Quantified Conservation In Practice on the John Day

Christy H. Meyer, Freshwater Solutions Program Manager
Introduction

→ Quantified Conservation Defined
→ Rudio Creek Case Study
→ Recommendations
What Is Quantified Conservation?

Shift from counting actions to outcomes

→ Actions:
  • Number of trees planted
  • Dollars spent

→ Ecological Outcomes:
  • Reduced sediment load
  • Reduced daily maximum water temperature

Progress towards water quality or habitat goals
Understand return on investment
Tool for prioritizing restoration actions
Parameters and Tools

What are we quantifying for uplift?

- Nutrients
- Sediment
- Temperature
- Ecological Function

Tools

- Shade-a-lator, component of Heat Source
- Nutrient Tracking Tool (NTT)
- Agricultural Policy/Environmental eXtender Model (APEX)
- Surface Irrigation Soil Loss (SISL) Model
- Oregon Stream Function Assessment
- Water Temperature Transaction Tool (W3T)
Rudio Creek Case Study

Rudio Creek Project Area

John Day Basin
During the early to mid-1900s, parts of Rudio Creek were straightened and channelized to drain the wet meadow floodplain and create livestock pasture. Irrigation diversions along Rudio Creek allowed for watering livestock pasture.
Rudio Creek Ranch Project Objectives

Restore nearly 2 miles of Rudio Creek and the adjacent floodplain to benefit summer steelhead and spring Chinook

→ Restore flows
→ Increase stream channel complexity
→ Improve riparian and floodplain function
→ Increase floodplain connectivity
→ Improve thermal regime
→ Maintain fish passage

1946 aerial photo prepared by River Design Group
Pre-Project vs. Post-Project

Pre-Project
March 2010

Post-Project
June 2014
As-Built vs. Post-Project

As-Built
January 2013

Post-Project
June 2014
Rudio Creek Restoration Actions

→ 15 deals with irrigators
→ 2.0 cfs restored to dry channel
→ 6,126 feet of meander reconstruction & floodplain reconnection
→ 74 large wood habitat structures
→ 4 off-channel ponds
→ 45 pool-glide riffle habitat complexes
→ 13,000 locally harvested willows, 980 other native trees and shrubs, and 10,000 sedge and rush plugs planted
**Rudio Creek Ecological Outcomes**

Restoration actions generated these quantifiable measurements of uplift

<table>
<thead>
<tr>
<th>Units of measure</th>
<th>Salmon Habitat Restored</th>
<th>Solar Load Avoided</th>
<th>Phosphorus Reduced</th>
<th>Nitrogen Reduced</th>
<th>Sediments Reduced</th>
<th>Water Temperature Decreased (Daily Max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before (baseline)</td>
<td>6,130</td>
<td>66,809,450</td>
<td>4.6</td>
<td>33.3</td>
<td>687.3</td>
<td>26.3</td>
</tr>
<tr>
<td>After (post-project)</td>
<td>7,930</td>
<td>15,574,943</td>
<td>0.1</td>
<td>14.8</td>
<td>311.6</td>
<td>20.7</td>
</tr>
<tr>
<td>Uplift</td>
<td>1,800</td>
<td>51,234,507</td>
<td>4.5</td>
<td>18.5</td>
<td>375.7</td>
<td>5.6</td>
</tr>
</tbody>
</table>
Recommendations

→ When using quantified conservation to prioritize, consider scale

→ Ground-truthing online data improves results

→ Participate in tool development, practitioners have a unique perspective

→ Consider model limitations
Questions?

Thanks to our funders and partners:

Oregon Watershed Enhancement Board
Ecotrust
US Forest Service
National Association of Counties
National Fish & Wildlife Foundation
Pacific Power
Bonneville Power Administration

National Oceanic and Atmospheric Administration
Confederated Tribes of the Warm Springs
Bella Vista Foundation
LP Brown Foundation
Rudio Creek Ranch
Oregon Department of Fish & Wildlife
and volunteers

The Freshwater Trust  www.thefreshwatertrust.org