



Middle Wind River Riparian Enhancement Project

Presented by
Tova Cochran & Jamie Gomez



UNDERWOOD
CONSERVATION
DISTRICT

Overview

- (1) **Who we are:** Underwood Conservation District.
- (2) **Project Description:** History, site description, goals & objectives, proposed actions.
- (3) **Pre-project Planning:** Environmental assessment, design, engineering.
- (4) **Project Implementation:** Large woody debris instream structure construction & riparian revegetation.
- (5) **Post-Project Monitoring & Evaluation:** Preliminary conclusions.



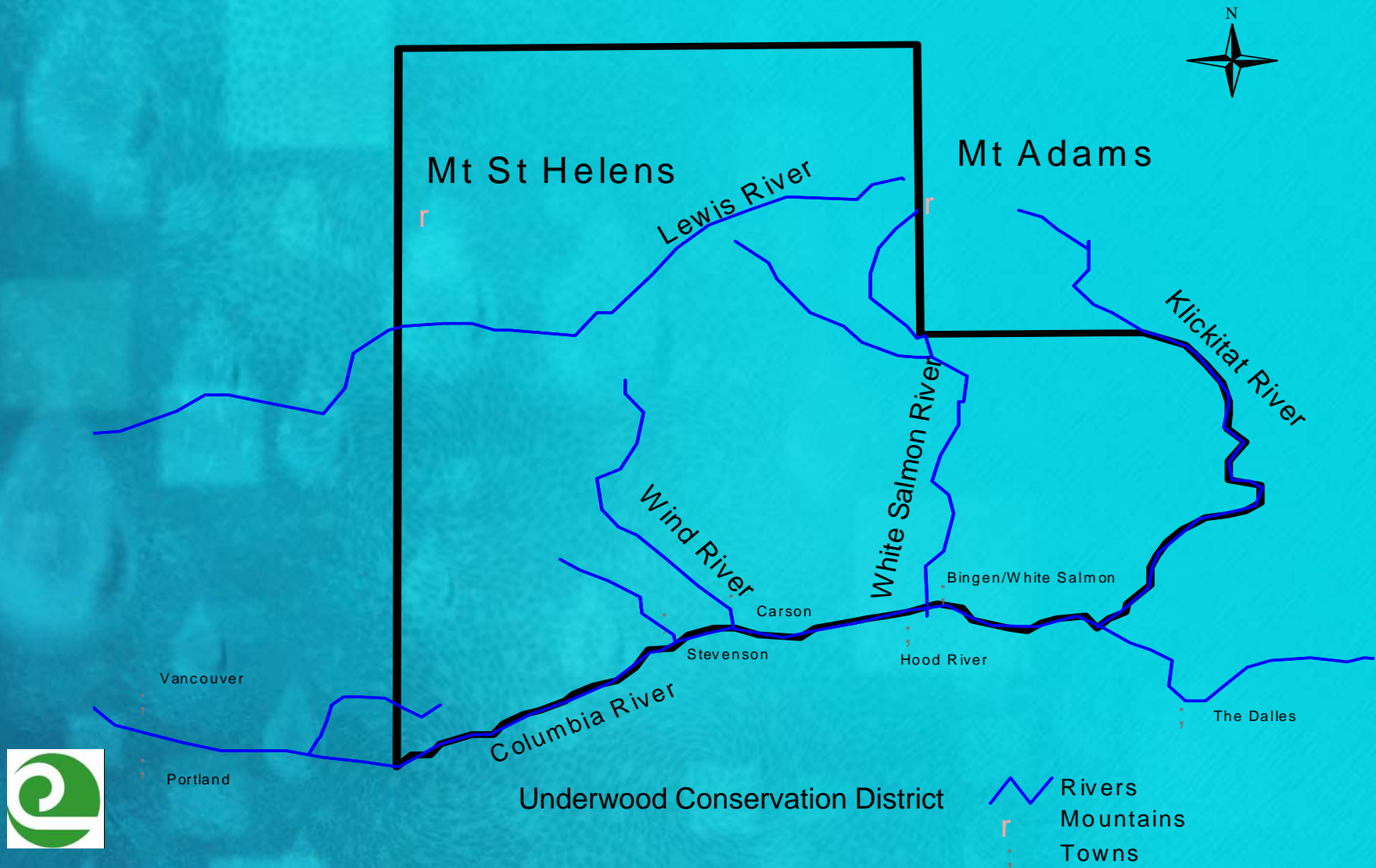
Who We Are:

Underwood Conservation District

- A governmental, non-regulatory agency.
- One of 47 across Washington State and guided by the Washington State Conservation Commission.
- Directed by a board of five local volunteer supervisors.
- Designed to be a local source of conservation assistance and education to landowners and residents in order to protect and enhance natural resources.
- Work with voluntary landowners to plan and implement conservation projects throughout district.

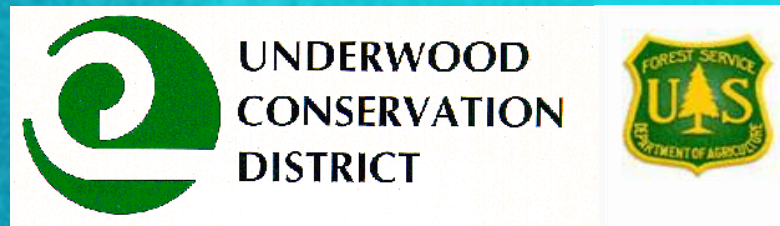


Underwood Conservation District



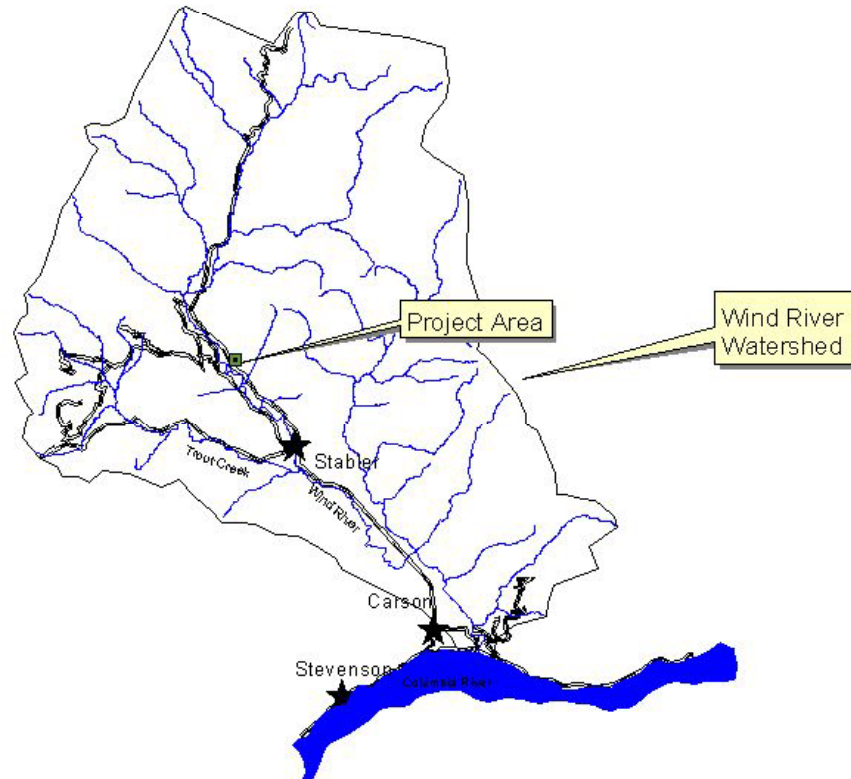
Middle Wind River Riparian Enhancement Project: History

- 2002 – USFS identification of reach in Wind River Watershed Analysis, 2nd Iteration.
- 2004 – Jim White (UCD) & Brian Bair (USFS) begin discussing goals and objectives for potential project.
- 2005 – Project Review and Work Site Evaluation completed by Brian Bair, Fisheries Biologist, USFS TEAMS Enterprise.
- Project Funding procured from Title II Resource Advisory Council funds.
- Two landowners willing to partner – USFS and Hollis family.

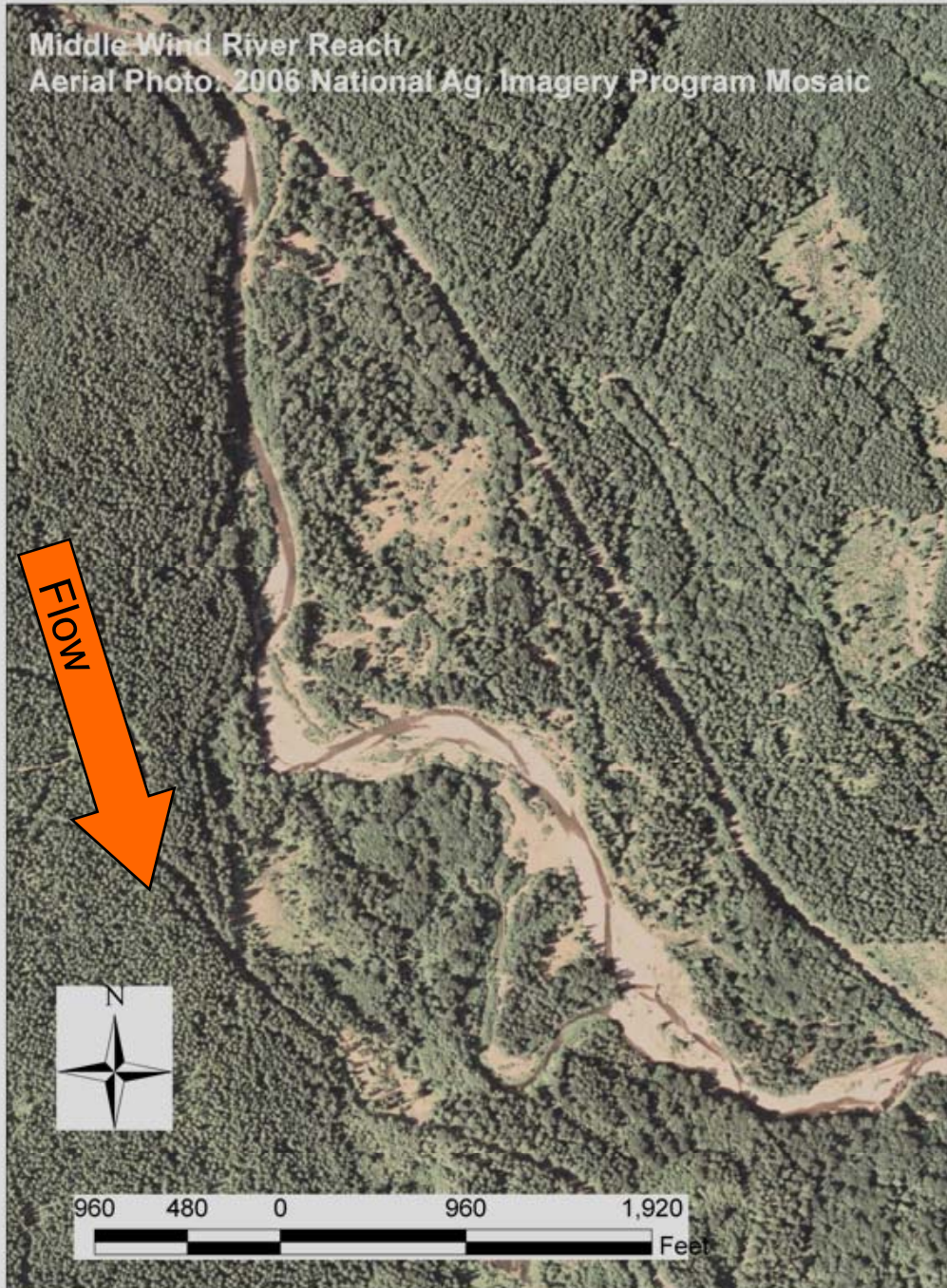


Middle Wind River
Riparian Enhancement
USFS and Hollis Properties

Underwood Conservation District
March 2006



Middle Wind River Reach
Aerial Photo: 2006 National Ag. Imagery Program Mosaic



Project Purpose and Need

From Wind River Watershed Analysis,
regarding this area:

- Lack of fish habitat pools,
- River is wide and shallow at low water,
- Shortage of large woody debris,
- Lack of mature streamside vegetation (not many large trees).



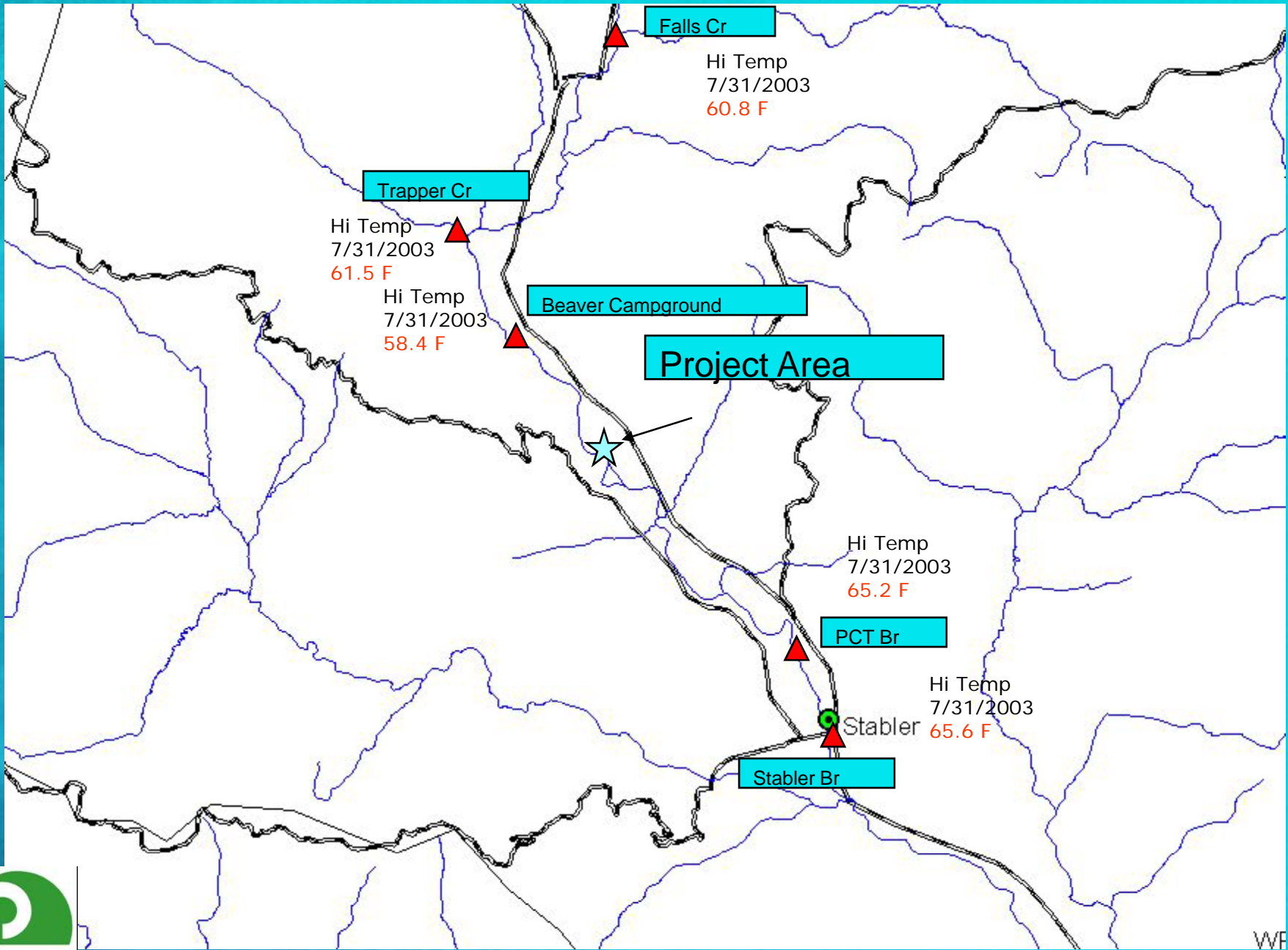
Purpose and Need, cont'd

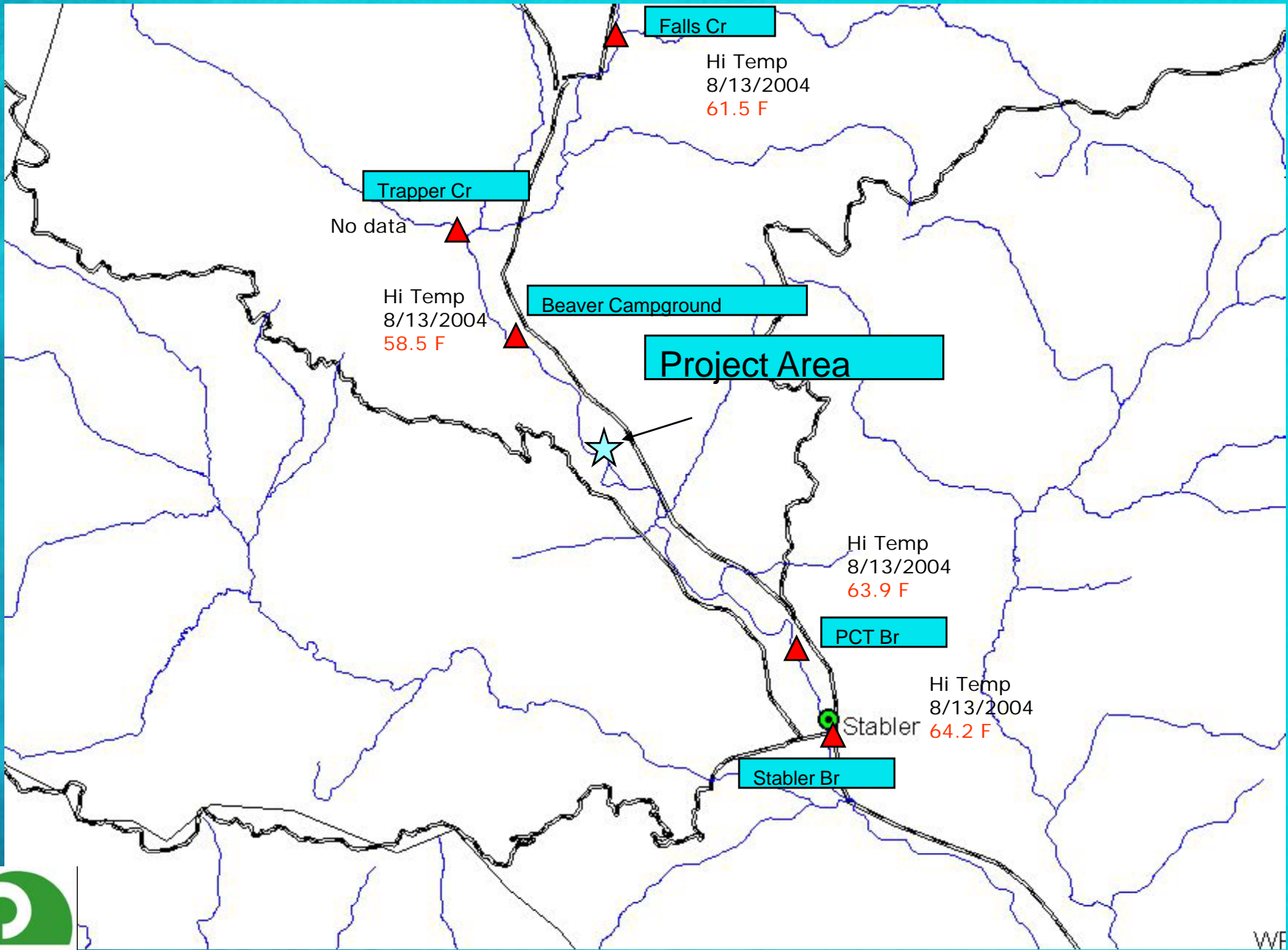
From Wind River Sub-basin Plan (2004):

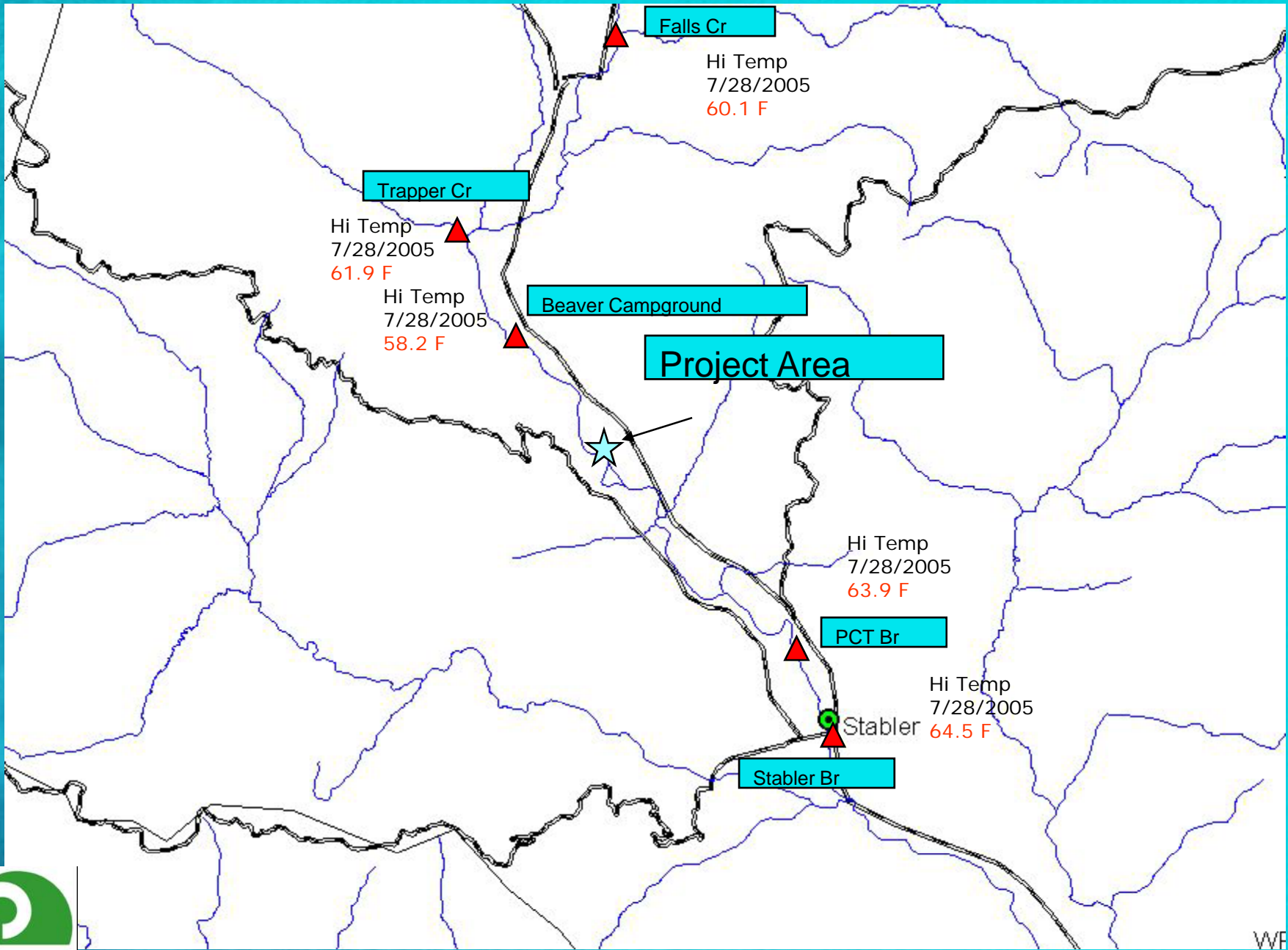
- Maintain side channels for fish habitat,
- Limit lateral movement of the river during high flow events,
- Minimize erosion from lateral bank cutting.

303d listings and TMDL for Temperature on Wind River (Dept. of Ecology).









Goals & Objectives

Goals:

- (1) Reduce stream temperatures,
- (2) Reduce coarse & fine sediments from bank erosion,
- (3) Rehabilitate fish habitat.

Objectives:

- (a) Reduce low flow width-to-depth ratio to <12 ,
- (b) Reduce bankfull width-to-depth ratio to less than 35,
- (c) Increase floodplain LWD to >16 pieces per acre,
- (d) Increase instream LWD to >120 per mile,
- (e) Reduce bank erosion to less $<20\%$,
- (f) Reconnect and/or maintain side channels.



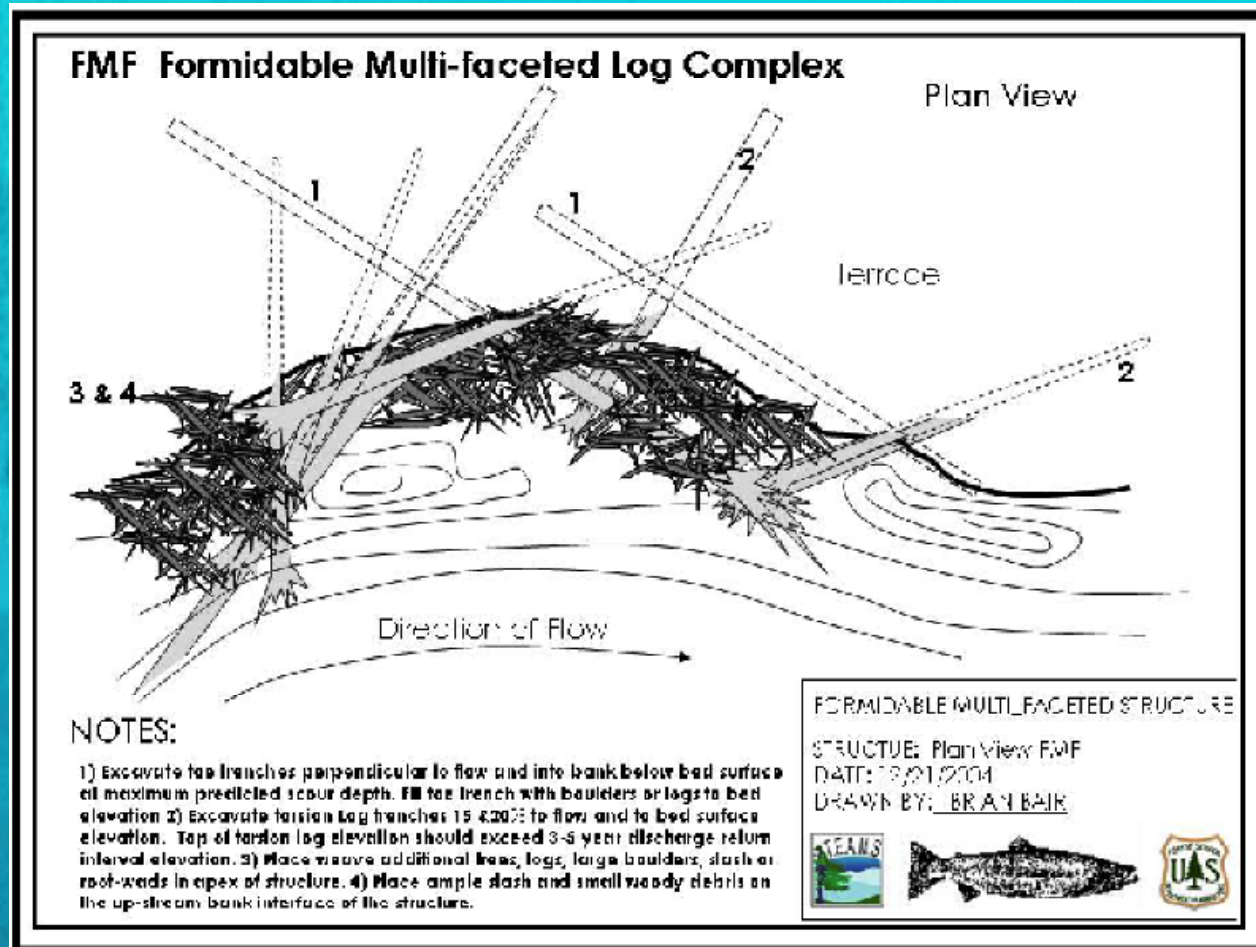
Proposed Actions

- I. Design and install a series of **LWD** structures to:
 - restore lateral channel stability,
 - reduce near bank shear stress & erosion,
 - reduce width-to-depth ratio,
 - increase primary pools and hiding cover for juvenile and adult threatened Lower Columbia River steelhead.

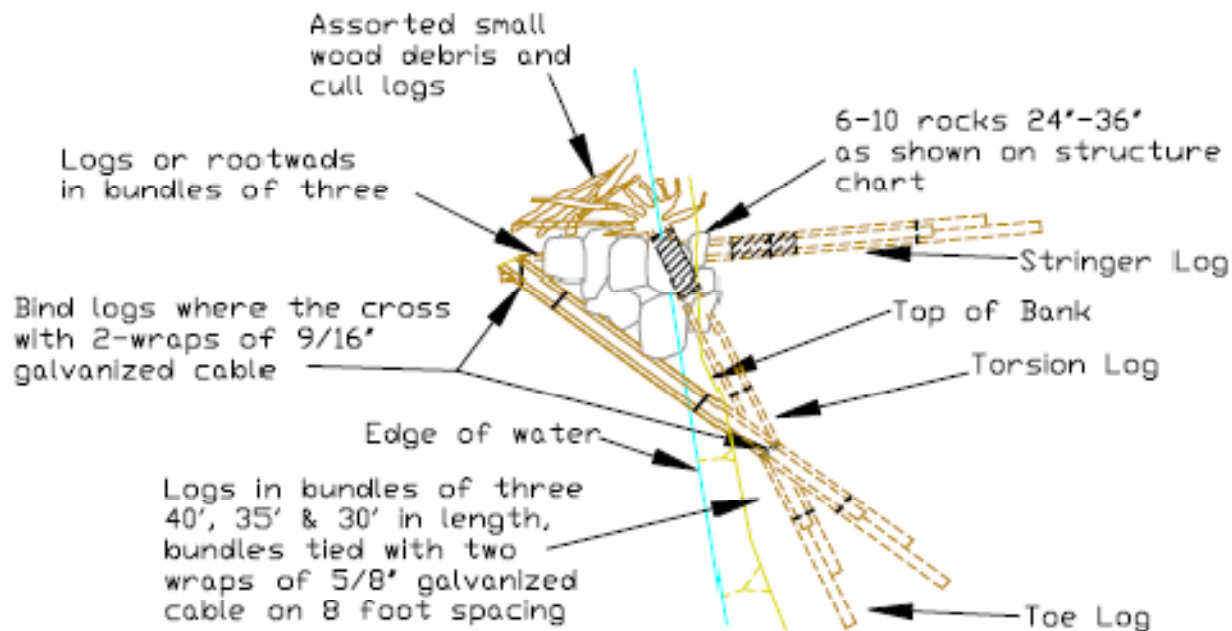
- II. Plan and implement an extensive riparian native plant revegetation project.



Design and Engineering



Typical LWD Structure for Mainstem Streambanks

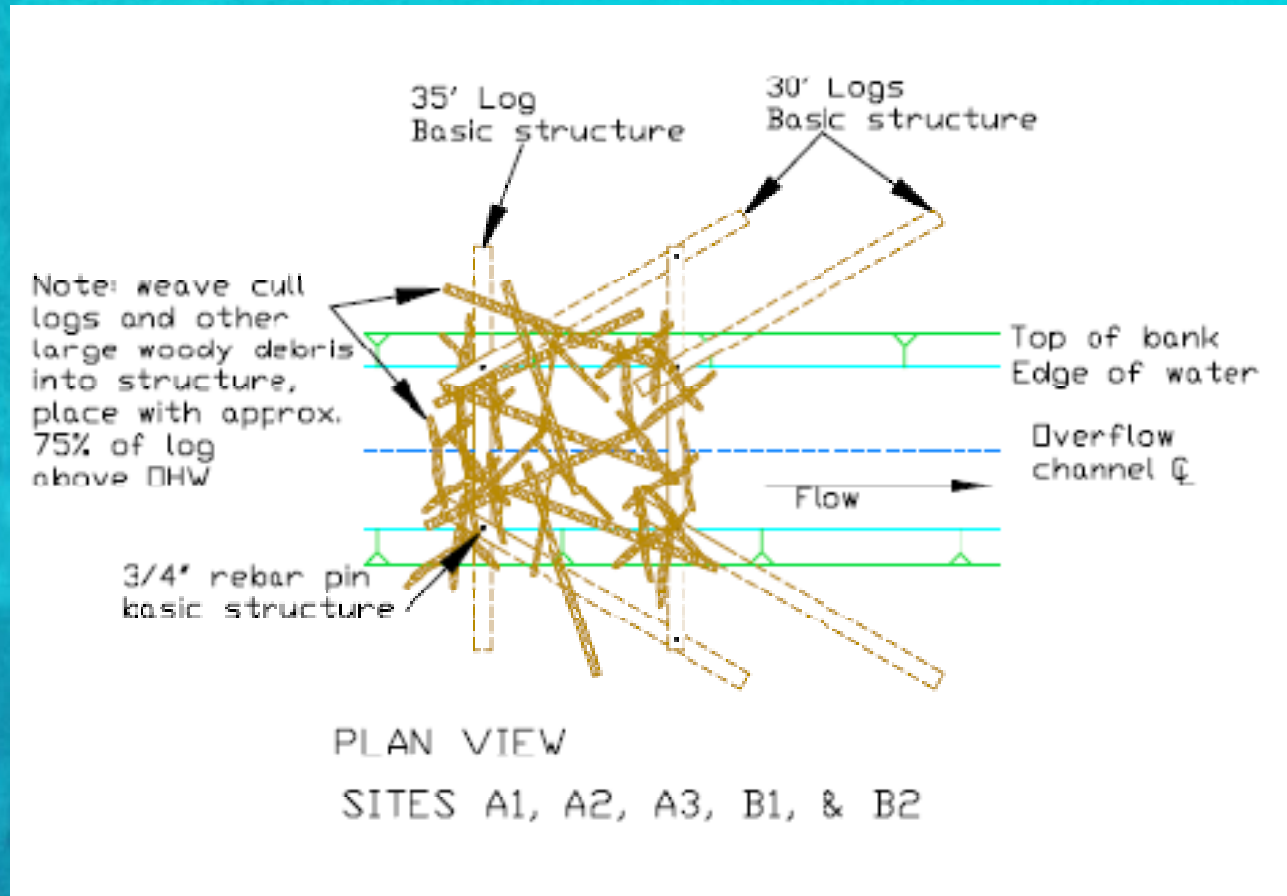


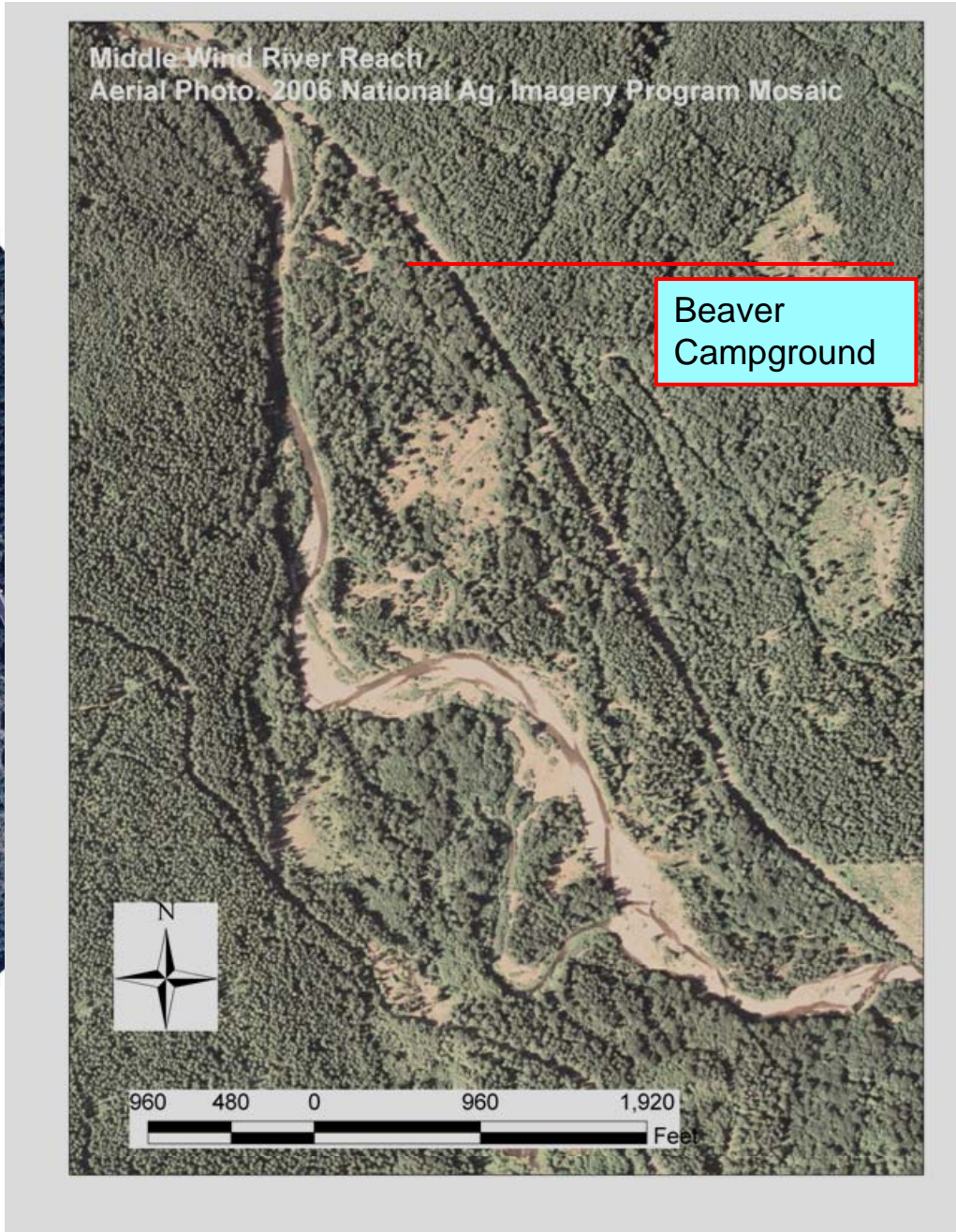
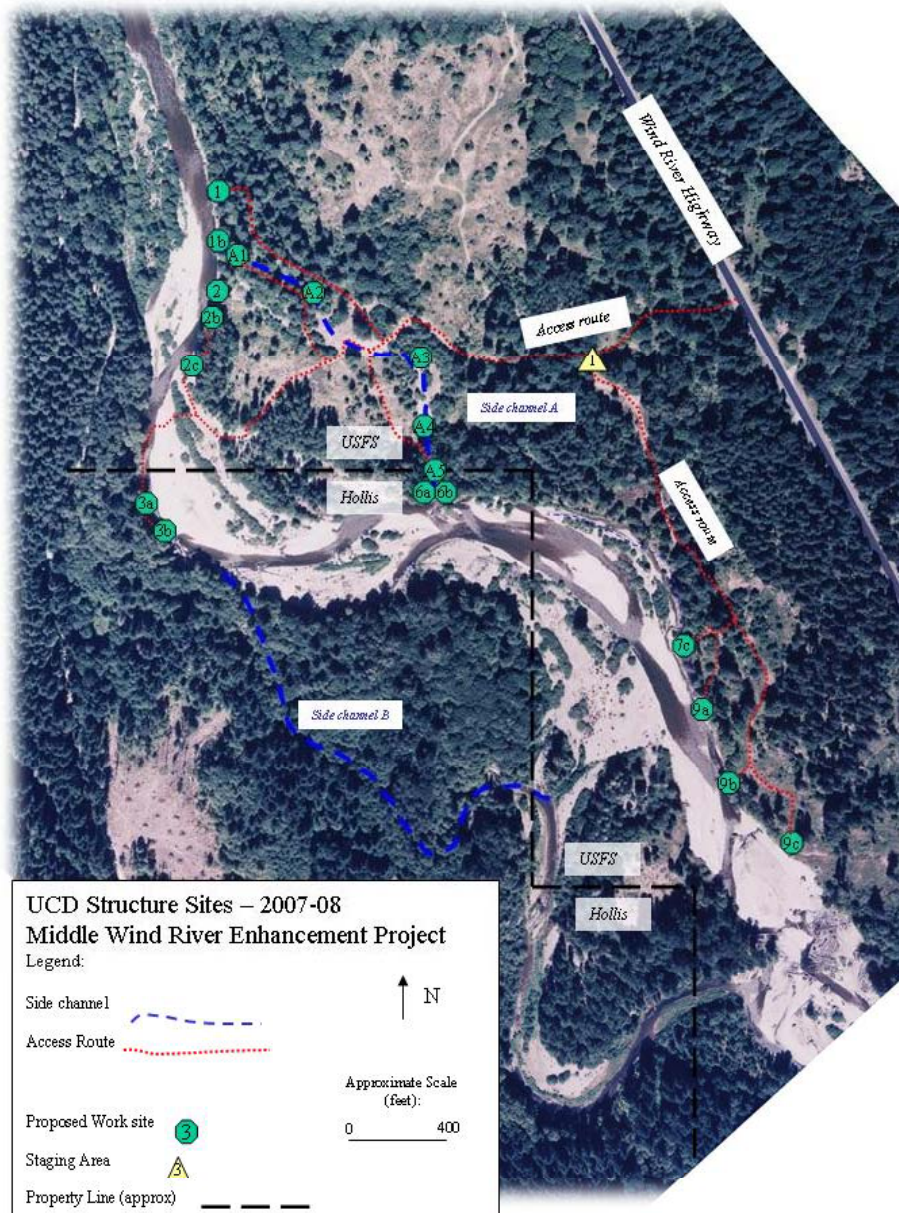
PLAN VIEW

Formidable Multi-Faceted Bank Protection
Typical Sites 1, 2, 3a, 3b, 5, 6a, 6b, 7, 8,
9a, 9b, 9c, 10a, 10b, & 10c



Typical LWD Structure for Side Channels



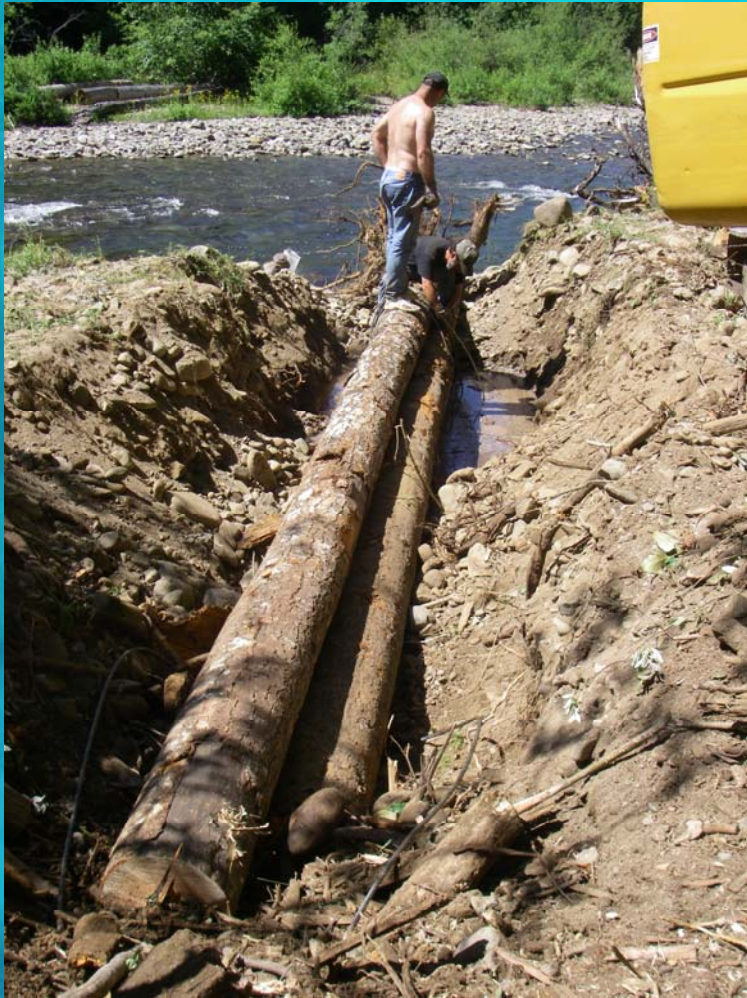


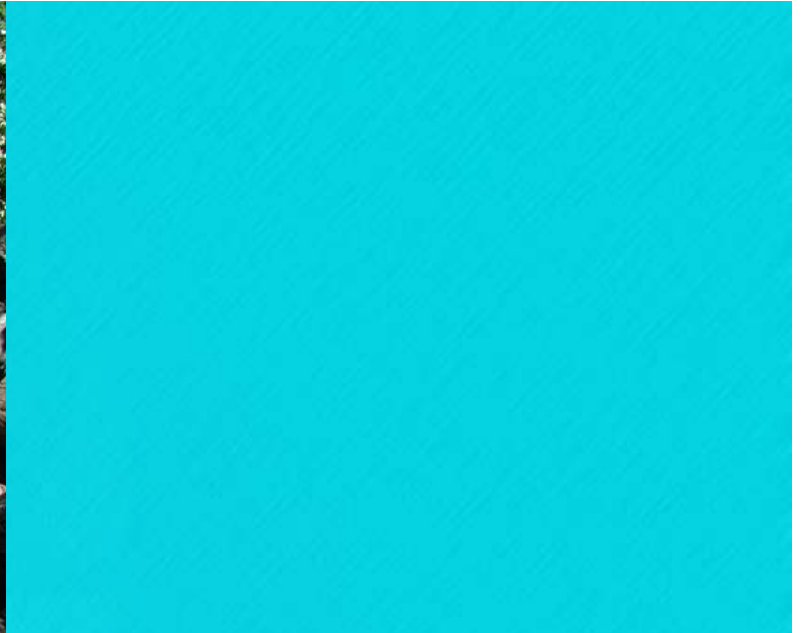
Assessing Environmental Impact

- National Environmental Policy Act – Environmental Assessment Completed in 2007.
 - Included: Aquatic Resources Report, ESA Section 7 Consultation, Fisheries Bio. Eval., Cultural Resources, Botany, Wildlife Bio. Eval., Wild & Scenic Rivers Analysis.
 - Determination of No Significant Impact.
- Other Permits Acquired
 - WDFW Hydraulics permit, USACE Nationwide Permit, ECY Section 401 Water Quality Certification, ECY Construction Stormwater Permit.



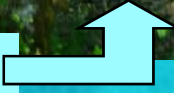
Project Implementation







September 2008

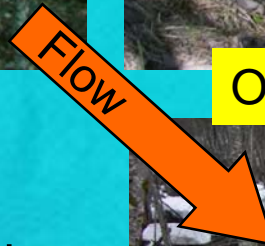


October 2008



Structure A5

- Located in side channel, 30 yards upstream of confluence with main stem.
- Intended to slow discharge velocities in side channel and increase side channel elevation & roughness.



January 2009



Riparian Vegetation Enhancement

- New funding sources and project partners acquired
 - Funding provided from WA Dept. of Ecology, Mid-Columbia Fisheries Enhancement Group, and Bonneville Power Administration.
 - Work accomplished by Wildlands Inc., NWSA Americorps crews, DNR WCC crews, and UCD staff.



Riparian Vegetation Enhancement

- Historical logging, small-scale rock mining, and avulsive channel migration.
- Need for streamside shading & LWD recruitment.



Endemic conifers: W. Red Cedar, W. Hemlock, Doug fir.

- Plantings from 2001 to present, utilizing Northwest Service Academy & Forest Youth Success groups.
- Browse protection & supplemental water methods employed.

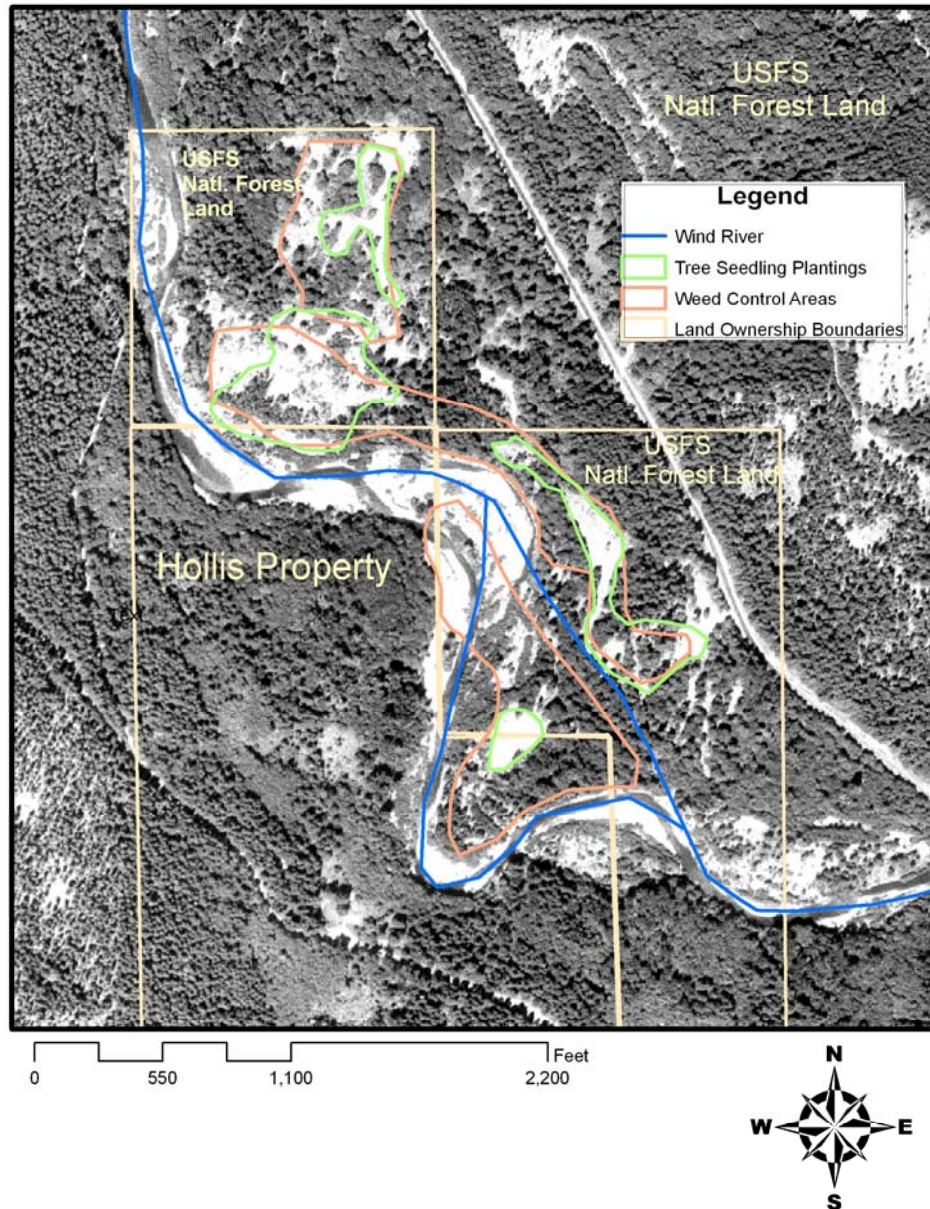


Invasi

- Contr
- Scoto
contro
- Cana
the th
& leav



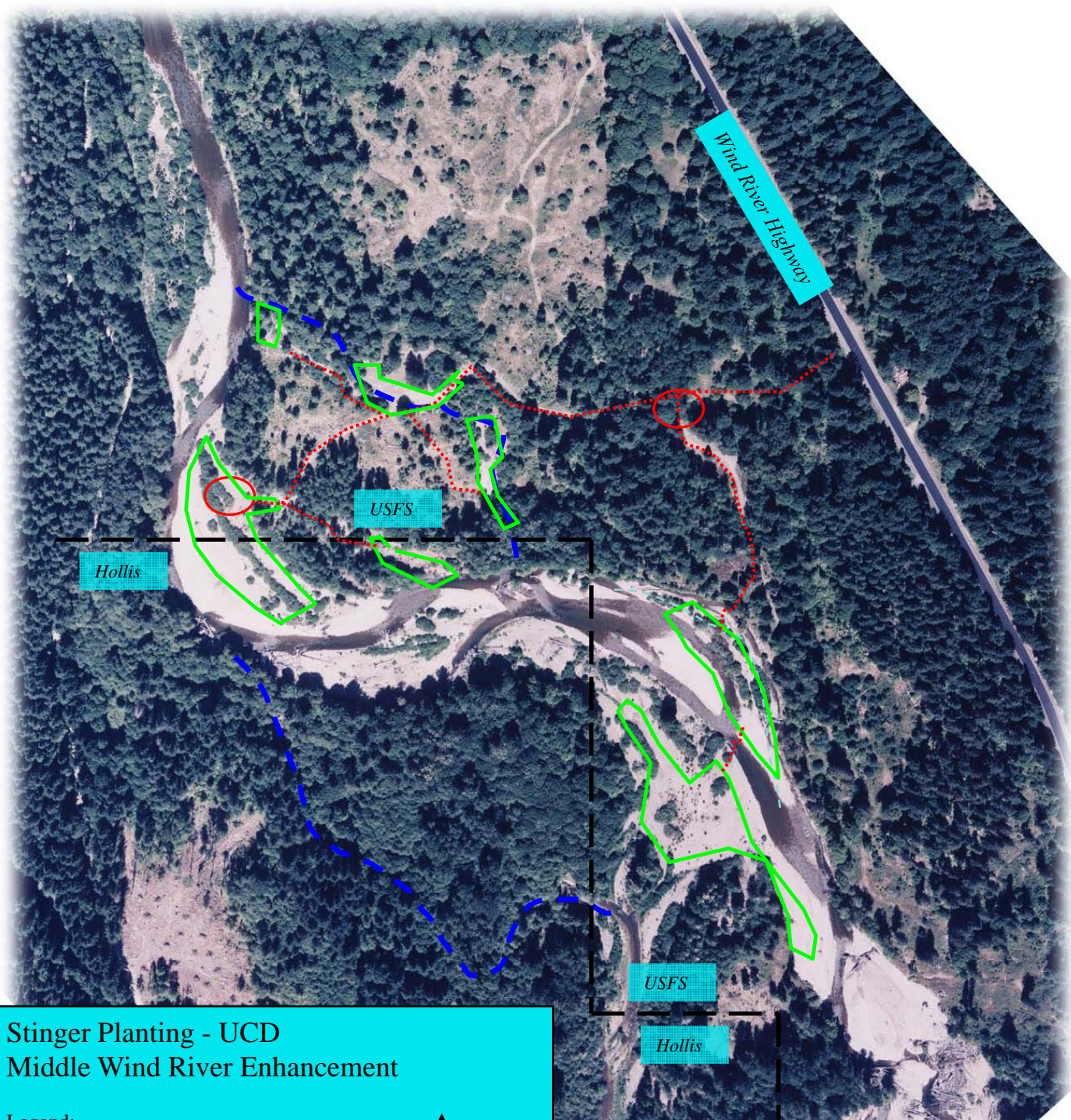
Middle Wind River Planting & Weeding Areas 2008



annual

utilizing
ical 'lop





Stinger Planting - UCD
Middle Wind River Enhancement

Legend:



Pre- and Post-Project Monitoring & Evaluation

- Photopoint Monitoring
- Erosion Pins & Stakes
- Percent Bank Stability
- Width-to-Depth Ratio
- Percent Shade Coverage
- Survey of Riparian Planting Survival
- Fish Presence Snorkel Surveys



Photopoint Monitoring



Before (above, 2006) and After (below, 2008) LWD Structure 1 placement.



Structure 1b



Photopoint Monitoring



Structure 7c

9a

9b

9c





Middle Wind River
Riparian Enhancement Project

Questions?



Presented by
Tova Cochran & Jamie Gomez
Underwood Conservation District