

Within Granite Creek focus area the Granite Creek Action Plan (USFS, 2008) and the Bull Run Creek Action Plan (USFS, 2012) have formed the basis for cooperative restoration actions on public lands. The Project has attempted to work on private lands with limited success but will, where possible, implement restoration actions adjacent to treated USFS properties with the intent of extending and connecting treated reaches further downstream. However, public sentiment against government interaction or lack of interest in working toward aquatic restoration may hinder abilities to complete restoration actions on private property in a manner that is advantageous for sequencing restoration actions maximizing aquatic or environmental response.

Within Desolation Creek The Project is working with collaborators to development basin wide action plan by incorporating prioritized actions on private and public lands into a single scientifically defensible strategy for restoration. Thus will be further discussed in the 'Accomplishments' section.

Within Upper and Lower Camas Creek The Project has been coordinating with the UNF and Wallowa-Whitman National Forest (WNF) where they manage lands in the basin's headwater areas and private landowners in the balance of the basin. The Project funded a geomorphic assessment detailed in Appendix 1 which has established a strategy for addressing sediment deposition in Ukiah, Oregon. Although not a comprehensive action plan for the entire Camas Creek basin it outlines typical treatments which will address ecological concerns moving forward throughout the basin. This does not preclude The Project's funding a more an effort to develop a more comprehensive strategic action plan for the entire Camas Creek basin should public and private landowner priorities and sentiment support such an action.

Appendix I show sites where maintenance or restoration efforts have been completed since the Projects inception on private and public lands. On private lands the CTUIR has entered into eight conservation agreements with private landowners. Cooperative partners with whom CTUIR hasn't entered into a Riparian Conservation Agreement have included the North Fork John Day Watershed Council (NFJDWC), the Umatilla National Forest (UNF), Wallowa Whitman National Forest, Grant Soil and Water Conservation District, National Resource Conservation Service (NRCS), and the Farm Services Agency (FSA) among others. Conversations with these and other groups or agencies are proving useful for identifying additional restoration opportunities and dispersing information regarding the benefits of cooperative restoration efforts to develop trust with small rural communities within the NFJD Basin. For example, the NFJDWC has proven invaluable for reaching out to the 1200 people residing within the basin that may otherwise be reluctant to cooperate with a tribal or government entity.

Bonneville Power Administration (BPA) initially approved the Project in 2000 with on-the-ground actions following in 2001 to provide partial mitigation for the loss of native salmon and steelhead resulting from the construction of dams on the Columbia River. Additional habitat restoration funds are secured through entities such as the FSA, NRCS, Oregon Watershed Enhancement Board (OWEB), Oregon Department of Fish and Wildlife (ODFW), U.S. Bureau of Reclamation (BOR), the U.S. Army Corps of Engineer (Corps) and other private or public. In an effort to reduce costs associated with overhead the UNF's North Fork John Day Ranger District provides office and storage space while vehicles and equipment are shared with:

(1) BPA Project #198710001 – CTUIR's Umatilla River Basin Anadromous Fish Habitat Enhancement Project
(2) BPA Project #199604601 – CTUIR's Walla Walla Basin Habitat Enhancement Project
(3) BPA Project #199608300 – CTUIR's Grande Ronde Basin Habitat Enhancement Project
(4) BPA Project #200820100 – CTUIR's Protect and Restore the Tucannon Watershed

This annual report covers efforts conducted from 1 February 2015 through 31 January 2016.

SITE DESCRIPTION

The NFJD River (Figure 1.) is the largest tributary to the John Day River flowing westerly for 180 kilometers to join the mainstem John Day River near Kimberly, Oregon. The NFJD River's basin covers 47,885 square kilometers consisting of 37% private, 62% federal, and 1% state lands. The NFJD has been designated as a Wild and Scenic River from Camas Creek upstream to the head waters including one portion classified as "Wild," two as "Scenic," and two as "Recreational." These segments are primarily managed by the UNF and WNF. State Scenic Waterways designated by the State of Oregon, stretch from Monument, OR upstream to the NFJD Wilderness boundary and from the confluence with the North Fork John Day River upstream to the Crawford Creek Bridge on the Middle Fork John Day River. The Middle Fork John Day River (MFJD) (Figure I) flowing into the NFJD is generally considered and primarily managed as a separate system by ODFW, the Confederated Tribes of the Warm Springs Reservation of Oregon, and The Nature Conservancy. The NFJD contains fifteen 5th Field HUC's (Figure 3) of which four, the Upper and Lower Camas Creek, Desolation Creek, and Granite Creek units are considered 'priority' areas for the purpose of concentrating the Project's restoration efforts.

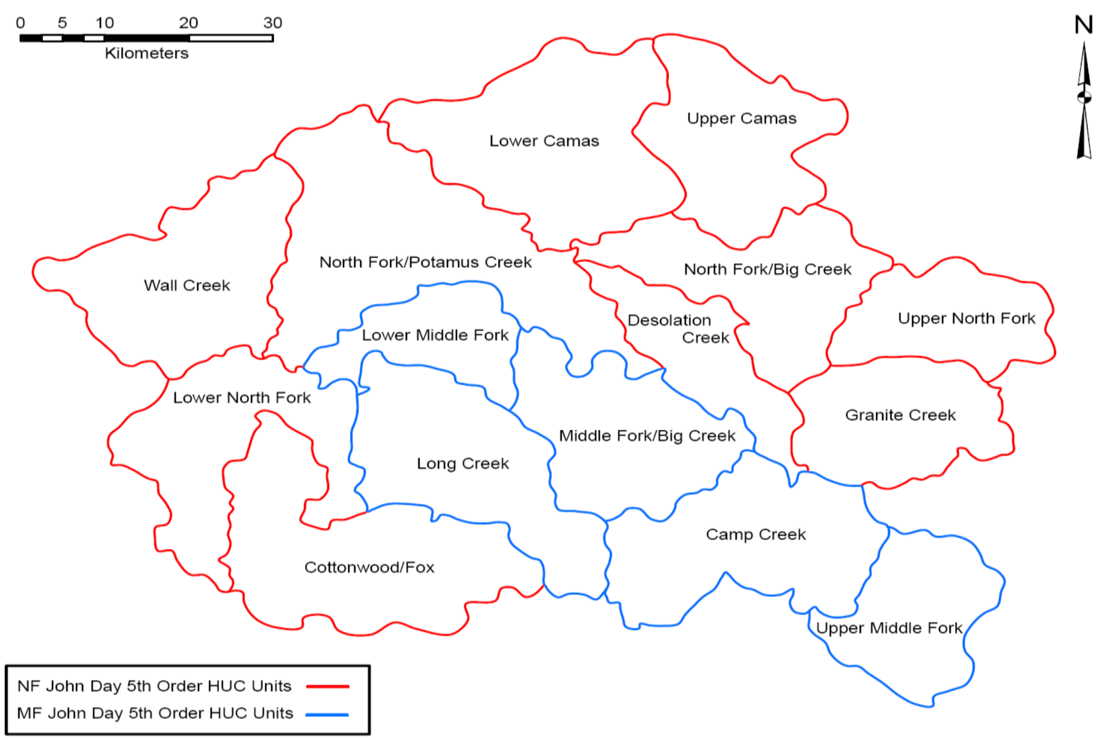

Figure 3. NFJD 5th field HUC's

Diverse land forms and geology range from 558 meters at the mouth to 2530 meters in elevation in the headwaters and consist of Columbia River Basalts, oceanic crust, volcanic materials, historic river and lake deposits, and recent river and landslide deposits. The North Fork John Day basin has a continental climate influenced by maritime weather patterns in the higher elevation areas which are characterized by low winter and high summer temperatures, low to moderate average annual precipitation and dry summers. Climate ranges from sub-humid in the upper elevations to semi-arid in the lower elevations with 0.33 to 0.5 meters annually contributing 60% of the flow in the lower John Day River, primarily through November and March. Mean annual temperatures are 3° C in the upper sub-basin and 14° C in the lower sub-basin and range from <-18° C in the winter to over 38° C during the summer. The average frost-free period is 50 days in the upper sub-basin and 200 days in the lower sub-basin. The Blue Mountains in the basin's higher elevations produce a range of microclimates unlike the lower basins typical warmer and more stable patterns.

Historically, the John Day River was one of the most significant anadromous fish producers in the Columbia River Basin (CRITFC 1995) due to its stability, strong summer stream flows, high water quality, and heavy riparian cover. Riparian areas were densely populated with aspen, poplar, willow, and cottonwood and beaver were abundant. Large spring and fall Chinook salmon migrations and numerous beaver sightings indicated the John Day River contained extensive in-stream habitat diversity. Resident trout species including westslope cutthroat (*Oncorhynchus clarki lewisi*), interior redband and bull trout gave way as habitat changed in response to land management objectives. These changes favored introduced species such as brook trout (*Salvelinus fontinalis*), smallmouth bass (*Micropterus dolomieui*), and redside shiner (*Richardsonius balteatus*) in places historically dominated by native resident salmonids. The NFJD currently supports strong native runs of spring Chinook salmon and summer steelhead in the Columbia River Basin with minimal influence from hatchery stocks. Narum et al. 2008 confirmed the John Day River's status as a viable refuge for wild stocks with limited anthropogenic influence.

Historic and current land use practices or threats (Table I) within the have reduced river stability, decreased high quality summer stream flows and water quality, reduced heavy riparian and floodplain cover, and compromised physical and biological processes related to these associations and structures. The loss of abundant riparian and flood plain vegetation, once robust beaver populations, and large spring and fall Chinook salmon migrations suggest the NFJD has lost a significant amount of in-stream habitat diversity and may now have an altered hydrologic cycle. Changes in the hydrologic cycle attributed to altered riparian and floodplain areas and stream morphology and processes can be indicated by increased runoff, altered peak flow regimes, reduced ground water recharge and soil moisture storage, and low late-season flow and elevated water temperatures. Historic and current land management strategies, in combination with possible changes in the hydrologic cycle, have contributed to stream channel instability (i.e., channel widening and downcutting) in some portions of the NFJD. Additionally, wildlife habitat has become increasingly fragmented, simplified in structure, and infringed upon or dominated by non-native plants (ICBEMP 2000).

Major Limiting Factors	**Threats**
Floodplain & Channel Structure In-Stream Habitat Sediment Routing Water quality	Riparian Disturbance Stream Channelization & Relocation Grazing Forest practices Roads Irrigation Withdrawals Mining & Dredging

Table I. Limiting factors and threats within the North Fork John Day Basin.

Limiting habitat factors identified in the NFJD basin (Table 1) and designated in Carmichael (2006), Columbia BM RC&DA (2005), and various management plans include water quality (temperature, modified flows, nutrient input), in-stream habitat (structure, cover, sediment loading, channel morphology and processes,), and riparian health. Most streams in the NFJD basin are considered to be in relatively good condition, with the exception of elevated late summer water temperatures that exceed Oregon Department of Environmental Quality standards. In general, most indicators of channel condition within the NFJD suggest the basin is "functioning at risk".

Primary limiting factors identified in the 2008 Columbia Basin Fish Accords Memorandum of Agreement between the Three Treaty Tribes and FCRPS Action Agencies (Accords, 2008) align with the previously noted limiting factors (Table 2). Additionally, the document links benefits based upon limiting factors for listed fish to projects funded under the agreement, of which, The Project is one. The North Fork John Day River and its tributaries between the Middle Fork John Day River up to and including Camas Creek score lower than the Upper North Fork John Day River for current and expected habitat function. This is likely due in part to more land being intensively managed for agriculture, warmer and dryer climactic conditions, and higher concentrations of human populations and their related infrastructure. Upper Camas Creek maintains some of the qualities of the Upper North Fork John Day River and its tributaries. With improved strategies to identify and implement habitat restoration actions and improved coordination amongst basin cooperators limiting factors are being addressed more effectively than in the past.

Watershed	**Primary Limiting Factors**	**Estimated Current Function**	**Estimated Future Function**		**Estimated Current Watershed Function**	**Estimated Future Watershed Function**	
			Estimate 10 years	**Estimate 25 years**		**Estimate 10 years**	**Estimate 25 years**
Mid N Fk. JD and tribs (M Fk. to and including Camas Cr.	In-channel Characteristics	40	50	60	45	56.5	68
	Passage / Entrainment	54	70	90			
	Riparian / Floodplain	40	50	60			
	Sediment	50	60	70			
	Water Quality - Temperature	50	60	70			
Upper N Fk. JD and tribs above Camas Creek	In-channel Characteristics	60	70	80	62	72	82
	Passage / Entrainment	70	80	90			
	Riparian / Floodplain	60	70	80			
	Sediment	60	70	80			
	Water Quality - Temperature	60	70	80			

Table 2. Primary limiting factors by watershed in the North Fork John Day River Basin and estimated current and future function correlated to habitat restoration. Adapted from Accords, 2008 Attachment G.

2015 ACCOMPLISHMENTS

A description of individual Work Elements to which efforts were directed during 2014 (Figure 4) include;

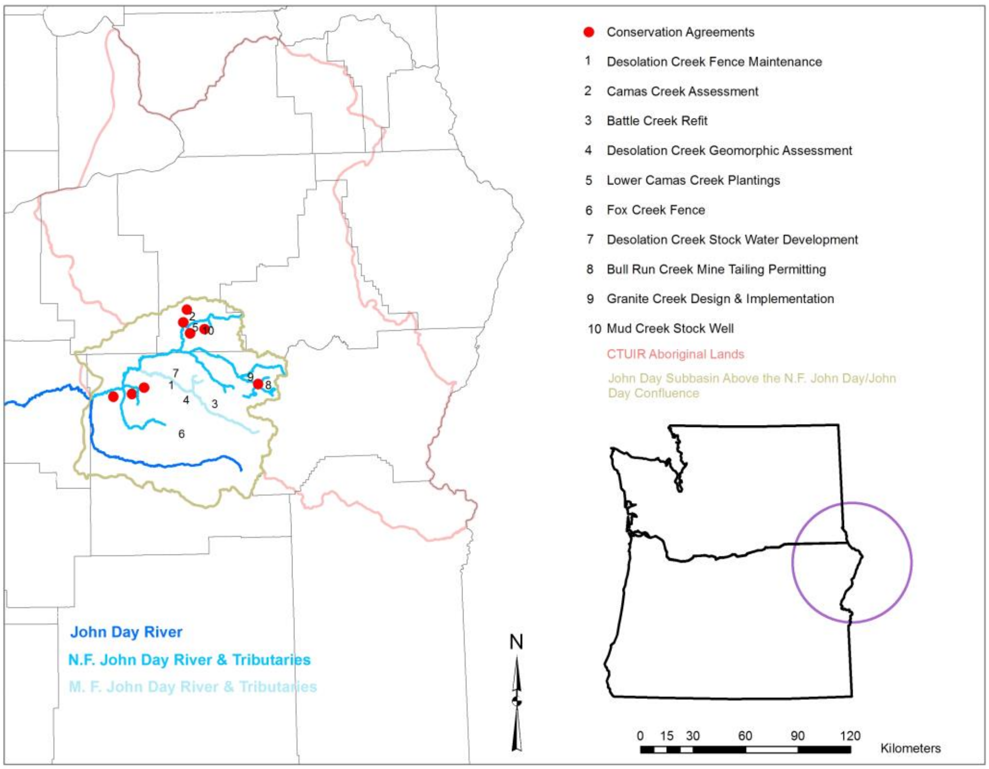

Figure 4. Restoration and Protection Site Locations.

WE A – Identify, Prioritize and Select Habitat Project Areas

Completed and submitted a draft Statement of Work for 2016 to BPA as required. In an effort to reduce contracting delays during 2016 the 2016 Statement of Work was delayed slightly while a bid was secured to detail design costs for private property on Granite Creek. The 2016 Statement of Work outlines work in the three focal basins and continues The Projects strategy of adopting focus basin specific strategies for restoration.

WE B - Produce Environmental Compliance Documentation

Permits and requisite information was either secured by CTUIR or passed on to BPA for all efforts.

WE C – Provide Local Community-Based Outreach and Education

Outreach during this performance period primarily consisted of attendance at NFJDWC meetings and involvement as a member of the NFJDWC board. All other outreach efforts during 2015 were tied to either the Camas Creek or Desolation Creek Assessments.

WE D – Maintain Water Developments
Water developments were maintained throughout 2015 and The Project will continue to coordinate with landowners regarding maintenance. All issues related to maintenance were resolved.

WE E – Investigate for Livestock Trespass
Livestock trespass investigations identified trespass only on the Lower Camas Creek site which was quickly rectified.

WE F – Maintain Fences
Fence inspections throughout 2015 did not identify damage that wasn't repaired in short order.

WE G – Maintain Vegetation
A contract for noxious weed control efforts awarded in March of 2015 used herbicides on Owens, Snipe, Granite, Mud, Desolation and Deer Creeks and the NF John Day conservation agreement sites. Significant progress has been made on the Deer Creek and NF John Day River sites, however, seed sources from within the site and neighboring properties demand that noxious weed control efforts continue. Efforts outside these areas shall continue through cooperative efforts including an agreement with the City of Ukiah for weed control on Lower Camas Creek site and adjacent properties within and around Ukiah.

WE H – Desolation Creek Fence Maintenance
Following up on heavy fence maintenance efforts on Camas Creek in 2014 The Project worked with the UNF to complete heavy maintenance on riparian fences constructed in the 1980/90s within and adjacent to the Desolation Creek basin. While grazing permittees are responsible for annual maintenance vegetative growth and general wear and tear over time requires more intensive maintenance. These efforts improve the effectiveness and life of fences and allow recovery of streams that are Designated Critical Habitat for Mid-Columbia River steelhead. Costs for this effort are shown in Table 3.

Item	CTUIR Funds	USFS Funds
USFS Labor	$18,955	$11,000
Vehicle Costs	$0	$3000
Contracted Services	$6775	$0
Materials (Posts, nails, Steel Posts, Stays)	$0	$6,000
Total	$25,730	$20,000

Table 3. Cost share and in-kind contributions for the 2015 Desolation Creek Fence maintenance effort. This does not include internal CTUIR costs to BPA.

The Project provided funding for existing UNF staff to clear right of way, remove fallen trees from fences, add new steel posts, stretch wires, remove multiple splices in wires, reconstruct rock jacks, add stays, reconstruct stretch points, and reconstruct gates. In select locations where more intensive efforts were required contractors were hired to construct a water gap and set galvanized pipe braces set in concrete to improve the longevity of the fences. Table 4 displays where fence maintenance occurred.

Fence Name	Kilometers of Fence	Kilometers of Stream
Hinton Creek	1.7 (Contracted)	0.8
Kelsay Creek	6.3	2.6
Bully Creek	1.7 (Contracted)	0.8
Bruin Creek	1.7 (Contracted)	0.8
Park Creek	0.6	0.3
Little Indian Creek	4.2	2.4
Smith Creek	7.4	3.4
West Fork of Meadowbrook Creek	12.5	6.6
Deep Canyon Creek	2.7	1.2
Total	33.7	18.9

Table4. Kilometers of fence maintained for the Desolation Creek Fence maintenance effort in 2015.

WE I & T – Granite Creek In-stream Implementation and Design

Coordination between BPA and The Project occurred prior to the BPA engineer leaving his position mid-2015; however, these efforts were inadequate for developing a suitable design and in turn implementing any actions. With this being the second year of inaction a Request for Proposals was advertised for design work in late 2015 with the intent to develop a design during 2016 for implementation in 2017. Thus far a contractor has been selected and the design process will begin in 2016.

WE J – Camas Creek Assessment

The assessment's intent was to identify and establish baseline data describing relevant physical and biological processes, gain an understanding of the mechanism behind sediment deposition within and adjacent to Ukiah, Oregon, and develop typical actions the community can undertake to address issues of concern. The final document identified a suite of actions throughout the Camas Creek watershed to reduce high flow peaks by slowing streamflows from the upper watershed and improving storage through the development of beaver dam analogs, altering grazing management in the lower basin, improving stream channel complexity and floodplain connectivity through modifications to stream channel form, large wood introductions, removal of levees, and reactivating side channels, addressing floodplain constriction through adjustments to SR 244, and using setback levees in Ukiah to prevent stream channel restriction. The Project will continue to work with the Ukiah community to identify and implement a strategy they find suitable.

Throughout 2015 The Project worked with the contractor to collect background and LiDAR data which provided the basis for subsequent analysis. One and two dimensional hydrologic and hydraulic models were developed to understand sediment mobilization, deposition and floodplain inundation and complement the development of a sediment budget. These tools combined with aerial imagery and ground truthing identified the source of sediment in Ukiah and formed a basis for the development of typical treatments. Outreach to the community included a public meeting in early September and another in early 2016 to present the final draft to the public. Final drafts were mailed or hand delivered citizens of Ukiah and landowners with requests for comment included in all mailings and deliveries.

WE K – Battle Creek Refit

An engineer's estimate prepared by the Umatilla National Forest underestimated costs once contractor bids were collected. Costs from this competitive process were twice the estimated cost and as such, funding which had been secured for a 2015 implementation was inadequate. Collaborators including the UNF, NFJDWC, and The Project are now working to identify a suitable solution given available funding with the intent to implement in 2016.

WE L – Desolation Creek Geomorphic Assessment

A conservation agreement was signed between Ecotrust Forest Management LLC and the CTUIR whereby the signatories agreed to work toward improving physical and biological process supporting native wildlife populations for the next 15 years. This document signifies the end of multiple efforts to develop a working relationship with previous owners and the beginning of an effort to work toward reestablishing sustainable land management practices and habitat restoration actions.

The Project has been working with collaborators such as the NFJDWC, ODFW, CTWSRO, and CTUIR resulting in on the ground efforts beginning in 2015 with easily identifiable and necessary developments to improve stock watering opportunities and reduce damage by cattle to springs and wetlands and complement the construction of riparian fencing to restrict cattle access to Desolation Creek. ODFW took the lead for riparian fencing while the NFJDWC began working on springs, removing old fencing, and protecting upland meadows.

Given the extent of work required to improve physical and biological processes within the watershed and demands of funding entities to prioritize restoration efforts The Project worked with collaborators to develop a Request for Proposals for a proposed Desolation Creek Geomorphic Assessment and Action Plan. Since the Desolation Creek watershed is owned primarily by Desolation Creek LLC (~13,000 acres) and the Umatilla National Forest (57,000 acres) this opportunity creates a unique opportunity to develop baseline information and prioritized actions for the private priority, incorporate prioritized actions for the public lands developed by the UNF, and prioritize all actions across the watershed. In the end all collaborators will have a scientifically defensible approach to habitat restoration throughout the watershed. Thus far a contractor has been selected by the collaborators, a contract signed between the selected contractor and the CTUIR, a Kick-off meeting held in December of 2015, LiDAR data has been secured by the CTWSRO for the lower 20 Kilometers of Desolation Creek, background data has been collected, and a Statement of Goals and Objectives developed. Our expectation is that the final document will be completed with a 100% design for the highest priority ready for implementation in 2017.

WE M – Lower Camas Creek Plantings

The Lower Camas Creek plantings occurred during the first week of November using a different tactic than had previously been used. With the predation that occurred when vegetation was planted within large or small mats and protected by plastic mesh up to four feet in height The Project began testing other methods. Six foot high welded wire fencing and steel T-posts creating a 3' buffer around each planting worked well although it is an expensive treatment. Given the success of collaborators 229 native hardwoods (Table 5) in one gallon or larger pots were planted within enclosures constructed of eight foot deer fencing, 10' steel T-posts and six inch green treated posts 12' in length.

Four enclosures were 20’ x 100’ (Figure 5) with the remaining three shaped to account for location specific constraints such as high ground surrounded by a marshy area (Figure 5) or excessively dry ground. A skid steer mounted auger was used to drill holes for green treated posts with steel T-posts installed by hand and fencing stretched prior to planting vegetation. Holes for the vegetation were drilled with the Skid steer mounted auger and watering will occur during 2016 and likely 2017 to improve survival. Our greatest concern is high water during spring runoff although during the winter of 2015/16 plantings within one enclosure were culled by small mammals.

Item	Number
Red Osier Dogwood	15
Mallow Ninebark	5
Quaking Aspen	40
Black Cottonwood	85
Chokecherry	40
Wax Currant	24
Blue Elderberry	6
Snowberry	14
Skid Steer	1
Auger	1
Trailer	1
Deer & Wildlife Fence - 8'	5
Green Treated Posts – 12’	20
Steel T-posts – 10’	135

Table 5. Plantings, equipment, and associated costs for the Lower Camas Creek Plantings in November of 2015.

Figure 5. Enclosures constructed to protect native vegetation plantings in 2015. The left photograph shows a 20’x100’ enclosure while the right hand photograph shows an enclosure containing Quaking Aspen located on a high ground adjacent to lower elevation wet areas.

WE N – Fox Creek Fence

During September of 2015 The Project constructed 0.8 Kilometers of four strand barbed wire fence along Fox Creek (Figure 6). The project’s staff completed the fence using materials previously purchased and recently purchased. Construction took two weeks and included one water gap for stock watering. The fence stretches from an existing fence line at the sites lower end protecting an area where in-stream structure was placed in 2013 upstream to another existing fence line. This effort directly addresses concerns raised by NOAA during discussions to identify a suitable solution to bolster failing structures constructed in 2014. Maintenance will be completed by the landowner.

Figure 6. Fence constructed along Fox Creek to protect the stream channel, riparian areas, and the 2014 in-stream effort from grazing cattle.

WE O – Desolation Creek Stock Water Developments

The Project has been working with collaborators including Desolation Creek LLC, the UNF, ODFW, the Warm Springs tribe and the NFJDWC to implement easily identifiable and permittable restoration efforts which will not demand intensive planning and permitting efforts. These differ from more intensive and extensive efforts such as in-stream actions to be covered under WE L. Both fence construction tied to grazing management and stock water developments fall into this category and have therefore been implemented to some degree thus far. For this WE the Oregon Department of Fish and Wildlife's Fisheries Habitat Project (BPA Project #1984-021-00) completed cultural surveys along with those needed for riparian fencing they constructed during 2915.

The spring development (Figure 7) was completed as designed although implementation was delayed slightly due to high fire danger. A spring box is located at the spring's origin with piping to a trough outside the fenced enclosure about the spring. Gravel was placed around the trough to minimize the impacts of watering cattle and excess flows are returned to the spring. Given that disturbances related to the development were not significant and all soils remain on-site native vegetation will revegetate the site in early 2016.

Figure 7. Pictures of the Desolation Creek Stock Water development after being completed.

WE P – Bull Run Mine Tailing Permitting
The Project began collecting topographic data on placer mine tailings left in place from mining efforts that occurred over 50 years ago. The tailings have effectively eliminated or severely restricted floodplain connectivity for Bull Run Creek through two miles of land owned and managed by the Wallowa-Whitman National Forest. In addition to compromised floodplain connectivity mining has reduced riparian and floodplain vegetative health, reduced the number of off-channel habitats, and severely altered process tied to healthy stream channel function and form and sediment mobility and deposition.

These factors were recognized by the WWNF which included redistributing or removing these tailings as a priority action within the Bull Run Creek Action Plan (USFS, 2012). Without funding for LiDAR The Project began working with collaborators to collect topographic data using a Total Station. Unfortunately, part way through collection an error in the data was discovered that necessitated equipment maintenance. Upon return of the equipment The Project's staff and that of its cooperators were constrained by available time and funding could not be identified to collect data through another potential collaborator collecting LiDAR data for separate effort.

To facilitate design efforts and improve design accuracy LiDAR data collection of the site has been included as part of the 2016 Granite Creek design effort (WE I). A separate design contract will be sought in 2016 and a qualified contractor selected through a competitive process. Design work will occur during 2016/17 with implementation beginning in 2018 or 2019 pending the arrival of permits and funding.

WE Q – Submit Annual Report
This Report fulfills this WE.

WE R – Submit Status Reports
Submitted on time as required.

WE S – Produce Project Deliverables
All milestones for this WE were met. In completion of this WE The Project's staff attended the 2016 River restoration Northwest, Symposium. Photo points were collected at designated locations and temperature data was collected and tabulated. The Project has entered and temperature data into the CTUIR database and has begun, to the extent possible, entered information into the CTUIR Project Manager Database. This will continue until all past and current data and information is contained within the databases.

The Project spent a considerable amount of time working through the 2013 ISRP Geographic Review process. A second and third response to qualifications was developed by either The Project's staff or in cooperation with CTUIR and BPA staff.

WE U – Mud Creek Water Development
With cooperators agreeing on a new well location and the arrival of permits a new stock water well was drilled in August of 2015 to improve upland forage use after the construction of a riparian fence restricted cattle access to Mud Creek. Drilling occurred

to a depth of 100 meters below ground surface resulting in a static head of 68 meters below ground surface at a cost of $20,447. The associated solar pump and panels were installed by another contractor at a cost of $8,445. The original design of a single trough backed up by a cistern was changed to a two trough system with an extra solar panel for slightly less cost than the original estimate.

DISCUSSION

Responses to ISRP Qualifications resulting from the 2013 Geographic Review processes are contained in Appendix 2. RM&E data and results can be found in annual reports developed by the CTUIR's Bio-Monitoring Project (BPA Project # 2009-014-00).

Monitoring data collected by the CTUIR occurs on two levels including geomorphic and biological data collected by the CTUIR's Bio-Monitoring Project and photo points and stream temperatures by The Project. Data collected and analyzed by the Bio-Monitoring Project for the Granite Creek (Site GCT00001) and Desolation Creek (Site DesolationCreek_Control2/_Treatment2) sites Granite Creek Conservation Agreement Site (Site GCT00001 (CHaMPS, 2015)) began in 2013 and 2015 respectively. Thus far aquatic species data has been analyzed and included in their 2015 annual progress report (CTUIR, 2016). The module for analyzing habitat data however, has not been fully implemented. The Project can access this data through the CHaMPS website (https://www.champmonitoring.org/) although its management and analysis are beyond The Project's purview. Additional sites will be incorporated based upon the Bio-Monitoring Project's protocols as the capacity of the Bio-Monitoring Project increases.

Monitoring data collection and analysis by The Project consists of photo point data is collected annually in early fall and water temperatures collected from early June through late September. Both data are collected where conservation agreements exist and other select locations. The tactic of using resources associated with the Bio-Monitoring Project and a reduced data collection effort by The Project was introduced and accepted through the 2013 ISRP's Geographic Review Process.

Water temperatures are collected using Hobo Pendant data loggers deployed in early June, recovered in late September, and recording at one hour intervals during this period. Logger locations are specific to an individual site and do not change over time at the upstream and downstream ends of a site. Beginning in 2014 data loggers recording air temperatures were also placed to provide additional data and analysis. The use of non-parametric analysis such as that noted in Arismendi et al (2013) would provide for a more robust analysis then the seven day moving average used by ODEQ for the North Fork John Day River Total Maximum Daily Load (ODEQ, 2010), however we do not have that capacity at this time. As such, Analysis of Variance has been used to develop an understanding of the relationship of water temperatures at the upper and lower extents of each site. Although this techniques speaks to cooling or warming trends it inherently masks qualities of the temperature signal such as shorter term variation and lagging, buffering, and a combination of effects described by Arragoni et al (2008). In an effort to speak to the temperature signal's influence upon species of interest descriptions of data will also refer to the seven day maximum moving window average and a lethal 25^{o} Celsius threshold for Chinook salmon (McCullough, 1999) and a 19.1^{o} Celsius threshold where feeding stops for Chinook salmon (McCullough, 1999). A 10 – 15.6^{o} Celsius range preferred by juvenile Chinook salmon (McCullough, 1999) will also be used for comparison. Survival and growth rates as they are tied to water temperature acclimation periods will not be referred to here. Although Snipe, Owens, Kelsay, and Deer Creeks do not contain spring Chinook salmon returning tributary water temperatures to those preferred by spring Chinook salmon will inherently address the needs of summer steelhead in tributaries and spring Chinook salmon in mainstem habitats. Steelhead trout are more likely to inhabit a site which is warmer than that occupied by Chinook salmon (Bjornn and Reiser, 1991).

Lower Camas Creek

The Lower Camas Creek site has thus far received 1,100 feet of levee removal, placement of five J-hooks, one mile of riparian fence construction, five upland stock water developments, and native plantings under the Farm Services Agency's CREP Program (5000 plantings). A second planting by the CTUIR (200 native species) occurred in 2008. These plantings had not been successful due to wildlife predation, high water, and long duration inundation and directly resulted in modified methods used in WE M. Additionally, sediment deposition and channel migration has reduced the effectiveness of J-hooks and plantings (Figure 9). The Camas Creek coordination effort may play a role in understanding the role of sediment upon this site and restoration measures addressing sedim9ent mobilization/deposition, channel form and complexity, and riparian vegetation/management would indirectly improves this sites ability to provide habitat for aquatic species. The Project's ability to implement additional measures is hampered by a CREP contract the landowner has on approximately 400 floodplain acres.

At this point in time Lower Camas Creek does not contain a significant amount of high quality habitat as it is lacking shade, in-stream habitat complexity, and continues to be plagued by sediment and water quality issues. The effects of J-hooks placed in 2006 have been minimized by the shifting channel and sediment mobilized from above and deposited within the project area. Over the past ten years the upstream two J-hooks have been buried under deposited sediments with the next one downstream only marginally active during high flows and isolated from the current active channel by an aggrading gravel bar. The lower two structures visible in Figure 8, moving downstream, are now 3.9 and 3.0 meters off the stream bank respectively. The Camas Creek Assessment (WE J) identified the source of sediments as the alluvial fan upon which Ukiah, Oregon rests. Treatments to adjust geomorphic and hydrologic/hydraulic processes and forms within the broader valley about Ukiah and in the canyon upstream would likely go a long way in reducing sediment entrainment and deposition; however, these treatments can only be undertaken with the assistance of the local community. The Camas Creek Assessment identified 'typical' treatments which can be implemented once fully designed and permitted should an opportunity arise. Save the 2015 plantings, we are unable to supplement previous efforts on the project site due to restrictions imposed by the landowner's CREP contract.

Figure 8. Photo point collected for the Lower Camas Creek site (right) 2007 a year after levee removal looking downstream with the lowest two J-hook structures visible. During 2015 (left) looking downstream from the middle of the reach where the lowest two J-hook structures is visible.

Stream temperature data collection during 2015 was compromised by a corrupted data logger at the sites upper end resulting in all data for that location being lost. The lower data logger and another collecting air temperature performed as expected and indicate that water temperatures track diurnal atmospheric fluctuations and those of longer (~one week) atmospheric fluctuations (Figure 9). This is not unexpected as a general lack of effective riparian vegetation and channel/habitat form (plainbed riffle with little structure or pool habitat) upstream of the site within Camas Creek and tributaries such as Cable Creek provide ample opportunity for thermal inputs to Camas Creek. So much so that the seven day maximum average stream temperatures did not consistently drop below the 19.1° Celsius threshold until 28 August.

Water temperatures fell within the preferred 10 – 15.6° Celsius range for Chinook salmon 40.6% of the entire sampling period and did not exceed the 19.1° Celsius threshold another 30.5 % of the sample (Table 6). While 25.6% of the samples exceeded the threshold where feeding stops water temperatures receded into the preferred 10 – 15.6° Celsius range at night save for brief periods between 26 June to 1 July and 10 July to 13 July. This type of diurnal temperature fluctuation may improves species ability to survive short duration high temperatures (Bjornn and Reiser, 1991) thereby reducing the potential for fish kills. Perhaps the greatest unknown at this site is the role of groundwater entering the stream channel which can be felt by placing ones hand on the substrate. Neither fish use nor the extent of groundwater inflow to the stream channel has been quantified although the exercise would provide useful information regarding aquatic species ability to withstand higher temperatures in Camas Creek through behavioural thermoregulation.

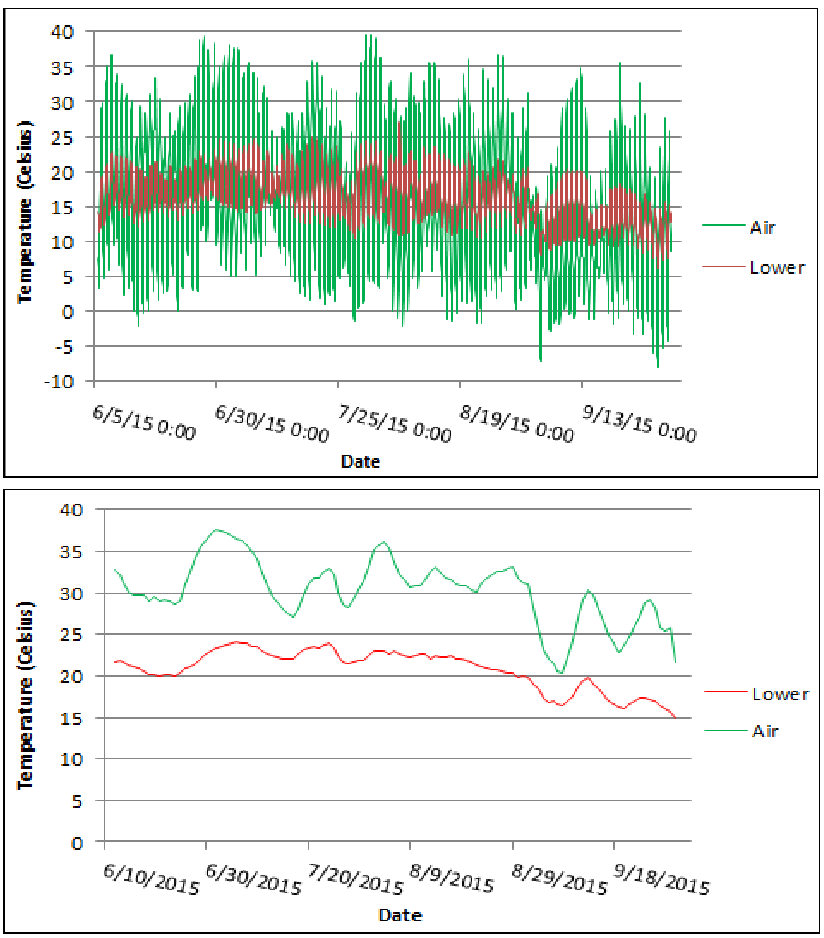

Figure 9. Data for all data collected at the Lower Camas Creek site between 6 June 2015 and 30 September 2015 (top) and the seven day moving window daily maximum temperatures for the same period (bottom).

Temperature Range (Degrees Celsius)	Count	%
< 10	92	3.3
10 – 15.6	1,131	40.6
15.7 - 19	849	30.5
19.1 – 24.9	712	25.6
> 25	1	0.0
SUM	2,785	100

Table 6. Data point counts and percentages within specific ranges reflecting preferrred growth temperatures (10-15.6^{o} Celsius), threshold where feeding stops (19.1^{o} Celsius), and lethal threshold (25^{o} Celsius) for Chinook salmon.

Owens Creek

Riparian fencing and off-stock water developments were completed to reduce the influence of grazing cattle upon Owens Creek. Due to the sites location immediately above the SR244 bridge, low valley and channel gradient (<0.5%), short stream length (0.5 Km), and limited baseflow additional work to improve in-stream complexity hasn't occurred. The stream channel through this reach is wider than one would expect in an undisturbed or minimally disturbed setting due to the past influence of cattle grazing practices.

The temperature signal for Owens Creek (Figure 10) displays an interesting characteristic of having water temperatures generally in excess of 20^{o} Celsius prior to 16 July save a brief period between 13 and 25 June. These temperatures do not appear to be tied to precipitation events when compared to a stream gauge on Camas Creek (Gauge # 14042500) and are well above what one may expect for a strong ground water influence. The potential for increasing ground water influence upon this site is considerable given its location in the lower Owens Creek basin and spatial proximity to groundwater upwelling within and adjacent to lower Camas Creek.

Water temperatures appear to be strongly influenced by atmospheric conditions throughout the sampling period. Additionally, thermal inputs resulting from exposure throughout the day due to a lack of woody riparian vegetation at this location (Figure 11) and throughout much of the Owens Creek basin contribute to seven day average maximum temperatures which do not fall below the 19.1^{o} Celsius threshold before 29 July. Nor do not fall into the 10-15.6^{o} Celsius range until 8 September. Diurnal fluctuations allow minimum water temperatures to consistently reach the 10-15.6^{o} Celsius range on 17 August. Although sampling to detect fish presence has not been completed for this site we don't expect considerable use of this habitat unless there are cool water inputs fish can key in on during elevated water temperatures as Table 7 indicates water temperatures were above the 19.1^{o} Celsius threshold during 38% of the sampling period.

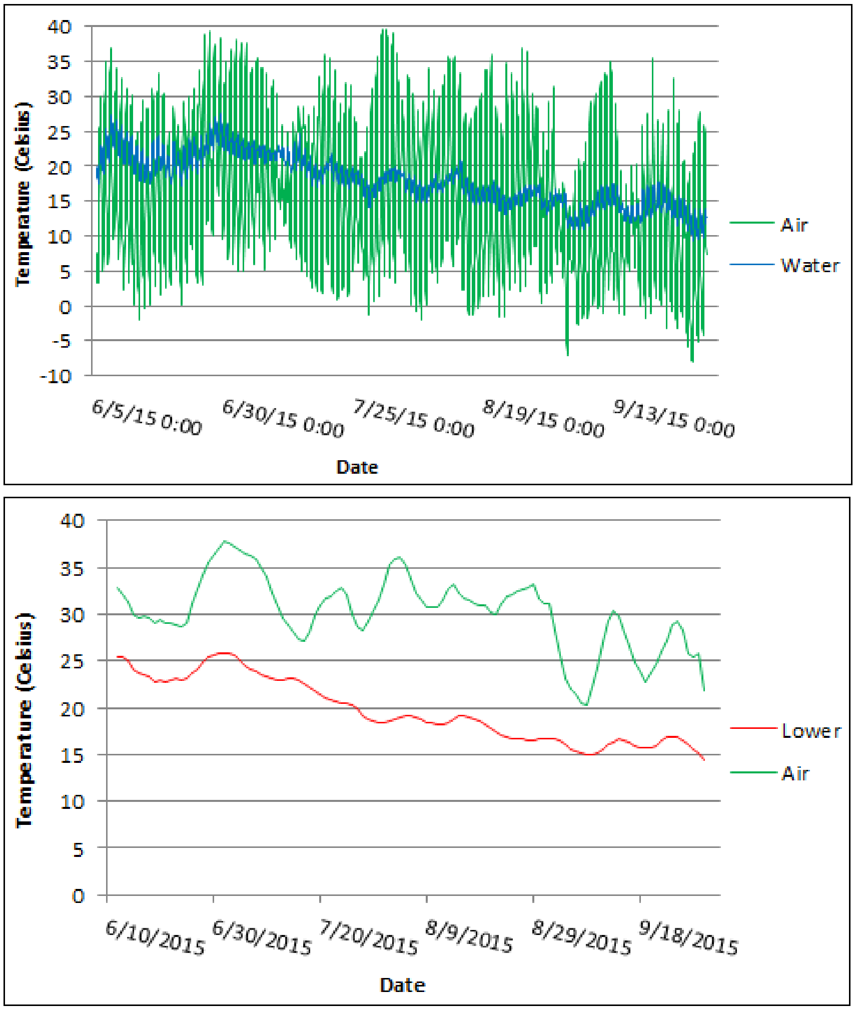

Figure 10. Data for all data collected at the Owens Creek site between 6 June 2015 and 30 September 2015 (top) and the seven day moving window daily maximum water temperatures for the same period (bottom).

Figure 11. Photo points collected in 2004 (left) and 2015 (right) at the Owens Creek site.

Temperature Range (Degrees Celsius)	Count	%
< 10	13	0.5
10 – 15.6	817	29.3
15.7 - 19	896	32.2
19.1 – 24.9	1,005	36.1
> 25	54	1.9
SUM	2,785	100

Table 7. Data point counts and percentages within specific ranges reflecting preferrred growth temperatures (10-15.6^{o} Celsius), threshold where feeding stops (19.1^{o} Celsius), and lethal threshold (25^{o} Celsius) for Chinook salmon.

The conservation agreement tied to the Owens Creek site will lapse in early 2016 and likely won't be renewed as the new property owner hasn't shown any interest in extending the existing agreement. The treatments and structure maintenance implemented over the last 14+ years were successful in that cattle were removed from the stream channel and immediate floodplain save when flash grazing occurred which allowed localized instabilities to stabilize through natural processes. The new landowner has indicated cattle exclusion will continue except for measured flash grazing. As with Snipe Creek, Owens Creek falls victim to the influence of larger scale processes in that upstream of the site large areas of both creeks are incised and simplified and native hardwoods are often limited or non-existent on the in riparian and floodplain areas; including expansive meadows. The net effect of which is significantly reduced ground water storage, immediate response to storm events and spring runoff, and reduced opportunities for salmonid rearing and spawning. Although current design and implementation efforts in the Desolation and Granite Creek focus areas will preclude our getting involved in addressing these larger scale issues in the immediate future outreach and educational opportunities will not be abandoned with the intent to undertake future actions to address these issues as opportunities arise.

Snipe Creek

The Snipe Creek site consists of two riparian enclosures one of which located in a narrow well vegetated canyon (Figure 12) containing a B4 stream channel (Rosgen, 1996 classification). The lower site resides approximately 0.5 Km downstream (Figure 12) in a broad alluvial valley which historically would have contained an E5 stream channel (Rosgen, 1996 classification). Implemented actions include upland spring and off-channel well developments, riparian fencing, and native plantings. Implemented measures have been successful in that cattle are excluded from Snipe Creek and its immediate floodplain allowing the site to stabilize although stream channel incision remains a significant issue.

The Snipe Creek valley's gradient is being controlled by a fault (RMS-1, 2001) approximately 4.0 Kilometers downstream of the lower project site which created the broad flat to gently sloping valley above. Historically, this would have been a productive area for species such as Cous (Lomatium cous), Camas (Camassia genus), aspen (Populus tremuloides), and cottonwood (Populus trichocarpa) and populated by wildlife such as beaver. Unfortunately grazing management simplified physical and biological processes and habitats. Measurements tell the inset channel at the downstream extent of the project site is situated approximately five feet below the adjacent floodplain with a width of eight feet. Aerial imagery (Figure 13) suggests Snipe Creek's inset floodplain is approximately 75' – 100' wide while tributary widths are 25' – 30' with unknown depths approximately 3.2 Kilometers below the lower project site. Although we don't have access to downstream properties these approximate channel dimension and loss of instream flows within the project site during baseflow periods strongly suggest the ground water aquifer lies deeper than it would have historically. Flows remerge from the channel substrate after fall rains begin suggesting Snipe Creek's flows are strongly tied to available precipitation as it may remain a gaining stream for several years before displaying loosing stream characteristics.

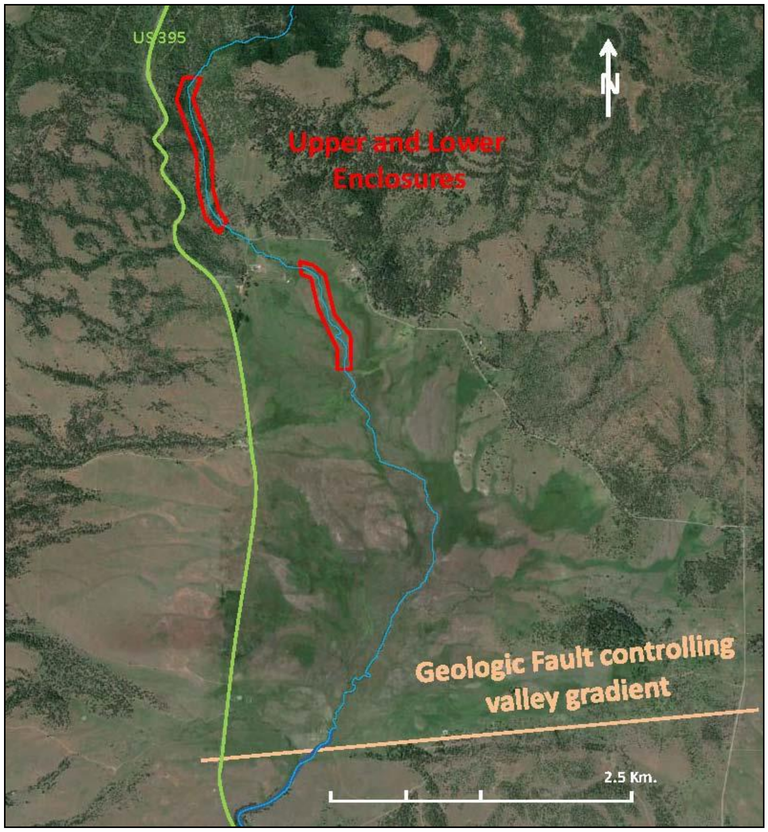

Figure 12. Aerial photograph showing the two Snipe Creek enclosures and the extent of channel incision below the site to a geologic knickpoint controlling valley gradient. Streamflows are from the top of the photograph to the bottom. Photo taken from Google Maps.

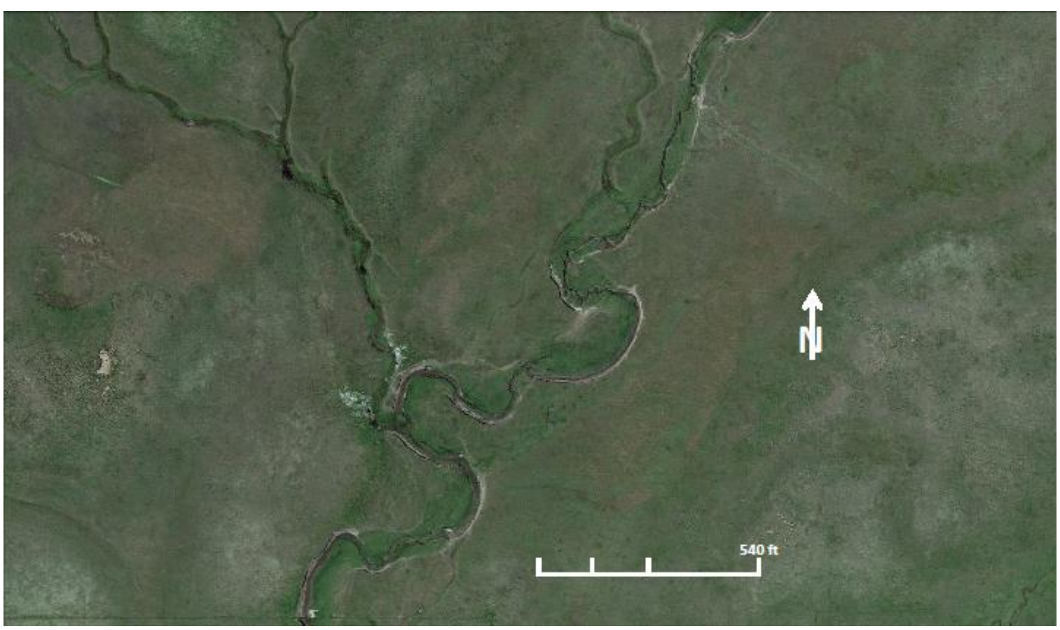

Figure 13. Aerial photograph of Snipe Creek (large channel oriented northeast to south west) approximately 3.2 Kilometers downstream of the project site. Widths of Snipe Creek's inset channel are generally 75' – 100' in this location. The inset floodplain widths of Snipe Creek's tributaries in this location are generally in the range of 25' – 30'.

As with the nearby Lower Camas Creek and Owens Creek sites Snipe Creek's temperature signal shows diurnal and weekly forcing upon stream temperatures (Figure 14). Sample variance for water temperature loggers between 6 June and 26 June, before the lower logger shows signs of disruption, indicates temperature fluctuation are greater in the lower enclosure (s^2=14.47) than the upper logger (s^2=3.29). This is not surprising as the upper enclosure contains a robust riparian vegetation community shading Snipe Creek. Within the lower enclosure riparian vegetation consists of scattered mountain alder (*Alnus incana)* and grasses along the creek and ponderosa pine (*Pinus ponderosa*) on the floodplain.

Maximum temperatures at the lower site were greater than those of the upper site throughout the temperature signal (Figure 14). Beginning around 8 July minimum temperatures at the lower data logger began dropping below those of the upper logger although they never match atmospheric temperatures. While we suspect this indicates that Snipe Creek's flows were beginning to disappear as the ground waterer aquifer's elevation decreased below that of the channel substrate we cannot explain why minimum and maximum water temperature logger did not match those of air temperature. It may be due to the location of loggers relative to one another and pockets of cooler/warmer air. In any case all streamflow's entered the lower sites substrate in Snipe Creek during the summer of 2015 and did not reemerge until fall storms brought precipitation.

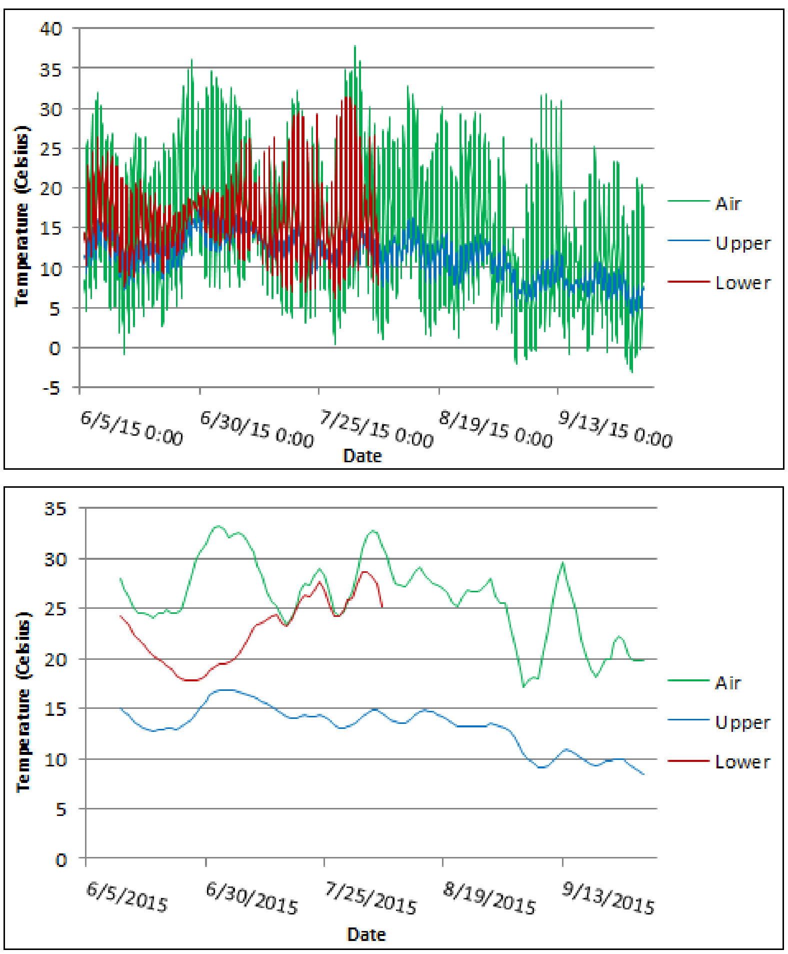

Figure 14. Data for all data collected at the Snipe Creek site between 6 June 2015 and 30 September 2015 (top) and the seven day moving window daily maximum temperatures for the same period (bottom).

Within the upper site seven day moving average water temperatures rose above the 10 – 15.6^{o} Celsius preferred window for Chinook salmon between 26 June and 9 July although they never breeched the 19.1^o Celsius threshold. Not unexpectedly, the distribution of data points for both the upper and lower sites (Table 8) shows are markedly different with 89.3 % of the samples existing within the 10^o – 24.9^o at the lower site and 100% of the samples in the upper site below the 19.1^o threshold. Given these temperature distributions, dry channel during baseflow, and channel form we expect aquatic species inhabitat areas above the lower site untill the onset of winter where they may move downstream to larger water.

Temperature Range Upper (Degrees Celsius)	**Count**	**%**	**Temperature Range Lower (Degrees Celsius)**	**Count**	**%**
< 10	917	32.9	< 10	99	6.7
10 – 15.6	1,758	63.1	10 – 15.6	626	42.3
15.7 - 19	110	3.9	15.7 - 19	440	30.0
19.1 – 24.9	0	0.0	19.1 – 24.9	249	17.0
> 25	0	0.0	> 25	53	3.6
SUM	2,785	100	SUM	1467	100

Table 8. Data point counts and percentages within specific ranges reflecting preferrred growth temperatures (10-15.6^o Celsius), threshold where feeding stops (19.1^o Celsius), and lethal threshold (25^o Celsius) for Chinook salmon.

An Analysis of Variance was completed to compare average water temperatures on a weekly basis between the upper and lower sites. The results indicated there is a significant difference in temperatures between the upper and lower sites ($p=0.05$, $F< 0.0001$, F-ratio 53.2635).

Planting completed during the conservation agreements term were largely unsuccessful in response to the inset stream channel and in turn loss of saturated soils throughout much of the year even with watering. With the soil profiles being dry throughout much of the year native hardwoods are unable to recolonize the floodplain save where springs exist. Within the stream channel water velocities during spring runoff and clay layers appear to inhibit the growth of hardwoods. Thus far, native and planted Ponderosa Pine (Figure 15) are recolonizing the surrounding floodplain within the riparian enclosure. Additionally in the lower enclosures upper end where stream channel incision was minimal and plantings were successful transient beaver contributed to vegetation mortality.

Figure 15. Photo points collected for the Snipe Creek site during 2002 (left) and 2015 (right) from the lower end of the lower enclosure looking upstream.

The conservation agreements tied to the Upper and Lower Snipe Creek sites will lapse in early 2016 and may not be renewed in large part because of downstream stream channel and floodplain conditions. The treatments and structure maintenance implemented during the last 14+ years have been successful in that removing cattle from the stream channel and immediate floodplain allowed localized instabilities to stabilize through natural processes to the extent they could. However, without a measured and stepwise effort to address the effects of historic land management practices throughout the broader Snipe Creek basin additional efforts on the property would only address the localized symptoms of the larger problem. The landowner has entered into another NRCS CREP contract and as such, the cattle will be excluded from the project area for the next 15 years. Although current design and implementation efforts in the Desolation and Granite Creek focus areas currently preclude our getting involved in addressing Snipe Creek's larger scale issues at this time outreach and educational opportunities with landowners will not be abandoned.

<u>Deer Creek</u>

Prior to the CTUIR installing riparian fencing and stock water developments to prohibit cattle access to Deer Creek and better utilize upland forage the property was used as winter pasture for cattle. As such, floodplain and riparian conditions were severely degraded. Over time riparian vegetation has recovered (Figure 16) although deer and elk are still influencing the site to an unknown extent. Records of pre-implementation water temperatures or riparian vegetation aren't available and the earliest data collected in 2004. Water temperatures warmed at an average of 1^{o} Celsius throughout the site although the maximum daily temperatures show a warming trend through the site averaging 1.8^{o} Celsius (Figure 16). As with all sites where water temperatures were collected they tracked changes in air temperatures (Figure 16).

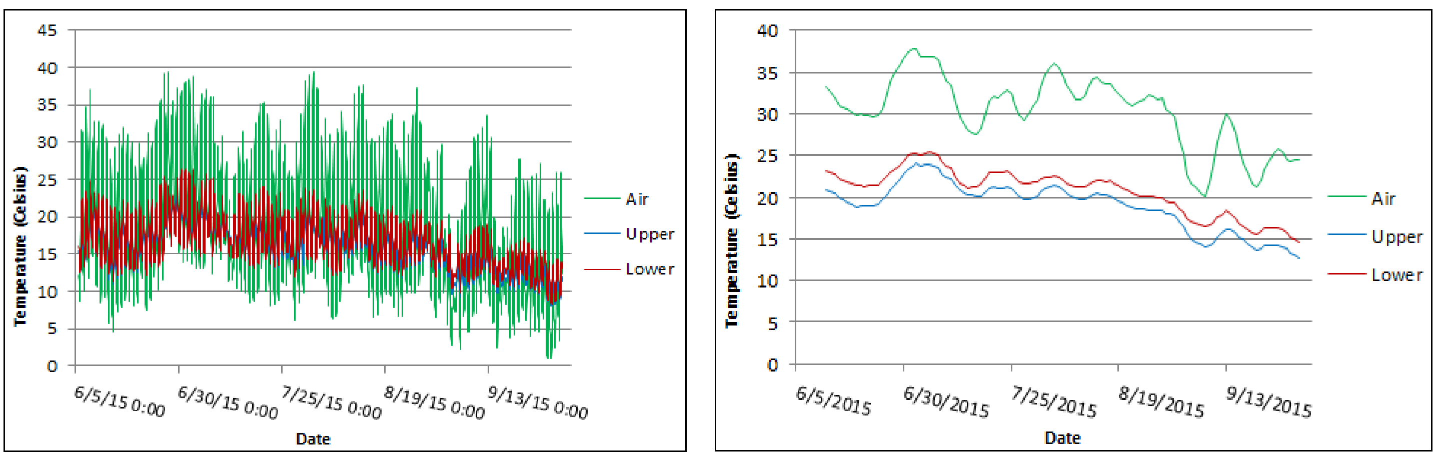

Figure 16. Data for all data collected at the Deer Creek site between 6 June 2015 and 30 September 2015 (left) and the seven day moving window daily maximum temperatures for the same period (right).

Maximum averaged daily water temperatures (Figure 16) did not exceed the lethal 25^{o} Celsius threshold for spring Chinook salmon at the sites upper end and only exceeded this threshold from 2-7 July at the lower location. Maximum averaged daily water temperatures were below 19.1^{o} Celsius threshold early June and between 18 – 23 June and after 21 August at the upper logger location and did not fall below this threshold until 2 September at the lower logger. Fortunately daily minimum temperatures throughout the temperature signal remained below, within, or only slightly above the 10 – 15.6^{o} Celsius range throughout the sampling period. While the greatest percentage, by category, of data points were within the 10 – 15.6^{o} Celsius range for both the upper and lower loggers there is a greater distribution of data points above the 19.1^{o} Celsius threshold at the lower location (Table 9). However, an Analysis of Variance test comparing average water temperatures on a weekly basis between the upper and lower sites did not suggest there was a significant difference between the two sites ($p=0.05$, $F< 0.0091$, F-ratio 6.8088).

Temperature Range Upper (Degrees Celsius)	Count	%	Temperature Range Lower (Degrees Celsius)	Count	%
< 10	60	2.2	< 10	30	1.1
10 – 15.6	1299	46.6	10 – 15.6	1114	40.0
15.7 - 19	987	35.4	15.7 - 19	927	33.3
19.1 – 24.9	439	15.8	19.1 – 24.9	688	24.7
> 25	0	0.0	> 25	26	0.9
SUM	2,785	100	SUM	2785	100

Table 9. Data point counts and percentages within specific ranges reflecting preferrred growth temperatures (10-15.6^o Celsius), threshold where feeding stops (19.1^o Celsius), and lethal threshold (25^o Celsius) for Chinook salmon.

A photo point collected in 2015 (Figure17) suggests that floodplain vegetation has improved since the first was collected in 2004. Raw streambanks visible in 2004 are now vegetated, cattails (*Typha* genus) have established themselves above a now unused beaver dam, and willows (*Salix* genus) are populating most of the floodplain. Beaver are active throughout the project site and it appears they are able to exist without excessive loss of native hardwoods. Although records of pre-implementation aren't available salmonids are using the site to an unknown extent.

Figure 17. Photo points for the Deer Creek site collected in 2010 (left) and 2015 (right).

<u>Kelsay Creek</u>

A 2008 and 2009 effort constructed riparian fencing to prohibit cattle access to stringer meadows along Kelsay Creek and protect several nearby springs and seeps up to 30 meters from the creek. Prior to the fence construction cattle would loiter in stringer meadows consuming or knocking grasses and sedges to the ground, cutting streambanks, and disturbing stream habitat for Threatened Mid-Columbia steelhead trout which have been known to spawn nearby. Building upon a previous effort downstream by the UNF the UNF and CTUIR cooperated to construct 4.4 Kilometers of 'New Zealand' fence along 1.6 Kilometers of Kelsay Creek. Monitoring for this effort included photo points and water temperature loggers at two locations. Fence maintenance has been completed by the UNF's grazing permittee with oversight by the UNF's Range Conservationist.

Photo point data (Figure 18) suggests that cattle exclusion has allowed native vegetation to recover and streambanks are not being disturbed to the level they once were. Elk and deer still have access to the site and likely retard hardwood vegetative recovery though browse to an unknown extent. Without active management it is possible that softwoods may encroach upon meadows within the enclosure although data to support or refute this isn't available. A useful exercise would be to place wood in

Kelsay Creek and encourage woody debris retention and complexity. This may occur as part of priority meadow enhancements identified by the UNF which will be incorporated into the Desolation Creek Action plan currently being development (WE L).

Figure 18. Photo points from 2008 (left) and 2015 (right) collected at the Kelsay Creek site.

Kelsay Creek's temperature signal suggests that water temperatures are cooling through the site (Figure 19) as the upper data logger shows diurnal fluctuations being greater than those of the lower data logger. This is not surprising given Kelsay Creek's upstream riparian and floodplain condition and the presence of grazing cattle. A data logger placed mid-way through the site (Figure 20) suggests cooling may, although unconfirmed, be a function of nearby upland and floodplain spring/seep contributions within the enclosure (Figure 21) where the valley widens. Additionally, cool inputs to Kelsay Creek may result from valley constriction forcing groundwater into the stream channel beginning approximately 50 meters upstream of the lower logger. In either case, cooling is most prevalent from mid-July through the end of the dataset save where all temperatures converge which we expect reflects cool/cold weather periods. An Analysis of Variance test comparing average water temperatures on a weekly basis between the upper and lower sites does not suggest there was a significant difference between streamflows entering and leaving the site ($p=0.05$, $F< 0.6419$, F-ratio 0.2163). This appears to be a case where subtleties of the signal are lost in the analysis. Data collection and analysis will need to improve moving forward to speak to such results.

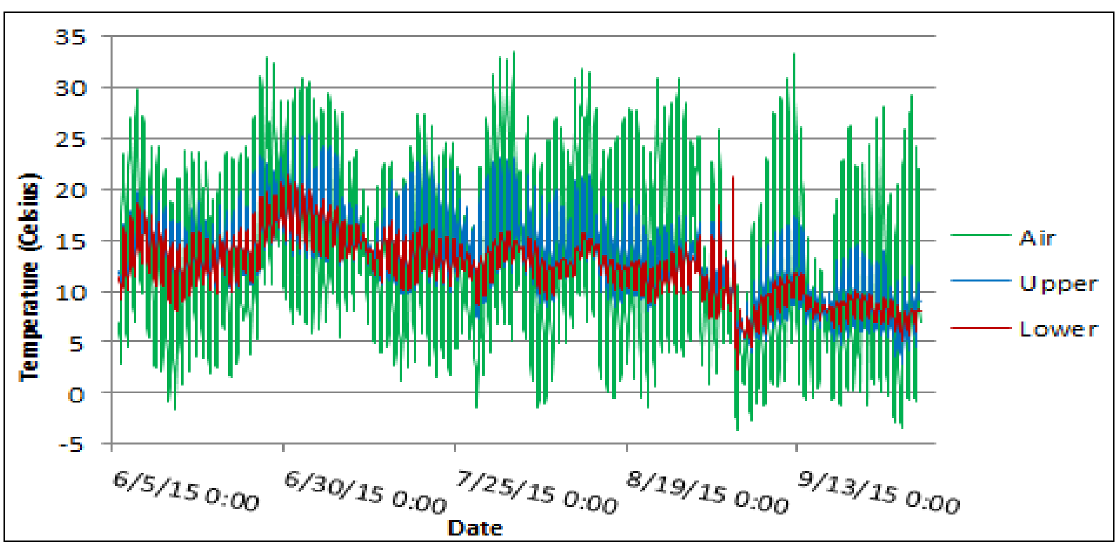

Figure 19. Data for all data collected at the Kelsay Creek site between 6 June 2015 and 30 September 2015.

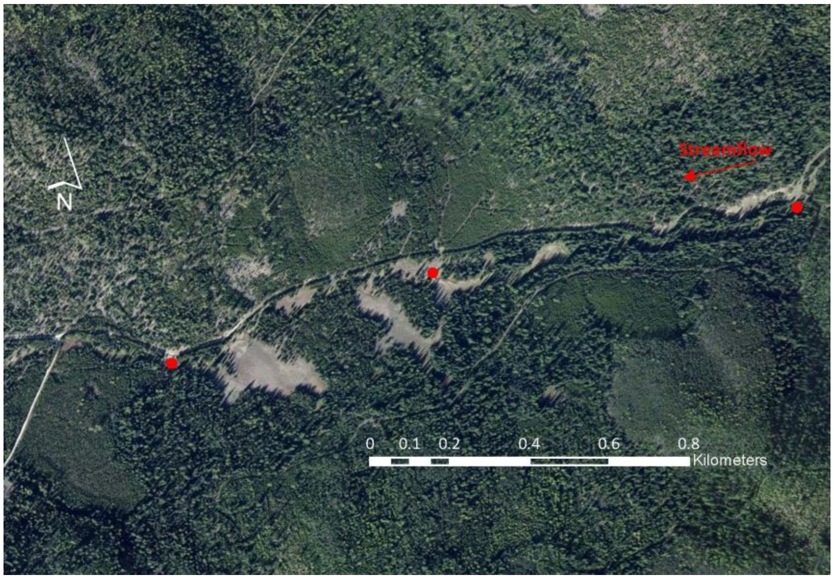

Figure 20. Imagery of the Kelsay Creek site showing data logger locations. Stream flows move right to left and springs/seeps are located are located within the meadows beginning just upstream of the middle data logger.

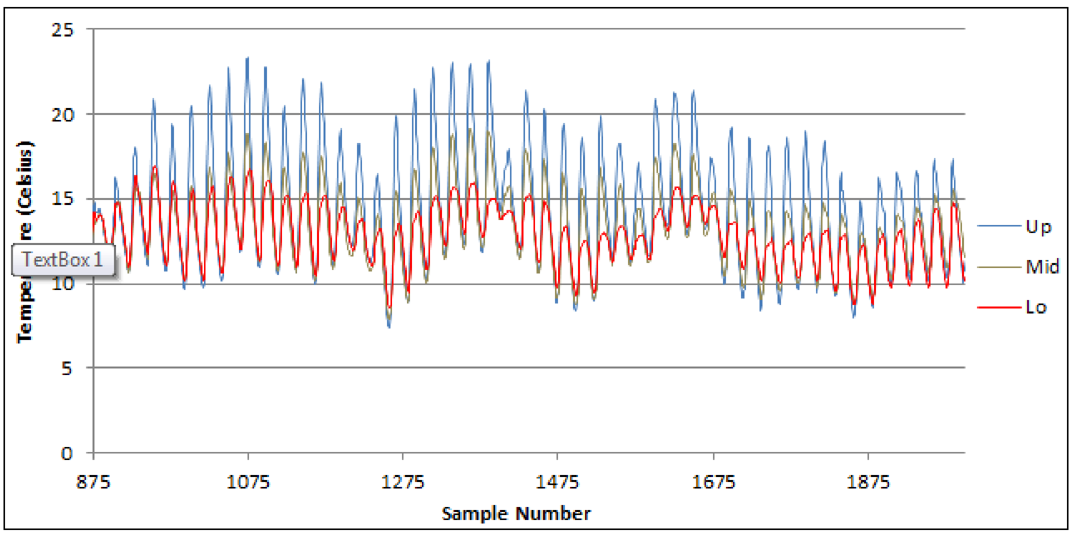

Figure 21. Water temperatures recorded for the Kelsay Creek site by loggers located at the sites upper and lower extents and midway point between 12 July and 28 July 2015.

Seven day moving average temperatures for the upper Kelsay Creek site are above the 19.1^{o} Celsius threshold for two periods (26 June – 12 July and 19 July – 18 August) as opposed to the lower end of the site which only exceeded the 19.1^{o} Celsius threshold between 30 June and 7 July (Figure 22). Regardless of their differences minimum water temperatures for both the upper and lower data logger fall into the 10 – 15.6^{o} Celsius range throughout the dataset save for the 29th of June when minimum temperatures rose to 16.05^{o} Celsius. As such behavioral thermoregulation is likely to occur by aquatic species within the site as known pools and larger water in Desolation Creek are approximately 5.5 Kilometers away. Categorized data and their percentages (Table 10) reflect the shift in temperatures between upper and lower loggers with 188 more data points above the 19.1^{o} Celsius threshold at the upstream end of the site when compared to the lower logger location.

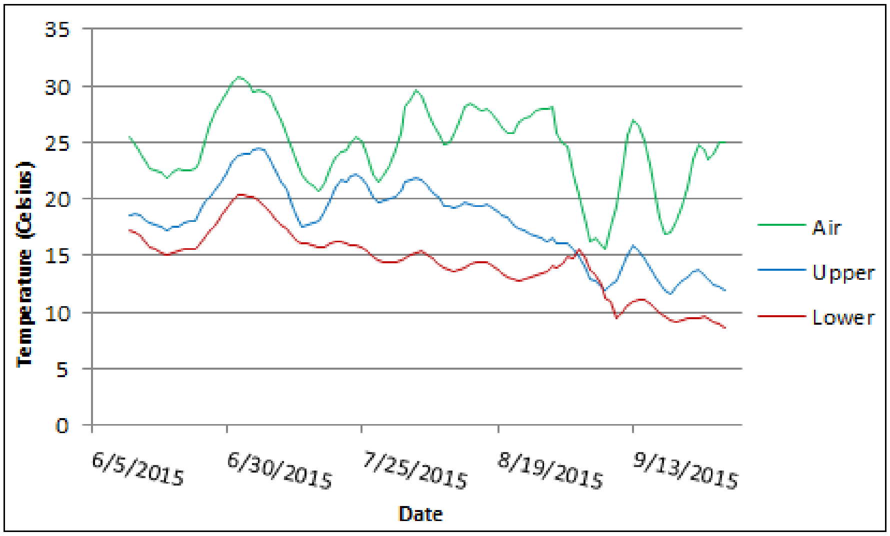

Figure 22. Seven day moving window daily maximum temperatures between 6 June 2015 and 30 September 2015.

Temperature Range Upper (Degrees Celsius)	**Count**	**%**	**Temperature Range Lower (Degrees Celsius)**	**Count**	**%**
< 10	574	20.6	< 10	691	24.8
10 – 15.6	1417	50.9	10 – 15.6	1713	61.5
15.7 - 19	555	19.9	15.7 - 19	330	11.8
19.1 – 24.9	235	8.4	19.1 – 24.9	51	1.8
> 25	4	0.1	> 25	0	0
SUM	2,785	100	SUM	2785	100

Table 10. Data point counts and percentages within specific ranges reflecting preferrred growth temperatures (10-15.6° Celsius), threshold where feeding stops (19.1° Celsius), and lethal threshold (25° Celsius) for Chinook salmon.

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APPENDIX I

Limiting Factors[1/]	Code	Objectives	Code
Habitat Diversity	HD	Preserve and maintain existing habitat	1
Key Habitat	KH	Improve riparian and floodplain complexity	2
Harassment	HA	Improve sediment routing and sorting	3
Sediment Load	SL	Improve stream channel complexity and morphology	4
Water Quality (non-sediment)	W	Improve or preserve water quality	5
Obstruction	O	Improve floodplain connectivity	6
		Improve passage to existing high quality habitats	7

[1/] Limiting factors for the North fork John Day subbasin are from NPCC (2005), pages 24--243.

Site	Limit. Fact.	Obj.	Year Implem.	Years Treat.	Stream Km. Affected	Acres Leased / Affected	Cntl. Site Id'd.	Metrics	Phys. Monitoring	Bio. Monitoring
Owens Creek Conservation Agreement 2001-16	HD, KH, HA, SL	1, 2, 3,	2001	15	0.5	5.2	no	- 481 meters of 4-strand barbed wire riparian fence constructed. - One stock well developed and with associated troughs. - Structure maintenance and noxious weed treatments for the life of the agreement.	2 cross sections 1 photo point	none
Upper Snipe Creek Conservation Agreement 2001-16	HD, KH, HA, SL, W	1, 2, 3, 4, 5	2001	15	1.3	34	no	- 2,218 meters of 4-strand barbed wire riparian fence constructed. - Two spring developments constructed. - Structure maintenance for the life of the agreement.	2 cross sections 2 longitudinal profiles 1 photo point	2 cross sections
Lower Snipe Creek Conservation Agreement 2001-16	HD, KH, HA, SL, W	1, 2, 3, 4,	2001	15	1.3	54	no	- 4,237 meters 4-strand barbed wire riparian fence constructed. - Three stock wells developed. - 7,000 native hardwoods planted. - Structure maintenance and noxious weed treatments for the life of the agreement.	2 cross sections 2 longitudinal profiles 2 thermistors 1 photo point	2 cross sections - vegetative survival count
Deer Creek Conservation Agreement 2003-18	HD, KH, HA, SL, W	1, 2, 3, 4, 5	2003	13	3.8	219	no	- 2,736 meters of 4-strand barbed wire fence constructed and 2,889 meters of fence refurbished. - 11 spring developments constructed. - Approximately 7,500 native hardwoods planted. - Structure maintenance and noxious weed treatments for the life of the agreement.	2 cross sections 2 longitudinal profiles 2 thermistors 1 photo point	2 cross sections
Lower Camas Creek Conservation Agreement 2006-2021	HD, KH, HA, SL, W	1, 2, 3, 4, 5, 6	2006	10	1.6	40	no	- 335 meters of levee removed - 1.6 Km of riparian fence constructed - Three stock water ponds constructed - One stock water pond improved - One spring developments created - Approximately 5,500 native hardwoods planted - Structure maintenance and noxious weed control treatments for the life of the agreement	3 cross sections 1 longitudinal profile 2 thermistors 3 pebble count sites 1 photo point	Three cross sections
Upper Camas Creek Conservation Agreement	HD, KH, HA, SL, W	1, 3, 4, 5	2009	3	1.3	256	no	- 2,450 meters of 4-strand barbed wire riparian fence and 3 water gaps constructed. - 3,090 meters of upland 4-strand barbed wire fence constructed. - One upland well developed. - Structure maintenance and noxious weed treatments for the life of the agreement.	12 cross-sections 1 longitudinal profile 2 thermistors	3 cross sections

Site	Limit. Fact.	Obj.	Year Implem.	Years Treat.	Stream Km. Affected	Acres Leased / Affected	Cntl. Site Id'd.	Metrics	Phys. Monitoring	Bio. Monitoring
NFJD Conservation Agreement	HD, KH, HA, SL, W	1, 3, 4, 5	2005	10	1.6	6.0	no	- 1.6 Kilometers of four strand barbed wire fence constructed to remove cattle from riparian areas. - One well installed to replace watering them the NFJD. - 250 native vegetative plings	Photo points	none
NFJD Wilderness Survey 2010	HD, KH	1	2010	1	0	0	no	- Surveyed of noxious weeds along 217 Kilometers of trail within the NFJD Wilderness area.	none	none
Battle Creek Culvert Replacement	O, SL	3, 7	2010	2	13.7	0	no	- Removed complete barrier to high quality summer steelhead trout habitat.	UNF road inspections	Spawner surveys for 2 years following replacement by the NFJD Project
Granite Creek Culvert Replacement	O	3, 7	2010	1	4.3	0	no	- Removed partial barrier to high quality summer steelhead trout habitat.	UNF road inspections	Spawner surveys for 2 years following replacement by the NFJD Project
Bruin Creek Culvert Replacement	O, SL	3,7	2011	1	8.5	0	no	- Removed partial barrier to high quality summer steelhead trout habitat.	UNF road inspections	Spawner surveys for 2 years following replacement by the NFJD Project
Beaver Creek Reconnect	O	7	2010	2	0.18	1	no	- Removed 5 log drops, sealed the stream channel with bentonite, and reshaped the stream channel.	3 cross sections 1 longitudinal profile	ODFW annual spring spawner surveys
Ten Cent Creek Culvert Replacements	O	3, 7	2011	1	9.6	0	no	- Removed partial barrier to high quality summer steelhead trout habitat.	UNF PIBO & road inspections	Spawner surveys for 2 years following replacement by the NFJD Project
Clear Creek Mine Tailing Redistribution	HD, KH, SL	2, 3, 6	2006	2	3.8	45	no	- Recontoured approximately 276,000 cubic meters of mine tailings. - Reestablished an inset floodplain to promote floodplain connectivity and sediment / debris deposition.	none	none
Kelsay Creek Riparian Fence	HD, KH, HA, SL, W	1, 2, 3, 5	2008	2	1.6	100	no	- 4,425 meters 'New Zealand' and one water gap along constructed.	4 photo points 2 thermistors **USFS permtte maintenance**	none
Taylor Creek Riparian Fence	HD, KH, HA, SL, W	1, 2, 3, 5	2010	1	1.6	46	no	- 3,200 meters of 4-strand barbed wire fence constructed.	Photo point **USFS permtte maintenance**	none
Sugarbowl Creek Riparian Fence	HD, KH, HA, SL, W	1, 2, 3, 5	2010	1	0.8	18	no	- 1,600 meters of 4-strand barbed wire fence constructed.	Photo point **USFS permtte maintenance**	none
Morsay Creek Riparian Fence	HD, KH, HA, SL, W	1, 2, 3, 5	2010	1	3.2	100	no	- 11,747 meters of 4-strand barbed wire fence constructed.	Photo point **USFS permtte maintenance**	none
Bruin Creek Riparian Fence	HD, KH, HA, SL, T	1, 2, 3, 5	2010	1	0.8	19	no	- 695 meters of three strand 'New Zealand' fence constructed.	Photo point **USFS permtte maintenance**	none

Site	Linmit. Fact.	Obj.	Year Implem.	Years Treat.	Stream Km. Affected	Acres Leased / Affected	Cntl Site Id'd.	Metrics	Phys. Monitoring	Bio. Monitoring
Butcherknife Creek Riparian Fence	HD, KH, HA, SL, W	1, 2, 3, 5	2012	1	1.5	1200	no	- 3,621 meters of four strand barbed wire fence constructed.	UNF PIBO	none
Five Mile Creek Fence Maintenance	W	5	2012	1	2.5	90	no	- Heavy maintenance on 8 Kilometers of riparian exclusion fencing.	Photo point **USFS permtte maintenance**	none
Fox Creek Leafy Spurge Control	HD, KH	2	2010	3	65	260	no	- Approximately 215 acres treated with herbicide and biological controls. - 45 acres survey for infestations and tracking the progress of previous treatment.	none	visual surveys of selected areas 2 transects
Granite Creek Native Vegetation Plantings	HD, KH	2	2010	1	0	24.5	no	- Planted 8,400 native hardwoods in floodplain and riparian areas.	none	visual surveys of selected areas
Clear Creek Native Vegetation Plantings	HD, KH	2	2010	1	2	4	no	- Planted 5,040 native hardwoods in floodplain and riparian areas.	none	visual surveys of selected areas
Granite Creek Noxious Weed Control	HD, KH	2	2010	1	4.8	40	no	- 40 acres of riparian and floodplain habitats surveyed for noxious weeds. - 28.5 acres of riparian and floodplain areas treated with herbicides for noxious weeds	none	visual surveys of selected areas
NFJD River Push-up Dam Removal and Water Right Certification	SL	3	2009	1	0.15	80	no	- One irrigation point of diversion moved approximately 152 meters to a permanent scour hole. - One water gap removed. - Water right POD change completed.	4 cross sections 4 pebble counts	Greenline survey
Fox Creek Channel Enhancement & Fencing	HD, KH, W	2, 4, 5, 6	2013	2	0.6	8	no	- Placed 25 pieces of large wood in the original stream channel. - 20 plugs restricting flow through 700 meters of the Corps channel. - 600 meters of riparian fence constructed	Photo point	none
Lower Camas Creek Coordination	HD, KH, SL	4, 5	2013	2	9	1,000	no	- Completed brief detailing past and existing conditions, possible influences of existing geomorphology, and a strategy for developing appropriate treatments.	nothing established to date beyond cross-sections and pebble count data collected as baseline information	none
Corrigal Springs Culvert Replacement	O, SL	3,7	2013	1	5.8	0	no	- Removed partial barrier to high quality summer steelhead and bull trout habitat.	UNF road inspections	Spawner surveys for 2 years following replacement by the NFJD Project
Mud Creek Conservation Agreement 2013-27	ND, HA,	1, 2, 4	2013	2	1.6	100	no	- 2,407 meters of six strand high tension wire fence constructed. - One water gap installed - One stock water well developed with associated solar pump, panels, and water trough.	Photo points	none
Red Boy Pipeline Replacement & Signs	W	5	2013	1	0.25	0.5	no	- Six inch PVC drain pipe between the mine audit and settling ponds was replaced with 250 meters of 12" HDPE pipe and the number of cleanouts increased from two cleanouts to five manholes and two cleanouts. - 2 information signs developed and imnstalled		
Taylor Creek Fence Maintenance	HD, KH, HA, SL, W	1, 2, 3, 5	2013	1	1.6	10	no	- Heavy maintenance completed on 1.6 Kilometers of riparian fence constructed in the 1980s.	Photo points **USFS permtte maintenance**	none

Site	Limit. Fact.	Obj.	Year Implem.	Years Treat.	Stream Km Affected	Acres Leased / Affected	Cntl Site Id'd.	Metrics	Phys. Monitoring	Bio. Monitoring
Little Indian Creek Riparian Fence	HD, KH, HA, SL, W	1, 2, 3, 5	2013	1	1.0	25	no	- 2,103 meters of four strand barbed wire fence constructed.	Photo points **USFS permtte maintenance**	none
Smith Creek Riparian Fence	HD, KH, HA, SL, W	1, 2, 3, 5	2013	1	4.0	90	no	- 1,219 meters of four stand barbed wire fence constructed.	Photo points **USFS permtte maintenance**	none
Granite Creek Conservation Agreement 2013-23	HD, KH, SL, W	1, 2, 3, 4, 6	2013	2	0.6	10	yes	- Four large wood structures and one rock weir installed to reduce sediment entrainment in Granite Creek.	CTUIR Bio-Monitoring Project	CTUIR Bio-Monitoring Project
CTUIR Monitoring Plan Development	HD, KH, SL, W, O	2, 3, 4, 5, 6, 7	2013	0	0	0	no	- Developed a reached scale monitoring plan to standardize the CTUIR's Fishery Habitat Program's monitoring efforts.	none	none
Deep Creek Culvert Replacement	O, SL	3, 7	2014	1	3.2	1	no	- Removed partial barrier to high quality summer steelhead and bull trout habitat.	UNF road inspections	Spawner surveys for 2 years following replacement by the NFJD Project
Bull Run Creek Culvert Replacement	O, SL	3, 7	2014	1	16.2	0	no	- Removed partial barrier to high quality summer steelhead and bull trout habitat.	UNF road inspections	Spawner surveys for 2 years following replacement by the NFJD Project
Little Indian Creek Culvert Removal	O, SL	3, 7	2014	1	0.5	0	no	- Removed partial barrier to high quality summer steelhead trout habitat.	photo points	Spawner surveys for 2 years following replacement by the NFJD Project
Camas Creek Fence Maintenance	HD, KH, HA, SL, W	1, 2, 3, 5	2014	1	35	230	no	- Heavy maintenance of riparian fence constructed in the 1980/90s protecting 35 Kilometers of stream channel and floodplain habitats	UNF PIBO **USFS permtte maintenance**	none
Camas Creek Geomorphic Assessment and Action Plan	HD, KH, HA, SL, W	1,2,3, 4,5,6	2015	1	9	1000	no	- Geomorphic Assessment concentrating on the primary assessment area extending from river mile 12.0 to 17.8 A secondary assessment area included all portions of the watershed above river mile 17.8.	**LiDAR** **River form Metrics** **1D & 2D Hydrologic Modeling** **Aerial Photographs**	none
Desolation Creek Fence Maintenance	HD, KH, HA, SL, W	1, 2, 3, 5	2015	1	18.9	33.7	no	- Heavy maintenance on 39 Kilometers of riparian fence constructed in the 1980/90s protecting 18.7 Kilometers of stream channel and floodplain habitats	**USFS permtte maintenance**	none
Desolation Creek Stock Water Developments	HD, KH, HA, SL, W	1, 2, 3, 5	2015	1	0.0	1.0	no	- One spring developed to include spring box, trough, and spring fenced off	**none**	none
Fox Creek Riparian Fence	HD, KH, HA, SL, W	1, 2, 3, 5	2015	1	0.8	1.7	no	- 800 meters of four strand barbed wire fence constructed to protect summer steelhead trout habitat from cattle.	**None** **Landowner maintenance**	none

APPENDIX 2

ISRP Qualification - Lessons Learned: The proponent is requested to provide a more comprehensive summary of lessons learned. This documentation should be provided in annual project reports to BPA.

During 2015 several efforts were not completed for two primary reasons. The Battle Creek Refit fell victim to a shortfall in funding as bids received were double the engineers estimate. While this was unfortunate it served to improve the UNF's engineer's knowledge of and familiarity with construction costs. In the past their estimates have been in line with costs, however, the refit is an unusual action and will require an approach which differs from typical barrier replacements/treatments. Additionally, the unexpected costs forced the cooperators to reconsider potential treatments that would provide the same benefit at a lower cost. The cooperators will attempt to wash fines sediments into the substrate during 2016 as suggested by a U.S. Forest Service engineer who has successfully used the same method in several instances.

Both the Bull Run Creek and Granite Creek designs and subsequent implementation was an attempt by The Project to use existing resources to complete actions at a lower cost. Their failure highlights The Project's need to approach restoration actions in a different manner while complementing the strategy detailed in The Project's 2013 Geographic Review Proposal and subsequent responses. The Project continues to concentrate upon larger habitat restoration actions using existing action plans and developing new ones where none exist as well as focusing our efforts with a well-defined area. However, the need to consider the collection of larger scale data sets such as LiDAR to complement multiple efforts and the acceptance of a need to hire contractors to complete designs has been reinforced. While this will serve to increase the overall cost of an individual action The Project will be able to secure a product, in this case a design, within a well-defined period of time. The Project has discussed cooperating with entities such as the Bureau of Reclamation to reduce project costs by using existing capacities to no avail. We will however continue to seek out such opportunities in the future.

ISRP Qualification - Roles and Responsibilities: Given the scope and complexity of the NFJD project, additional emphasis on coordination is likely to reduce project costs and to make the best use of the wide array of skills available to the project—both within the subbasin and from the region. It would be particularly useful to have a written, initial framework that identifies broad roles and responsibilities among key partners and players. It could start by addressing the CTUIR organization, with a focus on Natural Resources, and then progress through discussions/agreements with key partners. These discussions should be useful for the long term success of the project. Documentation does not need to be detailed but should be sufficient to capture major agreements and responsibilities among participants. It should be included in the next annual progress report to BPA.

The CTUIR staff has a considerable range of experience and knowledge The Project has and will continue to tap into. Efforts undertaken by these programs improve coordination and individual outputs by collectively refining CTUIR policies and outputs at the program, department, and tribal levels. It's through the collective efforts of staff and projects that the CTUIR has been able to undertake and influence larger scale actions and issues. The Project regularly interacts with the following programs within the Department of Natural Resources including;

- Department of Natural Resources Management – Department management and administration including but not limited to setting department standards and expectations, reporting to tribal government, and supporting department efforts through representation on appropriate state and regional committees or boards.

- Fisheries Habitat Program – Implementation of fisheries habitat improvement efforts within the Walla Walla, Tucannon, Grande Ronde, Umatilla, and North Fork John Day River Basins. Staff provides technical input related to restoration actions, opportunities for collaboration, data collection, analysis, and reporting, and project management. This and semi-annual retreats complement regular communication to improve staff capabilities and program outputs.
- Wildlife Program – Conducts wildlife restoration efforts, manages conservation areas, and leads lands acquisition efforts for the Department of Natural Resources. The Project has coordinated with the wildlife program when acquisitions have been considered.
- Forestry and Range Management Program – This manages CTUIR forestry and range resources and consult with CTUIR staff/programs regarding forestry and grazing management practices. The Project has worked with this program on several occasions to determine effective management and assessment strategies tied to grazing management and fisheries restoration efforts.
- Water Resources – This program provides information related to water quality standards and monitoring (surface and ground waters) through consultation to CTUIR programs and projects.
- Cultural Resources – Conducts cultural resources activities for the CTUIR. The Project coordinates with them as needed and they provide comment to BPA in response to solicitation related to BPA funded actions.
- Information and Technology Services – Develop and manage the CTUIR's Central Data Management System's (CMDS) in cooperation with natural resources staff collecting, and analyzing data. The CMDS is improving and standardizing effective data management and sharing for the Department of Natural Resources through a single integrated point of access for storing and accessing data. Eventually data requests from non-CTUIR staff will be possible.

<u>NFJD Basin</u>

Within the North Fork John Day Basin restoration actions are developed and undertaken through singular and collaborative efforts in response to specific requests for assistance. Without a coordinating entity such as the Grande Rhonde Model Watershed actions are based upon direct communication between collaborators with the skills and capacity necessary to undertake an action. Collaborators The Project commonly works with include;

- North Fork John Day Watershed Council – action cost share and management
- Umatilla National Forest – action prioritization and permitting, cost share, and management
- Wallowa-Whitman National Forest - action prioritization and permitting, cost share, and management
- Oregon Department of Fish and Wildlife - action cost share and management
- Confederated Tribes of the Warm Springs Indian Reservation - action cost share and management
- City of Ukiah - action cost share and management
- Private landowners – access to restoration sites and action cost share

There has been movement recently with regard to John Day Basin wide coordination efforts. The John Day Partnership recently formed to facilitate coordination and improve collaborators abilities to implement restoration actions. The John Day Group includes collaborators throughout the basin who are able to participate after signing a Memorandum of Understanding. Thus far there are over 20 signatories to the Memorandum of Agreement and an Operations Manual has been developed to draft form. The Projects' lead is a member of the Partnership's technical committee is involved in the North Fork John Day River Working Group under the broader Partnership. This working group is currently developing goals and objectives to begin developing a framework for soliciting public input, securing restoration funding, and implementing restoration actions. The Partnership does not intend to supplant the efforts of individual partnership members. It will act as a forum for improving communication and when possible secure funding to complement the efforts of its members.

For all actions where there is an exchange of funding, materials, or supplies the CTUIR enters into annual Cooperative Agreements detail collaborator roles and responsibilities and actions to be implemented (i.e. weed control with the City of Ukiah). Several years ago the Umatilla and Wallowa-Whitman National Forests worked with the CTUIR to establish a master agreement to streamline coordination and implementation efforts on public and private lands. Under the master agreement individual cooperative efforts were covered by supplemental action specific agreements outlining the roles of each collaborator. The master agreement is nearing its term and will need to be renewed for Accords II or whatever may take its place. Where actions are undertaken on private land, a Cooperative Agreements or Riparian Conservation Agreement between the CTUIR and cooperator/landowner detail the roles and responsibilities of cooperators and actions to be implemented.

With regard to restoration actions to be implemented basin specific action plans previously developed by collaborators are used where similar prioritization documents haven't yet been developed in response to specific opportunities. This should not be viewed as an opportunistic approach to restoration as the decision to undertake such a comprehensive effort requires that they embrace The Project's focus basins consider restoration across multiple spatial scales and allow for future work beyond an specific opportunity. Recently The Project has been working with collaborators to complete a geomorphic assessment of Desolation Creek and to develop a prioritized action plan for the entire Desolation Creek watershed (WE L). While The Project is funding the assessment the collaborators will contribute cost share and in-kind to implemented actions once the list of prioritized actions are developed. Agreements aren't secured unless funding or cost share transferred between each party and the roles of collaborators aren't specifically identified outside of discussion during coordination meetings. For instance the ODFW is constructing riparian fence, the NFJDWC is developing springs with the assistance of the ODFW and The Project, the Warm Springs have secured LiDAR data, and the private landowner is developing forest and range management strategy. Toward these efforts the CTUIR enters into Cooperative Agreements with the NFJDWC to provide troughs and supplies used to develop stock water developments.

<u>Region</u>

The Project's role and responsibilities at the regional level typically occur through collaboration with or through higher level CTUIR staff, cooperation in monitoring efforts, and interaction with others not limited to BPA and CRITFIC. While such commitments do not necessarily require formal agreements they promote the tribal perspective and influence through;

- The Project's reporting to and communication with CTUIR managers informs them of progress and has bearing in some form upon policy and how the CTUIR approaches issues at the regional level. Participation by higher level staff on boards and in committees expands the understanding of tribal culture. Additionally The Project has been involved with higher level staff and committees responsible for reviewing and signing agreements or similar documents which have bearing upon The Project's efforts.

- Cooperation with the Bio-Monitoring Project and development of the Physical Habitat Monitoring Strategy integrates the evolution of fishery habitat enhancement efforts, lessons learned, and policy into regional efforts to improve and manage our natural resources.
- Interacting with BPA and CRITFIC improves and maintains funding for restoration efforts and coordination, incorporates technical and policy guidance into project level efforts, and supplements technical resources to improve staff capabilities.

ISRP Qualification - Data Management: The primary concern is how data will be managed during the 2-3 years while development of the CTUIR data management system is being completed. Additionally, it does not appear that there are contingency plans to deal with possible delays in full implementation of the data management system. Does the completion of the data management system by 2018 mean that temporal analyses cannot occur before then? Is there a priority list for bringing modules on line? These are important concerns from the perspective of program effectiveness. A written response to these concerns should be included as part of the project's next annual report to BPA.

The CTUIR Central Data Management System (CMDS) currently under development will facilitate data sharing amongst CTUIR staff and form the central data repository for all CTUIR derived information and data. The CMDS will consist of a Project Tracker and all data repositories. The Project Tracker is currently on line and has been established to store information related to an actions goals, objectives, ties to First Foods, Umatilla River Vision, limiting factors, ecological concerns, dates, and ancillary documentation. From this information progress reports for CTUIR use can be developed to inform CTUIR managers, policy, and tribal government. The Project has been and will continue to enter information from current and past restoration efforts into the Program Manager.

The CMDS will also form the central repository for action specific monitoring data. Thus far, the tool for storing and linking water temperature data to the central action file has been completed and all past and current temperature data files are now stored in this repository. The repository for habitat data is currently under development and is expected to be completed by the end of 2016. This repository will store photo points, sediment data, channel morphology data, vegetation data, and any other data collected in support of an action. CMDS tools are being created according to program needs without an established prioritization hierarchy. When completed, the CMDS will also link to files contained within a Geographic Information System database storing GIS files, LiDAR, and FLIR data files. Data collected by the Bio-Monitoring Project (BPA Project #2009-014-00) collecting data at the Granite Creek (Site GCT00001) and Desolation Creek (Site DesolationCreek_Control2/_Treatment2) sites store and analyze data through the CHaMPS database (CHaMPS, 2015)). The Project can access this data through the CHaMPS website although its management and analysis are beyond The Project's purview.

The CMDS will not incorporate data analysis capabilities as this will be completed by staff using action/reporting specific methods. The wide array of data analysis completed by different CTUIR staff with individual directives and goals alone would make incorporating data storage and analysis tools difficult. Data analysis is being and will continue to occur on the appropriate level, typically the project level, using analysis chosen by CTUIR staff responsible for analysis and reporting efforts outside the CMDS.

Until the CMDS is fully developed and integrated The Project's data files have been placed on CTUIR servers in folders dedicated to individual programs, or research/restoration/management projects.

Access to individual folders has been restricted to specific staff such as The Project's staff and the Fisheries Habitat Program Supervisor in the case of the The Project's data. Information/data being developed or refined is downloaded from and saved to the server. As such, delays in the CMDS's development will not impede data analysis and reporting efforts as the information is not stored on individual computers, can be downloads from servers where network access is available, and data analysis occurs by project staff using non-CTUIR standardized analysis tools that aren't contained within the CMDS structure.