Thinking Restoration

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What Is Restoration?

“The goal of restoration is to re-establish self-sustaining natural processes among aquatic, riparian, and terrestrial ecosystems.”

Guillermo Giannico
Examples of Natural Processes:

• Stream Network Connectivity
• Sediment Transport
• Large Wood Recruitment
• Riparian Zones
Stream Network

Characteristics of the 3,775 miles of Coos streams:

<table>
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<th>Size</th>
<th>Perennial (mi.)</th>
<th>Other (mi.)</th>
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<td>Non-fish</td>
</tr>
<tr>
<td>Large</td>
<td>258</td>
<td>2</td>
</tr>
<tr>
<td>Medium</td>
<td>154</td>
<td>23</td>
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<td>Small</td>
<td>173</td>
<td>158</td>
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Connectivity is Key:
38% of streams with fish are not perennial!
Sediment Transport

Source

Transport

Deposition
Large Wood Recruitment
Riparian Zone Processes

1. Food Wed Support
2. Thermal Regulation
3. Wood Recruitment
4. Dispersal Corridor
5. Bank Stability
### Diverse Channel Habitats

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River Continuum Concept

FPOM is fine particulate organic matter; CPOM is coarse particulate organic matter; P/R is the production/respiration
Connectivity Conundrum
Coos Road Network
Roads in Relation to Streams
1. **Fish Crossings** = 1,044

2. **Non-fish Crossings** = 4,661

### Characteristics of the 5,705 road-stream crossings:

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Landowner/Manager Objective
Typical Perched Culvert Situation

- Culvert perched high in fill
- Elevated water surface
- Potentially large amount of stored sediment
- Large water surface drop
Longitudinal Profile

Add wood to help stage and store sediment

Expected regrade

Mobile bed materials expected to rapidly regrade
Beyond Fish Passage

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Questions?
Hillslope Processes
Habitat Restoration

Short Term:
Replicate habitat features no longer being created by natural processes.

Long Term:
Restore natural processes that create habitat diversity necessary for salmonids.

Jeff Rogers
Typical Pre-Project Stream:

- Low Wood
- Low Complexity
- Single Channels

Jeff Rogers
Desired Post-Project Stream:

- Increased Wood
- High Complexity
- Multiple Channels
Steep slope, V-shaped channels
Source reaches
Moderate gradient, step pools
Transport reaches
Low gradient, meandering, broad floodplain, sediment storage

Depositional reaches
Evolving Forest Management Practices

- Road design & location
- Drainage & stream crossings