APPENDIX A

FIELD SUMMARY REPORT
Appendix E
Confirmation of Sample Receipt

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<tr>
<th>To:</th>
<th>Cristy Kessel</th>
<th>From:</th>
<th>Mark Harris</th>
</tr>
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<tr>
<td>Email:</td>
<td><a href="mailto:cristy.kessel@teck.com">cristy.kessel@teck.com</a></td>
<td>Email:</td>
<td><a href="mailto:Mark.Harris@alsglobal.com">Mark.Harris@alsglobal.com</a></td>
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<tr>
<td>Fax:</td>
<td>509-623-4530</td>
<td>Fax:</td>
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<tr>
<td>Phone:</td>
<td>509-623-4530</td>
<td>Phone:</td>
<td>360-577-7222 x3376</td>
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Samples for analysis have been received by ALS Environmental on 5/5 - 11/18 and assigned our Service Request number K1804201. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: 5/26/18

Client:       Teck American Incorporated
Project:      UCR-2018 Plant Study

EDD Required: No

Report To:    Cristy Kessel
              Teck American Incorporated
              501 North Riverpoint Blvd., Suite 300
              Spokane, WA   99202

Billing Address:  Cristy Kessel
                 Teck American Incorporated
                 501 North Riverpoint Blvd., Suite 300
                 Spokane, WA   99202

Tier: IV
Measure total mass of each plant samples before freeze drying.
For samples with dirt on the roots: Rinse off and discard the dirt.
For willow branches: remove and discard the leaves and their stems. Prep/use the branches only.
MS, MSD, SRMs required per every 20 samples.

Samples -070-089 Reissued to K1804371.
Samples -090-109 Reissued to K1804672.
Samples -110-129 Reissued to K1804673.
Samples -130-138 Reissued to K1804674.

Thank you for your business!
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# Confirmation of Sample Receipt

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<th>Cristy Kessel</th>
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<td>Email:</td>
<td><a href="mailto:cristy.kessel@teck.com">cristy.kessel@teck.com</a></td>
</tr>
<tr>
<td>Fax:</td>
<td>509-623-4530</td>
</tr>
<tr>
<td>Phone:</td>
<td>509-623-4530</td>
</tr>
<tr>
<td>From:</td>
<td>Mark Harris</td>
</tr>
<tr>
<td>Email:</td>
<td><a href="mailto:Mark.Harris@alsglobal.com">Mark.Harris@alsglobal.com</a></td>
</tr>
<tr>
<td>Fax:</td>
<td>360-636-1068</td>
</tr>
<tr>
<td>Phone:</td>
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Samples for analysis have been received by ALS Environmental on 5/5/18 and assigned our Service Request number **K1804671**. **Please verify the following information and notify me of any corrections as soon as possible.**

The estimated completion date for this work is: **6/7/18**

**Client:** Teck American Incorporated  
**Project:** UCR-2018 Plant Study  
**EDD Required:** No  
**Tier:** IV  
**Report To:** Cristy Kessel  
Teck American Incorporated  
501 North Riverpoint Blvd., Suite 300  
Spokane, WA  99202  
**Billing Address:** Cristy Kessel  
Teck American Incorporated  
501 North Riverpoint Blvd., Suite 300  
Spokane, WA  99202  

**Comments:**  
Samples are a re-issue from K1804201.  
MS,MSD,SRMs required per every 20 samples.  
Air Dry/Sieve with 150 µm sieve.

Thank you for your business!
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</table>
Confirmation of Sample Receipt

To: Cristy Kessel
From: Mark Harris
Email: cristy.kessel@teck.com
Fax: 509-623-4530
Phone: 509-623-4530

Email: Mark.Harris@alsglobal.com
Fax: 360-636-1068
Phone: 360-577-7222 x3376

Samples for analysis have been received by ALS Environmental on 5/5/18 and assigned our Service Request number K1804672. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: 6/7/18

Client: Teck American Incorporated
Project: UCR-2018 Plant Study

EDD Required: No
Tier: IV

Report To: Cristy Kessel
Teck American Incorporated
501 North Riverpoint Blvd., Suite 300
Spokane, WA 99202

Billing Address: Cristy Kessel
Teck American Incorporated
501 North Riverpoint Blvd., Suite 300
Spokane, WA 99202

Comments:
Samples reissued from K1804201-090 through-109
MS, MSD, SRMs required per every 20 samples.
Air Dry/Sieve with 150 µm sieve.

Thank you for your business!
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</tr>
</tbody>
</table>
Confirmation of Sample Receipt

To: Cristy Kessel
Email: cristy.kessel@teck.com
Fax: 509-623-4530
Phone: 509-623-4530

From: Mark Harris
Email: Mark.Harris@alsglobal.com
Fax: 360-636-1068
Phone: 360-577-7222 x3376

Samples for analysis have been received by ALS Environmental on 5/5/18 and assigned our Service Request number K1804673. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: 6/7/18

Client: Teck American Incorporated
Project: UCR-2018 Plant Study
EDD Required: No

Report To: Cristy Kessel
Teck American Incorporated
501 North Riverpoint Blvd., Suite 300
Spokane, WA 99202

Billing Address: Cristy Kessel
Teck American Incorporated
501 North Riverpoint Blvd., Suite 300
Spokane, WA 99202

Comments:
- Samples are a re-issue from K1804201.
- MS, MSD, SRMs required per every 20 samples.
- Air Dry/Sieve with 150 µm sieve.

Thank you for your business!
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Test Comments:

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<td>Al,Sn,As,Br,Ba,Cd,Cr,Cu,Ca,Fe,Mn,Ni,Se, Ag,Tl,V,Zn</td>
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Confirmation of Sample Receipt

<table>
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<th>To:</th>
<th>Cristy Kessel</th>
</tr>
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<tbody>
<tr>
<td>Email:</td>
<td><a href="mailto:christy.kessel@teck.com">christy.kessel@teck.com</a></td>
</tr>
<tr>
<td>Fax:</td>
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<th>Mark Harris</th>
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<tr>
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<td><a href="mailto:Mark.Harris@alsglobal.com">Mark.Harris@alsglobal.com</a></td>
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<tr>
<td>Fax:</td>
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<td>Phone:</td>
<td>360-577-7222 x3376</td>
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</table>

Samples for analysis have been received by ALS Environmental on 5/5/18 and assigned our Service Request number K1804674. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: 6/7/18

Client: Teck American Incorporated
Project: UCR-2018 Plant Study

EDD Required: No

Report To: Cristy Kessel
Teck American Incorporated
501 North Riverpoint Blvd., Suite 300
Spokane, WA 99202

Billing Address: Cristy Kessel
Teck American Incorporated
501 North Riverpoint Blvd., Suite 300
Spokane, WA 99202

Comments: Samples reissued from K1804201 -130 through -138
MS, MSD, SRMs required per every 20 samples.
Air Dry/Sieve with 150 µm sieve.

Thank you for your business!
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**Test Comments:**

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<td>Al,Sb,As,Ba,Be,Cd,Cr,Cu,Fe,Mn,Ni,Se,Ag,Tl,V,Zn</td>
</tr>
</tbody>
</table>
Confirmation of Sample Receipt

To: Cristy Kessel
From: Mark Harris

Email: cristy.kessel@teck.com
Fax: 
Phone: 509-623-4530

Email: Mark.Harris@alsglobal.com
Fax: 360-636-1068
Phone: 360-577-7222 x3376

Samples for analysis have been received by ALS Environmental on 5/10 - 11/18 and assigned our Service Request number K1805751. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: 7/9/18

Client: Teck American Incorporated
Project: UCR-2018 Plant Study/UCR-ALS-D37-18

EDD Required: No

Report To: Cristy Kessel
Teck American Incorporated
501 North Riverpoint Blvd., Suite 300
Spokane, WA 99202

Billing Address: Accounts Payable
Teck American Incorporated
P.O. Box 3087
Spokane, WA 99202-3087

Comments: Samples are a re-issue from K1804201.

Thank you for your business!
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<th>Test ID</th>
<th>Type</th>
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- Test/Method: 6020A/Metals T
- Samples: 1-9
- Comments: Al,Sb,As,Ba,Cd,Cr,Co,Cu,Pb,Fe,Mn,Ni,Se, Ag,Tl,V,Zn
Confirmation of Sample Receipt

To: Cristy Kessel
From: Mark Harris

Email: cristy.kessel@teck.com
Email: Mark.Harris@alsglobal.com

Fax: 509-623-4530
Fax: 360-636-1068

Phone: 509-623-4530
Phone: 360-577-7222 x3376

Samples for analysis have been received by ALS Environmental on 6/22/18 and assigned our Service Request number K1805922. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: 7/13/18

Client: Teck American Incorporated
Project: UCR-2018 Plant Tissue Study

EDD Required: No
Tier: IV

Report To: Cristy Kessel
Teck American Incorporated
501 North Riverpoint Blvd., Suite 300
Spokane, WA 99202

Billing Address: Cristy Kessel
Teck American Incorporated
501 North Riverpoint Blvd., Suite 300
Spokane, WA 99202

Comments: MS,MSD,SRMs required per every 20 samples.
Air Dry/Sieve with 150 µm sieve.

Thank you for your business!
### Test Comments:

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## Confirmation of Sample Receipt

**To:** Cristy Kessel  
**Email:** cristy.kessel@teck.com  
**Fax:**  
**Phone:** 509-623-4530

**From:** Mark Harris  
**Email:** Mark.Harris@alsglobal.com  
**Fax:** 360-636-1068  
**Phone:** 360-577-7222 x3376

Samples for analysis have been received by ALS Environmental on 6/22/18 and assigned our Service Request number **K1805923. Please verify the following information and notify me of any corrections as soon as possible.**

The estimated completion date for this work is: **7/13/18**

**Client:** Teck American Incorporated  
**Project:** UCR-2018 Plant Tissue Study  
**EDD Required:** No

**Report To:** Cristy Kessel  
Teck American Incorporated  
501 North Riverpoint Blvd., Suite 300  
Spokane, WA 99202

**Billing Address:** Cristy Kessel  
Teck American Incorporated  
501 North Riverpoint Blvd., Suite 300  
Spokane, WA 99202

**Comments:** MS, MSD, SRMs required per every 20 samples.  
Air Dry/Sieve with 150 µm sieve.

Thank you for your business!
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Confirmation of Sample Receipt

To: Cristy Kessel
From: Mark Harris

Email: Cristy.Kessel@teck.com
Fax: 509-623-4530
Phone: 509-623-4530

Email: Mark.Harris@alsglobal.com
Fax: 360-636-1068
Phone: 360-577-7222 x3376

Samples for analysis have been received by ALS Environmental on 6/22/18 and assigned our Service Request number K1805926. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: 7/13/18

Client: Teck American Incorporated
Project: UCR-2018 Plant Tissue Study
EDD Required: No

Report To: Cristy Kessel
Teck American Incorporated
501 North Riverpoint Blvd., Suite 300
Spokane, WA 99202

Billing Address: Cristy Kessel
Teck American Incorporated
501 North Riverpoint Blvd., Suite 300
Spokane, WA 99202

Comments:
Measure total mass of each plant samples before freeze drying.
For samples with dirt on the roots: Rinse off and discard the dirt.
For willow branches: remove and discard the leaves and their stems. Prep/use the branches only.
MS,MSD,SRMs required per every 20 samples.

Thank you for your business!
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Confirmation of Sample Receipt

To: Cristy Kessel
From: Mark Harris

Email: cristy.kessel@teck.com
Email: Mark.Harris@alsglobal.com

Fax: 509-623-4530
Fax: 360-636-1068

Phone: 360-577-7222 x3376
Phone: 360-577-7222 x3376

Samples for analysis have been received by ALS Environmental on 6/22/18 and assigned our Service Request number K1805927. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: 7/13/18

Client: Teck American Incorporated
Project: UCR-2018 Plant Tissue Study

EDD Required: No

Tier: IV

Report To: Cristy Kessel
Billing Address: Cristy Kessel
Teck American Incorporated
501 North Riverpoint Blvd., Suite 300
Spokane, WA 99202

Comments:
Measure total mass of each plant samples before freeze drying.
For samples with dirt on the roots: Rinse of and discard the dirt.
For willow branches: remove and discard the leaves and their stems. Prep/use the branches only.
MS, MSD, SRMs required per every 20 samples.

Thank you for your business!
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Confirmation of Sample Receipt

To: Cristy Kessel
Email: cristy.kessel@teck.com
Fax: 509-623-4530
Phone: 509-623-4530

From: Mark Harris
Email: Mark.Harris@alsglobal.com
Fax: 360-636-1068
Phone: 360-577-7222 x3376

Samples for analysis have been received by ALS Environmental on 7/2/18 and assigned our Service Request number **K1806187**. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: **7/23/18**

Client: Teck American Incorporated
Project: UCR-2018 Plant Study

EDD Required: No

Report To: Cristy Kessel
Teck American Incorporated
501 North Riverpoint Blvd., Suite 300
Spokane, WA 99202

Tier: IV

Billing Address: Accounts Payable
Teck American Incorporated
P.O. Box 3087
Spokane, WA 99202-3087

Comments:

Thank you for your business!
<table>
<thead>
<tr>
<th>Test Comments:</th>
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<th>Samples</th>
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Confirmation of Sample Receipt

<table>
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<tr>
<th>To:</th>
<th>Cristy Kessel</th>
<th>From:</th>
<th>Mark Harris</th>
</tr>
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<tbody>
<tr>
<td>Email:</td>
<td><a href="mailto:cristy.kessel@teck.com">cristy.kessel@teck.com</a></td>
<td>Email:</td>
<td><a href="mailto:Mark.Harris@alsglobal.com">Mark.Harris@alsglobal.com</a></td>
</tr>
<tr>
<td>Fax:</td>
<td></td>
<td>Fax:</td>
<td>360-636-1068</td>
</tr>
<tr>
<td>Phone:</td>
<td>509-623-4530</td>
<td>Phone:</td>
<td>360-577-7222 x3376</td>
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Samples for analysis have been received by ALS Environmental on 8/29/18 and assigned our Service Request number K1808212. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: 9/19/18

Client: Teck American Incorporated  
Project: UCR 2018 Plant Tissue Study

EDD Required: No

Report To: Cristy Kessel  
Teck American Incorporated  
501 North Riverpoint Blvd., Suite 300  
Spokane, WA  99202

Billing Address: Accounts Payable  
Teck American Incorporated  
P.O. Box 3087  
Spokane, WA  99202-3087

Comments: See attached Form V for special sample handling procedures MS/MSD/SRM 1:20.

Thank you for your business!
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## Confirmation of Sample Receipt

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<thead>
<tr>
<th>To:</th>
<th>Cristy Kessel</th>
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<th>Mark Harris</th>
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<tbody>
<tr>
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Samples for analysis have been received by ALS Environmental on 8/29/18 and assigned our Service Request number **K1808217**. **Please verify the following information and notify me of any corrections as soon as possible.**

The estimated completion date for this work is: **9/19/18**

**Client:** Teck American Incorporated  
**Project:** UCR 2018 Plant Tissue Study

**EDD Required:** No  
**Tier:** IV

**Report To:** Cristy Kessel  
Teck American Incorporated  
501 North Riverpoint Blvd., Suite 300  
Spokane, WA 99202

**Billing Address:** Accounts Payable  
Teck American Incorporated  
P.O. Box 3087  
Spokane, WA 99202-3087

**Comments:** See attached Form V for special sample handling procedures  
MS/MSD/SRM 1:20.

Thank you for your business!
<p>|     | Test Number   | Description   | Date/Time  | 1631app | Hg | LLT | 6020A | Metals T | Archive | Archive RT | Calculation | Moisture Calc. | FreezeDry | Grind | Grind | Homogen | Homogen | Homogen | Homogen |
|-----|---------------|---------------|------------|----------|-----|-----|-------|----------|---------|------------|-------------|-------------|-----------|-------|-------|-------|---------|---------|---------|---------|
| K1808217-001 | SA14-AU01-P01 | Plant Tissue | 8/27/18 0903 | HP | HP | A | A | A | A | A | A |
| K1808217-002 | SA14-AU02-P01 | Plant Tissue | 8/27/18 0915 | HP | HP | A | A | A | A | A |
| K1808217-003 | SA14-AU03-P01 | Plant Tissue | 8/27/18 0932 | HP | HP | A | A | A | A | A |
| K1808217-004 | SA14-AU04-P01 | Plant Tissue | 8/27/18 0947 | HP | HP | A | A | A | A | A |
| K1808217-005 | SA14-AU05-P01 | Plant Tissue | 8/27/18 1008 | HP | HP | A | A | A | A | A |
| K1808217-006 | SA14-AU06-P01 | Plant Tissue | 8/27/18 1010 | HP | HP | A | A | A | A | A |
| K1808217-007 | SA14-AU07-P01 | Plant Tissue | 8/27/18 1027 | HP | HP | A | A | A | A | A |
| K1808217-008 | SA14-AU08-P01 | Plant Tissue | 8/27/18 1050 | HP | HP | A | A | A | A | A |
| K1808217-009 | SA14-AU09-P01 | Plant Tissue | 8/27/18 1100 | HP | HP | A | A | A | A | A |
| K1808217-010 | SA14-AU10-P01 | Plant Tissue | 8/27/18 1105 | HP | HP | A | A | A | A | A |
| K1808217-011 | SA14-AU11-P01 | Plant Tissue | 8/27/18 1118 | HP | HP | A | A | A | A | A |
| K1808217-012 | SA14-AU12-P01 | Plant Tissue | 8/27/18 1200 | HP | HP | A | A | A | A | A |
| K1808217-013 | SA14-AU13-P01 | Plant Tissue | 8/27/18 1215 | HP | HP | A | A | A | A | A |
| K1808217-014 | SA14-AU14-P01 | Plant Tissue | 8/27/18 1223 | HP | HP | A | A | A | A | A |</p>
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</tr>
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</tr>
<tr>
<td>Phone:</td>
<td>509-623-4530</td>
<td>Phone:</td>
<td>360-577-7222 x3376</td>
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Samples for analysis have been received by ALS Environmental on 8/29/18 and assigned our Service Request number **K1808221**. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: **9/19/18**

**Client:** Teck American Incorporated  
**Project:** UCR 2018 Plant Tissue Study  
**EDD Required:** No  
**Tier:** IV  
**Report To:** Cristy Kessel  
Teck American Incorporated  
501 North Riverpoint Blvd., Suite 300  
Spokane, WA 99202

**Billing Address:** Accounts Payable  
Teck American Incorporated  
P.O. Box 3087  
Spokane, WA 99202-3087

**Comments:** See attached Form V for special sample handling procedures MS/MSD/SRM 1:20.

Thank you for your business!
| K1808221-001 | SA01-AU01-P01 | Plant Tissue | 8/22/18 0818 | HP | A | A | A | A | A |
| K1808221-002 | SA01-AU02-P01 | Plant Tissue | 8/22/18 0851 | HP | A | A | A | A | A |
| K1808221-003 | SA01-AU03-P01 | Plant Tissue | 8/22/18 0858 | HP | A | A | A | A | A |
| K1808221-004 | SA01-AU04-P01 | Plant Tissue | 8/22/18 0923 | HP | A | A | A | A | A |
| K1808221-005 | SA01-AU05-P01 | Plant Tissue | 8/22/18 0941 | HP | A | A | A | A | A |
| K1808221-006 | SA01-AU06-P01 | Plant Tissue | 8/22/18 1006 | HP | A | A | A | A | A |
| K1808221-007 | SA01-AU07-P01 | Plant Tissue | 8/22/18 1030 | HP | A | A | A | A | A |
| K1808221-008 | SA01-AU08-P01 | Plant Tissue | 8/22/18 1053 | HP | A | A | A | A | A |
| K1808221-009 | SA01-AU09-P01 | Plant Tissue | 8/22/18 1113 | HP | A | A | A | A | A |
| K1808221-010 | SA01-AU10-P01 | Plant Tissue | 8/22/18 1230 | HP | A | A | A | A | A |
| K1808221-011 | SA01-AU11-P01 | Plant Tissue | 8/22/18 1318 | HP | A | A | A | A | A |
| K1808221-012 | SA01-AU12-P01 | Plant Tissue | 8/22/18 1345 | HP | A | A | A | A | A |

**Test Comments:**

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<td>Email:</td>
<td><a href="mailto:cristy.kessel@teck.com">cristy.kessel@teck.com</a></td>
</tr>
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Samples for analysis have been received by ALS Environmental on 8/29/18 and assigned our Service Request number **K1808222**. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: **9/19/18**

**Client:** Teck American Incorporated  
**Project:** UCR 2018 Plant Tissue Study  
**EDD Required:** No  
**Tier:** IV  
**Billing Address:** Accounts Payable  
Teck American Incorporated  
P.O. Box 3087  
Spokane, WA 99202-3087  

**Report To:** Cristy Kessel  
Teck American Incorporated  
501 North Riverpoint Blvd., Suite 300  
Spokane, WA 99202  

**Comments:** See attached Form V for special sample handling procedures  
MS/MSD/SRM 1:20.

Thank you for your business!
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Samples for analysis have been received by ALS Environmental on 8/29/18 and assigned our Service Request number **K1808224**. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: **9/19/18**

**Client:** Teck American Incorporated  
**Project:** UCR 2018 Plant Tissue Study  

**EDD Required:** No  

**Report To:** Cristy Kessel  
Teck American Incorporated  
501 North Riverpoint Blvd., Suite 300  
Spokane, WA 99202

**Billing Address:** Accounts Payable  
Teck American Incorporated  
P.O. Box 3087  
Spokane, WA 99202-3087

**Comments:** See attached Form V for special sample handling procedures  
MS/MSD/SRM 1:20.

Thank you for your business!
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Samples for analysis have been received by ALS Environmental on 8/29/18 and assigned our Service Request number K1808225. **Please verify the following information and notify me of any corrections as soon as possible.**

The estimated completion date for this work is: 9/19/18

**Client:** Teck American Incorporated  
**Project:** UCR 2018 Plant Tissue Study  
**EDD Required:** No  
**Tier:** IV

**Billing Address:** Accounts Payable  
Teck American Incorporated  
P.O. Box 3087  
Spokane, WA 99202-3087

**Comments:** Aliquot one additional 2 gram sample for each sample for sending to another lab.

---

**Confirmation of Sample Receipt**

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Confirmation of Sample Receipt

<table>
<thead>
<tr>
<th>To:</th>
<th>Cristy Kessel</th>
<th>From:</th>
<th>Mark Harris</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email:</td>
<td><a href="mailto:cristy.kessel@teck.com">cristy.kessel@teck.com</a></td>
<td>Email:</td>
<td><a href="mailto:Mark.Harris@alsglobal.com">Mark.Harris@alsglobal.com</a></td>
</tr>
<tr>
<td>Fax:</td>
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<td>Fax:</td>
<td>360-636-1068</td>
</tr>
<tr>
<td>Phone:</td>
<td>509-623-4530</td>
<td>Phone:</td>
<td>360-577-7222 x3376</td>
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Samples for analysis have been received by ALS Environmental on 8/29/18 and assigned our Service Request number K1808226. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: 9/19/18

Client: Teck American Incorporated
Project: UCR 2018 Plant Tissue Study

EDD Required: No

Report To: Cristy Kessel
Teck American Incorporated
501 North Riverpoint Blvd., Suite 300
Spokane, WA 99202

Billing Address: Accounts Payable
Teck American Incorporated
P.O. Box 3087
Spokane, WA 99202-3087

Comments: See attached Form V for special sample handling procedures MS/MSD/SRM 1:20.

Thank you for your business!
<table>
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## Confirmation of Sample Receipt

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<th>To:</th>
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<th>Mark Harris</th>
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<tbody>
<tr>
<td>Email:</td>
<td><a href="mailto:cristy.kessel@teck.com">cristy.kessel@teck.com</a></td>
<td>Email:</td>
<td><a href="mailto:Mark.Harris@alsglobal.com">Mark.Harris@alsglobal.com</a></td>
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<tr>
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Samples for analysis have been received by ALS Environmental on 8/29/18 and assigned our Service Request number **K1808228**. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: **9/19/18**

**Client:** Teck American Incorporated  
**Project:** UCR 2018 Plant Tissue Study  
**EDD Required:** No

**Report To:** Cristy Kessel  
Teck American Incorporated  
501 North Riverpoint Blvd., Suite 300  
Spokane, WA 99202

**Billing Address:** Accounts Payable  
Teck American Incorporated  
P.O. Box 3087  
Spokane, WA 99202-3087

**Comments:** See attached Form V for special sample handling procedures MS/MSD/SRM 1:20.

Thank you for your business!
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</tr>
</tbody>
</table>
Confirmation of Sample Receipt

To: Cristy Kessel
From: Mark Harris

Email: cristy.kessel@teck.com
Fax: 509-623-4530
Phone: 509-623-4530

Email: Mark.Harris@alsglobal.com
Fax: 360-636-1068
Phone: 360-577-7222 x3376

Samples for analysis have been received by ALS Environmental on 8/29/18 and assigned our Service Request number K1808229. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: 9/19/18

Client: Teck American Incorporated
Project: UCR 2018 Plant Tissue Study

EDD Required: No

Report To: Cristy Kessel
Teck American Incorporated
501 North Riverpoint Blvd., Suite 300
Spokane, WA 99202

Billing Address: Accounts Payable
Teck American Incorporated
P.O. Box 3087
Spokane, WA 99202-3087

Comments: Aliquot one additional 2 gram sample for each sample for sending to another lab.

Thank you for your business!
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Confirmation of Sample Receipt

To: Cristy Kessel
From: Mark Harris
Email: cristy.kessel@teck.com
Fax: 509-623-4530
Phone: 509-623-4530

Email: Mark.Harris@alsglobal.com
Fax: 360-636-1068
Phone: 360-577-7222 x3376

Samples for analysis have been received by ALS Environmental on 8/29/18 and assigned our Service Request number K1808230. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: 9/19/18

Client: Teck American Incorporated
Project: UCR 2018 Plant Tissue Study

EDD Required: No

Report To: Cristy Kessel
Teck American Incorporated
501 North Riverpoint Blvd., Suite 300
Spokane, WA 99202

Comments: See attached Form V for special sample handling procedures MS/MSD/SRM 1:20.

Billing Address: Accounts Payable
Teck American Incorporated
P.O. Box 3087
Spokane, WA 99202-3087

Thank you for your business!
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<thead>
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**Confirmation of Sample Receipt**

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<td>360-636-1068</td>
</tr>
<tr>
<td>Phone:</td>
<td>509-623-4530</td>
<td>Phone:</td>
<td>360-577-7222 x3376</td>
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Samples for analysis have been received by ALS Environmental on 8/29/18 and assigned our Service Request number K1808231. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: 9/19/18

**Client:** Teck American Incorporated  
**Project:** UCR 2018 Plant Tissue Study

**EDD Required:** No  
**Tier:** IV

**Report To:** Cristy Kessel  
Teck American Incorporated  
501 North Riverpoint Blvd., Suite 300  
Spokane, WA 99202

**Billing Address:** Accounts Payable  
Teck American Incorporated  
P.O. Box 3087  
Spokane, WA 99202-3087

**Comments:** See attached Form V for special sample handling procedures MS/MSD/SRM 1:20.

Thank you for your business!
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<thead>
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<th>Sample ID</th>
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# Confirmation of Sample Receipt

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<tr>
<th>To:</th>
<th>Cristy Kessel</th>
<th>From:</th>
<th>Mark Harris</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email:</td>
<td><a href="mailto:cristy.kessel@teck.com">cristy.kessel@teck.com</a></td>
<td>Email:</td>
<td><a href="mailto:Mark.Harris@alsglobal.com">Mark.Harris@alsglobal.com</a></td>
</tr>
<tr>
<td>Fax:</td>
<td></td>
<td>Fax:</td>
<td>360-636-1068</td>
</tr>
<tr>
<td>Phone:</td>
<td>509-623-4530</td>
<td>Phone:</td>
<td>360-577-7222 x3376</td>
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Samples for analysis have been received by ALS Environmental on 8/29/18 and assigned our Service Request number K1808232. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: 9/19/18

**Client:** Teck American Incorporated  
**Project:** UCR 2018 Plant Tissue Study

**EDD Required:** No  
**Tier:** IV

**Report To:** Cristy Kessel  
Teck American Incorporated  
501 North Riverpoint Blvd., Suite 300  
Spokane, WA 99202

**Billing Address:** Accounts Payable  
Teck American Incorporated  
P.O. Box 3087  
Spokane, WA 99202-3087

**Comments:** Aliquot one additional 2 gram sample for each sample for sending to another lab.

Thank you for your business!
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</tbody>
</table>
Confirmation of Sample Receipt

To: Cristy Kessel  
From: Mark Harris

Email: cristy.kessel@teck.com  
Email: Mark.Harris@alsglobal.com

Fax:  
Fax: 360-636-1068

Phone: 509-623-4530  
Phone: 360-577-7222 x3376

Samples for analysis have been received by ALS Environmental on 8/29/18 and assigned our Service Request number K1808233. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: 9/19/18

Client: Teck American Incorporated  
Project: UCR 2018 Plant Tissue Study

EDD Required: No  
Tier: IV

Report To: Cristy Kessel  
Teck American Incorporated  
501 North Riverpoint Blvd., Suite 300  
Spokane, WA 99202

Billing Address: Accounts Payable  
Teck American Incorporated  
P.O. Box 3087  
Spokane, WA 99202-3087

Comments: See attached Form V for special sample handling procedures MS/MSD/SRM 1:20.

Thank you for your business!
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**Test Comments:**

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**Service Request Summary**

**Folder #:** K1808234  
**Client Name:** Teck American Incorporated  
**Project Name:** UCR 2018 Plant Tissue Study  
**Project Number:** K1808234  

**Location:** K-Disposed, SMO  
**Date Received:** 8/29/18  
**Time Received:** 1231  
**Archive?** Y, 365 Days, Y  
**QAP:** LAB QAP  
**Looking to MQA:** Y  
**Folder Due Date:** 9/19/18  
**QAP:** LAB QAP  
**Folder Comments:**  
Aliquot one additional 2 gram sample for each sample for sending to another lab.

**Client Name:** Cristy Kessel  
**Teck American Incorporated**  
**501 North Riverpoint Blvd., Suite 300**  
**Spokane, WA 99202**  
**Phone Number:** 509-623-4530  
**Cell Number:** 509-496-1160  
**E-mail:** cristy.kessel@teck.com  

**Project Chemist:** Mark Harris  
**Logged By:** DPLIMPTON  
**Date Due:** 9/19/18  
**Internal Due Date:** 9/14/18  
**Report to MDL?:** Y  
**Merged?:** Y  
**Batch QC?:** N  
**PC Approved?:** Y  
**State of Sampling Location:** WA  
**EDD:** No EDD Specified  

**Lab Samp No.** | **Client Samp No.** | **Matrix** | **Collected** | **1631app/ Hg LL** | **6010C/ Metals T** | **6020X/ Metals T** | **Hg/ -20C** | **1631app/ Metals T** | **Soils Prep** | **Steve/ Sieve** |
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**Folder Revisions:**  
Canceled 6010, added Fe to 6020 per Cristy K. mdh. 9/6/18.
Service Request Summary

Folder #: K1808234
Client Name: Teck American Incorporated
Project Name: UCR 2018 Plant Tissue Study
Project Chemist: Mark Harris
Logged By: DPLIMPTON
Date Received: 8/29/18
Time Received: 1231
Internal Due Date: 9/14/18
Folder Due Date: 9/19/18
Archive?: Y, 365 Days, Y
Report to MDL?: Y
Merged?: Y
Batch QC?: N
PC Approved?: Y
State of Sampling Location: WA
EDD: No EDD Specified

Report To: Cristy Kessel
Teck American Incorporated
501 North Riverpoint Blvd., Suite 300
Spokane, WA 99202
Phone Number: 509-623-4530
Cell Number: 509-496-1160
Fax Number: 
E-mail: cristy.kessel@teck.com

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<tr>
<td>Metals</td>
<td>Metals T/6020A</td>
<td>1-16</td>
<td>Al, Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Fe, Mn, Ni, Se, Ag, Tl, V, Zn</td>
</tr>
<tr>
<td>Soils Prep</td>
<td>Sieve/Sieve</td>
<td>1-16</td>
<td>150 micron Sieve Number 100 Mesh.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test/Method</th>
<th>Samples</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>6010C/Metals T</td>
<td>1-16</td>
<td>Iron</td>
</tr>
<tr>
<td>6020A/Metals T</td>
<td>1-16</td>
<td>Aluminum / Antimony / Arsenic / Barium / Beryllium / Cadmium / Chromium / Cobalt / Copper / Iron / Lead / Manganese / Nickel / Selenium / Silver / Thallium / Vanadium / Zinc</td>
</tr>
</tbody>
</table>
# Confirmation of Sample Receipt

<table>
<thead>
<tr>
<th>To:</th>
<th>Cristy Kessel</th>
<th>From:</th>
<th>Mark Harris</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email:</td>
<td><a href="mailto:cristy.kessel@teck.com">cristy.kessel@teck.com</a></td>
<td>Email:</td>
<td><a href="mailto:Mark.Harris@alsglobal.com">Mark.Harris@alsglobal.com</a></td>
</tr>
<tr>
<td>Fax:</td>
<td></td>
<td>Fax:</td>
<td>360-636-1068</td>
</tr>
<tr>
<td>Phone:</td>
<td>509-623-4530</td>
<td>Phone:</td>
<td>360-577-7222 x3376</td>
</tr>
</tbody>
</table>

Samples for analysis have been received by ALS Environmental on 8/29/18 and assigned our Service Request number K1808237. Please verify the following information and notify me of any corrections as soon as possible.

The estimated completion date for this work is: 9/19/18

<table>
<thead>
<tr>
<th>Client:</th>
<th>Teck American Incorporated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project:</td>
<td>UCR 2018 Plant Tissue Study</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>EDD Required:</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Report To:</th>
<th>Cristy Kessel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Teck American Incorporated</td>
</tr>
<tr>
<td></td>
<td>501 North Riverpoint Blvd., Suite 300</td>
</tr>
<tr>
<td></td>
<td>Spokane, WA 99202</td>
</tr>
</tbody>
</table>

| Tier:         | IV                        |

<table>
<thead>
<tr>
<th>Billing Address:</th>
<th>Accounts Payable</th>
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<tbody>
<tr>
<td></td>
<td>Teck American Incorporated</td>
</tr>
<tr>
<td></td>
<td>P.O. Box 3087</td>
</tr>
<tr>
<td></td>
<td>Spokane, WA 99202-3087</td>
</tr>
</tbody>
</table>

| Comments:       | Aliquot one additional 2 gram sample for each sample for sending to another lab. |

Thank you for your business!
<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Material Description</th>
<th>Date</th>
<th>Description</th>
<th>160.3 Modified TS</th>
<th>163100 Hg LLT</th>
<th>6010C Metals T</th>
<th>60250A Metals T</th>
<th>7471B Hg</th>
<th>Archive -20C</th>
<th>Sieve</th>
<th>Sieve</th>
</tr>
</thead>
<tbody>
<tr>
<td>K1808237-001</td>
<td>Soil</td>
<td>8/24/18</td>
<td>Prep Only</td>
<td>A C C A C A A A</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>K1808237-002</td>
<td>Soil</td>
<td>8/24/18</td>
<td>Prep Only</td>
<td>A C C A C A A A</td>
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<td>8/24/18</td>
<td>Prep Only</td>
<td>A C C A C A A A</td>
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<tr>
<td>K1808237-004</td>
<td>Soil</td>
<td>8/24/18</td>
<td>Prep Only</td>
<td>A C C A C A A A</td>
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<td>Soil</td>
<td>8/24/18</td>
<td>Prep Only</td>
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<td>8/24/18</td>
<td>Prep Only</td>
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<tr>
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<td>Soil</td>
<td>8/24/18</td>
<td>Prep Only</td>
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<tr>
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<td>Soil</td>
<td>8/24/18</td>
<td>Prep Only</td>
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<tr>
<td>K1808237-009</td>
<td>Soil</td>
<td>8/24/18</td>
<td>Prep Only</td>
<td>A C C A C A A A</td>
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<tr>
<td>K1808237-010</td>
<td>Soil</td>
<td>8/24/18</td>
<td>Prep Only</td>
<td>A C C A C A A A</td>
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<tr>
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<td>8/24/18</td>
<td>Prep Only</td>
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<tr>
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<td>8/28/18</td>
<td>Prep Only</td>
<td>A A C A C A A A</td>
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<td>Test Comments:</td>
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<tr>
<td><strong>Group</strong></td>
<td><strong>Test/Method</strong></td>
<td><strong>Samples</strong></td>
<td><strong>Comments</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Soils Prep</td>
<td>Sieve/Sieve</td>
<td>1-20</td>
<td>150 micron Sieve Number 100 Mesh.</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Metals</td>
<td>6010C/Metals T</td>
<td>1-20</td>
<td>6010C Fe</td>
<td></td>
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</tr>
<tr>
<td>Metals</td>
<td>6020A/Metals T</td>
<td>1-20</td>
<td>Al, Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Fe, Mn, Ni, Se, Ag, Tl, V, Zn</td>
<td></td>
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</tbody>
</table>
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA01-SP01-P01
GPS Unit #: 83128

PLANT SPECIES: *Camassia quamash*  TARGET PLANT TISSUE (e.g. leaves, bulbs): bulbs

SAMPLERS (initials): GM, MS, LN DATE: 4-27-18  TIME (GPS point taken): 15:44

WEIGHT (grams) (% if composited)  PHOTO ID Camera B

a. 1.7  Total (35 %)
    b. 1.1  2.9 (32 %)
    c. 2.1  4.9 (43 %)

d.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

---

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA01-SP01-S01

SAMPLERS (initials): SH, MS DATE: 4-27-18  TIME (GPS point taken): 15:59

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)  PHOTO ID Camera B

a. 0-3 (40 %)
    b. 0-3 (20 %)
    c. 0-3 (40 %)

d.

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ spade
Dark Brown silty and Fine Sand w/ organic matter. Moist.
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA01-SP02-P01

GPS Unit #: 83.128

PLANT SPECIES: Cumarina quamash

TARGET PLANT TISSUE (e.g. leaves, bulbs): bulbs

SAMPLERS (initials): GM, MS

DATE: 4-27-18

TIME (GPS point taken): 16:08

WEIGHT (grams) (% if composited)

<table>
<thead>
<tr>
<th>a. 1.3</th>
<th>Total 20</th>
<th>b. 0.7</th>
<th>2.0 (14)</th>
<th>c. 1.0</th>
<th>3.0 (20)</th>
<th>d. 0.6</th>
<th>3.6 (12)</th>
<th>e. 0.6</th>
<th>4.2 (12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
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<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
</tr>
</tbody>
</table>

PHOTO ID: Camera B

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):

check if composited

SA01-SP02-S01

SAMPLERS (initials): SH, MS

DATE: 4-27-18

TIME (GPS point taken): 16:23

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

<table>
<thead>
<tr>
<th>a. 0-3</th>
<th>(30)</th>
<th>c. 0-3</th>
<th>(10)</th>
<th>a. 0.5</th>
<th>101-0067</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. 0-3</td>
<td>(10)</td>
<td>f. 0-3</td>
<td>(10)</td>
<td>b. 0.4</td>
<td>101-0040</td>
</tr>
<tr>
<td>c. 0-3</td>
<td>(20)</td>
<td></td>
<td></td>
<td>c. 0.1</td>
<td>101-0063</td>
</tr>
<tr>
<td>d. 0-3</td>
<td>(10)</td>
<td></td>
<td></td>
<td>d. 0.0</td>
<td>101-0015</td>
</tr>
</tbody>
</table>

PHOTO ID

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ Spade

Dark Brown Fine Sand, Silt, and Organic Matter, Moist.

Version 4-20-2018
<table>
<thead>
<tr>
<th>PLANT SAMPLE ID (e.g. SA01-SP01-P01):</th>
<th>S01-SP03-P01</th>
<th>GPS Unit #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>check if composited</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PLANT SPECIES:</th>
<th>Lomatium spp</th>
</tr>
</thead>
<tbody>
<tr>
<td>TARGET PLANT TISSUE (e.g. leaves, bulbs):</td>
<td>Roots</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>GM, LN</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE:</td>
<td>4-28-18</td>
</tr>
<tr>
<td>TIME (GPS point taken):</td>
<td>9:26</td>
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</table>

<table>
<thead>
<tr>
<th>WEIGHT (grams) (% if composited)</th>
<th>PHOTO ID camera</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 0.3</td>
<td>A a. 17' 100-0018</td>
</tr>
<tr>
<td>b.</td>
<td>b. 18' 100-0019</td>
</tr>
<tr>
<td>c.</td>
<td>c. 19' 100-0020</td>
</tr>
<tr>
<td>d.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. greater than 3 meters from 4, b, c, and d.</td>
</tr>
</tbody>
</table>

Based on size of a. and b, determined we could not achieve minimum mass with 4 individuals flagged at this patch. Reburied a. and b. and did not collect at this location.

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):</th>
<th>No soil collected at this sample location</th>
</tr>
</thead>
<tbody>
<tr>
<td>check if composited</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL NOTES (e.g. collection method, color, texture):</th>
</tr>
</thead>
</table>

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID (e.g. SA01-SP01-P01):</th>
<th>GPS Unit #:</th>
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</thead>
<tbody>
<tr>
<td>[Handwritten: SA01-SP04-P01]</td>
<td>8728</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PLANT SPECIES:</th>
<th>TARGET PLANT TISSUE (e.g. leaves, bulbs):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Claytonia lanceolata</td>
<td>roots</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH, GM, NS</td>
<td>4-28-18</td>
<td>10:34</td>
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</table>

<table>
<thead>
<tr>
<th>WEIGHT (grams) (% if compositied)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total 0.3g</td>
<td>Camera A</td>
</tr>
<tr>
<td>a. 0.3 g</td>
<td></td>
</tr>
<tr>
<td>b. 0.9 g</td>
<td></td>
</tr>
<tr>
<td>c. 0.5 g</td>
<td></td>
</tr>
<tr>
<td>d. 0.4 g</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):</th>
</tr>
</thead>
</table>

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH, MB</td>
<td>4-28-18</td>
<td>10:40</td>
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</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if compositied)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total 0.3 cm (72 cm)</td>
<td>Surface Tablet 2</td>
</tr>
<tr>
<td>a. 0.3 cm (72 cm)</td>
<td>Camera A</td>
</tr>
<tr>
<td>b. 0.3 cm (72 cm)</td>
<td></td>
</tr>
<tr>
<td>c. 0.3 cm (72 cm)</td>
<td></td>
</tr>
<tr>
<td>d. 0.3 cm (72 cm)</td>
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</table>

<table>
<thead>
<tr>
<th>SOIL NOTES (e.g. collection method, color, texture):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collect w/ Moist Sampler</td>
</tr>
<tr>
<td>Dark Brown Fine sand, silty, and organic Matter. moist</td>
</tr>
</tbody>
</table>
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA01-SP05-P01

GPS Unit #: 83126

PLANT SPECIES: (Bryoria) Black lichen

TARGET PLANT TISSUE (e.g. leaves, bulbs): whole organism

SAMPLERS (initials): JW, PH

DATE: 4-28-18

TIME (GPS point taken): 10:39

WEIGHT (grams) (% if composited) 2.3g

PHOTO ID CAMRA-A

a. 2.3g

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

Sample taken from several trcks within 20m diameter

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):

check if composited

SA01-SP05-S01

SAMPLERS (initials): S4, MS

DATE: 4-28-18

TIME (GPS point taken): 11:05

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

a. 0 cm

PHOTO ID

23:100-0023

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ spade

Dark Brown, sandy, silty, and organic material. Moist

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA01 - SP00 - P01

PLANT SPECIES: Claytonia lanceolata
TARGET PLANT TISSUE (e.g. leaves, bulbs): roots

SAMPLERS (initials): GM, SH, MS, LN
DATE: 4-28-18
TIME (GPS point taken): 11:37

WEIGHT (grams) (% if composited)

- a. 0.2 / 1.3 (11)
- b. 0.2 / 1.5 (5)
- c. 0.2 / 2.0 (7)

PHOTO ID: Carrera A

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

---

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):

SAMPLERS (initials): SH, MS
DATE: 4-28-18
TIME (GPS point taken): 11:58

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

- a. 17.6 (17.6)
- b. 17.6 (17.6)
- c. 5.9%
- d. 5.9%

PHOTO ID: 24-100-0025

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ spade
Light - dark brown silty fine sand with organic matter. Moist.

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA01 - SP07 - P01
PLANT SPECIES: Black lichen (Bryoria) TARGET PLANT TISSUE (e.g. leaves, bulbs): Whole organism

SAMPLERS (initials): JW PH
DATE: 4-28-18 TIME (GPS point taken): 12:01
WEIGHT (grams) (% if composited) Scale 40 Scale calibrated with snack baggie 120g by JP
PHOTO ID CAMERA A

16 g

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

Mostly collected from ponderosa pine. Collected additional material because the lichen is wet. All lichens taken within 20 m diameter.

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA01 - SP07 - S01

SAMPLERS (initials): SH JM HS
DATE: 4-28-18 TIME (GPS point taken): 13:05

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited) PHOTO ID

0 - 3" 28:100 - 0029

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ spade
Brown organic matter and silt with fine-medium sand. Moist.

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SΛφ1-SPΦ8-PΦ1  
GPS Unit #: 83124

PLANT SPECIES: Black lichen (Pterygium)  
TARGET PLANT TISSUE (e.g. leaves, bulbs): Whole organism

SAMPLERS (initials): Jw, PH  
DATE: 4-28-18  
TIME (GPS point taken): 13:45

WEIGHT (grams) (% if composited)  
PHOTO ID camera A  
a. 0.9 g  
b.  
c.  
d.  

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

Collected from ponderosa pine. Collected within 20m plot.

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):

check if composited  
SΛφ1-SPΦ8-SΦ1

SAMPLERS (initials): SH, MS  
DATE: 4-28-18  
TIME (GPS point taken): 13:55

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited) 0-3 in.  
PHOTO ID camera A

a. 0-3 in.  
b.  
c.  
d.  

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ NIST  
Dark Brown silty fine-medium sand w/ organic matter. Moist.

Version 4-20-2018
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID (e.g. SA01-SP01-P01):</th>
<th>GPS Unit #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA01 - SP09 - P01</td>
<td>831 28</td>
</tr>
</tbody>
</table>

**PLANT SPECIES:** Camassia quamash  
**TARGET PLANT TISSUE (e.g. leaves, bulbs):** bulbs

**SAMPLERS (initials):** GM, SH, MS, LN  
**DATE:** 4-28-18  
**TIME (GPS point taken):** i3:25

**WEIGHT (grams) (% if composited):**

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>(g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>2.4</td>
<td>4.0</td>
</tr>
<tr>
<td>b</td>
<td>4.0</td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

Replanted 3rd Camas that didn’t need.

---

**SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SA01 - SP09 - P01</td>
</tr>
</tbody>
</table>

**SAMPLERS (initials):** SH, MS  
**DATE:** 4-28-18  
**TIME (GPS point taken):** 13:30

**COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited):**

<table>
<thead>
<tr>
<th></th>
<th>(cm)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>0-3</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>0-3</td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES (e.g. collection method, color, texture):**

Collected w/ MIST.  
Brown - Dark Brown silty fine sand w/ organic matter. Moist.
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

**PLANT SAMPLE ID (e.g. SA01-SP01-P01):** SAΦ1-SP10-Φ1

**PLANT SPECIES:** Black lichen (Bryoria)  
**TARGET PLANT TISSUE (e.g. leaves, bulbs):** Organism

**SAMPLERS (initials):** SH, MS  
**DATE:** 4-28-18  
**TIME (GPS point taken):** 14:40

**WEIGHT (grams) (% if composited):** 6.1 g

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

Collected from pine trees. Mass measured using scale 4. 6.1 g.

---

**SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):** SAΦ1-SP10-Φ1

**SAMPLERS (initials):** SH, MS  
**DATE:** 4-28-18  
**TIME (GPS point taken):** 14:50

**COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited):**

**PHOTO ID:** Camera A

**SOIL NOTES (e.g. collection method, color, texture):**

Collected w/ spade.  
Dark Brown organic matter, silt, and fine-medium sand.  

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SAP1-SP11-SP01

check if composited

GPS Unit #: 83428

PLANT SPECIES: Black lichen (Bryoria) TARGET PLANT TISSUE (e.g. leaves, bulbs): whole organism

SAMPLERS (initials): SL, JH, JT, MT, KG

DATE: 4-28-18 TIME (GPS point taken): 15:24

WEIGHT (grams) (% if composited) 5.3g PHOTO ID Camera A

a.

b.

c.

d.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):

check if composited

SAMPLERS (initials): SL, JH, JT, MT, KG

DATE: 4-28-18 TIME (GPS point taken): 15:05

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited) 0-3 (100-2) PHOTO ID Camera A

a. 0-3"

b.

c.

d.

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ spade
Dark Brown silt and fine-medium sand with organic matter. Moist
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA01-SP12-P01

PLANT SPECIES: Black lichen (Usnea) TARGET PLANT TISSUE (e.g. leaves, bulbs): Whole organism

SAMPLERS (initials): PH, GMMK, KD DATE: 4-28-18 TIME (GPS point taken): 15:43

WEIGHT (grams) (% if composited): 10.3g

a. 10.3g

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA01-SP12-S01

SAMPLERS (initials): SH, EM DATE: 4-28-18 TIME (GPS point taken): 15:44

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited):

a. 0 - 5

b. 

c. 

d. 

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ spade; Dark Brown silt and organic matter w/ some fine sand, trace gravel. Moist.

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA02-SP01-P01
GPS Unit #: 93125

PLANT SPECIES: Claytonia lanceolata
TARGET PLANT TISSUE (e.g. leaves, bulbs): corm

SAMPLERS (initials): G.M.
DATE: 4/25/18
TIME (GPS point taken): 16:34

WEIGHT (grams) (% if composited) 2.3

a. 0.5g
b. 1.0g (cumulative)
c. 1.0g (c)
d. 1.0g

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):
a. 1 corm
e. 1 corm
b. 1 corm
f. 1 corm
c. 1 corm
j. 1 corm (2 stems)
d. 1 corm

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):
SA02-SP01-S01

SAMPLERS (initials): SH, MS
DATE: 4/25/18
TIME (GPS point taken): 16:34

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

a. 8.6%
c. 17.3% See log book for... b. 8.6%

SOIL NOTES (e.g. collection method, color, texture):
Dark Brown Silty Organic Matter, Minor sand and gravel, Woody debris, collected w/ spade

Version 4-20-2018
## PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
### UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

**PLANT SAMPLE ID** (e.g. SA01-SP01-P01):  
[ ] check if composited  
**SA02-SP02-P01**  
**GPS Unit #:**  
83128

**PLANT SPECIES:** Kinnikinnick (*Arctostaphylos uva-ursi*)  
**TARGET PLANT TISSUE** (e.g. leaves, bulbs): leaves

**SAMPLERS (initials):** LH, SH, GM  
**DATE:** 04/26/18  
**TIME (GPS point taken):** 0954

**WEIGHT (grams) (% if composited):**

<table>
<thead>
<tr>
<th>a.</th>
<th>6.5 gm (2.30 leaves)</th>
</tr>
</thead>
</table>

**PHOTO ID:**  
C001

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

Replicate, mass target for split mercury, with SA02-SP03-P01

---

**SOIL/SEDIMENT SAMPLE ID** (e.g. SA01-SP01-S01):  
[ ] check if composited  
**SA02-SP02-S01**

**SAMPLERS (initials):** SH, MS  
**DATE:** 04/26/18  
**TIME (GPS point taken):** 1016

**COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited):**

<table>
<thead>
<tr>
<th>a.</th>
<th>0-3 cm</th>
</tr>
</thead>
</table>

**PHOTO ID:**  
C004

**SOIL NOTES** (e.g. collection method, color, texture):

Replicate, with SA02-SP03-S01

Soil description: Dark Brown Fine-Medium sand w/ organic matter, woody debris, most collected w/ spade
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA02-SP03-P01

PLANT SPECIES: Kinke (Arctostaphylos uva-ursi)
TARGET PLANT TISSUE (e.g. leaves, bulbs): Leaves

SAMPLERS (initials): MS, SH
DATE: 04/26/18
TIME (GPS point taken): 0959

WEIGHT (grams) (% if composited)

a. 5.9 grams (120 Leaves)

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):
Replicate of SA02-SP02-P01
Mass target enough for mercury

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):

SA02-SP03-S01

SAMPLERS (initials): SH, MS
DATE: 04/26/18
TIME (GPS point taken): 1023

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

a. □ 0 - 3 cm

SOIL NOTES (e.g. collection method, color, texture):
Replicate with SA02-SP02-S01
Soil Description: Dark Brown Fine-Medium Sand w/ Organic Matter, Woody Debris
Collected w/ spade

Version 4-20-2018
## PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID (e.g. SA01-SP01-P01):</th>
<th>□ check if composited</th>
<th>SA02-SP04-P01</th>
<th>GPS Unit #:</th>
<th>83128</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLANT SPECIES:</td>
<td>Kinikinik (Arctostaphylos uva-ursi)</td>
<td>TARGET PLANT TISSUE (e.g. leaves, bulbs): leaves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAMPLERS (initials):</td>
<td>LH, JM, SH, MS</td>
<td>DATE:</td>
<td>4/24/18</td>
<td></td>
</tr>
<tr>
<td>DATE:</td>
<td>4/24/18</td>
<td>TIME (GPS point taken):</td>
<td>10:57</td>
<td></td>
</tr>
<tr>
<td>WEIGHT (grams) (% if composited)</td>
<td>a. 11.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHOTO ID</td>
<td>PHOTO ID 0005</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

Split, target for mercury

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):</th>
<th>□ check if composited</th>
<th>SA02-SP04-S01</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAMPLERS (initials):</td>
<td>SH, MS</td>
<td>DATE:</td>
</tr>
<tr>
<td>DATE:</td>
<td>4/24/18</td>
<td>TIME (GPS point taken):</td>
</tr>
<tr>
<td>COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)</td>
<td>a. 0-3”</td>
<td></td>
</tr>
<tr>
<td>PHOTO ID</td>
<td>PHOTO ID 0006</td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES (e.g. collection method, color, texture):**

Dense Brown Silty Organic Matter. Minor fine sand. Moist

Collected w/ spade

Version 4-20-2018
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

**PLANT SAMPLE ID** (e.g. SA01-SP01-P01): SA02-SP05-P01  
**GPS Unit #:** 83128

**PLANT SPECIES:** *Kinnikinnick* (*Arctostaphylos uva-ursi*)  
**TARGET PLANT TISSUE** (e.g. leaves, bulbs): **leaves**

**SAMPLERS (initials):** LH, EM  
**DATE:** 4/26/18  
**TIME (GPS point taken):** 11:29

**WEIGHT** (grams) (% if composited)

a. 0.0

b.

c.

d.

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

target for mercury

---

**SOIL/SEDIMENT SAMPLE ID** (e.g. SA01-SP01-S01): SA02-SP05-S01

**SAMPLERS (initials):** SH, MS  
**DATE:** 4/26/18  
**TIME (GPS point taken):** 11:35

**COLLECTION UPPER DEPTH/LOWER DEPTH** (cm) (% if compositied)

a. 0-3" 

b.

c.

d.

**SOIL NOTES** (e.g. collection method, color, texture):

Dark Brown Sandy Soil. Organic Matter, roots, moist. Collected w/ spade

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA02 - SP06 - P01
GPS Unit #: 83128

PLANT SPECIES: Lomatium trimernatum
TARGET PLANT TISSUE (e.g. leaves, bulbs): roots

SAMPLERS (initials): GMM, STH
DATE: 4/20/18
TIME (GPS point taken): 12:04

WEIGHT (grams) (% if composited)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>2.0 total</td>
</tr>
<tr>
<td>b</td>
<td>0.3 (2.3)</td>
</tr>
<tr>
<td>c</td>
<td>1.0 (39)</td>
</tr>
<tr>
<td>d</td>
<td></td>
</tr>
</tbody>
</table>

PHOTO ID

2, 101-0001  7, 15:27
3, 101-0002  2, 15:56
4, 101-0003  12:04

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

a. b. within 3 meters - same GPS point
c. greater than 3 meters, new GPS point

Sample timestamp 12:16

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA02 - SP06 - S01

SAMPLERS (initials): STH, MS
DATE: 4/20/18
TIME (GPS point taken): 12:27

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>45 0-3 in</td>
</tr>
<tr>
<td>b</td>
<td>10 0-3 in</td>
</tr>
<tr>
<td>c</td>
<td>45 0-3 in</td>
</tr>
<tr>
<td>d</td>
<td></td>
</tr>
</tbody>
</table>

PHOTO ID

5, 101-0004  12:24
6, 101-0005  12:34
7, 101-0006  12:25

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ spade
Dark Brown silt and organic matter with minor fine sand and trace gravel. moist.

Version 4-20-2018
## Plant Tissue and Soil/Sediment Data Form

### Upper Columbia River Plant Tissue Study 2018

**Plant Sample ID** (e.g. SA01-SP01-P01): SPA02-SP07-P01a  
**GPS Unit #:** 83128

**Plant Species:** Claytonia lanceolata  
**Target Plant Tissue (e.g. leaves, bulbs):** Roots

**Samplers (initials):** EM, MS, SH  
**Date:** 4/26/18  
**Time (GPS point taken):** 13:56

**Weight (grams) (% if composited):**

<table>
<thead>
<tr>
<th>Sample</th>
<th>Weight (grams)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>0.2</td>
<td>(1.1)</td>
</tr>
<tr>
<td>c</td>
<td>0.3</td>
<td>(0.7)</td>
</tr>
<tr>
<td>d</td>
<td>0.2</td>
<td>(0.9)</td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

Composite, decided not to collect for this site because mass reach and would not be able to achieve target mass by collecting all remaining plants found.

**Soil/Sediment Sample ID** (e.g. SA01-SP01-S01): SPA02-SP07-S01

**Samplers (initials):** SH, MS  
**Date:** 4/26/18  
**Time (GPS point taken):** 14:19

**Collection Upper Depth/Lower Depth (cm) (% if composited):**

<table>
<thead>
<tr>
<th>Sample</th>
<th>Depth (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>0-3&quot;</td>
</tr>
<tr>
<td>b</td>
<td>0-3&quot;</td>
</tr>
<tr>
<td>c</td>
<td>0-3&quot;</td>
</tr>
<tr>
<td>d</td>
<td>0-3&quot;</td>
</tr>
</tbody>
</table>

**Soil Notes (e.g. collection method, color, texture):**

Collected with Spade. Sample composited in equal proportions.


Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA03-SP01-P01
GPS Unit #: 83128

PLANT SPECIES: Kincaid’s wick (Archangelis umbrosa)
TARGET PLANT TISSUE (e.g., leaves, bulbs): leaves

SAMPLERS (initials): SH, GM
DATE: 4/26/16
TIME (GPS point taken): 1547

WEIGHT (grams) (% if composited)

a. 5.6 g

b.

c.

d.

PLANT NOTES (e.g., replicate, conditions, mass target enough for split or mercury):

Replicate of SA03-SP02-P01

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):

check if composited

SA03-SP01-S01

SAMPLERS (initials): SH, GM
DATE: 4/26/16
TIME (GPS point taken): 1558

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

a. 0-3" 

b.

c.

d.

SOIL NOTES (e.g., collection method, color, texture):

Collected w/ spade.

Dark brown silt and organic matter with gravel at ~2.5". Trace fine sand. Dry-moist.

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA03-SP02-P01
☐ check if composited

GPS Unit #: 83128

PLANT SPECIES: **Kinnikinnick** (Arctostaphylos uva-ursi)
TARGET PLANT TISSUE (e.g. leaves, bulbs): leaves

SAMPLERS (initials): LH, MS
DATE: 4-26-18
TIME (GPS point taken): 1552

WEIGHT (grams) (% if composited)

a. 5.7 grams

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

replicate of SA03-SP01-P01

---

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA03-SP02-S04
☐ check if composited

SAMPLERS (initials): ST, GM
DATE: 4-26-18
TIME (GPS point taken): 1604

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

a. 0-20

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ spade

Dark brown silt and organic matter w/ gravel 0-25 cm. Trace fine sand. Dry-moist

Version 4-20-2018
# PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
## UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

**PLANT SAMPLE ID (e.g. SA01-SP01-P01):**

<table>
<thead>
<tr>
<th>Check if composited</th>
<th>SAΦ3 - SPΦ3 - PΦ1</th>
<th>GPS Unit #:</th>
</tr>
</thead>
</table>

**PLANT SPECIES:** Camassia quamash  
**TARGET PLANT TISSUE (e.g. leaves, bulbs):** bulbs

**SAMPLERS (initials):** GM, MS  
**DATE:** 4/26/18  
**TIME (GPS point taken):** 16:34

**WEIGHT (grams) (% if composited):**

<table>
<thead>
<tr>
<th>a.</th>
<th>2.3</th>
<th>Total (38 g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td>1.4</td>
<td>(23 g)</td>
</tr>
<tr>
<td>c.</td>
<td>0.4</td>
<td>(10 g)</td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PHOTO ID**

<table>
<thead>
<tr>
<th>a)</th>
<th>33, 101-0032</th>
</tr>
</thead>
<tbody>
<tr>
<td>b)</td>
<td>34, 101-0033</td>
</tr>
<tr>
<td>c)</td>
<td>35, 101-0034</td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

Composite

---

**SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):**

<table>
<thead>
<tr>
<th>Check if composited</th>
<th>SAΦ3 - SPΦ3 - SΦ1</th>
</tr>
</thead>
</table>

**SAMPLERS (initials):** SH, MS  
**DATE:** 4/26/18  
**TIME (GPS point taken):** 16:40

**COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited):**

<table>
<thead>
<tr>
<th>a.</th>
<th>0-3 in (40 cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td>0-3 in (20 cm)</td>
</tr>
<tr>
<td>c.</td>
<td>0-3 in (40 cm)</td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
</tbody>
</table>

**PHOTO ID**

<table>
<thead>
<tr>
<th>a)</th>
<th>36, 101-0035</th>
</tr>
</thead>
<tbody>
<tr>
<td>b)</td>
<td>37, 101-0036</td>
</tr>
<tr>
<td>c)</td>
<td>38, 101-0037</td>
</tr>
</tbody>
</table>

**SOIL NOTES (e.g. collection method, color, texture):**

Collected w/ spade  
Dark brown silt and organic matter w/ gravel (at n 25-3")  
Trace fine sand  
moist

Version 4-20-2018
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

**PLANT SAMPLE ID (e.g. SA01-SP01-P01):**
- [ ] check if composited
- SAΦ3-SPΦ4 - PΦ1
- GPS Unit #: 83134

**PLANT SPECIES:** Camassia quamash

**TARGET PLANT TISSUE (e.g. leaves, bulbs):** Bulbs

**SAMPLERS (initials):** CM, MS

**DATE:** 4-27-18

**TIME (GPS point taken):** 09:07

<table>
<thead>
<tr>
<th>WEIGHT (grams) (% if composited)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 1.6 \ (50%)</td>
<td>a. 39, 101 - 0028</td>
</tr>
<tr>
<td>b. 1.2 / 2.8 \ (33%)</td>
<td>b. 40, 101 - 0039</td>
</tr>
<tr>
<td>c. 1.2 / 4.1 \ (22%)</td>
<td>c. 41, 101 - 0040</td>
</tr>
<tr>
<td>d. 1.4 / 5.4 \ (30%)</td>
<td>d. 42, 101 - 0041</td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

---

**SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):** SAΦ3-SPΦ4 - SΦ1
- [ ] check if composited

**SAMPLERS (initials):** CM, MS

**DATE:** 4-27-18

**TIME (GPS point taken):** 09:20

**COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited) | PHOTO ID**

<table>
<thead>
<tr>
<th></th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 0-3 \ (30%)</td>
<td>a. 43, 101 - 0042</td>
</tr>
<tr>
<td>b. 0-3 \ (20%)</td>
<td>b. 44, 101 - 0043</td>
</tr>
<tr>
<td>c. 0-3 \ (20%)</td>
<td>c. 46, 101 - 0046</td>
</tr>
<tr>
<td>d. 0-3 \ (30%)</td>
<td>d. 45, 101 - 0045</td>
</tr>
</tbody>
</table>

**SOIL NOTES (e.g. collection method, color, texture):**

Collected with spade

Dark Brown silty and organic matter. Some gravel, trace fine sand. Moist.

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SPA02-SP05-P01
GPS Unit #: 83134

PLANT SPECIES: Cramusa quadra
TARGET PLANT TISSUE (e.g. leaves, bulbs): bulbs

SAMPLERS (initials): 6K, 7S
DATE: 4-27-18
TIME (GPS point taken): 09:41

WEIGHT (grams) (% if composited)

a. 2.0 \( \frac{\text{Total}}{7} \) (572)

b. 4.0 \( \frac{442}{2.0} \)

c.

d.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury): reached target mass

<table>
<thead>
<tr>
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<th>camera B</th>
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</thead>
<tbody>
<tr>
<td>a. 47, 101-0047</td>
<td></td>
</tr>
<tr>
<td>b. 48, 101-0048</td>
<td></td>
</tr>
<tr>
<td>49, 101-0049</td>
<td></td>
</tr>
</tbody>
</table>

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SPA02-SP05-S01

SAMPLERS (initials): 6H, 7S
DATE: 4-27-18
TIME (GPS point taken): 9:41

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

<table>
<thead>
<tr>
<th>PHOTO ID</th>
<th>camera B</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 49, 101-0051</td>
<td></td>
</tr>
<tr>
<td>b. 50, 101-0052</td>
<td></td>
</tr>
</tbody>
</table>

| a. 0-3 (502) |
| b. 0-3 (502) |

c.

d.

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ spade

Dark Brown Silt and Organic Matter with sub-rounded cobbles. Moist.
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): S Aφ3-Sφ6-Pφ1

GPS Unit #: 63134

PLANT SPECIES: Claytonia lanceolata
TARGET PLANT TISSUE (e.g. leaves, bulbs): root

SAMPLERS (initials): CM, MS
DATE: 4-27-18
TIME (GPS point taken): 10:09

WEIGHT (grams) (% if composited)

a. 0.10
   \[ \frac{100}{(132)} \]

b. 7 1/3 1
   \[ \frac{562}{(312)} \]

c. 1 4/5
   \[ \frac{716}{(316)} \]

d.

PHOTO ID Camera B

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

d.

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): S Aφ3-Sφ6-Sφ1

check if composited

SAMPLERS (initials): SH, MS
DATE: 4-27-18
TIME (GPS point taken): 10:20

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

a. 0-3
   \[ (102) \]

b. 0-3
   \[ (502) \]

c. 0-3
   \[ (202) \]

d.

PHOTO ID Camera B

a. 53, 101-0055

b. 54, 101-0055

c. 55, 101-0057

d.

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ Spade

Dark Brown Silt and organic matter w/ subrounded cobbles, minor gravel. Moist.

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA03-SP07-P01
GPS Unit #: 83134

PLANT SPECIES: Claytonia lanceolata
TARGET PLANT TISSUE (e.g. leaves, bulbs): root

SAMPLERS (initials): 6m
DATE: 4-27-18
TIME (GPS point taken): 10:35

WEIGHT (grams) (% if composited) PHOTO ID

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>0.5</td>
<td>1.0</td>
<td>1.5</td>
<td>0.5</td>
<td>1.8</td>
<td>5.2</td>
</tr>
<tr>
<td>b.</td>
<td>Total</td>
<td>2.8</td>
<td>2.8</td>
<td>2.8</td>
<td>2.8</td>
<td>0</td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>0.2</td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
</tr>
</tbody>
</table>

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):
within 10% of minimum sample mass of 1.9g. Moving out of this patch would encroach into SP06 composite patch.

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA03-SP07-S01

check if composited

SAMPLERS (initials): SH, Ms
DATE: 4-27-18
TIME (GPS point taken): 10:35

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited) PHOTO ID

<table>
<thead>
<tr>
<th></th>
<th>Upper</th>
<th>Lower</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>0-3</td>
<td>25 2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>b.</td>
<td>0-3</td>
<td>25 2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>c.</td>
<td>0-3</td>
<td>25 2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>d.</td>
<td>0-3</td>
<td>25 2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

SOIL NOTES (e.g. collection method, color, texture):
collected w/ spade.
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID (e.g. SA01-SP01-P01):</th>
<th>SAΦ3 - SPΦ8 - P01</th>
<th>GPS Unit #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>check if compositited</td>
<td></td>
<td>83134</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PLANT SPECIES:</th>
<th>Lomatium Piparium</th>
</tr>
</thead>
<tbody>
<tr>
<td>TARGET PLANT TISSUE (e.g. leaves, bulbs):</td>
<td>roots</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>MS, LN</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE:</td>
<td>4-27-18</td>
</tr>
<tr>
<td>TIME (GPS point taken):</td>
<td>H:15 M:11:26</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEIGHT (grams) (% if compositerted)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.8</td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

- Large, 3 stems very close to each other, going to consider one individual sample even if 3 roots, due to proximity. Approved by Mark S.

- All 3 stems from one root. Root broke, but bottom section still visible. Not able to collect remaining portion wedged under embedded cobbles.

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):</th>
<th>SAΦ3 - SPΦ8 - S01</th>
</tr>
</thead>
<tbody>
<tr>
<td>check if compositeted</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>SH, MS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE:</td>
<td>4-27-18</td>
</tr>
<tr>
<td>TIME (GPS point taken):</td>
<td>H:32 M:11:29</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if compositerted)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3 (100%)</td>
<td>1100-0011</td>
</tr>
</tbody>
</table>

**SOIL NOTES** (e.g. collection method, color, texture):

- Collected w/ spade.
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA03-SP09-P01

check if composited

PLANT SPECIES: Lomatium Decision

TARGET PLANT TISSUE (e.g. leaves, bulbs): roots

SAMPLERS (initials): GM, MS

DATE: 4-27-18

TIME (GPS point taken): 13:04

WEIGHT (grams) (% if composited)

<table>
<thead>
<tr>
<th>a</th>
<th>1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>b</td>
<td>2.0 (21%)</td>
</tr>
<tr>
<td>c</td>
<td>0.8</td>
</tr>
<tr>
<td>d</td>
<td>0.1</td>
</tr>
<tr>
<td>e</td>
<td>0.5</td>
</tr>
</tbody>
</table>

\[ \text{Total} = 4.8 \text{ (19%)} \]

PHOTO ID: CAMER A

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

C. was a bulky root
D. was a bulky root

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA03-SP09-S01

check if composited

SAMPLERS (initials): SH, MS

DATE: 4-27-18

TIME (GPS point taken): 13:20

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

<table>
<thead>
<tr>
<th>a</th>
<th>0-3&quot;, 16.7%</th>
</tr>
</thead>
<tbody>
<tr>
<td>b</td>
<td>0-3&quot;, 16.7%</td>
</tr>
<tr>
<td>c</td>
<td>0-3&quot;, 16.7%</td>
</tr>
<tr>
<td>d</td>
<td>0-3&quot;, 16.7%</td>
</tr>
<tr>
<td>e</td>
<td>0-3&quot;, 16.7%</td>
</tr>
</tbody>
</table>

\[ \text{Total} = 13100-0014 \]

PHOTO ID: CAMER A

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ spade
Dark Brown silt and Organic Matter with cobbles, mms gravel. moist

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01):

SA03 - SA0 - P01

GPS Unit #: 83134

PLANT SPECIES: Kinnikinnik (Arctostaphylos uva-ursi)
TARGET PLANT TISSUE (e.g. leaves, bulbs): leaves

SAMPLERS (initials): LH, GM
DATE: 4-27-18
TIME (GPS point taken): 13:43

WEIGHT (grams) (% if composited)

a. 5.8 g

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

- Mercury

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):

SA03 - SP1 - S01

SAMPLERS (initials): SH, MS
DATE: 4-27-18
TIME (GPS point taken): 13:43

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

a. 0-3 (100%)

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ spade
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA03-SP11-P01

GPS Unit #: 83134

PLANT SPECIES: spiny kudzuk (Archidendron spp.)

TARGET PLANT TISSUE (e.g. leaves, bulbs): leaves

SAMPLERS (initials): LH, MS

DATE: 4-27-18

TIME (GPS point taken): 13:53

WEIGHT (grams) (% if compositcd)

a. 11.2 g total

b.

c.

d.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

Split

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA03-SP11-S01

check if compositcd

SAMPLERS (initials): LH, MS

DATE: 4-27-18

TIME (GPS point taken): 14:09

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if compositcd)

a. 0-3 (100%)

b.

c.

d.

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ spade (2x mass)

Dark Brown silt + organic matter, minor gravel, moist

Version 4-26-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA03-SP12-P01

GPS Unit #: 83134

PLANT SPECIES: Lomatium dissectum
TARGET PLANT TISSUE (e.g. leaves, bulbs): root

SAMPLERS (initials): SH, MS, LS
DATE: 4-27-19
TIME (GPS point taken): 14:33

WEIGHT (grams) (% if composited)

a. 0.5 / 0.4 / 2.4 (62%)
b. 0.1 / 0.5 / 2.9 (72%)
c. 1.0 / 0.2 / 3.1 (32%)
d. 0.4 / 2.0 / 5.3 (31%)

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):
Composite.

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA03-SP12-S01

SAMPLERS (initials): SH, MS
DATE: 4-27-19
TIME (GPS point taken): 14:49

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

a. 0-3 (75%) e. 0-3 (75%)
b. 0-3 (75%) f. 0-3 (75%)
c. 0-3 (25%) g. 0-3 (25%)
d. 0-3 (25%) h. 0-3 (25%)

SOIL NOTES (e.g. collection method, color, texture):
Collected w/ spade

Version 4-20-2018
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID (e.g. SA01-SP01-P01):</th>
<th>SA04-SP01-P01</th>
<th>GPS Unit #:</th>
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<tbody>
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<td>check if composited</td>
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<td>83128</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>PLANT SPECIES:</th>
<th>Kinnick (Arctostaphylos uva-ursi)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TARGET PLANT TISSUE (e.g. leaves, bulbs):</th>
<th>leaves</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>MS, LH, SH</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DATE:</th>
<th>4/30/2018</th>
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<table>
<thead>
<tr>
<th>TIME (GPS point taken):</th>
<th>15:27</th>
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</thead>
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<table>
<thead>
<tr>
<th>WEIGHT (grams) (% if composited)</th>
<th>5.6g</th>
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<table>
<thead>
<tr>
<th>PHOTO ID (e.g. 160-00170)</th>
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<table>
<thead>
<tr>
<th>Replicate of SA04-SP01-P01</th>
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<table>
<thead>
<tr>
<th>PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):</th>
<th>SA04-SP01-S01</th>
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</thead>
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<table>
<thead>
<tr>
<th>check if composited</th>
<th>NOT COMPOSITE</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>SH, MS</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DATE:</th>
<th>4/30/2018</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TIME (GPS point taken):</th>
<th>15:33</th>
</tr>
</thead>
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<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>PHOTO ID (e.g. 71, 160-00172)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SOIL NOTES (e.g. collection method, color, texture):</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>collected w/ spade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dark brown silty fine sand and organic matter. Moist.</td>
</tr>
</tbody>
</table>

**Version 4-20-2018**
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA01-SP02-P01
check if composited

GPS Unit #: 83129

PLANT SPECIES: Linniine (Anchovies)
TARGET PLANT TISSUE (e.g. leaves, bulbs): leaves

SAMPLERS (initials): MLS, GM
DATE: 4/30/2018
TIME (GPS point taken): 15:30

WEIGHT (grams) (% if composited)

PHOTO ID: Camera A
photo board says composite, but not a composite

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):
Replicate of SA01-SP02-P01

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA04-SP01-S01
check if composited NOT COMPOSITE

SAMPLERS (initials): SH, EMS
DATE: 4/30/2018
TIME (GPS point taken): 15:30

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)
67, 101-0069

PHOTO ID: Camera B

SOIL NOTES (e.g. collection method, color, texture):
Collected w/ Spade
Dark Brown Silty Fine Sand and Organic Matter - Mergy

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): □ check if composited SA04-SP03-P01 GPS Unit #: 33128

PLANT SPECIES: kinnikinnick (Arctostaphylos uva-ursi) TARGET PLANT TISSUE (e.g. leaves, bulbs): leaves

SAMPLERS (initials): MS, HH, JP DATE: 4/30/18 TIME (GPS point taken): 16:02

WEIGHT (grams) (% if composited) PHOTO ID CAMERA B

a. 11.5 grams
b.
c.
d.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):
Target mass enough for mercury; Repeat 1 Split

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):
□ check if composited SA04-SP03-S01

SAMPLERS (initials): SH, MS DATE: 4/30/18 TIME (GPS point taken): 16:05

COLLECTION UPPER DEPTH/LOWER DEPTH (em) (% if composited)

a. 0-3
b.
c.
d.

SOIL NOTES (e.g. collection method, color, texture):
Split, two jars
Collected w/ spade
Dark brown, silt, fine-medium sand w/ organic matter, moist.

Version 4-20-2018
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
#### UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

**PLANT SAMPLE ID (e.g. SA01-SP01-P01):**
- [ ] check if composited
- **SA04 - SP04 - P01**
- **GPS Unit #:** 83128

**PLANT SPECIES:** Kinai-kinnick (Arctostaphylos)  
**TARGET PLANT TISSUE (e.g. leaves, bulbs):** Leaves

**SAMPLERS (initials):** SH, MS  
**DATE:** 4/30/18  
**TIME (GPS point taken):** 16:23

**WEIGHT (grams) (% if composited):**
- a. 6.4 grams
- b.
- c.
- d.

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**
- Mass enough for mercury

---

**SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):**
- [ ] check if composited
- **SA04 - SP04 - S01**

**SAMPLERS (initials):** SH, MS  
**DATE:** 4/30/18  
**TIME (GPS point taken):** 16:23

**COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited):**
- a. 0-3"  
- b.
- c.
- d.

**SOIL NOTES (e.g. collection method, color, texture):**
- Collected soil sample with spade  
- Dark Brown silt loam, sand w/ organics, moist.

---

*Version 4-20-2018*
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): [SA04-SP05-P01] GPS Unit #: 83128

PLANT SPECIES: Knoblochi (Arctostaphylos) TARGET PLANT TISSUE (e.g. leaves, bulbs): leaves


WEIGHT (grams) (% if composited) PHOTO ID Camera B

a. 60.9 g

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):
Mass enough for Hg

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):

□ check if composited CA04-SP05-S01

SAMPLERS (initials): SH, MS DATE: 5-1-2018 TIME (GPS point taken): 14:42

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited) PHOTO ID Camera B

a. 0-3"

SOIL NOTES (e.g. collection method, color, texture):
Collected with spade
Dark Brown Sandy Silt and Organic Matter. Moist.

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA04-SP06-P01
GPS Unit #: 83128

PLANT SPECIES: Kinnikinnick (Empetrum nigrum) TARGET PLANT TISSUE (e.g. leaves, bulbs): leaves

SAMPLERS (initials): JW, PH DATE: 5-1-2018 TIME (GPS point taken): 14:54

WEIGHT (grams) (% if compositd) PHOTO ID Camera B
a. 9.0g
b.
c.
d.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA04-SP06-S01

SAMPLERS (initials): SH, MS DATE: 5-1-2018 TIME (GPS point taken): 14:57

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if compositd) PHOTO ID Camera B
a. 0-3" 93, 101-0096
b.
c.
d.

SOIL NOTES (e.g. collection method, color, texture):

collected with spade
Dark Brown silty sand (fine-mud) and organic matter. Moist.

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): [x] check if compositcd SA01-SP07-P01
GPS Unit #: 83120

PLANT SPECIES: Claytonia lanceolata
TARGET PLANT TISSUE (e.g. leaves, bulbs): Corms

SAMPLERS (initials): SH, MS, GM
DATE: 5-1-18
TIME (GPS point taken): 1525

WEIGHT (grams) (% if compositcd)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>0.4</td>
<td>0.1</td>
</tr>
<tr>
<td>b</td>
<td>0.3</td>
<td>0.7</td>
</tr>
<tr>
<td>c</td>
<td>0.3</td>
<td>1.0</td>
</tr>
<tr>
<td>d</td>
<td>0.6</td>
<td>1.6</td>
</tr>
<tr>
<td>e</td>
<td></td>
<td>0.2</td>
</tr>
<tr>
<td>f</td>
<td></td>
<td>0.2</td>
</tr>
<tr>
<td>g</td>
<td></td>
<td>0.5</td>
</tr>
<tr>
<td>h</td>
<td></td>
<td>0.3</td>
</tr>
<tr>
<td>i</td>
<td></td>
<td>0.4</td>
</tr>
<tr>
<td>j</td>
<td></td>
<td>0.1</td>
</tr>
</tbody>
</table>

Total: 1.8 %

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

Composite sample
Open ponderosa pine - Edge

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): [x] check if compositcd SA01-SP07-S01

SAMPLERS (initials): SH, MS
DATE: 5-1-18
TIME (GPS point taken): 1553

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if compositcd)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>0-3</td>
<td>10</td>
</tr>
<tr>
<td>b</td>
<td>0-3</td>
<td>10</td>
</tr>
<tr>
<td>c</td>
<td>0-3</td>
<td>10</td>
</tr>
<tr>
<td>d</td>
<td>0-3</td>
<td>20</td>
</tr>
<tr>
<td>e</td>
<td>0-3</td>
<td>10</td>
</tr>
<tr>
<td>f</td>
<td>0-3</td>
<td>10</td>
</tr>
<tr>
<td>g</td>
<td>0-3</td>
<td>15</td>
</tr>
<tr>
<td>h</td>
<td>0-3</td>
<td>10</td>
</tr>
</tbody>
</table>

PHOTO ID 97/16-0/00

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ spade
Deep brown soil and organic matter w/ fine sand, moist
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA04-SP08-P01

GPS Unit #: B3128

PLANT SPECIES: Claytonia lanceolata
TARGET PLANT TISSUE (e.g. leaves, bulbs): Corms

SAMPLERS (initials): MS, GM, SH
DATE: 5-1-18
TIME (GPS point taken): 15 34

WEIGHT (grams) (% if composited)

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>%</th>
<th></th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>0.7</td>
<td>(17)</td>
<td>e</td>
<td>0.1</td>
<td>2.0</td>
</tr>
<tr>
<td>b</td>
<td>0.7</td>
<td>(17)</td>
<td>f</td>
<td>1.5</td>
<td>4.1</td>
</tr>
<tr>
<td>c</td>
<td>0.8</td>
<td>(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>0.3</td>
<td>(7)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

Composite sample
Edge of Ponderosa Pine Forest

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):

check if composited

SA04-SP08-S01

SAMPLERS (initials): SH, MS
DATE: 5-1-18
TIME (GPS point taken): 16:10

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>0-3</td>
<td>(15%)</td>
<td>e</td>
<td>0-3</td>
</tr>
<tr>
<td>b</td>
<td>0-3</td>
<td>(15%)</td>
<td>f</td>
<td>0-3</td>
</tr>
<tr>
<td>c</td>
<td>0-3</td>
<td>(20%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>0-3</td>
<td>(5%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ spade
Dark Brown silt and organic matter w/ fine sand. Moist

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA05-SP01-P01 GPS Unit #: B312

check if composited

PLANT SPECIES: Lomatium spp. TARGET PLANT TISSUE (e.g. leaves, bulbs): roots

SAMPLERS (initials): Gm, ms, sh DATE: 4-30-18 TIME (GPS point taken): 09:25

WEIGHT (grams) (% if composited) PHOTO ID Camera A

a. 3.3 (70)

b. 0.4 (13)

c. 0.5 (11)

d. 0.3 (6) 431, 100-0041 Composite patch

42, 100-0043 For SP01 + SP02

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):
plants collected from hard packed cobbles 105.1. Tap roots embedded between cobbles.

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA05-SP01-S01

check if composited

SAMPLERS (initials): Sh, mS DATE: 4-30-18 TIME (GPS point taken): 09:25

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited) PHOTO ID Camera A

a. 75 % 0-3" 43, 100-0041

b. 25 % 0-3"

c. 25 % 0-3"

d. 25 % 0-3"

SOIL NOTES (e.g. collection method, color, texture): Collected with spade. Plants for components b-d came from same location, so soil from b-d collected from single hole. Dark Brown silt and fine to coarse sand. Abundant cobbles + gravel. moist.

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01):
☐ check if composited  SA05-SP02-P01  GPS Unit #: 83128

PLANT SPECIES: *Lomatium*  TARGET PLANT TISSUE (e.g. leaves, bulbs): roots

SAMPLERS (initials): COM, MS, SH  DATE: 4-30-18  TIME (GPS point taken): 09:30

WEIGHT (grams) (% if composited)  PHOTO ID Camera A

a. 7.0  42, 100-0043 Composite patch

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):
Plants collected from hard packed cobble. Two roots growing between cobbles.

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):
☐ check if composited  SA05-SP02-S01  0923

SAMPLERS (initials): SH, MS  DATE: 4-30-18  TIME (GPS point taken): 09:20

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)  PHOTO ID Camera A

a. 0-30

SOIL NOTES (e.g. collection method, color, texture):
Collected w/ spade
Dark Brown 2'ft and Fine-Medium Sand w/ some gravel and cobbles, organic matter. Moist.
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID (e.g. SA01-SP01-P01):</th>
<th>SA05-SP03-P01</th>
<th>GPS Unit #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>check if composited</td>
<td></td>
<td>83128</td>
</tr>
</tbody>
</table>

**PLANT SPECIES:** Lomatium spp.  
**TARGET PLANT TISSUE (e.g. leaves, bulbs):** roots

**SAMPLERS (initials):** GN, MS, SH  
**DATE:** 4-30-18  
**TIME (GPS point taken):** 09:49  
**PHOTO ID:** 45, 100-004-24

**WEIGHT (grams) (% if composited):**

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>(%)</th>
<th></th>
<th>Total</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>0.8g</td>
<td></td>
<td>e.</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>0.5g</td>
<td></td>
<td>f.</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>0.2g</td>
<td></td>
<td>g.</td>
<td>3.2</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>0.7g</td>
<td></td>
<td>h.</td>
<td>0.5</td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

- Plants collected in mounded soil with numerous embedded cobbles across.
- One remaining small Lomatium not collected adjacent to a, b, c, d, e, f, g, and h collected greater than 3m from a, b, c, d, e, f, g, h.

**SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):** SA05-SP03-S01

**SAMPLERS (initials):** SH, MS  
**DATE:** 4-30-18  
**TIME (GPS point taken):** 10:15  
**PHOTO ID:** 46, 100-004-27

<table>
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<th>COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>0-3&quot; (46)</td>
<td>46, 100-004-27</td>
</tr>
<tr>
<td>b.</td>
<td>0-3&quot; (46)</td>
<td>46, 100-004-27</td>
</tr>
<tr>
<td>c.</td>
<td>0-3&quot; (46)</td>
<td>46, 100-004-27</td>
</tr>
<tr>
<td>d.</td>
<td>0-3&quot; (46)</td>
<td>46, 100-004-27</td>
</tr>
</tbody>
</table>

**SOIL NOTES (e.g. collection method, color, texture):**

Collected with spade  
Dark brown, silty, fine-medium sand with organic matter, cobbles, and gravel, moist.

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA05-SP04-P01

GPS Unit #: 83128

PLANT SPECIES: Black Lichen (Bryoria)
TARGET PLANT TISSUE (e.g. leaves, bulbs): Whole

SAMPLERS (initials): SH
DATE: 4-30-18
WEIGHT (grams) (% if composited): 5.19

TIME (GPS point taken): 11:09
PHOTO ID 49_100-0050

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):
- Collected from hawthorn tree and some surrounding shrubs

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA05-SP04-S01

SAMPLERS (initials): SH
DATE: 4-30-18
TIME (GPS point taken): 11:16

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited): 0-3
PHOTO ID A 50_100-0051

SOIL NOTES (e.g. collection method, color, texture):
- Collected with spade
- Dark Brown silt and organic matter with fine sand and trace red, coarse sand, moist
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM  
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA05-SP05 - P01  
GPS Unit #: 83128

PLANT SPECIES: Claytonia lanceolata  
TARGET PLANT TISSUE (e.g. leaves, bulbs): Corm

SAMPLERS (initials): G.M.M. Nis  
DATE: 4-30-18  
TIME (GPS point taken): 11:30

WEIGHT (grams) (% if composited)  
PHOTO ID  Camera A  

a. 1.6g  Total (32)  
b. 1.7g  (35)  
c. 1.6g  4.9g (32)  
d.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA05-SP05 - S01

check if composited

SAMPLERS (initials): G.M.M. Nis  
DATE: 4-30-18  
TIME (GPS point taken): 11:32

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)  

a. 0-3 (33%)  
b. 0-3 (33%)  
c. 0-3 (33%)  
d.

PHOTO ID  52100-0053

SOIL NOTES (e.g. collection method, color, texture):
Dark Brown Silt and Organic Matter w/ some Fine Sand. Moist.  
Collected w/ Spade

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA05 - SP06 - P01  GPS Unit #: 8328
check if composited

PLANT SPECIES: Claytonia lanceolata  TARGET PLANT TISSUE (e.g. leaves, bulbs): corm roots

SAMPLERS (initials): GM, MS, SH  DATE: 4-30-18  TIME (GPS point taken): 11:47

WEIGHT (grams) (% if composited)  PHOTO ID Camera A
a. 1.3g  Total (33)
b. 3.9g  23.1 (67)
c.
d.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):
- Could be another sample adjacent to SP06 but not collecting it.

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):

- check if composited

SAMPLERS (initials): SH, MS  DATE: 4-30-18  TIME (GPS point taken): 11:51

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)  PHOTO ID
a. 0-3" (33%)  53,100-0054
b. 0-3" (67%)  
c.
d.

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ Spade
Dark Brown silt and organic matter w/ some fine-marl. Sand. Moist.

Version 4-20-2018
# PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

## UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

### PLANT SAMPLE ID (e.g. SA01-SP01-P01):
- **SA05-SP07-P01**
- **PHI**
- **GPS Unit #: 83123**

### PLANT SPECIES:
- **Camassia quamash**

### TARGET PLANT TISSUE (e.g. leaves, bulbs):
- **Bulb**

### SAMPLERS (initials):
- S.H., C.M.

### DATE:
- **4-30-18**

### TIME (GPS point taken):
- **12:48**

### WEIGHT (grams) (% if composited):

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>3.4g</td>
<td>(90)</td>
</tr>
<tr>
<td>b</td>
<td>1.1</td>
<td>(25)</td>
</tr>
</tbody>
</table>

### PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

### SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):
- **SA05-SP07-S01**

### SAMPLERS (initials):
- S.H.

### DATE:
- **4-30-18**

### TIME (GPS point taken):
- **12:50**

### COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited):

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>0 - 3&quot;</td>
</tr>
<tr>
<td>b</td>
<td>0 - 3&quot;</td>
</tr>
</tbody>
</table>

### SOIL NOTES (e.g. collection method, color, texture):
- Collected w/ Spade
- Deciduous Brown Silt + Organics - Mother w/ some Fine Sand. Moist

---

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA05-SP08-P01

PLANT SPECIES: Camassia quamash
TARGET PLANT TISSUE (e.g. leaves, bulbs): bulb

SAMPLERS (initials): GHH
DATE: 4-30-18
TIME (GPS point taken): 13:05

WEIGHT (grams) (% if composited)

<table>
<thead>
<tr>
<th></th>
<th>a. 0.7 5</th>
<th>b. 0.6 5</th>
<th>c. 0.6 5</th>
<th>d. 1.5 0</th>
<th>e. 0.5 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>6.7 (18)</td>
<td>1.3 (13)</td>
<td>0.9 (13)</td>
<td>3.4 (31)</td>
<td>3.1 (10)</td>
</tr>
</tbody>
</table>

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

PHOTO ID camera A

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):

SAMPLERS (initials): GHH
DATE: 4-30-18
TIME (GPS point taken): 13:17

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

<table>
<thead>
<tr>
<th></th>
<th>a. 0&quot; (14)</th>
<th>b. 0&quot; (14)</th>
<th>c. 0&quot; (14)</th>
<th>d. 0&quot; (14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>6.0 (100)</td>
<td>100-0060</td>
<td>100-0058</td>
<td></td>
</tr>
</tbody>
</table>

SOIL NOTES (e.g. collection method, color, texture):

Darkest Brown soil and organic matter w/ some fine sand. Moist.
Collected w/ spade.

PHOTO ID camera A

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA05-SP09-P01

GPS Unit #: 33123

PLANT SPECIES: Camassia quamash
TARGET PLANT TISSUE (e.g. leaves, bulbs): bulb

SAMPLERS (initials): SH, WS
DATE: 4-30-18
TIME (GPS point taken): 13:43

WEIGHT (grams) (% if compositied)

| Sample | Weight (g) | % of Total
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1.7</td>
<td>7</td>
</tr>
<tr>
<td>B</td>
<td>1.3</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>3.1</td>
<td>19</td>
</tr>
<tr>
<td>D</td>
<td>3.5</td>
<td>7</td>
</tr>
<tr>
<td>E</td>
<td>0.4</td>
<td>2</td>
</tr>
</tbody>
</table>

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

Sample H recalibrated with 20g

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SAD 5-SP09-S01

SAMPLERS (initials): SH
DATE: 4-30-18
TIME (GPS point taken): 13:45

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if compositied)

| Sample | Depth (cm) | % of Total
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>0-3</td>
<td>5</td>
</tr>
<tr>
<td>b</td>
<td>0-3</td>
<td>5</td>
</tr>
<tr>
<td>c</td>
<td>0-3</td>
<td>5</td>
</tr>
<tr>
<td>d</td>
<td>0-3</td>
<td>5</td>
</tr>
<tr>
<td>e</td>
<td>0-3</td>
<td>5</td>
</tr>
</tbody>
</table>

PHOTO ID Camera A

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ MIST
Brown silt and organic matter w/ fine sand, trace gravel. Moist.

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA05-SP10-P01

GPS Unit #: 83128

PLANT SPECIES: Black lichen (Bryozoa) TARGET PLANT TISSUE (e.g. leaves, bulbs): organism

SAMPLERS (initials): HL, JP, MS, LM, KO, LN, JF DATE: 4-30-18 TIME (GPS point taken): 14:15

WEIGHT (grams) (% if composited) 4.1g PHOTO ID Camera A

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

Collected from several chokecherry shrubs

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):

check if composited SA05-SP10-P01 JP.

SAMPLERS (initials): SH, MS DATE: 4-30-18 TIME (GPS point taken): 14:17

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

0-2

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ spade

Brown silt and organic matter with some fine sand, some gravel, moist

Version 4-20-2018
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
#### UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

**PLANT SAMPLE ID (e.g. SA01-SP01-P01):**
- check if composited
- **SA06-SP01-P01**
- GPS Unit #: 83128

**PLANT SPECIES:** *Kinnikinnick* (*Arctostaphylos uva-ursi*)
**TARGET PLANT TISSUE (e.g. leaves, bulbs):** Leaves

**SAMPLERS (initials):** TW, PH
**DATE:** 5-1-2018
**TIME (GPS point taken):** 16:55

**WEIGHT (grams) (% if composited):**
- a. 8.7 g

**PHOTO ID** Camera B
- 99, 101-0122

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**
- **REPLICATE w/ SA06-SP02-P01**
- Many leaves of patch have discoloration

### SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):
- check if composited
- **SA06-SP01-S01**

**SAMPLERS (initials):** SW, MS
**DATE:** 5-1-2018
**TIME (GPS point taken):** 17:00

**COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited):**
- a. 0-3"

**PHOTO ID** Camera B
- 101, 101-0104

**SOIL NOTES (e.g. collection method, color, texture):**
- Collected w/ spade
- Dark Brown silt and Organic Matter w/ some fine sand. Moist

*Version 4-20-2018*
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01):
☐ check if composited
SA06-SP02-P01

TARGET PLANT TISSUE (e.g. leaves, bulbs):
leaves

PLANT SPECIES: False

SAMPLERS (initials): Jw, Pj
DATE: 5-1-2018 TIME (GPS point taken): 16:57

WEIGHT (grams) (% if composited)

a. 6.49

PHOTO ID Camera B

100, 101-0103

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

REPLICATE w/ SA06-SP01-P01
Many leaves of patch have discoloration

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):
☐ check if composited
SA06-SP02-S01

SAMPLERS (initials): Jw, Pj
DATE: 5-1-2018 TIME (GPS point taken): 17:03

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

a. 0-8

PHOTO ID Camera B

102, 101-0105

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ spade
Dark brown silt and organic matter w/ some fine sand. Mois.

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA07-SP01-P01
GPS Unit #: 83134

PLANT SPECIES: Camassia quamash  TARGET PLANT TISSUE (e.g. leaves, bulbs): bulbs

SAMPLERS (initials): CM, SH, MS  DATE: 5-2-18  TIME (GPS point taken): 1540

WEIGHT (grams) (% if composited)  PHOTO ID 103, 100-0104

<table>
<thead>
<tr>
<th>weight</th>
<th>total</th>
<th>%</th>
<th>Photo ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 0.8</td>
<td>(18)</td>
<td>90</td>
<td>8.0.6</td>
</tr>
<tr>
<td>b. 0.9</td>
<td>1.7</td>
<td>(20)</td>
<td>4.5</td>
</tr>
<tr>
<td>c. 1.3</td>
<td>3.0</td>
<td>(29)</td>
<td>13</td>
</tr>
<tr>
<td>d. 0.9</td>
<td>3.9</td>
<td>(20)</td>
<td></td>
</tr>
</tbody>
</table>

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

composite
flat  field

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):

SAMPLERS (initials): SH, MS  DATE: 5-2-18  TIME (GPS point taken): 1555

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)  PHOTO ID 104, 100-605

<table>
<thead>
<tr>
<th>depth</th>
<th>total</th>
<th>%</th>
<th>Photo ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3&quot;</td>
<td>(20)</td>
<td></td>
<td>6.0.3</td>
</tr>
<tr>
<td>0-3&quot;</td>
<td>(20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-3&quot;</td>
<td>(30)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-3&quot;</td>
<td>(20)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ spade
Brown, silt and organic matter, moist.
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): [ ] check if composited

SA07-SP02-P01

GPS Unit #: 83134

PLANT SPECIES: Camassia quamash

TARGET PLANT TISSUE (e.g. leaves, bulbs): bulbs

SAMPLERS (initials): GM, SH, MS

DATE: 5-2-18

TIME (GPS point taken): 1600

WEIGHT (grams) (% if composited)
camassia A

<table>
<thead>
<tr>
<th>Component</th>
<th>Total Weight (g)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>1.5</td>
<td>(33)</td>
</tr>
<tr>
<td>b.</td>
<td>0.5</td>
<td>(11)</td>
</tr>
<tr>
<td>c.</td>
<td>1.3</td>
<td>(28)</td>
</tr>
<tr>
<td>d.</td>
<td>4.6</td>
<td>(28)</td>
</tr>
</tbody>
</table>

PHOTO ID 1/05, 100-0106

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

composite
grass field, scattered ponderosa pine, flat

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): [ ] check if composited

SA07-SP02-S01

SAMPLERS (initials): SH, MS

DATE: 5-2-18

TIME (GPS point taken): 1608

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

<table>
<thead>
<tr>
<th>Component</th>
<th>Upper Depth (cm)</th>
<th>Lower Depth (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>0-3&quot;</td>
<td>30</td>
</tr>
<tr>
<td>b.</td>
<td>0-3&quot;</td>
<td>10</td>
</tr>
<tr>
<td>c.</td>
<td>0-3&quot;</td>
<td>30</td>
</tr>
<tr>
<td>d.</td>
<td>0-3&quot;</td>
<td>30</td>
</tr>
</tbody>
</table>

PHOTO ID 1/06, 100-0107

SOIL NOTES (e.g. collection method, color, texture):

collected w/ spade
brown silt and organic matter. moist.
### Plant Tissue and Soil/Sediment Data Form

#### Upper Columbia River Plant Tissue Study 2018

**Plant Sample ID (e.g. SA01-SP01-P01):** SAQ7-SPQ3-P01  
**GPS Unit #:** 83/34

**Plant Species:** Camassia quamash  
**Target Plant Tissue (e.g. leaves, bulbs):** Bulbs

**Samplers (initials):** GM, SH, MS  
**Date:** 5-2-18  
**Time (GPS point taken):** 16:18

**Weight (grams) (% if composited):**

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>%</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>6.7</td>
<td>(11)</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>0.6</td>
<td>1.3</td>
<td>4.4</td>
</tr>
<tr>
<td>c</td>
<td>0.7</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>0.6</td>
<td>2.6</td>
<td></td>
</tr>
</tbody>
</table>

**Plant Notes (e.g. replicate, conditions, mass target enough for split or mercury):**

Composite  
Field: grassy, scattered ponderosa pine

---

**Soil/Sediment Sample ID (e.g. SA01-SP01-S01):** SAQ7-SPQ3-S01

**Samplers (initials):** SH, MS  
**Date:** 5-2-18  
**Time (GPS point taken):** 16:26

**Collection Upper Depth/Lower Depth (cm) (% if composited):**

<table>
<thead>
<tr>
<th></th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>0-3&quot;</td>
</tr>
<tr>
<td>b</td>
<td>0-3&quot;</td>
</tr>
<tr>
<td>c</td>
<td>0-3&quot;</td>
</tr>
<tr>
<td>d</td>
<td>0-3&quot;</td>
</tr>
<tr>
<td>e</td>
<td>0-3&quot;</td>
</tr>
<tr>
<td>f</td>
<td>0-3&quot;</td>
</tr>
<tr>
<td>g</td>
<td></td>
</tr>
<tr>
<td>h</td>
<td></td>
</tr>
<tr>
<td>i</td>
<td></td>
</tr>
<tr>
<td>j</td>
<td></td>
</tr>
</tbody>
</table>

**Soil Notes (e.g. collection method, color, texture):**

Collected with spade  
Brown, silty, fine sand and organic matter. Slightly moist.
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA08-SP01-P01
GPS Unit #: 03/28

PLANT SPECIES: Lorniatum triternatum
TARGET PLANT TISSUE (e.g. leaves, bulbs): root

SAMPLERS (initials): SH, EM, MS
DATE: 5-2-19
TIME (GPS point taken): 09:37

WEIGHT (grams) (% if composit ed):

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 4.2</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>b. 0.9</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>c. 3.8</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):
Open grassy slope - near ridge

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA08-SP01-S01

SAMPLERS (initials): SH
DATE: 5-2-18
TIME (GPS point taken): 09:45

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composit ed):

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 0-3&quot;</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>b. 0-3&quot;</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>c. 0-3&quot;</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SOIL NOTES (e.g. collection method, color, texture):
Collected w/ spade
Dark brown silt and organic matter. Trace fine sand. Moist.

PHOTO ID 73/100-0074

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA08-SP02-P01

PLANT SPECIES: L. medium

TARGET PLANT TISSUE (e.g. leaves, bulbs): root

SAMPLERS (initials): SH, EM, MS

DATE: 5-2-18

TIME (GPS point taken): 10:10

WEIGHT (grams) (% if composited)

a. 2.3g (28) ≤ 0.9g 7.2g (33)
   1.7g 4.0g (20) ≤ 1.3 8.3g (36)
   b. 0.45 4.4g (5)
   c. 1.7g 0.1g (20)

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):

check if composited

SA08-SP02-S01

SAMPLERS (initials): SH, EM

DATE: 5-2-18

TIME (GPS point taken): 10:19

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

a. 0-3" (30) e. (10) 0-3 a. 0-35" 79, 100-0050
   b. 0-3" (20) f. (15) 0-3 e. 0-35" 79, 100-0050
   c. 0-3" (5) t. 0-35" 79, 100-0050
   d. 0-3" (20) d. 0-35" 79, 100-0050

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ Spear

Dark Brown silt and organic matter w/ some gravel. Moist.

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID (e.g. SA01-SP01-P01):</th>
<th>GPS Unit #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>check if composited</td>
<td>S3124</td>
</tr>
</tbody>
</table>

PLANT SPECIES: *Lomatium triterradum* TARGET PLANT TISSUE (e.g. leaves, bulbs): root

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
<th>WEIGHT (grams) (% if composited)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS, SH, EM</td>
<td>5-2-18</td>
<td>10:45</td>
<td>(a) Total 1.2g (1/12)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(b) 0.7g 0.1g (55)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(c) 0.8g 0.7g (9)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(d) 2.1g 9.8 (2)</td>
</tr>
</tbody>
</table>

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

collected in open field in boulder/tilth area

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):</th>
</tr>
</thead>
<tbody>
<tr>
<td>check if composited</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH, MS</td>
<td>5-2-18</td>
<td>10:55</td>
<td>(a) 0.3&quot; (1/12)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(b) 0.3&quot; (0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(c) 0.3&quot; (1/12)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(d) 0.3&quot; (0)</td>
</tr>
</tbody>
</table>

SOIL NOTES (e.g. collection method, color, texture):
collected w/ spade

Dark brown silt and organic matter w/ same gravel. Moist.
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01):
☑ check if composited
SAΦ 8-SPΦ4-Φ0 1

GPS Unit #:
83128

PLANT SPECIES: Black lichen (Pogonatum) TARGET PLANT TISSUE (e.g. leaves, bulbs): organism

SAMPLERS (initials): SF, PH, JW
DATE: 5-2-18
TIME (GPS point taken): 11:07

WEIGHT (grams) (% if composited) 5.0g
PHOTO ID 84 100-000000

a. 5.0g

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):
Collected from hawthorne trees in gulch

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):
☑ check if composited
SAΦ 8-SPΦ4-Φ0 1

SAMPLERS (initials): FH, MS
DATE: 5-2-18
TIME (GPS point taken): 11:53

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)
PHOTO ID CAMERA A

a. 0-5cm

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ spike
Dark Brown Silt and Organic Matter w/ some fine-sand. Moist.
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA08 - SP05 - P01

PLANT SPECIES: <i>Black lichen (Bryoria)</i>  TARGET PLANT TISSUE (e.g. leaves, bulbs): whole organism

SAMPLERS (initials): PH, JP, MS, MT DATE: 5-2-18 TIME (GPS point taken): 1/28

WEIGHT (grams) (% if composited): 4.1g PHOTO ID: 87, 100 - 0087

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

Collected from hawthorne trees in gulch.

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):

SAMPLERS (initials): SHum DATE: 5-2-19 TIME (GPS point taken): 1:32

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited): PHOTO ID

a. 0-3"

b.

c.

d.

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ spade
Dark Brown silt and organic matter w/ some fine sand. Moist.
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
*UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018*

**PLANT SAMPLE ID (e.g. SA01-SP01-P01):**  
SA08-SP06-001  
**GPS Unit #:** 83128

**PLANT SPECIES:** Black Lichen (Brigantia)  
**TARGET PLANT TISSUE (e.g. leaves, bulbs):** Whole organism

**SAMPLERS (initials):** PHJ, JP, MJ, JW  
**DATE:** 5-2-2018  
**TIME (GPS point taken):** 14:41

**WEIGHT (grams) (% if composit ed)**

- 0.8 g
- 
- 
- 

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

---

**SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):**

**SAMPLERS (initials):** SH, NS  
**DATE:** 5-2-2018  
**TIME (GPS point taken):** 14:45

**COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composit ed)**

- 0-3"  
- 
- 
- 

**SOIL NOTES (e.g. collection method, color, texture):**

Collected w/ spade  
Dark brown loose silt and organic mulch. Trace fine sand. Moist.

---

Version 4-20-2018
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

**PLANT SAMPLE ID (e.g. SA01-SP01-P01):**
- check if composited
- SA8 - SP7 - P01

**GPS Unit #:**
- 33128

**PLANT SPECIES:** Black Lichen (Pgyrusin)
**TARGET PLANT TISSUE (e.g. leaves, bulbs): whole organism

**SAMPLERS (initials):** PH, MT, KS, JP
**DATE:** 5-2-18
**TIME (GPS point taken):** 12:46

**WEIGHT (grams) (% if composited):** 3.8g
**PHOTO ID:** 91.100-0091

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

| a. | 3.8g |
| b. |     |
| c. |     |
| d. |     |

**SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):**
- check if composited
- SA8 - SP7 - S01

**SAMPLERS (initials):** SH, HS
**DATE:** 5-2-18
**TIME (GPS point taken):** 12:55

**COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited):**
- in
- PHOTO ID: Camera A
- 91.100-0092

**SOIL NOTES (e.g. collection method, color, texture):**
- Collected at Spade
- Dark Brown Soil: organic matter. Gravel at 2
- Moist

*Version 4-20-2018*
# PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

## UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

### PLANT SAMPLE ID (e.g. SA01-SP01-P01):

<table>
<thead>
<tr>
<th>check if compositing</th>
<th>SA08-SP08-P01</th>
<th>GPS Unit #:</th>
</tr>
</thead>
</table>

### PLANT SPECIES: CAMAS

#### TARGET PLANT TISSUE (e.g. leaves, bulbs):

- bulb

### SAMPLERS (initials): SH, GM

#### DATE: 5-2-18

#### TIME (GPS point taken):

### WEIGHT (grams) (% if compositing):

<table>
<thead>
<tr>
<th>a.</th>
</tr>
</thead>
</table>

### PHOTO ID camera A 92,100-0093

Not camas - Brodiaea Brodiaea

Abort sample SH.

### PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

### SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):

<table>
<thead>
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<th>check if compositing</th>
<th>SA08-SP08-S01</th>
</tr>
</thead>
</table>

### SAMPLERS (initials): SH

#### DATE: 5-2-18

#### TIME (GPS point taken):

### COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if compositing):

<table>
<thead>
<tr>
<th>a.</th>
</tr>
</thead>
</table>

### PHOTO ID

Aborted sample SH.

### SOIL NOTES (e.g. collection method, color, texture):

Version 4-20-2018
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID (e.g. SA01-SP01-P01):</th>
<th>SA08 - SP09 - P01</th>
<th>GPS Unit #:</th>
<th>31.28</th>
</tr>
</thead>
</table>

**PLANT SPECIES:** Claytonia lanceolata  
**TARGET PLANT TISSUE (e.g. leaves, bulbs):** corn

**SAMPLERS (initials):** cm, sh, mw  
**DATE:** 5/2/18  
**TIME (GPS point taken):** 13:37

**WEIGHT (grams) (% if composited):**

| a. 0.3 / 0.2 | 5% | e. 0.6 / 2.5 | 15% |
| b. 0.3 / 0.5 | 10% |
| c. 1.4 / 1.4 | 22% | f. 0.4 / 2.9 | 15% |
| d. 0.5 / 1.9 | 12% | g. 0.2 / 3.1 | 9total |
| h. 0.4 / 3.5 | 10% |

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

---

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):</th>
<th>SA08 - SP09 - S01</th>
</tr>
</thead>
</table>

**SAMPLERS (initials):** sh  
**DATE:** 5/2/18  
**TIME (GPS point taken):** 13:51

**COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited):**

| a. 0.3" (5) | e. 0.3" (15) | i. 0.3" (15) | PHOTO ID |
| b. 0.3" (5) | f. 0.3" (10) | |
| c. 0.3" (25") | g. 0.3" (5) | |
| d. 0.3" (10) | h. 0.3" (10) | |

**SOIL NOTES (e.g. collection method, color, texture):**

Collected with spade

Dark Brown silt + organic matter (0-1"), Gray silt (1-3"), moist.

Version 4-20-2018
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

**PLANT SAMPLE ID (e.g. SA01-SP01-P01):** SA08 - SP10 - P01

**GPS Unit #:** 83128

**PLANT SPECIES:** Claytonia lanceolata

**TARGET PLANT TISSUE (e.g. leaves, bulbs):** Corm

**SAMPLERS (initials):** SH, MS

**DATE:** 5/2/18

**TIME (GPS point taken):** 14:15

**WEIGHT (grams) (% if composited)**

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>(grams)</th>
<th>%</th>
<th>Total</th>
<th>(grams)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>0.3g</td>
<td>0.3g</td>
<td>(8)</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>b</td>
<td>0.3</td>
<td>0.6</td>
<td>(8)</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>c</td>
<td>0.1a</td>
<td>1.2</td>
<td>(16)</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>d</td>
<td>0.3</td>
<td>1.5</td>
<td>(8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>1.3</td>
<td>2.8</td>
<td>(34)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

---

**SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):** SA08 - SP10 - S01

**check if composited**

**SAMPLERS (initials):** SH

**DATE:** 5/2/18

**TIME (GPS point taken):** 14:25

**COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)**

<table>
<thead>
<tr>
<th></th>
<th>(10)</th>
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<th>(20)</th>
<th></th>
<th>(20)</th>
<th></th>
<th>(10)</th>
<th></th>
<th>(15)</th>
<th></th>
<th>(10)</th>
<th></th>
<th>(15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>b</td>
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</tr>
<tr>
<td>c</td>
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<td></td>
</tr>
<tr>
<td>d</td>
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<td></td>
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</tr>
</tbody>
</table>

**PHOTO ID**

a, d, e, fig, 100, 100-0101

b, c, h, 101, 100-0102

b, 102, 100-0103

**SOIL NOTES (e.g. collection method, color, texture):**

Collected w/ spade
Dark brown silt + organic matter w/ trace fine sand, moist

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): □ check if composited  SA16 - SP01 - P01
GPS Unit #: 3128

PLANT SPECIES: Willow (Salix exigua) TARGET PLANT TISSUE (e.g. leaves, bulbs): Brandur

SAMPLERS (initials): SH, LH, MS DATE: 5/1/2018 TIME (GPS point taken): 9:27

LENGTH
WEIGHT (grams) (% if composited) PHOTO ID Lower A 100 - 073

a. 150 cm + 40 cm = 190 cm

b.

c.

d.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):
Replicate, enough mass for mercury

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):
□ check if composited  SA16 - SP01 - S01

SAMPLERS (initials): SH, MS DATE: 5/1/2018 TIME (GPS point taken): 9:51

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

a. 0-5

b.

c.

d.

SOIL NOTES (e.g. collection method, color, texture):
collected w/ spade
Fine - medium Sand, Light Brown. Dry - slightly moist

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01):
☐ check if compositied
SA16-SP02-P01
GPS Unit #: 83128

PLANT SPECIES: Willow (Salix exigua) TARGET PLANT TISSUE (e.g. leaves, bulbs):
Brand

SAMPLERS (initials): JW, SH
DATE: 5/1/2018
TIME (GPS point taken): 0942

LENGTH (cm)

WEIGHT (grams) (% if compositied)

PHOTO ID

a. 105 cm
b. 85 cm = 190 cm
c.
d.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):
Replicate for SA16-SP01-P01
enough mass for mercury

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):
☐ check if compositied
SA16-SP02-S01

SAMPLERS (initials): SH, MS
DATE: 5/1/2018
TIME (GPS point taken): 0959

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if compositied)

PHOTO ID

a. 0-2" b. c. d.

SOIL NOTES (e.g. collection method, color, texture):
corroded w/ 8%al
color:
light brown fine-medium sand, dry-moist.

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): □ check if composited SA16-SP03-P01 GPS Unit #: 83178

PLANT SPECIES: Willow (Salix exigua) TARGET PLANT TISSUE (e.g. leaves, bulbs): Branches


WEIGHT (grams) (% if composited) PHOTO ID Camera B

a. 140 cm + 125 cm = 265 cm + 140 cm = 405 cm

b.

c.

d.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

Split (2x mass)
Mass enough for mercury

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):
□ check if composited SA16-SP03-S01

SAMPLERS (initials): SH MS DATE: 5-1-2018 TIME (GPS point taken): 10:20

inches

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited) PHOTO ID

a. 0-3"

b.

c.

d.

SOIL NOTES (e.g. collection method, color, texture):

Split, collected w/ spade
Fine - Course sand, w/ Amel. gravel. Light Brown, slightly moist.
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01):
☐ check if composited
SA16 - SP04 - P01
GPS Unit #: 83128

PLANT SPECIES: Willow (Salix [Red])
TARGET PLANT TISSUE (e.g. leaves, bulbs): Branches

SAMPLERS (initials): SW, CM, MS
DATE: 5-1-2018
TIME (GPS point taken): 10:32

Length (cm) WEIGHT (grams) (% if composited)

a. 55 cm + 150 cm = 205 cm

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

enough mass for mercury

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):
☐ check if composited
SA16 - SP04 - S01

SAMPLERS (initials): SH, MS
DATE: 5-1-18
TIME (GPS point taken): 10:37

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)

a. 0-3"

SOIL NOTES (e.g. collection method, color, texture):

Collected w/ Spade
Light Brown Fine Sand w/ some med. sand. Moist.
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01):

☐ check if composit ed

SA16-SP05-P01

GPS Unit #:

83 128

PLANT SPECIES: Willow (Salix exigua)

TARGET PLANT TISSUE (e.g. leaves, bulbs): Branches

SAMPLERS (initials): JW, GM, MS

DATE: 5-1-2018

TIME (GPS point taken): 1054

LENGTH (cm)

WEIGHT (grams) (% if composit ed)

PHOTO ID Camera B

a. 115 cm + 100 cm = 215 cm

b.

c.

d.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

Enough mass for mercury

Saw willows observed evidence recent clipping

Fire track saw 30 feet west of sample

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):

☐ check if composit ed

SA16-SP05-S01

SAMPLERS (initials): SH, MS

DATE: 5-1-2018

TIME (GPS point taken): 1057

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composit ed)

PHOTO ID 1057

a. 0-30

b.

c.

d.

SOIL NOTES (e.g. collection method, color, texture):

digested w/ spade

Light Brown Fine Sand w/ some medium sand. Moist

Version 4-20-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA16-SP06-P01

PLANT SPECIES: Willow (Salix exigua) TARGET PLANT TISSUE (e.g. leaves, bulbs): Branches

SAMPLERS (initials): TW, GM, MS DATE: 5-1-2018 TIME (GPS point taken): 11:05

LENGTH (cm) WEIGHT (grams) (% if composited)

a. 152 cm + 65 cm = 217 cm

PHOTO ID Cam. B

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

enough mass for Hg willow in reed grassy field

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):

SA16-SP06-S01

SAMPLERS (initials): SH MS DATE: 5-1-2018 TIME (GPS point taken): 11:09

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited) PHOTO ID

a. 6-10" 87, 101-0089

SOIL NOTES (e.g. collection method, color, texture):

collected w/ Spade
Brown, silty fine sand. Moist.

Version 4-20-2018
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID (e.g. SA01-SP01-P01):</th>
<th>GPS Unit #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>check if composited</td>
<td>83128</td>
</tr>
</tbody>
</table>

| PLANT SPECIES: Willow (Salix Excisa) | TARGET PLANT TISSUE (e.g. leaves, bulbs): Branches |


<table>
<thead>
<tr>
<th>Length (cm)</th>
<th>WEIGHT (grams) (% if composited)</th>
<th>PHOTO ID camera B</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 130 cm + 73 cm = 203 cm</td>
<td>88, 100-0091</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

enough mass for Hg

---

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01):</th>
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<tbody>
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<td>check if composited</td>
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| SAMPLERS (initials): SH, MS | DATE: 5-1-2018 | TIME (GPS point taken): 11:22 |

<table>
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<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)</th>
<th>PHOTO ID</th>
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</thead>
<tbody>
<tr>
<td>a. 0-3″</td>
<td>89, 100-0092</td>
</tr>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES (e.g. collection method, color, texture):**

collected with spade
Light Brown Fine-Med. sand w/ gravel from 2-3″ deep, moist

Version 4-20-2018
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
#### UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA01-JU01-P01</td>
<td>31</td>
<td>Blue</td>
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</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>PLANT SPECIES (scientific name):</th>
<th>TARGET PLANT TISSUE (e.g. leaves, bulbs):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rose sp.</td>
<td>Leaves, stems</td>
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</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM, DLM, JH</td>
<td>6-19-18</td>
<td>08:14</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composited):</th>
<th>TOTAL WEIGHT(g)</th>
<th>PHOTO ID</th>
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<tbody>
<tr>
<td>43 + 23 + 75 + 81 + 48</td>
<td>275 cm</td>
<td>#123</td>
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<table>
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<tr>
<th>PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Split, metals + mercury</td>
</tr>
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</table>

<table>
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<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
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<tbody>
<tr>
<td>SA01-JU01-S01</td>
<td>34</td>
<td>Blue</td>
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</table>

- check if composited

<table>
<thead>
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<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLM, MS, LH</td>
<td>6-19-18</td>
<td>08:14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/_LOWER DEPTH (in) (% if composited):</th>
<th>TOTAL WEIGHT(g)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 3</td>
<td>124</td>
<td>#124</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL NOTES (e.g. collection method, color, texture):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown, dry, loose, salty soil w/ organic material (small roots)</td>
</tr>
</tbody>
</table>

Checked by: [Signature]

Date Checked: 6-19-18

Version 6-12-2018
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>SA01-JU02-P01</th>
<th>GPS Unit #:</th>
<th>34</th>
<th>Camera ID:</th>
<th>Blue</th>
</tr>
</thead>
<tbody>
<tr>
<td>check if composited</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLANT SPECIES (scientific name):</td>
<td>Rosa sp.</td>
<td>TARGET PLANT TISSUE (e.g. leaves, bulbs):</td>
<td>leaves, stems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAMPLERS (initials):</td>
<td>DL, MS, LH</td>
<td>DATE:</td>
<td>6-19-18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WEIGHT/LENGTH (g/cm) (% if composited)</td>
<td>17 + 15 + 11 + 19 + 20 + 10</td>
<td>TIME (GPS point taken):</td>
<td>08:39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL WEIGHT (g)</td>
<td>98</td>
<td>PHOTO ID</td>
<td># 125</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

Replicate

**SOIL/SEDIMENT SAMPLE ID:**
(e.g. SA01-JU01-S01)

<table>
<thead>
<tr>
<th>check if composited</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SAMPLERS (initials):</td>
<td>DL, MS, LH</td>
<td>DATE:</td>
<td>6-19-18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COLLECTION UPDEPTH/LOWDEPTH (in) (% if composited)</td>
<td>0-3</td>
<td>TOTAL WEIGHT (g)</td>
<td>187</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES (e.g. collection method, color, texture):**

Brown, dry, loose, salty soil w/organic material

Checked by: [Signature]  
Date Checked: 6-19-18

Version 6-12-2018
### Plant Sample ID:

- **GPS Unit #:** 34
- **Camera ID:** Blue

<table>
<thead>
<tr>
<th>PLANT SPECIES (scientific name):</th>
<th>TARGET PLANT TISSUE (e.g. leaves, bulbs):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rose sp.</td>
<td>Leaves/stems</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLMS</td>
<td>6-19-18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (%) if composited</th>
<th>TOTAL WEIGHT (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>17 + 15 + 13 + 9 + 9 + 6 + 8</td>
<td>77.7 cm</td>
</tr>
</tbody>
</table>

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

- Replica

---

### Soil/Sediment Sample ID:

- **GPS Unit #:** 34
- **Camera ID:** Blue

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLMS, LH</td>
<td>6-19-18</td>
<td>08:58</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (%) if composited</th>
<th>TOTAL WEIGHT (g)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td></td>
<td>#128</td>
</tr>
</tbody>
</table>

**SOIL NOTES** (e.g. collection method, color, texture):

- Brown dry, loose silty soil w/ organic material

**Checked by:** [Signature]

**Date Checked:** 6-19-18

Version 6-12-2018
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFO1 - JU94-P01</td>
<td>3H</td>
<td>Blue</td>
</tr>
</tbody>
</table>

- check if composited

**PLANT SPECIES** (scientific name): Rose Sp.

**TARGET PLANT TISSUE** (e.g. leaves, bulbs): stems

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point token):</th>
</tr>
</thead>
<tbody>
<tr>
<td>DL1, MS, LH</td>
<td>6-19-18</td>
<td>09:27</td>
</tr>
</tbody>
</table>

**WEIGHT/LENGTH (g/cm) (% if composited)**

<table>
<thead>
<tr>
<th>TOTAL WEIGHT (g)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>95 cm</td>
<td>#120</td>
</tr>
<tr>
<td>100 cm</td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

- metals + mercury

---

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFO1 - JU94-S01</td>
<td>3H</td>
<td>Blue</td>
</tr>
</tbody>
</table>

- check if composited

**COLLECTORS (initials):**

**DATE:** 6-19-18, **TIME (GPS point token):** 09:26

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):**

<table>
<thead>
<tr>
<th>TOTAL WEIGHT (g)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#130</td>
</tr>
</tbody>
</table>

**SOIL NOTES** (e.g. collection method, color, texture):

- Brown, dry, loose, silt, soil w/organic material

Checked by: [Signature]

Date Checked: 6-19-18
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>SA03-JU01-P01</th>
<th>GPS Unit #:</th>
<th>34</th>
<th>Camera ID:</th>
<th>Blue</th>
</tr>
</thead>
<tbody>
<tr>
<td>check if composited</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLANT SPECIES (scientific name):</td>
<td>Rosa multiflora spp. cf.</td>
<td>TARGET PLANT TISSUE (e.g. leaves, bulbs):</td>
<td>leaves stems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WEIGHT/LENGTH (g/cm) (% if composited)</td>
<td>4cm + 6cm + 7cm + 15cm + 13cm + 12cm + 12cm = 57cm = 70cm</td>
<td>TOTAL WEIGHT(g)</td>
<td>#103</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td></td>
<td>PHOTO ID</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td>PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):</td>
<td>metals &amp; mercury</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>SA03-JU01-S01</th>
<th>GPS Unit #:</th>
<th>34</th>
<th>Camera ID:</th>
<th>Blue</th>
</tr>
</thead>
<tbody>
<tr>
<td>check if composited</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAMPLERS (initials):</td>
<td>D. L. M. S.</td>
<td>DATE:</td>
<td>0-18-18</td>
<td>14:31</td>
<td></td>
</tr>
<tr>
<td>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</td>
<td>0-3</td>
<td>TOTAL WEIGHT(g)</td>
<td>#104</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td>SOIL NOTES (e.g. collection method, color, texture):</td>
<td>Dark brown, dry, rocky soil w/organic material &amp; sparse gravel</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Checked by: [Signature]  
Date Checked: 6-18-18

Version 6-12-2018
# PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
## UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

**PLANT SAMPLE ID:** SA03-JU02-P01  
**GPS Unit #:** 34  
**Camera ID:** Blue

- check if composited

**PLANT SPECIES (scientific name):** Rose sp.  
**TARGET PLANT TISSUE** (e.g. leaves, bulbs): Leaves, stems

**SAMPLERS (initials):** Cmp, DL  
**DATE:** 6-18-18  
**TIME (GPS point taken):** 14:49

**WEIGHT/LENGTH (g/cm) (% if composited)**  
**TOTAL WEIGHT (g)**  
**PHOTO ID**

<table>
<thead>
<tr>
<th>a.</th>
<th>b.</th>
<th>c.</th>
<th>d.</th>
<th>e.</th>
<th>f.</th>
<th>g.</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 + 15 + 8 + 10 + 7 + 5 + 20 = 81 cm</td>
<td>81 cm</td>
<td>105</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

- mercury

---

**SOIL/SEDIMENT SAMPLE ID:** SA03-JU02-S01  
**GPS Unit #:** 34  
**Camera ID:** Blue

- check if composited

**SAMPLERS (initials):** DL, MS  
**DATE:** 6-18-18  
**TIME (GPS point taken):** 14:54

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)**  
**TOTAL WEIGHT (g)**  
**PHOTO ID**

<table>
<thead>
<tr>
<th>a.</th>
<th>b.</th>
<th>c.</th>
<th>d.</th>
<th>e.</th>
<th>f.</th>
<th>g.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 - 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES** (e.g. collection method, color, texture):

- Dark brown, dry, salty soil, organic material, w/ sparse gravel

---

Checked by:  
**Date Checked:** 6-18-18
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID: SAD3-Ju03-P01
(e.g. SA01-JU01-P01)

GPS Unit #: 34
Camera ID: Blue

☐ check if composited

PLANT SPECIES (scientific name): Rosa sp
TARGET PLANT TISSUE (e.g. leaves, bulbs): leaves, stems

SAMPLERS (initials): DM, SDL, MS, LH
DATE: 6-18-18
TIME (GPS point taken): 15:07

WEIGHT/LENGTH (g/cm) (% if composited)
TOTAL WEIGHT (g) PHOTO ID

a. 32 + 17 + 18 18.5 cm #107 41.1 g
b. 57 cm

c.
d.
e.
f.
g.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

Mercury

SOIL/SEDIMENT SAMPLE ID: SAD3-Ju03-001
(e.g. SA01-JU01-501)

GPS Unit #: 34
Camera ID: Blue

☐ check if composited

SAMPLERS (initials): DL
DATE: 6-18-18
TIME (GPS point taken): 15:13

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)
TOTAL WEIGHT (g) PHOTO ID

a. 0-3
b.
c.
d.
e.
f.
g.

SOIL NOTES (e.g. collection method, color, texture):

Dark Brown, dry, loose silt w/organic matter & sparse gravel

Checked by: [Signature]
Date Checked: 6-18-18

Version 6-12-2018
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

**PLANT SAMPLE ID:**
(SA03-JU04-P01)

**GPS Unit #:** 34

**Camera ID:** Blue

1. **check if composited**

   **PLANT SPECIES (scientific name):** Lomatium triternatum

   **TARGET PLANT TISSUE** (e.g. leaves, bulbs): roots

   **SAMPLERS (initials):** cm, mg, LL, PLS, DL

   **DATE:** 6-18-19

   **TIME (GPS point taken):** 9:44 15:51

   **WEIGHT/LENGTH (g/cm) (% if composited):**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>4.5 (52)</td>
<td>4.5</td>
<td>#110</td>
</tr>
<tr>
<td>b.</td>
<td>1.5 (17)</td>
<td>6.0</td>
<td>#111</td>
</tr>
<tr>
<td>c.</td>
<td>1.5 (17)</td>
<td>7.5</td>
<td>#112</td>
</tr>
<tr>
<td>d.</td>
<td>81.1 (13)</td>
<td>8.0</td>
<td>#113</td>
</tr>
</tbody>
</table>

   **TOTAL WEIGHT(g) PHOTO ID**

2. **PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

   Composite

3. **SOIL/SEDIMENT SAMPLE ID:**
(SA03-JU04-SS01)

   **GPS Unit #:** 34

   **Camera ID:** Blue

   **SAMPLERS (initials):** DL, MS

   **DATE:** 6-18-19

   **TIME (GPS point taken):** 10:04

   **COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>0-3 (507)</td>
<td>2</td>
<td>#114</td>
</tr>
<tr>
<td>b.</td>
<td>0-3 (16.5)</td>
<td></td>
<td>#115</td>
</tr>
<tr>
<td>c.</td>
<td>0-3 (16.5)</td>
<td></td>
<td>#116, 117</td>
</tr>
<tr>
<td>d.</td>
<td>0-3 (16.5)</td>
<td></td>
<td>#117</td>
</tr>
</tbody>
</table>

   **TOTAL WEIGHT(g) PHOTO ID**

   **SOIL NOTES** (e.g. collection method, color, texture):

   Dark brown loam, dry, soft w/organic material & sparse grass

   Checked by: [Signature]

   Date Checked: 6-18-18
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
#### UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA03-Jul5-P01</td>
<td>34</td>
<td>Blue</td>
</tr>
</tbody>
</table>

- **check if composited**
- **PLANT SPECIES (scientific name):** *Lomatium trifernatum*
- **TARGET PLANT TISSUE:** roots
- **SAMPLERS (initials):** Gm, Ju, MS, LH
- **DATE:** 6-18-18
- **TIME (GPS point taken):** 16:28

<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composited)</th>
<th>TOTAL WEIGHT(g)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 2.9 (37)</td>
<td>2.9</td>
<td>a-27#118</td>
</tr>
<tr>
<td>b. 0.9 (12)</td>
<td>3.8</td>
<td></td>
</tr>
<tr>
<td>c. 1.0 (13)</td>
<td>4.8</td>
<td></td>
</tr>
<tr>
<td>d. 3.0 (32)</td>
<td>7.8</td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):
- Composite

---

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA03-Jul5-S01</td>
<td>34</td>
<td>Blue</td>
</tr>
</tbody>
</table>

- **check if composited**
- **SAMPLERS (initials):** Gm, Ju, MP
- **DATE:** 6-18-18
- **TIME (GPS point taken):** 16:41

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</th>
<th>TOTAL WEIGHT(g)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 0-3 (40)</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>b. 0-3 (10)</td>
<td>5 (12)</td>
<td></td>
</tr>
<tr>
<td>c. 0-3 (10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. 0-3 (40)</td>
<td></td>
<td>#122</td>
</tr>
</tbody>
</table>

**SOIL NOTES** (e.g. collection method, color, texture):
- Brown, loose, dry, silty silt w/ organic material + gravel

**Checked by:** [Signature]
**Date Checked:** 6-19-18

Version 6 12 2018
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-P01)</td>
<td>34</td>
<td>Blue</td>
</tr>
</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>PLANT SPECIES (scientific name):</th>
<th>TARGET PLANT TISSUE (e.g. leaves, bulbs):</th>
</tr>
</thead>
<tbody>
<tr>
<td><em><strong>Rosa sp.</strong></em></td>
<td>leaves, stems</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>6M, DL, MS, LH</td>
<td>6-19-18</td>
<td>12:37</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composited)</th>
<th>TOTAL WEIGHT(g)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 27 + 27 + 24 + 19 + 18 + 13</td>
<td>111</td>
<td>150 cm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>#13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Split, metals + mercury</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-S01)</td>
<td>34</td>
<td>Blue</td>
</tr>
</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>DL, MS</td>
<td>6-19-18</td>
<td>12:43</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</th>
<th>TOTAL WEIGHT(g)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 0 - 3</td>
<td></td>
<td>#132</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL NOTES (e.g. collection method, color, texture):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown, dry, loose, very fine sandy silt w/organic material</td>
</tr>
</tbody>
</table>

Checked by: [Signature]

Date Checked: 6-19-18

Version 6-12-2018
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-P01)</td>
<td>34</td>
<td>orange</td>
</tr>
</tbody>
</table>

- check if composited
- **PLANT SPECIES (scientific name):**  *Rosa sp.*
- **TARGET PLANT TISSUE** (e.g. leaves, bulbs): leaves, stems
- **SAMPLERS (initials):**  L.M., D.R., H.H.
- **DATE:** 6-9-18
- **TIME (GPS point taken):** 13:02
- **WEIGHT/LENGTH (g/cm) (% if composited):** 0.35 + 0.21 + 0.14, 70cm

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

- Replicate, metals + mercury

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-S01)</td>
<td>34</td>
<td>orange</td>
</tr>
</tbody>
</table>

- check if composited
- **SAMPLERS (initials):**  L.M., D.R.
- **DATE:** 6-9-18
- **TIME (GPS point taken):** 13:08

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):</th>
<th>TOTAL WEIGHT (g)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 3</td>
<td>114</td>
<td>#114</td>
</tr>
</tbody>
</table>

**SOIL NOTES** (e.g. collection method, color, texture):

- Light brown, tan, dry, loose fine sandy, silt, organic material

**Checked by:**

**Date Checked:** 6-19-18
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA04 - Ju03 - P01</td>
<td>34</td>
<td>Orange</td>
</tr>
</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>PLANT SPECIES (scientific name):</th>
<th>TARGET PLANT TISSUE (e.g. leaves, bulbs):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosa sp.</td>
<td>leaves, stems</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>cm, ms, DL, Llt.</td>
<td>6-19-18</td>
<td>13:04</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composited)</th>
<th>TOTAL WEIGHT(g/In)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>23 + 27 + 32</td>
<td>82 cm</td>
<td># 113</td>
</tr>
</tbody>
</table>

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

```
match+mercury, replicate
```

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA04 - Ju03 - P01</td>
<td>34</td>
<td>Blue camera</td>
</tr>
</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>DL, ms</td>
<td>6-19-18</td>
<td>13:14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</th>
<th>TOTAL WEIGHT(g)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td># 62</td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES** (e.g. collection method, color, texture):

```
light brown, dry, loose, sandy/silt/organic material
```

Checked by: [Signature]

Date Checked: 6-19-18

*Version 6-12-2018*
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
#### UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

**PLANT SAMPLE ID:** SA04-JUN19-P01  
**GPS Unit #:** 34  
**Camera ID:**  
☐ check if composited  

**PLANT SPECIES** (scientific name): *Rosa sp.*  

**TARGET PLANT TISSUE** (e.g. leaves, bulbs): stems  

**SAMPLERS (initials):** GM, DL, MS, LT  
**DATE:** 6/19/18  
**TIME (GPS point token):** 6/18/18 1329  

**WEIGHT/LENGTH (g/cm) (% if composited):**  
**TOTAL WEIGHT(g):** 91 cm  
**PHOTO ID:** #64

---

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):  

---

**SOIL/SEDIMENT SAMPLE ID:** SA04-JUN19-P01  
**GPS Unit #:** 34  
**Camera ID:**  
☐ check if composited  

**SAMPLERS (initials):** DV, MS  
**DATE:** 6/19/18  
**TIME (GPS point token):** 6/18/18 1325  

**COLLECTION DEPTH** (in) (% if composited):  
**TOTAL WEIGHT(g):**  
**PHOTO ID:** #65

---

**SOIL NOTES** (e.g. collection method, color, texture):  
DUSTY/FINE/NEEDLE METER 3.5 INCHES  
DAWN BROWN, DRY, LOOSE, FINE SANDY SILT WITH ORGANIC MATERIAL

---

**Checked by:**  
**Date Checked:** 6-19-18

---

*Version 6-12-2018*
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**  
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>SA04-JU05-P01</th>
<th>GPS Unit #:</th>
<th>34</th>
<th>Camera ID:</th>
<th>Jeffs</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-P01)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>check if composited</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLANT SPECIES (scientific name):</td>
<td>Vaccinium Cespitosum</td>
<td>TARGET PLANT TISSUE (e.g. leaves, bulbs):</td>
<td>Berries</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TIME (GPS point taken):</td>
<td>14:10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WEIGHT/LENGTH (g/cm) (% if composited)</td>
<td>17g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL WEIGHT(g)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHOTO ID</td>
<td>#66</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

---

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>SA04-JU05-S01</th>
<th>GPS Unit #:</th>
<th>34</th>
<th>Camera ID:</th>
<th>Jeffs</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-S01)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>check if composited</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAMPLERS (initials):</td>
<td>DL, mS</td>
<td>DATE:</td>
<td>6-19-2018</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TIME (GPS point taken):</td>
<td>14:11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</td>
<td>0-3</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>TOTAL WEIGHT(g)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>PHOTO ID</td>
<td>#67</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**SOIL NOTES** (e.g. collection method, color, texture):
Reddish Brown, dry, loose sandy soil with organic material.

Checked by: [Signature]
Date Checked: 6-19-18

---

Version 6-12-2018
### Plant Tissue and Soil/Sediment Data Form

**Upper Columbia River Plant Tissue Study 2018**

**Plant Sample ID:** SA01-JU01-P01  
**GPS Unit #:** 34  
**Camera ID:** Jeffs

- **Plant Species:** Vaccinium cespitosum  
- **Target Plant Tissue:** Berries  
- **Samplers (initials):** LH, DL, JW  
- **Date:** 6.19.2018  
- **Time (GPS point taken):** 14:31

**Weight/Length (g/cm) (% if composited):** 18g # 68

**Plant Notes:** [Add notes if needed]

---

**Soil/Sediment Sample ID:** SA01-JU01-S01  
**GPS Unit #:** 34  
**Camera ID:** Jeffs

- **Samplers (initials):** DL, MS  
- **Date:** 6.19.2018  
- **Time (GPS point taken):** 14:31

**Collection Upper Depth/Lower Depth (in) (% if composited):** 0-3

**Total Weight (g):** 18

**Soil Notes:** [Add notes if needed]

---

**Checked by:** [Signature]  
**Date Checked:** 6-19-18

---

**Version 6-12-2018**
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM  
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-P01)</td>
<td>34</td>
<td>JEFF</td>
</tr>
<tr>
<td>check if composited</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLANT SPECIES (scientific name):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vaccinium cespitosum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TARGET PLANT TISSUE (e.g. leaves, bulbs):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BEERIES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAMPLERS (initials):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LH, MS, JW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATE:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6/19/2018</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIME (GPS point taken):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14:56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WEIGHT/LENGTH (g/cm) (% if composited)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td></td>
<td>18g</td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

Vaccinium cespitosum

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-S01)</td>
<td>34</td>
<td>JEFF</td>
</tr>
<tr>
<td>check if composited</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAMPLERS (initials):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL, MS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATE:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6/19/2018</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIME (GPS point taken):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16:01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</td>
<td>TOTAL WEIGHT(g)</td>
<td>PHOTO ID</td>
</tr>
<tr>
<td>a.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES** (e.g. collection method, color, texture):

Reddish brown, dry, loose, fine sandy silt with organic material

Checked by: [Signature]  
Date Checked: 6-19-18
### Plant Tissue and Soil/Sediment Data Form

**PLANT SAMPLE ID:** SA04-JU08-P01  
**GPS Unit #:** 31  
**Camera ID:** Jeff's camera

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PLANT SPECIES</strong> (scientific name):</td>
<td>Vaccinium espisatum</td>
</tr>
<tr>
<td><strong>TARGET PLANT TISSUE</strong> (e.g. leaves, bulbs):</td>
<td>fruits</td>
</tr>
<tr>
<td><strong>SAMPLERS (initials):</strong></td>
<td>LH, GM, MT, MS, DL, WF, mJ, JW</td>
</tr>
<tr>
<td><strong>DATE:</strong></td>
<td>6-20-18</td>
</tr>
<tr>
<td><strong>TIME (GPS point taken):</strong></td>
<td>08:25</td>
</tr>
<tr>
<td><strong>WEIGHT/LENGTH (g/cm) (% if composited):</strong></td>
<td>169</td>
</tr>
<tr>
<td><strong>TOTAL WEIGHT (g):</strong></td>
<td>259</td>
</tr>
<tr>
<td><strong>PHOTO ID:</strong></td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

---

**SOIL/SEDIMENT SAMPLE ID:** SA04-JU08-P01  
**GPS Unit #:** 31  
**Camera ID:** Jeff's camera

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SAMPLERS (initials):</strong></td>
<td>DL, JS</td>
</tr>
<tr>
<td><strong>DATE:</strong></td>
<td>6-20-18</td>
</tr>
<tr>
<td><strong>TIME (GPS point taken):</strong></td>
<td>08:32</td>
</tr>
<tr>
<td><strong>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):</strong></td>
<td>0-3</td>
</tr>
<tr>
<td><strong>TOTAL WEIGHT (g):</strong></td>
<td>260</td>
</tr>
<tr>
<td><strong>PHOTO ID:</strong></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES** (e.g. collection method, color, texture):

Reddish Brown, dry, some silt / organic material

Checked by: [Signature]  
**Date Checked:** 6-20-18
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
#### UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>5A04-JU09-P01</th>
<th>GPS Unit #:</th>
<th>34</th>
<th>Camera ID:</th>
<th>Jeff's</th>
</tr>
</thead>
<tbody>
<tr>
<td>check if composited</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLANT SPECIES (scientific name):</td>
<td>Vaccinium cespitosum</td>
<td>TARGET PLANT TISSUE (e.g. leaves, bulbs):</td>
<td>Fruits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAMPLERS (initials):</td>
<td>Jw, LH, D, Ms, Sm, Wf, Mt, Ms</td>
<td>DATE:</td>
<td>6-20-18</td>
<td>TIME (GPS point taken):</td>
<td>0842</td>
</tr>
<tr>
<td>WEIGHT/LENGTH (g/cm) (% if composited)</td>
<td>18g</td>
<td>TOTAL WEIGHT(g)</td>
<td></td>
<td>PHOTO ID</td>
<td>261</td>
</tr>
<tr>
<td>a.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

### SOIL/SEDIMENT SAMPLE ID:
#### (e.g. SA01-JU01-S01)
<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>5A04-JU09-S01</th>
<th>GPS Unit #:</th>
<th>34</th>
<th>Camera ID:</th>
<th>Jeff's</th>
</tr>
</thead>
<tbody>
<tr>
<td>check if composited</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAMPLERS (initials):</td>
<td>D, Ms</td>
<td>DATE:</td>
<td>6-20-18</td>
<td>TIME (GPS point taken):</td>
<td>0858</td>
</tr>
<tr>
<td>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</td>
<td>TOTAL WEIGHT(g)</td>
<td>PHOTO ID</td>
<td>262</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>e.</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES** (e.g. collection method, color, texture):

Reddish Brown, dry, loose soil w/organic material

Checked by [Signature]

Date Checked: 6-20-18

Version 6-12-2018
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-P01)</td>
<td>34</td>
<td>Jeff's</td>
</tr>
</tbody>
</table>

- check if composites

<table>
<thead>
<tr>
<th>PLANT SPECIES (scientific name):</th>
<th>TARGET PLANT TISSUE (e.g. leaves, bulbs):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaccinium cespitosum</td>
<td>Fruits</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
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<tbody>
<tr>
<td>JH, JF, MS, DL, GM, MF</td>
<td>6-20-18</td>
<td>#0910.0912</td>
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<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composites):</th>
<th>TOTAL WEIGHT(g):</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 19</td>
<td>#263</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

**SOIL/SEDIMENT SAMPLE ID:**

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-S01)</td>
<td>34</td>
<td>Jeff's</td>
</tr>
</tbody>
</table>

- check if composites

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
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</thead>
<tbody>
<tr>
<td>DL, MS</td>
<td></td>
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<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composites):</th>
<th>TOTAL WEIGHT(g):</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 0-3</td>
<td>#264</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES** (e.g. collection method, color, texture):

Reddish Brown, dry, loamy, soil-like surface material.

Checked by: [Signature]

Date Checked: 6-20-18

Version 6-12-2018
PLANT SAMPLE ID: SA04-JU01-P01
(e.g. SA01-JU01-P01)

GPS Unit #: 34
Camera ID: Jeff's

☐ check if composited

PLANT SPECIES (scientific name): Rosa sp.

TARGET PLANT TISSUE (e.g. leaves, bulbs):

SAMPLERS (initials): GM, DL, LH

DATE: 6-20-18
TIME (GPS point taken): 10:22

WEIGHT/LENGTH (g/cm) (% if composited)

TOTAL WEIGHT (g) LENGTH PHOTO ID

a. 61 + 53 + 25 + 27 + 20 + 23
b. 118

j.p.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

Split, mercury

SOIL/SEDIMENT SAMPLE ID: SA04-JU01-S01
(e.g. SA01-JU01-S01)

GPS Unit #: 34
Camera ID: Jeff's

☐ check if composited

SAMPLERS (initials): DL, MS

DATE: 6-20-18
TIME (GPS point taken): 10:31

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)

TOTAL WEIGHT (g) PHOTO ID

a. 0-3
b. 264

c.
d.
e.
f.
g.

SOIL NOTES (e.g. collection method, color, texture):

Reddish brown, dry, loose soil w/organic material

Checked by: [Signature]
Date Checked: 6-20-18
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA06 - Juφ2 - P01</td>
<td>34</td>
<td>Jeff's</td>
</tr>
</tbody>
</table>

- check if composited

**PLANT SPECIES (scientific name):**
Rosa sp.

**TARGET PLANT TISSUE (e.g. leaves, bulbs):**
Leaves, stems

**SAMPLERS (initials):**
CM, DLH, MS, LH

<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composited)</th>
<th>TOTAL WEIGHT (g) / LENGTH</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 + 24 + 22 + 43</td>
<td>115 cm</td>
<td>#81</td>
</tr>
</tbody>
</table>

- Note: photo #80
- in correct label

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):
mercury, split, replicate

---

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA06 - Juφ2 - S01</td>
<td>34</td>
<td>Jeff's</td>
</tr>
</tbody>
</table>

- check if composited

**SAMPLERS (initials):**
DLH, MS

<table>
<thead>
<tr>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-20-18</td>
<td>10:51</td>
</tr>
</tbody>
</table>

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):**

<table>
<thead>
<tr>
<th>TOTAL WEIGHT (g)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>#84</td>
<td></td>
</tr>
</tbody>
</table>

- Note: Photo 83
- Incorrect

**SOIL NOTES** (e.g. collection method, color, texture):
Reddish brown, dry, loose soil w/ organic material

Checked by: [Signature]
Date Checked: 6-20-18
**PLANT SAMPLE ID:**
(e.g. SA01-JU01-P01) SA01-JU03-P01

**GPS Unit #:** 34

**Camera ID:** Jeff

☐ check if composited

**PLANT SPECIES (scientific name):** 
*Rosa sp*

**TARGET PLANT TISSUE** (e.g. leaves, bulbs):

leaves

**SAMPLERS (initials):** GM

**DATE:** 6-20-18

**TIME (GPS point taken):** 10:42

**WEIGHT/LENGTH (g/cm) (% if composited)**

33 + 35 + 40 + 41

**LENGTH (cm)**

149 cm

**PHOTO ID** # 82

c.
d.
e.
f.
g.

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

spt
replicate
mercury

---

**SOIL/SEDIMENT SAMPLE ID:**
(e.g. SA01-JU01-S01) SA01-JU03-S01

**GPS Unit #:** 34

**Camera ID:** Jeff

☐ check if composited

**SAMPLERS (initials):** DL

**DATE:** 6-20-18

**TIME (GPS point taken):** 10:54

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)**

a.

**TOTAL WEIGHT(g)**

# 85

c.
d.
e.
f.
g.

**SOIL NOTES** (e.g. collection method, color, texture):

Reddish Brown dry, loose, silt w/ organic material

Checked by: [Signature]

**Date Checked:** 6-20-18
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
#### UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-P01)</td>
<td>SApE - JUp4 - P01</td>
<td>34</td>
</tr>
</tbody>
</table>

- [ ] check if composited

- **PLANT SPECIES (scientific name):** Rose sp.
- **TARGET PLANT TISSUE** (e.g. leaves, bulbs): Leaves
- **SAMPLERS (initials):** Gm, DL, ms, L/H
- **DATE:** 6-20-18
- **TIME** (GPS point taken): 11:16
- **WEIGHT/LENGTH** (g/cm) (% if composited): 29 + 28 + 19 + 18 + 22 = 116 cm
- **PHOTO ID**: #86

#### PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-S01)</td>
<td>SApE - JUp4 - S01</td>
<td>34</td>
</tr>
</tbody>
</table>

- [ ] check if composited

- **SAMPLERS (initials):** DL, ms
- **DATE:** 6-20-18
- **TIME** (GPS point taken): 11:18
- **COLLECTION UPPER DEPTH/LOWER DEPTH** (in) (% if composited): 0-3
- **TOTAL WEIGHT** (g): 2
- **PHOTO ID**: #87

#### SOIL NOTES (e.g. collection method, color, texture):

Reddish brown, dry, loose silt w/organic material & decaying wood

Checked by: [Signature]

Date Checked: 6-20-18

Version 6-12-2018
### Plant Tissue and Soil/Sediment Data Form

**Upper Columbia River Plant Tissue Study 2018**

#### Plant Sample ID:
- **SA01-AU01-P01**
- **GPS Unit #:** 83134
- **Camera ID:** orange

- **Plant Species (Scientific Name):** Prunus virginiana
- **Target Plant Tissue:** Berries

#### Samplers (Initials):
- **LH, JU, AU

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>TOTAL (g/cm)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>08-22-18</td>
<td>08:22</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Weight/Length (g/cm) (% if composited)

- **76.5g**

**Plant Notes:** (e.g. replicate, conditions, mass target enough for split or mercury)

---

#### Soil/Sediment Sample ID:
- **SA01-AU01-SA01**
- **GPS Unit #:** 83134
- **Camera ID:** orange

- **Check if composited**

#### Samplers (Initials):
- **SH, MS

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>08-22-18</td>
<td>08:22</td>
<td></td>
</tr>
</tbody>
</table>

#### Collection Upper Depth/Lower Depth (in) (% if composited)

- **0 - 3 in**

**Soil Notes:** (e.g. collection method, color, texture):
- Collected w/ hand spade
- Brown sandy silt w/ organic matter (20/40).
- Dry

**Checked by:** \[Signature\]

**Date Checked:** 08-22-18

**Version 6-12-2018**
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
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<tbody>
<tr>
<td>(e.g. SA01-AU01-P01)</td>
<td>83134</td>
<td>Orange</td>
</tr>
</tbody>
</table>

- [ ] check if composited

**PLANT SPECIES (scientific name):** 
Praunus Virgiana

**TARGET PLANT TISSUE (e.g. leaves, bulbs):** 
Berries

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE: 08.22.18</th>
<th>TIME (GPS point taken): 08:57</th>
</tr>
</thead>
<tbody>
<tr>
<td>LH SI MS</td>
<td></td>
<td></td>
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</tbody>
</table>

**WEIGHT/LENGTH (g/cm) (% if composited):**

- a. 82.9

**TOTAL (g/cm):** 34.7

**PHOTO ID:**

### PLANT NOTES (e.g. replicate, conditions, moss target enough for split or mercury):

Replicate

### SOIL/SEDIMENT SAMPLE ID:

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-S01)</td>
<td>83134</td>
<td>Orange</td>
</tr>
</tbody>
</table>

- [ ] check if composited

**SAMPLERS (initials):**

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE: 08.22.18</th>
<th>TIME (GPS point taken): 09:03</th>
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<tbody>
<tr>
<td>SI MS</td>
<td></td>
<td></td>
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</tbody>
</table>

**COLLECTION UPPER DEPTH/LOWER DEPTH (in.) (% if composited):**

- a. 0-3

**PHOTO ID:**

### SOIL NOTES (e.g. collection method, color, texture):

- Collected with hand spade
- Brown sandy silt w/ organic matter (rootlets), any

**Checked by:**

<table>
<thead>
<tr>
<th>Checked by:</th>
<th>Date Checked:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIU Holmes</td>
<td>08.22.18</td>
</tr>
</tbody>
</table>
PLANT SAMPLE ID: SAm1-AU03-P01
(e.g. SA01-AU01-P01) GPS Unit #: 83134 Camera ID: orange

☐ check if composited

PLANT SPECIES (scientific name): Prunus virginiana
TARGET PLANT TISSUE (e.g. leaves, bulbs): berries

SAMPLERS (initials): LM MS SH JS
DATE: 08.22.18
TIME (GPS point taken): 0858
WEIGHT/LENGTH (g/cm) (% if composited) 112.9
TOTAL (g/cm) 348
PHOTO ID

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):
Replicate

SOIL/SEDIMENT SAMPLE ID: SAg1-AU03-S01
(e.g. SA01-JU01-S01) GPS Unit #: 83134 Camera ID: orange

☐ check if composited

SAMPLERS (initials): SH MS
DATE: 08.22.18
TIME (GPS point taken): 09:07
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited) 3-0
PHOTO ID 349

SOIL NOTES (e.g. collection method, color, texture):
Collected w/ hand spade
Brown sandy silt w/ organic matter (roots), dry

Checked by: Stu Holmes
Date Checked: 9-22-18

Version 6-12-2018
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #: 83134</th>
<th>Camera ID: orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-AU01-P01)</td>
<td>83134</td>
<td></td>
</tr>
<tr>
<td>check if composited</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLANT SPECIES (scientific name):</td>
<td>TARGET PLANT TISSUE (e.g. leaves, bulbs):</td>
<td></td>
</tr>
<tr>
<td>Prunus virginiana</td>
<td>Berries</td>
<td></td>
</tr>
<tr>
<td>SAMPLERS (initials):</td>
<td>DATE: 8-22-18</td>
<td>TIME (GPS point taken): 0923</td>
</tr>
<tr>
<td>LH SA MS</td>
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<tr>
<td>WEIGHT/LENGTH (g/cm) (% if composited)</td>
<td>TOTAL (g/cm)</td>
<td>PHOTO ID</td>
</tr>
<tr>
<td>a. 79</td>
<td>351</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
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</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
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<tr>
<td>e.</td>
<td></td>
<td></td>
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<tr>
<td>f.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #: 83134</th>
<th>Camera ID: orange</th>
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<tbody>
<tr>
<td>(e.g. SA01-JU01-S01)</td>
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<td>check if composited</td>
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<td>SAMPLERS (initials):</td>
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<td>TIME (GPS point taken): 0927</td>
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<tr>
<td>MS SH AN</td>
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</tr>
<tr>
<td>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</td>
<td>PHOTO ID</td>
<td></td>
</tr>
<tr>
<td>a. 0-3</td>
<td>352</td>
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</tr>
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<td>b.</td>
<td></td>
<td></td>
</tr>
<tr>
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</tr>
<tr>
<td>d.</td>
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<tr>
<td>e.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOIL NOTES (e.g. collection method, color, texture):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collected off heart snake</td>
<td>Light brown silt and organic matter (roots). Dry.</td>
<td></td>
</tr>
</tbody>
</table>

Checked by: Stu Holmes Date Checked: 8-22-18
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
#### UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

**PLANT SAMPLE ID:** SA01-AUG5-P01  
**GPS Unit #:** B313Y  
**Camera ID:** orange

- check if composited

**PLANT SPECIES (scientific name):** *Amerelochier alnifolia*  
**TARGET PLANT TISSUE (e.g. leaves, bulbs):** fruit

**SAMPLERS (initials):** LH, AU, PH

**DATE:** 8-22-18  
**TIME (GPS point taken):** 9:41

**WEIGHT/LENGTH (g/cm) (% if composited):**

<table>
<thead>
<tr>
<th>a.</th>
<th>b.</th>
<th>c.</th>
<th>d.</th>
<th>e.</th>
<th>f.</th>
<th>g.</th>
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<tbody>
<tr>
<td>8.9</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

- SH, MS, + Mark Shiffler assisted (w/ holding bags)

**SOIL/SEDIMENT SAMPLE ID:** SA01-AUG5-S01  
**GPS Unit #:** B313Y  
**Camera ID:** orange

- check if composited

**SAMPLERS (initials):** SH, MS

**DATE:** 8-22-18  
**TIME (GPS point taken):** 9:50

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):**

<table>
<thead>
<tr>
<th>a.</th>
<th>b.</th>
<th>c.</th>
<th>d.</th>
<th>e.</th>
<th>f.</th>
<th>g.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES (e.g. collection method, color, texture):**

- Collected w/ hand spade  
- Dark brown sandy silt w/ minor organic matter (wood chips, charcoal), slightly moist

Checked by: Stu Holmes  
**Date Checked:** 8-22-18
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**  
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID: (e.g. SA01-AU01-P01)</th>
<th>GPS Unit #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAD1-AU01-P01</td>
<td>33134</td>
</tr>
<tr>
<td><strong>check if composited</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PLANT SPECIES (scientific name):</strong></td>
<td></td>
</tr>
<tr>
<td>Amelanchier alnifolia</td>
<td></td>
</tr>
<tr>
<td><strong>TARGET PLANT TISSUE (e.g. leaves, bulbs):</strong></td>
<td></td>
</tr>
<tr>
<td>Fruit</td>
<td></td>
</tr>
<tr>
<td><strong>SAMPLERS (initials):</strong></td>
<td></td>
</tr>
<tr>
<td>PH, AU, LH</td>
<td></td>
</tr>
<tr>
<td><strong>DATE:</strong> 08-22-18</td>
<td><strong>TIME (GPS point taken):</strong> 10:06</td>
</tr>
<tr>
<td><strong>WEIGHT/LENGTH (g/cm) (% if composited)</strong></td>
<td><strong>TOTAL (g/cm)</strong></td>
</tr>
<tr>
<td>10 g</td>
<td></td>
</tr>
<tr>
<td><strong>PHOTO ID</strong></td>
<td>355</td>
</tr>
<tr>
<td><strong>PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01)</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA01-JU01-S01</td>
<td>33134</td>
<td>orange</td>
</tr>
<tr>
<td><strong>check if composited</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SAMPLERS (initials):</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SH, MS</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DATE:</strong> 08-22-18</td>
<td><strong>TIME (GPS point taken):</strong> 10:15</td>
<td></td>
</tr>
<tr>
<td><strong>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</strong></td>
<td><strong>PHOTO ID</strong></td>
<td></td>
</tr>
<tr>
<td>0-5</td>
<td>356</td>
<td></td>
</tr>
<tr>
<td><strong>SOIL NOTES (e.g. collection method, color, texture):</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>collected with hand spade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>brown soil; organic matter w/ trace very fine sand &amp; dry</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Checked by:** SH Holmes  
**Date Checked:** 08-22-18
### Plant Tissue Data

**PLANT SAMPLE ID:** SA01-AU07-POP1  
**GPS Unit #:** 83134  
**Camera ID:** orange  

- **check if composited**
- **PLANT SPECIES (scientific name):** Amelanchier alnifolia
- **TARGET PLANT TISSUE (e.g. leaves, bulbs):** fruit
- **SAMPLERS (initials):** LHT, PH, AV  
- **DATE:** 8-22-18  
- **TIME (GPS point taken):** 10:30  
- **WEIGHT/LENGTH (g/cm) (% if composited):** 0.2 g  
- **TOTAL (g/cm):**  
- **PHOTO ID:** 357  

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**  
*MS + SH holding the collection bags*

### Soil/Sediment Data

**SOIL/SEDIMENT SAMPLE ID:** SA01-AU07-S01  
**GPS Unit #:** 83134  
**Camera ID:** orange  

- **check if composited**
- **SAMPLERS (initials):** SH, MS  
- **DATE:** 8-22-18  
- **TIME (GPS point taken):** 10:38  
- **COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):** 0-3”  
- **PHOTO ID:** 358  

**SOIL NOTES (e.g. collection method, color, texture):**  
*Collect ed with hand spade  
B ron w ith some sand w ith organic matter (rootlets). Slightly moist.*

**Checked by:** Stu Holmes  
**Date Checked:** 8-22-18
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID: SA01 - AU08 - P01

GPS Unit #: 83134
Camera ID: orange

☐ check if composited

PLANT SPECIES (scientific name): Amlen chen amlifolia
TARGET PLANT TISSUE (e.g. leaves, bulbs): fruit

SAMPLERS (initials): LH, PH, AU, SH, LS, JW

DATE: 8-22-18
TIME (GPS point taken): 10:59

WEIGHT/LENGTH (g/cm) (% if composited)

TOTAL (g/cm) PHOTO ID

a. 7.5g 359

b.

c.

d.

e.

f.

g.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

SOIL/SEDIMENT SAMPLE ID: SA01 - AU08 - S01

GPS Unit #: 83134
Camera ID: orange

☐ check if composited

SAMPLERS (initials): SH, AM

DATE: 8-22-18
TIME (GPS point taken): 10:59

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)

PHOTO ID

a. 0-3' 360

b.

c.

d.

e.

f.

g.

SOIL NOTES (e.g. collection method, color, texture):
colleced w/ hand spade
brown silti fine sand w/ organic matter (restless), slightly moist.

Checked by: Sia Holmes

Date Checked: 8-22-18

Version 8-12-2018
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-AU01-P01) SAI-AM-PO1</td>
<td>38134</td>
<td>orange</td>
</tr>
</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>PLANT SPECIES (scientific name):</th>
<th>TARGET PLANT TISSUE (e.g. leaves, bulbs):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amelanchier alnifolia</td>
<td>Fruit</td>
</tr>
</tbody>
</table>

+ SAMPLERS (initials): | DATE: | TIME (GPS point taken): |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AU, LM, MS, LN</td>
<td>08-22-18</td>
<td>11:13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (%) if composited</th>
<th>TOTAL (g/cm)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 1.69g</td>
<td>361</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):</th>
</tr>
</thead>
<tbody>
<tr>
<td>* LN = Lisa Nelson</td>
</tr>
</tbody>
</table>

### SOIL/SEDIMENT SAMPLE ID:
(e.g. SA01-JU01-S01)

<table>
<thead>
<tr>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAI-AU01-BO1</td>
<td>38134</td>
</tr>
</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH, MS</td>
<td>08-22-19</td>
<td>11:23</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (%) if composited</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 0-3&quot;</td>
<td>362</td>
</tr>
</tbody>
</table>
PLANT SAMPLE ID: \( \text{SA01-AU10-P01} \)

TARGET PLANT TISSUE (e.g. leaves, bulbs):

PLANT SPECIES (scientific name):

SAMPLERS (initials):

DATE:

TIME (GPS point taken):

WEIGHT/LENGTH (g/cm) (% if composited)

TOTAL (g/cm)

PHOTO ID

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

SOIL/SEDIMENT SAMPLE ID: \( \text{SA01-AU11-S01} \)

SAMPLERS (initials):

DATE:

TIME (GPS point taken):

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)

PHOTO ID

SOIL NOTES (e.g. collection method, color, texture):

Checked by:

Data Checked:
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>SA01 - AU11 - P01</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPS Unit #:</td>
<td>38134</td>
</tr>
<tr>
<td>Camera ID:</td>
<td>Orange</td>
</tr>
</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>PLANT SPECIES (scientific name):</th>
<th>Ponderosa Pine</th>
</tr>
</thead>
<tbody>
<tr>
<td>TARGET PLANT TISSUE (e.g. leaves, bulbs):</td>
<td>Cones</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>NH_LN</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE:</td>
<td>08-22-18</td>
</tr>
<tr>
<td>TIME (GPS point taken):</td>
<td>13:18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composited):</th>
<th>a. 1 Cones</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL (g/cm) PHOTO ID:</td>
<td>368</td>
</tr>
</tbody>
</table>

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

Cones collected by hand on ground

### SOIL/SEDIMENT SAMPLE ID:

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>SA01 - AU11 - S01</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPS Unit #:</td>
<td>38134</td>
</tr>
<tr>
<td>Camera ID:</td>
<td>Orange</td>
</tr>
</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>SH MS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE:</td>
<td>08-22-18</td>
</tr>
<tr>
<td>TIME (GPS point taken):</td>
<td>13:25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):</th>
<th>a. 0-3''</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHOTO ID</td>
<td>369</td>
</tr>
</tbody>
</table>

**SOIL NOTES** (e.g. collection method, color, texture):

Collected w/ hand spade

Brown, silty fine sand w/ organic matter (wood chips) Dry.

Checked by: Stu Holness

Date Checked: 08-22-18
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

**PLANT SAMPLE ID:** SA01-AU12-P01  
(e.g. SA01-AU01-P01)

**GPS Unit #:** 38134  
**Camera ID:** orange

☐ check if composited

**PLANT SPECIES (scientific name):** Pinosus ponderosa

**TARGET PLANT TISSUE (e.g. leaves, bulbs):** cones

**DATE:** 8-22-18  
**TIME (GPS point taken):** 13:45

**WEIGHT/LENGTH (g/cm) (% if composited):**

<table>
<thead>
<tr>
<th>a.</th>
<th>10 cones</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

Majority from lopper, some collected from ground

**SOIL/SEDIMENT SAMPLE ID:** SA01-AU12-S01  
(e.g. SA01-JU01-S01)

☑ check if composited

**SAMPLERS (initials):** SHMS

**DATE:** 8-22-18  
**TIME (GPS point taken):** 13:55

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):**

<table>
<thead>
<tr>
<th>a.</th>
<th>0-3”</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES (e.g. collection method, color, texture):**

Brown silt and fine very fine sand. Dry, covered by 3" of pine needles

**Checked by:** Suvi Holmes  
**Date Checked:** 8-22-18

*Version 6-12-2018*
## PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

### UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>SA02 - AU01 - P01</th>
<th>GPS Unit #: 83134</th>
<th>Camera ID: orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLANT SPECIES (scientific name):</td>
<td>Corylus cornuta</td>
<td>TARGET PLANT TISSUE (e.g. leaves, bulbs):</td>
<td>Nuts</td>
</tr>
<tr>
<td>SAMPLERS (initials):</td>
<td>AU, LH, MS, SH</td>
<td>DATE:</td>
<td>8-21-18</td>
</tr>
<tr>
<td>WEIGHT/LENGTH (g/cm) (% if composited)</td>
<td>31 nuts</td>
<td>TIME (GPS point taken):</td>
<td>14:07</td>
</tr>
<tr>
<td>TOTAL (g/cm)</td>
<td>332</td>
<td>PHOTO ID:</td>
<td></td>
</tr>
</tbody>
</table>

### PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>SA02 - AU01 - S01</th>
<th>GPS Unit #: 83134</th>
<th>Camera ID: orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAMPLERS (initials):</td>
<td>SH, MS</td>
<td>DATE:</td>
<td>8-21-18</td>
</tr>
<tr>
<td>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</td>
<td>0-3”</td>
<td>TIME (GPS point taken):</td>
<td>14:10</td>
</tr>
<tr>
<td>PHOTO ID:</td>
<td>333</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SOIL NOTES (e.g. collection method, color, texture):
- collected w/ hand spade
- brown sandy silt w/ organic matter. DRY

Checked by: Josie Smith
Date Checked: 8-21-18
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

**PLANT SAMPLE ID:** SA02 - AU02 - P01  
(e.g. SA01-AU01-P01)  
**GPS Unit #:** 83154  
**Camera ID:** orange  

- [ ] check if composited  

**PLANT SPECIES (scientific name):**  
*Corylus cornuta*  
(TARGET PLANT TISSUE (e.g. leaves, bulbs):  
**nuts**

**SAMPLES (initials):**  
**PH**  
**SH**  
**AV**

<table>
<thead>
<tr>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-21-18</td>
<td>14:20</td>
</tr>
</tbody>
</table>

**WEIGHT/LENGTH (g/cm) (% if composited):**

<table>
<thead>
<tr>
<th>TOTAL (g/cm)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>31 nuts</td>
<td>335</td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**  

---

**SOIL/SEDIMENT SAMPLE ID:** SA02 - AU02 - S01  
(e.g. SA01-JU01-S01)

- [ ] check if composited  

**SAMPLES (initials):**  
**SH**  
**MS**

<table>
<thead>
<tr>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-21-18</td>
<td>14:23</td>
</tr>
</tbody>
</table>

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):**

<table>
<thead>
<tr>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 3”</td>
</tr>
</tbody>
</table>

**SOIL NOTES (e.g. collection method, color, texture):**  
collected w/ hand spade  
Brown sandy silt w/ organic matter, d.y.

Checked by: **Josie Smith**  
Date Checked: 8-21-18
### Plant Sample ID
(e.g. SA01-AU01-P01)

**PLANT SPECIES** (scientific name): *Corylus cornea*

**TARGET PLANT TISSUE** (e.g. leaves, bulbs): nuts

**SAMPLERS** (initials): pH, LH, MS, SH, AU

**DATE:** 8-21-18  
**TIME (GPS point taken):** 14:36

**WEIGHT/LENGTH** (g/cm) (% if composited)  

<table>
<thead>
<tr>
<th>a.</th>
<th>nuts</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

### Soil/Sediment Sample ID
(e.g. SA01-JU01-S01)

**SOIL/SEDIMENT SPECIES** (scientific name):  

**TARGET SOIL/SEDIMENT** (e.g. leaves, bulbs): nuts

**SAMPLERS** (initials):  

**DATE:** 8-21-18  
**TIME (GPS point taken):** 14:40

**COLLECTION UPPER DEPTH/LOWER DEPTH** (in) (% if composited)  

<table>
<thead>
<tr>
<th>a.</th>
<th>0-3&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES** (e.g. collection method, color, texture):

*Collected by hand, spade, from silty sand and organic matter. Dry*

**CHECKED BY:** Josie Smith  
**DATE CHECKED:** 8-21-18
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID: SA-02 - AU-01 - 01
(e.g. SA01-AU01-P01)

GPS Unit #: 83134 Camera ID: orange

☐ check if composited

PLANT SPECIES (scientific name):
Picea pungens

TARGET PLANT TISSUE (e.g. leaves, bulbs):
Cones

SAMPLERS (initials): AU, LH, NL

DATE: 8-21-18
TIME (GPS point taken): 15:00

WEIGHT/LENGTH (g/cm) (% if composited)
TOTAL (g/cm) PHOTO ID

a. 15 cones 339

b.

c.

d.

e.

f.

g.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

replicate

SOIL/SEDIMENT SAMPLE ID: SA-02 - AU-01 - S01
(e.g. SA01-JU01-S01)

GPS Unit #: 83134 Camera ID: orange

☐ check if composited

SAMPLERS (initials):

DATE: 8-21-18
TIME (GPS point taken): 15:08

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)
PHOTO ID

a. 0-3" 34

b.

c.

d.

e.

f.

g.

SOIL NOTES (e.g. collection method, color, texture):

Collected with hand spade
Brown silty sand with minor gravel. Dry

Checked by: Josie Smith

Date Checked: 8-21-18
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

---

**PLANT SAMPLE ID:** SADF2 - AU45 - P01  
**GPS Unit #:** 83134  
**Camera ID:** orange

- [ ] check if composited

**PLANT SPECIES (scientific name):** P. ponderosa  
**TARGET PLANT TISSUE (e.g. leaves, bulbs):** Cones

**SAMPLERS (initials):**  
**DATE:** 8-21-18  
**TIME (GPS point taken):** 15:10

<table>
<thead>
<tr>
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<th>TOTAL (g/cm)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>a. 10 Cones</td>
<td>340</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

replicate for SADF2-AU45-P01  
* = Whitney Fraser

---

**SOIL/SEDIMENT SAMPLE ID:** SADF2 - AU45 - S01  
**GPS Unit #:** 83134  
**Camera ID:** orange

- [ ] check if composited

**SAMPLERS (initials):**  
**DATE:** 8-21-18  
**TIME (GPS point taken):** 15:09

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited) **

<table>
<thead>
<tr>
<th>PHOTO ID</th>
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<tbody>
<tr>
<td>a. 0-3&quot;</td>
</tr>
<tr>
<td>b.</td>
</tr>
<tr>
<td>c.</td>
</tr>
<tr>
<td>d.</td>
</tr>
<tr>
<td>e.</td>
</tr>
<tr>
<td>f.</td>
</tr>
<tr>
<td>g.</td>
</tr>
</tbody>
</table>

**SOIL NOTES (e.g. collection method, color, texture):**

- Collected w/hand scoop
- Brown, silty sand w/ minus gravel! Dry

---

**Checked by:** Josie Smith  
**Date Checked:** 8-21-18

---

**Version 6-12-2018**
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>SA02 - AU06 - P01</th>
<th>GPS Unit #:</th>
<th>E3134</th>
<th>Camera ID:</th>
<th>Orange</th>
</tr>
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<tbody>
<tr>
<td>check if composited</td>
<td>TARGET PLANT TISSUE (e.g. leaves, bulbs):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLANT SPECIES (scientific name):</td>
<td>Pinus ponderosa</td>
<td>WEIGHT/LENGTH (g/cm) (% if composited)</td>
<td></td>
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</tr>
<tr>
<td>SAMPLERS (initials):</td>
<td>LH, LN, PH</td>
<td>TOTAL WEIGHT</td>
<td>9 g/cm</td>
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<tr>
<td>DATE:</td>
<td>8-26-18</td>
<td>TIME (GPS point taken):</td>
<td>15:34</td>
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</tr>
<tr>
<td>a.</td>
<td>10 cones</td>
<td>PHOTO ID:</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
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<td>d.</td>
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<td>e.</td>
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<td>f.</td>
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<tr>
<td>g.</td>
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</tr>
</tbody>
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PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>SA02 - AU06 - S01</th>
<th>GPS Unit #:</th>
<th>E3134</th>
<th>Camera ID:</th>
<th>Orange</th>
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</thead>
<tbody>
<tr>
<td>check if composited</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAMPLERS (initials):</td>
<td>SH, MS</td>
<td>TOTAL WEIGHT (g)</td>
<td>344</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</td>
<td>0-3”</td>
<td>PHOTO ID:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>0-3”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
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<td>d.</td>
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<td>e.</td>
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<td>f.</td>
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<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

SOIL NOTES (e.g. collection method, color, texture):

Collected with a hand spade
Brown silty sand w/ trace organic matter. Dry.

Checked by: Josie Smith
Date Checked: 8-21-18
PLANT SAMPLE ID: S03-AU01-P01
(e.g. SA01-JU01-P01)  
GPS Unit #: 83134  
Camera ID: Orange

☐ check if composited

PLANT SPECIES (scientific name):
Corylus cornuta var. californica

TARGET PLANT TISSUE (e.g., leaves, bulbs) :
 nuts

SAMPLERS (initials):
LL, AU, MS, SH

DATE: 08-21-18
TIME (GPS point taken): 08:47

WEIGHT/LENGTH (g/cm) (% if composited):

TOTAL WEIGHT:

PHOTO ID:

a. 20 nuts

b.

c.

d.

e.

f.

g.

PLANT NOTES (e.g., replicate, conditions, mass target enough for split or mercury):
Kept all nuts from bush, floaters and 1 sinker

SOIL/SEDIMENT SAMPLE ID: S03-AU01-S01
(e.g. SA01-JU01-S01)  
GPS Unit #: 83134  
Camera ID: Orange

☐ check if composited

SAMPLERS (initials):
SH, BS

DATE: 08-21-18
TIME (GPS point taken): 08:50

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):

TOTAL WEIGHT:

PHOTO ID:

a. 0-3

b.

c.

d.

e.

f.

g.

SOIL NOTES (e.g., collection method, color, texture): collected w/ hand spade
Brown soil with very fine sand of organic matter. Dry.

Checked by: JAS  
Date Checked: 08-21-18
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>Corylus cornutus var. californica</th>
<th>GPS Unit #:</th>
<th>83.13</th>
<th>Camera ID: orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-P01)</td>
<td></td>
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</table>

- check if composited

<table>
<thead>
<tr>
<th>PLANT SPECIES (scientific name):</th>
<th>TARGET PLANT TISSUE (e.g. leaves, bulbs):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corylus cornutus var. californica</td>
<td>nuts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>RH, AV, LH</td>
<td>08-21-18</td>
<td>09.29</td>
</tr>
</tbody>
</table>

- WEIGHT/LENGTH (g/cm) (% if composited)
- TOTAL WEIGHT:
- PHOTO ID:
- 276 314

<table>
<thead>
<tr>
<th>a.</th>
<th>12 nuts</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
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</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**
- husks brown, replicate

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA03-Au02-S01</td>
<td>83.13</td>
<td>orange</td>
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</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH, MS</td>
<td>08-21-18</td>
<td>09.29</td>
</tr>
</tbody>
</table>

- COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)
- TOTAL WEIGHT:
- PHOTO ID:
- 316

<table>
<thead>
<tr>
<th>a.</th>
<th>0-3&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES (e.g. collection method, color, texture):**
- Collected with hand spade
- Brown soil and organic matter w/ minor gravel and cobbles. Dry

**Checked by:** Josie Smith

**Date Checked:** 8/21/18

*Version 6-12-2018*
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA03 - AV03 - P01</td>
<td>83134</td>
<td>orange</td>
</tr>
<tr>
<td>(e.g. SA01-JU01-P01)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **check if composit**ed
- **PLANT SPECIES** (scientific name): *Corylus cornuta var. californica*
- **TARGET PLANT TISSUE** (e.g. leaves, bulbs): nuts
- **SAMPLERS (initials):** PH, AU, KH
- **DATE:** 08-21-18
- **TIME (GPS point taken):** 09:27
- **WEIGHT/LENGTH (g/cm) (% if composit)**ed:
  - a. 20 nuts

**PLANT NOTES** (e.g. replicate conditions, mass target enough for split or mercury):
- Some nuts were in green husks; replicate

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA03 - AV03 - S01</td>
<td>83134</td>
<td>orange</td>
</tr>
<tr>
<td>(e.g. SA01-JU01-S01)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **check if composit**ed
- **SAMPLERS (initials):** SH, MS
- **DATE:** 08-21-18
- **TIME (GPS point taken):** 09:32
- **COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composit)**ed:
  - a. 0 - 3 in.

**SOIL NOTES** (e.g. collection method, color, texture):
- Collected w/ hand spade
- Brown silty-clayey matter w/ minor gravel and cobbles. Dry.

*Checked by:* Josie Smith  
*Date Checked:* 8-21-18
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

**PLANT SAMPLE ID:** SA03 - AU04 - P01  
**GPS Unit #:** 83134  
**Camera ID:** orange

- check if composited

**PLANT SPECIES (scientific name):** Corylus cornuta var. californica  
**TARGET PLANT TISSUE** (e.g., leaves, bulbs): nuts

**SAMPLERS (initials):** PH, AU, LH  
**DATE:** 08-21-18  
**TIME (GPS point taken):** 09:59

**WEIGHT/LENGTH (g/cm) (% if composited):**  
- 57 nuts

**TOTAL WEIGHTING:** 9 cm  
**PHOTO ID:** 407319

**PLANT NOTES** (e.g., replicate, conditions, mass target enough for split or mercury):
split

**SOIL/SEDIMENT SAMPLE ID:** SA03 - AU04 - SP01  
**GPS Unit #:** 83134  
**Camera ID:** orange

- check if composited

**SAMPLERS (initials):** SH, MS  
**DATE:** 08-21-18  
**TIME (GPS point taken):** 15:01

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):** 0-3

**TOTAL WEIGHTING:**  
**PHOTO ID:** 320

**SOIL NOTES** (e.g., collection method, color, texture):
- Collected with hand scoop
- Brown silt and very fine sand, loose gravel, dry

Checked by: Josie Smith  
Date Checked: 8-21-18
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

**PLANT SAMPLE ID:** SA03 - AU05 - P01  
(e.g. SA01-JU01-P01)  
**GPS Unit #:** 83134  
**Camera ID:** orange  

- check if composited

**PLANT SPECIES (scientific name):** Prunus virginiana  
**TARGET PLANT TISSUE** (e.g. leaves, bulbs): Fruit

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>LH, PH, LN</td>
<td>08-21-18</td>
<td>10:38</td>
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</table>

- WEIGHT/LENGTH (g/cm) (% if composited)  
- TOTAL WEIGHT (g)  
- PHOTO ID  
- 177g  
- 321

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

**SOIL/SEDIMENT SAMPLE ID:** SA03 - AU05 - S01  
(e.g. SA01-JU01-S01)  
**GPS Unit #:** 83134  
**Camera ID:** orange  

- check if composited

**SAMPLERS (initials):**  
**DATE:** 08-21-18  
**TIME (GPS point taken):** 10:38

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</th>
<th>TOTAL WEIG4HT (g)</th>
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<tbody>
<tr>
<td>0-3&quot;</td>
<td>322</td>
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</tbody>
</table>

**SOIL NOTES** (e.g. collection method, color, texture):
- Collected with a hand spade
- Brown soil, organic matter. Abundant cobbles. Dry

**Checked by:** Joelle Smith  
**Date Checked:** 8-21-18
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**  
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>SA03 - AU06 - P41</th>
<th>GPS Unit #:</th>
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<th>Camera ID:</th>
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<tr>
<td>PLANT SPECIES (scientific name):</td>
<td>Prunus virginiana</td>
<td>TARGET PLANT TISSUE (e.g. leaves, bulbs):</td>
<td>Fruit</td>
<td></td>
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<tr>
<td>SAMPLERS (initials)!</td>
<td>LF, PH, LN</td>
<td>DATE:</td>
<td>08-21-18</td>
<td>TIME (GPS point taken):</td>
<td>10:55</td>
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<tr>
<td>WEIGHT/LENGTH (g/cm) (% if composited)</td>
<td>188g</td>
<td>TOTAL WEIGHT (g)</td>
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**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

<table>
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<th>SOIL/SEDIMENT SAMPLE ID:</th>
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<th>GPS Unit #:</th>
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<th>Camera ID:</th>
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<td>check if composited</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAMPLERS (initials):</td>
<td>SH, MS</td>
<td>DATE:</td>
<td>08-21-18</td>
<td>TIME (GPS point taken):</td>
<td>11:00</td>
</tr>
<tr>
<td>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</td>
<td>0'-3''</td>
<td>TOTAL WEIGHT (g)</td>
<td>324</td>
<td>PHOTO ID</td>
<td>3.23</td>
</tr>
</tbody>
</table>

**SOIL NOTES** (e.g. collection method, color, texture):

Brown silt+organic material w/ abundant cobbles, Dry. 
Collected w/ hand spade

Checked by: Jodie Smith  
Date Checked: 08-21-18
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID: SA0 3 - AU07 - P01
(e.g. SA01-JU01-P01)

GPS Unit #: 83134 Camera ID: orange

☐ check if composited

PLANT SPECIES (scientific name):
Prunus virginiana

TARGET PLANT TISSUE (e.g., leaves, bulbs):
Fruits

SAMPLERS (initials):
PH, LH, AU

DATE: 8-21-2018
TIME (GPS point token): 12:15

WEIGHT/LENGTH (g/cm) (% if composited):

TOTAL WEIGHT: 8g/cm
PHOTO ID: 326

PLANT NOTES (e.g., replicate, conditions, mess target enough for split or mercury):

SOIL/SEDIMENT SAMPLE ID: SA0 3 - AU07 - SD1
(e.g. SA01-JU01-S01)

☐ check if composited

SAMPLERS (initials):
SH, MS

DATE: 8-21-2018
TIME (GPS point token): 12:15

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):
U - 3" L - 36"

TOTAL WEIGHT: 327g
PHOTO ID: 327

SOIL NOTES (e.g., collection method, color, texture):
Collected by hand spade
Brown silt and organic matter, Dry

Checked by: Josie Smith

Date Checked: 8-21-18

version 6-12-2018
### Plant Tissue and Soil/Sediment Data Form

**Upper Columbia River Plant Tissue Study 2018**

**Plant Sample ID:** SA03-AU08-P01

**Target Plant Tissue:** Berries

**Plant Species:** *Amelanchier alnifolia*

**Samplers (Initials):** AN, LN

**Date:** 08/21/18

**Time (GPS point taken):** 12:33

**Weight/Length (g/cm) (% if composited):** 17g 328

**TOTAL WEIGHT:** 328 g/cm

**Photo ID:**

---

**Soil/Sediment Sample ID:** SA03-AU08-S01

**GPS Unit #:** 83134

**Camera ID:** Orange

**Samplers (Initials):** SH, MS

**Date:** 08/21/18

**Time (GPS point taken):** 12:33

**Collection Upper Depth/Lower Depth (in) (% if composited):** 0-3

**Total Weight:** 329 g

**Photo ID:**

---

**Soil Notes:**

- Collected with hand spade
- Brown soil with minor organic matter, true gravel, dry

**Checked by:** Jamie Smith

**Date Checked:** 8-21-18

---

**Version 6-12-2018**
### Plant Tissue and Soil/Sediment Data Form

**Upper Columbia River Plant Tissue Study 2018**

**Plant Sample ID:** SA03-0901

- **GPS Unit #:** 83154
- **Camera ID:** orange

- **Check if composited**
- **Plant Species (scientific name):** Pinus ponderosa
- **Target Plant Tissue:** nuts
- **Samplers (initials):** PH, LH, MS
- **Date:** 8-21-2018
- **Time (GPS point taken):** 12:59
- **Weight/Length (g/cm) (% if composited):**
  - **Total Weight:** 330 g/cm

**Soil/Sediment Sample ID:** SA03-A009-501

- **GPS Unit #:** 83154
- **Camera ID:** orange

- **Check if composited**
- **Samplers (initials):** SK, MS
- **Date:** 8-21-2018
- **Time (GPS point taken):** 13:02
- **Collection Upper Depth/Lower Depth (in) (% if composited):**
  - **Total Weight:** 331

**Soil Notes (e.g., collection method, color, texture):**
- Collected w/ hand spade.
- Brown soil and fine sand w/ organic matter. DIY

**Checked by:** Josie Smith

**Date Checked:** 8-21-18
### Plant Sample ID

**SA-647 - AU01 - P01**  
GPS Unit #: E3134  
Camera ID: orange

- **PLANT SPECIES** (scientific name): *Corylus cornuta* var. *californica*
- **TARGET PLANT TISSUE** (e.g. leaves, bulbs): nuts
- **SAMPLERS** (initials): LH, AU
- **DATE**: 8-23-18
- **TIME (GPS point taken)**: 08:35
- **WEIGHT/LENGTH** (g/cm) (% if composited): 22 nuts
- **TOTAL (g/cm)**: 
- **PHOTO ID**: 372

### Plant Notes

- Replicate: 8-23-18

### Soil/Sediment Sample ID

**SA-647 - AU01 - S01**  
GPS Unit #: E7134  
Camera ID: orange

- **SAMPLERS** (initials): SH, MS
- **DATE**: 8-23-18
- **TIME (GPS point taken)**: 08:45
- **COLLECTION UPPER DEPTH/LOWER DEPTH** (in) (% if composited): 0-3"
- **PHOTO ID**: 374

### Soil Notes

- Collected with hand scoop
- Brown fine sand with some silt, scattered organic debris (rootlets). Slightly moist

**Checked by:** [Signature]  
**Date Checked:** 8-23-18
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**  
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

---

**PLANT SAMPLE ID:**  SA04 - AU02 - P01  
**GPS Unit #:**  83134  
**Camera ID:**  orange

- check if composited  

**PLANT SPECIES (scientific name):**  Corylus cornuta var. californica  
**TARGET PLANT TISSUE (e.g. leaves, bulbs):**  nuts

**SAMPLERS (initials):**  LH, AU  
**DATE:**  8-23-14  
**TIME (GPS point taken):**  08:59

**WEIGHT/LENGTH (g/cm) (% if composited):**  373  
**TOTAL (g/cm):**  
**PHOTO ID:**

---

**SOIL/SEDIMENT SAMPLE ID:**  SA04 - AU02 - S01  
**GPS Unit #:**  83134  
**Camera ID:**  orange

- check if composited  

**SAMPLERS (initials):**  SK, MS  
**DATE:**  8-23-14  
**TIME (GPS point taken):**  08:46

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):**  0-3"  
**PHOTO ID:**

---

**PLANT NOTES (e.g. replicates, conditions, mass target enough for split or mercury):**

replicates

**SOIL NOTES (e.g. collection method, color, texture):**

collected w/ hand spade  
Brown fine sand w/ some silt, scattered organic debris (rootlets), slightly moist

**Checked by:**  [Signature]  
**Date Checked:**  8-23-18

---

Version 6-12-2018
PLANT SAMPLE ID: SA04 - AU03 - PP1

GPS Unit #: B3134 Camera ID: orange

☐ check if composited

PLANT SPECIES (scientific name): Castanea nantahala var. californica

TARGET PLANT TISSUE (e.g. leaves, bulbs): Nuts

SAMPLERS (initials): LH, AU

DATE: 8-23-18

TIME (GPS point taken): 8:56

WEIGHT/LENGTH (g/cm) (% if composited)

TOTAL (g/cm)

PHOTO ID

a. 24 nuts 376

b.

c.

d.

e.

f.

g.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

SOIL/SEDIMENT SAMPLE ID: SA04 - AU03 - SP1

GPS Unit #: B3134 Camera ID: orange

☐ check if composited

SAMPLERS (initials): SH, MS

DATE: 8-23-18

TIME (GPS point taken): 9:01

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)

PHOTO ID

a. 0-3" 377

b.

c.

d.

e.

f.

g.

SOIL NOTES (e.g. collection method, color, texture):

Brown fine sand w/ minor silt, and organic matter (roots/leaves), slightly moist.

Checked by: Date Checked: 8-23-18
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID: SA44-A004-P01
(e.g. SA01-AU01-P01) GPS Unit #: 43134 Camera ID: orange

☐ check if composited

PLANT SPECIES (scientific name): Pinus ponderosa

TARGET PLANT TISSUE (e.g. leaves, bulbs): Cones

SAMPLERS (initials): LH, AU, PH

DATE: 8-23-18 TIME (GPS point taken): 9:13

WEIGHT/LENGTH (g/cm) (% if composited): TOTAL (g/cm) PHOTO ID

17 cones

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

SOIL/SEDIMENT SAMPLE ID: SA44-A004-S01
(e.g. SA01-JU01-S01) GPS Unit #: 43134 Camera ID: orange

☐ check if composited

SAMPLERS (initials): SH, MS

DATE: 8-23-18 TIME (GPS point taken): 9:14

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited): PHOTO ID

0-3" 379

SOIL NOTES (e.g. collection method, color, texture):

Light brown, fine sand w/ minor silt and organic matter (silt/clay). Org. covered by 4" pine mulch

Checked by: [Signature] Date Checked: 8-23-18
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

**PLANT SAMPLE ID:** SA04- AU05 - P01  
**GPS Unit #:** 83134  
**Camera ID:** orange

- **PLANT SPECIES (scientific name):** Pinus ponderosa
- **TARGET PLANT TISSUE (e.g. leaves, bulbs):** cones
- **SAMPLERS (initials):** PH, JW
- **DATE:** 8-23-18  
- **TIME (GPS point taken):** 0930

**WEIGHT/LENGTH (g/cm) (% if compositied)**  
**TOTAL (g/cm)**  
**PHOTO ID**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>26 cones</td>
</tr>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td>Split 20 collected from tree with lopper, 6 collected on ground by hand</td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

**SOIL/SEDIMENT SAMPLE ID:** SA04 - AU05 - S01  
**GPS Unit #:** 83134  
**Camera ID:** orange

- **check if compositied**
- **SAMPLERS (initials):** SH, MS
- **DATE:** 8-23-18  
- **TIME (GPS point taken):** 0941

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if compositied)**  
**PHOTO ID**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td>Split collected w/ hand spade. Brown silt loam fine sand w/ organic matter (leaves). Dry. 6&quot; for depth</td>
</tr>
</tbody>
</table>

**SOIL NOTES (e.g. collection method, color, texture):**

- **Checked by:** Paul Smith  
- **Date Checked:** 8-23-18
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID: SA 04 - AU 06 - P 01
GPS Unit #: 83134 Camera ID: orange

☐ check if composited

PLANT SPECIES (scientific name):
Pinus ponderosa

TARGET PLANT TISSUE (e.g. leaves, bulbs):
Cones

SAMPLERS (initials):
LH, AU, WF, MS

DATE: 8-23-18
TIME (GPS point taken): 9:59

WEIGHT/LENGTH (g/cm) (% if composited):
a. 16 cones

b.
c.
d.
e.
f.
g.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

SOIL/SEDIMENT SAMPLE ID: SA 04 - AU 06 - S 01
GPS Unit #: 83134 Camera ID: orange

☐ check if composited

SAMPLERS (initials):
SH, MS

DATE: 8-23-18
TIME (GPS point taken): 10:05

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):
a. 0-3inch

b.
c.
d.
e.
f.
g.

SOIL NOTES (e.g. collection method, color, texture):
Collected w/ hand spade
Light brown silty fine sand w/ organic matter (muck). Dry. 2" pine duff

Checked by: [Signature]
Date Checked: 8-23-18

Version 6-12-2018
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

---

**PLANT SAMPLE ID:** SAFP-2AUF1-P01  
(e.g. SA01-AU01-P01)  

**GPS Unit #:** 83134  
**Camera ID:** orange

- check if composited

**PLANT SPECIES (scientific name):** Corlyx quercus var. californica  
**TARGET PLANT TISSUE (e.g. leaves, bulbs):** nuts

**SAMPLERS (initials):** MS, LH, SH  
**DATE:** 8-23-18  
**TIME (GPS point taken):** 10:43

**WEIGHT/LENGTH (g/cm) (% if composited):**  
**TOTAL (g/cm):**  
**PHOTO ID:**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>62 nuts</td>
</tr>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):** split

---

**SOIL/SEDIMENT SAMPLE ID:** SAFP-2AUF1-S01  
(e.g. SA01-JU01-S01)  

- check if composited

**SAMPLERS (initials):** SH, MS  
**DATE:** 8-23-18  
**TIME (GPS point taken):** 10:50

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):**  
**PHOTO ID:**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>0-3”</td>
</tr>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES (e.g. collection method, color, texture):**
- collected w/ hand spade
- Dark brown silt loam w/ organic matter (leaves) dry.

**Checked by:** [Signature]  
**Date Checked:** 8-23-18

---

Version 6-12-2018
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
#### UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

<table>
<thead>
<tr>
<th>Plant Sample ID:</th>
<th>SA06-AU02-P01</th>
<th>GPS Unit #:</th>
<th>83134</th>
<th>Camera ID:</th>
<th>orange</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plant Species (scientific name):</td>
<td>Carya oorensis var. californica</td>
<td>Target Plant Tissue (e.g. leaves, bulbs):</td>
<td>nuts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Samplers (initials):</td>
<td>SH LM</td>
<td>Date:</td>
<td>8-23-18</td>
<td>Time (GPS point taken):</td>
<td>11:05</td>
</tr>
<tr>
<td>Weight/Length (g/cm) (% if composited)</td>
<td>27 nuts</td>
<td>Total (g/cm)</td>
<td></td>
<td>Photo ID:</td>
<td>394</td>
</tr>
<tr>
<td>a.</td>
<td>27 nuts</td>
<td>b.</td>
<td></td>
<td>c.</td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

<table>
<thead>
<tr>
<th>Soil/Sediment Sample ID:</th>
<th>SA06-AU02-S01</th>
<th>GPS Unit #:</th>
<th>83134</th>
<th>Camera ID:</th>
<th>orange</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Samplers (initials):</td>
<td>SH MS</td>
<td>Date:</td>
<td>8-23-18</td>
<td>Time (GPS point taken):</td>
<td>11:10</td>
</tr>
<tr>
<td>Collection Upper Depth/Lower Depth (in) (% if composited)</td>
<td>0.3 in</td>
<td>Photo ID:</td>
<td>395</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>0.3 in</td>
<td>b.</td>
<td></td>
<td>c.</td>
<td></td>
</tr>
</tbody>
</table>

**SOIL/SEDIMENT NOTES** (e.g. collection method, color, texture):

Collected at 3rd station.
Dark brown silty fine sand w/ organic matter (roots). Dry.

Checked by: [Signature] Date Checked: 8-23-18

Version 6-12-2018
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
#### UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

**PLANT SAMPLE ID:** SA06 - AU03 - P01  
**GPS Unit #:** 83134  
**Camera ID:** orange  

- [ ] check if composited

**PLANT SPECIES (scientific name):** *Corylus cornuta var. californica*

**TARGET PLANT TISSUE (e.g. leaves, bulbs):** nuts

**SAMPLERS (initials):** LH, PH, AU

**DATE:** 8-23-18  
**TIME (GPS point taken):** 11:50

**WEIGHT/LENGTH (g/cm) (% if composited):** 20 nuts  
**TOTAL (g/cm):** 39.6

**PLANT NOTES (e.g. replicates, conditions, mass target enough for split or mercury):**

**SOIL/SEDIMENT SAMPLE ID:** SA06 - AU03 - S01  
**GPS Unit #:** 83134  
**Camera ID:** orange  

- [ ] check if composited

**SAMPLERS (initials):** SH, MS

**DATE:** 8-23-18  
**TIME (GPS point taken):** 12:50

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):** 0-3"

**PHOTO ID:** 394

**SOIL NOTES (e.g. collection method, color, texture):**
- Dark brown, very fine sand, very abundant organic matter (rootlets). Very dry.

**Checked by:** [Signature]  
**Date Checked:** 8-23-18

Version 6-12-2018
### Plant Tissue and Soil/Sediment Data Form

**Upper Columbia River Plant Tissue Study 2018**

#### Plant Sample ID:
- **Species:** Rosa sp.
- **GPS Unit #:** 83134
- **Camera ID:** Orange

<table>
<thead>
<tr>
<th>SAMPLERS (initials)</th>
<th>DATE</th>
<th>TIME (GPS point taken)</th>
</tr>
</thead>
<tbody>
<tr>
<td>JW, AU</td>
<td>08-23-18</td>
<td>12:10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composited)</th>
<th>TOTAL (g/cm)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 3.3 g (41%)</td>
<td>5.4</td>
<td>398</td>
</tr>
<tr>
<td>b. 2.1 g (39%)</td>
<td>3.9</td>
<td>399</td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Plant Notes (e.g. replicate, conditions, mass target enough for split or mercury):**

#### Soil/Sediment Sample ID:
- **Species:** SA-06-AU04-S01
- **GPS Unit #:** 83134
- **Camera ID:** Orange

<table>
<thead>
<tr>
<th>SAMPLERS (initials)</th>
<th>DATE</th>
<th>TIME (GPS point taken)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH, MS</td>
<td>08-23-18</td>
<td>12:15</td>
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</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 0-3 (60%)</td>
<td>400</td>
</tr>
<tr>
<td>b. 0-3 (40%)</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
</tr>
</tbody>
</table>

**Soil Notes (e.g. collection method, color, texture):**

- Collected w/ shovel
- Dark brown, silty fine sand w/ abundant rootlets. Dry.

**Checked by:** [Signature]

**Date Checked:** 08-23-18
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
#### UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-AU01-P01)</td>
<td>83134</td>
<td>orange</td>
</tr>
</tbody>
</table>

- **check if composited**

<table>
<thead>
<tr>
<th>PLANT SPECIES (scientific name):</th>
<th>TARGET PLANT TISSUE (e.g. leaves, bulbs):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosa sp.</td>
<td>hip</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE: 08-23-18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jw</td>
<td>12:25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composited)</th>
<th>TOTAL (g/cm)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.0g</td>
<td>40F 12:23:18</td>
<td></td>
</tr>
<tr>
<td></td>
<td>402</td>
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</tr>
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</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

---

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-S01)</td>
<td>83134</td>
<td>orange</td>
</tr>
</tbody>
</table>

- **check if composited**

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE: 08-23-18</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH, MS</td>
<td>12:34</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 3 in</td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES (e.g. collection method, color, texture):**

- Collected w/ hand spade
- Dark brown silty fine sand w/ organic matter (coated) dry

Checked by: [Signature]
Date Checked: 8-23-18
### Plant Tissue and Soil/Sediment Data Form

**Upper Columbia River Plant Tissue Study 2018**

#### Plant Tissue Data

- **Plant Sample ID:** SA01-AU01-P01
- **GPS Unit #:** 38183
- **Camera ID:** Orange
- **Plant Species (scientific name):** Rosa sp.
- **Target Plant Tissue:** hips
- **Samplers (initials):** JW, PH
- **Date:** 08-23-18
- **Time (GPS point taken):** 12:44:00
- **Weight/Length (g/cm) (% if composited):** 15 g

#### Soil/Sediment Data

- **Soil/Sediment Sample ID:** SA01-AU01-S01
- **GPS Unit #:** 38183
- **Camera ID:** Orange
- **Samplers (initials):** SH, MS
- **Date:** 08-23-18
- **Time (GPS point taken):** 12:53
- **Collection Upper Depth/Lower Depth (in) (% if composited):** 0-3"

#### Plant Notes

- Checked by: [Signature]
- Date Checked: 8-23-18

**Plant Notes (e.g. replicate, conditions, mass target enough for split or mercury):**

- SOIL NOTES (e.g. collection method, color, texture):
  - collected with hand spade
  - 0-0.5" Gray loam
  - 0.5"-3" Light brown sandy silt
  - Abundant rootlets, Dry

**Photo ID:** 404

**Photo ID:** 405
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID: (e.g. SA01-AU01-P01)</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SA01 - AU07 - P01</strong></td>
<td><strong>38134</strong></td>
<td><strong>orange</strong></td>
</tr>
</tbody>
</table>

- **PLANT SPECIES** (scientific name): **Rosa sp.**
- **TARGET PLANT TISSUE** (e.g. leaves, bulbs): **h.p.**
- **SAMPLERS** (initials): **JLA, PH**
- **DATE**: **08-23-18**
- **TIME (GPS point taken)**: **1300**
- **WEIGHT/LENGTH (g/cm) (% if composited)**: **9.5 g**
- **TOTAL (g/cm)**: **4060**

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01)</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SA01 - AU07 - S01</strong></td>
<td><strong>38134</strong></td>
<td><strong>orange</strong></td>
</tr>
</tbody>
</table>

- **SAMPLERS** (initials): **SH, MS**
- **DATE**: **08-23-18**
- **TIME (GPS point taken)**: **1211**
- **COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)**: **a. 0.0**
- **PHOTO ID**: **407**

**SOIL NOTES** (e.g. collection method, color, texture):
- Collected w/ hand spade.
- 0-0.5" Gray silt loam
- 0.5'-1' Brown, silty fine sand w/ roots, dry.

**Checked by**: Paul M. Date Checked: **8-23-18**
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**  
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>SA07 - AU01 - PO1</th>
<th>GPS Unit #:</th>
<th>83134</th>
<th>Camera ID: orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>check if composit</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>PLANT SPECIES (scientific name):</td>
<td>Pumla virginiana</td>
<td>TARGET PLANT TISSUE (e.g. leaves, bulbs):</td>
<td>fruit</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAMPLERS (initials):</td>
<td>LH, MS</td>
<td>DATE:</td>
<td>8-24-18</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TIME (GPS point taken):</td>
<td>9:22</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WEIGHT/LENGTH (g/cm) (% if composit)</td>
<td>105g</td>
<td>408</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TOTAL WEIGHT(g)</td>
<td>9:22</td>
<td>408</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PHOTO ID</td>
<td></td>
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</table>

**SOIL/SEDIMENT SAMPLE ID:**  
(e.g. SA01-JU01-S01)

<table>
<thead>
<tr>
<th>check if composit</th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAMPLERS (initials):</td>
<td>SH, MS</td>
<td>DATE:</td>
<td>8-24-18</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TIME (GPS point taken):</td>
<td>9:22</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composit)</td>
<td>0-3</td>
<td>410</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TOTAL WEIGHT(g)</td>
<td>410</td>
<td></td>
</tr>
<tr>
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<td>PHOTO ID</td>
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</tr>
</tbody>
</table>

Collected w/ hand grade  
Brown very fine sand and silt w/ organic matter (pebbles). Dry.

Checked by: [Signature]  
Date Checked: 8-24-18
<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>SA07 - AU02 - P01</th>
<th>GPS Unit #:</th>
<th>B313Y</th>
<th>Camera ID:</th>
<th>orange</th>
</tr>
</thead>
</table>

- check if composited

<table>
<thead>
<tr>
<th>PLANT SPECIES (scientific name):</th>
<th>Prunus virginiana</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TARGET PLANT TISSUE (e.g. leaves, bulbs):</th>
<th>fruit</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>LH, SS, MS</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DATE:</th>
<th>8-24-18</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TIME (GPS point taken):</th>
<th>9:32</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composited):</th>
<th>105g</th>
</tr>
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</table>

**PLANT NOTES** (e.g. replicate conditions, mass target enough for split or mercury):

replicate

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>SA07 - AU02 - S01</th>
<th>GPS Unit #:</th>
<th>B313Y</th>
<th>Camera ID:</th>
<th>orange</th>
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</thead>
</table>

- check if composited

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>SH, MS</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>DATE:</th>
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</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TIME (GPS point taken):</th>
<th>9:36</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):</th>
<th>0-3&quot;</th>
</tr>
</thead>
</table>

**SOIL NOTES** (e.g. collection method, color, texture):

collected w/ hand spoon
Brown Zone - fine sand and silt w/ organic matter (sediments), Dr.

Checked by: [Signature] Date Checked: 8/24/18
### PLANT SAMPLE ID:
(e.g. SA01-AU01-P01)

- **<span style='background-color: orange;'>SAP7-AUP3-P01</span>**

- **GPS Unit #: 83134**
- **Camera ID: orange**

- **check if composited**

### PLANT SPECIES (scientific name):

- **<span style='color: orange;'>Prunus virginiana</span>**

### TARGET PLANT TISSUE (e.g. leaves, bulbs):

- **fruit**

### SAMPLERS (initials):

- **LH JS, MS, PH**

### DATE:

- **8-24-18**

### TIME (GPS point taken):

- **9:46**

### WEIGHT/LENGTH (g/cm) (% if composited):

- **98 g**

### TOTAL (g/cm):

- **412**

### PHOTO ID:

### PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

---

### SOIL/SEDIMENT SAMPLE ID:
(e.g. SA01-JU01-S01)

- **<span style='background-color: orange;'>SAP7-AUP3-S01</span>**

- **GPS Unit #: 83134**
- **Camera ID: orange**

- **check if composited**

### SAMPLERS (initials):

- **SH MS**

### DATE:

- **8-24-18**

### TIME (GPS point taken):

- **0952**

### COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):

- **0 - 3"**

### PHOTO ID:

- **413**

### SOIL NOTE: (e.g. collection method, color, texture):

- **collected with hand spade**
- **Brown, mostly fine sand with abundant organic matter (mottled), dry.**

---

**Checked by:** [Signature]
**Date Checked:** 8/24/18

---

Version 6-12-2018
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

**UPPER COLUMBIA RIVER: PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>SA07 - AU04 - P01</th>
<th>GPS Unit #:</th>
<th>83134</th>
<th>Camera ID:</th>
<th>orange</th>
</tr>
</thead>
</table>

- check if composited

<table>
<thead>
<tr>
<th>PLANT SPECIES (scientific name):</th>
<th>AMELANCHIER ALNIFOLIA</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TARGET PLANT TISSUE (e.g., leaves, bulbs):</th>
<th>Berries</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (Initials):</th>
<th>LH JS PH</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-24-18</td>
<td>10:04</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composited):</th>
<th>a. 2.5 g</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TOTAL (g/cm)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4115</td>
</tr>
</tbody>
</table>

| PLANT NOTES (e.g., replicate, conditions, mass target enough for split or mercury): |
| split |

### SOIL/SEDIMENT SAMPLE ID:

- check if composited

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>SA067 - AU04 - S01</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>GPS Unit #:</th>
<th>83134</th>
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</table>

<table>
<thead>
<tr>
<th>Camera ID:</th>
<th>orange</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>LH MS</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-24-18</td>
<td>10:12</td>
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</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):</th>
<th>a. 0-3&quot;</th>
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</table>

<table>
<thead>
<tr>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>416</td>
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<table>
<thead>
<tr>
<th>SOIL NOTES (e.g., collection method, color, texture):</th>
</tr>
</thead>
<tbody>
<tr>
<td>collected with hand spade; collected in 2 jaws</td>
</tr>
</tbody>
</table>

Dull brown silt and very fine sand with abundant organic matter (roots), dry.

Checked by: [Signature]

Date Checked: 8/24/18

*Version 6-12-2018*
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**  
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID: (e.g. SA01-AU01-P01)</th>
<th>GPS Unit #: 83134</th>
<th>Camera ID: orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>check if composited</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PLANT SPECIES (scientific name):</th>
<th>TARGET PLANT TISSUE (e.g. leaves, bulbs):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amelanchier alnifolia</td>
<td>fruit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE: 8-24-18</th>
<th>TIME (GPS point taken): 10:20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plt, L H</td>
<td></td>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composited)</th>
<th>TOTAL (g/cm)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 g</td>
<td></td>
<td>418</td>
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<table>
<thead>
<tr>
<th>PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01)</th>
<th>GPS Unit #: 83134</th>
<th>Camera ID: orange</th>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE: 8-2-18</th>
<th>TIME (GPS point taken): 16:32</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLH, MS</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 3'</td>
<td>420</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL NOTES (e.g. collection method, color, texture):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collected w/ hand scoop</td>
</tr>
<tr>
<td>Brown silty very fine sand w/ abundant organic matter (rootlets), dry</td>
</tr>
</tbody>
</table>

Checked by: [Signature]  
Date Checked: 8/24/18
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID: SA07-AU06-P01  GPS Unit #: 83134  Camera ID: orange

check if composited

PLANT SPECIES (scientific name):
Arne lanzchior alpina

TARGET PLANT TISSUE (e.g. leaves, bulbs):
fruit

SAMPLERS (initials):
LH, PH, JS

DATE: 8-24-18
TIME (GPS point taken): 10:40

WEIGHT/LENGTH (g/cm) (% if composited)
TOTAL (g/cm)
PHOTO ID
a. 17g
b.
c.
d.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

SOIL/SEDIMENT SAMPLE ID: SA07-AU06-S01  GPS Unit #: 83134  Camera ID: orange

check if composited

SAMPLERS (initials):
SH, MS

DATE: 8-24-18
TIME (GPS point taken): 1100

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)
PHOTO ID
a. 0-3
b.
c.
d.

e.
f.
g.

SOIL NOTES (e.g. collection method, color, texture):
Collected w/ hand spade
Brown silt and very fine sand w/ organic matter (roots). Dry,

Checked by: Linda M. Harvard  Date Checked: 8/24/18

Version 6-12-2018
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
#### UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-P01) S07 - A07 - P01</td>
<td>83134</td>
<td>Orange</td>
</tr>
</tbody>
</table>

- **check if composited**

<table>
<thead>
<tr>
<th>PLANT SPECIES (scientific name):</th>
<th>TARGET PLANT TISSUE (e.g., leaves, bulbs):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amelanchier alnifolia</td>
<td>Leaf</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (Initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>PH 41 JS MS</td>
<td>8-24-18</td>
<td>1050</td>
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<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composited)</th>
<th>TOTAL WEIGHT (g)</th>
<th>PHOTO ID</th>
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</thead>
<tbody>
<tr>
<td>a. 17g</td>
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<td>423</td>
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</table>

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split mercury):
- Replicate for S07 - A08 - P01

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<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
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</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-S01) S07 - A07 - S01</td>
<td>83134</td>
<td>Orange</td>
</tr>
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</table>

- **check if composited**

<table>
<thead>
<tr>
<th>SAMPLERS (Initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
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<tbody>
<tr>
<td>SH MS</td>
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<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</th>
<th>TOTAL WEIGHT (g)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 0-3&quot;</td>
<td></td>
<td>425</td>
</tr>
</tbody>
</table>

**SOIL NOTES** (e.g. collection method, color, texture):
- Collected with hand spade
- Brown silt and very fine sand with organic matter (rootlets). Dry.

---

**Checked by:** [Signature]

**Date Checked:** 8/2/18

---

version 6-12-2018
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

**PLANT SAMPLE ID:** SA07 - AV08 - P01  
(e.g. SA01-JU01-P01)  
GPS Unit #: 83134  
Camera ID: orange

<table>
<thead>
<tr>
<th>check if composited</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

**PLANT SPECIES (scientific name):**  
Prunus virginiana

**TARGET PLANT TISSUE (e.g. leaves, bulbs):**  
fruit

| SAMPLERS (initials):  
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PLT, LJT, JS</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

**DATE:**  
8-24-18

**TIME (GPS point taken):**  
11:10

**WEIGHT/LENGTH (g/cm) (% if composited):**  
85 g

**TOTAL WEIGHT:**  
426 g

**PHOTO ID:**

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

**SOIL/SEDIMENT SAMPLE ID:** SA07 - AV08 - SQ01  
(e.g. SA01-JU01-SQ01)  
GPS Unit #: 83134  
Camera ID: orange

<table>
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<th>check if composited</th>
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<td></td>
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</table>

**COLLECTION DEPTH:**  
0 - 3”

**TOTAL WEIGHT:**  
427 g

**PHOTO ID:**

**SOIL NOTES (e.g. collection method, color, texture):**

Collected w/ hand spade
Brown, very fine-fine sand w/ organic matter (straw). Dry

**Checked by:**

**Date Checked:** 8/24/18

---

**Version 6-12-2018**
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-AU01-P01)</td>
<td>83184</td>
<td>orange</td>
</tr>
</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>PLANT SPECIES (scientific name):</th>
<th>TARGET PLANT TISSUE (e.g. leaves, bulbs):</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Pinus ponderosa</em></td>
<td>cone</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>PH, JW</td>
<td>08/24/18</td>
<td>12:31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composited)</th>
<th>TOTAL (g/cm)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 13 cones</td>
<td></td>
<td>0428</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):</th>
</tr>
</thead>
<tbody>
<tr>
<td>All cones collected using lopper</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-S01)</td>
<td>83184</td>
<td>orange</td>
</tr>
</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH, MR</td>
<td>08/24/18</td>
<td>12:37</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 0-2.5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL NOTES (e.g. collection method, color, texture):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collected with hand spade</td>
</tr>
<tr>
<td>Dark brown silty fine sand w/ organic matter (woody debris, roots) DIY</td>
</tr>
</tbody>
</table>

Checked by: [Signature] Date Checked: 8/24/18
<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
<th>TARGET PLANT TISSUE (e.g., leaves, bulbs):</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g., SA01-AU01-P01)</td>
<td>S3184</td>
<td>orange</td>
<td>Fruit</td>
</tr>
<tr>
<td>□ check if composited</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLANT SPECIES (scientific name):</td>
<td></td>
<td></td>
<td>Prunus virginiana</td>
</tr>
<tr>
<td>SAMPLERS (initials):</td>
<td>DATE:</td>
<td>TIME (GPS point taken):</td>
<td></td>
</tr>
<tr>
<td>PA LA MS</td>
<td>8-24-18</td>
<td>12:57</td>
<td></td>
</tr>
<tr>
<td>WEIGHT/LENGTH (g/cm) (% if composited)</td>
<td>TOTAL (g/cm)</td>
<td>PHOTO ID</td>
<td></td>
</tr>
<tr>
<td>a. 100 g</td>
<td></td>
<td>430</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g., replicate, conditions, mass target enough for split or mercury):**

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g., SA01-AU01-S01)</td>
<td>S3184</td>
<td>orange</td>
</tr>
<tr>
<td>□ check if composited</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAMPLERS (initials):</td>
<td>DATE:</td>
<td>TIME (GPS point taken):</td>
</tr>
<tr>
<td>SA LA MS</td>
<td>8-24-18</td>
<td>12:57</td>
</tr>
<tr>
<td>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</td>
<td>PHOTO ID</td>
<td></td>
</tr>
<tr>
<td>a. 0 - 3&quot;</td>
<td>430</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES (e.g., collection method, color, texture):**

- Collected by hand spade
- Brown silt and clay fine sand w/ trace coarse sand and fine gravel, organic matter (rootlets)

**Checked by: Linda M. Hand Date Checked: 8/24/18**
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID:
(e.g. SA01-JU01-P01)

SA07-AU11-P01

GPS Unit #: 8353
Camera ID: orange
d check if composited

PLANT SPECIES (scientific name):

TARGET PLANT TISSUE (e.g. leaves, bulbs):

SAMPLERS (initials):

PH SW LH

DATE: 8-24-18
TIME (GPS point taken): 13:15

WEIGHT/LENGTH (g/cm) (% if composited)

TOTAL WEIGHT (g) PHOTO ID

a. 212g

b.

c.

d.

e.

f.

g.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

split

SOIL/SEDIMENT SAMPLE ID:
(e.g. SA01-JU01-501)

SA07-AU11-S01

GPS Unit #: 8353
Camera ID: orange
d check if composited

SAMPLERS (initials):

SH MS

DATE: 8-24-18
TIME (GPS point taken): 13:15

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)

TOTAL WEIGHT (g) PHOTO ID

a. 0-5"

b.

c.

d.

e.

f.

g.

SOIL NOTES (e.g. collection method, color, texture):

Split (2 soil jars). Collected w/ hand spade.
Brown silt-fine sand w/ gravel and organic matter (woody debris, cat-tails). Dry. Checked by: Linda M. Howard

Date: 8/24/18
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01 AU01-P01)</td>
<td>83134</td>
<td>orange</td>
</tr>
</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>PLANT SPECIES (scientific name):</th>
<th>TARGET PLANT TISSUE (e.g. leaves, bulbs):</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Pinus ponderosa</em></td>
<td>Cone</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (Initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>PH</td>
<td>03-24-18</td>
<td>1324</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composited)</th>
<th>TOTAL (g/cm)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>14 cones</td>
<td>435</td>
</tr>
</tbody>
</table>

- b.
- c.
- d.
- e.
- f.
- g.

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

all collected w/ lopper (from tree, not from ground)

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-S01)</td>
<td>83134</td>
<td>orange</td>
</tr>
</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>SAMPLERS (Initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM</td>
<td>03-24-18</td>
<td>1335</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>0-2”d</td>
</tr>
</tbody>
</table>

- b.
- c.
- d.
- e.
- f.
- g.

**SOIL NOTES (e.g. collection method, color, texture):**

collected w/ hand spade
Brown silky fine soil w/ gravel, organic matter in soil. Dry

**Checked by:** Linda M. Howard  
**Date Checked:** 8/24/18
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
*UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018*

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-AU01-P01)</td>
<td>83134</td>
<td>orange</td>
</tr>
<tr>
<td>check if composited</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PLANT SPECIES (scientific name):</th>
<th>TARGET PLANT TISSUE (e.g. leaves, buds):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pseudotsuga</td>
<td>cone</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>PH JW</td>
<td>8-24-18</td>
<td>13:45</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composited)</th>
<th>TOTAL (g/cm)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>438</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>a.</th>
<th>b.</th>
<th>c.</th>
<th>d.</th>
<th>e.</th>
<th>f.</th>
<th>g.</th>
</tr>
</thead>
</table>

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

all cones collected from tree (uppper); none collected from ground

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-S01)</td>
<td>83134</td>
<td>orange</td>
</tr>
<tr>
<td>check if composited</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHYN</td>
<td>8-24-18</td>
<td>13:45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 0-3 in</td>
<td>438</td>
</tr>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES** (e.g. collection method, color, texture):

Collected by hand scoop
Brown silt and very fine sand w/ mixed gravel and organic matter (rootlets). Dry,

Checked by: [Signature] Date Checked: 8/24/18
### PLANT SAMPLE ID:
*SA08 - AU01 - P01*

- **GPS Unit #:** 83134
- **Camera ID:** orange
- **check if composit:**
  - **PLANT SPECIES (scientific name):** *Amelanchier alnifolia*
  - **TARGET PLANT TISSUE (e.g. leaves, bulbs):** fruit
  - **SAMPLERS (initials):** JU, SH, AU, LH, PH
  - **DATE:** 8-27-18
  - **TIME (GPS point taken):** 13:58
  - **WEIGHT/LENGTH (g/cm) (% if composit):** 25 g
  - **TOTAL WEIGHT:** 57.52 g/cm
  - **PHOTO ID:** 481

### SOIL/SEDIMENT SAMPLE ID:
*SA08 - AU01 - S01*

- **GPS Unit #:** 83134
- **Camera ID:** orange
- **check if composit:**
  - **SAMPLERS (initials):** SH, MS
  - **DATE:** 8-27-18
  - **TIME (GPS point taken):** 13:58
  - **COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composit):** 0 - 3"/1
  - **TOTAL WEIGHT:** 48.2 g
  - **PHOTO ID:** 482

### PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

### SOIL NOTES (e.g. collection method, color, texture):
- Collected by hand spade
- Brown, dry, silty fine-coarse sand and gravel w/ organic matter

*Checked by:* [Signature]

*Date Checked:* 8/27/18
## Plant Sample Information

**Plant Sample ID:** SA08 - AU02 - P01  
**GPS Unit #:** 83134  
**Camera ID:** orange

- **Plant Species:** Amelanchier alnifolia
- **Target Plant Tissue:** Fruit
- **Sampled by:** SH PH
- **Date:** 8-27-18  
- **Time (GPS point taken):** 14:19
- **Weight/Length:** 13 g/cm (% if composited)
- **Total Weight:** 4.83 g/cm

**Plant Notes:**

## Soil/Sediment Sample Information

**Soil/Sediment Sample ID:** SA08 - AU02 - S01  
**GPS Unit #:** 83134  
**Camera ID:** orange

- **Sampled by:** SH MS
- **Date:** 8-27-18  
- **Time (GPS point taken):** 14:19
- **Collection Upper Depth/Lower Depth (in):** 0-34"  
- **Total Weight:** 4.84 g

**Soil Notes:**

- Collected w/ hand spade
- Brown, dry, silty fine sand w/ abundant gravel.

**Checked by:** [Signature]  
**Date Checked:** 8/27/18
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
#### UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-P01)</td>
<td>83134</td>
<td>Orange</td>
</tr>
</tbody>
</table>

**Check if composited**

**PLANT SPECIES (scientific name):**

Carya sp. *spp. var. califórica*  

**TARGET PLANT TISSUE (e.g. leaves, bulbs):**

Nuts

**SAMPLERS (Initials):**

LH, JS, MS

**DATE:**

8-25-18

**TIME (GPS point token):**

8:59

**WEIGHT/LENGTH (g/cm) (% if composited):**

a. 28 nuts

**TOTAL WEIGHT (g):**

4.39

**PHOTO ID:**

439

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

---

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-S01)</td>
<td>83134</td>
<td>Orange</td>
</tr>
</tbody>
</table>

**Check if composited**

**SAMPLERS (Initials):**

SIL, MS

**DATE:**

8-25-18

**TIME (GPS point token):**

9:05

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):**

a. 0 - 5"

**TOTAL WEIGHT (g):**

14.6

**PHOTO ID:**

1436

**SOIL NOTES (e.g. collection method, color, texture):**

- Collected with hand spade
- Dark brown soil and organic material (clay-like) with trace very fine sand, slightly moist

**Checked by:**

[Signature]

**Date Checked:**

8-25-18

---

**Version 6-12-2018**
## PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
### UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>SA09 - A002 - P01</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-P01)</td>
<td></td>
</tr>
</tbody>
</table>

- **GPS Unit #:** 83134
- **Camera ID:** orange
- check if composited

<table>
<thead>
<tr>
<th>PLANT SPECIES (scientific name):</th>
<th>TARGET PLANT TISSUE (e.g. leaves, bulbs):</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rosa sp.</strong></td>
<td>fruit (Chips)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point token):</th>
</tr>
</thead>
<tbody>
<tr>
<td>LH</td>
<td>8-25-18</td>
<td>9:10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composited)</th>
<th>TOTAL WEIGHT(g/cm</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>17 g</td>
<td>441</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>g.</th>
</tr>
</thead>
</table>

### PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

**Replicate**

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>SA09 - A002 - P01</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-S01)</td>
<td></td>
</tr>
</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point token):</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH, MD</td>
<td>8-25-18</td>
<td>9:21</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</th>
<th>TOTAL WEIGHT(g)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 0-3”</td>
<td></td>
<td>413</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>g.</th>
</tr>
</thead>
</table>

### SOIL NOTES (e.g. collection method, color, texture):

- Collected w/ hand spade
- Dark brown silt and organic matter (routlets) w/ trace firm sand. Slightly moist.

- Checked by: [Signature] 8-25-18

Version 8-12-2018
### Plant Tissue Data Form

**Plant Sample ID:** SA09 - AU03 - PP1

**GPS Unit:** 83134  
**Camera ID:** orange

- **Check if composited:** [ ]

**Plant Species (scientific name):** *Rosa sp.*  
**Target Plant Tissue (e.g., leaves, bulbs):** Fruit (chips)

**Samplers (initials):** LH

- **Date:** 8-25-18  
- **Time (GPS point taken):** 9:16

**Weight/Length (g/cm) (% if composited):**  
- **Total Weight:** 942 g/cm

**Plant Notes:** (e.g., replicate, conditions, mass target enough for split or mercury):

**Soil/Sediment Sample ID:** SA09 - AU03 - SS1

- **Check if composited:** [ ]

**Samplers (initials):** LH, MS

- **Date:** 8-25-18  
- **Time (GPS point taken):** 9:22

**Collection Upper Depth/Lower Depth (in) (% if composited):**

<table>
<thead>
<tr>
<th>Depth (in)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.3</td>
<td>444</td>
</tr>
</tbody>
</table>

**Soil Notes:** (e.g., collection method, color, texture):

- Collected with hand pick
- Dark brown silt and organic matter (reddish) with fine fire scar. Slightly moist

**Checked by:** [Signature]

**Date Checked:** 8-25-18

---

**Version 6-12-2018**
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA9q - AU94 - P91</td>
<td>83134</td>
<td>orange</td>
</tr>
</tbody>
</table>

☐ check if composited

**PLANT SPECIES (scientific name):**
Prunus virginiana

**TARGET PLANT TISSUE** (e.g. leaves, bulbs):
fruit

**DATE:**
8-25-18

**TIME (GPS point taken):**
9:32

**SAMPLERS (initials):**
LH, JS

**WEIGHT/LENGTH (g/cm) (% if composited):**

<table>
<thead>
<tr>
<th>a.</th>
<th>89 g</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA9q - AU94 - S91</td>
<td>83134</td>
<td>orange</td>
</tr>
</tbody>
</table>

☐ check if composited

**SAMPLERS (initials):**
SH, MS

**DATE:**
8-25-18

**TIME (GPS point taken):**
9:37

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):**

<table>
<thead>
<tr>
<th>a.</th>
<th>8-25-18</th>
<th>0-3''</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES** (e.g. collection method, color, texture):

- Collected with hand spade
- Dark brown silt and organic matter (reddish) with very fine sand and coarse gravel. Slightly moist.

 Checked by: [Signature]

Date Checked: 8-25-18

---

*Version 6.12.2018*
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID: SA14-AUG1-PO1  GPS Unit #: 83136  Camera ID: orange
☐ check if composited

PLANT SPECIES (scientific name): Mentha aquifolium

TARGET PLANT TISSUE (e.g., leaves, bulbs): leaves

SAMPLERS (initials): LH, AV

DATE: 8-27-18  TIME (GPS point taken): 9:03

WEIGHT/LENGTH (g/cm) (% if composited)

TOTAL WEIGHT: 9.1g
PHOTO ID: 447

a. 11g
b.
c.
d.
e.
f.
g.

PLANT NOTES (e.g., replicate, conditions, mass target enough for split or control):

SOIL/SEDIMENT SAMPLE ID: SA14-AUG1-SD1  GPS Unit #: 83134  Camera ID: orange
☐ check if composited

SAMPLERS (initials): SH, MS

DATE: 8-27-18  TIME (GPS point taken): 9:09

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)

TOTAL WEIGHT: 0.3g
PHOTO ID: 448

a. 0-3"

b.
c.
d.
e.
f.
g.

SOIL NOTES (e.g., collection method, color, texture):

Collected at hand spade
Dark brown, moist clarky soil with trace fine sand.

Checked by: [Signature]  Date Checked: 8/27/18

Version 6-12-2018
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID: SA14 - A072 - P01
(e.g. SA01-JU01-P01)

☐ check if composited

PLANT SPECIES (scientific name):
Mentha arvensis

TARGET PLANT TISSUE (e.g. leaves, bulbs):
leaves

SAMPLERS (initials):
LH / AU

DATE: 8-27-18
TIME (GPS point taken):
9:15

WEIGHT/LENGTH (g/cm) (% if composited)
TOTAL WEIGHT (g) PHOTO ID
a. 10.5 g 449

b.

c.

d.

e.

f.

g.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):
Mercury

SOIL/SEDIMENT SAMPLE ID: SA14 - A072 - S01
(e.g. SA01-JU01-S01)

☐ check if composited

SAMPLERS (initials):
SH / MS

DATE: 8-27-18
TIME (GPS point taken):
9:23

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)
TOTAL WEIGHT (g) PHOTO ID
a. 0 - 3" 459

b.

c.

d.

e.

f.

g.

SOIL NOTES (e.g. collection method, color, texture):
Collected w/ hand trowel
moist
Dark brown
silt w/ some fine sand.

Checked by: LH
Date Checked: 8/27/18

Version 6-12-2018
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>SA14 - AU03 - P01</th>
<th>GPS Unit #: B3134</th>
<th>Camera ID: orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>check if composited</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLANT SPECIES (scientific name):**

*Mentha xiiishina*

**TARGET PLANT TISSUE (e.g. leaves, bulbs):**

leaves

**SAMPLERS (initials):**

LH, AU, PH, STH

**DATE:** 8-27-18  **TIME (GPS point taken):** 9:32

**WEIGHT/LENGTH (g/cm) (% if composited):**

<table>
<thead>
<tr>
<th>a.</th>
<th>27 g</th>
</tr>
</thead>
</table>

**TOTAL WEIGHT (g) **

| 951 g |

**PHOTO ID**

451

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split (mercury)):**

split; mercury

---

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>SA14 - AU03 - S01</th>
<th>GPS Unit #: B3134</th>
<th>Camera ID: orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>check if composited</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SAMPLERS (initials):**

SH, MS

**DATE:** 8-27-18  **TIME (GPS point taken):** 9:40

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):**

<table>
<thead>
<tr>
<th>a.</th>
<th>0-3&quot;</th>
</tr>
</thead>
</table>

**TOTAL WEIGHT (g) **

| 452 g |

**PHOTO ID**

452

**SOIL NOTES (e.g. collection method, color, texture):**

Collected in 2 jars w/ hand spade

Dark brown, moist clayey silt and silt loam; wet.

**Checked by:** [Signature]  **Date Checked:** 8/27/18
# PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
## UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

**PLANT SAMPLE ID:** SA14 - AU04 - P01  
**GPS Unit #:** B3134  
**Camera ID:** orange

- **check if composited**
- **PLANT SPECIES (scientific name):** Mentha aquiorea
- **TARGET PLANT TISSUE (e.g. leaves, bulbs):** leaves
- **SAMPLERS (initials):** LH
- **DATE:** 8-27-18
- **TIME (GPS point taken):** 9:47
- **WEIGHT/LENGTH (g/cm) (% if composited):** a. 12g
- **TOTAL WEIGHT (g) PHOTO ID:** b. 53
- **PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):** Mercury

## SOIL/SEDIMENT SAMPLE ID: SA14 - AU04
- **GPS Unit #:** B3134  
- **Camera ID:** orange
- **check if composited**
- **SAMPLERS (initials):** SH, MS
- **DATE:** 8-27-18
- **TIME (GPS point taken):** 9:53
- **COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):** a. 0-3"
- **TOTAL WEIGHT (g) PHOTO ID:** b. 53
- **SOIL NOTES (e.g. collection method, color, texture):** Collected with hand spade moist. Dark brown clayey silt and organic matter.

Checked by: [Signature]  
Date Checked: 8/27/18

Version 6-12-2018
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

**PLANT SAMPLE ID:** SA14-AU75-S01  
(e.g. SA01-JU01-P01)  
**GPS Unit #:** 8313Y  
**Camera ID:** orange

- □ check if composited

**PLANT SPECIES (scientific name):** *Menolaa aceriss*  
**TARGET PLANT TISSUE (e.g. leaves, bulbs):** leaves

**SAMPLERS (initials):** PH AU, LH  
**DATE:** 8-27-18  
**TIME (GPS point taken):** 10:08

**WEIGHT/LENGTH (g/cm) (% if composited):**  
**TOTAL WEIGHT (g/embr):** 457

#### a.

#### b.

#### c.

#### d.

#### e.

#### f.

#### g.

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or merging):**

- Mercury

### SOIL/SEDIMENT SAMPLE ID: SA14-AU75-S01  
(e.g. SA01-JU01-S01)  
**GPS Unit #:** 8313Y  
**Camera ID:** orange

- □ check if composited

**SAMPLERS (initials):** SH MS  
**DATE:** 8-27-18  
**TIME (GPS point taken):** 10:20

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):**  
**TOTAL WEIGHT (g):** 459

#### a.

#### b.

#### c.

#### d.

#### e.

#### f.

#### g.

**SOIL NOTES (e.g. collection method, color, texture):**

- collected w/ hand spade.  
- dark brown, moist clayey silt.

**Checked by:**  
**Date Checked:** 8/27/18
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

| PLANT SAMPLE ID: | SA 14 - AU 06 - P01 | GPS Unit #: | 83134 | Camera ID: | orange |
| PLANT SPECIES (scientific name): | Menyanthes trifoliata | TARGET PLANT TISSUE (e.g. leaves, bulbs): | leaves |
| SAMPLERS (initials): | PH, AU, LH | DATE: | 8-27-18 |
| WEIGHT/LENGTH (g/cm) (% if composited) | | TIME (GPS point taken): | 10:10 |
| TOTAL WEIGHT (g) | 458 |
| PHOTO ID |

| SOIL/SEDIMENT SAMPLE ID: | SA 14 - AU 06 - S01 | GPS Unit #: | 83134 | Camera ID: | orange |
| check if composited | |
| SAMPLERS (initials): | SH, MS | DATE: | 8-27-18 |
| COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited) | | TIME (GPS point taken): | 10:22 |
| TOTAL WEIGHT (g) | 460 |
| PHOTO ID |

PLANT NOTES (e.g. replicate conditions, mass target enough for split or mercury):

replicate (not noted on photo board) of SA 14 - AU 06 - P01; mercury

SOIL NOTES (e.g. collection method, color, texture):

Checked by: Date Checked: 8/27/18
# PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
## UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

**PLANT SAMPLE ID:**  SA14 - AU07 - P01

**GPS Unit #:** 82134  **Camera ID:** orange

- [ ] check if composited

**PLANT SPECIES (scientific name):** Mentha arvensis

**TARGET PLANT TISSUE (e.g. leaves, bulbs):** leaves

**SAMPLERS (initials):** LH, PH, SH

**DATE:** 8-27-18  **TIME (GPS point taken):** 10:27

**WEIGHT/LENGTH (g/cm) (% if composited):**

<table>
<thead>
<tr>
<th>a.</th>
<th>12g</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

- mercury

**SOIL/SEDIMENT SAMPLE ID:**  SA14 - AU07 - S01

**GPS Unit #:** 82134  **Camera ID:** orange

- [ ] check if composited

**SAMPLERS (initials):** SH, MS

**DATE:** 8-27-18  **TIME (GPS point taken):** 10:35

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):**

<table>
<thead>
<tr>
<th>a.</th>
<th>0 - 3&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES (e.g. collection method, color, texture):**

- Collected w/ hand spade
- Dark brown, moist clayey silt

**Checked by:** [Signature]

**Date Checked:** 8/27/18

---

Version 6-12-2018
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**  
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

**PLANT SAMPLE ID:** SA14 - AU08 - P01  
(e.g. SA01-JU01-P01)  
**GPS Unit #:** 83134  
**Camera ID:** orange

- check if composited

**PLANT SPECIES (scientific name):** Schoenoplectus acutus  
**TARGET PLANT TISSUE (e.g. leaves, bulbs):** stems

**SAMPLERS (initials):** LH, AU  
**DATE:** 8-27-18  
**TIME (GPS point taken):** 10:50

**WEIGHT/LENGTH (g/cm) (% if composited):**

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight (g)</th>
<th>Length (cm)</th>
<th>Total</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>115 g</td>
<td>154 cm</td>
<td>269</td>
<td>463</td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

Mercury

**SOIL/SEDIMENT SAMPLE ID:** SA14 - AU08 - S01  
(e.g. SA01-JU01-S01)  
**GPS Unit #:** 83134  
**Camera ID:** orange

- check if composited

**SAMPLERS (initials):** SH, MS  
**DATE:** 8-27-18  
**TIME (GPS point taken):** 10:55

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):**

<table>
<thead>
<tr>
<th>Component</th>
<th>Upper Depth</th>
<th>Lower Depth</th>
<th>Total</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>0 - 3&quot;</td>
<td></td>
<td></td>
<td>4604</td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES (e.g. collection method, color, texture):**

Collected in
ditch space
Dark brown, moist clayey silt w/ trace organic matter (snail shell)

Checked by:  
**Date Checked:** 8/27/18
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>SAWAU09 - P01</th>
<th>GPS Unit #:</th>
<th>9313Y</th>
<th>Camera ID:</th>
<th>orange</th>
</tr>
</thead>
</table>

- □ check if composited

<table>
<thead>
<tr>
<th>PLANT SPECIES (scientific name):</th>
<th></th>
<th>TARGET PLANT TISSUE (e.g. leaves, bulbs):</th>
<th>Stems</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>L.H.A.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-27-18</td>
<td>11:00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composited)</th>
</tr>
</thead>
<tbody>
<tr>
<td>150 cm + 140 cm = 290 cm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOTAL WEIGHT (g/cm)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>965</td>
<td>467</td>
</tr>
</tbody>
</table>

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

marula

---

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>SAWAU09 - S01</th>
<th>GPS Unit #:</th>
<th>8313Y</th>
<th>Camera ID:</th>
<th>orange</th>
</tr>
</thead>
</table>

- □ check if composited

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>S.L.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-27-18</td>
<td>11:10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOTAL WEIGHT (g)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>467</td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES** (e.g. collection method, color, texture):

- Collected at hard space
- Dark brown clayey silt and organic matter (small shells)

Checked by: L.H.  Date Checked: 8/27/18
PLANT SAMPLE ID: SA14 - AU10 - PO1
(e.g. SA01-JU01-PO1)

PLANT SPECIES (scientific name): Schoenoplectus acutus

TARGET PLANT TISSUE (e.g., leaves, bulbs): stems

SAMPLERS (initials): LH

DATE: 8-27-18

WEIGHT/LENGTH (g/cm) (% if composited)
a. 140 cm + 120 cm = 260 cm

TOTAL WEIGHT g/cm

PHOTO ID

466

PLANT NOTES (e.g., replicate, conditions, mass target enough for split or mercury):
replicate SA14 - AU09 - PO1 j mercury

SOIL/SEDIMENT SAMPLE ID: SA14 - AU10 - PO1
(e.g. SA01-JU01-501)

SOIL/SEDIMENT SAMPLE ID: SA14 - AU10 - PO1

GPS Unit #: 83134 Camera ID: orange

SAMPLERS (initials): LH, MS

DATE: 8-27-18

TIME (GPS point taken):

16:15

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)
a. 0 - 31

TOTAL WEIGHT (g)

TOTAL WEIGHT (g)

PHOTO ID

468

SOIL NOTES (e.g., collection method, color, texture):
collected by hand spade
Dull brown clayey till with organic matter (snail shells).

Checked by: DH

Date Checked: 8/27/18

Version 6-12-2018
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA14 - AU11 - P01</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GPS Unit #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>83134</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>orange</td>
</tr>
</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>PLANT SPECIES (scientific name):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schoenoplectus acutus</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TARGET PLANT TISSUE (e.g. leaves, bulbs):</th>
</tr>
</thead>
<tbody>
<tr>
<td>stems</td>
</tr>
</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
</tr>
</thead>
<tbody>
<tr>
<td>LH, AU</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-27-18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composited)</th>
</tr>
</thead>
<tbody>
<tr>
<td>135 cm + 98 cm = 233 cm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOTAL (g/cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>469</td>
</tr>
</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>PLANT NOTES (e.g. replicate, conditions, mass target enough for split a mercury):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mercury</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA14 - AU11 - S01</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GPS Unit #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>83134</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>orange</td>
</tr>
</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH, MS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-27-18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>476</td>
</tr>
</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>SOIL NOTES (e.g. collection method, color, texture):</th>
</tr>
</thead>
<tbody>
<tr>
<td>collected with hand spade</td>
</tr>
<tr>
<td>Dark brown, moist clayey silt and organic matter</td>
</tr>
<tr>
<td>(rootlets)</td>
</tr>
</tbody>
</table>

**Checked by:** [Signature]  
**Date Checked:** 8/27/18
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM  
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>SA14 - AU12 - P01</th>
<th>GPS Unit #:</th>
<th>03187</th>
<th>Camera ID:</th>
<th>orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-P01)</td>
<td>check if composited</td>
<td>TARGET PLANT TISSUE (e.g. leaves, bulbs):</td>
<td>Stems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLANT SPECIES (scientific name):</td>
<td>Schinus tomentosus</td>
<td>SAMPLERS (initials):</td>
<td>PH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WEIGHT/LENGTH (g/cm) (% if composited)</td>
<td>137 cm + 138 cm + 137 cm = 412 cm</td>
<td>TOTAL WEIGHT (g)</td>
<td>471</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>b.</td>
<td>c.</td>
<td>d.</td>
<td>e.</td>
<td>f.</td>
</tr>
<tr>
<td>g.</td>
<td>PLANT NOTES (e.g. environmental conditions, mass target enough for split or mercury):</td>
<td>Split; mercury</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>SA14 - AU12 - S01</th>
<th>GPS Unit #:</th>
<th>03187</th>
<th>Camera ID:</th>
<th>orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. SA01-JU01-S01)</td>
<td>check if composited</td>
<td>SAMPLERS (initials):</td>
<td>SH MS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</td>
<td>0-3</td>
<td>TOTAL WEIGHT (g)</td>
<td>472</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>b.</td>
<td>c.</td>
<td>d.</td>
<td>e.</td>
<td>f.</td>
</tr>
<tr>
<td>g.</td>
<td>SOIL NOTES (e.g. collection method, color, texture):</td>
<td>Collected in 2-jars w/ hand spears</td>
<td>Dark brown; moist clayey silty and organic matter (maple, willow leaves)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Checked by: [Signature] | Date Checked: 8/23/16
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**  
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>SA14 - AU13 - P01</th>
<th>GPS Unit #:</th>
<th>83134</th>
<th>Camera ID:</th>
<th>orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>check if composited</td>
<td>TARGET PLANT TISSUE (e.g. leaves, bulbs):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAMPLERS (initials):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WEIGHT/LENGTH (g/cm) (% if composited)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL WEIGHT (g)</td>
<td>9 g/cm</td>
<td>PHOTO ID</td>
<td>473</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>15.6 cm + 11.6 cm = 27.2 cm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):  

**SOIL/SEDIMENT SAMPLE ID:**  
SA14 - AU13 - S01  
GPS Unit #: 83134  
Camera ID: orange  

| check if composited |  
| SAMPLERS (initials): | SH, MS |  
| COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited) |  
| TOTAL WEIGHT (g) |  |
| a. | 0-3" |
| b. |  |
| c. |  |
| d. |  |
| e. |  |
| f. |  |
| g. |  |

**SOIL NOTES** (e.g. collection method, color, texture):

Collected with hand spade  
Dark brown, moist clayey silt.

**Checked by:**  
**Date Checked:** 8/27/18
# PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
## UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

### PLANT SAMPLE ID:

SA14 - A014 - P061  
**GPS Unit #:** B3134  
**Camera ID:** orange

- **check if composited**

**PLANT SPECIES (scientific name):**  
Schoenoplectus acutus

- **TARGET PLANT TISSUE (e.g. leaves, bulbs):** stems

**SAMPLERS (initials):**  
P.H. SH

**DATE:** 8-27-18  
**TIME (GPS point taken):** 12:27

**WEIGHT/LENGTH (g/cm) (% if composited):**

- 147 cm + 130 cm = 277 cm

- **TOTAL WEIGHT (#) g/cm PHOTO ID:** 475

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split of mercury):**

- Mercury

### SOIL/SEDIMENT SAMPLE ID:

SA14 - A014 - S01  
**GPS Unit #:** B3134  
**Camera ID:** orange

- **check if composited**

**SAMPLERS (initials):**  
SH, MS

**DATE:** 8-27-18  
**TIME (GPS point taken):** 12:27

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):**

- 0 – 3"

- **TOTAL WEIGHT (#) PHOTO ID:** 476

**SOIL NOTES (e.g. collection method, color, texture):**

- Collected at 1 band grade
- Dark brown clayey silt and organic matter (seaweed, small shells)

**Checked by:** NaN  
**Date Checked:** 8/27/18

---

Version 6-12-2018
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
*UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018*

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>SA14-AU15-P41</th>
<th>GPS Unit #: 8315Y</th>
<th>Camera ID: orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>check if composited</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLANT SPECIES (scientific name):**
*Rosa sp.*

**TARGET PLANT TISSUE (e.g. leaves, bulbs):**
*fruit (chips)*

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>LH, SH</td>
<td>8-27-18</td>
<td>12:37</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composited)</th>
<th>TOTAL (g/cm)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>7.2g</td>
<td>477</td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**

---

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>SA14-AU15-S61</th>
<th>GPS Unit #: 8315Y</th>
<th>Camera ID: orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>check if composited</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SAMPLERS (initials):**
*SH, MS*

<table>
<thead>
<tr>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-27-18</td>
<td>12:46</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>0-3&quot;</td>
</tr>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES (e.g. collection method, color, texture):**
Collected at strand spread
* tight brown, fine-grained sed w/ some gravel and cobbles, w/ organic matter (rootlets)*

Checked by: [Signature]
Date Checked: 8/27/18

Version 6.12.2018
### PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

**PLANT SAMPLE ID:** SA14 - AU10 - P01  
(e.g. SA01-JU01-P01)  
**GPS Unit #:** 3331  
**Camera ID:** Orange

- **check if composited**

**PLANT SPECIES (scientific name):** Amelanchier alnifolia  
**TARGET PLANT TISSUE** (e.g. leaves, bulbs): fruit

**SAMPLES’ (initials):** AU, LH, PH, SH  
**DATE:** 8-27-18  
**TIME (GPS point taken):** 12:55

**WEIGHT/LENGTH (g/cm)** (% if composited)  
**TOTAL WEIGHT (g/cm)** PHOTO ID  
**PHOTO ID:** 479

- **a.**  
- **b.**  
- **c.**  
- **d.**  
- **e.**  
- **f.**  
- **g.**

**PLANT NOTES** (e.g. replicate, conditions, mass target enough for split or mercury):

### SOIL/SEDIMENT SAMPLE ID: SA14 - AU10 - SQ1  
(e.g. SA01-JU01-S01)  
**GPS Unit #:** 3331  
**Camera ID:** Orange

- **check if composited**

**SAMPLES’ (initials):** SH, MS  
**DATE:** 8-27-18  
**TIME (GPS point taken):** 12:55

**COLLECTION UPPER DEPTH/LOWER DEPTH (in)** (% if composited)  
**TOTAL WEIGHT (g)** PHOTO ID  
**PHOTO ID:** 480

- **a.**  
- **b.**  
- **c.**  
- **d.**  
- **e.**  
- **f.**  
- **g.**

**SOIL NOTES** (e.g. collection method, color, texture):

- Collected w/ hand spade
- Brown dry silt and rain fine sand

**Checked by:** [Signature]  
**Date Checked:** 8/27/18

---

*Version 6.12.2018*
**PLANT SAMPLE ID:** SA15 - AU01 - P01  
**GPS Unit #:** 83734  
**Camera ID:** orange

- **PLANT SPECIES (scientific name):** Salix exigua  
- **TARGET PLANT TISSUE (e.g. leaves, bulbs):** stems

**SAMPLERS (initials):** PH, LH, SH  
**DATE:** 8-28-18  
**TIME (GPS point taken):** 9:45

**WEIGHT/LENGTH (g/cm) (% if composited):**

<table>
<thead>
<tr>
<th>Section</th>
<th>Weight</th>
<th>Length</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>75 cm</td>
<td>75 cm</td>
<td>68 cm</td>
</tr>
<tr>
<td>b.</td>
<td>66 cm</td>
<td>57 cm</td>
<td>70 cm</td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):** split, mercury

**SOIL/SEDIMENT SAMPLE ID:** SA15 - AU01 - S01  
**GPS Unit #:** 83734  
**Camera ID:** orange

- **SAMPLERS (initials):** SH, MS  
- **DATE:** 8-28-18  
- **TIME (GPS point taken):** 9:50

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):**

<table>
<thead>
<tr>
<th>Section</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>0 - 3&quot;</td>
</tr>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
</tr>
</tbody>
</table>

**SOIL NOTES (e.g. collection method, color, texture):**

Collected in two jars w/ hand spade  
Tan, dry very fine to medium sand. Loose.

**Checked by:** [Signature]  
**Date Checked:** 8/28/18
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID: SA 15 - AU02 - PY1
(e.g. SA01-AU01-P01) GPS Unit #: 83134 Camera ID: orange

☐ check if composited

PLANT SPECIES (scientific name): Salix exigua

TARGET PLANT TISSUE (e.g. leaves, bulbs): stems

SAMPLERS (initials): PH, LH, SH

DATE: 8-28-18
TIME (GPS point taken): 9:55

WEIGHT/LENGTH (g/cm) (% if composited)

TOTAL (g/cm) PHOTO ID

a. 57 cm + 75 cm + 58 cm = 140 cm

b.

c.

d.

e.

f.

g.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):

Photo board sand split but this is not a split; mercury

SOIL/SEDIMENT SAMPLE ID: SA15 - AU02 - SP1
(e.g. SA01-JU01-S01) GPS Unit #: 83134 Camera ID: orange

☐ check if composited

SAMPLERS (initials): SH, MS

DATE:

TIME (GPS point taken):

E-28-18 9:57

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)

PHOTO ID

a. 0-3 in

b.

c.

d.

e.

f.

g.

SOIL NOTES (e.g. collection method, color, texture):

Collected by hand spade
Tan, any very fine to medium sand.

Checked by: Date Checked: 8/28/18
PLANT TISSUE AND SOIL/SEDIMENT DATA FORM
UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID: SA15-AU03-P01
(e.g. SA01-JU01-P01)

GPS Unit #: 23134
Camera ID: orange

☐ check if composited

PLANT SPECIES (scientific name): Salix exigua

TARGET PLANT TISSUE (e.g. leaves, bulbs): Stems

SAMPLERS (initials): PH, LH, SH

DATE: 8-28-18
TIME (GPS point taken): 10:13

WEIGHT/LENGTH (g/cm) (% if composited)

TOTAL WEIGHT: 9 g/cm
PHOTO ID: 489

a. 17 cm + 8 cm = 20 cm

b.

c.

d.

e.

f.

g.

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or number):

SOIL/SEDIMENT SAMPLE ID: SA15-AU03-S01
(e.g. SA01-JU01-S01)

☐ check if composited

SAMPLERS (initials): SH, MS

DATE: 8-28-18
TIME (GPS point taken): 10:22

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)

TOTAL WEIGHT: 0.5 lbs
PHOTO ID: 491

a. 0-3 in

b.

c.

d.

e.

f.

g.

SOIL NOTES (e.g. collection method, color, texture):
Collected with hand spade
Till to block, slightly moist fine-medium sand and gravel. Collected 2/4 cobbles

Checked by: [Signature]
Date Checked: 8/23/18
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**  
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

| **PLANT SAMPLE ID:**  
<table>
<thead>
<tr>
<th>(e.g. SA01-AUG1-P01)</th>
<th><strong>SA15-AUG1-P01</strong></th>
<th><strong>GPS Unit #:</strong> 83134</th>
<th><strong>Camera ID:</strong> orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ check if composited</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **PLANT SPECIES (scientific name):**  
| S. exigua | **TARGET PLANT TISSUE** (e.g. leaves, bulbs):  
| stems | |
| **SAMPLERS (initials):**  
| PH, LH, SHT | | **DATE:**  
| 8-28-18 | **TIME (GPS point token):**  
| 10:20 | |
| **WEIGHT/LENGTH (g/cm) (% if composited):**  
| 9.5 cm + 6.8 cm + 7.0 cm = 23.3 cm | **TOTAL (g/cm):**  
| 49.6 | **PHOTO ID:**  
| 496 | |
| g. | | |

**PLANT NOTES** (e.g. replicate conditions, mass target enough for split, mercury):

replicate of SA15-AUG1-P01; mercury

---

| **SOIL/SEDIMENT SAMPLE ID:**  
<table>
<thead>
<tr>
<th>(e.g. SA01-JUN01-S01)</th>
<th><strong>SA15-AUG1-S01</strong></th>
<th><strong>GPS Unit #:</strong> 83134</th>
<th><strong>Camera ID:</strong> orange</th>
</tr>
</thead>
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<tr>
<td>□ check if composited</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
| **SAMPLERS (initials):**  
| SHT, MS | | **DATE:**  
| 8-28-18 | **TIME (GPS point token):**  
| 10:23 | |
| **COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):**  
| 0 - 3 | **PHOTO ID:**  
| 492 | |
| g. | | |

**SOIL NOTES** (e.g. collection method, color, texture):

collected w/ hand spade
run to black, slightly moist very fine to medium sand and gravel. Collected b/t cobbles.

**Checked by:** [Signature]  
**Date Checked:** 8/28/18
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**  
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID: (e.g. SA01-AU01-P01)</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA15-AU05-901</td>
<td>83134</td>
<td>orange</td>
</tr>
</tbody>
</table>

- **check if composited**
- **PLANT SPECIES (scientific name):** *Salix exigua*
- **TARGET PLANT TISSUE (e.g. leaves, bulbs):** Stems
- **SAMPLERS (initials):** PH, SH, rs
- **DATE:** 08-28-14
- **TIME (GPS point taken):** 10:34
- **WEIGHT/LENGTH (g/cm) (% if composited):** 218 cm
- **TOTAL (g/cm):** 493
- **PHOTO ID**

  - **a.**  
  - **b.**  
  - **c.**  
  - **d.**  
  - **e.**  
  - **f.**  
  - **g.**  

  **PLANT NOTES (e.g. replicate, conditions, mass target enough for split of mercury):**

  - mercury

---

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01)</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA15-AU05-901</td>
<td>83134</td>
<td>orange</td>
</tr>
</tbody>
</table>

- **check if composited**
- **SAMPLERS (initials):** SH, rs
- **DATE:** 08-28-14
- **TIME (GPS point taken):** 10:41
- **COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited):** 494
- **PHOTO ID**

  - **a.**  
  - **b.**  
  - **c.**  
  - **d.**  
  - **e.**  
  - **f.**  
  - **g.**  

  **SOIL NOTES (e.g. collection method, color, texture):**

  - Collected w/ hand spade
  - Ten to black, moist fine-sand and gravel. Collected beneath large cobbles.

**Checked by:** [Signature]  
**Date Checked:** 08-28-18
**PLANT SAMPLE ID:**
(e.g. SA01-AU01-P01)  
SA15-AuPho-P01  

**GPS Unit #:**  
83134

**Camera ID:**  
orange

**PLANT SPecIES (scientific name):**  
Salix exigua

**TARGET PLANT TISSUE (e.g. leaves, bulb):**  
Stems

**SAMPLERS (initials):**  
PHS

**DATE:**  
08-28-18

**TIME (GPS point taken):**  
10:55

**WEIGHT/LENGTH (g/cm) (% if composited)**  
a. 68 + 50 + 79  

**TOTAL (g/cm) **

**PHOTO ID:**

<p>| | |</p>
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<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
</tr>
<tr>
<td>g.</td>
<td></td>
</tr>
</tbody>
</table>

**PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):**  
 mercury

**SOIL/SEDIMENT SAMPLE ID:**
(e.g. SA01-JU01-S01)  
SA15-AuPho-P01  

**GPS Unit #:**  
83134

**Camera ID:**  
orange

**SAMPLERS (initials):**  
SHMS

**DATE:**  
08-28-18

**TIME (GPS point taken):**  
10:59

**COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited) **

| a. | 0-3 |
| b. |   |
| c. |   |
| d. |   |
| e. |   |
| f. |   |
| g. |   |

**SOIL NOTES (e.g. collection method, color, texture):**
Collected with hand spade.  
Tan, slightly moist, very fine-medium sand.
**PLANT TISSUE AND SOIL/SEDIMENT DATA FORM**
**UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018**

<table>
<thead>
<tr>
<th>PLANT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA15 - AU04 - P01</td>
<td>83134</td>
<td>orange</td>
</tr>
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</table>

- check if composited

<table>
<thead>
<tr>
<th>PLANT SPECIES (scientific name):</th>
<th>TARGET PLANT TISSUE (e.g. leaves, bulbs):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salix exigua</td>
<td>Stems</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
</tr>
</thead>
<tbody>
<tr>
<td>RH, SH, MS</td>
<td>8-28-18</td>
<td>11:05</td>
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</table>

<table>
<thead>
<tr>
<th>WEIGHT/LENGTH (g/cm) (% if composited)</th>
<th>TOTAL (g/cm)</th>
<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>79 cm + 61 cm + 67 cm = 208 cm</td>
<td>497</td>
<td></td>
</tr>
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- mercury

<table>
<thead>
<tr>
<th>SOIL/SEDIMENT SAMPLE ID:</th>
<th>GPS Unit #:</th>
<th>Camera ID:</th>
</tr>
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<tbody>
<tr>
<td>SA15 - AU04 - S01</td>
<td>83134</td>
<td>orange</td>
</tr>
</tbody>
</table>

- check if composited

<table>
<thead>
<tr>
<th>SAMPLERS (initials):</th>
<th>DATE:</th>
<th>TIME (GPS point taken):</th>
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</thead>
<tbody>
<tr>
<td>SH, MS</td>
<td>8-28-18</td>
<td>11:08</td>
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<table>
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<th>PHOTO ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 3&quot;</td>
<td>498</td>
</tr>
</tbody>
</table>

- soil notes (e.g. collection method, color, texture):
  Collected with hand spade
  Tan to light brown, slightly moist, very fine to medium sand. Loose.

**Checked by:**

**Date Checked:**

8/28/18
Appendix G
Name

AECOM

Jennifer Pretare, PhD
Senior Biologist
Project Manager

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206 438 2175 direct
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986 698 9269 fax
jennifer.pretare@aecom.com

Email

aecom.com

Projects

Teck American, Inc.
Plant Tissue Study
Upper Columbia River
2018 - April, May
<table>
<thead>
<tr>
<th>PAGE</th>
<th>REFERENCE</th>
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<td></td>
<td>685 6078</td>
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</tbody>
</table>
April 25, 2018

Teck American Inc.
Plant Tissue Study

Arrive at SAQ2 at 1345 (did kickoff mtg in Northport Community Center 1000-1200).
Sunny, warm, 70° F. Health/Safety Orientation completed at kickoff mtg prior to arriving at SAQ2.
Those people present include:
AECom: Jenny Pretare, Jeff Walker, Linda Howard, Glen Mejia, Stu Holmes, Pempe Hamidi Mike Kelly
TAI: Denise Mills, Kris McCaig
Ramboll: Dina Johnson, Lis Nells
Jacobs (CH2M): Marilyn Gauthier, Kelly O'Neill
CCT: Ernie, Glo, Sharon, Cree, Pendleton Moses, Arwin (gote), Kali
Joe Wichmann - Citizens for clean Columbia
Ledestone: Whitney Fraser
EPA: Monica Toney, Marc Stifelman

1351 - Jeff Walker led survey team on recon of SAQ2.
Linda, Glen, Stu prepared decon solution w/ alchemy & DI water at sampling table.
Calibrated Pesola scales w/ 5 g, 100 g, 1000 g, (J.P.) 10 g +50 g.
Turned on GPS units: Tramble R1 w/ Surface tablet, using RI # 83128
Sampling table set up with black garbage bag on top. Decontaminated multiple trowels, calipers, soil anger, spoons, bowls.

Jenny Pretare corrected the plant sample labels. The matrix said "soil". I crossed it out and wrote "plant". Initial each label.

1423 - Decon complete.

Additional calibration notes: 100 g Pesola scale calibrated to a quart size Ziploc. 50 g. Scale to quart size Ziploc using 5 g + 10 g weights.
4-25-18
50 gram scale is #7.
100 gram scale is #8.

1450 - Jeff found Indian potato. Sample team walked to this location.
Sample #: SAR2-SP-PQ1-D1
JAP
Took photograph, laid out black garbage bag on ground. Cleared large woody debris and pine needle duff. Glen used clean travel to dig back surface. We could not find the corm associated with this flower. Sample location aborted. Filled hole back in and moved onto next flower. We will re-use this sample number. Deleted the photo.

1506 - At a patch of Indian potato, Michelle took one picture of the general area, then one picture of sample #: SAR2-SP-PQ1-D1 crossed out by JAP
Photo taken – #1
GPS point taken SAR2-SP-PQ1
Comprised of composite points a; 0.5 gram corm
b; 0.5 gram corm
c; <0.1 gram corm
d; N/A

1530 - Stu H. collecting soil sample from location “a” while Glen moved onto location “c”
Kelly (EPA observer) reviewed soil sampling procedure with Stu Holmes and J. Prater and approved the removal of debris from surface of location “a”.

Soil sample is SAR2-SP-PQ1-D1 (JAP)

1555 - In coordination between US (Ramboll) & Kelly (EPA) it was decided to seek only 1.99 mass of Indian potato from SAR2-SP-PQ1-D1 because of the very small size of each corm. (JAP)

Field team also decided to cut down the size of the zipper bag to more accurately measure the corms. Using scale #5, we re-calibrated and
4-25-18
re-tared the scale. Using 1g. weight with a
10 gram scale.

Transferred the 4 existing corms to smaller bag. Total
is now 0.8 grams. Disregard weight measure-
ments on page 2.

1608 - added 5th corm "e". total now 1.2 g.

Lots of elk scat in the vicinity of this sample composite.

1615 - added 6th corm "f". total now 1.7 g.
1625 - added 7th corm "g". total now 2.3 gram
This will complete the sample.

note: photo board is mislabeled for the photos for 5801-5901-PS01
* The soil (S) and plant (P) designators is in wrong spot a thought
* In addition, the photo point for 5922 -SP01 - Pole was erroneously
labeled as a soil plants with an "S". Instead of a "P"

Claytonia lanceata (Indian potato) found in one cluster just outside
SA boundary. We received Tech approval to sample 3 plants. Collected
7 plants to achieve minimum sample mass. The plants were growing in
Portland pine forest with open understory of scattered Achillea millefolium,
Ranunculus, Collomia, Symphoricarpos albus, and Carex gezer. Both spitzflora
All plants were relatively small with one or two flowering stalks
per stem. Corps were all relatively small. All plants that were
sampled had flowers. (Notes by Jeff Walker)

1642: For soil composite, because we had 7 very small pieces
of corm, it was agreed between Dave, Mark, US, and Kelly
that approximately equal proportions of soil would be
mixed to form the composite.
She took approximately 1/4 cup of soil from each
bague, mixed in stainless steel bowl, then mixed
and placed in soil jar.

1657- Linda carried the 2 samples to the car to put
into cooler. Excess soil returned to holes.

In the Rain

SSN: 7530-01-577-8866
Scale: 1 square =
There is Kinnick tick at 1809, but we will come back tomorrow to collect it.

1809 - Transferred samples back to Eric Weatherman

Total samples today:
1 composite Indian potato soil sample
1 co-located composite soil sample

G. B. 18
4-25-18
April 26, 2018  Teck Plant Tissue Study  Page 1

Met at Northport Boat Launch at 0800

People present:
AECOM: Jenny Prentice, Jeff Walker, Linda Hazard, Michelle Stegner, Paul Haridi, Stu Holmes,
Glen Meijia
TAI: Chris McKeen, Denise Mills
Ramboll: Dina Johnson, Lu Nelis
Jacobs: Kelly O’Neal
EPA: Monica Torel, Mark Stiffelman
Local: Whitney Fraser

Completed Safety Briefing
Safety observations
Hydrate
Don’t wander off
Maintain awareness
Dusty road - turn on taillights, clean windshield
stock-upon windshield washer fluid.

Headcount: 110
Direct & picks leaving early
Headcount at end of day will be 14

Arrived at SAD2 0914  Sunny and clear weather
cool in morning, mid-70s in afternoon

0925 - First target species is kinnickinnick.
Sample No. SAD2 - SP02 - S&1
This is an individual sample (no composite)
20 leaves is about 1 gram for this particular plant.
Lis noted that the per leaf mass is a lot higher
now in April in comparison to the Aug. 2017
revisit. It might be that the leaves were drier
in August. So we decided we should be
always getting the target mass or more at
when possible in case they dry down more than
expected. 130 leaves = 6.45 grams

Lima just collected leaves, no stipla

0954 - Sample collected w/ this time stamp.

0956 - MS & ST began collecting SAD2 - SP03 - P&1
which is a replicate of SAD2 - SP02 - P&1

0959 - Time stamp for SAD2 - SP03 - S&1
5.9 grams for 120 leaves kinnickinnick
1005 - Began collecting SPQ2 - SAQ2 - SPQ3 - SQ1
1015 - used clean (decontaminated) equipment to collect SAQ2 - SPQ3 - SQ1 (replicate). These soil sample replicates are collected from holes located approximately 3 inches apart. CR monitor (Pendleton) inspected both samples.
10:23 time stamp for SAQ2 - SPQ3 - SQ1
10:31 Decontaminated all sampling supplies; moving to new location.

10:38 - Began sample collection for SPQ2 - SPQ4 - PQ1
SPQ2 - SPQ4 - PQ1 5.16 g + 5.8 g = 11.4 grams
SPQ2 - SPQ4 - SQ1 put in 2 jars
This will be a split sample of Kinnikinnick with double the mass within the same sample.

11:09 - All samples from SPQ4 transferred to cooler with ice.

General notes: These Kinnikinnick sample locations were chosen to be distributed across sample area. Kinnikinnick is growing with lindens, pine, Betula, aquifolium, Symphoricarpos albus, and Aster alpinum. A second Claytonia lanceolata sample location was identified immediately adjacent to the first sampling location. Laminaria (kelp) was observed next to second Claytonia sample location. Only 2 plants observed just beginning to flower.

11:20 - New location SAQ2 - SPQ5
Kinnikinnick - individual sample SAQ2 - SPQ5 - PQ1
6.0 grams; approx. 125 leaves;
1433 collected; SAQ2 - SPQ5 - SQ1

11:42 - Lomatium excavated to determine if it is big enough by Glen. Location SAQ2 - SPQ6 - (PQ1)This will be a composite SAQ2 - SPQ6 - (PQ1)
2.0 g for "a"
0.3 g for "b"
1.6 g for "c" - is more than 3 meters from a and b
4-26-18
so it will be recorded with its own GPS point.
Total weight is 3.9 g. time = 12:16
1217 - Began composite soil sample SAQ2-SPQ4-5Q1
1230 - Finished soil collection & broke for lunch
1330 - Still at SAQ2, collecting an Indian potato composite
location is SAQ2-SPQ7
\[
a = 0.2 g \\
b = 0.2 g \\
c = 0.2 g \\
d = 0.2 g \]
\[
e = 0.2 g \\
< f < 0.5 g \\
h = < 0.1 g \\
i = 0.3 g \\
\]
SAQ2-SPQ7-PQ1
\[
1.9 \\
2.2 grams total
\]

Though there are more Indian potatoes in the vicinity it does not appear to be enough to capture 3.8 g. target sample mass, so we are stopping collection to ensure leaving some plants in the population.

1412 - Working on collection of composite soil sample
SAQ2-SPQ7-SQ1
Equal amounts of soil collected into ziploc bags, then mixed into stainless steel bowl, then
put into soil jar.
1424 - put soil back in holes, packed up to leave SAQ2.

Discussion about mules found during survey at
SQ SAQ1 (JW+PH). They had not feasted on Pendleton mules thought they could be collected
with or w/o leaves.
Mark Stiftelman, Dina Johnson, Lis Nelis and
Kris Mccaug discussed the options. We
Mark thought it likely that sooner or
later either during this deployment or in June, we will find enough stems with leaves to meet the target mass. So, Mr. Pendleton confirmed it would be ok to skip collection of roses without leaves at this time. Pendleton also confirmed it would be preferred to collect them with the leaves.

1525 - Arrive at SAQ3. J. Walker has been performing survey at this SA and we will add his notes at the end of the day.

1537 - Begin collection of individual Kinnikinnick sample numbers SAQ3 - SPQ1 - P&Q1 and SAQ3 - SPQ2 - P&Q1 which is a replicate

1553 - Begin collection of soil samples SAQ3 - SPQ1 - S&Q1 and SAQ3 - SPQ2 - S&Q1 which is a replicate. Only took one GPS point at this location because they are within 3 m of each other. Labelled as SAQ3 - SPQ1 - P&Q1 in GPS.

1604 - End collection

1615 - Dug up a camas that was not flowering, and Pendleton inspected the bulb. The outer skin was darker, which indicates it is the correct species. If it was lighter it would be death camas.

Sample No. SAQ3 - SPQ3 - P&Q1

- "a" = 2.3 grams - 1 bulb
- "b" = 1.4 grams - 1 bulb
- "c" = 3.7 grams
- "d" = 2.4 grams - 1 bulb (leaves)

Broke off the leaves (shoots?) from the top and roots from the bottom. No flowers present on any of the plants as of this time.

All 3 bulbs located within 3 meters of each other (closer to 2 feet total diameter).
1636 - Begin soil sampling for SA03 - SPR3 - SQI
1649 - Finished soil collection

1808 - Put samples in storage facility. All soil in frig. All plants in freezer. Temperature blankets in freezer are frozen solid.

Pge Survey notes for SA03 (J. Walker)
- began survey at 13:30, finished at 17:00
- *Cassiopea (Arctostaphylos uva-ursi)* - Plugged 3 sampling locations distributed across sampling area
- *Indian potato (Claytonia lanceolata)* - observed one patch with over 20 individuals. These plants are flowering or just past flowering. Some have multiple flowering stems, which CCT reports could mean that the flowers are larger. We have also noticed that the flowers of Indian potato appear to be closed early in the day and open later in the day.
- *Lomatium fimbriatum* - observed 2 locations, one location has one large plant, the other location has over 20 individuals.
- *Rose (Rosa sp.)* - The plants are not leafed out yet. Decision made to wait to collect these as CCT collects when the leaves appear.
- *Strawberry (Fragaria)* - strawberries were observed across the sample area. We collected GPS coordinates for the patches.
- *Black-Eyed Lime (Cyperus sp.)* Survey for this species revealed it was only on 2 shrubs and one hard-crust pine. Not enough to collect for a sample. (much less than the 200+ individuals needed)
- *Cames (Cames geneticus)*: Roadside Moss from CCT observed cames in the sample area in fall of 2017. He confirmed the new growth of this species in the same location. We dug up a bulb and he confirmed the identity. (The plant is not flowering yet and could be confused with death camas). After confirmation, we sampled the plant.

Total samples today:

1 camas
2 Indian potato
1 Lomatium
4 *Kinnikinick* (1 split 1 replicate for kinnikinik)

Jennifer AP
4-26-18
4-27-18  0715 - Checked freezer at storage facility. Page 1
0800  Temp. blanks are frozen.

Tailgate meeting at Northwest Boat Launch park.

AECOM - Jenny Petrarca, Jeff Walker, Linda Howard, Glen Heglin, Pau Hamidi, Michelle Stegner, Stu Holmes
EPA - Monica Tempel, Marc Stifelman, Kelly O'Neil
Ramboll - Lisi Neils
CCT - Pendleton Moss, Whitney Fraser
TA1 - Denise Mills

CCT + EPA have approved Michelle Stegner as cultural resource monitor when Pendleton is not present.

Talked about logistics + schedule for the next couple of days.
Jenny to case Arne Johnson at DNR for access to Deadman's Eddy next week. - Done!
spoke to him at 0830 and gave notification.

0853 - Sample team arrived at SA03

First sample today will be a camas bulb. No flowers.
SA03 - SP04 - P01 on this plant. Only green shoots.

0856 - Calibrated scales #4 + #5, w/ 310g sm. and 5 gram weights.

Photo taken, GPS point recorded on R1 #83134. All equipment was decontaminated at the end of yesterday, then wrapped in AL foil.

"a" = 1.6 grams
"b" = 1.2 grams
"c" = 1.2 grams
4.0 total after 3 brows

All bulbs located within 1 meter of each other.

It was discussed between the field team and Mark Stifelman that trays do not need to be decont
4-27-18
between digging bulbs and soil for the same sample.

0920: Soil sample SAQ3 - SPQ4 - SQ1
composite

0930: Soil sample done. Decan equipment.

0933: New location SAQ3 - SPQ5
Camas - plant with no flowers, only green
shoots

SAQ3 - SPQ5 - P&1
"a" = 2.6 grams
"b" = 2.0 grams
4.6 grams

0943: Begin soil sample SAQ3 - SPQ5 - SQ1

0949: Complete soil sample (composite)

1000: New location SAQ3 - SPQ6 Indian potato patch of
at least 16 plants in 3 meter radius. Took picture
of all plants in patch. We will dig up corms until
mass is acquired.

Sample No. SAQ3 - SPQ6 - P&1
"a" = 0.6 g cumulative
"b" = 2.5 g. (3.1)
"c" = 1.4 g. 4.5
4.5 g. total

1014: Soil sample SAQ3 - SPQ6 - SQ1 Composite

1024: Soil sample complete
Decan equipment

1017: New location SAQ3 - SPQ7 is about 5 feet
from center of previous composite sample of Indian
potato.

General notes: SAQ3 - SPQ6 and SAQ3 - SPQ7 are
in a relatively open patch with 1 pine tree orchestra. Lots
of pine needle chaff on ground. Ground is sloped
towards the river.
1027: SAD3-SP07-P01  Indian potato composite

\[ a = 0.5 \text{ g.} \]
\[ b = 0.5 \text{ g.} \]
\[ c = 0.5 \text{ grams} \]
\[ d = 0.3 \text{ grams} \]

This is well over the minimum target mass, so it will be retained.

Jeff W. called w/ survey notes from SAD1:
- 2 potato sites
- 1 Lomatium
- 3 Cames

1041: Begin soil sample SAD3-SP07-S01

1116: Lomatium samp location SAD3-SP08
- this plant has 3 stems that are growing so close as to be indistinguishable. They will be considered one sample. Approved by M. Stifflin.
- On a east facing slope, just downhill from SAD3-SP07.
- All 3 stems appear to be coming out of the same root system.

1125: Collect SAD3-SP08-P01 6.8 grams individual sample

1129: Soil sample SAD3-SP08-S01

1132: Break for lunch

1225: Lomatium path which appears to be very close to the border of the SA. Gave up to attempt to get 2 samples, though they are spatially grouped together.
- Group stopped to check that we are not inside the SATES plot.

1235: Began SAD3-SP09-P01  cur.

\[ a = 1.0 \text{ gram} \]
\[ b = 1.0 \text{ gram} \]
\[ c = 0.8 \text{ grams} \]
\[ d = 0.6 \text{ g.} \]
\[ e = 0.5 \text{ g.} \]
\[ f = 0.9 \text{ g.} \]

4.8 grams total
Phone report from J. Walker on survey team.
SA15 - water very high. No willows. They saw cottonwood previously w/o leaves and thought it was willows. They will document it with photos & notes and then move on.

1305 - Start soil sample SAQ3-SPQ9-SQ1 Composite
1320 - done w/ soil sample
1325 - very hot at this time, more than 80°F. We are taking extra time in between samples to sit in the shade & drink liquids.

1330 Begin at location SAQ3-SP12 which is Kinnikinnik

SAQ3-SP12-PQ1 5.8 grams (w/ Hg) Individual sample plant
1348. SAQ3-SP14-SQ1 Soil

1353: SAQ3-SP11-PQ1 Kinnikinnik (IP) Individual (w/ Hg)
This will be a split sample 11.2 grams total
Battery went dead on camera. Switched to using Surface tablet for photos
1412 - SAQ3-SP11-SQ1 Split - 2 jars

1420 - new location SAQ3-SP12 which is actually immediately adjacent to SAQ3-SP10

Lomatium composite "a" = 0.5 g cum
SAQ3-SP12-PQ1
b = 0.1 g
C = 1.0 g
d = 0.4 g

e = 0.4 g
f = 0.5 g
q = 0.2 g
x = 2.2 g
i = 1.6 g

5.3 grams total

1437 - Soil sample SAQ3-SP12-SQ1 Composite from 9 holes made by digging Lomatium
SAQ3 - SP12 - the location is disperses in a patch of Oregon grape plants. Soil very cobbly.

1455 - soil sample complete. Done collecting on SAQ3.

1545 - arrive @ SAQ1 All equipment decontaminated.

New location SAQ1 - SPQ1 - Camas, adjacent to road, under pine grove (small trees)

SAQ1 - SPQ1 - PQ1 composite

```
q = 1.7 g
b = 1.1 g
```

1600

SAQ1 - SPQ1 - PQ1 soil composite

1608 New location SAQ1 - SPQ2 Camas composite SAQ1 - SPQ2 - PQ1

```
a = 1.3 g
b = 0.7 g
```  

1642 SAQ1 - SPQ2 - PQ1 soil composite

1643: soil sample complete.

Field team calling it quits for today. Jeff Walker survey notes to be added later today.

1730 samples transferred to freezer. Temperature blanks are frozen.
4-27-78

Total for today:
- Camas
- Lomatium
- Kinnikinnick
- Indian potato

Survey notes: (JEFF WALKER)
Survey began at 8:30 and ended at 16:15. Finished survey of six sites:
  SA01, SA04, SA05, SA06, SA07, and SA15 (Deadman's Camp)
Results of scouting:

**SA01**
- Flagged 3 species: Camas, spring beauty, and Lomatium
- Camas (Camassia quamash) = abundant on the sample area. Flagged 3 sample locations.
- Some plants are just beginning to bloom; most are still vegetative.
- Spring beauty (Claytonia lanceolata) = flagged 2 sample locations; plants are in flower.
- Lomatium (Lomatium brachycarpum) = flagged 1 sample location with 4 plants.

**Roses** (Rosa sp.) = not ready to collect (as determined by Pendleton Mass and CCT) because leaves not fully emerged.
- Strawberry = tagged a few strawberry patches with GPS
- Black lichen = present on site; does not appear to be enough to sample

**SA04**
- Flagged 2 species: Kinnikinnick and spring beauty/potato
- Kinnikinnick (Arctostaphylos uva-ursi) = flagged 6 sites.
- Spring beauty/Indian potato = flagged one site with 3 plants.
- Strawberry = tagged a few patches with GPS
- Black lichen = did not observe

**SA05**
- Flagged 3 species: Camas, Lomatium tricarpellum, and spring beauty/Indian potato
- Camas = flagged 2 sample locations; plants common on sample area; mostly not flowering yet.
- Lomatium = flagged 3 locations; one of them is just outside SA, but still on allotment.
- Spring beauty/potato = flagged one site; it is just outside SA, but still on allotment.
- Kinnikinnick = not enough to collect; too few Camas for sample.
- Black lichen = not enough present to collect

**SA06**
- Flagged one species: Kinnikinnick
- Kinnikinnick = flagged one location - a large patch
- Rose = not counted as yet
- Black lichen = present, but not enough to sample

Scale: 1 square =
No plants flagged. Canvas present, but no additional sample locations needed. Mapped strawberry location at edge of SA inside trail. Black disks present in very small amount - not enough for sample.

Deadman's Eddy. No willow present. Whitney reports that CCT member made 50 willows at site when leaves were not present. The plants are not willow, but are all cottonwood.

Jenni B.
4-27-18
0700 - Stopped by sample storage facility, temperature blanks in freezer checked - still frozen.

0800 - Arrived Northport Boat launch, weather: low 50s, sprinkling rain.

- Discussed revised schedule, SA5 now off the list due to low molybdenum levels.
- Will discuss potential new location for willows sample collection with Teck & EPA for a high lead DV within the next few days.

- Discussed black lichen sampling - concluded that the survey team will collect black lichen on SA6 in order to determine the level of effort to achieve a full sample mass. If not enough for a sample, will return to site. (define as w/10% of sample mass).

- Health & Safety briefing
  - Running & lower temperatures
  - Slips, trips, and falls
  - Ticks were seen yesterday and found in car & on one person.

- Look ahead - Sunday off
  - Monday - Kelly O'Neill & John Espinoza
  - LIS, Julie, Monica, Mark
  - Wed - Denise
  - SRC - Mark Pollard

0839: End briefing & head to SA51

Staff present:

AECOM: Jenny Preece, Jeff Walker, Linda Howard, Glen Meighan, Paul Hardie
EPA: Monica Tomal, Marc Strickman, Kelly Stegner, Shu Holmes

No one from CCT

0915 Arrive at SA51. DECIM equipment, Jeff and Paul (survey team) will spend an initial 30 minutes collecting black lichen to determine...
4-28-18
How much mass can be collected within that time period.

Meanwhile, a survey team will begin sampling.

0922 New location: SAQ1-SPQ3
Lomatium

Calibrating scale #4 with 5 gram weight. Today using GPS 83154.
SAQ1-SPQ3-PQ1

a = 0.3 g
b = clay up but it appeared small as well.
There are 2 more plants evident, but it does not appear from visual inspection that 4.10 grams would be achieved. So, sampling was discontinued. “B” was reused, the sample number will skipped and data sheet retained.
S No SAQ1-SPQ3-SQ1 collected.

0939
New location: SAQ1-SPQ4 Indian potato
Patch of 8-9 more plants w/ 3 meters
Confirmed w/ survey team that this is outside of SATES plot. Raining consistently now. Oregon grape present in patch.

0958 SAQ1-SPQ4-PQ1 Composite

<table>
<thead>
<tr>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>f</th>
<th>g</th>
<th>h</th>
<th>i</th>
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<tbody>
<tr>
<td>0.3</td>
<td>0.9</td>
<td>0.5</td>
<td>0.3</td>
<td>0.4</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Composite
1030 survey team of 2 collected lichen for 30 minutes and returned with a Ziploc baggie.

Calibrated scale #5 with 5 g weight in small sandwich baggie.

Transferred lichen to clean, small Ziploc. It weighted 2.3 g, so it will be retained as sample SA01 - SP05 - P&I - no corresponding top plant sample.

However, the soil will not be a composite.
SA01 - SP05 - SQ1

107 Just after begin collecting another lichen sample in NE corner of S'A81.

117 New location SA01 - SP06 Indian potato composite

SA01 - SP06 - P & I

\[
\begin{align*}
\text{a} & = 0.6 & \text{cumulative} \\
\text{b} & = 0.7 \\
\text{c} & = 0.2 & 1.5 \\
\text{d} & = 0.2 & 1.7 \\
\text{e} & = 0.3 & 2.0 \\
\text{f} & = 0.3 & 2.3 \\
\text{g} & = 0.5 & 2.8 \\
\text{h} & = 0.2 & 3.0 \\
\text{i} & = 0.4 & 3.4 \\
\text{j} & = 0.3 & 3.7 \\
\text{k} & = 0.7 & 4.4
\end{align*}
\]

140 SA03 - SP06 - SQ1 soil composite calibrated 50 g scale #7 with 20 g weight.

200 SA03 - SP07 - P&I black lichen composite 16 grams total the lichen is wet at this time so we overcollected the weight, thinking some is water.

Break for lunch.
1251 - SAI1 - SPQ7 - SQ1
1255 - SWT + PH began black lichen location SAI1 - SPQ8
1316 - New location SAI1 - SPQ9 Camas composite
   "a" = 2.4 g.
   "b" = 4.6 g. total SAI1 - SPQ9 - P & I
   one camas bulb dug up but not needed, so replanted.
1329 SAI1 - SPQ9 - SQ1 soil composite
1345 SAI1 - SPQ8 - P & I Black lichen composite
   9 grams total
1354 SAI1 - SPQ8 - SQ1 soil discrete sample
1407 Entire team will collect 3 more black lichen samples. M. Stineman expressed a preference
   for getting 6 total to over having them spatially
distributed on different high lead sites SAI's
1450 SAI1 - SP12 - P & I
   Black lichen 60.1 grams
   SAI1 - SP12 - SQ1
1505 SAI1 - SP11 - P & I
   Black lichen 5.3 grams
1521 SAI1 - SP11 - SQ1
1534 SAI1 - SP12 - P & I 10.3 g
   Black lichen
1544 SAI1 - SP12 - SQ1
April 30, 2018

0700 - Storage in Kettle Falls. Checked sample blanks in freezer (frozen) and temperature in refrigerator. All performing normally for temperature.

0810 - Daily briefing at Northport with Lauren Abrom, Jenny Pizzi, Stu Holmes, Michelle Stiegler, Mike Ahad, Jeff Walker, Glenn Jen, Paul Hamida.

Ramboll: HS Nolas, Julie Weincheild

EPA: Monica Tenet, Marc Stifelman, Kelly O'Neill (EH2M)

No COT

0815: H/S briefing - ticks

0845: Arrive SAQ5 (sampling team).

Survey team headed to SAQ9, SA12, SAQ8 & SA10.

Notes to be added to logbook later.

48°F. Overcast. Heavy rain last night so vegetation is wet.

0900 - New location SAQ5 - SP01

Lomatium - 3 visible flowers, on edge of vehicle track. Soil compacted + rocky.

Scale #1 calibrated w/ 5 gram weight.

All equipment previously decoded.

Scale #2 calibrated w/ 5 gram weight. Scale +7.20 gr.

weight calibration

\[ a = 3.3 \text{ gr.} \]
\[ b = 0.06 \text{ gr.} \]
\[ c = 0.5 \]
\[ c = 0.3 \]

\[ \frac{41.7}{41.7} \text{ grams} \]

From same patch, one large 7.0 gram Lomatium is SAQ5 - SP01 - P01

0925: SAQ5 - SP01 - S01

0926: SAQ5 - SP02 - S01

Scale: 1 square =
4-30-18
Call from survey team at SAQ4.
SAQ4 - only target in survey is black lichen. Some located inside SA on hazelnut. Some additional lichen located outside SA on hawthorne, but still within TA.

0940. New location SAQ5-SPQ3 Lomatium
7 flowers in cluster, about 10 feet from vehicle track. Lots of F cobbles
\[ a = 0.2 \text{ g} \quad \text{cumulative} \]
\[ b = 0.7 \text{ g} \]
\[ c = 0.4 \text{ g} \]
\[ d = 0.7 \text{ g} \]
\[ e = 1.0 \text{ g} \]

2.8 grams

Not enough for the minimum mass. There is another cluster of Lomatium just outside SA boundary. Those will be collected and composited with the 5 above.

1002: summer report
SA#12: Camas - 1 inside, 1 outside - GPS bouncing

Lichen just outside SA on a branch. Hard to tell.

1025: 2nd location for SAQ5-SPQ3 has 3 flowers within 2 feet. Pine needle duff at this location, soil much softer. No cobble.
\[ f = 0.5 \text{ g} \]
\[ g = 3.2 \text{ g} \]
\[ h = 0.5 \text{ g} \]

7.0 g total mass for SAQ5-SPQ3-PSQ1

1039: Soil sample composite SAQ5-SPQ3-SQ1 from 2 spots and 8 holes

1108: New location SAQ5-SPQ4 Lichen on a hawthorne tree. This sample is dry. SAQ5-SPQ4-PSQ1 is 5.1 grams

1116: Soil sample SAQ5-SPQ4-SQ1
4-30-18

Message from survey team: SAQ5 1 Lomatium site w/6 plants
1 potato site w/2 plants (too low?)  Cape g puf 7 bulls
1 more large Lomatium & more potato locations (8 plants, 4 plants)

11:26 New location: Indian potato SAQ5-SPQ5
a = 1.6 grams
b = 1.7 g.
c = a + b = 1.6

4.9 g. for SAQ5-SPQ5-PQ1

11:32 Soil sample SAQ5-SPQ5-SQ1

SAQ5-SPQ5 appears just outside of SA boundary +/- 1 meter
There is enough (it appears) for a second sample from the
same patch. Called Denise Mills (TA1) to check to see
if it is acceptable or preferred to collect another sample
at this boundary location. We checked the map and it
is still within the TA boundary. Chatted with
Marc Stiferman and we agreed it was ok to
collect another sample.

12:57 Stop SAQ5-SPQ6

SAQ5-SPQ6-PQ1 Indian potato

a = 1.3 g.
b = 2.4 g.
c = a + b = 3.9 g.

1151 SPQ5-SPQ6-SQ1 Composite soil sample

At location SPQ5-SPQ6/SPQ5-SPQ5 there is
potentially enough for another sample but we
are not taking it now in hopes of getting samples
at SAQ4 + SAQ5. Mark Stiferman agrees.
We can return here if needed later.

1200 Lunch break
After lunch at SAQ5: 80 camas, 1 black lichen
1247 - New location SAQ5-SPQ7 Camas Composite

SAQ5-SPQ7 - P&I

\[ a = 3.4 \quad \text{Cumulative} \]
\[ b = 1.1 \]
\[ \frac{4.5 \text{ g.}}{} \]

SAQ5-SPQ7 is located within 6 feet of the dirt road.

1250 - SAQ5-SPQ7 - SO1 soil sample composite

1302 New location SAQ5 - SPQ8 Camas Composite

SAQ5-SPQ8 - P&I

\[ a = 0.7 \text{ g.} \quad \text{Cumulative} \]
\[ b = 0.6 \text{ g.} \]
\[ c = 0.4 \text{ g.} \]
\[ d = 1.6 \text{ g.} \]
\[ e = 0.5 \text{ g.} \]
\[ f = 0.8 \text{ g.} \]

This composite > 3 m. spread so multiple GPS points will be taken.

1317 SAQ5-SPQ8 - SO1 composite soil sample

1334 New location SPQ5 - SPQ9 Camas Composite

SPQ5-SPQ9 - P&I

\[ a = 0.4 \text{ g.} \quad \text{Cumulative} \]
\[ b = 0.1 \text{ g.} \quad 1.7 \text{ g.} \]
\[ c = 1.4 \text{ g.} \quad 3.1 \text{ g.} \]
\[ d = 0.4 \text{ g.} \quad 3.5 \text{ g.} \]
\[ e = 0.8 \text{ g.} \quad 4.3 \text{ g.} \]
\[ f = 1.2 \text{ g.} \quad 5.5 \text{ g.} \]

Recalibrated scale #4, 5 g. weight

1345 Soil Composite SAQ5-SPQ9
4-30-18

1400: Survey team update—SA45 is not accessible. Revisit will be skipped. They are going on to Barnaby Island.

1413. New location SA45-SP10 black lichen composite
    SA45-SP10-PR1
    Lichen growing on a clump of chkeechee tree

1427. Finished sampling at SA45 SA45. Picked up all flags.

1440—headed to SA44 to pick kinnikinnik

1509—Arrive at SA44. Goal = 5 kinnikinnik + 1 split + 1 replicate

1518: 2 kinnikinnik samples to be replicates
    1521 SA44-SP11-PR1 5.8 grams
    1530 SA44-SP12-PR1 6.1 grams

Jeff @ 1530
SA16 survey: lots of willows right by parking spot
soil sandy

1532 SA44-SP11-PR1
1535 SA44-SP10-PR1 SP12

1548 @ New location SA44-SP03 calibrated scale @ 7
    SA44-SP03-PRI 11.5 g

SA44-SP03-S1 2 jars

1614 New location SA44-SP04 kinnikinnik
    SA44-SP04-PR1 6.4 g

1623 SA44-SP04-SP01 6.4 g

1627: Finished at SA44 for today. Headed back to cars.
Survey Results
Begun surveys at 8:30, ended at 15:30
Surveyed four sites: SA04, SA12, SA08, and SA16

(SA04)
Black locust: present on harvested trees within SA and on land near just outside SA boundary (but it is a tribal allotment)
Rose: present but not fully bloomed out
Strawberry: collected a few pits where plants observed
Note: observed more growing under oaks, but it was off tribal allotment

(SA12)
Centaurea: flagged 2 cans in locations just outside SA boundary (but still a allotment)
Flowers just beginning to emerge
Black locust: observed in can just outside SA boundary (still an allotment)
No strawberry observed

(SA08)
Laminaria tetraptera: flagged two locations, but many more present
Black locust: growing in a hemp in north west corner of allotment
Red/White Beauty: flagged three locations: 15 plant total; in southeast portion of SA
Centaurea: flagged one location with 5 plants
Fuchsia: flagged three small fuschia
Note: plants are more leaved out in this SA

(SA16)
Observed abundant Salix exigua (willow) near Baddo Creek Campground

(SA10)
Not able to survey; Battlewave Creek crossing of road is washed out and the water is deep. Alternative route to get there are uncertain (in terms of access and time).
5-1-2018
0800 - Freezer & Fry calibration / temp check (JP)
Met at Red Apple Trading Post 08:15
- discussed work plan for day
- safety briefing: will be over 100 ft. from water

Attendees:
- A. cement: Jeff Walker, Jim Perry, Paul Hamilton, Steve Adams,
  Michelle Stagner, Linda Howard, Glen Mejia
  Mark Stinchfield, Monica boobs, Julie Weishead
  John Espinosa

9:27 SAIL - SP01 - P01 green willow
  - measured main stem at 1.05 m
  - kept all lateral branches
  - then cut one lateral branch to complete target length
  - willow samples labeled on outside of plastic bags; label to be applied later.

9:42 SAIL - SP02 - P01 green willow replicate
  - main stem 1.05 m
  - main stem 0.85 m

9:51 SAIL - SP01 - S01 sample beneath crown of green willow

9:59 SAIL - SP02 - S01 replicate soil sample beneath crown of green willow.

10:12 SAIL - SP03 - P01 green willow split
  - main stem 1.40 m
  - main stem 1.25 m
  - main stem 1.10 m
  - 0.5 cm

10:20 SAIL - SP03 - S01 green willow soil split

10:23 Decon sample equipment

10:32 SAIL 16 - SP04 - P01
  - main stem 1.50 cm
  - main stem 1.25 cm
  - main stem 2.05 cm
5-8 5-1-18
10:37 SA14-SP04-S01 Green Willow
10:45 SA14-SP05-P01 Green Willow
10:52 SA14-SP05-S01 Green Willow
10:54 Decontaminated sampling equipment
10:57 SA14-SP05-S01 Green Willow
10:59 Decontaminated sample equip.
11:03 SA14-SP06-P01 Green Willow
mainst. 152 cm
mainst. 165 cm
213 cm
11:07 Decontaminated sample equipment
11:09 SA14-SP06-S01 Soil sample stored in
reusable plastic bag & put inside 3rd plastic bag
11:10 Decontaminated sample equipment
11:18 SA14-SP06-P01
SA14-SP07-P01
130 cm
43 cm
203 cm
11:22 SA14-SP07-S01
11:23 Decontaminated sample equipment
Completed sampling at SA14
12:49 Arrived at W. Storage unit. Transferred
willow samples to freezer to be labeled
placed in two 4L. Added plant labels to →
5-11-18

willow sample bags.

Added Transferred soil samples SA14-SP01 to sample jars, affixed labels and transferred to freezer.

12:57 Left storage unit

24-20 Arrived at SA04

04:20 Calibrated scale #5

04:30 SA04-SP05 - P01 Kinokinin

14:42 SA04-SP05 - S01

14:46 Decontaminated sampling equipment

14:54 SA04-SP06-P01 Kinokinin

14:57 SA04-SP06-S01

14:58 Decontaminated sampling equipment

3-25 a SA04-SP07-P01 Claytonia lanceolata composite

 a. 04 0.1
 b. 03 0.7
 c. 03 1.0
 d. 06 1.6
 e. 02 1.8
 f. 02 2.0
 g. 05 2.5
 h. 03 0.8
 i. 04 3.2
 j. 01 3.3
 k. left plant
05:34 SA04 - SP08 - P01 Claytonia lanceolata, composite
a. 0.7
b. 0.7

c. 0.8

d. 0.3

03:37 Julie called us to discuss whether to take last individual plant to try to meet target mass for SA04-SP07-P01 or leave plant. Field team surveying for additional plants and found 2-3 more. Per Julie, would like to leave plant that is off by itself greater than 3 meters from SA04-SP07-P01 & SA04-SP08-P01 clusters.

05:33 SA04 - SP07 - P01 composite

10:10 SA04 - SP08 - P01 composite

10:18 Completed sampling at SA04

10:40 Arrived SA06

10:55 SA06 - SP01 - P01 Kinnikinnik Replicate

10:57 SA06 - SP02 - P01 Kinnikinnik Replicate

Survey results
Conducted scouting survey in sample area; SA11; found 2 snow target species: feltball and black lichen.

Feltball: Fleshy & feltballs; there are small, brown individuals

Black lichen: present in SA, but in very low amounts. Also there are few shrubs on the SA, not enough to sample.

Note: Julie will be leaving after SA04 and not present at SA05 for Kinnikinnik Replicate.
5-31-18

17:00  SAφ4 - SP01 - SP1
17:03  SAφ6xH

17:09  Completed sampling at SAφ6

Signature: [Handwritten]

May 1, 2018
5-2-18

7:00: Check sample frig & freezer: both at temperature
8:00: Arrived Northport Boat Launch
Weather: Clear skies, mid - 40's
Present: Jenny Pretzer, Jeff Walker, Linda Howard
AECOM: Glen Mejia, Stan Holmes, Michelle Stegner, Paul Hamidi
Lambot: Julie Weincheild
Tech: Kristin McGarvey, Denise Mills
EPA: Monica Tenell, John Espinosa (CH2)
CCT: N/A

08:11: Discuss daily workplan & site hazards
- steep walk, don't carry too much, go at own pace
- bear scent observed - take bear spray, buddy system, radios
- barbed wire - find path around
- exposed - take extra water

09:10 Arrived at StH1, SA#8
09:20 Calibrated scale #5 with 5g & tared to small baggie

09:37
SA#8 - SP#1 - P#1 Lomatium triternatum
a. 4.3g collected near top of SA#8 in open field
b. 0.9 5.1
  8.9

09:45 SA#8 - SP#1 - SP#1 a-c

09:40 Calibrated scale #7 with small baggie

10:10 SA#8 - SP#2 - P#1 Lomatium triternatum
a. 2.3 Total e. 0.9 / 7.0 collected in open
b. 1.7 / 4.0 f. 1.3 c. 3 field
  a. 0.4 / 4.4
  d. 1.7  6.1
5-2-19

10:18 SA08-SP02-S01 Lomatium teretifolium - soil

10:45 SA08 - SP03 - P01 Lomatium triteretifolium collected in open field among boulders and cobbles

a. 1.2 Total
b. 5.7 6.7
c. 0.8 7.7
d. 2.1 9.8

10:49 Mark F. From SOC joined field team

10:55 SA08 - SP03 - S01

11:07 SA08 - SP04 - P01 Black lichen collected from hawthorn trees on side of gulch

11:13 SA08 - SP04 - S01

11:28 SA08 - SP05 - P01 Black Lichen

11:32 SA08 - SP05 - S01

11:41 SA08 - SP06 - P01 Black Lichen

11:45 SA08 - SP06 - S01

Jeff Walker showed Kali (CCT botanist) and Pendleton Moore (CCT biologist and member) the small puffballs, Pendleton does not have experience with these puffballs, so was not sure if this is the species that is utilized by CCT. He said he would need to ask Ernie (a CCT elder) about the species. Kali said that Nancy Turner (ethnobotanist) was not specific in her ethnobotany book about which species of puffball were collected used. Jeff’s determination is the puffballs we have observed are not “Giant Puffball” (Calvatia gigantea), which is on the target list, but is another puffball species, perhaps Lyophyllum.

1200 - Took picture of puffball and took it to Arrow Coyote for further review by CCT members.
5-2-18.
possibly Ernie if he can be reached

1230 - Talked to Kali, Pendleton and Denise and
got approval to pick up weigh at one
puffball for mass data information. Will
then also cut in half to look at
inside. Also photographed (JP).
Puffball approx. 2 cm x 2.5 cm weighs 0.8 g.
Put in plastic bag but not recorded as a sample.

12:43 Finished lunch break back to sampling

12:46 SAΦB - SAΦT - P01 Black lichen
3.8 g

12:52 SAΦB - SAΦT - P01

SAΦB - SA Ldh.

SAΦB - SPΦ8 - P01 - No sample taken.

13:12 Examining a root target thought to be
Camas, but we are digging up for Pendleton
to look at bulb/root to confirm the
identification. Located in ponderosa pine patch.
It is NOT a Camas, might be brodiaea.
Outer layer peeled back to look.

13:27 New location SAΦB - SPΦ9 Indian potato.

Checked with Pendleton and Kali about the
development of rose plants. They said it is
still too early to be collected.

13:37 SAΦB - SPΦ9 - P01

<table>
<thead>
<tr>
<th></th>
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<th>Cumulative</th>
</tr>
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<tbody>
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<td>A</td>
<td>0.2</td>
<td>0.5 g</td>
</tr>
<tr>
<td>B</td>
<td>0.3</td>
<td>1.4 g</td>
</tr>
<tr>
<td>C</td>
<td>0.9</td>
<td>1.9 g</td>
</tr>
<tr>
<td>D</td>
<td>0.5</td>
<td>2.5 g</td>
</tr>
<tr>
<td>E</td>
<td>0.6</td>
<td>3.1 g</td>
</tr>
</tbody>
</table>
5-2-18

"f" = 0.4 g  
"g" = 0.2 g  
"h" = 0.4 g  
"i" = 0.6 g  

4.1 grams total


135A: Monica talked to Sharon (CCT). Sharon Covington talked to her aunt who is familiar with the use of puffballs. They saw the picture that Jenny sent to Arrow. They stated that puffball is used for topical purposes, such as diaper rash and sores, but it's not marshed or ingested. Because there is no ingestion, we will not collect these puffballs, for the human health risk assessment. Those present and in agreement are: Monica Towel, Mark Follansbee, Denise Mills, Julie Weinchele, Jenny Precote and John Espinosa.

1415  SA9 - SP10 - P01 claytonia lanceolate composite

<table>
<thead>
<tr>
<th></th>
<th>0.3</th>
<th>0.0</th>
<th>1.2</th>
<th>0.6</th>
<th>1.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>0.3</td>
<td>0.0</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>c</td>
<td>0.3</td>
<td>1.5</td>
<td>0.6</td>
<td></td>
<td></td>
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<tr>
<td>d</td>
<td></td>
<td></td>
<td>1.3</td>
<td>2.8</td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>0.2</td>
<td>3.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>0.2</td>
<td>3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td>0.6</td>
<td>3.8</td>
<td></td>
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</tr>
</tbody>
</table>

1425  SA9 - SP10 - S01 soil composite

1437  Completed SA98 sampling

Weather: Skies clear, Low 70s temp.
5-2-18

1442: Depart SAD7 and go to SAD7 to collect camas, per discussion with Lisa Nalls and agreement with EPA.

1530: Arrive at SAD7

1540: New location - SAD7-SPQ1 camas

1541: SAD7-SPQ1-PQ1

- $a = 0.8 \text{ g}$
- $b = 0.9 \text{ g}$
- $c = 1.3 \text{ g}$
- $d = 0.9 \text{ g}$
- $e = 0.6 \text{ g}$

Cumulative:

- $1.2 \text{ g}$
- $3.0 \text{ g}$
- $3.9 \text{ g}$
- $4.5 \text{ g}$

SAD7-SPQ1 - Soil composite

1559: New location SAD7-SPQ2 camas

1600: SAD7-SPQ2-PQ1

- $a = 1.5 \text{ g}$
- $b = 0.5 \text{ g}$
- $c = 2.6 \text{ g}$

Cumulative:

- $2.0 \text{ g}$
- $4.6 \text{ g}$

Total: 4.6 g

1608: SAD7-SPQ2-SPQ1 Soil composite

1616: New location SAD7-SPQ3 camas

1618: SAD7-SPQ3-PQ1

- $a = 0.7 \text{ g}$
- $b = 1.6 \text{ g}$
- $c = 0.7 \text{ g}$
- $d = 0.4 \text{ g}$
- $e = 2.2 \text{ g}$
- $f = 2.0 \text{ g}$

Cumulative:

- $1.3 \text{ g}$
- $2.0 \text{ g}$
- $2.6 \text{ g}$
- $4.4 \text{ g}$
- $6.4 \text{ g}$

Scale: 1 square =
Note: SA07-S03-S01 composite soil sample.

This completes sampling at the lower lead SAS.

Samples delivered to freezer (tissue) and frig (soil) in Kettle Falls.
May 3, 2018

Demobilization Day for AFDM field team.

0800 - Met in lobby at Comfort Inn for daily tailgate meeting.
  Glen, Jeff, Linda, Paul, Michelle, and Sue to organize field gear, drive to Spokane, put gear in Teck Storage Unit and then fly to Seattle.
  Jenny to stay in Colville with Samples and do Chair of Custody forms.
  HS meeting covered lifting heavy items, long distance driving and lone worker protocol.
  Jeff texted Jenny that everyone arrived home safely.

Josie Smith arrived in Colville at 1700.

[Signature]

5-3-18
May 4, 2018

0730 - Josie + Jenny @ Comfort Inn in Colville.

Daily H/S Briefing:
- Dry ice handling - wear gloves, make sure to
  not put in air tight container - use ventilation
- Lifting heavy items - only pack cookers as heavy
  as you feel comfortable with.
- Long distance driving - take breaks, check in with
  a contact.
June 18, 2018

Kickoff for June Plant Sampling Event
Northport Boat Launch Park — 1230

People Present:
  AECOM: Jenny Pirtle, Linda Howard, Dave Lewis, Jeff Walker, Glen Mejia, Michelle Stegner
  EPA: Monica Town, Marc Stifelman
  Ramboll: Lis Nellis
  Jacobs (formerly EPA): Kelly O'Neill, Ellie Traudi
  TAI: Kris McCary
  CCT: Whitney Fraser (Ladestone)
  Citizens for a Clean Columbia: Joe Wichmann, Michelle Stegner acting as Cultural Resource monitor

Sampling Overview by Lis Nellis
Intro CCT perspective by Whitney Fraser
Health & Safety Briefing by Jenny Pirtle
Everyone signed ITS Acknowledgement Sheet.

1330: To SAD3 — SAQ3
Recon for strawberry, rose & Lomatium
Lots of strawberry plants present, but very few berries.

Begin rose sampling 14:18: SAD3 — JuQI — PQ1

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>a</td>
<td>15 cm</td>
</tr>
<tr>
<td>b</td>
<td>13 cm</td>
</tr>
<tr>
<td>c</td>
<td>12 cm</td>
</tr>
<tr>
<td>d</td>
<td>12 cm</td>
</tr>
<tr>
<td>e</td>
<td>6 cm</td>
</tr>
<tr>
<td>f</td>
<td>5 cm</td>
</tr>
</tbody>
</table>

\[ 52 \text{ cm} + 7 \text{ cm} = 69 \text{ cm total} \]

14:30 = SAD3 — JuQI — SQ1

14:45: SAD3 — JuQ2 — PQ1

Rose length (cm): 16 + 15 + 8 + 16 + 7 + 5 + 20 = 81 cm

Not quite enough for a split or replicate. Collected on bronze on plant.
June 18, 2018

1459: SAQ3 - JUQ3 - SQ1 Individual soil sample

1507: SAQ3 - JUQ3 - P01 Rose
Lengths (cm) = 22 + 17, + 18 = 57 total
Collected all branches from individual plant; not enough present for split or replicate

1513: SAQ3 - JUQ3 - SQ1 Individual soil sample

1524: Calibrated 10 gram scale #4 with 2 gram weight. Scale adjusted to 2 grams. Then tared with a small size bag.

Next sample is a Lomatium just outside of SA boundary by about 20 feet. Sampling outside of SA approved by EPA (Monika + Marc S.) and TAI (Kris).

1537: SAQ3 - JUQ4 - P01 Lomatium Composite

1551

<table>
<thead>
<tr>
<th>a</th>
<th>4.5 g</th>
<th>cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>b</td>
<td>1.5 g</td>
<td>6.0</td>
</tr>
<tr>
<td>c</td>
<td>1.5 g</td>
<td>7.5</td>
</tr>
<tr>
<td>d</td>
<td>1.1 g</td>
<td>8.6</td>
</tr>
</tbody>
</table>

Results of visual inspection of SA for strawberry plants with leaves were abundant. Flowers were scarce. Only saw 4 berries, which were about 0.5 cm in length (very small). Determined a complete sample would not be possible, so not attempted. Present and approved by EPA (Monika + Marc S.), TAI (Kris M.), Whitney F (CCT).

For strawberries: it does not appear ripe at this SA though berries are present. It was decided to look for ripe berries at other high lead SA’s over the next day or 2 and then decide where to sample.

1604: SAQ3 - JUQ4 - SQ1 Soil composite

We collect 1 more Lomatium sample at SAQ3.
June 18, 2018

1628: SAQ3 - JUN5 - P01 Lomatium composite Cumulative
a - 2.9 g.
b - 1.09 g.
c - 1.0 g.
d - 3.0 g.
Total
3.8 g.
4.8 g.
7.8 g. total

Lomatium dug up by Michelle that had no root mass. Not collected. Put back in ground.

1641: SAQ3 - JUN5 - S01 Composite Soil Sample

Sampling complete for the day

Total at SAQ3: 2 Lomatium

Added 6-14-18:
All soil samples stored in freezer
All plant samples stored in freezer. Storage location is locked warehouse in Kettle Falls owned by Eric Weatherman. Samples placed in storage at end of sampling day.

June 18, 2018

6-19-18
June 19, 2018

0715 - Kickoff - Daily Tailgate at Northport Boat Launch park

AE: J. Prentice, P. Howard, G. Mejia, M. Stegner, D. Lewis, J. Walker

Ramboll: L. Neils

EPA: M. Tonel, M. Stifelman

Jacobs: K. O’Neill, E. Trandum

CCT: W. Fraser (Lodestone)

Michelle Stegner acting as Cultural Resource Monitor.

Sampling location for morning: Rose, Sarvisberry, Strawberry

0800 - Arrive at SAQ1

0841: SAQ1 - JUQ1 - P&Q Rose - Split Sample located 5 ft. from road.
stem length (cm) = 43 + 28 + 75 + 81 + 48 = 275 cm

0819: SAQ1 - JUQ1 - SQ1 soil split sample

0839: SAQ1 - JUQ2 - P&Q Rose - Individual Sample
stem length (cm) = 17 + 15 + 11 + 19 + 20 + 16 = 96

0845: SAQ2 - JUQ3 - P&Q Rose (Replicate of SAQ1-JUQ2)
8 + 17 + 15 + 13 + 9 + 9 + 6

Notes about Sarvisberry: berries on SAQ1 are still green. Whitney indicated they would be too young to collect at this stage. We discussed the future timing of collection. Based on Aug. 2017 visual observation, it is likely we will be able to collect Sarvisberry at that time. Present for discussion: K. McCaig, M. Stifelman, L. Neils, J. Walker, J. Prentice. Marc Stifelman agreed it was ok to defer collection.
June 19, 2018

0915 - Jeff + team to do additional searching for strawberry plants. And low hanging pine cones. Puffballs have been noted spread throughout. SAQ1, we will take some pictures.

0922 - SAQ1 - JW04 - P01 Rose

20 + 14 + 17 + 18 + 13 + 14 = 98 cm

0926 - SAQ1 - JW04 - S01

JP collected one white puffball from corner of SAQES plot. Send pictures to Arrow Cayote, Kali + Pendleton. Puffball dimensions approx. 2 cm x 1.5 cm

Weight = 1.6 g.

Strawberry: traversed site searching for strawberry fruit. Few scattered strawberry plants were found, but no fruit or even flowers observed. Searched for 45 minutes in sparted intervals.

1003: Done at SAQ1. Total 3 rose samples, 1 split, 1 replicate.

1027: Arrive at SAQ2 & x2 to do review for strawberry, pine cones, salvinia? any other spp on the list.

GPSed locations where we saw pine cones in smallish trees. Typically only 1-3 cones per tree. Collected one unripe cone to try to pry open. Also collected GPS points at some larger trees with many cones higher up. The goal for the tall trees would be to look for fresh cones on the ground.

No Salvinia observed on SAQ2.

A few strawberry plants, but no berries

1100 - lunch
June 19, 2018

1200 - Recon at SAQ4 for rose

1225 - Arrive at SAQ4 to sample rose

SAQ4 - JuQ1 - P&Q1 rose - split
plant pieces (cm) = 27 + 27 + 24 + 19 + 18 + 13 + 11 + 11 = 150 cm

Dave L reported that pine needle duff was very deep at this location. Measured at 7-8 inches of duff. Duff was cleared away, per SOP-9 (6) of the FSP.

1243: SAQ4 - JuQ1 - SQ1 soil split

1302

1304

1306: SAQ4 - JuQ2 - PQ1 rose

1314: SAQ4 - JuQ3 - PQ1 rose - replicate

23 + 27 + 32 = 82 cm

stem length (cm): 35 + 21 + 14 = 70 cm total

The 3 rose samples at SAQ4 are close together. The recon did not identify any other individuals in other parts of the SA.

Switching to use Jeff’s blue camera at this time because the battery went dead in the others. Noted on data sheets.

1329: SAQ4 - JuQ4 - PQ1 rose

19 + 8 + 20 + 19 + 19 + 14 = 91 cm total

1335: SAQ4 - JuQ4 - SQ1 individual soil sample.

3.5 inches of duff removed before collecting soil.

1341 10 huckleberries = 1.4g → Jenny and Jeff sampled small quantity of huckleberries to assess quantity needed to collect a sample.
June 19, 2018

1354: Linda calibrated scale #7 50g vol 20g weight

1254: S@4 - Jw05 - P01 Vaccinium cespitosum

Lisa Nelis confirmed S@P 4 Sarvisbery, Strawberry and Wild Huckleberry Section 2 will collect one soil sample from center of patch of wild huckleberry.

1441: S@4 - Jw05 - S01 charcoal is apparent in the soil apparatus removed 1.5 inches of duff

Michelle Stegner says its on the surface right below the duff, so likely a modern burn.

1431: S@4 - Jw06 - P01 Vaccinium cespitosum a patch of plants used to collect one individual sample.

1438: S@4 - Jw06 - S01 soil sample 1.5 inch of duff removed charcoal present in soil.

1456: S@4 - Jw07 - P01 Vaccinium cespitosum "patch"

1501: S@4 - Jw07 - S01 1 inch of duff over soil sample.

1530: Leave SA@4

1650: Dropped samples at Warehouse in Kettle Falls.

Looked at pine cones collected today. Older pine cones picked up from forest floor were peeled apart. Most individual bracts have 1 or 2 nuts attached at base. The old pine cones have nuts that feel hollow and/or with holes so appear to have been eaten by insects.
June 19, 2018.

So we are thinking that picking older cones off the ground will yield few nuts. We also collected one new (this year) cone from a ponderosa pine. It was unripe and still closed up. We tried to pry it open to count nuts, but it was still very pulpy inside. The nuts did not seem formed. However, we counted the number of bracts that were forming. This cone had approximately 70 bracts. Conservative estimate would be one nut per bract, or a total of 70 nuts.
June 20, 2018

0715 - Daily Tailgate at Northport beat lunch pa,
AECOM: J. Preucker, J. Walker, M. Stegner, L. Hender,
D. Lewis, E. Mejia
ERA: W. Timel, M. Stifelman
Jacob: K. O’Neill, E. Trandt
CLT: W. Fraser (Lodestone)

Michelle Stegner acting as Cultural Resource monitor.
Objective for today: 3 huckleberry samples at
SAQ4, 3 rose samples @ SAQ6,
survey/recon at SAQ7.

H/S Briefing by M. Stegner.
presence oak at SAQ6.
ivy

0800 - Arrive SAQ4
0812 - Jeff calibrated scale #7 w/ 5 gram weight

0825: SAQ4 - JU08 - P01 Vaccinium
SAQ4 - JU08 - S01 soil sample - 1/2 inch of pine
needles/duff

0842: SAQ4 - JU08 - P01 Vaccinium
this is part of the same "patch" as SAQ4-JU08
but we are sampling the far side which
is approximately 15-20 feet away.

0858: SAQ4 - JU09 - S01 soil sample - 1/2 inch of
pine needles duff cleared
away.

0912: SAQ4 - JU10 - P01 Vaccinium

0924: SAQ4 - JU10 - S01 Soil

Completed 6 Vaccinium samples at SAQ4.
Glen had a tick on his pants - removed w/duct tape.
0935: Recorded Pine tree location with abundant
pine cones in 600 canopy - in GPS.
June 20, 2018
09:55 - Finish @ S4Q4
10:03 - Arrive at S4Q6

Target is 3 rose samples + split + replicate

Poison ivy present at this point along sides of path.

1022: S4Q6 - JUQ1 - P01  Rose - split sample
   stem lengths (cm): 61 + 53 + 28 + 27 + 26 + 23 = 218 cm

1031: S4Q6 - JUQ1 - S01  Soil split sample
   2 jars

1046: S4Q6 - JUQ2 - P01  Rosa sp.

1047: S4Q6 - JUQ3 - P01  replicate of S4Q6 - JUQ2
   33 + 35 + 40 + 41 = 149 cm
   stem length (cm): 76 + 24 + 22 + 43 = 115 cm

1051: S4Q6 - JUQ2 - S01  Soil

1054: S4Q6 - JUQ3 - S01  Soil ≠ replicate

We looked for ponderosa pine trees at S4Q6. This site sampling area is long & skinny. It appears that most or all ponderosa pine are outside of the boundaries. Recommend not sampling for pine in August.

1116: S4Q6 - JUQ4 - P01  Rose - individual sample
   stem length (cm): 29 + 28 + 19 + 18 + 22 = 116 cm

1118: S4Q6 - JUQ4 - S01  Soil

Rose hip observations: 110 flowers on roses in S4Q3, S4Q4
(JWALKER)
- No roses observed on S4Q2
- Hips (few observed) on S4Q1, hips (several) observed in S4Q6
June 20 2018

1130 - Finish at SA06, Lunch break
1240 - SA07, Recon for strawberry, pine cones
+ any other spp. on target list.
   Puffball seen on the way to SA07. => White
   outside, block inside.
1310 - Finished recon at SA07
   Several ponderosa pine W/J cones GPsed.
   No strawberry, no rose.
1319 - SA01, recon for pine cones
   GPsed mostly large trees with cones up
   high.
1343 - Finished.

Willow reconnaissance.
Jeff Walker accompanied Marc and Monica (both EPA) and Whitney (Colo.
+ to observe possible willow site. Drive onto Mills Road off Highway 25. Drive
past residence and park. Walked down to river. Monica said it is the
"Died" property. Lacked access side channel at island with cottonwood and
willow. Made observation through binoculars. Cottonwood with shiny leaves
leaves, with purple tiny flower on stems. Willow leaves are linear. There
is good chance they are Salix exigua. Monica认为 the island could also be
coastal swale.

1400 - Pine cone recon at SA03
1420 - Recon completed.

1425 - Confirmed verbally with Monica Tonel, Marc
Stifelman that sampling is complete for June.
Jenny to confirm with TAI on the phone
at 35 pm today.

Also, starting at SA03 access road, willow observed just
30 feet from X Sheep Creek Road, but outside
the sample area.
June 21, 2018


TAI: Gristy Kessel

Start 08:00

Working today in Kettle Falls warehouse facility to package samples for transport, consolidate & organize gear, then demobilize to Spokane. Samples to be driven to ALS Kelso.

Jeff Walker counted 3 ponderosa pine core for the number of bracts

\[
\begin{align*}
1 & - 87 \\
1 & - 104 \\
1 & - 122 \\
\end{align*}
\]

\[106 \text{ average}\]

Did not observe any visible "nits" in the cores that were counted. These were collected from the ground.

1021 - Protocol modification form written for SOP 7.

COtt Colville OXARC is out of dry ice until tomorrow. We purchased an electric freezer (5 cu ft) at Walmart and an inverter to plug it into the minivan.
Pre-Kick-off mtg. Discussions

8:30 AECOM team met to organize field materials & discuss wild fire & air quality conditions. Michelle Stegner gave a cultural resource sensitivity briefing to new team members (Antis & Tove).

Linda Howard contacted Spokane County Fire District.

Megan Hill at 509-939-5216 to get current status of Sheep Creek Fire. Megan called back from call (509-684-2050). Fire District has turned fire over to WDFR. Linda called WDFR.

Expanded Coordinator (509) 684-7474 and spoke to Jennifer (transferred to Floor Coordinator).

Summary: Sheep Creek Fire is stable. DNR crew in check-monitoring mode, not staged at site. Sheep Creek Road is "soft closure" meaning it is accessible but should be no issue with us driving on the road. Park to side of road. Call floor coordinator at (509) 685-1900 to check conditions each morning. Monitor 911 on radio channel.

11:30 Jeff W. and Lisa collected some pinecones from YKP Klamath Park in Colville. The cones were collected from the ground under ponderosa pine. The pine is irrigated, so some cones were damp. Paul Hamidi collected 3 cones from the slope (dry) behind the Comfort Inn in Colville. The pinecones were collected for assessing species and number of seeds per cone. This activity was completed after the Kick-off meeting.

12:30 Kick-off meeting for August Plant Sampling Event

Colville Comfort Inn

Introductions:

People present: Linda Howard, Jason Smith, Andrea Wilke
AECOM: Stu Holmes, Jeff Walker, Paul Hamidi, Michelle Stegner
RAMBO: Lisa Nelis
Lodestone: Whitney Fraser
Jacobs: Elite Trudic
(For EPA)
EPA: Marc Stiffler

Sampling Overview by Lisa Nelis

Pure E.

August 20, 2018

Plane in the Rain

NSN:7530-01-577-8866

Scale: Square
General Safety Overview by Michelle Stegner

Wildfire & Air Quality discussion.
Air Quality is Very Unhealthy currently in Northport Area.
Discussion about guidance from EPA, Jacobs, RAMBOLL
No specific guidance; general agreement that it is we should not work in upper range of Very Unhealthy
Conclusion: No field work today
Meet at 7am tomorrow at Northport Backlund

Planning for tomorrow:
if above 300ppm (Hazards) - no field work
if below 200 ppm - conduct field work
if between 200-300ppm will need to make decision, discuss with group to make decision.

AECOM will text air quality conditions in morning at least before leaving Colville.

0100 Pine cone dissection - cones collected in Colville from the ground

<table>
<thead>
<tr>
<th>Degree of Maturity</th>
<th>Core - Seeds</th>
<th>Ratio of Nut/Con</th>
<th>Core Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bracts Open</td>
<td>Paul 11</td>
<td>0.4 g</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jeff 1-15</td>
<td>0.5 g</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Josie 1-9</td>
<td>0.2 g</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anders 1-3</td>
<td>0.1 g</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Paul 2-39</td>
<td>1.8 g</td>
<td></td>
</tr>
<tr>
<td></td>
<td>*Anders 2-12 *</td>
<td>0.2 g</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jeff 2-11*</td>
<td>0.4 g</td>
<td></td>
</tr>
</tbody>
</table>

* observed falling from tree
- Jeff, Paul, Anders, Josie, dissected pine cones
- Sue removing wings from seeds
- Liz weighing samples

Josie 2 0.2 g
Josie 3-45 2.1 g
Paul 4-26-19 0.9 g
Jeff 3-11 0.3 g
<table>
<thead>
<tr>
<th>Cones</th>
<th>Seeds</th>
<th>Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lis 1</td>
<td>4</td>
<td>0.15 g</td>
</tr>
<tr>
<td>Anders 4</td>
<td>4</td>
<td>0.18 g</td>
</tr>
<tr>
<td>Lis 2</td>
<td>17</td>
<td>0.49 g</td>
</tr>
<tr>
<td>Paul 5</td>
<td>3</td>
<td>0.3 g</td>
</tr>
<tr>
<td>Josie 4</td>
<td>29</td>
<td>1.9 g</td>
</tr>
<tr>
<td>Anders 5</td>
<td>27</td>
<td>0.5 g</td>
</tr>
</tbody>
</table>

Sample average seed mass = 0.5 g
Would need 10-10 cones to collect target mass

Decision to start at 5:40 on Tuesday morning.
August 21, 2018

Weather: 70°F, Hazy, Smokey, AQ 121 (for fire)

0713 - Daily Tailgate at North Port boat launch.

AEOM: J. Walker, P. Hamidi, L. Howard, J. Smith,
A. Utter, S. Holmes, M. Stegner

Jacobs: E. Traudie

Raymond: L. Nelis

EPA: Mark Stiffelman

ERM: W. Brunham

Teck: G. Kessel

Codestone: Whitney Fraser

M. Stegner Safety Briefing

-Discussed fit for duty
-If not well can sit in vehicle

-Smokey conditions may cause issues

-Use Buddy system, Biological Hazards

-Snakes, Ticks - do tick checks
-Snake & hops available, have tick keys
-Tick checks when leaving each site

-Poison Ivy, Oak, Point out to group if you see any, first aid available

-Take your time, don't rush

-Let someone know if you need to excuse yourself. Make sure vehicles are filled with gas.

-Fire on Sheep Creek road has been contained and DNR is monitoring but not actively fighting fire. DNR OK with our activities in SA0's, off PCF

-Fire Ext outside vehicles at site for easy access. Do not idle over vegetation. Have spray bottles avail to wet down veg, around vehicles.

-Air Quality: AQ > 150 AE (con will wear masks, >300 stop work in between use judgement. Do negative pressure test.

-Stay hydrated.

-Plan for today: S003 by race track

-Wide

-Hazel chetco service by 1
Then to SA02 (potentially)

Lis- Pine cone's test yesterday
  0.5 g seeds/cone

Min 30 cones target 6 cones/sample

0727 - Organize supplies for the day
0747 - Depart Northport Boat Launch Park for SA03
0754 - Arrive SA03

0805 - Lis give briefing on hazelnut collection

Do float test, collect husk, husk will be peeled off
3-12 nuts per sample target is 6 nuts
Will collect 3 hazelnut samples this SA

I rose hip spotted by Mark, flagged
Sample IDs should be "LJG" instead of "AU"
EPA and Teck agree to use "AU" since already pre-printed on labels. GPS locations will have to be changed for each sample Name to match Sample IDs on paperwork.

With test on 1st hazelnut, Collect 1 nut and do float test on nut then crack nut and weigh

Jeff discuss choke cherry sample size with Lis
Client sheet consulted. Target #124 min 3g target 62g
Serviceberry dried will be flagged then determine quantity

0826 - Float test on first nut, it floats, inside is descimated, pnut meat inside.
2nd nut floats, has nut meat.
0830 - Calibrate scale 93054 using 5 g wt.
  2 nut tests 0.4 g

Based on test, decision made to collect all nuts from tree, keep sinkers, then possibly some of the floaters if necessary
Cracked open one sinker, nut meat present 0.65 g.
Take all nuts to make sure there is enough test, will not do float test as does not appear to be predictive of whether nut is present.

Test nut meat discarded, rest of nuts collected 20 additional nuts collected, some float some sink.
0846 - Deviation will be filled out to incorporate changes determined in field.

 skipping step 2, 4, 45. Will pick all hazelnuts on the bush, will not do float test.
 will remove outer hairy husk but not shell.

 Agreed with by EPA and Lode stone.

 0847 - Collect 1st hazelnut sample (SAO3 - AU01 - PQ1)
 0850 - Collect soil sample (SAO3 - AU01 - SQ1)
 0853 - Discuss splits and replicates.

 Further guidance will be provided to laboratory to crack all nuts. Include all acceptable nuts meats (not severely degraded or diseased) and signs of insect damage.

 Back to discussion of splits and replicates. If at least 20 nuts per tree, will do.

 Split divide min 10 per replicate.

 0904 - Discussion of Rose Hips. Whitney noted large patch of rose hips ~ 20 ft outside SAO3. Will note where rose hips found, may have to return and determine later whether to collect outside SAO3.

 0908 - Proceed to next hazelnut tree.
 0910 - Begin collecting next set of hazelnut sample.

 Collect 10 - JA-17 left on tree, collect 12 each for sample + replicate.

 0918 - SAO3 - AU02 - PQ1 collected by Anders & Paul 10 nuts
 0927 - SAO3 - AU03 - PQ1 collected by Anders & Paul 20 nuts

 0929 significant # small green nuts/husks hazelnut. (SAO3 - AU03 - SQ1) Soil replicate by SH, MS

 0932 - (SAO3 - AU03 - SQ1) Soil replicate by SH, MS

 0941 - Depart for next hazelnut location.
 0944 - Arrive next hazelnut location, begin collecting.

 Next sample (SAO3 - AU04 - PQ1) Replicate Split sample

 0954 - SAO3 - AU04 - PQ1 57 nuts in sample hazelnut

 1001 - SAO3 - AU04 - SQ1 Split sample 2 jars collected by SH, MS

 1010 - Decan equipment 1st A

 1030 - Begin sampling first choke cherry. Will pick all fruit and determine if thorough for split.
1025 - Calibrate 100g scale 6 with 100g but ~ 100g berries weigh 78g
1028 - Calibrate 500g scale 9 w/ 1-5g, 2-20g, 1-10g wts
1032 - [SAO3-AUQ5-P01] n 177g chokecherry
1038 - [SAO3-AUQ5-S01] collected by SH + MS

Cherry bright red

1047 - Start collecting next chokecherry these fruit much darker color than previous sample dark purple color almost black some desicated fruit on tree

1055 - [SAO3-AUQ6-P01] 188g chokecherry collected by HT, MS, LN, PH

1100 - [SAO3-AUQ6-S01] collected by SH, MS

1105 - Picked 2 rose hips from bush in same area as previous chokecherry location

Rose hips min 1.2g wt was 1.65g

1109 - Return to vehicles for mid day lunch break
1200 - Gather to continue sampling

[SH] one chokecherry to collect, 1 pine then discuss rose hips

1209 - Begin collecting 3rd chokecherry sample by PH, LH, MS, JAU, SH

1212 - [SAO3-AUQ7-P01] 36g chokecherry

1215 - [SAO3-AUQ7-S01] sample collected by SH, MS

1218 - Additional recon to look for servis berry some bushes may be inside SAO3 J

Consulting maps and measuring to see if in SA, I will pick in area to potentially get sample, check wts and determine course after

1226 - Begin picking berries

1233 - [SAO3-AUQ8-P01] 17 or possible split sample collected by MS, SH

1238 - [SAO3-AUQ8-S01] decon equipment

Discuss collecting, don't get decomposed

1247 - Start 100 king for cones
1254  [SAQ2 - AUG9 - P01]  PH  LT  Mark S  Pages
1302  [SAQ2 - AUG9 - S01]  MS  SH  Yucaras
1306  Depart site go back to vehicles collected
1318  Depart for SAQ2

Arrive SAQ2  Weather  81°F Sunny with
smoky skies  AQI 68
1334  Arrive SAQ2
1340  Gather + discuss plan  Go to far side of site
for choke cherry  serviceberry check for
fires on the way back
1351  Arrive 1st sampling area begin recon for
serviceberry + choke cherry + hazelnut
Found some hazelnut  Try for 3 more
hazelnut samples  First location 3105
SAQ2  North
Begin collecting 1st hazelnut sample

1407  [SAQ2 - AUG1 - P01]  SH  MS  ALU 21 nuts
1410  [SAQ2 - AUG1 - S01]  SH + MS
1415  proceed to next potential tree  SH MS 21 nuts
1420  [SAQ2 - AUG2 - P01]  ALU  SH  LT  MS  SH 31 nuts
1423  [SAQ2 - AUG2 - S01]  MS + SH  hazelnut 31 nuts
1430  Depart for next hazelnut sample
1433  Begin collecting 3rd hazelnut sample
1436  [SAQ2 - AUG3 - P01]  PH  LT  MS  SH  ALU 21 nuts
1440  [SAQ2 - AUG3 - S01]  MS  SH  Seco tipwels  SH
1448  Depart for 3rd pine cone sample
1455  Recon 1st pine cone sample location
*From Dave Enos is 1 Mitchell Road + have
real time air monitoring on site
particulate 2.5 calculated

1500  [SAQ2 - AUG3 - P01]  ponderosa pine cones  MS  WP  PH
1510  [SAQ2 - AUG3 - P01]  ponderosa pine cones  replicate sample
1508  [SAQ2 - AUG4 - S01]  MS  SH  ponderosa pine cones  replicate sample
1509  [SAQ2 - AUG5 - S01]  MS  SH  replicate sample
1518  proceed to next pond  pine cone location
1520 Scout trees in next area not promising.
1525 Move to scout different area.
1533 Begin collecting cones this area.
1534 [SA02-AU06-P01] LH, LN, PH 100 feet.
1536 [SA03-AU06-S01] SH, MS. All decor travels.
1545 Depart sampling area for vehicles.
1548 Load vehicles.
Note: Wade Berman left at 11:30 returned.
1553 Depart SA02 group.
1706 Paul, Jeff, Michelle arrive Warehouse.
1733 Josie checked Field Collection Sample forms against Field Log. Also check labels on samples against Field Collection Forms.
Michelle SA02 will take Field Sampling forms and scan and save to AECOM Network.
1747 Debrief for the day.
1752 Depart Warehouse. EOD.
8-22-18
Weather 55° F Smoky sky no clouds
0700 AQI 111 Worse to the North so here may be
0708 Safety Meeting - Tailgate Northport
   Paul Stu Mark
   Wade Josie Anders
   Whitney Linda Michelle
   Cristy Ellie
SA01 To get cores chokecherry serviceberry rose
Then to SA04 or SA06
SA06 rose hips (poison my three)
SA04 if time
Safety - Driving is biggest risk, keep lights on
Dust & smoke decreased visibility
Cristy - Dave Enos monitoring dust
Soil readings are not necessarily accurate
for smoke, Eootoo Local air quality
Maitained by clean air quality agencies more accurate
0719 Jeff Linda & Michelle depart park to
play lunches, Stu & Anders depart park
to play ice
0728 Linda & Michelle return to park
Michelle observed that she and Stu were
inhaling some dust while soil sampling yesterday
so will wear N95 masks today when
sampling soil, and going forward.
0740 Stu & Anders return w/ ice
0744 Depart Northport Boat Launch park for
0758 Arrive SA01 Paul & Jeff Scout 1st
Sampling area
0808 Proceed to 1st chokecherry location
0812 Calibrate 10g scale w 50g wt 9.3054
   begin collecting 1st chokecherry sample
0815 Calibrate 1000g scale w 500g wt
   1st chokecherry sample
0818 SA01-AQI-GPS AU1 LH M S chokecherry 6.597
0832 SA01-AQI-SOIL SH + Mis
0938 Jeff Whitney, Mark return from recon
   proceed to next chokecherry location
0841 Arrive 2nd chokecherry location. Will attempt replicate at this location.

0844 Begin collecting 2nd chokecherry sample.

0851 SAQ1-AUQ2-P01 3SH MS, LH, LN choke cherry 82g

0858 SAQ1-AUQ3-P01 5SH MS, LH, LN choke cherry 113g

0903 SAQ1-AUQ2-S01 MS, SH 2 replicates

0907 SAQ1-AUQ3-S01 MS, SH

0900 Whitney and Wade depart site to visit Eagles Nest.


0923 SAQ1-AUQ4-P01 AU, SH, LH, LN choke cherry 79g

0927 SAQ1-AUQ4-S01 SH, MS

0931 Depart for next location. Servisberry.

0933 Arrive Servisberry location.

0938 Begin collecting Servisberry.

0941 SAQ1-AUQ5-P01 Servisberry AU, MS, SH, LH, LN, MS 8,9g

0950 SAQ1-AUQ5-S01 MS, SH

0956 Weather 66°F Sunny, smoke, no clouds.

0958 Depart for next Servisberry location.


1006 SAQ1-AUQ6-P01 Servisberry LH, PH, AU 10g

1015 SAQ1-AUQ6-S01 MS, SH

1017 Whitney & Wade return to group.

1025 Begin sampling at SAQ1-AUQ7.

1030 SAQ1-AUQ7-P01 Servisberry LH, PH, AU 6,2g

Skeletal remains noted in vicinity of this location. Probably 8-22-18.
1038 [SAQI-AUG7-5Q1] ms, SH photo 358 Page 3
1048 Depart for next sampling location Sarvisberry 08-30-18
1044 Cristy & Wade depart for fire boat launch park
1048 R/GPS has location right on the border of SAQI but has more abundant berries than other location that was identified as possible sampling location. Will sample this location to ensure sufficient quantity for one sample of two more possible locations of berries not abundant on one so may not be enough for sample.
1050 Begin sampling Sarvisberry for the current location
1053 [SAQI-AUG8-5Q1] Sarvisberry FH, SH, LH, AU 17.5g photo 359
1059 [SAQI-AUG8-5Q1] ms, SH photo 360
1105 Depart to collect next Sarvisberry sample
1107 Arrive next Sarvisberry location.
1113 Begin sampling next Sarvisberry bush
1113 [SAQI-AUG9-5Q1] [Sarvisberry] AU, LH 16.0g photo 361
1123 [SAQI-AUG9-5Q1] ms, SH photo 362
1125 Cristy returned she left Wade at his vehicle. He will text him when we move to next SA but 12-30-18 and he may rejoin group later.
1130 Return to vehicles break for lunch
Note: Observed total of 3 rose hips on total 9 SAQI so inadequate amount of rose hips present in SA and rose hips will not be sampled. Jeff and Mark left vehicle area to do more scouting for rose hips.
1200 Re group for afternoon activities. Keep 2 pole lengths away from pine cone collection using long pruning saw.
Hard hat & safety glasses if harvesting cones. Pine cones can fall to ground that's OK.
cont: Others not harvesting should look for insects/nests or loose branches. Weather Sunny, smoky skies no clouds.
AQI 121 cold/windy.
1215 Depart for first pine cone collection area.
1221 Begin harvesting cones on tree at first location using pruners w/ extension poles. Worked very well, no cones observed.
1230 [SAQ1-AUIA-PQ1] ponderosa pine cone 44,55,56,57. Photo 366/2 cones; most cones are green and closed. One cone is more ripe and open. Cones picked directly from tree, heavier than those from ground.
1238 QIT 172 & I will don masks. Jeff leave to get masks.
1245 Jeff return with masks. Everyone dons masks.
1251 Paul & Michelle proceed to next potential location for pine cones to determine if it is inside the SA.
1254 Paul & Michelle return. Location is outside SA. Jeff & Michelle to lead Paul will scout additional potential locations. Rest of group return to vehicles to wait.
1315 Proceed to pine cone location scouted by Jeff & Michelle, begin collecting cones.
1318 [SAQ1-AUIA-PQ1] [SAQ1-AUIA-SQ1] ponderosa pine cone PH, LH, LW. Photo 368.
1328 Proceed to last ponderosa pine cone sampling location. Begin sampling cones with lopper, on majority long pole. Anderson, Paul & Steve.
1345 [SAQ1-AUIA-PQ1] [SAQ1-AUIA-SQ1] [SAQ1-AUIA-SQ1] [SAQ1-AUIA-SQ1] ponderosa pine cones. Photo 370.
1355 15481 - AU12 - 5017 MS 5/4 Photo 371 Page 5
Weather 85°F mostly sunny smoke no clouds
AGT 121 Colville Northport 150
1405 Depart site for vehicles
1410 Mark and Ellie, Cristy & his
depart site
1415 Depart site, Josie, Jans, Stu to Kettle Falls
Weatherrman warehouse to drop off
samples at JAS 8/22-16, Paul, Michelle, Linda
Jeff & Colville
1531 Arrive Weatherman Warehouse Kettle Falls
Check samples in JAS + SI
Restock supplies decon throwels+clippers
(AU+SH)
1552 Depart Weathermads for Colville, Josie & Stu
Check Data Forms for today against Field Log
1605 Stop at Safeway for Gas
1615 Arrive Comfort INN EOD
8-23-2018
Weather 51°F Partly Cloudy AQI 112-121
Arcadis Air Mon Station 175
0715 Safety Tailgate meeting
Whitney Linda J Stu Ellie
Marky Paul Josie
Jeff Michelle Anders
Northport Boat launch Park
start lower lead areas today
Do not have to wear hard hat or safety glasses unless using laser but I stay well away from work area
Glasses & hardhat could contribute to tripping
Do we have discretion on when to use masks. If overheated or short of breath can take mask off for short time if uncomfortable, take breaks. Keep keys at vehicle. May have to shorten day or take more frequent breaks. Could become dehydrated if additional sweating as masks are hot.
8-23-18
Group J breaks if have to wear mask for all the time
Air Quality - 117-945 8-23-18 Not in mask territory right now.
S&B Jared first today for pine cones, hazelnut, salmonberry, rosehips.
Jeff & Paul will start recon for everything.
Progress Report - three more sites to visit then will visit insufficient volume sites. Will consider later start tomorrow since weather will be cooler.
Whitney will not be here after today. Ellie will be switching out after today as well. Ellie will be here 1/2 day tomorrow. Mark will be here through Friday, possibly Sat
0735 Stu, Josie, Anders depart to get ice, Linda & Michelle, depart to get lunches. Paul & Jeff stay at park.
1743 Stu, Josie, Anders, Linda & Michelle return to Northport Boat Launch Park
1749 Depart Northport Boat Launch Park for SAQ4
0807 Arrive SAQ4
0824 Mobilize to 1st hazelnut bush
Begin collecting nuts

0835 **SAQ4- A001-P01** hazelnut Au, LH, 220 nuts
Photo 372 +373
Calibrate 10g scale 93054 w/ 5g w/ +0 (OK)
Calibrate 500g scale w/ 50g w/ +0 (OK)
Calibrate 500g scale 93049 w/ 50+2x50+10g w/ 0 (OK)

0845 **SAQ4- A002-P01** LH, MS
0846 **SAQ4- A002-P01** LH, MS replicate photo 375

0850 Walk to next hazelnut bush
0853 Begin collecting next hazelnut sample

0856 **SAQ4- A003-P01** hazelnut photo 374 Au, LH, MS 24 nuts

0901 **SAQ4- A003-P01** MS, LH, photo 377

0908 Proceed to first pinecone location this SA
Begin collecting cones from ground

0913 **SAQ4- A004-P01** ponderosa pine photo 378 LH, PH, Au
All cones collected from ground 17 cones

0914 **SAQ4- A004-P01** MS, LH, photo 379

0920 Proceed to next pinecone location. Bear scat, huckleberries area. This tree has cones on branches, will use loppers to harvest

0923 Begin harvesting cones on tree PH + JW

0930 **SAQ4- A085-P01** ponderosa pine photo 2807 LH, JW + PH
Collected from ground 20 cones, Potential Split; Cores

0933 **SAQ4- A085-P01** MS, LH, photo 289 Potential Split; photo 389

0941 2 jars collected

0953 Depart for next ponderosa pine location

0953 Begin collecting cones - all cones collected from ground this location

0959 **SAQ4- A006-P01** ponderosa pine photo 390 LH, AU, WF, MS

Scale: 1 square =
1005  [SAG6-AUD2-SQ1] [MS, SH] Photo 396 [20 nuts]

1007 Weather: 60°F Partly Cloudy

1014 Depart for Vehicles

1020 Arrive Vehicles Load up sampling supplies

1028 Depart SAG4 proceed to SAG6

1032 Arrive SAG6

1035 Proceed to 1st sampling location. Step to show poison ivy so plant can be recognized by those not familiar with it.

1040 Begin collecting hazelnuts at 1st location. Poison ivy observed here

1043 [SAG6-AUD1-PQ1] hazelnut MS, LH, SH, marks 162 nuts

Discuss poison ivy mitigation, have wires for if exposed

1050 [SAG6-AUD1-SQ1] MS, SH [Photo to 393]

Potential split sample

1102 Begin collecting hazelnuts at next location

1105 [SAG6-AUD2-PQ1] hazelnut [Photo 394] Marks S, LH, SH, MS 21 nuts

1110 [SAG6-AUD2-SQ1] [MS, SH] [Photo 395]

Michelle on

1115 Break for lunch

1145 Regroup & discuss additional sampling at SAG6 3rd hazelnut then collect rose hips

1150 Arrive 3rd hazelnut location SAG6, begin collecting nuts. Michelle decont surrounded with

1153 [SAG6-AUD3-PQ1] hazelnut [Photo 396] AU, PH, LH, MS, marks

1200 [SAG6-AUD3-SQ1] MS, SH [Photo 397]

1204 Collect rose hips adjacent to 3rd hazelnut site

1210 [SAG6-AUD4-PQ1] rose hips [Photo 398] JW composite sample

6 th plant 3.3' plant 21.9' Total 9 hips

1215 [SAG6-AUD4-SQ1] MS, SH [Photo 399] [same photo]

1224 Move to next rose location
1225 [SA06-AU05-P01] rose hip JW7q1 Photo 402
7 hips
1234 [SA06-AU05-S01] MS, SH [Photo 403]
1238 Josie, Stu, Anders leave for vehicles to get water
1243 Josie, Stu, Anders return from vehicle
Begin sampling next rose sample single plant.
1246 [SA06-AU06-P01] JW [Photo 404] 15q, 14 hips
Rose hips
1253 [SA06-AU06-S01] MS, SH [Photo 405]
1258 Proceed to next rose sample location
1259 Begin sampling from single plant
1300 [SA06-AU07-P01] rose hips [Photo 406] JW, PH
9q, 11 hips
1311 [SA06-AU07-S01] MS, SH [Photo 407]
1317 Return to vehicles, load equipment
Two locals 2 + Perry approached.
Jeff and Mark spoke with them, they passed through sampling area on ATVs.
Mark briefed them on past activities.
They were interested but not as friendly.
Jeff briefly Mark + Ellie on tomorrow's plan, will meet in Northport at 8:00am.
Boat launch park.
Everyone returning.
1329 All depart site for Kettle Falls
Weather: 78°C Partly Cloudy
1434 Arrive Weather marks, visit house, Kettle Falls
Unload samples, re stock supplies QC.
Samples go: 18-23-18 labels, against field forms and field log book, decon
trays and clippers

8-23-18
August 24, 2018
Weather 56°C, Partly Cloudy, AQI 174 (Colville)
0817 Tail Gate Safety Meeting
Jeff Walker, Stu Holmes, Ellie Traud,
Kendra Howard, Anders Utter, Mary Stifleman,
Michelle Stegner, Josie Smith,
Paul Hamidi, Anna Iverson

Safety briefing by Michelle
Watch for branches swinging back as
group passes. Make sure to 항상
as there is loose debris underfoot.
Review general safety issues for Anna
Iverson.

Air Quality >AQI is above 150 so will be
wearing masks. Will visit SA07 first today
servisberry and chokecherry and ponderosa
pine at this site. Take more frequent breaks
while wearing masks.

0834 Depart Northport Boat launch park for SA07
0850 Arrive SA07
0857 Jeff and Paul depart to recon potential sampling locations
0901 Rest of crew departs vehicles to sampling locations
0915 Stu calibrated scale 9854 with 5g weight (10g scale)
       scale 6 with 5g weight (100g scale)
       scale 93619 with 1550g t\2x\2g weight 500g scale)
0922 Begin sampling SA07 AU01 - P01: chokecherry
       Samplers LHJS, MS, Photo #408
0932 Begin sampling SA07 AU02 - P01: chokecherry
       Sample will be replicate
       SA07 AU01 - P01 sample mass: 105g
       SA07 AU02 - P01 sample mass: 105g

0935 Begin sampling SA07 AU01 - S01: chokecherry soil sample
0936 Begin sampling SA07 AU02 - S01: chokecherry soil sample
  MS + SU soil samplers replicate
0946 Begin sampling SA07 AU03 - P01: chokecherry
  Samplers: LHJS, PH
  Sample mass: 98g

0952 Begin sampling SA07 AU03 - S01: chokecherry soil sample
  Photo #413
  SU + MS - Samplers

NSN: 7530-01-577-8866
10:04 Begin sampling SA07-AU04-P04 : Sarvisberry
Samplers - LH, JS, PH
Sample mass: 21.5g

10:12 Begin sampling SA07-AU04-S02 : Sarvisberry soil sample
Samplers - SH, MS
2 soil jars potential split

10:15 AQI dropped below 150, therefore air quality was good enough to remove masks. Will recheck AQI in 2 hour when website updates to evaluate.

10:20 Begin sampling SA07-AU05-P01 : Sarvisberry
Samplers - LH, PH
Sample mass: 22g

10:32 Begin sampling SA07-AU05-S01 : Sarvisberry soil sample
Samplers - SH, MS

10:35 Meeting to discuss air quality. Coluddy improved to III. Arcadis AQI next to excavation site reads above 200. Decision for masks is up to each members discretion now.

10:38 Soil sampling equipment decon by SH, MS

10:40 Begin sampling SA07-AU06-P01 : Sarvisberry
Samplers - LH, PH, JS
Sample mass: 17g

11:00 Begin sampling SA07-AU06-S01 : Sarvisberry soil sample
Samplers - SH, MS

10:50 Begin sampling SA07-AU07-P01 : Sarvisberry
Samplers - LH, PH, JS
Sample mass: 17g

11:04 Begin sampling SA07-AU07-S01 : Sarvisberry soil sample
Samplers - SH, MS

11:10 Begin sampling SA07-AU08-P01 : Chokecherry
Samplers - LH, JS, PH
Sample mass: 85g

11:15 Begin sampling SA07-AU08-S01 : Chokecherry soil sample
Samplers - SH, MS

11:20 Break for lunch back at the vehicles.
1230 Returned to sampling from lunch break. AQI still below 150. No masks are required but can be used for personal preference.

1231 Begin Sampling S@7-AU12-P@1: Ponderosa Pine
   Samplers - PH JW
   Sample # 13 cones
   * All cones collected using lopper

1237 Begin Sampling S@7-AU9-591: Ponderosa Pine Soil Sample
   Samplers - SH JW

1249 Begin sampling S@7-AU10-P@1: Chokecherry
   Samplers - PH LH MS
   Sample mass: 100 g

1257 Begin sampling S@7-AU10-591: Chokecherry soil sample
   Samplers - SH MS

1306 Begin sampling S@7-AU11-P@1: Chokecherry
   Split
   Sample mass: 212 g
   Samplers - LH MS PH JW

1315 Begin sampling S@7-AU11-591: Chokecherry soil sample
   Samplers - SH MS
   2 soil jars potential split

1316 Jeff received text from Arcadis noting there AQI is 334. Work on standby for Arcadis for 1 hour at least. Arcadis monitoring is not far but they are performing excavation activities which causes increased air disturbance.

1324 Begin Sampling S@7-AU12-P@1: Ponderosa Pine
   Samplers - JW PH
   Sample # 14 cones
   * all collected by lopper

1335 Begin Sampling S@7-AU12-591: Ponderosa Pine Soil Sample
   Samplers - SH MS

1322 Air quality websites giving mixed numbers for AQI. Some above, some below the 150 threshold. Air quality noticeably worse so we decided to put masks on.

1334 Soil sample equip. decor by MS, AU, LH
1342  Begin sampling SA07-A013-P01; Ponderosa pine
Samplers: PH, JW  Sample # 12 cores

1345  Begin sampling SA07-A013-S01; Ponderosa pine soil sample
Samplers: SH, MS

1400  Depart SA07

1515  Arrive Weatherman's warehouse, Kettle Falls
Restock sampling kits, drop off samples
QC Field Data Entry forms, sample labels, against field log.
August 25, 2018

Tailgate Safety Meeting

Safety moment: Air Quality. Currently ADI 1774 Arcata will check reading @ 0830. Stopped work yesterday. Will be wearing masks today.

Go to SA09 for three samples: hazelnut, chokecherry, & rose. If air improves will visit SA14, if not other SAS TBD.

Jeff Walker
Anna Iverson
Linda Howard
Stu Holmes
Josie Smith
Anders Utter
Michelle Steyn
Paul Humidi

0850 Arrived at SA09, mobilized to sampling area to collect samples

0859 Begin sampling SA09-W1-PE1: Hazelnut
Samplers: LH JS MS
Sample # 28 nuts

0905 Begin sampling SA09-W1-So1: Hazelnut soil sample
Samplers: SH MS

0900 Calibrated scale 93054 using 5g weight (10g scale)
0901 Calibrated scale 6 using 50g weight (100g scale)

0910 Begin sampling SA07-W2-PE1: Rose hips
Sampler: LH
Sample mass: 17g

0921 Begin sampling SA07-W2-So1: Rose hips soil sample
Samplers: SH MS

0916 Begin sampling SA09-W3-PE1: Rose hips
Samplers: LH
Sample mass: 16g

0922 Begin sampling SA07-W3-So1: Rose hips soil sample
Samplers: SH MS

0930 Soil sampling equipment gone by AU
Begin sampling SA07-AU04-P01: Chokecherry

Sample mass: 899

Begin sampling SA07-AU04-5P1: Chokecherry soil sample

Photo # 446

0932

0937

0953 Bede at vehicles: shutting down sampling for day due to poor air quality; Arecchi team already shut down as their AQ station was reading 7 400

1005 Depart site. Stu, Linda, Jeff 1 vehicle for recon

Dorie, Anders, point, Michelle to warehouse.

1053 Arrive Weatherman's warehouse.

Decontaminate ALRT QC sample labels, Field Forms

and Field log. Restock sampling supplies

1120 Stu, Jeff, Linda arrive Warehouse
August 27, 2018  
Weather 33°F Rain
0715 Safety Tailgate Meeting

Paul Hamidi  Linda Howard
Jeff Walker  Josie Smith
Michelle Stegner  Stu Holmes
Anders Butler  Anna Iverson

Hazards  
Footing & Roads slippery watch footing
Rattlesnakes: make noise! Horse cows
SA14 for Tuley, mint, possibly
Serviceberry & rose if present

0730 Depart for Northport
0831 Arrive SA14
0853 Begin collecting mint

Calibrate 10g scale 93054 w sq w t
Calibrate 100g scale 60 w sq w t

0903 SA14- SA14-AU01- P01 photo 447 mint
AU, SH, LH, MS 11g

0909 SA14-AU01- SA14-AU01-S01 photo 448
SH, MS

0915 SA14-AU02- P01 photo 449 mint
SH, LH, MS, AU 10.5 g

0923 SA14-AU02- S01 photo 450
SH, MS

0932 SA14-AU03- P01 photo 451 mint split
LH, AU, PH, MS, SH 22.9 g

0940 SA14-AU03-S01 photo 452
SH, MS split

0947 SA14-AU04- P01 photo 453 mint
PH, LH, MS 12g 455
0953 SA14-AU84-801 photo 454 456
0955 AU Deco towels SA58327-18
1008 SA14-AU86-801 photo 454 457 mint 11g
1010 SA14-AU86-801 mint replicate photo 454 457
LS, PH, AU, MS (both samples)
1020 SA14-AU85-801 photo 459
1022 SA14-AU86-801 photo 460 replicate
SH, MS (both samples)
1027 SA14-AU07-801 photo 461 mint 12g
1038 SA14-AU07-801 photo 462
SH, MS
1040 MS, AU Deco towels + pruners
1050 SA14-AU08-801 photo 463 tule 115 + 154 cm
209 cm total
1055 SA14-AU08-801 photo 464
SH, MS
1100 SA14-AU09-801 photo 465 150 + 140 cm 290 cm total
1105 SA14-AU10-801 photo 466 replicate 140 + 180 cm 320 cm total
1110 SA14-AU09-801 photo 467
1115 SA14-AU10-801 photo 468 replicate
1118 SA14-AU11-801 photo 469 135 + 98 cm 233 cm total
1120 SA14-AU11-801 photo 470
LS, PH, MS
1125 AU Deco towels + pruners
1130 Break for lunch
1200 SA14-AU02-801 Tule photo 471
PH 137 + 137 + 138 cm 412 cm Total 1
1205 SA14-AU10-801 Split 2 jars
1215  SA14-AU13-PQ1 tule photo 473 Page 3
PH  156 + 116 cm  272 cm total

1218  SA14-AU13-SQ1 photo 474
SH, MS

1223  SA14-AU14-PQ1 tule photo 475
PH  147 + 130 = 277 cm total  PH, SH
Note: All tule tissue samples were taken
from non-browsed intact stems

1237  SA14-AU14-SQ1 photo 476
SH, MS
All + LH decon travels and prunes

1237  SA14-AU15-PQ1 photo 477 rosa sp 7.2 g
LH, SH

1240  SA14-AU15-SQ1 photo 478
SH, MS

1250  SA14-AU16-PQ1 photo 479  8.15 g servisberry
PH, SH, AU14-

1255  SA14-AU16-SQ1 photo 480
PH, MS

1300  Depart SA14 area for vehicles

1315  Depart site, proceed to SA08

1322  Arrive SA08, walk to sampling area

Weather sunny warm blue skies
High clouds

1355  SA08-AU01-PQ1 photo 481 servisberry 25 g
SH, PH, AU

Snail observed nearby

1358  SA08-AU01-SQ1 photo 482
SH, MS

1410  SA08-AU02-PQ1 photo 483 servisberry 13 g
PH, SH, MS

1419  SA08-AU02-SQ1 photo 484
SH, MS

1425  Depart for vehicles

1435  Depart Northport
August 28 2018
Tailgate Safety Meeting
Jeff Bickelker Paul Hamidi Josie Smith
Stu Holmes
Linda Holmes Anders Utter Anna Iverson
Linda Howard Michelle Stagner
Stu Holmes
Meet weathermans at Northport boat launch
Collect willows @ Deadman's Eddy
Transport via weatherman's boat
Will collect enough length for mercury
Analysis, may have to compost it
Start demo.
Safety tailgate will be at boat
launch with weatherman's
0720 Depart for Northport
0817 Arrive Northport boat launch
Joe Graves Eric Weatherman
Tailgate Safety briefing at boat
launch, PFD instructions. Men overboard
discussion. Watch footing on dock, PFDs
worn on dock. Hand of gear over to someone
on boat, 2 hands free if keep 3 pts of
contact be for boarding + unboarding.
boat launch is rendezvous point for
Emergency services.
0900 Board vessel, discuss fire-runboat onto
shore & disembark right away. Don't lift motor
dock covers. Disembark through windshield port or
Starboard. Fire extinguishers in overhead compartments
Stay sealed until boat is stable.
0912 Depart boat launch
0927 Arrive deadman's eddy, disembark on west
side of river. Michelle S. give cultural briefing
0933 Jeff, Michelle & Paul Hamidi depart to
recon for willows at SA 15
0945 SA15-AUQI-P01 photo 485 Willow Split
PHLL 75+75+68+66+71+70 = 411 cm total
0950 SA15-AUQI-S01 photo 486
SH, MS
0955 SA15-AU02-P01 photo 487 willow
PH, LH, SH 57+75+53 = 190 cm total
0957 SA15-AU02-S01 photo 488
SH, MS
NOTE: SA15-AU02-P01 photo 487 White board indicates split, but this is NOT a split sample
1013 SA15-AU03-P01 photo 499 willow replicate
PH, LH, SH 117 + 85 = 202 cm total
1020 SA15-AU04-P01 photo 490 willow replicate
PH, LH, SH 95 + 68 + 70 = 233 cm total
1022 SA15-AU03-S01 SH, MS photo 491 2 replicates
1023 SA15-AU04-S01 SH, MS photo 492-

1036 SA15-AU05-P01 photo 493 willow
PH, MS, SH 66+74+78 = 218 cm total
1041 SA15-AU05-S01 photo 494 MS, SH

1055 SA15-AU06-P01 photo 495 willow
PH, SH, MS 79+68+56 = 203 cm total
TJS 8-28-18

1059 SA15-AU06-S01 AU05-SA15-AU06-S01 photo 496 MS, SH

1105 SA15-AU07-P01 photo 497 willow
PH, SH, MS 79+62+67 = 218 cm total

1108 SA15-AU07-S01 photo 498
SH, MS

1120 Depart SA15 with Columbia Navigation

1135 Arrive Northport boat launch

1200 Depart Northport boat launch
Break for lunch, Drop off Decon Drum

1255 Depart Northport

1352 Arrive Warehouse, Deobfuscate