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**PINE HOLLOW WATERSHED PROJECT
FY 1999 PROJECTS**

Annual Report 1999



DOE/BP-16300-1



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Pine Hollow Watershed Project

FY 1999 Projects

Prepared by:

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Prepared for:

US Department of Energy
Bonneville Power Administration
Environment, Fish and Wildlife Division

Project Number: 9901000

Contract Number: 99AP16300

Abstract

The Pine Hollow Project (1999-010-00) is an on-going watershed restoration effort administered by Sherman County Soil and Water Conservation District and spearheaded by Pine Hollow/Jackknife Watershed Council. The headwaters are located near Shaniko in Wasco County, and the mouth is in Sherman County on the John Day River. Pine Hollow provides more than 20 miles of potential summer steelhead spawning and rearing habitat. The watershed is 92,000 acres. Land use is mostly range, with some dryland grain. There are no water rights on Pine Hollow. Due to shallow soils, the watershed is prone to rapid runoff events which scour out the streambed and the riparian vegetation. This project seeks to improve the quality of upland, riparian and in-stream habitat by restoring the natural hydrologic function of the entire watershed. Project implementation to date has consisted of construction of water/sediment control basins, gradient terraces on croplands, pasture cross-fences, upland water sources, and grass seeding on degraded sites, many of which were crop fields in the early part of the century. The project is expected to continue through about 2004. In 1999, the Pine Hollow Project built 12 sediment basins, 9 gradient terraces, 2 cross-fences and one livestock waterline. 1999 projects were funded by BPA, Oregon Watershed Enhancement Board, and landowners. In-kind services were provided by Sherman County Soil and Water Conservation Service, USDA Natural Resources Conservation Service, USDI Bureau of Land Management, Oregon Department of Fish and Wildlife, Pine Hollow/Jackknife Watershed Council, landowners and Wasco County Soil and Water Conservation Service.

Background

In 1993, landowners in the Pine Hollow Watershed approached the Sherman County Soil and Water Conservation District (SWCD) to help organize a watershed management project. Their goal was to improve the functioning of the Pine Hollow Watershed by implementing improved land management practices.

The SWCD assisted them in the formation of a watershed council, and in finding partners in the state and federal agencies that could provide technical assistance. The Watershed Council has since performed an assessment of riparian conditions using Proper Functioning Condition, and has adopted an action plan. The SWCD contracts with a private range planner to provide rangeland assessments and grazing management plans for each of the participating private ranches.

Watershed Council partners include Sherman County SWCD, USDA Natural Resources Conservation Service, USDI Bureau of Land Management, Oregon Department of Fish and Wildlife, Sherman County Weed District, PG&E Gas Transmission Northwest, and Wasco County Soil and Water Conservation District.

The Pine Hollow Watershed is a tributary of the John Day River covering 92,000 acres, and containing more than 20 miles of fish-bearing stream. The watershed is located primarily within Range 16 and 17 east and Township 4 and 5 south. The creek flows through a deep canyon bisecting shallow-soiled uplands. The creek provides habitat for summer steelhead, redband trout, dace, bridgelip suckers and other fish.

The Pine Hollow Watershed Action Plan (1999) provides the overall direction of the plan, whereas site-specific conditions and objectives are determined by the on-going individual ranch management planning process.

Restoration funds acquired by the SWCD on behalf of the watershed council have been leveraged with additional resources from landowners to restore habitat for both anadromous and resident salmonids, and to improve upland conditions for wildlife.

Sherman County SWCD began administering restoration projects on behalf of the Pine Hollow Watershed Council in 1996. BPA funds were used for the first time in 1999. 24 projects were funded in 1999. Locations are highlighted on the map. This report summarizes these projects.

Objectives

Objective 1: Assess condition of upland areas.

Objective 2: Mitigate peak flow events, enhance summer flows, and reduce summer temperatures.

Objective 3: Encourage riparian and stream channel recovery.

Objective 4: Monitor progress.

Objective 5: Administrative and technical support of watershed council and project planning efforts.

Project Description

The project consists of on-going improvements to land management techniques, focusing on ranch and farm management practices. Funding is used for installation of improved ranch infrastructure

which allows more careful and intensive management of domestic livestock. Specific practices are identified during the course of ranch planning.

Practices implemented in 1999 are as follows:

Practice	Extent	Total Cost	BPA Cost	Cost share
12 Sediment basins		\$41,293.50	\$6,075.45	\$35,218.05
9 gradient terraces	4,735 feet	\$3,272.50	\$0	\$3,272.50
2 Cross Fences	12,420 feet	\$4,299.57	\$2,869.61	\$4,299.57
1 Livestock Waterline	2,340 feet	\$2,117.46	\$1,905.71	\$211.75
TOTAL		50,983.03	10,850.77	40,132.26

Project Monitoring

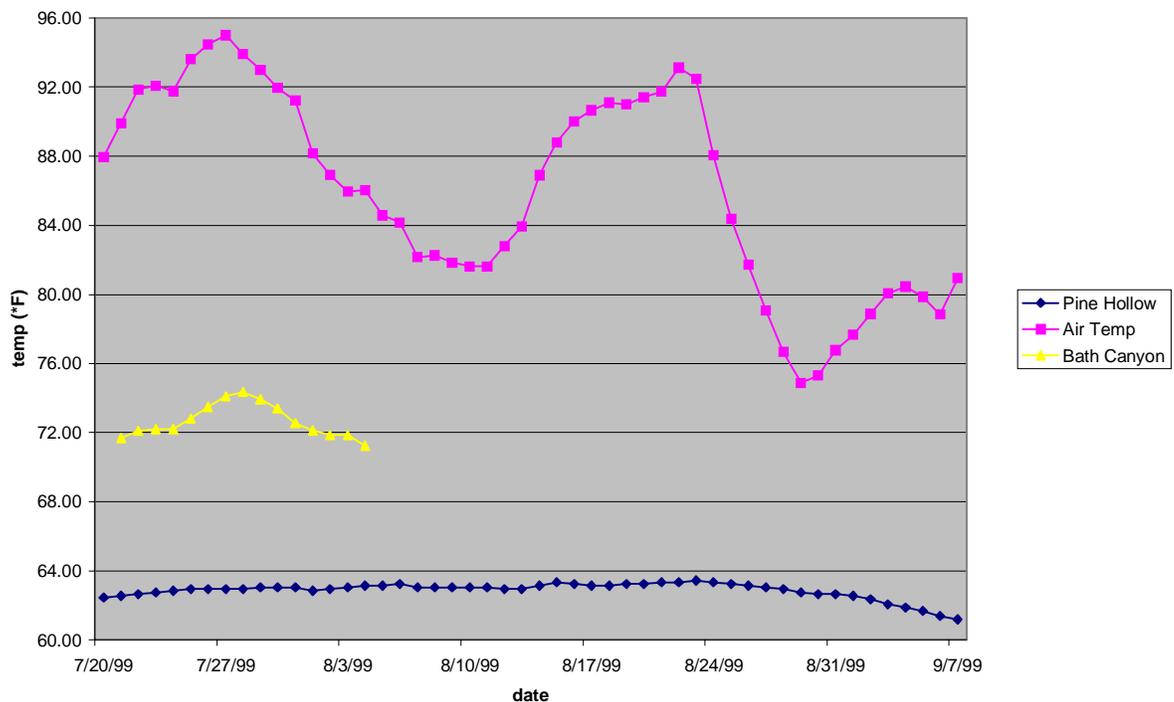
Temperature:

During 1999, HOBO Temperature Monitors were placed in the following locations with the following results:

Bath Canyon - 2 HOBOs (water). The upper HOBO canister leaked, causing the battery to corrode. Data was obtained from July 21 to August 4. The lower HOBO was exposed to air by August 3, and possibly before that.

Upper Pine Hollow - 3 HOBOs (1 air, 1 soil, 1 water) in one site. These were installed by a private ranch-owner, who has not yet provided his data.

Seven day averages water versus air temperature



Middle Pine Hollow - 1 HOBO (water). This HOBO canister also leaked, so data will be incomplete. This was installed by a private ranch-owner.

Lower Pine Hollow - 3 HOBOs (1 air, 1 soil, 1 water). These were installed by project personnel. The soil temperature logger malfunctioned and did not record any data.

The chart shows data from Upper Bath Canyon and Lower Pine Hollow as compared to air temperature measurements. Water temperature in Lower Pine Hollow never exceeded the state temperature standard of 64°F. This section of the creek flows subterraneously for large distances, which probably explains the consistency of the water temperature throughout the summer. For Year 2000, soil temperature data will be compared at this site, as well as air temperature.

Photos:

Photopoints were taken at sites on the creek and tributaries in 1999. In most cases, photos were taken looking upstream and downstream. In cases where the photopoint is located at a confluence, three photos would be taken. In all, 73 photos were taken in 1999. 19 of these were at sites for which we had 1998 photos, and 7 had both 1997 and 1998 photos. Selected photopoint sites are included at the end of this document.

Start Date

Project implementation in Pine Hollow began in 1996 with a demonstration phase funded by Oregon Department of Agriculture. Upland practices were funded in 1998 by a grant from the Governor's Watershed Enhancement Board. Bonneville Power Administration was first used as a funding source in 1999, and was matched by Governor's Watershed Enhancement Board funds. Upland practice implementation continues through the present.

Completion Date

The Pine Hollow Watershed Action Plan calls for upland practice implementation to continue through 2005, while riparian practices begin in 2000 and increase through 2005, continuing until 2007. These dates should be considered estimates.

Collaborators

Major partners in 1999 were:

Agency or organization	1999 activities
Sherman County Soil and Water Conservation District	Administration, watershed council support, coordination and participation in spawning survey and temperature monitoring, policy input
Linnea Holmes	Range assessment, planning, temperature and photo monitoring, overall project planning for watershed council, inspection of practices
USDA Natural Resources Conservation Service	Design and inspection of practices, cultural resource review
Pine Hollow/Jackknife Watershed Council	Project direction and policies.

Pine Hollow Watershed Project
FY1999 Projects

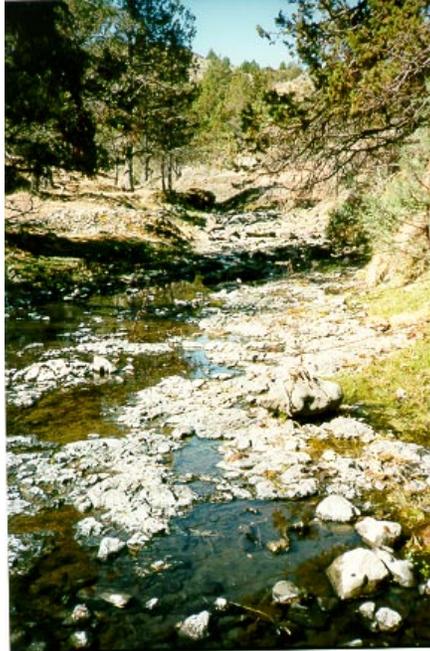
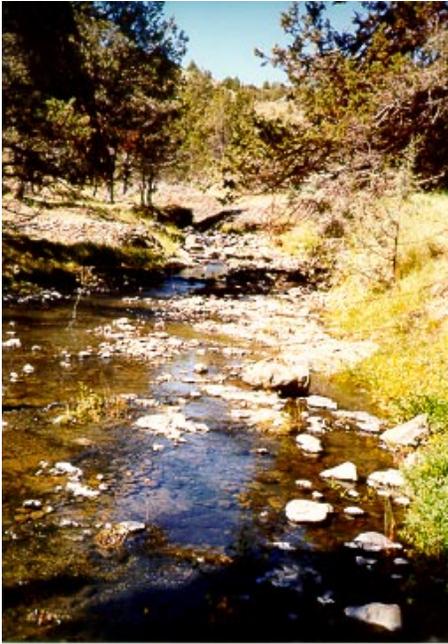
USDI Bureau of Land Management	Participation in spawning survey and weed management activities.
Oregon Department of Fish and Wildlife	Participation in spawning survey.
PG&E Gas Transmission NW	On-going funding
Wasco County Soil and Water Conservation District	Participation in and equipment for spawning survey

Selected Photopoints, 1997-1999

Note that in most cases, 1998 photos were taken in June and 1999 photos were taken in July. This explains the lower stream flows evident in most 1999 photos.

Bath Canyon

1: Bath Canyon at fenceline, looking upstream. T6S R18E s34, NE ¼ of NW1/4
Left photo: 6/17/98. Right photo: 7/21/99



2: Bath Canyon at fenceline, downstream. T6S R18E s34, NE ¼ of NW1/4
Left photo: 6/17/98 Right photo: 7/12/99



9: Single Cottonwood Tree, Bath Canyon. Several small seedlings at base in 1998. Cows were present in pasture at time of 1999 photo. T6S R18E s27 S1/2.
Left photo: 6/17/98 Right photo: 7/21/99



11: Bath Canyon, facing upstream, T6S R18E s27 (downstream of BC9)
Left photo: 6/17/98 Right photo: 7/21/99



12: Bath Canyon Creek at Cottonwood Grove; Cutbank eastside of creek. Creek turns sharply and drops 3-4' in elevation just below this photo.

Left photo: 6/17/98

Right photo: 7/21/99



13: Upper Bath Canyon HOBO Temperature logger location. T6S R18E s34 NE1/4 of NW1/4. 7/21/99



14: Upper Bath Canyon HOBO Temperature logger location, looking up and down. T6S R18E s34 NE1/4 of NW1/4. 7/21/99.

Left photo: upstream

Right photo: downstream



15: Lower Bath Canyon HOBO Location, 1999. Logger was dry when retrieved.

Left Photo: 7/21/99

Right Photo: 10/18/99



Falls Pasture (Hannafin Canyon)

26: Small Waterfall in Hannafin Canyon above junction with Wilcox Canyon. T5S R17E s1 SE ¼ of SW ¼. 6/30/99.



27: Confluence of Hannafin (left) and Wilcox (right) Canyons, facing downstream. Wilcox contributes greater surface flow. Birch trunk left from flash flood in late 1908's. T5S R17E s1 SE ¼ of SW ¼. 6/30/99. 6/30/99.



35: Left Photo: Looking up Hannafin Canyon into Falls Pasture from lower fenceline. Right Photo: Looking downstream from same point. 6/30/99.



Hannafin Canyon

4: Hannafin Riparian Pasture from road crossing facing downstream. T5S R18E s 5 NE ¼ of SW ¼.

Left photo: 7/10/97

Middle Photo: 6/15/98

Right Photo: 7/6/99



8: Hannafin Canyon. Facing downstream from new riparian fence into
Demonstration Riparian Pasture. T5S R18E s5 NE1/4 of SE1/4.

Left Photo: 7/10/97

Middle Photo: 6/15/98

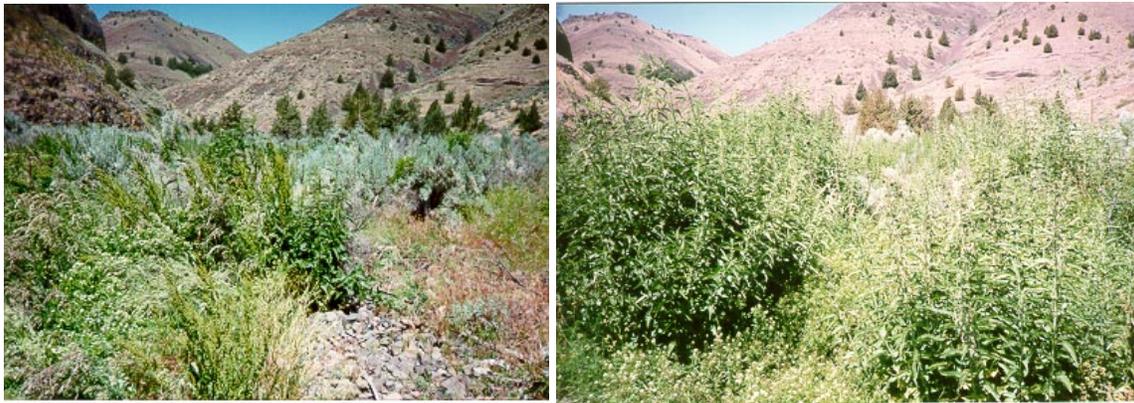
Right Photo: 7/6/99



9: Hannafin Canyon Demonstration Riparian Pasture. T5S R18E s5 NE1/4 of
SE1/4.

Left Photo: 6/15/98

Right Photo: 7/6/99



10: Hannafin Canyon, upstream from riparian fence. Disturbance due to fence construction. T5S R18E s5 NE ¼ of SE ¼.

Left Photo: 7/10/97

Right Photo: 6/15/98



Bottom Photo: 7/6/99

11: Point at which water in Hannafin Canyon goes subsurface (downstream of demonstration riparian pasture).

Left Photo: 6/15/98

Right Photo: 7/6/99



15: Confluence of Daugherty (left) and Hannafin Canyon (right). Surface water comes from Daugherty only. (upstream of demonstration riparian pasture) T5S R18E s5 NE ¼ of SW ¼. 7/6/99.



Sand Canyon

14: Sand Canyon, from bottom fence, taken from east side of creek facing west.
T5S R17E s5 NE ¼ of SW ¼. 7/13/98



Eakin

1: Eakin Canyon: Cutbank.

Left Photo: 7/10/97

Middle Photo: 6/15/98

Right Photo: 7/6/99



2: Middle Eakin: Cutbank.

Left Photo: 7/10/97

Middle Photo: 6/15/98

Right Photo: 7/6/99



2B: Middle Eakin. Taken from East Bank.

Left Photo: 8/28/98

Right Photo: 7/6/99



3: Eakin Canyon. Juniper on bank, facing downstream. T4S R18E s32 NE1/4 of NE1/4.

Left Photo: 7/10/97

Middle Photo: 6/98

Right Photo: 7/6/99



4: Eakin Canyon, upstream from E3. T4S R18E s32 NE1/4 of NE1/4.

Left Photo: 7/10/97

Right Photo: 6/98



Bottom Photo: 7/6/99

33: Upper Eakin, looking upstream from fenceline.

Left Photo: 6/15/98

Right Photo: 7/6/99



34: Same site as E33, looking downstream.

Left Photo: 6/15/98

Right Photo: 7/6/99



46: Head of Eakin Pasture. T4S R18E s29 SW ¼ of SW ¼.

Left Photo: 6/20/98

Right Photo: 7/6/99



Pine Hollow

Temperature Logger Site: Logger was placed in 2 feet of water, where flow emerged from gravel. Water level in pool changed little between two dates.
Left Photo: 7/8/99 Right Photo: 9/25/99

