Stream Restoration

Large Wood Addition Projects
Prince of Wales Island

Ellyn Rickels, Hydrologist
POW LLA Public Workshop (virtual)
April 2, 2022
Last POW LLA public meeting:

- Large Woody Debris
- Determining restoration needs
  - Watershed Condition Framework
  - Priority Watersheds
- 2021 Accomplishments
  - Nahania Creek
- 2022 (and beyond) Projects
  - Shaheen Creek
Shaheen Creek Watershed

1. Summary
   a. Watershed Name and HUC: Shaheen Creek - 190101031005
   b. General Location: West-central Prince of Wales Island, approximately 11 miles south of Naukati, AK.
   c. Total Watershed Area: 17,870 acres  
      NFS area within watershed: 100%
   d. Watershed Characterization:
      - General Physiography: The Shaheen Creek watershed covers over 28 square miles and drains into the Tongass National Forest. A volcanic terrain consists of rugged mountains with a complex history of past glaciation. Many small and steep valleys dissect the mountains and drain into a broad valley and lowlands. Areas of...
Phase 1: NF1 and SF2
Implementation Summer 2022
0.33 stream miles
~200 root wad trees
18 logjam sites
Reach NF1
Shaheen Watershed
Stream Restoration Design

Reach Summary:
- Length = 0.11 miles
- Stream Type = FPM, Class 1
- Tree Placing Equipment = Excavator
- Total Rootwad Trees to Place = 80
- Number of Sites = 9

Legend:
- Logjams
- Wood Staging Locations
- Restoration Extents
- Pneumatic
- Closed Road
- High Clearance Road
- Low Clearance Road
- Class 1 Streams
- Class 3 Streams

Updated Sept. 2021, E.Ricketts
Example of site-specific design

Site 1: Place 10 rootwad trees along the right bank, with roots up on bank and tops laid in stream to act as sweepers to increase bank and channel roughness. Place 2 rootwad trees with roots up on right bank and tops buried into the mid-channel gravel bar.

Site 2: Place 10 rootwad trees as an apex jam with root fans facing upstream, located at upstream end of island on top of mid-channel gravel bar to encourage split flows onto floodplain. If possible, avoid damaging the leaning spruce tree to provide future recruitment. Place 6 rootwad trees on left bank floodplain as roughness.

Site 3: Place 6 rootwad trees as porous channel-spanning logjam anchor onto stump on right bank. Crisscross trees perpendicular across the channel.
Shaheen Reach SF2

Example of site-specific design
Examples of a “typical” restoration structures.

Available in the workshop files
<table>
<thead>
<tr>
<th>Stream Restoration</th>
<th>Current Status</th>
<th>Associated Documents</th>
<th>List Field Surveys Required</th>
<th>Timeframe for Surveys to be Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Nahania Creek Restoration</td>
<td>Monitoring surveys only, ongoing</td>
<td>Workshop Presentation</td>
<td>Completed</td>
<td></td>
</tr>
<tr>
<td>2. Shaheen NFL1 Restoration</td>
<td>Final designs and implementation in 2022, ongoing</td>
<td>Shaheen Design Maps, Workshop presentation</td>
<td>Botany/Invasives, Engineering, Karst, Silviculture, Soils, Wildlife</td>
<td>2022</td>
</tr>
<tr>
<td>4. Shaheen MS1 Restoration</td>
<td>Final designs and implementation in 2023-2024</td>
<td>Shaheen Design Maps, workshop presentation</td>
<td>Botany/Invasives, Engineering, Karst, Silviculture, Soils, Wildlife</td>
<td>2022</td>
</tr>
<tr>
<td>5. Shaheen MS3 Restoration</td>
<td>Final designs and implementation in 2023-2024</td>
<td>Shaheen Design Maps, workshop presentation</td>
<td>Botany/Invasives, Engineering, Karst, Silviculture, Soils, Wildlife</td>
<td>2022</td>
</tr>
<tr>
<td>7. Shaheen SF1 Restoration</td>
<td>Final designs and implementation in 2023-2024</td>
<td>Shaheen Design Maps, workshop presentation</td>
<td>Botany/Invasives, Engineering, Karst, Silviculture, Soils, Wildlife</td>
<td>2022</td>
</tr>
<tr>
<td>8. Shaheen SF3 Restoration</td>
<td>Final designs and implementation in 2023-2024</td>
<td>Shaheen Design Maps, workshop presentation</td>
<td>Botany/Invasives, Engineering, Karst, Silviculture, Soils, Wildlife</td>
<td>2022</td>
</tr>
</tbody>
</table>