

Grande Ronde Habitat Improvement Project:
Joseph Creek and Upper Grande Ronde River Subbasins

Annual Report
by

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A B S T R A C T

On July 1 , 1894 the Bonneville Power Administration and the Oregon Department of Fish and Wildlife entered into an agreement to initiate habitat enhancement work In the Joseph Creek subbasin, a tributary of the Grande Ronde River in northeast Oregon. on July 1, 1985 the upper Grande Ronde River and 33 of its tributaries were added to the contract (Contract No. DE-AI79-84BP16614). Titled The Grande Ronde Habitat Improvement Project: Joseph Creek and Upper Grande Ronde River Drainages, Project 84-25, this project's goal is to optimize spring/summer chinook and summer steelhead smolt production within the Grande Ronde River Basin using habitat enhancement measures. This project provides for implementation of Program Measure 703 (C)(3.), Action Item 4.2 of the Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program and Will be done as offsite mitigation for mainstem fishery losses caused by the Columbia River hydro-electric system. Accomplishing this goal will partially mitigate these losses.

All work being done by the Oregon Department of Fish and Wildlife Is on private lands and therefore requires that considerable time be spent developing landowner rapport to insure their acceptance of, and cooperation with, the program.

During 1998, one lease was signed which will protect 0.5 miles of stream and 4.3 acres of riparian habitat.

Work undertaken during 1988 included: 3.) construction of 16.1 miles of fence, 2) planting and/or seeding 2.0 stream miles. Of riparian area, 3) doing instream work on 1.5 miles of stream, 4) developing four offsite water sources, 5) completing habitat inventories on 47.7 miles of streams, 6) establishing 40 habitat monitoring transects, 7) collecting data from 140 habitat monitoring transects, 33: establishing and doing initial photographing of numerous photopoints, and 9) doing maintenance on 7.5 miles of fence. Additionally, extensive time and effort was put into developing a habitat monitoring transect data summarization computer program.

INTRODUCTION

The Joseph Creek and upper Grande Ronde River subbasins have recently been examined as part of a Grande Ronde basin study undertaken by the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and Oregon Department of Fish and Wildlife (ODFW). The study, funded by the Bonneville Power Administration (BPA), was designed to "compile, by major drainage, the basic information necessary to identify, evaluate, prioritize, and recommend site-specific solutions to major problems impacting the anadromous salmonid resource and fisheries", and "prepare an integrated overall plan for the study area" (CTUIR, 1984). The identification, prioritization, and implementation of habitat work within these subbasins represents a consensus among staff from Staff, Tribal, and Federal entities (Tables 1 and 2).

The Joseph Creek subbasin has historically been an excellent producer of summer steelhead, and the upper Grande Ronde River subbasin an excellent producer of both summer steelhead and spring chinook. Unfortunately, summer steelhead redd counts from 1970 through 1984 indicated a severe reduction in numbers of spawning adults returning to these subbasins; returns for the past four years, however, indicate a reversal in this trend (Table 3). Spring chinook redd counts indicate that returns to the upper Grande Ronde River subbasin remain well below those observed in the late 1960's and early 1970's (Table 4). Reasons for declines of anadromous fish during the mid-1970's and early 1980's include

1. problems with passage at mainstem Columbia and Snake River dams,
2. user demands for the fishery resource, and
3. degradation of spawning and rearing habitat.

Considerable effort and money has already been put into resolving mainstem dam passage problems and controlling ocean and river harvest of these stocks. Indications these efforts are resulting in increased numbers of adult summer steelhead, and to a lesser degree spring chinook, returning their native spawning grounds in lower Snake River tributaries (Table 5).

Observations in the Joseph Creek and upper Grande Ronde River subbasins however, indicate optimum rearing areas for summer steelhead and spring chinook are limited in large portions of these subbasins by degradation of riparian and instream habitats (Noll, 1987). Several factors have contributed to this habitat degradation within project areas. Contributing factors include livestock grazing, farming practices, timber harvest practices, road construction, and stream channelization; livestock grazing and farming

practices being the main factors on private lands. The result of this degradation has been loss of shade producing streamside vegetation, thereby causing high summer water temperatures, and destruction of natural pool/riffle ratios which are necessary for good smolt production. It has been estimated there is currently a 20 percent shade cover over most streams within project areas and, with proper habitat enhancement measures, this can be increased to 70 percent; a 250 percent increase over present shade cover. Installation of instream structures can restore pool/riffle ratios to an acceptable ratio. Therefore, through an aggressive habitat enhancement program, optimum habitats for returning adults and their progeny may be realized.

Table 1. The estimated amount of riparian and instream habitat work needed within the Joseph Creek subbasin by stream, and in priority order.

Stream	Species Affected	Priority ^a	Miles of Stream			Miles of Riparian Work				Instream Structures	
			USFS	Private	Total	Fencing		Planting		USFS	Private
						USFS	Private	USFS	Private		
Peavine Creek	Stld	1	8.0	0.0	8.0	4.5	0.0	4.5	0.0	43	0
Elk Creek	Stld	2	3.5	5.0	8.5	3.5	5.0	3.5	5.0	25	35
Chesnimnus Creek	Stld	3	12.0	8.0	20.0	12.0	8.0	8.0	4.0	60	40
Crow Creek	Stld	4	1.0	13.0	14.0	1.0	13.0	0.0	10.0	10	50
Swamp Creek	Stld	5	5.0	10.0	15.0	5.0	10.0	2.5	5.0	10	20
Pine Cr. System	Stld	6	2.0	20.0	22.0	2.0	18.0	2.0	18.0	10	40
Devil's Run Cr.	Stld	7	5.0	0.0	5.0	2.0	0.0	2.0	0.0	10	10
Davis Creek	Stld	8	7.0	3.0	10.0	7.0	3.0	4.0	3.0	10	0
Butte Creek	Stld	9	0.0	4.0	4.0	0.0	4.0	0.0	3.0	0	10
TNT Gulch	Stld	10	2.0	0.0	2.0	2.0	0.0	2.0	0.0	10	0
Joseph Creek	Stld	11	0.0	12.0	12.0	0.0	12.0	0.0	12.0	0	80
Subbasin Totals			45.5	75.0	120.5	39.0	73.0	28.5	60.0	188	285

Confederated Tribes of the Umatilla Indian Reservation. 1984. Grande Ronde River Basin. Recommended Salmon and Steelhead Habitat Improvement Measures. 92 pp.

^a Priorities have been changed as per the 1987 Implementation Plan.
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Table 2. The estimated amount of riparian and instream habitat work needed within the Upper Grande Ronde River Subbasin by stream, and in priority order.

Stream	Species Affected	Priority ^a	Miles of Stream			Miles of Riparian Work				Instream Structures	
			USFS	Private	Total	Fencing		Planting		USFS	Private
						USFS	Private	USFS	Private		
Grande Ronde River	Ch,Stld	1	6.0	5.0	11.0	2.0	5.0	1.0	4.0	130	175
Sheep Creek	Ch,Stld	2	7.0	5.0	12.0	1.0	5.0	0.5	2.5	210	175
Fly Creek	Stld	3	6.0	6.0	12.0	1.0	1.0	0.5	3.0	780	180
Spring Creek	Stld	4	5.0	0.0	5.0	1.0	0.0	2.5	0.0	150	0
S.F. Spring Creek	Stld	5	3.0	0.0	3.0	1.0	0.0	1.5	0.0	90	0
N.F. Catherine Creek	Ch,Stld	6	3.0	0.0	3.0	0.0	0.0	0.0	0.0	90	0
McCoy Creek	Stld	7	4.0	7.0	11.0	1.0	7.0	3.0	4.0	120	210
Rock Creek	Stld	8	0.0	6.0	6.0	0.0	8.0	0.0	3.0	0	90
Dark Canyon Creek	Stld	9	1.0	2.5	3.5	0.0	2.5	0.0	0.0	15	38
Meadow Creek	Stld	10	7.0	7.0	14.0	1.0	7.0	0.5	0.5	210	210
Indian Creek	Ch,Stld	11	1.0	5.0	6.0	0.5	3.5	0.0	0.0	30	150
Chicken Creek	Ch,Stld	12	5.0	2.0	7.0	1.0	1.0	0.0	1.0	75	70
Catherine Creek	Ch,Stld	13	0.0	5.0	5.0	0.0	4.0	0.0	0.0	0	150
Beaver Creek	Stld	14	1.5	5.0	6.5	0.0	3.0	0.0	0.0	45	150
Five Points Creek	Stld	15	5.5	0.5	6.0	0.0	0.5	0.0	0.5	165	15
Clark Creek	Ch,Stld	16	0.0	6.0	6.0	0.0	4.0	0.0	3.0	0	180
Little Catherine Cr.	Stld	17	1.0	4.0	5.0	0.0	2.0	0.0	1.5	15	60
Bear Creek	Stld	18	5.0	0.5	5.5	0.0	0.0	0.0	0.0	75	8
Limber Jim Creek	Ch,Stld	19	2.0	0.3	2.3	0.0	0.0	1.0	0.3	30	5
Pelican Creek	Stld	20	3.0	0.5	3.5	0.0	0.0	0.0	0.0	45	8
Peet Creek	Stld	21	2.0	1.0	3.0	0.0	0.0	1.0	0.5	60	30
Little Fly Creek	Stld	22	3.0	2.5	5.5	0.0	0.0	0.0	17.0	90	75
Whiskey Creek	Stld	23	1.0	8.0	9.0	0.0	4.0	0.0	2.0	15	120
Jordan Creek	Stld	24	2.0	8.0	10.0	0.0	4.0	0.0	2.0	30	120
N.F. Limber Jim Cr.	Stld	25	2.0	0.0	2.0	0.0	0.0	0.0	0.0	30	0
McIntyre Creek	Stld	26	2.5	5.0	7.5	1.0	3.0	1.0	5.0	75	150
Waucup Creek	Stld	27	5.0	0.0	5.0	0.0	0.0	1.0	0.0	150	0
Burnt Corral Cr.	Stld	28	6.0	0.2	6.2	0.0	0.0	0.0	0.0	90	4
Lookout Creek	Stld	29	3.5	0.8	4.3	0.0	0.0	0.0	0.0	53	24
Little Dark Canyon Cr.	Stld	30	2.0	0.0	2.0	0.0	0.0	0.0	0.0	60	0
Phillips Creek	Stld	31	0.0	6.0	6.0	0.0	2.0	0.0	0.0	0	180
Gordon Creek	Stld	32	0.0	7.0	7.0	0.0	4.0	0.0	2.0	0	210
Dry Creek	Stld	33	0.0	8.0	8.0	0.0	6.0	0.0	4.0	0	240
Cabin Creek	Stld	34	0.0	3.0	3.0	0.0	2.0	0.0	0.0	0	90
Subbasin Totals			95.0	116.8	211.8	10.5	82.5	13.5	39.8	2,328	3,117

Source : Confederated Tribes of the Umatilla Indian Reservation. 1984. Grande Ronde River Basin. Recommended Salmon and Steelhead Habitat Improvement Measures. 92 pp.

^a Priorities have been changes as per the 1987 Implementation Plan.

Table 3. Average ^{1/} summer steelhead spawning ground counts in the Joseph Creek subbasin ^{2,3/}, 1966 through 1988.

	Average 1966-69	Average 1970-74	Average 1975-79	Average 1980-84	1985	1986	1987	1988
Redds Observed	496	85	26	87	463	417	359	442
Miles Surveyed	56	54	43	54	49	46	47	47
Redds/ Mile	8.9	1.6	0.6	1.6	9.5	9.1	7.6	9.4

¹ Streams included in the Joseph Creek subbasin summer steelhead spawning ground counts include Butte, Chesnimnus (mainstem, north, and south forks), Crow, Devil's Run, Elk, Peavine, Swamp, and TNT Gulch creeks. All of these creeks, however, may not be inventoried on any given year due to river conditions. This annual variation is reflected in the "Miles Surveyed".

² Since the Joseph Creek and Upper Grande Ronde River subbasins are both within the Grande Ronde River basin, it is felt spawning ground trends within the Joseph Creek subbasins are also representative of those within the upper Grande Ronde River drainage.

³ Summer steelhead spawning ground counts were obtained from Kenneth L. Witty, District Fish Biologist, Wallowa District, Oregon Department of Fish and Wildlife.

Table 4. Average ^{1/} spring chinook spawning ground counts in the Upper Grande Ronde River subbasin ^{2,3/}, 1967 through 1988.

	Average 1967-69	Average 1970-74	Average 1975-79	Average 1980-84	1985	1986	1987	1988
Redds Observed	382	285	117	94	132	117	367	290
Miles Surveyed	35	27	24	27	27	27	45	27
Redds/ Mile	10.9	10.6	4.9	3.5	4.9	4.3	8.1	10.7

^{1/} Late 1960's counts are three or four year averages, 1970-1984 are 5 year averages, and 1985-1987 are counts by individual years.

^{2/} Streams in the Upper Grande Ronde River subbasin spring chinook spawning ground counts include North Fork, South Fork, and mainstem Catherine Creek, mainstem Grande Ronde River, and Sheep Creek.

^{3/} Spring chinook spawning ground counts were obtained from Duane C. West, District Fish Biologist, La Grande District, Oregon Department of Fish and Wildlife.

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Table 5. Counts of returning adult spring chinook and summer steelhead over Lower Granite Dam on the lower Snake River, 1975 through 1988.

Year	<u>Summer Steelhead</u> (June 1 - October 31)	<u>Spring Chinook/</u> (April 1 - June 17)
<u>Annual Counts</u> ^{2,3,4,}		
1975	13,523	17,639
1976	20,020	20,475
1977	48,037	38,770
1978	23,565	41,006
1979	20,281	7,539
1980	32,677	6,758
1981	33,234	13,642
1982	63,070	12,746
1983	76,673	10,026
1984	86,448	7,921
1985	102,104	27,737
1986	116,622	32,929
1987	54,055	29,781
1988	72,884	30,419

¹ Count includes adults and jacks.

² Counts for 1975 through 1984 were taken from the Oregon Department of Fish and Wildlife, Columbia River Management, Columbia River Fish Counts Report. January 1985.

³ 1979, 1983, and 1984 revisions to the table, and 1985 and 1986 figures were obtained through personal communication with Howard Jensen, Oregon Department of Fish and Wildlife, Clackamas, Oregon. January 26, 1987.

⁴ 1987 and 1988 counts were obtained through personal communication with Howard Jensen, Oregon Department of Fish and Wildlife, Clackamas, Oregon. March 1, 1988 and January 23, 1989 respectively.

DESCRIPTION OF STUDY AREAS

JOSEPH CREEK SUBBASIN

The Joseph Creek subbasin constitutes a major subbasin within the Grande Ronde River basin of northeast Oregon. It drains approximately 556 square miles of the 3,950 square mile Grande Ronde River basin and empties into the Grande Ronde River 4.3 miles above the confluence of the Grande Ronde and Snake rivers (Figure 1). Approximately 75 percent of the Joseph Creek subbasin is within the project area. Not included in the project area is lower Joseph Creek in Washington state and the Cottonwood Creek drainage which enters Joseph Creek 4.4 miles above Joseph Creek's confluence with the Grande Ronde River (Figure 1).

Within the project area 120.5 miles of stream have been identified as in need of habitat enhancement: 75 miles on private land and 45.5 miles on National Forest lands (Table 1).

UPPER GRANDE RONDE RIVER SUBBASIN

The upper Grande Ronde River subbasin constitutes approximately 1,622 square miles of the Grande Ronde River basin above the confluence of the Grande Ronde and Wallowa rivers at Rondowa; 81.4 miles upstream from the confluence of the Grande Ronde and Snake rivers (Figure 2). A major portion of the upper Grande Ronde River subbasin, including the mainstem Grande Ronde River and 33 of its tributaries, are within the project area.

Within the project area 211.8 miles of stream have been identified as in need of habitat enhancement; 116.8 miles on private lands and 95.0 miles on National Forest lands (Table 2).

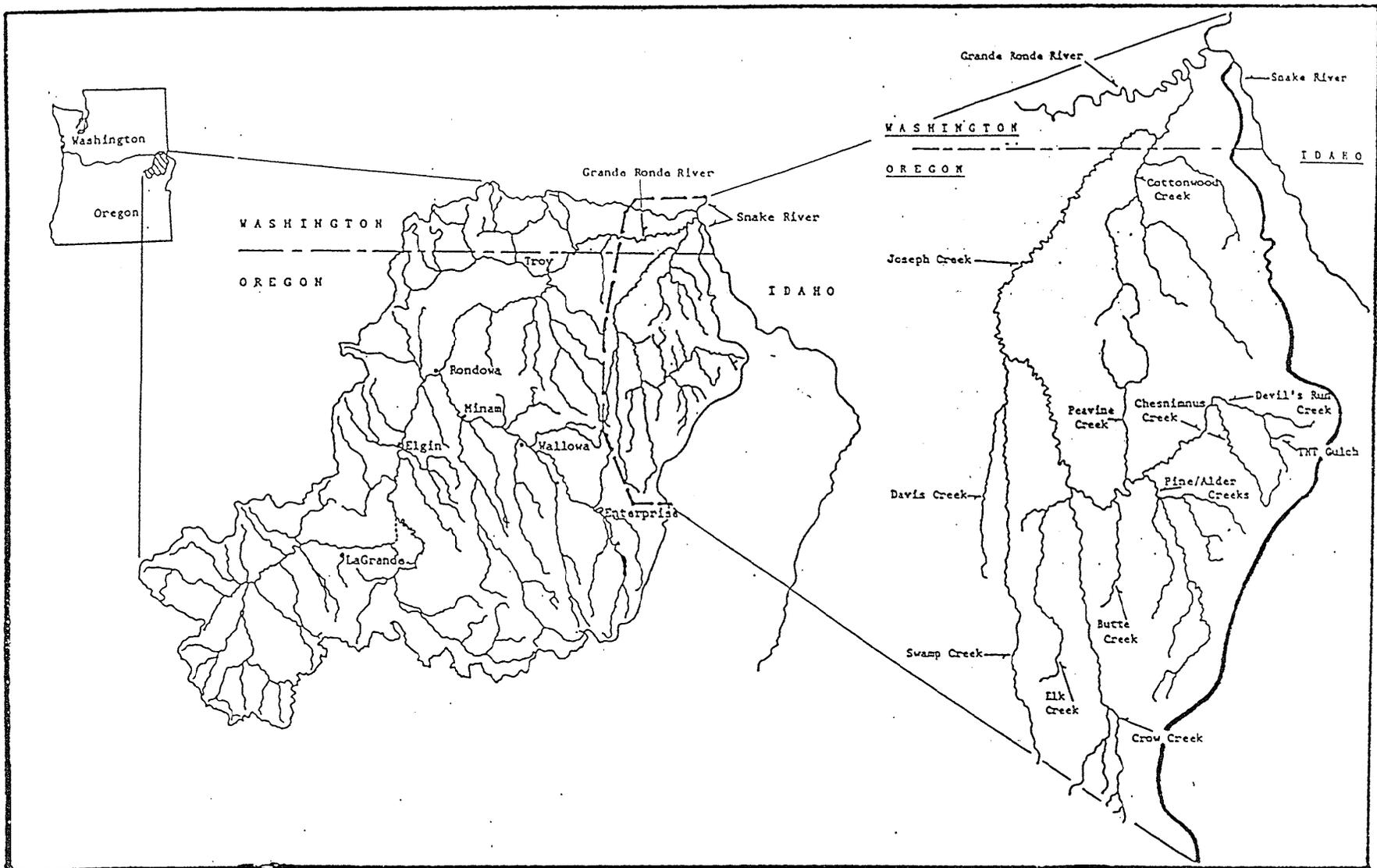


Figure 1. The Joseph Creek Drainage as it relates to the Grande Ronde River Basin of northeast Oregon and southeast Washington.

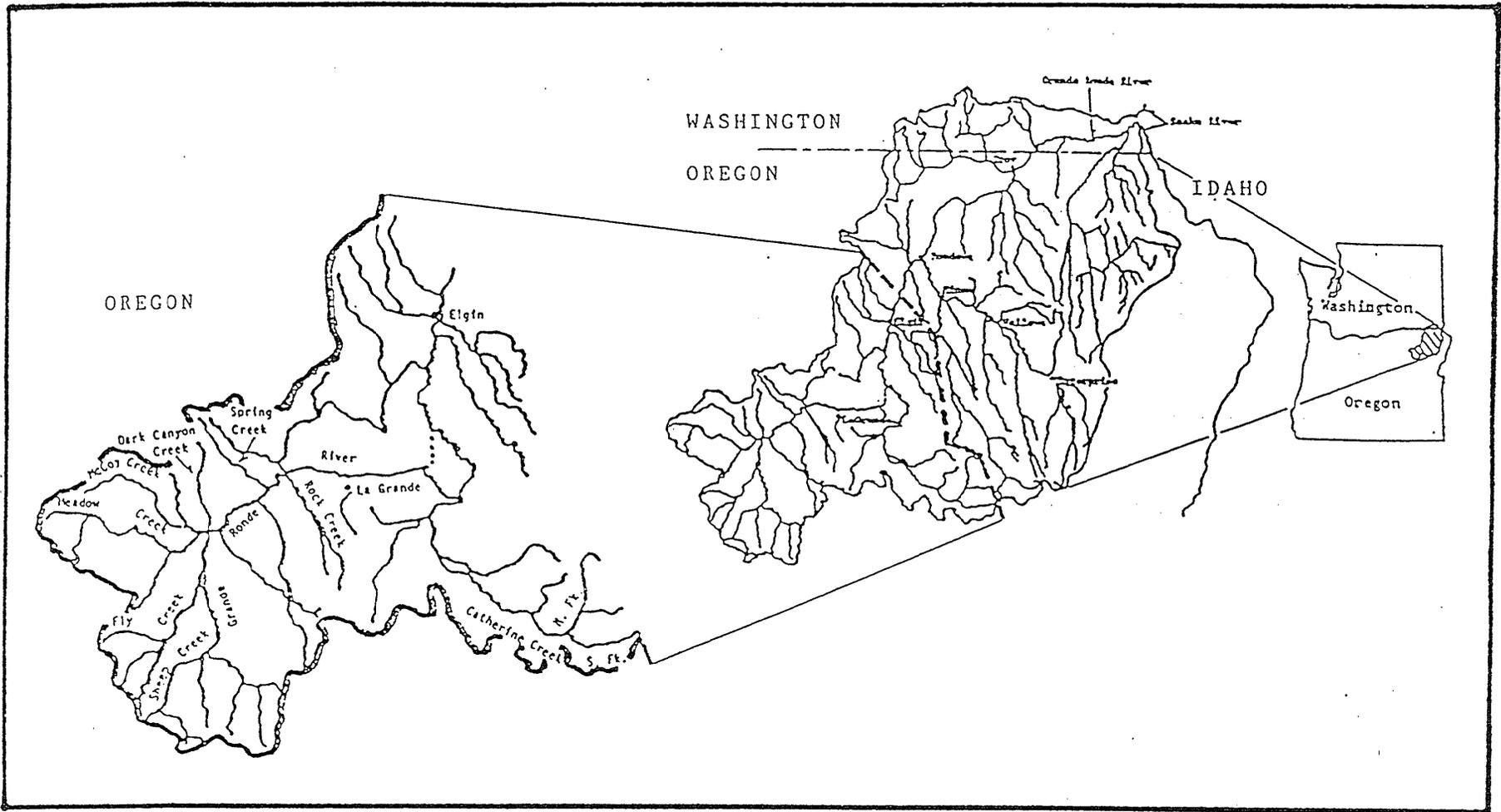


Figure 2. The Upper Grande Ronde River Drainage as it relates to the Grande Ronde River Basin of northeast Oregon

METHODS AND MATERIALS

The goal of this program is to optimize spring/summer chinook and summer steelhead smolt production within the Grande Ronde River Basin using habitat enhancement measures. To accomplish this goal, work will progress in three phases:

1. planning and preparation (prework),
2. implementation, and
3. maintenance and evaluation.

PREWORK

Prior to actual project implementation the following activities are to be conducted:

Project Planning

Project planning includes design and layout of all work to be done onsite, landowner coordination, development of contracts and contract specifications, and obtaining necessary work permits.

Project Preparation

Prior to signing leases or construction contracts, all lease boundaries and work sites must be identified, staked, and agreed upon by the landowner and/or contractor. Worksites may include easements or right-of-ways, fences, instream structures, offsite water developments, planting, and miscellaneous lease or construction related areas.

Riparian Lease Development and Procurement

Riparian lease development and procurement includes meeting with landowners and/or their legal representatives specifically for the purpose of developing an acceptable lease text, and/or signing lease documents.

Field Inventories

Inventorizing of physical parameters (i.e., flow features, substrate type, riparian vegetation, etc.) within riparian areas is necessary to determine which parameters, if any, are in need of restoration or enhancement. Prior to designing or implementing any riparian work, standard physical parameters are measured and evaluated. Data from these inventories are used to help prioritize streams and explain habitat enhancement needs to landowners.

IMPLEMENTATION

Implementation entails the actual on-the-ground work phase of the program and may include any or all of the following:

Instream Structures

During late summer and early fall when stream flows are lowest, structures will be installed in streams at locations preselected by fishery biologists and/or hydrologists. Structures of various types will be used to provide optimum pool/riffle ratios, raise riparian water tables, and collect spawning gravels, thereby increasing quantity and quality of rearing and spawning habitats. Rock jetties and deflectors will be the primary structures used to stabilize streambanks. Boulders will be used to create small rearing pools and hiding cover.

Planting

During the early spring, shrub and/or tree species may be planted at preselected locations along streams within project areas. Since high summer water temperature appears to be a major limiting factor, plantings will be made to provide stream shade, thereby reducing summer water temperatures and increasing salmonid utilization of streams. The maximum shade attainable for most streams in project areas is estimated at about 80 percent. The objective of this phase of the program is to reach a minimum of 70 percent shade and have water temperatures of no more than 68F within 20 years of project implementation.

During the fall, areas disturbed while doing implementation activities will be seeded to stabilize soils and discourage weed growth.

Fencing

Destruction of streamside vegetation by domestic livestock has been a major problem within project areas. To provide protection from livestock and thereby promote rapid recovery of existing and planted vegetation, fences will be constructed along riparian zones within project areas.

Photopoint Establishment

Photopoint establishment includes locating and placing permanent markers at sites from which photographs can be taken at regular intervals, thereby depicting riparian changes through time. Also associated with photopoint establishment is development of a photopoint notebook for each project area.

Offsite Water Developments

In an attempt to reduce the number of watering gaps in riparian fences (thereby reducing fence construction and maintenance costs), and to encourage livestock utilization of vegetation away from riparian areas, offsite water sources will be developed.

Habitat Monitoring Transects

Within selected project areas permanent habitat monitoring transects will be established. Specific measurements will then be taken along each transect. These measurements will be repeated at regular intervals and compared with original measurements as a means of quantitatively measuring environmental changes through time.

Miscellaneous Field Activities

Cooperator sign boards denoting riparian enhancement projects as cooperative efforts between BPA, ODFW and private landowners will be installed at high visibility sites along completed riparian enhancement project areas.

MAINTENANCE AND EVALUATION

Postwork entails all maintenance and evaluation of work which has been done within project areas. This phase of the program will usually begin the year following completion of implementation and will continue for several years. Typical postwork activities may include:

Project Maintenance

Following completion of implementation an annual inspection of all project areas will be made. Following this inspection all fence and instream structure maintenance will be done.

Photopoint Picture Taking

Standardized pictures will be taken from preselected photopoints prior to implementation on any project area and then during the spring and fall for two years immediately following completion of a project. Once these initial photos are obtained the frequency of photopoint picture taking may diminish to once every two to three years.

Habitat Monitoring Transect Data

Immediately after establishing habitat monitoring transects, baseline data will be collected. Data collection, following the establishment of baseline data, will be done on the first year following completion of implementation activities and then at approximately 3 to 5 year intervals.

Miscellaneous Field Activities

Thermographs may be installed within and/or adjacent to project areas. These thermographs will then be monitored on a regular basis to detect changes in water temperatures.

RESULTS AND DISCUSSION: I. FIELD ACTIVITIES

It is planned to accomplish habitat enhancement work on private lands in three phases:

1. planning and preparation (prework),
2. implementation, and
3. maintenance and evaluation (postwork).

Activities undertaken during this year were within all phases.

PREWORK

Prework activities are divided into four successive stages:

1. project planning,
2. project preparation,
3. riparian lease procurement, and
4. field inventories.

During this year activities within all four stages were undertaken.

Project Planning

Work done in the project planning stage included: a) design and layout of onsite work, b) landowner coordination, c) developing contracts and contract specifications and d) obtaining work permits.

Design and Layout: Identification of property boundaries for privately owned lands along priority streams in the Joseph Creek and upper Grande Ronde subbasins is the first step in preparation for doing habitat enhancement work. To accomplish this, county ownership maps were obtained from the respective County Assessor's offices. Once land ownerships and property boundaries were identified on these maps and/or transferred to topographic maps, aerial photographs (at a scale of 16 inches per mile) were obtained from the U. S. Department of Agriculture, Agricultural Stabilization and Conservation Service (USDS-ASCS). Individual streams were then traced from these photographs onto acetate, property lines and major geographic features added, and ozalid copies of these maps produced. Once completed ozalid maps were broken down into 8 1/2" x 11" segments and reproduced for use in on-the-ground planning activities, as descriptive parts of riparian lease agreements, and as parts of contracts specifications for contracted riparian enhancement work.

During 1988, acetate, ozalid and 8 1/2" x 11" maps for 4.6 miles of upper Grande Ronde tributaries were completed (Table 6).

Land ownership lists for the top 11 priority streams in the upper Grande Ronde subbasin were modified to reflect changes in ownerships during the past year. Following these revisions, several maps were revised to more accurately reflect stream channel, property boundary, and ownership changes. Additionally, maps of proposed fencelines were developed on three private properties pending development of riparian leases.

All color, black and white, and infrared low level aerial photographs for the following upper Grande Ronde and Joseph Creek subbasins were organized and filed: upper Grande Ronde subbasin; Burnt Corral, Chicken, Fly, McCoy, Meadow, Rock and Sheep creeks, and the mainstem Grande Ronde river; and Joseph Creek subbasin; Alder, Butte, Chesnimnus, Crow, Dry Salmon, Elk, Peavine, Pine, Salmon, and Swamp creeks.

Aerial photographs of Cabin, Chicken, Dry, McIntyre and Phillips creeks were sorted and organized by creek.

Following initial review and onsite evaluation water developments were designed for each of four offsite water sources.

Landowner Coordination: Considerable time was spent during the year meeting with landowners in the Joseph Creek and upper Grande Ronde River subbasins. Contacts were in the form of telephone conversations, on-the-ground inspection of proposed project sites, slide presentations and letters. During these meetings emphasis was placed on meeting fishery needs while at the same time benefiting landowners.

During 1988 seven landowners in the Joseph Creek subbasin and eleven landowners in the upper Grande Ronde River subbasin were contacted regarding possible work on their properties (Table 7).

Landowners in the upper Grande Ronde subbasin along Beaver, Chicken, Clark and Little Fly creeks were contacted to obtain permission to do habitat inventories on their properties.

A meeting was held with Waite (Meadow Cr.) to resolve problems which arose regarding their lease with ODFW. All issues were resolved, but not in time to implement instream activities on their property during this field

Table 6. Mapping activities completed for private properties along the Joseph Creek and Upper Grande Ronde River subbasins, through December 31, 1987.

	County Assessor Maps	Topographic Maps	Aerial Photos Purchased	Acetate Maps (miles)	Quartz Maps (miles)	MapX11 Maps
Upper Grande Ronde River Subbasin						
Grande Ronde River	X	X	X	3.8	3.8	3.8
Sheep Creek	X	X	X	7.5	7.5	7.5
Fly Creek	X	X	X	7.8	7.8	7.8
Spring Creek	----- No Private Lands -----					
S.F. Spring Creek	----- No Private Lands -----					
N.F. Catherine Creek	----- No Private Lands -----					
McCoy Creek	X	X	X	8.6	8.6	8.6
Rock Creek	X	X	X	14.4	14.4	14.4
Dark Canyon Creek	X	X	X	1.9	1.9	1.9
Meadow Creek	X	X	X	10.2	10.2	10.2
Indian Creek	X	X	X	11.7	11.7	11.7
Chicken Creek	X	X	X	4.6	4.6	2.5
Catherine Creek	X	X	X	9.2	9.2	9.2
Beaver Creek	X	X	X	6.2	6.2	6.2
Five Points Creek	X	X	X	2.4	2.4	2.4
Clark Creek	X	X	X	12.9	12.9	12.9
Little Catherine Creek	X	X	X	5.5	5.5	5.5
Bear Creek	X	X	X	--	--	--
Limber Jim Creek	X	X	X	--	--	--
Pelican Creek	X	X	--	--	--	--
Peet Creek	X	X	X	--	--	--
Little Fly Creek	X	X	X	2.6	2.6	2.6
Whiskey Creek	X	X	X	9.3	9.3	9.3
Jordan Creek	X	X	X	8.0	8.0	8.0
N.F. Limber Jim Creek	----- No Private Lands -----					
McIntyre Creek	X	X	X	--	--	--
Waucup Creek	----- No Private Lands -----					
Burnt Corral Creek	X	X	--	--	--	--
Lookout Creek	X	X	X	0.6	0.6	0.6
Little Dark Canyon Creek	----- No Private Lands -----					
Phillips Creek	X	X	X	--	--	--
Gordon Creek	X	X	X	--	--	--
Dry Creek	--	X	X	--	--	--
Cabin Creek	X	X	X	--	--	--
Subtotals	--	--	--	105.5	105.5	105.5
Joseph Creek Drainage						
Peavine Creek	----- No Private Lands -----					
Elk Creek	X	--	X	--	--	1.8
Chesnimnus Creek	X	--	X	10.2	10.2	10.2
Crow Creek	X	--	X	15.7	15.7	15.7
Swamp Creek	X	--	X	14.3	14.3	14.3
Pine Creek System	X	--	X	18.8	18.8	18.8
Devil's Run Creek	----- No Private Lands -----					
Davis Creek	X	--	--	--	--	--
Butte Creek	X	--	X	4.6	4.6	4.6
TNT Gulch	----- No Private Lands -----					
Joseph Creek	X	--	X	4.5	4.5	4.5
Subtotals	--	--	--	68.1	68.1	69.9
Totals	--	--	--	173.6	173.6	175.4

Table 7. Landowners contacted in the Joseph Creek and Upper Grande Ronde River subbasins, for the purpose of discussing riparian management programs and/or riparian lease development in 1988.

Joseph Creek Landowners	Stream Involved	Upper Grande Ronde Landowners	Stream Involved
Anderson	Chesnimnus Creek	Abell	Rock Creek
Birkmaier	Crow Creek	Bowman	Meadow Creek
Buhler	Crow Creek-	Clark	Beaver-Creek
John Hancock Ins; Co.	Chesnimnus Creek	Correa	Meadow Creek
McClaran	Pine Creek system	Courtney	Whiskey Creek
Olson*	Swamp Creek	Hampton	Whiskey Creek
Snyder	Crow Creek	Musgrove	McCoy, Meadow & Jordan creeks
Stein*	Crow Creek	Rankin	Jordan Creek
Yost	Butte Creek	Seeger	Whiskey & Jordan
		Standley	Whiskey & Jordan

*Landowners with whom considerable time was spent to develop an acceptable riparian management plan and/or lease agreement.

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season. Implementation is now scheduled for the 1989 field season.

Three meetings were held with Misener's (McCoy/Meadow creek project) and their neighbor (Tsiatsos) to resolve a watering gap alignment problem. Differences were resolved and we were able to complete the McCoy/Meadow Creek fencing project.

Developing Contracts and Contract Specifications: Considerable time during 1988 was devoted to developing contracts and contract specifications for fence, instream structure, and offsite water development contracts. Specification/quote forms for fencing materials were also developed which standardized materials specifications and reflected a need for change in materials type and quantity.

Specifications were developed for two equipment/operator rental contracts (one instream and offsite water development contract for Crow Creek, and one instream structure contract for McCoy creek).

Contract specifications for high tensile smooth wire fence construction were rewritten twice during 1988; Once following each the 1987 and 1988 field seasons. Following the first revision these specifications were submitted to the ODFW Engineering Section for review and inclusion in two 1988 fencing General Construction Contracts (McCoy/Meadow and Sheep creeks). Additionally, complete bid packages were developed and contracts awarded through the Northeast Region for one fencing General Construction Contract (Crow creek). Contract development included revising Technical Specifications and Special Conditions sections of the contract as well as drawings, maps, and proposal forms.

Several rock site development and instream structure placement contracts were developed, but only one was awarded due to problems encountered with one of the landowners, Waite/Meadow Cr. The contract that was awarded was for completion of instream work on Misener's McCoy Creek property.

Obtaining Work Permits: Waivers for instream work on Crow, McCoy and Meadow creeks were applied for and received from the Oregon Division of State Lands.

A permit to develop rock quarries at two sites on USFS land was obtained from the La Grande Ranger District of the Wallowa Whitman National Forest. Subsequently, due to extreme fire danger, the USFS closed the forest in early September. A request was therefore made of the USFS to issue a waiver which would allow operation of

heavy equipment in the Elkanah rock quarry site. The waiver was issued thereby allowing work to proceed with precautionary fire equipment present at the quarry site.

Project Preparation

In preparation for prebid tours, 16.1 miles of fenceline along Crow, McCoy, Meadow and Sheep creeks were staked. Most of this was restaked at least once prior to construction due to damage to the staking by domestic livestock between the time of original staking and time of the prebid tour; then again between time of the prebid tour and the commencement of actual construction. Additionally about 6.0 miles of fenceline were staked on three proposed project areas for the purpose of developing leases (2.0 miles on Courtney/Whiskey Cr., 2.5 miles on Buhler's/Crow Cr. 0.5 miles on Stein's/Crow Cr., and 1.0 miles on McClaran's/salmon Cr.).

Approximately 2.0 miles of Alder Creek (McClaran), 1.5 miles of upper Chesnimnus creek (Anderson) and 2.0 miles of Crow Creek (Stein and Buhler) were evaluated as potential future lease areas.

An additional 0.8 miles of old barbed wire fence was measured and identified for removal on the Meadow Creek project site.

Approximately 4.4 miles of barbed wire fence along Swamp Creek (Olsen) was inspected and maintenance needs identified.

All instream structure and offsite water development sites were identified and staked along Crow, McCoy and Meadow creeks.

Prior to all fence, instream, and offsite water development work, six prebid inspection tours were conducted by ODFW personnel for all interested bidders.

General construction and preparation of all field equipment and materials needed for implementation activities were completed prior to the 1988 field season.

Riparian Lease Development and Procurement

One riparian lease was signed in 1988; one Joseph Creek subbasin landowner (McClaran/Salmon Creek). This lease will protect 0.5 miles of stream and 4.3 acres of riparian habitat for fifteen years. Combined with leases signed in 1985, 1986 and 1987 we now have 22.1 miles of stream and 307.1 acres of riparian habitat leased (Table 8).

Table 8. Leased riparian lands in the Joseph Creek and upper Grande Ronde River drainages, 1985 through 1988.

Property Owner	Stream	Stream Miles Leased	Acres Protected
<u>1985</u>			
Olsen	Swamp Creek	2.4	16.2
Birkmaier	Elk Creek	0.6	7.7
<u>1986</u>			
Boise Cascade	Swamp Creek	2.6	46.8
Smith	Fly Creek	1.2	16.2
Yost	Chesnimnus Creek	3.0	41.8
<u>1987</u>			
Fleshman	Crow Creek	1.3	10.5
Waite	Meadow Creek	1.2	19.7
Misener ^{1/}	Meadow Creek	2.7	56.8
Misener	McCoy Creek	1.6	19.6
VeY	Sheep Creek	1.3	18.9
Vey	Sheep Creek	3.0	35.5
BLM ^{1/}	Sheep Creek	0.7	12.8
<u>1988</u>			
McClaran	Salmon Creek	0.5	4.3
Totals		22.1	307.1

^{1/} This lease is the result of a cooperative agreement between ODFW and BLM. It ties together ongoing projects on Sheep Creek which includes USFS, BLM, ODFW, and private landowners.

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Though numerous other landowners were contacted in 1988 (Table 7) only McClaran's have signed a lease.

Field Inventories

Three days of instruction and field orientation to habitat inventory methodologies were given to four seasonal employees in the upper Grande Ronde and Joseph Creek subbasins. Following these orientation sessions habitat inventories were completed on 47.7 miles of streams during 1988. Habitat inventories in the upper Grande Ronde subbasin included Beaver Creek (6.2 mi.), Clark Creek (16.3 mi.) Chicken Creek (4.0 mi.) and Little Fly Creek (3.1 mi.); and in the Joseph Creek subbasin, Davis Creek (6.9 mi.) and Joseph Creek (11.2 mi.). An additional 0.9 miles of Clark Creek could not be inventoried due to lack of cooperation from the landowner (Culver).

Five thermographs were prepared and installed on project areas in the upper Grande Ronde subbasin; two along Sheep Creek and three along McCoy Creek.

IMPLEMENTATION

Implementation activities undertaken during 1988 were in the instream structure, planting, fencing, photopoint establishment, offsite water development, habitat monitoring transect establishment, and miscellaneous field activities categories.

Instream Structures

Two instream structure contracts were implemented in 1988; one on Crow Creek and one on McCoy Creek. Six log sills were installed in a tributary to Crow Creek for the purpose of raising water tables, thereby promoting growth of riparian vegetation and year-round flows. Historically steelhead have used this tributary for spawning and rearing, but greatly reduced summer flows in recent years have resulted in total loss of the area for rearing purposes. Two "V" weirs with heavily riprapped ends, and 62 boulders were installed in the lower one mile of McCoy Creek. These structures were installed to provide pool habitat and resting cover for rearing chinook and steelhead/native trout.

Planting

Seeding of areas disturbed by fence construction, instream structure construction, and offsite water development activities were completed along McCoy and Crow creeks. These areas were seeded with a mix consisting of Alsike white clover (20%), Durar hard fescue (33%), Travois alfalfa (27%), and Climax Timothy (20%).

Twenty-three Ponderosa pine (Pinus ponderosa) and 18 willow (Salix spp) were planted on the Crow Creek project site. The USFS provided planting stock and personnel to plant 1,500 seedling cottonwood trees, 2,000 cottonwood cuttings, and 100 pine seedlings along McCoy Creek on Misener's property.

Fencing

Three contracts resulted in construction of 16.1 miles of high tensile smooth wire fence during 1988; 13.8 miles in the upper Grande Ronde subbasin and 2.3 miles in the Joseph Creek subbasin. Additionally four stream crossing structures were constructed on Chesnimnus Creek (Yost's) by GDFW personnel. These stream crossing structures completed all new fence construction on that project area.

Two spring developments on the McCoy Creek project were fenced by ODFW personnel. Fencing of an additional four spring development sites on the Swamp Creek project were also completed by ODFW personnel.

Though fence construction was halted between September 2 and 19 due to extreme fire danger, all projects were completed.

Photopoint Establishment

New photopoints were established to complement existing ones on McCoy and Sheep creeks in the upper Grande Ronde subbasin. Photopoints were also established on Crow Creek in the Joseph Creek subbasin. All photopoints were marked with a steel post and metal identification tag.

Photopoint notebooks were developed for all photopoints which were established during 1988. All photopoint notebooks were also updated.

Offsite Water Developments

During 1988 four offsite water developments were completed; two along McCoy Creek (Misener), and two along Crow Creek (Fleshman).

Work on a water ram along Meadow Creek (Waite) was completed. The ram was found to be operable, however due to unforeseen problems with old buried pipe the project was abandoned.

Habitat Monitoring Transect Establishment

Forty habitat monitoring transects were established on McCoy Creek during 1988. This brings the total number of transects on upper Grande Ronde and Joseph Creek subbasin project areas to 140.

Miscellaneous Field Activities

Signs denoting riparian project areas as a cooperative effort between BPA, ODFW, and private landowners were placed on riparian fences along McCoy, Meadow and Sheep creeks in the upper Grande Ronde subbasin and Elk, Crow and Swamp creeks in the Joseph Creek subbasin.

Twenty bird houses were installed along the McCoy/Meadow Creek project area

Assembly of a storage shed at the LaGrande office was completed and rocking of the Ladd Marsh storage area was begun.

Inventories of fish in McCoy and Sheep creeks in the upper Grande Ronde subbasin were made during 1988.

MAINTENANCE AND EVALUATION

Project Maintenance

Maintenance was completed on 7.5 miles of fence in 1988: 1.8 miles along Fly Creek, 4.4 miles of along Swamp Creek, and 1.3 miles along Elk Creek. Maintenance required on the Swamp and Fly creek fences were due to the extremely wet nature of the areas where the fences were constructed. The Swamp Creek fence is a barbed wire fence which was constructed in 1985 and required extensive maintenance ; one watering gap was also installed. The Fly Creek fence is a high tensile smooth wire fence constructed in 1987; this fence needed only minor repairs. The Elk Creek fence is a barbed wire fence constructed in 1986, and needed only minor repairs.

Numerous other minor fence repairs were made during 1988. These repairs included the following:

- .. The Chesinismus Creek fence was repaired after a vehicle drove through it.
 - .. The Swamp Creek high tensile fence was repaired twice due to trees having fallen across it.
 - .. stream crossing fences on Chesnimnus and Crow creeks were repaired following high flows.
- Barbless, wire fences around spring developments on Swamp creek were completed.

An old barbed wire fence on Swamp Creek was repaired after a tree fell across it.

- The high tensile fence along Swamp Creek was repaired after a grazing allotment leasee on Boise Cascade property cut the fence wires to remove a bull from the riparian enclosure.

H-brace cross members on 5.0 miles of fence along Chesnimnus Creek were treated with wood preservative.

Protective posts were installed around a thermograph stand along McCoy Creek following damage to the stand by livestock.

Spring boxes were cleaned at five locations on Swamp Creek (Boise Cascade property).

Photopoint Picture Taking

Pictures were taken during the spring and fall at most photopoints established prior to 1985. Initial photopoint pictures were also taken at all photopoints established in 1988. Numerous photopoint pictures were retaken in both subbasins due to poor quality of the first set of pictures.

Habitat Monitoring Transect Data Collection

Data collection was completed on a total of 140 transects; 40 transects each from McCoy and Sheep creeks, and 30 transects each from Chesnimnus and Elk creeks.

Considerable time was spent sorting and labeling transect identification and photopoint slides for most established transects.

Miscellaneous Field Activities

An annual breeding bird survey along the leased riparian habitat area of Swamp Creek was conducted by ODFW district personnel in July (Appendix A).

Thermographs from McCoy and Sheep creeks in the upper Grande Ronde subbasin were removed from the field and the data off-loaded onto computer disks. Thermographs were then deployed for fall/winter collection.

Spraying of primary noxious weeds within the leased riparian habitat area along Chesnimnus Creek was completed.

RESULTS AND DISCUSSION II. ADMINISTRATION

ADMINISTRATIVE

Administrative activities during 1988 included preparation of reports and data summaries, budgets and purchasing, program development, supervision of personnel, and contract administration

Reports and Data Summaries

Monthly and annual progress reports for the Joseph Creek and upper Grande Ronde subbasins were prepared and submitted to BPA.

The 1988-1992 Implementation Plan and 1988-89 Work Statement were completed and submitted to EPA.

Daily contract inspection reports were completed for all work done on Crow, McCoy/Meadow and Sheep creeks fencing projects.

A project description was written and submitted to the Union County Soil and Water Conservation District for inclusion in their annual newsletter.

Work began on: summarization and analysis of data collected from habitat monitoring transect solar pathfinder information from Chesnimnus and Elk creeks.

Work was begun on summarizing habitat inventory data from Clark and Little Fly creeks.

Work was begun on computer aided summarization of thermograph data.

Summarization of electroshocking data was begun for McCoy and Sheep creeks in the upper Grande Ronde subbasin, and for Butte, Chesnimnus (mainstem, north and south forks), Crow, Elk, Pine and Swamp creeks in the Joseph Creek subbasin.

All 1988 field data summaries (thermographs, habitat inventories habitat monitoring transects, and electrofishing) will be completed in early 1989 and therefore will be included in the 1989 Annual Report.

Budgets/Purchases

Considerable time was spent obtaining bids, purchasing and/or receiving shipments of materials for fence construction, offsite developments, and instream structure work. Bids were received on six fence materials contracts, three offsite water development materials contracts, and several miscellaneous purchasing orders for instream

structure and habitat transect monitoring materials. Additionally, all capitol items were purchased and planting stock for both program areas were ordered for 1989.

Program Development

Guidelines, instructions for use of new thermographs were completed.

A considerable amount of time was devoted to developing a habitat monitoring program-for use in the upper Grande Ronde and Joseph Creek subbasins. Work in 1988 entailed: 1) refining habitat transect data collection methodologies, 2) developing a transect data summarization computer program, 3) developing a user's guide for the transect data summarization computer program, and 4) developing a notebook for all habitat monitoring transect identification and data compilation. All four areas of emphasis were completed in 1988, but all will be subject to minor modifications in the future. Limited work was also done with Cliff Pereira (ODFW/OSU statistician) to review statistical analysis of habitat monitoring transect data.

Personnel

Mrs. Ann Greece (Technician II in La Grands) terminated her employment with ODFW. In February 1988 Mr. Timothy D. Bailey was selected to replace Mrs. Reece.

Mr. Gary C. Findley was hired as a Technician II in our Enterprise office to replace Mr. Darryl Gowan who transferred to another ODFW program at the end of 1987.

Five seasonal/temporary employees were hired to assist with project implementation activities between May 1 and November 30, 1988. Additional assistance was received from an ODFW computer programmer and an ODFW/OSU statistician to develop a habitat monitoring program.

Contract Administration

Both General Construction and Equipment/Operator Rental contracts were administered by project personnel during 1988. Three General Construction contracts for construction of riparian fences, and two Equipment/Operator Rental contracts for installation of instream structures and offsite water developments were completed. During fence construction, ODFW personnel spent considerable time doing onsite contract inspections and administration, and assisting contractors with materials handling.

INTERAGENCY COORDINATION/EDUCATION

INTERAGENCY COORDINATION

Several tours of project areas in both the Joseph Creek and upper Grande Ronde subbasins were conducted. Tours included personnel from BPA, ODFW and USFS.

An onsite meeting with a private landowner, directors of the Union County SWCD and the District Conservationist with the Union SCS was attended to help resolve a riparian fencing problem.

All planting of trees on the McCoy Creek project area was undertaken as a cooperative effort between ODFW and the La Grande Ranger District of the USFS, Wallowa Whitman National Forest.

EDUCATION

A slide talk was given to the Grande Ronde Bird Club about the value, preservation and restoration of riparian areas .

A slide presentation was given on watershed management to a local agricultural club; "South 40."

The following educational activities were undertaken with various childrens groups during 1988:

1. A 4-H group helped plant trees in riparian areas in Wallowa County.
2. An Imbler High School advanced biology class was instructed on habitat monitoring transect methods,
3. A Baker fifth grade class was instructed on riparian areas and their importance to fish and wildlife.
4. Three groups of 12 to 15 year old 4-H members were presented a program on riparian habitat management.
5. Eight sixth grade classes were instructed about various aquatic insects and their role in the riparian habitat ecosystem.
6. A slide presentation emphasizing how riparian areas and their proper management affects the life history of fish was given to a fourth grade class.

LITERATURE

Confederated Tribes of the Umatilla Indian Reservation.
1984. Grande Ronde River Basin. Recommended Salmon
and Steelhead Habitat Improvement Measures. 92 pp.

Nell, William T. et. al. 198-7. Grande Ronde River Basin
Fish Habitat Improvement Implementation Plan. 29 pp.

APPENDIX A

SWAMP CREEK BREEDING BIRD SURVEY - 1988

The Swamp Creek breeding bird survey was conducted on 1 July, 1988. The route started at 04:48 hours and was conducted similarly to breeding bird surveys employed by U.S. Fish and Wildlife Service. Temperature at start item was 41F, sky was clear, and there was no wind.

A total of 18 species and 134 individuals were observed. This compares to last year's count of 21 species and 105 individuals. Table 1 depicts results of this spring bird count and Table 2 compares total individuals and species for the past three years.

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Table 1. 1988 count results.

Species	-----Stop-----					# of individuals	# Stops species
	12	3	4	5	6		
American kestrel			1			1	1
ring-necked pheasant		1				1	1
common snipe	3	1	2		1	7	4
mourning dove	3	1	1			5	3
common nighthawk	1					1	1
killdeer	2					2	1
willow flycatcher	1	2	1		1	5	4
barn swallow	1					1	1
rough-wing swallow	2					2	1
common flicker		1			1	2	2
American robin	5	2	3	3	2	3	18
black-billed magpie		2	1	1		4	3
red-winged blackbird	12	7	1	2	4	1	27
Brewer's blackbird	14	5	8	2	4	3	36
brown-headed cowbird	4	3	2	4		2	15
vesper sparrow				1			1
song sparrow		2	1			1	4
dark-eyed junco					2	2	2

28 species total.
 134 individual total.
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Table 2. count comparisons, 1986--88.

	1986	1987	1988
Total individuals	143	105	134
Total species	23	21	18