

**Bonneville Power Administration
Fish and Wildlife Program FY99 Proposal**

Section 1. General administrative information

Trout Creek Habitat Restoration Project

Bonneville project number, if an ongoing project 9404200

Business name of agency, institution or organization requesting funding
Oregon Department of Fish and Wildlife

Business acronym (if appropriate) ODFW

Proposal contact person or principal investigator:

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Subcontractors.

Organization	Mailing Address	City, ST Zip	Contact Name
Oregon Water Resources	158 12th street NE Salem Or 97310	Salem, Or. 97310	Doug Parrow
Oregon State Police	63319 Jameson St.	Bend, Or. 97701	Greg Cazemier

NPPC Program Measure Number(s) which this project addresses.

7.1, 7.1D, 7.1D.1, 7.1D.2, 7.6, 7.6A, 7.6A.2, 7.6B.1, 7.6B.2, 7.6B.3, 7.6B.6, 7.7, 7.10.K.1
AND FROM SCIENTIFIC REVIEW: 2,21,22,28,29

NMFS Biological Opinion Number(s) which this project addresses.

Although there has not yet been a final decision regarding the petition to list Mid Columbia River ESU Steelhead. This project would help address "Biological Option" determinations related to habitat and natural production of winter steelhead .

Other planning document references.

This project was originally driven by the 1983 Trout Creek restoration plan that was conducted by Northwest Biological Consulting. Areas for restoration and types of restoration were identified and over the past 13 years implementation of objectives in this

plan, and annual maintenance has taken place. In addition in December 1996 a Trout Creek watershed assessment was completed. This document along with technical knowlwdge from ODFW has continued the restoration work in basin based on the input form several different group and areas of technical expertise.

Support comes from the Trout Creek Watershed Council which is compromised of 7 of the 13 largest landowners in the basin. There are 27 (all landowners on the mainstem plus several on the major tributaries) landowners that are participating in the BPA riparian leases. Also support comes from government agencies such as the Jefferson County SWCD, and from nongovernmental organizations like Oregon Trout.

Subbasin.

Trout Creek Subbasin including the following tributaries: Tenmile, Sagebrush, Ward, Antelope, Little Trout, Boardhollow, Foley, Dutchman, Biglog, Cartwright, Potlid, Opal, Auger

Short description.

Operation and Maintenance of instream and riparian habitat condition. Proactive education, demonstration and implementation of good management practices in the entire Trout Creek basin. Resulting in increased native salmonid and wildlife production.

Section 2. Key words

Mark	Programmatic Categories	Mark	Activities	Mark	Project Types
X	Anadromous fish		Construction	X	Watershed
*	Resident fish	X	O & M		Biodiversity/genetics
*	Wildlife		Production		Population dynamics
	Oceans/estuaries		Research	*	Ecosystems
	Climate	*	Monitoring/eval.	*	Flow/survival
	Other		Resource mgmt		Fish disease
			Planning/admin.		Supplementation
		*	Enforcement	*	Wildlife habitat en-
			Acquisitions		hancement/restoration

Other keywords.

-NA-

Section 3. Relationships to other Bonneville projects

Project #	Project title/description	Nature of relationship
9306600	N.E. Oregon Screens - Trout Creek Fish passage - push-up dam removal	Shares manpower, equipment, and facilities
9303000	Buckhollow Watershed Restoration	Deschutes basin improvement
9405420	Bull Trout studies in Central and N.E. Oregon	Stock Status and Distribution
9304000	Fifteenmile Creek Habitat Restoration project	Share equipment and manpower

Section 4. Objectives, tasks and schedules

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Maintain and inspect existing riparian corridor structures. In order to decrease sediment and temperature which were identified as limiting factors in this basin.	a	Annually inspect all riparian fencing. Depending on livestock, wildlife, weather, and other factors inspect riparian areas with heavy livestock use at least one a week. Repair damage to fence as soon as feasible.
2	Maintain and inspect existing instream and bank stabilization structures. In order to decrease sediment which is identified as a limiting factor.	a	Annually inspect all instream and bank stabilization structures. Repair structures as soon as feasible.
3	Monitor stream temperatures and stream flows. Stream temperature is a limiting factor in this basin.	a	Attempt to document stream temperature changes attributable to riparian and instream channel recovery. Subcontract the documentation of stream flows through the low flow period through Water Resources
4	Utilize existing manpower to attempt leveraging existing BPA funds with other funds to accomplish additional basin wide goals.	a	Work with Private landowners, NGO's and the Trout Creek Watershed Council to develop projects and to locate additional funding sources.
5	Establish an enhanced law enforcement presence to deter and reduce poaching of adults and smolts during spring migration		Subcontract to OSP to enhance trooper presence in the basin during vulnerable periods for adult smolting and juvenile steelhead.

Objective schedules and costs

Objective #	Start Date mm/yyyy	End Date mm/yyyy	Cost %
1	1/1999	12/1999	65.00%
2	1/1999	12/1999	6.00%
3	5/1999	11/1999	12.00%
4	1/1999	12/1999	5.00%
5	3/1999	8/1999	12.00%
			TOTAL 100.00%

Schedule constraints.

none

Completion date.

This project requests a three year automatic O&M budget based on the outyear cost below. This will assist in planning and budgeting.

Riparian leases expire in 2009. After 2009 this project will need continued funding to maintain fencing and structures.

Section 5. Budget

FY99 budget by line item

Item	Note	FY99
Personnel		\$117,134
Fringe benefits	Other personel expenses	\$45,682
Supplies, materials, non-expendable property	Shop rent, vehicle leases and mileage, fencing supplies, equipment repair	\$49,775
Operations & maintenance		
Capital acquisitions or improvements (e.g. land, buildings, major equip.)	Stream gauge on Trout Creek to be installed by Water Resources	\$16,400
PIT tags	# of tags:	
Travel	training and per diem	\$1,570
Indirect costs	Overhead @ 22.9%	\$49,043
Subcontracts	Oregon State Police 0.5 FTE trooper	\$38,750
Other	Oregon Water Resources	\$17,446
TOTAL		\$335,800

Outyear costs

Outyear costs	FY2000	FY01	FY02	FY03
Total budget	\$333,900	\$339,934	\$345,170	\$350,680
O&M as % of total	71.00%	71.00%	71.00%	71.00%

Section 6. Abstract

A This project is an operating "on the ground" project that has accomplished instream and riparian habitat improvement. Livestock riparian exclosures on over 70 miles stream has benefited stream bank integrity and has contributed to increased riparian vegetation density, health, and vigor. Installation of several thousand instream structures within the Trout Creek basin has also served to decrease actively eroding streambanks and has contributed to increasing the instream habitat complexity. Both of these restoration components have served to address several of the limiting factors that are present in this system, but primarily high summer water temperatures and large amounts of fine sediment.

B With the funding requested for fiscal 1999 the project goals are to maintain and continue the ongoing riparian and instream habitat improvement to the Trout Creek watershed ultimately resulting in increased numbers of returning adult steelhead to the Trout Creek Basin. Utilizing the watershed approach achieving this goal will also benefit native resident redband trout and wildlife species that are dependent on riparian areas. This will be accomplished by: 1) continuing to maintain and repair the existing structures and fencing. 2) working with the interested parties in the basin to leverage BPA funds with other granting sources to accomplish additional watershed wide habitat enhancement projects. 3) An increased effort to monitor and regulate water usage in diversions and to monitor stream flows will be conducted by Water Resources, and 4) An enhanced presence of State Police to assist in the reduction of poaching on adult and juvenile steelhead.

C In the September 10, 1996 Return to the River document the hypothesis that, "Human alteration to the salmonid bearing ecosystem has contributed to the decline in salmon and steelhead." Was corroborated by, "Thoroughly established, generally accepted, good peer-reviewed empirical evidence". This project addresses that hypothesis. This project has sought to alleviate the human alterations, and addresses habitat restoration on a basin wide approach utilizing the results obtained from 1983 basin survey to guide efforts so that the greatest benefit will be realized. In the 1996 "Return to the River" the approach of Trout Creek project by attempting to restore habitat on a logically thought out, economically justifiable, basin wide scale is also regarded as, "Thoroughly established, generally accepted, good peer-reviewed empirical evidence".

Salmonid populations in this basin are naturally reproducing and hatchery stocking does not occur. In section 7.1 in the 1994 CBFWP the policy states, "To conserve, manage and rebuild the basin's remaining wild and naturally spawning populations, a policy

giving such populations explicit priority is needed." This project addresses intent of this policy through basin wide habitat restoration. Additionally, restoration efforts of this project hope to attain what is desired in section 7.6 of the CBFWP which states that, 'restoring degraded habitat in areas where there are naturally reproducing salmonid populations it is necessary to increase the amount of fish surviving to reach smolt size.'" Additional sections of the 1994 CBFWP plan that are being addressed by this project include: 7.7 cooperating with private landowners, and 7.8 Initiating actions where water quality standards are not met. Since this project is closely tied to the fish passage project section 7.10K.1 continued funding of fish screening and passage into historic habitat also applies. Also by restoring the riparian and instream habitat this project is also benefiting numerous wildlife species. It is believed that the riparian /stream side ecosystem is the single most productive type of wildlife habitat, benefiting the greatest number of species (Kauffman and Krueger, 1984)

D The approach to this project is based on the sound principal that if we can remove and or reduce some of the anthropogenetic factors to habitat degradation the habitat condition will improve and, consequently, so will fish populations. The two methods that have been largely incorporated are installation of riparian cattle exclosure fencing, and installation of various instream structures. The purpose of these fencing exclosures includes; bank stabilization, reduced sediment input, increased habitat complexity, increased vegetation, shading, lower water temperatures, stabilizing head cuts, and increasing water storage capacity in meadows. The instream structures were installed to, increase bank stabilization, reduce sediment input, increase instream habitat complexity. One of the main reasons for the installation of several structures was to reduce bank erosion along agricultural fields. Scientifically it could be argued as to what and where structures were placed. However given the constraints both socially and politically no one can argue with the benefit that has occurred, and will continue to occur. Other factors that this project will attempt to gain a better understanding of is the amount and timing of water withdrawal. This will be done through various stream and diversion measurements. The project will attempt to establish an increased law enforcement presence to deter and reduce the amount and quantity of poaching that takes place on the limited number of adult and smolting steelhead. Additional, enforcement will center around the monitoring and prevention of environmental violations (i.e. fill and removal).

E The expected outcome is to reduce fine sediment input, increase riparian shading, reduce summer stream temperatures, improve instream habitat complexity, and increase late season flows. As a result of these measures it is expected that steelhead, resident redband trout and several wildlife species will increase in numbers. The time frame for the desired outcome for each habitat component is variable. Some areas of the project have already made marked improvement. But there are some areas both inside and outside the leased areas that will need either more time for recovery, or some additional type of restoration effort (this includes addressing problems in the uplands). Areas that are in need of recovery outside of the BPA riparian leased ground are being addressed via the Trout Creek Watershed Council (Asst. Project Leader is an active participant). Additional projects inside and outside the riparian leased areas will be identified as to

causative factors and appropriate methods for habitat restoration techniques. Any potential funding sources will be investigated and cost sharing opportunities thoroughly explored.

F One of the frustrations on this project has been the historical lack of funding to implement monitoring and evaluation on the work that has been accomplished. There is scant baseline or post implementation data. In the past we have tried, to incorporate and request funding for monitoring and evaluation. Due to lack of funding we have been unable to generate the data we feel is necessary to adequately assess the various aspects of this project. Emphasis has now been placed on monitoring the results of BPA projects, and there is a real need to review the work that has been accomplished. For this fiscal year we will assess the results of the funding for the fifteenmile monitoring and evaluation proposal. If this type of project is funded, we will submit a similar type of monitoring and evaluation proposal. Similarly, if the fifteenmile project is rejected we will evaluate the aspects that were not up to snuff, and develop a different monitoring and evaluation project. ODFW strongly supports the concept of assessing the project and learning what has been accomplished and what need to be reassessed. This is vital in the efficient allocation of limited resources to hasten the recovery of native salmonid stocks.

Section 7. Project description

a. Technical and/or scientific background.

Trout Creek is the largest eastside tributary in the Deschutes river below Pelton Dam, entering the Deschutes at river mile 88.5. For the past 125 years the Trout Creek Basin has been severely degraded by intensive livestock, agricultural, and timber management practices. Currently this stream is listed on the ODEQ 303d list for water quality limited streams. Both temperature and sedimentation were identified as not meeting state water quality. Temperatures can reach 31^oC (ODFW unpublished data, 1996) in reaches where there is heavy irrigation withdrawal, and poor riparian habitat. Historically the Trout Creek basin supported Chinook, steelhead and resident redband populations. Currently the basin only supports a run of about 250 adult summer steelhead (USBR, 1981). The degraded habitat of Trout Creek has been the primary factor for the declining production of salmonids (Northwest Biological Consulting, 1983). There are approximately 140 stream miles in the watershed and about 85% of those miles have riparian problems. There is potential for improvement with rehabilitation on about 120 stream miles (U.S. Fish and Wildlife Service and National Fish and Wildlife Service, 1981). Restoration efforts on these areas would probably make Trout Creek one of the highest producers of wild anadromous stocks for the lower Deschutes River. Since the Deschutes river supports several of the largest remaining stocks of wild runs of anadromous fish in eastern Oregon, the significance of Trout Creek is further emphasized (NBC, 1983).

The Trout Creek project is an ongoing Central Oregon fish habitat restoration project that is centered around restoring areas in the 120 stream miles identified in the 1983 habitat survey. This offsite BPA mitigation project is designed to restore, improve, or maintain

riparian and instream habitat to increase the number of adult summer steelhead spawners returning to the Trout Creek system. An ancillary goal is to increase the resident redband trout populations, and to benefit wildlife by providing increased cover and forage along the improved riparian areas. In the 1983 study of the Trout Creek basin several habitat problems were identified as limiting steelhead and redband trout production. This included, 1) severe streambank erosion, 2) low stream shading, 3) poor pool cover, and 4) elevated water temperature. Cattle grazing appeared to be a significant limiting factor for riparian vegetation (NBC, 1983). This project addresses the poor riparian and instream habitat quality and quantity, as identified in the study. Logically for any native fish recovery there needs to be an adequate quality and quantity of habitat to sustain native fish populations over time. This is being accomplished through the following:

Riparian Exclosure Fencing

Total Miles of Riparian Fencing	132
Miles of Stream Fenced	70

Instream Structures

Rock Jetties	272
Rock Rip Rap	1,533ft.
Juniper Rip Rap	18,110ft.
Rock Weir	236
Log Weir	189
Habitat Boulders	3,353
Large Woody Debris (LWD)	498
Spring Development	11

Current funding helps to maintain these "in place" structures and fencing. Generally the majority of this budget involves the maintenance of riparian cattle fencing exclosures. Due to the proximity of riparian exclosures to the stream channel, and the long duration of heavy cattle pressure on the fence there is a great deal of annual maintenance required to maintain a cattle resistant fence. Necessary annual maintenance time and supplies can more than double after a 10 year or greater flood event. The effort and the money spent on this type of endeavor does assist in the rehabilitation of stream functions. Livestock grazing has been perhaps the most prevalent cause of ecological degradation for many western riparian and stream ecosystems (Kauffman and Krueger 1984, Kauffman 1988, Fleischner 1994). After extensive field reviews of fish habitat improvement projects in eastern Oregon Beschta et. al. (1991) and Kauffman et al. (1993) concluded that the cessation of livestock grazing in riparian zones in eastern Oregon was the single most ecologically effective approach to restoring salmonid habitats. The combination of riparian cattle exclosures and instream structures has greatly assisted the meager native salmonid populations. However, there remains a large quantity of work to be accomplished in regard to instream and riparian restoration. Additional stream reaches need better livestock, and timber management. Sediment input from logging roads needs

to be addressed, and several areas throughout the basin are in need of additional habitat work. The greatest challenge to a significant recovery involves irrigation water withdrawal. This problem affects almost every stream in the arid Western United States. To start to gain information in the water diversion and stream flow issues this project proposes to subcontract out help from Oregon Water Resources to augment the monitoring of irrigation diversions and stream flows. Gaining information in this area will assist in the future development of possible flow augmentation ideas and proposals. Another new area for this project is the request for increased law enforcement funding to reduce the amount of poaching on the returning adult and juvenile steelhead. Reports from law enforcement officers have indicated that there is a fair amount poaching of spawning adults and downstream smolts. The exact amount of this activity is difficult to ascertain. However, with the limited number of spawners and the ease of poaching the fish on their redds it will be immediately beneficial to increase the presence and visibility of law enforcement officers in the Trout Creek area during critical spawning and smolt movement periods.

The related fish passage project (BPA #9306600) will start to address some of the fish passage issues, and this will provide us an opportunity to discuss with landowners methods of increasing efficiency in water delivery systems, and possibly consolidating water withdrawal sites. Personnel funded by this project will assist in identifying and implementing these opportunities. Also personnel funded by this project will assist and coordinate the augmentation of the current BPA habitat project through other granting sources.

This project address several aspects of the 1994 FWP.

Section 7.1 ensuring the biodiversity of the ecosystem, thereby sustaining the natural resources.

This project is addressing ecosystem problems throughout the entire Trout Creek sub-basin. A majority of the recent work in this sub-basin has centered around the riparian or instream area. However, with the recent development of a watershed council the landowners are slowly recognizing the connection of the uplands to the stream, and are starting to gain information as to how they can change practices to help the ecosystem. ODFW, and SCS are currently educating landowners through presentations in front of the watershed council, and through the development of individual farm plans.

Section 7.1 and 7.1D.1 and 7.1D.2 Wild and naturally spawning population policy

The very foundation of this project addresses the goal and intent of this section. The habitat restoration and protection of this native naturally reproducing salmonid population in the Trout Creek basin will serve to enhance and protect the future of this population.

Section 7.6, 7.6A, 7.6A.2, 7.6B.1, 7.6B.2. 7.6B.3, 7.6B.,7.6B.4, 7.6B.5, 7.6B.6 Habitat goal, policies and objectives.

This project address and meets every subsection in this objective. This project has coordinated work with other agencies and has included the work in an overall framework for restoration over the entire basin. Most of the degraded habitat is either under restoration, or is under review for additional projects. Projects are being developed and reviewed through the watershed council and other local landowners. Areas where restoration have a minimal chance for success has been delayed until higher priority projects have been completed. Cost sharing and additional funding source, along with volunteer help has been explored and utilized.

Section 7.7 Cooperative habitat protection and improvement with private landowners.

Since the majority of the restoration work to date, and a majority of the entire watershed ownership is in private ownership this project from the inception has had to develop working relationships with private landowners. Through the newly formed watershed council private landowners ODFW, Oregon Trout, USFS, OSU extension, and other agencies meet on a monthly basis to discuss the approach and direction that habitat restoration needs to take. This admittedly has been a somewhat slow process as far as bringing the local population up to speed with regional goals and agendas. Several landowners want everything to remain “status quo”. Slowly there has been recognition as to the habitat quality problems, and the ramifications of adopting a status quo policy. There is still a great deal of work in this area, but change is happening. Continued involvement and presence of ODFW and other resource agencies is slowly bringing this basin into a more progressive way of addressing habitat resource issues and problems.

b. Proposal objectives.

- 1) Maintain and repair fencing and structures that have been installed and maintained over the past 13 years. To allow the continued upward trend in riparian and instream habitat.
- 2) Provide unobstructed passage for migration of adults and juveniles to achieve full utilization of suitable habitat.
- 3) Maintain and enhance riparian vegetation to help decrease maximum summer water temperature to 68 F or less at the mouth of Trout Creek.
- 4) Provide, promote, and assist in attaining healthy riparian vegetation on at least 80% of the perennial stream miles in the drainage.
- 5) Increase habitat diversity by increasing pool habitat to historical levels.

- 6) Within the constraints of land use practices, achieve <20% active stream bank erosion.
- 7) Provide technical assistance to landowners to reduce the amount of sediment delivery from upland sources.
- 8) Achieve water quality standards that will comply with the clean water act, or assist in establishing a plan that will bring the basin into compliance.
- 9) Achieve a better understanding of the water use rates throughout the basin.
- 10) Reduce the amount of illegal harvest of salmonids.

c. Rationale and significance to Regional Programs.

This program is designed to enhance wild summer steelhead in the Columbia Basin. Habitat restoration of this type will help to avoid a steelhead listing in the Mid Columbia Basin ESU.

This project address several aspects of the 1994 FWP.

Section 7.1 ensuring the biodiversity of the ecosystem, thereby sustaining the natural resources.

This project is addressing ecosystem problems throughout the entire basin. A majority of the recent work in this basin has centered around the riparian or instream area. However, with the recent development of a watershed council the landowners are slowly recognizing the connection of the uplands to the stream, and are starting to gain information as to how they can change practices to help the ecosystem. ODFW, and SCS are currently educating landowners through presentations in front of the watershed council, and through the development of individual farm plans.

Section 7.1 and 7.1D.1 and 7.1D.2 Wild and naturally spawning population policy

The very foundation of this project address the goal and intent of this section. The habitat restoration and protection of this native naturally reproducing salmonid population in the Trout Creek basin will serve to enhance and protect the future of this population.

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This project addresses and meets every subsection in this objective. This project has coordinated work with other agencies and has included the work in an overall framework for restoration over the entire basin. Most of the degraded habitat is either under restoration, or is under review for additional projects. Projects are being developed and reviewed through the watershed council and other local landowners. Areas where restoration have a minimal chance for success has been delayed until higher priority projects have been completed. Cost sharing and additional funding source, along with volunteer help has been explored and utilized.

Section 7.7 Cooperative habitat protection and improvement with private landowners.

Since the majority of the restoration work to date, and a majority of the entire watershed ownership is in private ownership this project from the inception has had to develop working relationships with private landowners. Through the newly formed watershed council private landowners ODFW, Oregon Trout, USFS, OSU extension, and other agencies meet on a monthly basis to discuss the approach and direction that habitat restoration needs to take. This admittedly has been a somewhat slow process as far as bringing the local population up to speed with regional goals and agendas. Several landowners want everything to remain “status quo”. Slowly there has been recognition as to the habitat quality problems, and the ramifications of adopting a status quo policy. There is still a great deal of work in this area, but change is happening. Continued involvement and presence of ODFW and other resource agencies is slowly bringing this basin into a more progressive way of addressing habitat resource issues and problems.

d. Project history

Trout Creek is the uppermost eastern tributary in the Deschutes River basin below the Pelton–Round Butte complex. The headwaters of Trout Creek are in the North slope of the Ochoco Mountains north of Prineville, and generally flows north through the communities of Ashwood and Willowdale. Trout Creek is approximately 60 miles long and enters the Deschutes River at river mile 88. The Trout Creek watershed covers approximately 750 square miles, and there is an additional 80 stream miles of major tributaries.

The Trout Creek watershed has historically been overgrazed, heavily channelized and diverted for irrigation withdrawal, and extensively managed for timber production. This has resulted in severe flood damage, low summer flows, high summer stream temperatures, increased sediment delivery, and habitat simplification.

The Trout Creek project began in 1982. The first phase of the project was a three year survey of the entire basin to determine the feasibility of restoration efforts in the basin. The survey analyzed cost/benefit ratios and habitat enhancement possibilities. On the

ground construction began in 1986, and continued until about 1991. Since 1993 the project has concentrated on maintaining the existing work. Recently, additional effort has been placed in acquiring funding from other sources to complete supplementary projects in the basin. To date this project has accomplished:

Riparian Exclosure Fencing

Total Miles Riparian Fencing	132
Miles of Stream Fenced	70

Instream Structures

Rock Jetties	272
Rock Rip Rap	1,533ft.
Juniper Rip Rap	18,110ft.
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Spring Development	11

This only lists the work that this project has put on the ground. It does not account for the assistance in several other non-BPA projects in the basin, or the ongoing education of landowners that occurs on a daily basis.

Within the last year the basin has formed a Watershed Council that is comprised of landowners throughout the basin along with several other agencies. Besides ODFW other agencies that are involved with the watershed council and/or have assisted in on the ground projects include: Oregon Trout, Oregon Water Trust, Jefferson County SWCD, ODFW Restoration and Enhancement, ODFW Access and Habitat, Bureau of Reclamation, Governor's Watershed Enhancement Board, US Forest Service, National Marine Fisheries Service - Mitchell Act Funds, and Fisheries Across America.

e. Methods.

Objective 1 To maintain and continue the upward trend in the riparin conditions throughout the BPA riparian leased areas we will continue to maintian and inspect exisiting riparian cooridor fencing at least monthly. Depending on livestock use, wildlife, weather, or other factors we will inspect riparian areas that are suspect at least one a week. Repair to damaged fence will be completed as soon as feasible. Also we will annually inspect all instream and bank stabilization structures. Repair to structures will be completed as soon as time and funding permits. The effort and the money spent on this type of endeavor does assist in the rehabilitation of stream functions. Livestock grazing has been perhaps the most prevalent cause of ecological degradation for many western

riparian and stream ecosystems (Kauffman and Krueger 1984, Kauffman 1988, Fleischner 1994). There are several reports or journal articles that indicate that improper cattle grazing as one of the most destructive impacts on stream morphology, water quality, sedimentation, and riparian vegetation (Ames 1977, Behnke and Raleigh, 1978, Bryant 1972, Davis 1982, Evans and Krebs 1977, Everest and Meehan 1981, Gunderson 1968, Johnson 1978, Knoph and Cannon 1982, Marcuson 1977, Oregon and Washington Interagency Council 1978, Platts 1979, Platts 1981, Pond, 1961, Rauzi and Hanson 1966). After extensive field reviews of fish habitat improvement projects in eastern Oregon Beschta et. al. (1991) and Kauffman et al. (1993) concluded that the cessation of livestock grazing in riparian zones in eastern Oregon was the single most ecologically effective approach to restoring salmonid habitats.

Objective 2 Work with private lanowners to find agreeable ways of removing gravel push up dams. Based on engineering limitations gravel push up dams will be replaced with either concrete diversion structures with fish ladders, or with infiltration gallery systems. Installation of these structures will benefit the system in two ways. One, it will remove fish passage problems that begin with the annual installation of gravel push up dams. Second, it will assist the recovery of the riparian and instream habitat surrounding these structures by eliminating the annual bulldozing that occurs at the point of diversion.

Objective 3 To maintain and continue the upward trend in the riparian conditions throughout the BPA riparian leased areas we will continue to maintain and inspect existng riparian cooridor fencing at least annually. Depending on livestock use, wildlife, weather, or other factors we will inspect riparian areas that are suspect at least once a week. As stated in objective 1 the removal of cattle will speed the recovery of both instream habitats and the riparian zone. Work conducted by water resources regarding the measurement of the amount and timing of water withdrawal along with stream flows will also assisst in potential future stream augmentation.

Objective 4 Work with private landowners, nongovernmental orgizations (NGO), and the Trout Creek Watershed Council to develop projects and to locate additional funding sources to address the remaining stream miles that need restoration. Development of a watershed wide habitat/restoration priority list is currently being developed. This will help in directing future projects to further enhance summer steelhead and resident redband trout populaitons in the basin

Objective 5 The objective of past instream restoration was to add scour points to increase the amount of pools in the basin to more closely match the historical levels. Monitoring of these structures will continue on an annual basis. Repair to structures damaged by flood action will be conducted if the evaluation of the structures still matches hydrological goals and process in the area. Additionally, the riparian fencing will also serve to assist in the improvement of hydrologic morphology. Once again we will continue to work with lanowners will continue to accomplish this goal.

Objective 6 Reduce the active stream bank erosion to <20%. Work with private landowners, NGO's and the Trout Creek Watershed Council to develop strategies to address areas outside BPA riparian leased ground. Inside the BPA leased ground continue to maintain the riparian exclosure fencing.

Objective 7 Work with private landowners, NGO's and the Trout Creek Watershed Council to develop strategies to address areas outside BPA riparian leased ground. Inside the BPA leased ground continue to maintain the riparian exclosure fencing.

Objective 8 Temperature and sediment levels are currently exceeding state water quality standards. The method for bringing these parameters into compliance is centered around the habitat protection stated in the first seven objectives. When more advanced moitoring and sampling occurs additional standards might be out of compliance. Adaptive management policies will be able to react to this possible senario.

Objective 9 Water usage rates will be monitored to ensure that the use is consistent with appropriate water rights. If an existing water right is transferred or leased to instream purposes, the water will be protected instream consistent with the relative priority of other rights calling on the stream.

Objective 10 Reduction of the illegal harvest of adult and smolting steelhead will be accomplished through an enhanced presence of OSP game officers. In addition to increased patrols through the area aerial and covert tactics will be employed baased on the reccomendations of OSP.

The methods and funding for evaluating this project have routinely been denied (except for a minor temperature monitoring program which consists of ½ of 1% of our total operation budget). This project would be ecstatic if funds became available to conduct some basic monitoring and evaluation. This might include; smolt monitoring, riparian and instream surveys, expanded spawning redd surveys, and linking redd counts to areas of restoration. Several other possibilities for monitoring exist. We will develop and submit a monitoring and evaluation proposal for the 2000 fiscal year.

f. Facilities and equipment.

Facilities:

Office space 800 sqft
Shop space 700 sqft
Yard space 3000 sqft

Of this space BPA only pays for ½. Federal Mitchell Act picks up remainder.

Equipment

3 Vehicles (2 - ¾ ton trucks, 1 S10 blazer)

3 ATVs (1986 Honda, 1987 Yamaha, 1986 Polaris)
2 Computers
2 Printers
Wood post driver
Rock drill
Power Auger
Camera

g. References.

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Section 8. Relationships to other projects

This project will help to coordinate and develop additional projects with several NGO's and various other state and federal agencies (i.e. Oregon Trout, SWCD, Trout Creek Watershed Council, BOR, Water Resources, OSP, DOF, BLM, USFS, Corps of Engineers, et.al.). Also there are additional projects that have been jointly developed with the Watershed council, SWCD, and ODFW. Our manpower and technical expertise has been instrumental in assisting the development of further restoration efforts in the basin.

This project also works with and shares resources with the Fifteenmile Habit Restoration Project located in The Dalles, and the Oregon Screens Project (Project #9306600). Personnel, equipment, facilities, and expertise from the Trout Creek Habitat project and the Mitchell Act project are utilized in execution of these two projects.

Section 9. Key personnel

<u>Personnel</u>	<u>Title</u>	<u>Department</u>	<u>FTE</u>
Alan (Chip) R. Dale	Special Programs Leader	ODFW	0.125

Education

1986 Colorado State University, Fort Collins, CO.
Degree: MS in Wildlife Biology

1977 Colorado State University, Fort Collins, CO.
Degree: BS in Wildlife Biology

Training

AFS Habitat Workshop, Bellevue, WA. 1991
State of Oregon DAS Core Curriculum for Managers and Supervisors.
USFS GAWS Aquatic Habitat Inventory.

Experience

1993 – Present, Oregon Department of Fish and Wildlife Assistant Regional Supervisor (Fisheries).

Duties

Administer the fisheries resources of the High Desert Region of ODFW. Programs include research, habitat, Fisheries, and Propagation. Administer Programs involving ~60 FTE’s and ~\$3.5 million dollar budget.

1983-1990 Denver Water Department, Environmental Planner.

Duties

Responsible for planning and implementation of habitat restoration projects for mitigation for mitigation of impacts related to dam construction. Also oversaw inventory programs conducted jointly with Colorado Division of Wildlife to measure fish population abundance in impacted reaches of rivers affected by Denver Water District’s operations.

Publications

Dale, A. R. and J. A. Bailey. 1982. Application of optimal foraging theory for bighorn sheep habitat analysis. Proc. 3rd Bienn. Symp. North Wild Sheep and Goat Counc. Pp 254-264.

Chilcote, M., K. Kostow, H. Weeks, H. Schaller, and A. Dale. 1991. First Biennial Report on Status of Oregon’s Wild Fish Populations. ODFW.

Ray Hartlerode Project leader ODFW 0.33

Education

1979 – 1983 Oregon State University; Corvallis, Oregon
Degree: B.S. in Fisheries Science

Training

AFS Riparian Restoration Workshop
NMFS Fish Passage and Diversion Structures Training
State of Oregon DAS Core Curriculum Training for Managers and Supervisors
Northwest Fish Screening and Passage Workshops

Experience

1991-Present, Oregon Department of Fish & Wildlife; Project Leader on Fifteenmile, Trout, and Buckhollow Creek Habitat Restoration Projects. Project Leader on N.E. Oregon Screens Trout Creek Passage Project,

Project Leader for NMFS Mitchell Act Fifteenmile/Trout Creek Fish Screens Project.

Duties

Fiscal management of project budgets, supervision of project personnel to implement and maintain fish habitat projects, preparation of proposals, works statements, contracts, leases, and reports, coordination of habitat projects with other agencies and organizations performing conservation programs in the watershed, Identifies stream reaches with altered habitat conditions that lack necessary habitat types to sustain natural production of fish populations, determines appropriate fish habitat restoration/improvement actions, negotiates with government and private landowners for cooperation and permission to conduct habitat restoration projects, develops program direction in the form of standards and guides for all regional habitat programs; including, but not limited to, Bonneville Power Administration (BPA) National Marine Fisheries Service (NMFS) and state funded fish habitat and screening projects.

1987-1991 – Oregon Department of Fish & Wildlife. Assistant Project Leader, Trout Creek Habitat Restoration Project

Duties

Conducted fish habitat surveys, recommended habitat restoration treatments, developed habitat restoration construction contracts, inspected construction contracts, negotiated landowner riparian leases, wrote landowner riparian leases., performed maintenance on riparian improvements such as riparian fencing and instream habitat structures.

Tom Nelson Assistant Project Leader ODFW
1.00

Education

1984 – 1989 Oregon State University; Corvallis, Oregon
Degree: B.S. Agricultural Resource Economics

1993 – 1994 Oregon State University; Corvallis, Oregon
1 year masters level fisheries coursework

Training

Northwest Fish Screening and Passage Workshops
Proper Functioning Condition Workshop
ODFW and USFS stream survey training

Experience

April 1997-Present, Oregon Department of Fish & Wildlife; Assistant Project Leader on Trout Creek Habitat Restoration Project

Duties

Fiscal management of project budgets, supervision of project personnel to implement and maintain fish habitat projects, preparation of proposals, works statements, contracts, leases, and reports, coordinates habitat work with private landowners, educates and informs private landowners as to best management practices in and along streams, coordination of habitat projects with other agencies and organizations performing conservation programs in the watershed. Identifies stream reaches with altered habitat conditions that lack necessary habitat types to sustain natural production of fish populations, determines appropriate fish habitat restoration/improvement actions, negotiates with government and private landowners for cooperation and permission to conduct habitat restoration projects, developed habitat restoration construction contracts, inspected construction contracts, performed maintenance on riparian improvements such as riparian fencing and instream habitat structures

April 1996- April 1997 Oregon Department of Fish & Wildlife Prineville District Acting Assistant District Fish Biologist and Restoration and Enhancement Coordinator.

Duties

Fiscal management of project budgets, preparation of proposals, contracts, and reports, coordinates habitat work with private landowners, educates and informs private landowners as to best management practices in and along streams, coordination of habitat projects with other agencies and organizations performing conservation programs in the watershed. Identifies stream reaches with altered habitat conditions that lack necessary habitat types to sustain natural production of fish populations, determines appropriate fish habitat restoration/improvement actions, negotiates with government and private landowners for cooperation and permission to conduct habitat restoration projects, conducted fish inventories, and evaluated fish stocking levels and timing on district waterbodies. Conducted and evaluated fish distribution, and population surveys.

April 1995 – April 1996 Oregon Department of Fish & Wildlife Restoration and Enhancement Coordinator.

Duties

Fiscal management of habitat project budgets, preparation of proposals, contracts, and reports, coordinates habitat work with private landowners,

educates and informs private landowners as to best management practices in and along streams, coordination of habitat projects with other agencies and organizations performing conservation programs in the watershed. Identifies stream reaches with altered habitat conditions that lack necessary habitat types to sustain natural production of fish populations, determines appropriate fish habitat restoration/improvement actions, negotiates with government and private landowners for cooperation and permission to conduct habitat restoration projects.

May 1992 - November 1994 USFS Ochoco National Forest (seasonal)
Fisheries Technician

Duties

Conducted, three different levels of stream surveys, analyzed, data and made recommendations. Conducted, supervised and analyzed data on a fish composition and density study on the North Fork of the Crooked River, Assisted OSU masters student on a redband/steelhead microhabitat utilization study.

Section 10. Information/technology transfer

No new technical information will be developed. If a monitoring program was funded from the start of the project there would have been some good information on what types of structures that achieved desired goals, and were durable, etc.. With this proposal we barely have the time to complete the operation and maintenance