Five-Year Action Plan for the Development and Maintenance of Habitat Improvement Projects in the Umatilla Subbasin: 2006-2010

For BPA-Funded Fish Habitat Improvement Programs sponsored by:
Oregon Department of Fish and Wildlife: 1987-100-02
Confederated Tribes of the Umatilla Indian Reservation: 1987-100-01

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Introduction & Rationale

Since 1988, Fish Habitat Improvement Programs operating within the Umatilla Subbasin, funded by the Bonneville Power Administration (BPA) and sponsored by the Oregon Department of Fish and Wildlife (ODFW) and the Confederated tribes of the Umatilla Indian Reservation (CTUIR), have been guided by the *Umatilla River Drainage Anadromous Fish Habitat Improvement Implementation Plan* (Reeve et al. 1988). The 1988 Plan described habitat deficiencies, outlined habitat improvement goals and objectives, listed priorities for habitat improvement projects, and assigned geographic areas of responsibility for each of the Habitat Programs.

In 2004, the Draft Umatilla/Willow Subbasin Plan was prepared by a multi-disciplinary team, consisting of government and tribal agencies, as well as numerous other stakeholder groups operating in the Subbasin. The Subbasin Plan was prepared for the Northwest Power and Conservation Council (Council), in response to the Council's newly developed project review and selection process. The Final Subbasin Plan was adopted in May of 2005. The document will be used by Council and BPA to help select, and recommend funding for eligible projects that will help meet their objectives of mitigating for impacts of Columbia River hydropower systems, and addressing requirements of the 2000 Federal Columbia River Power System Biological Opinion (Subbasin Planning Team 2005a).

The Subbasin Plan is a comprehensive document consisting of three main components: the Assessment, the Inventory, and the Management Plan. The Subbasin Plan describes, in detail, the limiting factors to aquatic resources documented within the Umatilla Subbasin, resulting from agriculture, forestry practices, livestock grazing, transportation corridors and urbanization. The wide variety of limiting factors (including reduced instream flow; increased water temperatures; loss of riparian vegetation and function; erosion and sedimentation; and stream channelization), the severity of their impacts and the broad geographic extent of their effects, reveal the need for continued Habitat Improvement efforts (protection and restoration) on the part of both the ODFW and CTUIR Programs.

This *Five-Year Action Plan for the Development and Maintenance of Habitat Improvement Projects in the Umatilla Subbasin: 2006-2010* (Five-Year Plan), is designed to act as the logical extension of the Subbasin Plan, by helping to advance recommendations outlined in the Management Plan through the development of on-the-ground Habitat Improvement projects.

Objectives

Management Strategies put forth in the Management Plan describe the types of activities recommended to meet Management Objectives within a given Geographic Area (GA). The Management Plan does not attempt to identify site-specific treatment options for individual properties or at the reach-level. The ODFW and CTUIR Fish Habitat Improvement Programs are tasked with identifying, developing and implementing site-specific Habitat Improvement projects aimed at restoring and/or protecting fish habitat conditions, stream channel stability and riparian function.

The objective of this Five-Year Plan is to direct the efforts of both the ODFW and CTUIR Habitat Improvement Programs, by describing in what areas each Program will invest their time and resources identifying and developing future projects, and to provide a general time frame for

execution. This Five-Year Plan will also outline Operation and Maintenance (O&M) and project-level Monitoring and Evaluation (M&E) commitments, for existing and ongoing projects.

Most activities recommended in this Five-Year Plan are aimed at contacting landowners and developing working relationships, ultimately leading to the development and signature of long-term agreements and project implementation. Where possible, potential on-the-ground treatment options (considering logistics, landowner cooperation, potential project costs, etc.), aimed at carrying forward applicable Management Strategies within selected GAs, are also presented.

Considerations and Assumptions of the Five Year Action Plan

This Five-Year Plan is not intended as a stand-alone document. The reader is encouraged to use this document in conjunction with the final Subbasin Plan, and refer to the Subbasin Plan for detailed, background information.

This Five-Year Plan is not intended to restrict the efforts of either the ODFW or CTUIR Habitat Improvement Programs to specific areas within the Subbasin. Each Habitat Program must remain flexible and be capable of considering project opportunities that arise on short notice, to ensure that Habitat Improvement opportunities within the Subbasin are not missed, while maintaining consistency with the priorities defined in the Subbasin Plan.

The timelines recommended in this Five-Year Plan are provided as scheduling guidelines only, and are not aimed at limiting the implementation of projects to a specific calendar or fiscal year. Project development and implementation are typically long-term processes that rely on establishing good working relationships with willing landowners. Therefore, all projects identified for development are contingent on the cooperation of willing landowners and the signature of long-term agreements. As with all long-term plans, the accuracy of this Five-Year Action Plan is likely to decrease during the latter years.

Although the types of projects recommended in this Five-Year Plan might not currently fall under the mandate of a given Program's proposed activities, as described in their Scope of Work, the assumption was made that Work Scopes will be amended during the upcoming Rolling Provincial Review process (for fiscal years 2007 through 2009) and that amendments will be accepted by BPA and Council. All projects identified for development are subject to BPA approval and are contingent on receiving funding from BPA and/or outside sources.

The Five-Year Plan considers only those Fish Habitat Improvement Programs funded by BPA and operating on private and Tribal lands within the Umatilla Subbasin.

Five-Year Action Plan Development

This Plan was developed using the following basic steps:

1. The complete list Management Strategies presented in the Management Plan section of the final Umatilla/Willow Subbasin Plan was reviewed. Those Management Strategies considered *applicable* to Habitat Improvement Programs (i.e., those that can be carried forward through Habitat Improvement projects) were identified, while those Management Strategies considered not applicable to Habitat Improvement efforts (i.e., management and/or regulatory Strategies) were omitted from future consideration (Table 1).

2. Priority Geographic Areas (GAs) identified in the Subbasin Plan were reviewed, considering habitat requirements for summer steelhead (*Oncorhynchus mykiss*) and spring chinook salmon (*O. tshawytscha*); the two focal species of the Habitat Improvement Programs. Priority rankings of for both Habitat Protection and Habitat Restoration (refer to pages 3-239 through 3-247 of the Subbasin Plan - Assessment), were considered during the review.
3. GAs were then physically grouped into Target Areas for protection and/or restoration, from the perspective of Habitat Improvement Program efforts (Table 2). Target Areas were separated into High and Low priorities and certain GAs identified in the Subbasin Plan were omitted from the Target Area designation (rationale provided in Table 2). The creation and ranking of Target Areas relied heavily on recommendations made by the Subbasin Planning Team to the Council on priority strategies aimed at guiding the 2007-2009 project solicitation process (Subbasin Planning Team 2005b). The Subbasin Planning Team considered the following when formulating their recommendations:
   - Protection/Restoration rankings generated by the Ecosystem Diagnostic Treatment (EDT) Model.
   - On-going project planning and development within a given GA.
   - The potential for achieving restoration given logistical and land use constraints.
   - The anticipated level of landowner cooperation.
4. A summary of known information was prepared for each Target Area, including:
   - A brief description of past Habitat Improvement efforts within the area, as well as a review of ongoing projects.
   - Known or perceived constraints to project implementation.
   - A proposed approach to project identification/development, including recommendations for future actions in the Target Area.

   (Target Area summaries are presented on pages 9 through 18, on this document.)
5. A meeting was held, with ODFW and CTUIR representatives (November 4, 2005), to review priority Target Areas, discuss potential project opportunities and assign a Lead Entity for Target Areas and/or GAs identified as High Priority in this Five-Year Plan (Table 3 and Figure 1). The Lead Entity shall be responsible for initiating contact with landowners within pre-determined locations, as well as identifying and developing projects within these areas, as opportunities arise.
6. Finally, Implementation Schedules were created which describe where and when (2006 - 2010), each Program will attempt to identify and develop future Habitat Improvement projects (Tables 4 and 5). The Schedules outline O&M and M&E commitments for current and ongoing projects and describe specific properties or locations of interest (if known) within the GA where future projects could be implemented. On-the-ground treatment options, aimed at advancing specific Management Strategies, are also presented, if known.

Table 1. Management Strategies Listed in the Umatilla/Willow Subbasin Plan, as they relate to Habitat Improvement Efforts.

Management Strategy/Description	Potential Habitat Improvement Projects	Comments/Possible Logistical Constraints
Management Strategies Directly Applicable to Habitat Improvement Efforts		
2 - Purchase Water Rights from Willing Sellers	Possibly implement in conjunction with lease development, riparian fencing/planting projects.	Landowners may be reluctant to relinquish irrigation water, especially within reaches with chronic de-watering concerns.
3 - Increase Water Conservation/Efficiency	Possibly implement in conjunction with barrier remediation and off-site water developments projects. Examples include switching from flood to sprinkler irrigation.	Opportunities may be limited to unique situations but will be explored during project development efforts.
5 - Large Woody Debris/Boulder Structure Placement	Install site-specific Habitat Improvement structures, possibly combine with Stable Channel Design projects	Active restoration efforts must consider channel morphology and watershed function. Large-scale projects may be limited by cost.
6 - Fence/Plant Riparian Zones	Fence & plant riparian zones, landowner enrollment in CREP with Habitat Improvement Programs contributing to project maintenance.	Low risk. Applicable as a stand-alone project in areas where passive treatments have shown favorable results, or, as a component of a more comprehensive Habitat Improvement project. CREP enrollment may not be an option for landowners with large acreages already enrolled (in CRP or CREP), or in areas that do not meet eligibility criteria.
7 - Modify Channel/Flood-Plain Function	Stable channel design/channel reconstruction projects, reconnect abandoned channels, and address bank failure/erosion issues.	Active restoration efforts must consider channel morphology and watershed function. Accurate, pre-project surveys, hydrologic data and the collection of quality, Reference Reach data is critical to project success and effectiveness monitoring. High cost of stable channel design projects may be limiting.
8 - Construct Pool/Riffle - In-Stream Mod.	Install site-specific Habitat Improvement structures, stable channel design/reconstruction.	Refer to 5 and 7
9 - Address Roads in Riparian/Sensitive Areas	Deactivate roads situated within leased riparian areas - might address passage or point source erosion concerns (culverts, eroding road fills, etc).	May be opportunities for implementation where appropriate conditions exist, i.e., where riparian roads can be deactivated without adversely affecting agricultural operations.
10 - Increase Protective Status of Habitats	Acquire conservation easements.	
11 - Modify Detrimental Land Use Activities	Achieved through the development and signature of long-term Lease/Cooperative Agreements.	Usually the first step in developing any type of Habitat Improvement projects. Contingent on landowner cooperation, as are all other subsequent activities.
12 - Restore Headwater Attributes - Improve Conditions Downstream	Fence & plant riparian zones upstream to address livestock grazing, roads, timber management, sediment, water temperature issues, etc.	
13 - Increase Passage Efficiency	Barrier remediation (removal/modification of irrigation dam, culverts, bridges).	High Priority - Potential immediate benefits. Possibly complex water rights issues associated with projects.
Management Strategies not Applicable to Habitat Improvement Efforts		
1, 4 & 14	N/A	Management/Regulatory Strategies

Table 2. Priority Target Areas for Habitat Improvement Efforts

GA No. and Location		EDT Ranking for *Protection*		Priority Ranking for *Restoration*		Applicable Management Strategies*
		Summer Steelhead	Spring Chinook	Summer Steelhead	Spring Chinook	
HIGH PRIORITY TARGET AREAS						
West Birch Creek and Tributary GAs						
15	**W. Birch** - Bear Cr. to Top of Gorge	14	N/A	5	N/A	**13 12 11 10 6 7 8 5** 9
13	**W. Birch** - Mth to Bear Cr.	N/A	N/A	6	N/A	**13** 2 **3 12 11** 10 **6 7 8 5** 9
14	**W. Birch** - Bear Cr. and tributaries	N/A	N/A	12	N/A	**10 11 6 8 5** 9
16	**W. Birch** - Gorge to headwaters	15	N/A	N/A	N/A	**10 11**
Birch Creek and East Birch Creek GAs						
12	**Birch Cr.** - Mth to Forks	N/A	N/A	1	N/A	**13 12 11** 10 **6 7 8** 9 **5**
19	**E. Birch** - Pearson Cr. to Headwaters	5	N/A	9	N/A	**10 11 8 6 5** 9
17	**E. Birch** - Mth to California Gulch	N/A	N/A	10	N/A	10 **11 12 6 7 8** 2 **3 5** 9
18	**E. Birch** - Calif. Gulch to Pearson Cr.	11	N/A	11	N/A	**10 11 12 6 7 8 5** 2 **3** 5 9
Meacham Creek and Tributaries GAs						
33	**Meacham Cr.** - Mth to N. Fork	N/A	3	4	2	**7 11** 10 **6 12 5 8** 9
35	**N. Fork Meacham Cr.** - All	4	2	8	5	**10 11 5 6 8** 9
34	**Meacham Cr.** - Tribs fr Mth to N. Frk.	N/A	N/A	13	N/A	**5 6 7 8 11 12**
38	**Meacham Cr.** - 2 Mile to Headwaters	N/A	N/A	15	N/A	10 **6 11** 9 **5 12**
Middle & Upper Umatilla River Mainstem GAs						
28	**Umat.** - Mission Br. to Meacham Cr.	N/A	7	2	1	**7 12** 10 **6 11 5 8**
40	**Umat.** - Meacham Cr. to Forks	2	1	3	3	**12 10 6 7 5 8 11** 9
LOW PRIORITY TARGET AREAS						
Lower Priority GAs (Various Locations)						
42	**N. Fork Umat.** - All	1	4	N/A	N/A	
25	**Umat.** - McKay Cr. to Mission	N/A	10	N/A	4	
46	**SF Umat**. - Thomas Cr. up	6	6	N/A	N/A	
43	**SF Umat**. - Mth to Thomas Cr.	7	N/A	4	N/A	
37	**E. Meacham** - Tribs. and Butcher Cr.	8	N/A	N/A	N/A	
45	**Thomas Cr.** - Incl. Tribs.	9	N/A	N/A	N/A	
11	**Umat.** - Westland to McKay	N/A	12	N/A	10	
36	**Meacham Cr.** - NF to 2 Mile	13	N/A	N/A	N/A	
30	**Buckaroo Cr.** - All	N/A	N/A	14	N/A	
Areas Eliminated From Consideration & Rationale						
2	Lower Umatilla Mainstem GAs	12	11	N/A	7	Flow enhancement and passage issues - no Habitat Improvement opportunities.
9		10	5	N/A	6	
31	Iskuulpa Creek GAs	N/A	N/A	N/A	8	All necessary work completed.
32		N/A	N/A	7	N/A	

* In order of Priority for each GA, per the Subbasin Plan. **Red/Bold Text** = Management Strategy recommended as priority within the GA, by the Subbasin Planning Team (2005b).

** Key to the Management Strategies Identified in the Subbasin Plan **

Applicable Management Strategies	
2 - Purchase Water Rights form Willing Sellers	9 - Address Roads in Riparian and Sensitive Areas
3 - Increase Water Conservation and Irrigation Efficiency	10 - Increase Protective Status of Priority Habitats
5 - Large Wood/Boulder Structure Placement	11 - Modify Detrimental Land Use Activities
6 - Fence Plant Riparian Zones	12 - Restore Upstream/Headwater Attributes to Improve Downstream Conditions
7 - Modify Channel Flood-Plain Function	
8 - Construct Pool/Riffle - In-Stream Modifications	13 - Increase Passage Efficiency

Strategies Not Applicable (Management Level/Regulatory Strategy)	
1 - Phase I & II Maintenance, Phase III Implementation	14 - Maintain Passage Efficiency Through Ongoing O&M
4 - Modify Zoning and Flood Control Planning	

Table 3. Designated Lead Entity and Corresponding Areas of Responsibility within High Priority Geographic Areas.

Location	GA#	Lead Entity	
		ODFW	CTUIR
Birch Creek: Mouth to upper end of Lobato property (~RM 2.0)	12	✓	
Birch Creek: RM 2.0 to Hoeft Road (~RM 10.5)	12		✓
Birch Creek: Hoeft Road to Pilot Rock	12	✓	
East Birch Creek: Mouth to Humphrey Bridge (RM 4.0), and Westgate Canyon Ranch (Baker Property)	17, 19		✓
East Birch Creek: All area upstream of Humphrey Bridge (including Pearson Creek) except Westgate Canyon Ranch	17,18, 19	✓	
West Birch Creek: Mouth to Bear Creek (RM 5.0)	13		✓
West Birch Creek: From Bear Creek upstream (incl. Bear Creek)	14, 15, 16	✓	
Meacham Creek: Mouth to Forks (incl. tributaries)	33, 34		✓
Meacham Creek: North Fork and Upper mainstem (incl. Twomile Cr.)	35, 38	✓	
Upper Umatilla River: Mission Bridge to Meacham Creek	28		✓
Upper Umatilla River: Meacham Creek to Forks	40	✓	

Implementing the Five-Year Action Plan

The following outlines the general steps that will be followed in order to effectively execute the Five-Year Plan. Many of these activities are part of the normal process followed by Habitat Improvement Programs when identifying and developing projects. The level of detail provided below is very basic; the entire process, from initial contact to project completion, may take several months to several years.

1. Establish a lead entity (ODFW or CTUIR) that will be responsible for making initial contact with landowners in a given GA or Target Area (refer to Table 3 above). This will provide structure and consistency during the execution of the Five-Year Plan. Establishing a lead entity will also help to avoid confusion and the risk of alienating landowners that might otherwise be agreeable to implementing projects. Where feasible, the ODFW and CTUIR Programs may collaborate on project development and implementation, or one agency may choose too hand off a portion of, or all responsibilities to the other, if doing so would help to ensure the timely and efficient completion of the project.
2. Identify land ownership, through the county records office, and initiate landowner contacts within portions of the Target Area identified for project development.
    a. Identify landowners that are known to be cooperative, for example, have approached Program personnel and/or have expressed interest in developing/implementing Habitat Improvement projects on their property.
    b. Develop list of landowners contacted, but not interested in participating in Habitat Improvement efforts. Establish a scheduled frequency (for example, every 3 years) for "re-visiting" these landowners.
3. Approach potentially cooperative landowners with an introduction to Habitat Improvement Program goals and objectives, and describe the types of projects normally carried out by the Program. Describe the process through which projects are implemented to ensure that landowners understand both the benefits and limitations of the Program.

4. Obtain landowner input with regards to known or perceived problems on their property relating to stream channel stability, irrigation withdrawals, bank erosion, riparian function, etc. Work to inform and educate landowners on stream/riparian interactions and the importance of these habitats to fish populations.
5. Obtain permission to access and conduct reconnaissance level surveys of stream reaches on the landowner's property.
6. Recommend and describe potential project opportunities to landowners, aimed at addressing limiting habitat features and carrying forward applicable Management Strategies. Describe how projects can be implemented in a manner that will address both the landowners concerns and the objectives of the Program (ex: incorporating off-site water developments into riparian fencing projects, to accommodate livestock watering needs while protecting riparian habitat).
7. Negotiate and develop mutually acceptable, long-term agreements that outline each party's rights and responsibilities under the project.
8. Proceed with detailed surveys required to complete site-specific project plans and designs. Obtain all necessary permits and authorizations, and complete environmental compliance requirements prior to project implementation.
9. Implement project with plans in place for the routine inspection and survey of field sites. Address O&M requirements as needed, and perform project level M&E activities to gauge project success against pre-determined, project objectives.

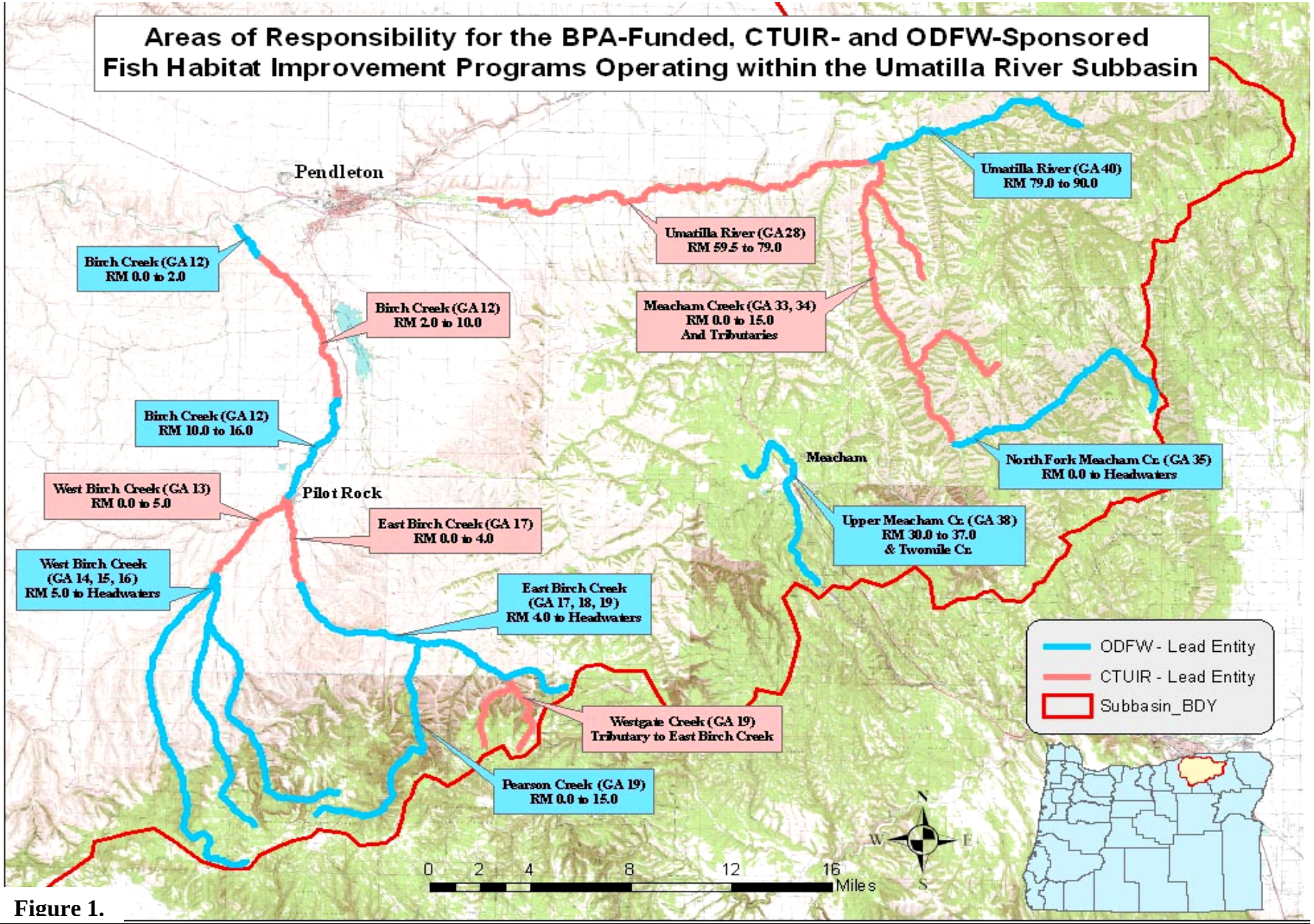
Areas of Responsibility for the BPA-Funded, CTUIR- and ODFW-Sponsored Fish Habitat Improvement Programs Operating within the Umatilla River Subbasin
Pendleton
Pilot Rock
Meacham
Umatilla River (GA 40) RM 79.0 to 90.0
Umatilla River (GA 28) RM 59.5 to 79.0
Birch Creek (GA 12) RM 0.0 to 2.0
Birch Creek (GA 12) RM 2.0 to 10.0
Meacham Creek (GA 33, 34) RM 0.0 to 15.0 And Tributaries
Birch Creek (GA 12) RM 10.0 to 16.0
North Fork Meacham Cr. (GA 35) RM 0.0 to Headwaters
West Birch Creek (GA 13) RM 0.0 to 5.0
East Birch Creek (GA 17) RM 0.0 to 4.0
Upper Meacham Cr. (GA 38) RM 30.0 to 37.0 & Twomile Cr.
West Birch Creek (GA 14, 15, 16) RM 5.0 to Headwaters
East Birch Creek (GA 17, 18, 19) RM 4.0 to Headwaters
Westgate Creek (GA 19) Tributary to East Birch Creek
Pearson Creek (GA 19) RM 0.0 to 15.0
ODFW - Lead Entity
CTUIR - Lead Entity
Subbasin_BDY
0 2 4 8 12 16
Miles
N
W
E
S

Figure 1.

High Priority Target Areas within the Umatilla Subbasin

West Birch Creek and Tributary GAs (GA #s 13, 14, 15 & 16):

- *Habitat Improvement Background/Summary:*

Historically, ODFW has been the agency responsible for project implementation within the West Birch Creek watershed. In recent years landowners have been approached with potential project ideas, with varying degrees of success. ODFW has two permanent stream temperature monitoring sites, located at the upper and lower ends of the mainstem, and habitat assessments and fish population surveys have been conducted (1994 and 2003). Preliminary assessments of potential projects sites have been completed, and project opportunities aimed at addressing undersized bridge structures along the upper mainstem, have been identified.

In FY 2005, both ODFW and CTUIR identified and began developing projects aimed at addressing passage concerns, including:

CTUIR Efforts:

> Hoeft Diversion Structure, West Birch Creek, RM 3.5
  - Status - An easement is in place on the Hoeft property and the CTUIR are preparing a request for proposals for design/build work on the project.
  - Issues - This project was originally initiated by the ODFW (separate from the BPA-funded Fish Habitat Improvement Program) and a 90% design was prepared for the site, however; a completely new design is required in order to meet updated fish passage criteria. As a precursor to final design, CTUIR oversaw an evaluation of alternatives for fish passage improvement at the Hoeft diversion dam. Subject to environmental approvals, final design and project implementation should proceed in the summer of 2006.

> Cunningham Box Culvert, West Birch Creek, RM 3.8
  - Status - An easement is in place on the Cunningham property and the CTUIR are preparing a request for proposals for a design/build project.
  - Issues - Subject to environmental approvals, project implementation is expected to proceed in the summer of 2006.

ODFW Efforts:

> Low Diversion Structure, West Birch Creek, RM 5.5
  - Status - Initial landowner contact made and reconnaissance level site surveys conducted. A preliminary plan is currently under development, for submission to the landowner.
  - Issues - Potential water rights concerns have been alleviated. Research with the Oregon Water Resources Department (OWRD) shows that the legal point of diversion for the property has been changed, and that the diversion dam in question is no longer associated with an active point of diversion.

ODFW also began to initiate contact with property owners along Bridge Creek and Bear Creek, to discuss various types of projects including, livestock exclusion fencing, bank stabilization, and landowner enrollment in the federal Conservation Reserve Enhancement Program (CREP).

- *Known/Perceived Constraints to Project Implementation:*

The lower section of the West Birch Creek mainstem, near the city of Pilot Rock, flows through several different properties. A similar situation along the lower portion of East Birch Creek has created difficulties in obtaining landowner consensus regarding treatment options and thus has resulted in limited support for project implementation.

A number of landowners within the upper watershed have, in the past, been unwilling to cooperate with ODFW on projects recommended for the West Birch Creek mainstem, making it difficult to sign agreements and develop projects.

A section of County road exists along West Birch Creek within a section of bedrock gorge. In recent years discussions were initiated with the County, to explore the possibility of relocating the road upslope, fully deactivating the present road and restoring the section of steam channel constricted by the presence of the road. The project did not proceed beyond the conceptual phase, due in part to associated project costs and logistical constraints.

Significant portions of the watershed are prone to dewatering even during average flow years; a concern expressed by a number of landowners. This issue could potentially dissuade landowners from considering projects such as, diversion dam removals or water rights sales.

- *Proposed Approach to Project Identification/Development:*

Landowner contacts and project development will be initiated by the designated Lead Entity for these areas (described in Figure 1 and Table 3).

One of the most significant and easily corrected problems within the West Birch Creek Watershed is the presence of 6 documented passage barriers, at locations throughout the mainstem and tributaries; 5 of which are identified as High Priority for removal or modification (Refer to Table 45 of the Subbasin Plan).

Although barrier remediation activities do not currently fall under the ODFW Program's Scope of Work for project implementation, work of this type will be included in the Program's upcoming proposal to council during the solicitation process for 2007-2009 projects. The ODFW Fish Habitat Improvement Program has included project identification, site surveys and design preparation, as a work element in its 2006 fiscal year Statement of Work. ODFW is attempting to have projects planned and ready for implementation, in anticipation of Council/BPA's approval of these activities during the upcoming review process.

Recommendation:
This Five-Year Plan recommends that the highest priority, with regards to developing future Habitat Improvement projects in this Target Area, be given to Barrier Remediation projects. This is consistent with Management Strategy 13 and relates to Aquatic Objective 12 of the Subbasin Plan.

A number of problem bridges are present along the upper mainstem West Birch Creek, in and upstream of the gorge section, located at approximately RM 12. In addition the presence of the county road within then gorge is adversely affecting channel function and stability.

Recommendation:
Continue to pursue opportunities for bridge remediation projects with landowners in the upper mainstem. Conduct detailed surveys and prepare plans (2006-2007) in preparation for project implementation in latter years of the Plan (2008-2010).

Recommendation:
Resume discussions with the Umatilla County Roads Department regarding the possibility of relocating the current road to an upslope location and reclaiming the portion of channel within the gorge.

Previously uncooperative landowners within the watershed will be re-contacted, and initial contact will be made with other landowners in the area. Opportunities for CREP enrollment and the development of CREP project maintenance will be presented to landowners. Project opportunities suited to stream and riparian conditions encountered, will be proposed to landowners.

Recommendation:
Within the West Birch Creek Watershed we propose to initiate landowner contacts and attempt to develop projects in the following areas, in order of priority:

1. Bear Creek: From the confluence with West Birch Creek to the headwaters.
2. West Birch Creek: From Bridge Creek to the headwaters.
3. West Birch Creek: From Highway 395 to the confluence with Bear Creek.
4. Bridge Creek: From the confluence with West Birch Creek to the headwaters.
5. West Birch Creek: From the confluence with mainstem Birch Creek to Highway 395.

Mainstem Birch Creek, East Birch Creek, and Tributary GAs (GA #s 12, 17, 18 & 19)

➢ *Habitat Improvement Background/Summary:*

Historically, ODFW has been the primary entity operating within this Target Area. Projects have been developed and implemented along the mainstem, as well as along East Birch Creek, dating back to the earliest days of the Program (1988). Projects have ranged in scope from livestock exclusion fencing to diverse bioengineering treatments and, more recently, stable channel design and re-construction projects.

Of the 10 lease agreements historically held by ODFW for properties along the Birch Creek Mainstem, 9 have recently expired (5 in 2004, and 4 in 2005). Of the expired agreements, only two are being sought for renewal (the Gambill property RM 14.5, and the Weinke RM 15.0) in order to maintain access to instream restoration projects for the purposes of conducting O&M activities. The remaining lease agreement (Lobato property RM 2.5) is scheduled to expire in 2010, with O&M and M&E activities planned for the remainder of the agreement. One active lease agreement and one active easement remain along East Birch Creek, including the Houser property (RM 8.0) and the Sorenson (formerly Brogoitti) property (RM 9.0), respectively. Annual inspections and surveys of these project areas are conducted, and maintenance activities are completed as required.

ODFW maintains 4, permanent stream temperature monitoring sites on Birch Creek, 2 on East Birch Creek, and 1 on Westgate Creek (tributary to East Birch Creek). ODFW has recently installed flow gauging stations at the mouths of both East and West Birch Creeks.

In FY 2005, both ODFW and CTUIR began identifying opportunities and developing projects aimed at addressing passage concerns, including:

CTUIR Efforts:

> Broun Diversion Structure, Birch Creek, RM 10.0
  - Status - Signature of the Broun Lease agreement appears imminent.
  - Issues - The Broun diversion dam is associated with multiple water rights/users in the area. CTUIR is coordinating with other users (Hummel, Pendleton Country Club, and Peterson), and their cooperation appears likely. Agreements with these landowners will involve the installation of well, pump facilities to compensate for the dam removal.

> Whitney Diversion Structure, Birch Creek, RM 3.0
  - Status - Signature of the Whitney Lease agreement appears imminent
  - Issues - The diversion dam on the Whitney property supplies water for the Peterson property. A point of diversion change for the Peterson water right must be completed prior to project implementation.

ODFW Efforts:

> Joliff Diversion Structure, East Birch Creek, RM 9.0
  - Status - Initial landowner contact has been made and reconnaissance-level site surveys conducted. A preliminary plan and draft Cooperative Agreement are currently being developed, for submission to the landowner for review. Barrier remediation efforts will likely be incorporated into a larger stable channel design/bank stabilization project that will tie into stable channel design efforts

undertaken on the Sorenson property (2001), immediately downstream. The proposed project will also address landowner concerns regarding channel migration, bank erosion and loss of land.

Issues - The property owners have, in the past, expected projects to develop rapidly and be implemented within a very short timeframe. Communication with the landowner, to this point, has focused on describing the project implementation process and identifying a realistic timeframe for completion. Communication is on-going and appears positive.

- *Known/Perceived Constraints to Project Implementation:*

The feasibility of implementing large-scale, in-channel modifications along the Birch Creek mainstem may be limited by the relatively large channel size and proportionately high costs associated with conducting instream activities. In certain areas, landowners have been reluctant to cooperate in the implementation of projects at the level of intensity needed to address channel stability problems.

Historically, the implementation of Habitat Improvement projects along the lower portion of East Birch Creek (know locally as the Magic Mile) has proven challenging. The high concentration of landowners within this area, each with relatively small properties, has caused difficulties in reaching consensus amongst landowners regarding the type of action(s) to take. Furthermore, this area is plagued by chronic sediment deposition, resulting from channel instability upstream, and local morphological conditions.

- *Proposed Approach to Project Identification/Development:*

Landowner contacts and project development will be initiated by the designated Lead Entity for these areas (described in Figure 1 and Table 3).

One of the most significant and easily corrected problems within this Target Area, is the presence of 10 documented passage barriers, at locations throughout the mainstem and tributaries (Refer to Table 45 of the Subbasin Plan).

Although barrier remediation activities do not currently fall under the ODFW Program's Scope of Work for project implementation, work of this type will be included in the Program's upcoming proposal to council during the solicitation process for 2007-2009 projects. The ODFW Fish Habitat Improvement Program has included project identification, site surveys and design preparation, as a work element in its 2006 fiscal year Statement of Work. ODFW is attempting to have projects planned and ready for implementation, in anticipation of Council/BPA's approval of these activities during the upcoming review process.

Recommendation:
This Five-Year Plan recommends that the highest priority, with regards to developing Habitat Improvement projects within this Target Area, be given to Barrier Remediation projects. This is consistent with Management Strategy 13 and relates to Aquatic Objective 12 of the Subbasin Plan.

The Birch Creek mainstem would benefit from riparian planting/fencing treatments developed under CREP. CREP projects provide financial incentives for landowners to modify detrimental land use activities within riparian areas. These added incentives might also persuade landowners to enroll additional acres of land into CREP, resulting in wider riparian buffers. The Umatilla Fish Habitat Programs have also been authorized by BPA to provide cost-share funding for the maintenance portion of CREP projects in priority areas identified in the Subbasin Plan.

Recommendation:
Contact mainstem Birch Creek landowners to discuss and pursue opportunities for CREP enrollment, particularly in those portions the stream where channel/floodplain connectivity still exists. Opportunities for the cost-share of CREP project maintenance activities will also be presented. Properties formerly under lease agreement will be re-visited in order to identify opportunities to extend riparian protection/recovery through the implementation of CREP projects along additional riparian acres.

Additional opportunities for the implementation of instream restoration and/or stable channel design projects may exist within the East Birch Creek watershed. These types of projects rely heavily on the collection of precise reference reach data as well as the development of regional curves based on bankfull discharge and dimensions obtained from stream gauging stations on streams within similar hydro-physiographic provinces (Rosgen 1998).

Recommendation:
Continue to identify and develop, on cooperation with wiling landowners, active habitat improvement projects including intensive stable channel design and re-construction projects aimed restoring normative channel/floodplain processes.

Recommendation:
With assistance from the Oregon Water Resources Department, collect and analyze data from 2 fixed, stream flow and temperature gauging stations on East and West Birch Creeks near their confluence with mainstem Birch Creek. Data from these gauging stations will provide valuable data for the development and design of future stable channel design projects.

In portions of the East Birch Creek watershed that are not candidates for active restoration, opportunities for the implementation of passive treatments (livestock exclusion fencing, along with aggressive riparian revegetation, as required) might still exist.

Recommendation:
Contact East Birch Creek landowners to discuss and pursue opportunities for CREP enrollment, particularly in those portions the stream where channel/floodplain connectivity still exists. Discuss opportunities for the cost-share of CREP project maintenance activities.

Meacham Creek and Tributary GAs (GA #s 33, 34, 35 &38)

- *Habitat Improvement Background/Summary:*

Historically CTUIR has been the primary entity operating within the lower portion of this Target Area, while passive habitat improvement projects have been implemented in the headwater reaches (GA 38) by the ODFW program.

The CTUIR's Department of Natural Resources completed an assessment of the Meacham Creek Watershed and, in 2005, prepared a Watershed Action Plan (CTUIR 2005). The Watershed Action Plan describes the likely *Original Condition* of the watershed along with a list of actions proposed for implementation in the watershed aimed at improving and maintaining stable channel and riparian habitat conditions. Actions include the development and implementation of a monitoring plan, passage barrier removal, levee removal/reduction, large wood placement, channel reconstruction, and riparian improvements (plantings and easement development). The CTUIR Fish Habitat Improvement Program has recently been involved with willow planting projects on the lower Meacham Creek mainstem, in coordination with DNR efforts.

On the North Fork of Meacham Creek, a flood event in 1964 resulted in disturbance (stream channelization), in the lower 0.5 mile of the stream. Since the flood, significant vegetative recovery has occurred (naturally) within the riparian zone. Project opportunities for stable channel design treatments may exist within this reach.

A single landowner is present within the lower (privately-owned) section of North Fork Meacham Creek, who may be amenable to working with the Habitat Improvement Programs. A ranch access road is situated on the property, which could potentially be affecting stream and riparian function. Further assessment will be required to determine its effects.

The ODFW Fish Habitat Improvement Program has been the primary entity operating within the upper mainstem of Meacham Creek and the Twomile Creek watershed. Activities conducted within these areas have consisted primarily of passive treatments (livestock exclusion fencing) along with some minor projects involving LWD placements. Noticeable recovery has occurred along fenced portions of the creek, in a fairly short time span, suggesting that this area is a prime candidate for additional passive treatment.

- *Known/Perceived Constraints to Project Implementation:*

The Action Plan prepared by the CTUIR describes potential opportunities for habitat improvement, mainly in the lower Meacham Creek mainstem and its tributaries. Limitations associated with conducting active restoration within the lower Meacham Creek GA are typical of those encountered in larger, mainstem channels, including higher costs and associated feasibility constraints. Breaching and/or removing floodplain levees (prescribed in the CTUIR/DNR Action Plan) will require consultation with the Union Pacific Railway (the entity responsible for the construction and maintenance of these

EDT recommends LWD placement as a potential treatment option on the North Fork of Meacham Creek, however; access to this reach is relatively limited and implementation of such a

treatment would likely require the use of a helicopter to deliver materials, thus greatly increasing the cost of this type of prescription.

Additional assessment may be required to identify specific project opportunities within the North Fork of Meacham Creek.

- *Proposed Approach to Project Identification/Development:*

Landowner contacts and project development will be initiated by the designated Lead Entity for these areas (described in Figure 1 and Table 3).

The lower mainstem and tributaries (GAs 33 and 34) are the most likely candidates for restoration activities. The CTUIR's Department of Natural Resources (DNR) has been spearheading restoration efforts within these GAs, with input and technical assistance from the BPA-funded CTUIR Fish Habitat Improvement Program.

Recommendation:
The CTUIR Fish Habitat Improvement Program will continue to assist, as needed, in the completion of activities being implemented by CTUIR's Department of Natural Resources and outlined in the Watershed Action Plan.

The ODFW Fish Habitat Improvement Program will begin to identify and develop projects within the North Fork of Meacham Creek. Opportunities may exist, and should be explored, for addressing potential road-related issues, as well as for the re-design and re-alignment of the stream channel in the lower portion of the North Fork.

Recommendation:
Conduct an assessment of the ranch access road. Determine the impacts of the road and identify potential projects aimed at restoring riparian and floodplain function.

Recommendation:
Assess possibility of conducting stable channel design projects within North Fork Meacham Creek, and determine the potential benefits of such projects relative to the likely loss of naturally recovered riparian vegetation, resulting from project implementation.

Given the significant and fairly rapid recovery of riparian vegetation and habitat conditions within fenced areas, the upper Meacham Creek mainstem and Twomile Creek are considered good candidates for continued passive restoration treatments.

Recommendation:
Continue to identify, develop and implement livestock exclusion fencing projects within the upper Meacham Creek watershed (Meacham Creek mainstem and Twomile Creek).

Middle and Upper Umatilla Mainstem GAs (GA #s 28 & 40)

- *Habitat Improvement Background/Summary:*

Historically CTUIR has been the primary entity operating within this Target Area. Habitat improvement efforts within the middle and upper Umatilla mainstem reaches (aimed at enhancing habitat conditions for spring chinook salmon) were undertaken by the CTUIR in the late-80s/early-90s, in the form pool enhancement projects. Pool enhancement projects involved the construction of boulder weirs at the upper end of existing pools, in order to increase scour force, and thereby creating deeper pools.

Projects involving LWD placement and bank stabilization treatments were also carried out along the reach situated on the Bar-M Ranch. Willow and cottonwood plantings were also attempted along this reach, following the 1996 flood (1997 and 1998).

Channel re-configuration projects, along with the placement of LWD and the installation of root wad revetments to protect eroding banks, were implemented along two short reaches within this Target Area, including the Crimmon property and Station 29 (an area surrounded by the Bar-M Ranch).

Habitat improvement projects within this Target Area were normally carried out on a case-by-case basis, often at the request of individual landowners who were observing localized problems on their properties.

Habitat surveys and assessments were completed within this Target Area by the CTUIR, including population abundance surveys, in the mid-1990s.

- *Known/Perceived Constraints to Project Implementation:*

Impacts from livestock grazing have been documented within this section of the mainstem, and fairly significant damage to the willow/cottonwood planting efforts on the Bar-M Reach has been observed.

Property ownerships within theses GAs have changed over the past decade. Changes in land ownership will hopefully provide opportunities for initiating contact regarding new project development and implementation.

Existing channel and habitat may need to be gathered prior to identifying and developing future projects.

The ODFW Fish Habitat Improvement Program has been assigned responsibility for GA 40. The lower 3 miles of this 11 mile-long GA is located on CTUIR Reservation land and therefore, close coordination between ODFW and CTUIR staff will be critical to the efficient development and implementation of projects in this area.

- *Proposed Approach to Project Identification/Development:*

Landowner contacts and project development will be initiated by the designated Lead Entity for these areas (described in Figure 1 and Table 3).

Given the changes in land ownerships within these GAs, efforts in the middle and upper Umatilla River mainstem reaches should be devoted to re-initiating landowner contacts, with the intent of identifying and developing future project opportunities.

Recommendation:
Research current land ownerships and develop a systematic plan to contact and discuss with current landowners, possible project opportunities and options for project development and implementation.

Recommendation:
Contact new owners of the Bar-M Ranch and attempt to develop and implement additional planting projects to replace and/or supplement planted areas depleted as a result of livestock grazing. Implement (in conjunction with planting projects), riparian protection treatments (i.e., livestock exclusion fencing) to protect projects investments and improve the potential for project success.

Current assessments will be required to determine, habitat improvement requirements at the reach-level.

Recommendation:
Conduct reach-level restoration assessments within the applicable mainstem GAs in order to determine present concerns/limitations and identify specific habitat improvement treatments.

Table 4. ODFW Fish Habitat Improvement Program - Implementation Schedule.

Location (GA#)	Property	Project[1]	Phase/Aspect	Phase Implementation (Year)				
				2006	2007	2008	2009	2010
Lower Birch Mainstem (GA 12)	Lobato	Ongoing - O&M	All - fence, instream, weed control	X	X	X	X	X
		Ongoing - M&E	Temp monitoring	X	X	X	X	X
	Taylor	Coop Agreement	Initiate contact, develop agreement	X	X			
		CREP	Enroll Land		X			
			Implement/Maintain Projects		X	X	X	X
		Barrier (Pipe Casing) moderate Priority	Develop project plans/designs			X		
			Implement barrier remediation project				X	
	Delmarter	Coop Agreement	Initiate contact, develop agreement	X	X			
		CREP	Enroll Land		X			
			Implement/Maintain Projects		X	X	X	X
Middle Birch Mainstem (GA 12)	Straughan	Ongoing - M&E	Temp monitoring	X	X	X	X	X
Upper Birch Mainstem (GA 12)	ANY	CREP	Initiate contact/enroll land	X				
			Implement/Maintain Projects		X	X	X	X
	Gambill	Coop Agreement Renewal	Finalize and Sign	X				
		Ongoing - O&M	All - fence, instream, weed control	X	X	X	X	X
		CREP	Enroll Land	X				
			Implement/Maintain Projects		X	X	X	X
	Weinke	Coop Agreement Renewal	Finalize and Sign	Done				
		Water development	Complete install	X				
		Willow install assistance (Separate ODFW Project)	Implementation/supervision	X				
		Ongoing - O&M	All - fence, instream, weed control	X	X	X	X	X
		Ongoing - M&E	Temp monitoring	X	X	X	X	X
	L. Hoeft	Coop Agreement Renewal	Initiate Contact/Develop Agreement	X				
		CREP	Enroll Land	X				
			Implement/Maintain Projects		X			
		Barrier (Dam modification)	Survey, Plan, Design		X			
			Implement			X	X	
	Pilot Rock	Gauge Stations	Complete gauge station installation	Done				
			Flow Data Collection	X	X	X	X	X

Location (GA#)	Property	Project[1]	Phase/Aspect	Phase Implementation (Year)				
				2006	2007	2008	2009	2010
East Birch Creek (GAs 17, 18, 19)	Sorenson	Ongoing - O&M - Bank Stabilization	Install Vegetated Geogrid/Willows	Done				
		Ongoing - O&M	All - fence, instream, weed control	X	X	X	X	X
		Ongoing - M&E	Take photo-point photos, conduct channel/habitat surveys	X	X	X	X	X
	Houser	Ongoing - O&M	All - fence, instream, weed control	X	X	X	X	X
		Ongoing - M&E	Temp monitoring	X	X	X	X	X
		Ongoing - M&E	Take photo-point photos, conduct channel/habitat surveys					
	Joliff	Coop Agreement	development, Signature	X				
		Barrier (Dam removal)/Stable Channel Design	Survey, Plan, Design	X				
			Implement		X	X		
	Westgate	Ongoing - M&E	Temp monitoring	X	X	X	X	X
			Complete post-maintenance surveys	X	X	X		
	Cunningham	Coop Agreement	Re-initiate contact with previously uncooperative landowners, develop agreements		X			
		Fencing/Stable Channel Design	Survey, Plan, Design			X		
			Implement				X	X
	Jessen	Coop Agreement	Re-initiate contact with previously uncooperative landowners, develop agreements		X			
		CREP	Enroll Land		X			
			Implement/Maintain Projects			X	X	X
		Fencing/Stable Channel Design	Survey, Plan, Design			X		
			Implement				X	X
	Tom Gibson	Coop Agreement	Re-initiate contact with previously uncooperative landowners, develop agreements		X			
		CREP	Enroll Land		X			
			Implement/Maintain Projects			X	X	X
		Fencing/Stable Channel Design	Survey, Plan, Design			X		
			Implement				X	X
	Humphrey	Coop Agreement	Re-initiate contact with previously uncooperative landowners, develop agreements		X			
		CREP	Enroll Land		X			
			Implement/Maintain Projects			X	X	X

Location (GA#)	Property	Project[1]	Phase/Aspect	Phase Implementation (Year)				
				2006	2007	2008	2009	2010
		Fencing/Stable Channel Design	Survey, Plan, Design			X		
			Implement				X	X
	Upper Reaches	ALL	initiate contact/develop agreements, as possible		X			
			Survey, Plan, Design			X		
			Implement				X	X
Pearson Creek (GA 19)	Lower Reaches	ALL	initiate contact/develop agreements			X		
			Survey, Plan, Design				X	
			Implement					X
West Birch Mainstem (GAs 15, 16)	@ H-395	Ongoing - M&E	Temp monitoring	X	X	X	X	X
	Wayne Low	Coop Agreement	Initiate contact, develop agreement	X				
		Barrier (Dam removal)	Survey, Plan, Design	X	X			
			Implement		X			
	Upper reaches	Road re-location/channel reclamation	Initiate contacts with county, etc. Re-open lines of communication regarding the development of a project aimed at relocating the county road upslope, deactivating the present road (in the gorge) and reconstructing the stream channel.		X			
			Begin preliminary planning. Seek & secure outside funding.			X		
			Survey, Plan, Design				X	
			Implementation				X	X
		Landowner contacts	Re-initiate contact/discussion with formerly uncooperative landowners	X				
		Coop Agreement	Develop/Sign Agreements	X	X			
		Bridge Modifications	Survey	X	X			
			Plan, Design		X	X		
			Implementation			X	X	X
		Riparian Fencing, instream restoration	Identify opportunities for riparian fence construction/instream work, develop projects		X			
			Implement			X	X	X
Bear Creek (GA 14)	Wayne Low	Riparian Fencing/Instream	ID opportunities	Done				
			Survey, Plan, Design		X			
			Implement			X		

Location (GA#)	Property	Project[1]	Phase/Aspect	Phase Implementation (Year)				
				2006	2007	2008	2009	2010
	Upper Reaches	ALL	initiate contact/develop agreements	X				
			Survey, Plan, Design		X			
			Implement			X	X	X
Bridge Creek (GA 15)	Hayden	Coop Agreement	Initiate contact, develop agreement	X				
		Riparian Fencing/Instream/Other?	Survey, Plan, Design		X			
			Implement			X	X	X
	Wayne Low	Barrier Remediation (Culvert)	Survey, Plan, Design		X			
			Implement			X		
	Upper Reaches	ALL	initiate contact/develop agreements	X				
			Survey, Plan, Design		X			
			Implement			X	X	X
Meacham Creek - Upper Reaches (GA 38)	Cunningham	Coop Agreement	Signature	X				
		Riparian Fencing/Water Developments	Survey, permitting, construction (0.5 miles)	X				
	Gallatin	Coop Agreements	Renew/extend expired agreements	X				
			Develop/sign new agreement(s)	X	X			
		Riparian Fencing/Water Developments	survey, permitting, construction (3.0 miles)	X	X			
			survey, permitting, construction (additional miles)		X	X	X	X
Twomile Creek (GA 38)	Forest Recovery	Ongoing - O&M	Fence, water developments	X	X			
		Coop Agreement	Renew/extend expired agreement			X		
	Lower Reaches	Riparian Fencing/Instream/Other?	Initiate contact, develop agreement	X	X			
			Survey, Plan, Design		X	X		
			Implement			X	X	X
North Fork Meacham (GA 35)	ANY	Explore project opportunities	Research Land ownership		X			
		Coop Agreement	Initiate contact, develop agreements			X		
		Any	Plan, design, implement applicable projects				X	X
Umatilla River Mainstem - Meacham Cr. to Forks (GA 40)	ANY	Explore project opportunities	Research Land ownership	X	X			
		Coop Agreement	Initiate contact, develop agreements		X	X		
		Detailed Assessment (contract)	Conduct Reach Restoration Assessment		X	X		
		Any	Plan, design, implement applicable projects				X	X

[1] All projects will be aimed at carrying forward applicable Management Strategies identified in the Subbasin Plan.

Table 5. CTUIR Fish Habitat Improvement Program - Implementation Schedule.

Objective	Tasks (PICES Work Element)	Milestones
4.1 Identify, coordinate, and manage at least six new habitat improvement projects for the Umatilla River subbasin during 2005/2006	Conduct project inventory and assessment	Survey Subbasin Plan priority geographic areas (GAs) and pertinent literature to remain privy to habitat restoration needs.
	Identify and select projects	Identify habitat restoration projects based on the inventory and assessment and select properties for habitat improvement.
	Obtain conservation easements[1]	Obtain easement with owner J. Whitney to replace gravity irrigation diversion from Birch Cr. with a well.
		Obtain easement with owner of barrier at Birch Cr. RM 11 to allow for improvements.
		Obtain easement with owner of barrier at Birch Cr. RM 12 to allow for improvements.
		Obtain easement with owner of barrier at W. Fork Birch Cr. RM 1.0 to allow for improvements.
		Renew existing easements with land owners on Meacham Cr. to allow improvements at RM 1.7 and from RM 2.7-3.4.
		Obtain easements with land owners on Meacham Cr. to allow improvements at RM 20.2 and from RM 5.5-6.7 as well as on Camp Cr. at RM 0.3.
		Obtain additional easements in priority GAs if/when opportunities develop.
	Conduct outreach and education	Participate with the Umatilla County S&WCD, Pendleton Unified School district, granges, Tri-County Steelheaders & other entities to provide information and advice concerning fish and wildlife habitat.
	Coordinate with other entities	Collaborate with the Umatilla Basin Watershed Council to facilitate design and implementation of projects to improve channel morphology and riparian restoration in RM 1-2 of E. Fork Birch Cr.
	Provide technical review	Review and comment on other entities' plans and proposals that affect instream and riparian habitat in the Umatilla River subbasin.
	Produce status reports	Prepare status reports quarterly that summarize project progress and impediments.
	Produce annual reports	Prepare annual reports that present project information, monitoring results, and maintenance accomplishments.
4.2 Prepare plans and obtain designs and environmental clearance for at least six new habitat improvement projects during 2006/2007.	Produce design and/or specifications	Subcontract for design plan for removal of a concrete diversion dam and stabilize the stream channel using rock weirs at the Broun property, RM 10 Birch Creek
		Subcontract for design plan to remove a concrete diversion dam and stabilize the stream channel using rock weirs at the Peterson property, RM 2.5 Birch Creek
		Produce a management plan for removing the fish passage barrier at RM 11, Birch Creek
		Produce a management plan for removing the fish passage barrier at RM 12, Birch Creek
		Produce a management plan for removing the fish passage barrier at RM 1.0, W. Fork Birch Creek
		Produce a management plan for removing the fish passage barrier at RM 1.7, Meacham

[1] Termed "Land Purchase" in BPA work elements.

		Creek
		Produce a management plan for removing the fish passage barrier at RM 20.2, Meacham Creek.
		Produce a management plan for removing the fish passage barrier at RM 0.3, Camp Cr. tributary to Meacham Cr.
		Produce a design plan for installing large woody debris (LWB) and boulders to reduce stream entrenchment and gradient and to increase channel sinuosity and length from RM 2.7-3.4, Meacham Creek.
		Produce a design plan for installing large woody debris (LWB) and boulders to reduce stream entrenchment and gradient and to increase channel sinuosity and length from RM 5.5-6.7, Meacham Creek.
		Produce a management plan for riparian vegetation plantings on Meacham Creek in conjunction with instream improvement tasks
		Prepare a management plan for collaborating with CREP for vegetative planting on Whitney property, Birch Cr.
		Prepare a management plan for completing vegetative planting on Peterson property, Birch Cr. that will be compatible with a future CREP project.
	Produce environmental compliance documentation	Obtain environmental permits/approvals for Broun property (USACE/SLD permit & NMFS consultation)
		Obtain environmental permits/approvals for Peterson property (USACE/SLD permit & NMFS consultation)
		Prepare a biologic assessment (BA)/NEPA checklist & obtain environmental permits/approvals for Birch Cr. RM 11 property (USACE/SLD permit & NMFS consultation)
		Prepare a BA/NEPA checklist & obtain environmental permits/approvals for Birch Cr. RM 12 property (USACE/SLD permit & NMFS consultation)
		Prepare a BA/NEPA checklist & obtain environmental permits/approvals for W. Fork. Birch Cr. RM 1.0 property (USACE/SLD permit & NMFS consultation)
		Prepare a BA/NEPA checklist & obtain environmental permits/approvals for Meacham Cr. RM 1.7 barrier amelioration (USACE/SLD permit & NMFS consultation)
		Prepare a BA/NEPA checklist & obtain environmental permits/approvals for Meacham Cr. RM 20.2 barrier amelioration (USACE/SLD permit & NMFS consultation)
		Prepare a BA/NEPA checklist & obtain environmental permits/approvals for Camp Cr. RM 0.3 barrier amelioration (USACE/SLD permit & NMFS consultation)
		Obtain necessary cultural resource surveys and concurrence for Birch Cr. RM 11 work
		Obtain necessary cultural resource surveys and concurrence for Birch Cr. RM 12 work
		Obtain necessary cultural resource surveys and concurrence for W. Fork. Birch Cr. RM 1.0 work

4.3 Implement at least six new habitat improvement projects during 2007-2009.	Manage (implement) and Administer Projects	Remove Peterson dam at RM 2.5 of birch Creek & install rock weirs to stabilize channel.
		Remove Broun dam at RM 10 of Birch Cr. & install rock weirs to stabilize channel.
		Ameliorate barrier problem at RM 11of Birch Cr.
		Ameliorate barrier problem at RM 12 of Birch Cr.
		Ameliorate barrier problem at RM 1.0 of W. Fork. Birch Cr.
		Ameliorate barrier problem at RM 1.7of Meacham Cr.
		Ameliorate barrier problem at RM 20.2 of Meacham Cr.
		Ameliorate barrier problem at RM 0.3 of Camp Cr
		Install LWD and boulders to improve Meacham Cr. from RM 2.7-3.4.
		Install LWD and boulders to improve Meacham Cr. from RM 5.5-6.7.
	Construct Terrestrial Structure (Fencing)	Construct about 10 miles of livestock exclusion high-tensile wire fence on the Baker property, headwaters of E. Fork. Birch Creek[2]
		Construct about 2 miles of livestock exclusion fence on the Broun easement, Birch Creek.
		Construct about 10 miles of livestock exclusion fence on the Cunningham Sheep easement, McKay Cr.
	Develop alternative water source	Install a pumped well system on Whitney easement in exchange for Peterson dam removal on Birch Cr.
		Install a pumped well system on Broun easement in exchange for diversion dam removal on Birch Cr.
		Facilitate DWR water right approval for a change in the point of diversion for the Broun property.
		Facilitate DWR water right approval for a change in the point of diversion for the Peterson property.
		Facilitate DWR water right approval for a change in the point of diversion for the Whitney property.
	Plant vegetation	Complete native grass planting on the B & G Resources easement if not completed in 2006.
		Plant native trees and shrubs on the Broun easement in areas disturbed by dam removal and channel restoration.
4.4 Maintain 55 previously implemented habitat improvement projects throughout plan implementation.	Maintain vegetation	Plant native willow, cottonwood, and dogwood along the stream bank of RM 0-10 on Meacham Cr. in areas that lack shade canopy.
		Plant native trees and shrubs in the flood plain of the Whitney easement in conjunction with zones 1 and 2 CREP plantings.
		Plant native trees and shrubs on the stream bank of McKay Cr. on the Cunningham Sheep easement to improve channel stability.
		Water and weed new plantings and replace deer/beaver guards on new plantings on new easements where vegetation is planted.
	Remove vegetation	Control noxious weeds on existing and new easements.

[2] To be done in collaboration with the land owner and the Rocky Mountain Elk Foundation.

	Maintain terrestrial structure	Repair damaged fencing resulting from climatic and livestock damage.
	Maintain instream structure	Repair flow-related damage to rock weirs/vanes and LWD and clear debris from such structures that could cause damage.
4.5 Conduct environmental monitoring – implementation and effectiveness – for selected habitat improvement projects during plan implementation.	Collect/generate/validate field and lab data	Collect/process baseline & project implementation data for water/air temperature, turbidity, suspended solids, and benthic invertebrates. Obtain fish population and redd data from CTUIR's R,M, & E project. Collect/interpret project effectiveness data at intervals, e.g. water/air temperature, sedimentation, morphological transects, and benthic invertebrates
	Analyze/interpret data	Analyze/interpret data from new projects to determine compliance with permit terms and to establish baseline conditions Analyze/interpret data from historic projects to determine project efficacy.

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