SR 101 Purdy Creek Bridge Replacement
(Purdy Bourgault Rd) Mitigation Site

USACE NWS-2007-1812

Olympic Region

2017 MONITORING REPORT

Wetlands Program

Issued March 2018

Washington State
Department of Transportation

Environmental Services Office
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Monitoring reports are published on the web at: http://www.wsdot.wa.gov/Environment/Wetlands/Monitoring/reports.htm
## General Site Information

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>USACE NWP 23</strong></td>
<td>NWS-2007-1812</td>
</tr>
<tr>
<td><strong>Mitigation Location</strong></td>
<td>Downstream from the replaced bridge on US 101, along the closed Bourgault Road, just off Purdy Cutoff Road</td>
</tr>
<tr>
<td><strong>LLID Number</strong></td>
<td>1231601473033</td>
</tr>
<tr>
<td><strong>Construction Date</strong></td>
<td>2010</td>
</tr>
<tr>
<td><strong>Monitoring Period</strong></td>
<td>2011–2020</td>
</tr>
<tr>
<td><strong>Year of Monitoring</strong></td>
<td>7 of 10</td>
</tr>
<tr>
<td><strong>Area of Project Impact</strong></td>
<td>0.23 acre</td>
</tr>
<tr>
<td><strong>Type of Mitigation</strong></td>
<td>Wetland Re-establishment, Buffer/Riparian Enhancement</td>
</tr>
<tr>
<td><strong>Planned Area of Mitigation</strong></td>
<td>0.14 acre, 0.67 acre</td>
</tr>
</tbody>
</table>

1 Impact and mitigation numbers sourced from (WSDOT 2009).
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Summary of Monitoring Results and Management Activities (2017)

<table>
<thead>
<tr>
<th>Performance Standards</th>
<th>2017 Results(^2)</th>
<th>Management Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>60% cover native woody vegetation in the planting areas</td>
<td>47% cover (CI(_{80%}) = 39-54%)</td>
<td></td>
</tr>
<tr>
<td>Less than 20% cover noxious weeds, excluding reed canarygrass (<em>Phalaris arundinacea</em>)</td>
<td>5% cover</td>
<td>Weed control activity performed on 4/18, 6/7, and 8/10 in 2017</td>
</tr>
<tr>
<td>Less than 50% cover reed canarygrass</td>
<td>25% cover</td>
<td></td>
</tr>
<tr>
<td>No Bohemian knotweed (<em>Reynoutria X bohemica</em>), Japanese knotweed (<em>Reynoutria japonica</em>), Himalayan knotweed (<em>Persicaria wallichii</em>), or giant knotweed (<em>Reynoutria sachalinensis</em>) across the site</td>
<td>None observed</td>
<td></td>
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</tbody>
</table>

Report Introduction

This report summarizes seventh-year (Year 7) monitoring activities at the 101 Purdy Bourgault Road Mitigation Site. Included are a site description, the performance standards, an explanation of monitoring methods, and an evaluation of site development. Monitoring activities included vegetation surveys and photo-documentation on July 10 and 11, in 2017.

\(^2\) Estimated values are presented with their corresponding statistical confidence interval. For example, 47% cover (CI\(_{80\%}\) = 39-54% cover) means we are 80% confident that the true cover value is between 39% and 54%.
What is the 101 Purdy Bourgault Road Mitigation Site?

This 0.81-acre mitigation site (Figure 1) includes 0.14 acre of wetland re-establishment and 0.67 acre of riparian/buffer enhancement. This site was created to compensate for 0.23 acre of permanent impacts due to the replacement of the bridge over Purdy Creek on United States (US) 101. The enhancement of the riparian buffer and the wetland re-establishment are intended to provide hydrologic and water quality functions, as well as wildlife habitat. The wetland re-establishment area is on the northwest side of Mussel Shell Creek within the road removal area.

Figure 1   Site Sketch

The 101 Purdy Creek Mitigation Site is out-of-kind mitigation for a bridge replacement upstream on US 101. The site consists of a section of Bourgault Road that was removed, decompacted, graded and planted; a bridge removal; and riparian buffer enhancement on the northeast and southwest sides of the site. Appendix 2 includes site directions.
What are the performance standards for this site?

**Year 7**

**Performance Standard 1**  
Native woody vegetation in the planting areas will achieve a minimum of 60 percent aerial cover.

**Performance Standard 2**  
Noxious weeds, excluding reed canarygrass, will not exceed 20 percent aerial cover over the entire mitigation site.

**Performance Standard 3**  
Reed canarygrass will not exceed 50 percent aerial cover over the entire mitigation site.

**Performance Standard 4**  
Bohemian knotweed, Japanese knotweed, Himalayan knotweed, and giant knotweed shall not be present at the mitigation site.

Appendix 1 shows the as-built (WSDOT 2010).
How were the performance standards evaluated?

The tables below document the sampling methodology utilized for all of the performance standards (PS) as required by the mitigation plan. For additional details on the methods see the WSDOT Wetland Mitigation Site Monitoring Methods Paper (WSDOT 2008).

![Site Sampling Design (2017)](image)

**Placement of Baseline**: A four-segmented baseline was placed through each planting area roughly south to northwest.

**Segmented Baseline**: A. Length 32m Transects 1-4  
B. Length 73m Transects 5-11  
C. Length 49m Transects 12-17  
D. Length 55m Transects 18-23

<table>
<thead>
<tr>
<th></th>
<th>PS 1</th>
<th>PS 2</th>
<th>PS 3</th>
<th>PS 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute</td>
<td>Cover</td>
<td>Cover</td>
<td>Cover</td>
<td>Presence/Absence</td>
</tr>
<tr>
<td>Target population</td>
<td>Native woody species</td>
<td>Noxious weeds</td>
<td>Reed canarygrass</td>
<td>Knotweeds</td>
</tr>
<tr>
<td>Zone</td>
<td>Entire site</td>
<td>Entire site</td>
<td>Entire site</td>
<td>Entire site</td>
</tr>
<tr>
<td>Sample method</td>
<td>Line Intercept</td>
<td>Point Line</td>
<td>Point Line</td>
<td></td>
</tr>
<tr>
<td>SU length</td>
<td>4m</td>
<td>4m</td>
<td>4m</td>
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</tr>
<tr>
<td>Points per SU</td>
<td>16</td>
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<tr>
<td>Total # of SU</td>
<td>34</td>
<td>34</td>
<td>34</td>
<td></td>
</tr>
</tbody>
</table>
How is the site developing?

This site is not quite meeting the Year 7 performance standard for woody cover. Native woody cover is low in the “East Open Area Planting” (Appendix 1). Plants in this area appear to be slow growing, perhaps due to lack of water or competition with grasses and oxeye daisy (*Leucanthemum vulgare*).

No plantings were found on the southeast side of the old bridge, and vegetation along the sides appears to have been cut back by people accessing Mussel Shell Creek. However, native woody cover provided by over-hanging vegetation is shading the creek and cover is qualitatively estimated at 95 percent in this area. Small fish were observed in the stream running through this zone to Purdy Creek.

Vegetation in the “West Open Area Planting” (Appendix 1) appears to be doing well. Trash was observed in this area and reported to the WSDOT restoration crew for removal.

Plantings on the northwest side of the old bridge are also surviving well. Most of this area is covered in reed canarygrass, which may affect the plantings if not controlled, though invasive cover is well below the performance standard thresholds for the entire site.

Beaver chew, fish, chorus frogs, red-legged frogs, voles, and six species of birds were observed at the time of monitoring.
Results for Performance Standard 1
(60% cover native woody vegetation in the planting areas):

Cover of native woody vegetation in the planting areas is estimated at 47% (CI80%= 39-54%) (Photo 1). This is below the performance standard target. Dominant species include Hooker's willow (*Salix hookeriana*), Pacific willow (*Salix lasiandra*), and red alder (*Alnus rubra*).

Results for Performance Standard 2
(Less than 20% cover noxious weeds, excluding reed canarygrass, across the site):

Cover of noxious weeds across the site (excluding reed canarygrass) is qualitatively estimated at five percent. This is below the performance standard threshold. Species observed include scattered oxeye daisy, paleyellow iris (*Iris pseudacorus*), common tansy (*Tanacetum vulgare*), Canada thistle (*Cirsium arvense*), and bull thistle (*Cirsium vulgare*).

Results for Performance Standard 3
(Less than 50% cover reed canarygrass across the site):

Cover of reed canarygrass is qualitatively estimated at 25 percent. This is below the performance standard threshold.

Results for Performance Standard 4
(No Bohemian knotweed, Japanese knotweed, Himalayan knotweed, or giant knotweed across the site):

None observed at the time of monitoring.
What is planned for this site?
Routine weed control will continue in 2018. Ongoing discussions continue with the local jurisdictions on blocking public access to the site. Until a solution is found, no new planting will occur in areas with public access. Until then, and replanting will only occur in areas where this public and vehicles are excluded.
Appendix 1 –As-Built
(from WSDOT 2010)
Appendix 2 – Photo Points

The photographs below were taken from permanent photo-points on July 10, 2017 and document current site development.

Photo Point 1a

Photo Point 1b

Photo Point 1c
Photo Point 2a

Photo Point 2b

PHOTO POINT LOCATIONS

LEGEND
- Existing Roads
- Creeks
- Road and Bridge Areas to be Removed and Planted
- Buffer/Riparian
- Enhancement Plantings
Photo Point 3e

Photo Point 3f
Driving Directions:
Take US 101 west toward Aberdeen/Port Angeles. Drive approximately 25 miles. Take a slight right onto East Purdy Cutoff Road. The site is about one mile on the left hand side of the road. There is parking on the side of the road right next to the site.
Literature Cited


