

LTPBR WORKSHOP

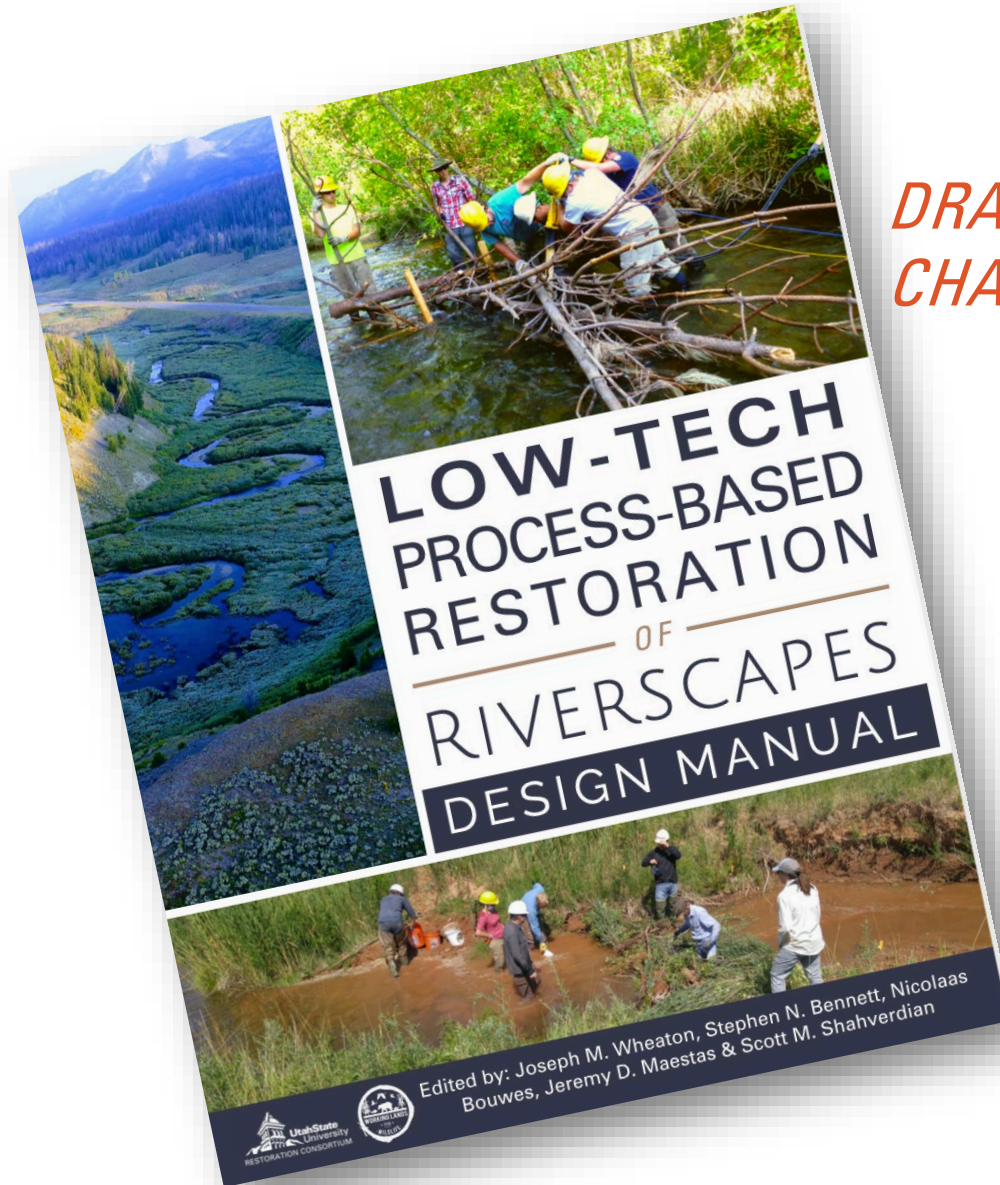
FIELD DESIGN DOCUMENTATION



DATA CAPTURE AND MANAGEMENT



DESIGN MANUAL REFERENCE – YES!!



*DRAWS FROM EACH
CHAPTER*

LTPBR PLANNING, DESIGN, and MONITORING

There's nothing to it.....

But you
better know
GIS...

....don't
crash that
drone

....which tablet
software for
field design??

...you know
some stream
survey
protocols right?

....be able to talk
Eco-Hydro-Fluvial-
Geo-Bio-Ology

10 years of
project
management

...and totally
understand
structure design



LTPBR PLANNING, DESIGN, and MONITORING



PROJECT IMPLEMENTATION AND MONITORING PROTOCOL

UNIFIED LT-PBR Framework

- Field Data Capture
- Data Management
- Metric Summarization
- Sharing Dissemination



OUTLINE: LTPBR INFORMATION MANAGEMENT

I. A Unified Framework?

II. Protocol Overview

III. Data Collection & Management Platform 

IV. Design and Implementation 

V. Monitoring Protocols 

VI. Protocol Resources

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PROTOCOL OVERVIEW

PRIMARY PROTOCOL COMPONENTS

COMPONENT	 DESIGN AND IMPLEMENTATION	 MONITORING SURVEY PROTOCOLS	 DATA COLLECTION AND MANAGEMENT
FUNCTION	Project organization using core set of attributes describing design, objectives, and structure specification.	Series of monitoring surveys capable of generating a diversity of metrics describing ecological outcomes and project effectiveness.	Complete data collection and management solution supporting consistent information capture.
APPLICATION	Iterative process intended to be edited and updated with new information throughout the lifespan of a project.	Repeat monitoring surveys at discrete survey events	Used throughout design development, implementation, field data collection, or report preparation.
TARGET USERS	Requires understanding of the restoration design. Project managers, restoration designers, or construction foreman.	Accessible to individuals with a reasonable understanding of fluvial dynamics and taxonomy. Summer research technician or a community volunteer.	All protocol users at appropriate application.

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DATA COLLECTION AND MANAGEMENT



fmLTPBR

Filemaker Pro Database

The screenshot displays the 'Project Database' interface. On the left is a form for 'PROJECT: PARRISH CREEK RIPARIAN RESTORATION'. It includes fields for 'PROJECT NAME' (Parrish Creek Riparian Restoration), 'PROJECT AFFILIATION' (MJDBCWC), and 'PROJECT DESCRIPTION'. A table lists 'REACHES' with columns for 'REACH NAME', 'LENGTH (MI)', 'COMPLEXES', and 'STRUCTURES'. The first entry is 'Lower Parrish Creek' with values 1, 6, and 58 respectively. A 'DELETE PROJECT' button is at the bottom. On the right is a 'Project Map' showing a satellite view of the restoration area with markers for 'Comp-01' through 'Comp-06'. A tooltip explains that projects define a single entity for funding and permit acquisition.

REACH NAME	LENGTH (MI)	COMPLEXES	STRUCTURES
Lower Parrish Creek	1	6	58

- **DESKTOP** – Windows & MAC
- **FIELD** – iPad
- **MAPPING & GPS**
- **PHOTOS** – Capture and Storage
- **EXPORTS**
 - .csv and .pdf

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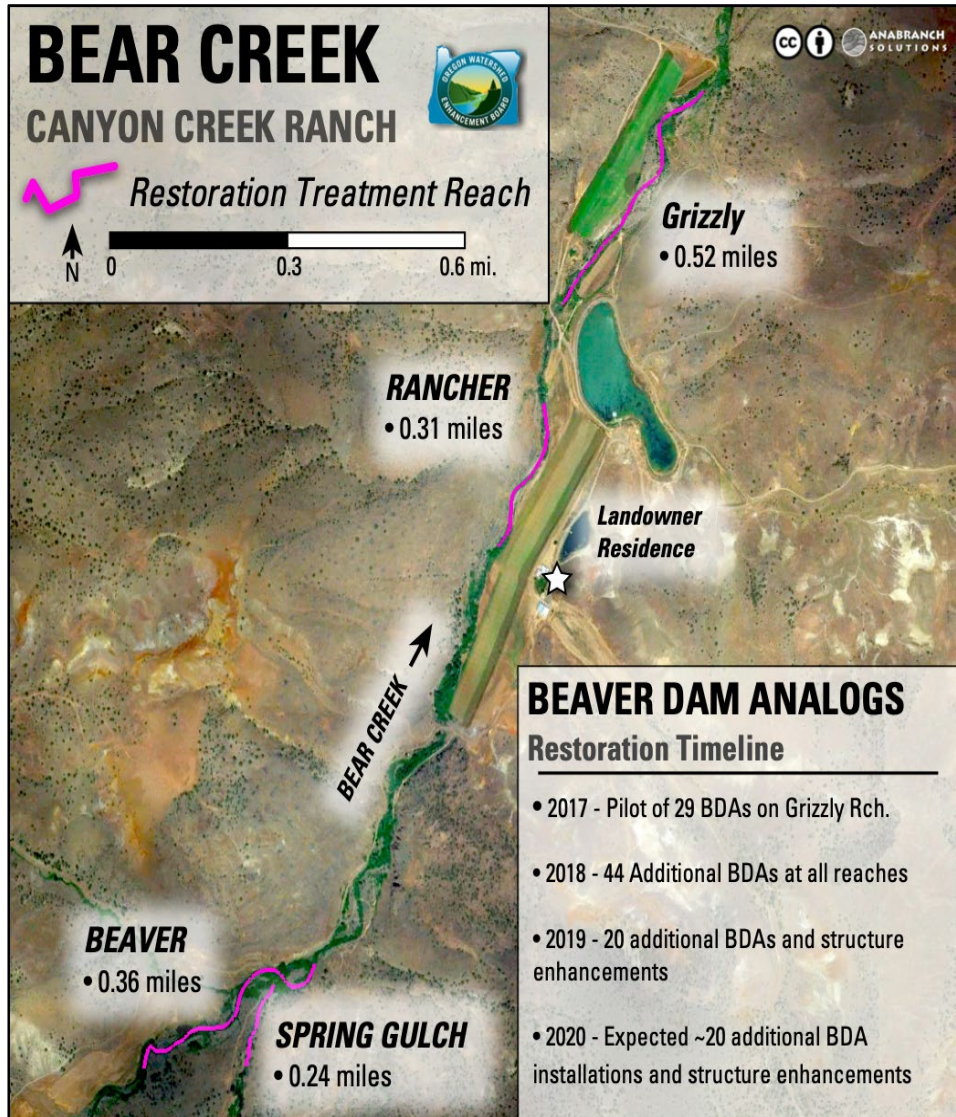
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PROJECT DESIGN AND IMPLEMENTATION



DESIGN COMPONENTS

SPATIAL ORGANIZATION

- Reaches – Attributes, Objectives
- Complexes, Structures

TEMPORAL ORGANIZATION

- Multi – Phased Implementation
- i.e., Pilot, Phase 01, Phase 02

IMPLEMENTATION

- Materials Types
- Structure Specification

PROJECT DESIGN AND IMPLEMENTATION

STRUCTURE DESIGN RECIPES

Project Database

< Project

PROJECT: BEAR CREEK HYDROLOGIC ENHANCEMENT
STRUCTURE TYPE: PRIMARY BDA

STRUCTURE IMAGE ?

STRUCTURE TYPE NAME: Primary BDA ?

STRUCTURE MIMICS: Beaver Dam ?

STRUCTURE TYPE DESCRIPTION: Typical BDA structure, slightly higher than secondary BDA and intended to maximize flow dispersal and promote channel aggradation. ?

LENGTH (FT): 15.0 ?

WIDTH (FT): 3.0 ?

HEIGHT (FT): 2.0 ?

SED. DEPTH (IN): 1 ?

POST DIAM. (IN): 3 ?

POST SPACE (FT/POST): 3.0 ?

ADD MATERIAL TYPE

TYPES: 3

MATERIAL TYPE	COUNT
Deciduous Vegetation ?	200 ?
Juniper ?	20 ?
Sagebrush ?	5 ?

STRUCTURE ATTRIBUTES

POSTS: 5

FILL VOLUME ESTIMATES (YDS.)

POST VOLUME: 0.0

VEG. VOLUME: 1.1

SED. VOLUME: 0.1

TOTAL VOLUME: 1.2

ltpbr-OR-20200713

- DESIGN AND FUNCTION SPECIFICATION
- MATERIAL AND FILL ESTIMATES
- STRUCTURE MODIFICATION AND MAINTENANCE

PROJECT DESIGN AND IMPLEMENTATION

STRUCTURE DESIGN RECIPES – Export

PRIMARY BDA



STRUCTURE TYPE DESCRIPTION

Large BDA generally spanning the length of the primary channel. Posts installed and fill added to elevation just above the active channel height.

STRUCTURE MIMICS

Beaver Dam

TOTAL POSTS SEDIMENT DEPTH (IN.)

6 2

HEIGHT
(FT.)

LENGTH
(FT.)

WIDTH
(FT.)

POST DIAM
(IN.)

POST SPACING
(FT. / POST)

2.5

12.0

3.0

3

3.0

MATERIAL NAME

QUANTITY

Juniper Branches

100

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MONITORING SURVEY PROTOCOLS

3 Monitoring Survey Types



RAPID MONITORING “VISIT”

Opportunistic, Fast, Cheap...



FIELD SURVEY

GEOMORPHIC (HABITAT) UNITS, Structures (Jams and Dams)



REMOTE RIVERSCAPE

Imagery Analysis – Desktop GIS Based

MONITORING SURVEY PROTOCOLS

RAPID MONITORING “VISIT”



MONITORING SURVEY PROTOCOLS

RAPID MONITORING “VISIT”

Project Database

< Reach Visits

REACH: GRIZZLY
VISIT DATE: 5/6/2020

VISIT DATE: May 6, 2020

VISIT FLOW: Moderate

REACH: Grizzly

VISIT DESCRIPTION

This was meant to be a high flow visit. However, appears this year flow will stay pretty low. Not a lot of increased floodplain action, and likely minimal sediment transport and deposition. At least no structure loss and continued progress toward restoration objectives.

PRE-TRT. ACTIVE FLOODPLAIN WIDTH (M) 30 TARGET (M) 75

PRIMARY OBJ: Aggradation and Floodplain Connectivity

SECONDARY OBJ: Riparian Vegetation Expansion

REACH OBJECTIVE STATUS: Progress

ESTIMATED ACTIVE FLOODPLAIN WIDTH (M): 40

FISH PASSAGE CONCERNS: Low Flow Risk

SAVE VISIT

ltpr-OR-20200713

- % of Recovery Potential (width)
- Progress Toward Objectives
 - None, Progress, Achieved

Opportunistic, Fast, Cheap.....



MONITORING SURVEY PROTOCOLS



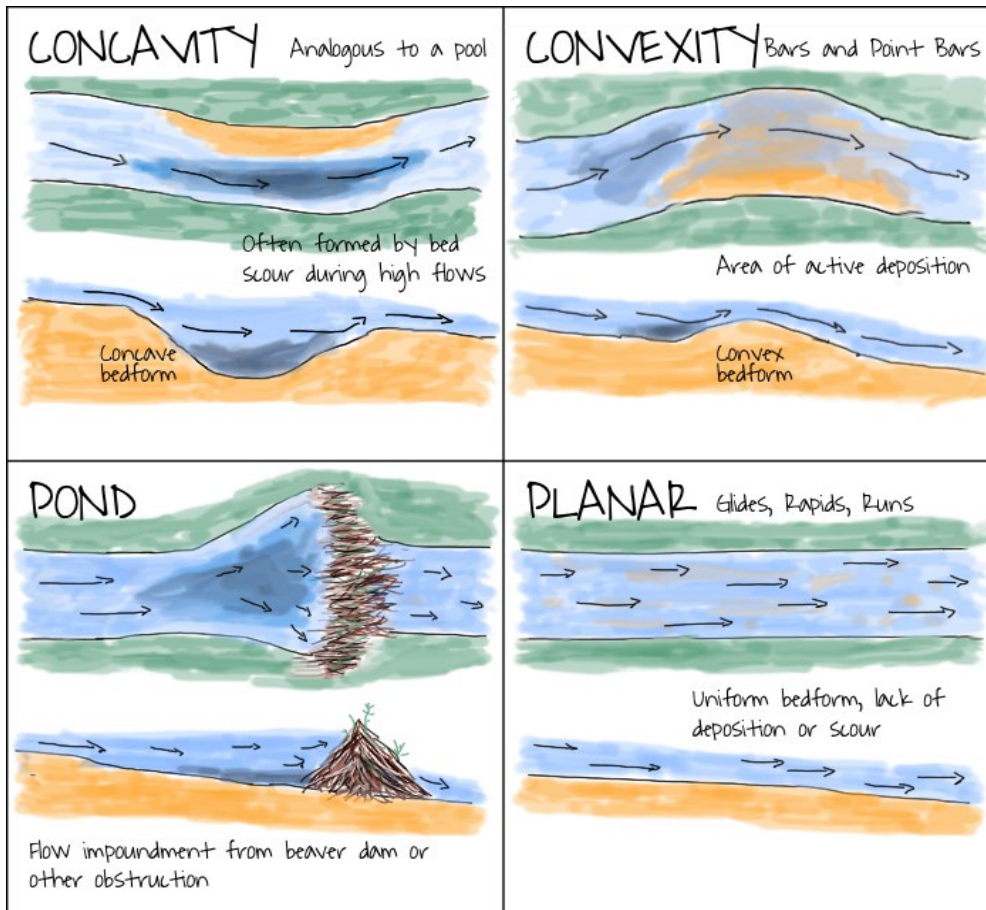
FIELD STRUCTURE SURVEY



- DAMS and JAMS
- How many
- Where are they
- Function
- Condition

MONITORING SURVEY PROTOCOLS

FIELD GEOMORPHIC UNIT SURVEY



GEOMORPHIC UNITS

- Dimensions
- Location
- Characteristics

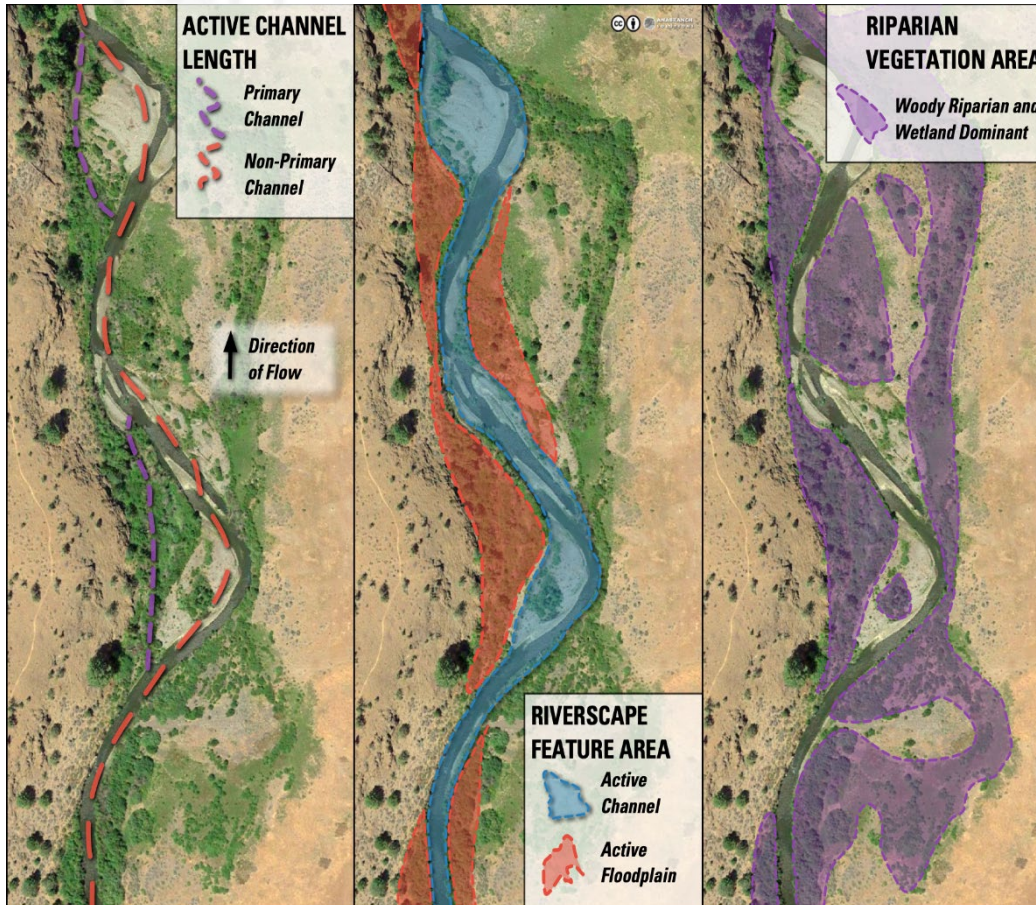
METRICS

- Channel Complexity
- Aquatic Habitat Capacity

MONITORING SURVEY PROTOCOLS



REMOTE RIVERSCAPE



Desktop GIS to Quantify
Ortho-imagery

METRICS

- Active VB Area
- Riparian Vegetation
- Network Length
- More....

RESTORATION OBJECTIVES

Explicit *LINK* of monitoring survey *METRICS* to reach *OBJECTIVES*

7.1.4 → INDICATORS OF IN-CHANNEL HABITAT QUANTITY AND QUALITY

METRIC	SURVEY	INTERPRETATION
POOL FREQUENCY	Channel	Increased pool frequency is indicative of a dynamic channel and offers critical cover and holding habitat for fish at all life-stages.
POOL DEPTH RANGE	Channel	An increased range of pool depths suggests higher habitat complexity.
BAR FREQUENCY	Channel	Increased occurrence of bars indicates a more dynamic channel and often provides substrate variation critical to adult spawning salmonids.
POND AREA	Channel	Pond habitat often creates thermal refugia, drought refugia, and slow-water rearing habitat for many aquatic species.
WOODY DEBRIS FREQUENCY	Structure	Increased woody debris provides cover and flow velocity refugia for many aquatic species.
WETTED CHANNEL AREA	Channel	Wetted channel area provides a measure of habitat quantity that will increase with pond formation, channel lengthening, and non-primary channel creation.

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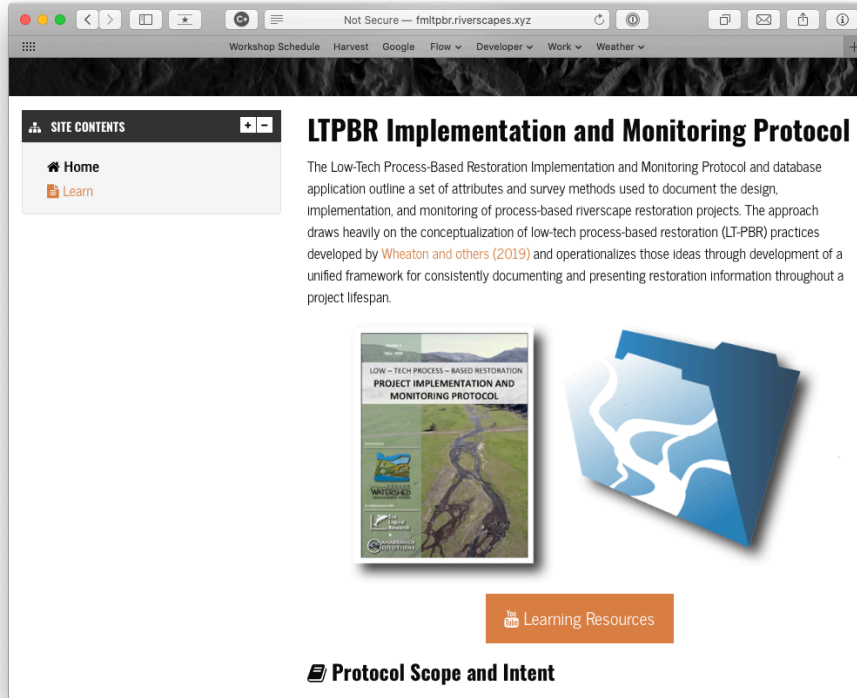


VI. Protocol Resources



PROTOCOL WEBSITE

fmntpbr.riverscapes.xyz



- Protocol Download
- Database Download
- Learning Resources

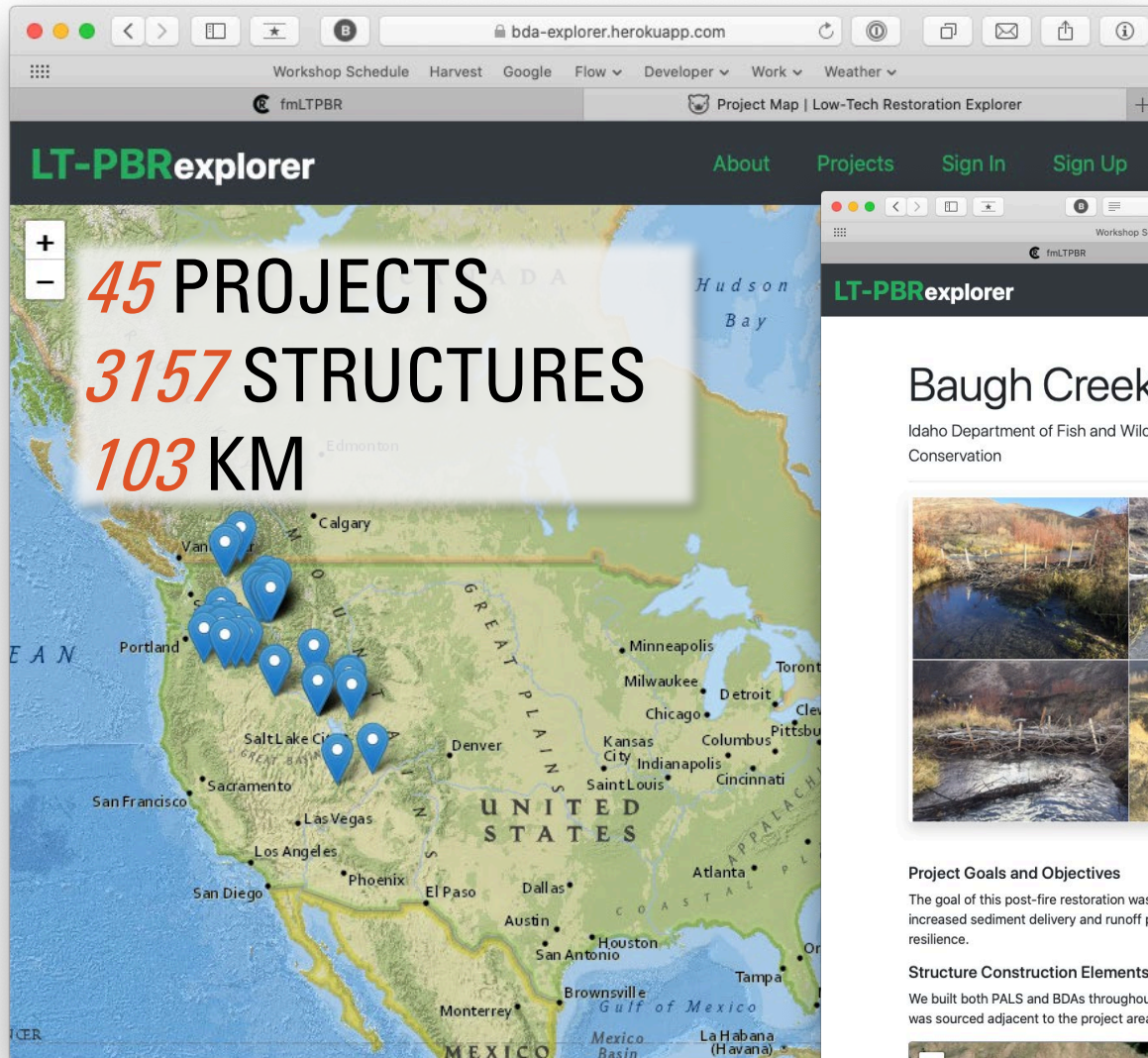


2 + Hours
Learning Tutorials

LTPBR EXPLORER WEBSITE

bdaexplorer.com

SHARE AND
DISCOVER
PROJECTS



Baugh Creek Post-Fire Restoration

Idaho Department of Fish and Wildlife, US Fish and Wildlife Service, Trout Unlimited, ID Offices of Species Conservation

Stream Name:
Baugh Creek, Hailey Creek, Sheep Creek

Watershed:
Little Wood River watershed

Implementation Date:
Nov. 15, 2018

Treatment Length (m):
8000

LT-PBR Structures:
139

Project Goals and Objectives

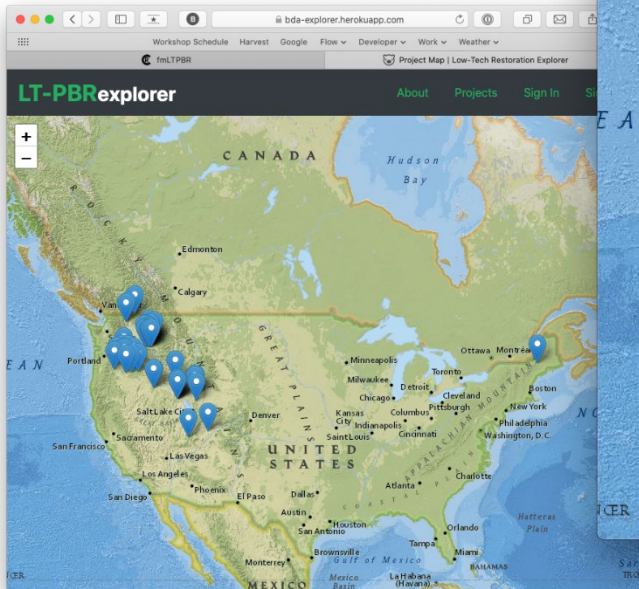
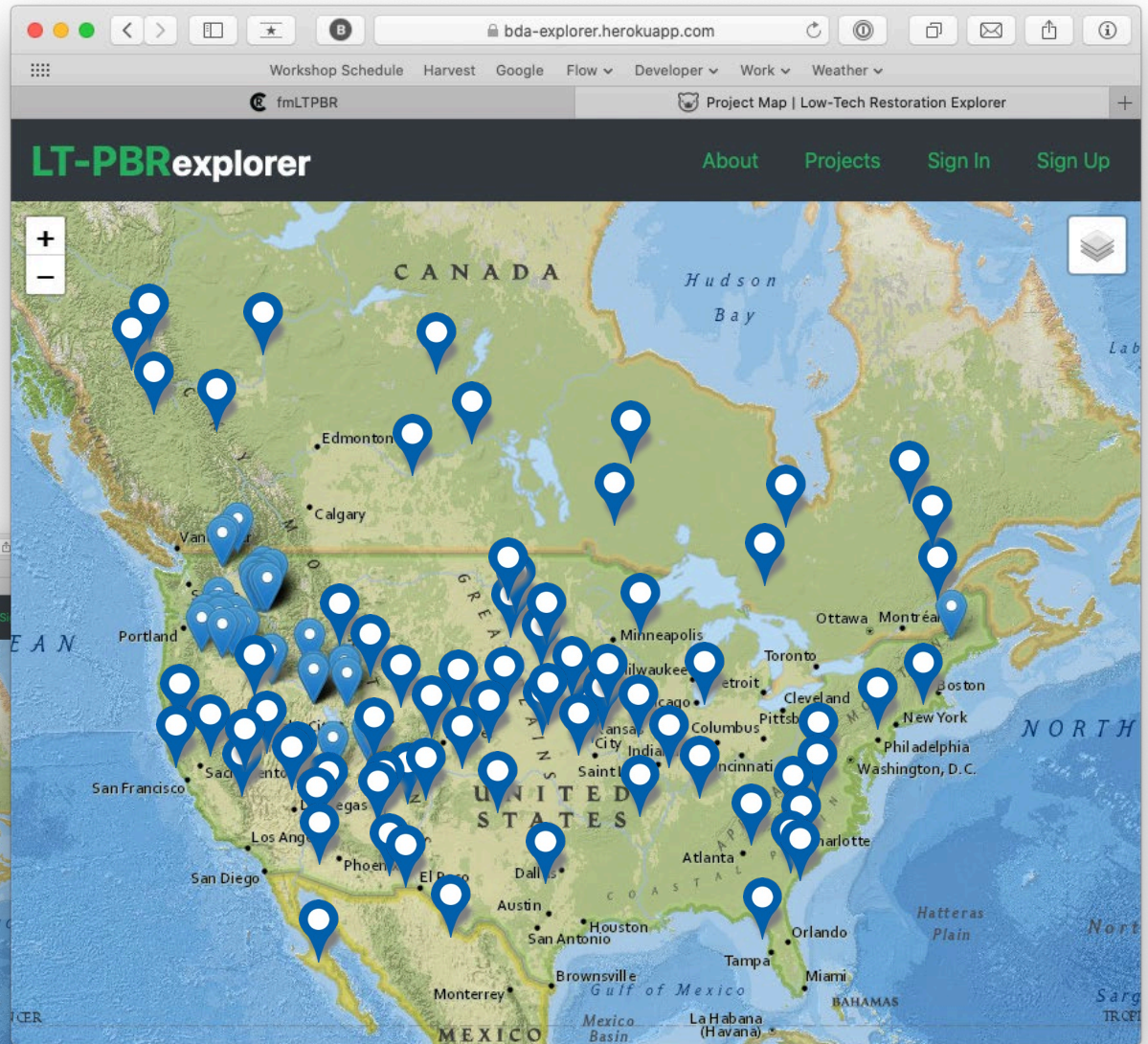
The goal of this post-fire restoration was to attempt to both limit post-fire stream degradation, and attempt to benefit from increased sediment delivery and runoff post-fire to accelerate incision recovery and improve overall riverscape health and resilience.

Structure Construction Elements

We built both PALS and BDAs throughout all three creeks, and used both post-assisted and post-less structures. All material was sourced adjacent to the project area and was composed primarily of aspen.

LTPBR EXPLORER WEBSITE

*SOMETHING
TO STRIVE
FOR!!!*

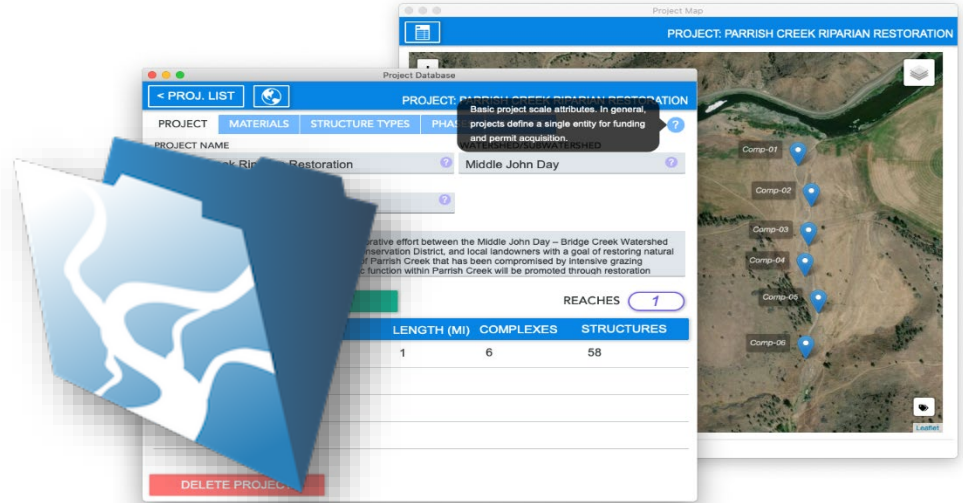


UNIFIED LTPBR INFORMATION FRAMEWORK

DRAFT Protocol



DRAFT Data Capture and Management



Operation Grade



LTPBR WORKSHOP

FIELD DESIGN DOCUMENTATION



DATA CAPTURE AND MANAGEMENT

