

APPENDIX A

FIELD SUMMARY REPORT

Appendix E



1317 South 13th Avenue
Kelso, WA 98626

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 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

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: 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.

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!

A - Test is Authorized

H - Test is On Hold

HP - Test is On Hold
Pending InputP - Test is Authorized for
Prep Only

C - Test has been Cancelled

* - Test has assigned QC

				160.3 Modified TS	1631app Hg LL T	6020 Metals T	6020A Metals T	7471B Hg	Archive Archive -20C	Archive Archive RT	Calculation Moisture Calc_ FreezeDry	Fiz Dry Fiz Dry	Hold Hold	Homogen Homogen
K1804201-001	SA02-SP01-P01	Plant Tissue	4/25/18 1634		C		A			A	A	A		A
K1804201-002	SA02-SP02-P01	Plant Tissue	4/26/18 0954		A		A			A	A	A		A
K1804201-003	SA02-SP03-P01	Plant Tissue	4/26/18 0959		A		A			A	A	A		A
K1804201-004	SA02-SP04-P01	Plant Tissue	4/26/18 1057		A		A			A	A	A		A
K1804201-005	SA02-SP05-P01	Plant Tissue	4/26/18 1129		A		A			A	A	A		A
K1804201-006	SA02-SP06-P01	Plant Tissue	4/26/18 1216		C		A			A	A	A		A
K1804201-007	SA02-SP07-P01	Plant Tissue	4/26/18 1356		C		A			A	A	A		A
K1804201-008	SA03-SP01-P01	Plant Tissue	4/26/18 1547		A		A			A	A	A		A
K1804201-009	SA03-SP02-P01	Plant Tissue	4/26/18 1552		A		A			A	A	A		A
K1804201-010	SA03-SP03-P01	Plant Tissue	4/26/18 1634		C		A			A	A	A		A
K1804201-011	SA03-SP04-P01	Plant Tissue	4/27/18 0907		C		A			A	A	A		A
K1804201-012	SA03-SP05-P01	Plant Tissue	4/27/18 0941		C		A			A	A	A		A
K1804201-013	SA03-SP06-P01	Plant Tissue	4/27/18 1009		C		A			A	A	A		A
K1804201-014	SA03-SP07-P01	Plant Tissue	4/27/18 1035		C		A			A	A	A		A

				160.3 Modified TS	1631app Hg LL T	6020 Metals T	6020A Metals T	7471B Hg	Archive Archive -20C	Archive Archive RT	Calculation Moisture Calc_FreezeDry	Fiz Dry Fiz Dry	Hold Hold	Homogen Homogen
K1804201-015	SA03-SP08-P01	Plant Tissue	4/27/18 1126		C		A			A	A	A		A
K1804201-016	SA03-SP09-P01	Plant Tissue	4/27/18 1304		C		A			A	A	A		A
K1804201-017	SA03-SP10-P01	Plant Tissue	4/27/18 1343		A		A			A	A	A		A
K1804201-018	SA03-SP11-P01	Plant Tissue	4/27/18 1357		A		A			A	A	A		A
K1804201-019	SA03-SP12-P01	Plant Tissue	4/27/18 1433		C		A			A	A	A		A
K1804201-020	SA01-SP01-P01	Plant Tissue	4/27/18 1555		C		A			A	A	A		A
K1804201-021	SA01-SP02-P01	Plant Tissue	4/27/18 1623		C		A			A	A	A		A
K1804201-022	SA01-SP04-P01	Plant Tissue	4/28/18 1034		C		A			A	A	A		A
K1804201-023	SA01-SP05-P01	Plant Tissue	4/28/18 1039		C		A			A	A	A		A
K1804201-024	SA01-SP06-P01	Plant Tissue	4/28/18 1137		C		A			A	A	A		A
K1804201-025	SA01-SP07-P01	Plant Tissue	4/28/18 1157		C		A			A	A	A		A
K1804201-026	SA01-SP08-P01	Plant Tissue	4/28/18 1345		C		A			A	A	A		A
K1804201-027	SA01-SP09-P01	Plant Tissue	4/28/18 1325		C		A			A	A	A		A
K1804201-028	SA01-SP10-P01	Plant Tissue	4/28/18 1440		C		A			A	A	A		A

				160.3 Modified TS	1631app Hg LL T	6020 Metals T	6020A Metals T	7471B Hg	Archive Archive -20C	Archive Archive RT	Calculation Moisture Calc_FreezeDry	Fiz Dry Fiz Dry	Hold Hold	Homogen Homogen
K1804201-029	SA01-SP11-P01	Plant Tissue	4/28/18 1505		C		A			A	A	A		A
K1804201-030	SA01-SP12-P01	Plant Tissue	4/28/18 1543		C		A			A	A	A		A
K1804201-031	SA05-SP01-P01	Plant Tissue	4/30/18 0906		C		A			A	A	A		A
K1804201-032	SA05-SP02-P01	Plant Tissue	4/30/18 0923		C		A			A	A	A		A
K1804201-033	SA05-SP03-P01	Plant Tissue	4/30/18 0949		C		A			A	A	A		A
K1804201-034	SA05-SP04-P01	Plant Tissue	4/30/18 1109		C		A			A	A	A		A
K1804201-035	SA05-SP05-P01	Plant Tissue	4/30/18 1130		C		A			A	A	A		A
K1804201-036	SA05-SP06-P01	Plant Tissue	4/30/18 1147		C		A			A	A	A		A
K1804201-037	SA05-SP07-P01	Plant Tissue	4/30/18 1248		C		A			A	A	A		A
K1804201-038	SA05-SP08-P01	Plant Tissue	4/30/18 1305		C		A			A	A	A		A
K1804201-039	SA05-SP09-P01	Plant Tissue	4/30/18 1343		C		A			A	A	A		A
K1804201-040	SA05-SP10-P01	Plant Tissue	4/30/18 1415		C		A			A	A	A		A
K1804201-041	SA04-SP01-P01	Plant Tissue	4/30/18 1529		A		A			A	A	A		A
K1804201-042	SA04-SP02-P01	Plant Tissue	4/30/18 1530		A		A			A	A	A		A

				160.3 Modified TS	1631app Hg LL T	6020 Metals T	6020A Metals T	7471B Hg	Archive Archive -20C	Archive Archive RT	Calculation Moisture Calc_FreezeDry	Fiz Dry Fiz Dry	Hold Hold	Homogen Homogen
K1804201-043	SA04-SP03-P01	Plant Tissue	4/30/18 1602		A		A			A	A	A		A
K1804201-044	SA04-SP04-P01	Plant Tissue	4/30/18 1619		A		A			A	A	A		A
K1804201-045	SA04-SP05-P01	Plant Tissue	5/ 1/18 1436		A		A			A	A	A		A
K1804201-046	SA04-SP06-P01	Plant Tissue	5/ 1/18 1454		A		A			A	A	A		A
K1804201-047	SA04-SP07-P01	Plant Tissue	5/ 1/18 1525		C		A			A	A	A		A
K1804201-048	SA04-SP08-P01	Plant Tissue	5/ 1/18 1534		C		A			A	A	A		A
K1804201-049	SA16-SP01-P01	Plant Tissue	5/ 1/18 0927		A		A			A	A	A		A
K1804201-050	SA16-SP02-P01	Plant Tissue	5/ 1/18 0942		A		A			A	A	A		A
K1804201-051	SA16-SP03-P01	Plant Tissue	5/ 1/18 1012		A		A			A	A	A		A
K1804201-052	SA16-SP04-P01	Plant Tissue	5/ 1/18 1032		A		A			A	A	A		A
K1804201-053	SA16-SP05-P01	Plant Tissue	5/ 1/18 1054		A		A			A	A	A		A
K1804201-054	SA16-SP06-P01	Plant Tissue	5/ 1/18 1105		A		A			A	A	A		A
K1804201-055	SA16-SP07-P01	Plant Tissue	5/ 1/18 1118		A		A			A	A	A		A
K1804201-056	SA06-SP01-P01	Plant Tissue	5/ 1/18 1655		A		A			A	A	A		A

				160.3 Modified TS	1631app Hg LL T	6020 Metals T	6020A Metals T	7471B Hg	Archive Archive -20C	Archive Archive RT	Calculation Moisture Calc_FreezeDry	Fiz Dry Fiz Dry	Hold Hold	Homogen Homogen
K1804201-057	SA06-SP02-P01	Plant Tissue	5/ 1/18 1657		A		A			A	A	A		A
K1804201-058	SA07-SP01-P01	Plant Tissue	5/ 2/18 1540		C		A			A	A	A		A
K1804201-059	SA07-SP02-P01	Plant Tissue	5/ 2/18 1600		C		A			A	A	A		A
K1804201-060	SA07-SP03-P01	Plant Tissue	5/ 2/18 1618		C		A			A	A	A		A
K1804201-061	SA08-SP01-P01	Plant Tissue	5/ 2/18 0937		C		A			A	A	A		A
K1804201-062	SA08-SP02-P01	Plant Tissue	5/ 2/18 1010		C		A			A	A	A		A
K1804201-063	SA08-SP03-P01	Plant Tissue	5/ 2/18 1045		C		A			A	A	A		A
K1804201-064	SA08-SP04-P01	Plant Tissue	5/ 2/18 1107		C		A			A	A	A		A
K1804201-065	SA08-SP05-P01	Plant Tissue	5/ 2/18 1128		C		A			A	A	A		A
K1804201-066	SA08-SP06-P01	Plant Tissue	5/ 2/18 1141		C		A			A	A	A		A
K1804201-067	SA08-SP07-P01	Plant Tissue	5/ 2/18 1246		C		A			A	A	A		A
K1804201-068	SA08-SP09-P01	Plant Tissue	5/ 2/18 1337		C		A			A	A	A		A
K1804201-069	SA08-SP10-P01	Plant Tissue	5/ 2/18 1415		C		A			A	A	A		A
K1804201-070	SA02-SP01-S01	Soil	4/25/18 1634	C	C	C			C					

				160.3 Modified TS	1631app Hg LL T	6020 Metals T	6020A Metals T	7471B Hg	Archive Archive -20C	Archive Archive RT	Calculation Moisture Calc_ FreezeDry	Fiz Dry Fiz Dry	Hold Hold	Homogen Homogen
K1804201-071	SA02-SP02-S01	Soil	4/26/18 1016	C	C	C		C	C					
K1804201-072	SA02-SP03-S01	Soil	4/26/18 1023	C	C	C		C	C					
K1804201-073	SA02-SP04-S01	Soil	4/26/18 1100	C	C	C		C	C					
K1804201-074	SA02-SP05-S01	Soil	4/26/18 1135	C	C	C		C	C					
K1804201-075	SA02-SP06-S01	Soil	4/26/18 1227	C	C	C			C					
K1804201-076	SA02-SP07-S01	Soil	4/26/18 1419	C	C	C			C					
K1804201-077	SA03-SP01-S01	Soil	4/26/18 1554	C	C	C		C	C					
K1804201-078	SA03-SP02-S01	Soil	4/26/18 1604	C	C	C		C	C					
K1804201-079	SA03-SP03-S01	Soil	4/26/18 1640	C	C	C			C					
K1804201-080	SA03-SP04-S01	Soil	4/27/18 0920	C	C	C			C					
K1804201-081	SA03-SP05-S01	Soil	4/27/18 0949	C	C	C			C					
K1804201-082	SA03-SP06-S01	Soil	4/27/18 1020	C	C	C			C					
K1804201-083	SA03-SP07-S01	Soil	4/27/18 1051	C	C	C			C					
K1804201-084	SA03-SP08-S01	Soil	4/27/18 1129	C	C	C			C					

				160.3 Modified TS	1631app Hg LL T	6020 Metals T	6020A Metals T	7471B Hg	Archive Archive -20C	Archive Archive RT	Calculation Moisture Calc_ FreezeDry	Fiz Dry Fiz Dry	Hold Hold	Homogen Homogen
K1804201-085	SA03-SP09-S01	Soil	4/27/18 1320	C	C	C			C					
K1804201-086	SA03-SP10-S01	Soil	4/27/18 1346	C	C	C		C	C					
K1804201-087	SA03-SP11-S01	Soil	4/27/18 1409	C	C	C		C	C					
K1804201-088	SA03-SP12-S01	Soil	4/27/18 1449	C	C	C			C					
K1804201-089	SA01-SP01-S01	Soil	4/27/18 1603	C	C	C			C					
K1804201-090	SA01-SP02-S01	Soil	4/27/18 1626	C	C	C			C					
K1804201-091	SA01-SP04-S01	Soil	4/28/18 1040	C	C	C			C					
K1804201-092	SA01-SP05-S01	Soil	4/28/18 1105	C	C	C			C					
K1804201-093	SA01-SP06-S01	Soil	4/28/18 1158	C	C	C			C					
K1804201-094	SA01-SP07-S01	Soil	4/28/18 1305	C	C	C			C					
K1804201-095	SA01-SP08-S01	Soil	4/28/18 1355	C	C	C			C					
K1804201-096	SA01-SP09-S01	Soil	4/28/18 1330	C	C	C			C					
K1804201-097	SA01-SP10-S01	Soil	4/28/18 1450	C	C	C			C					
K1804201-098	SA01-SP11-S01	Soil	4/28/18 1510	C	C	C			C					

				160.3 Modified TS	1631app Hg LL T	6020 Metals T	6020A Metals T	7471B Hg	Archive Archive -20C	Archive Archive RT	Calculation Moisture Calc_ FreezeDry	Fiz Dry Fiz Dry	Hold Hold	Homogen Homogen
K1804201-099	SA01-SP12-S01	Soil	4/28/18 1544	C	C	C			C					
K1804201-100	SA05-SP01-S01	Soil	4/30/18 0925	C	C	C			C					
K1804201-101	SA05-SP02-S01	Soil	4/30/18 0926	C	C	C			C					
K1804201-102	SA05-SP03-S01	Soil	4/30/18 1015	C	C	C			C					
K1804201-103	SA05-SP04-S01	Soil	4/30/18 1116	C	C	C			C					
K1804201-104	SA05-SP05-S01	Soil	4/30/18 1132	C	C	C			C					
K1804201-105	SA05-SP06-S01	Soil	4/30/18 1151	C	C	C			C					
K1804201-106	SA05-SP07-S01	Soil	4/30/18 1250	C	C	C			C					
K1804201-107	SA05-SP08-S01	Soil	4/30/18 1317	C	C	C			C					
K1804201-108	SA05-SP09-S01	Soil	4/30/18 1345	C	C	C			C					
K1804201-109	SA05-SP10-S01	Soil	4/30/18 1417	C	C	C			C					
K1804201-110	SA04-SP01-S01	Soil	4/30/18 1533	C	C	C		C	C					
K1804201-111	SA04-SP02-S01	Soil	4/30/18 1536	C	C	C		C	C					
K1804201-112	SA04-SP03-S01	Soil	4/30/18 1605	C	C	C		C	C					

				160.3 Modified TS	1631app Hg LL T	6020 Metals T	6020A Metals T	7471B Hg	Archive Archive -20C	Archive Archive RT	Calculation Moisture Calc_FreezeDry	Fiz Dry Fiz Dry	Hold Hold	Homogen Homogen
K1804201-113	SA04-SP04-S01	Soil	4/30/18 1623	C	C	C		C	C					
K1804201-114	SA04-SP05-S01	Soil	5/ 1/18 1442	C	C	C		C	C					
K1804201-115	SA04-SP06-S01	Soil	5/ 1/18 1457	C	C	C		C	C					
K1804201-116	SA04-SP07-S01	Soil	5/ 1/18 1553	C	C	C			C					
K1804201-117	SA04-SP08-S01	Soil	5/ 1/18 1610	C	C	C			C					
K1804201-118	SA16-SP01-S01	Soil	5/ 1/18 0951	C	C	C		C	C					
K1804201-119	SA16-SP02-S01	Soil	5/ 1/18 0959	C	C	C		C	C					
K1804201-120	SA16-SP03-S01	Soil	5/ 1/18 1020	C	C	C		C	C					
K1804201-121	SA16-SP04-S01	Soil	5/ 1/18 1037	C	C	C		C	C					
K1804201-122	SA16-SP05-S01	Soil	5/ 1/18 1057	C	C	C		C	C					
K1804201-123	SA16-SP06-S01	Soil	5/ 1/18 1109	C	C	C		C	C					
K1804201-124	SA16-SP07-S01	Soil	5/ 1/18 1122	C	C	C		C	C					
K1804201-125	SA06-SP01-S01	Soil	5/ 1/18 1700	C	C	C		C	C					
K1804201-126	SA06-SP02-S01	Soil	5/ 1/18 1703	C	C	C		C	C					

				160.3 Modified TS	1631app Hg LL T	6020 Metals T	6020A Metals T	7471B Hg	Archive Archive -20C	Archive Archive RT	Calculation Moisture Calc_FreezeDry	Fiz Dry Fiz Dry	Hold Hold	Homogen Homogen
K1804201-141	Homog. Blank	Water	5/9/18 1348										A	
K1804201-142	Rinsate Blank	Water	5/10/18 0849										A	
K1804201-143	Homog. Blank	Water	5/10/18 1019										A	
K1804201-144	Homog. Blank	Water	5/10/18 1135										A	
K1804201-145	Rinsate Blank	Water	5/11/18 0911										A	
K1804201-146	Homog. Blank	Water	5/11/18 0958										A	
K1804201-147	Homog. Blank	Water	5/11/18 1020										A	

Test Comments:

Group	Test/Method	Samples	Comments
Metals	6020/Metals T	70-71, R01, 72-73, R01, 74-75, R01, 76-77, R01, 78	Al,Sb,As,Ba,Be,Cd,Cr,Co,Cu,Fe,Pb,Mn,Ni,Se,Ag,Tl,V,Zn
Metals	6020A/Metals T	1-69	Al,Sb,As,Ba,Be,Cd,Cr,Co,Cu,Pb,Fe,Mn,Ni,Se, Ag,Tl,V,Zn



1317 South 13th Avenue
Kelso, WA 98626

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 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!

A - Test is Authorized

H - Test is On Hold

HP - Test is On Hold
Pending InputP - Test is Authorized for
Prep Only

C - Test has been Cancelled

* - Test has assigned QC

				160.3 Modified TS-Air Dried	1631app Hg LL T	6020A Metals T	7471B Hg	Archive Archive -20C	Sieve Sieve
K1804671-001	SA02-SP01-S01	Soil	4/25/18 1634	A	C	A		A	A
K1804671-002	SA02-SP02-S01	Soil	4/26/18 1016	A	A	A	C	A	A
K1804671-003	SA02-SP03-S01	Soil	4/26/18 1023	A	A	A	C	A	A
K1804671-004	SA02-SP04-S01	Soil	4/26/18 1100	A	A	A	C	A	A
K1804671-005	SA02-SP05-S01	Soil	4/26/18 1135	A	A	A	C	A	A
K1804671-006	SA02-SP06-S01	Soil	4/26/18 1227	A	C	A		A	A
K1804671-007	SA02-SP07-S01	Soil	4/26/18 1419	A	C	A		A	A
K1804671-008	SA03-SP01-S01	Soil	4/26/18 1554	A	A	A	C	A	A
K1804671-009	SA03-SP02-S01	Soil	4/26/18 1604	A	A	A	C	A	A
K1804671-010	SA03-SP03-S01	Soil	4/26/18 1640	A	C	A		A	A
K1804671-011	SA03-SP04-S01	Soil	4/27/18 0920	A	C	A		A	A
K1804671-012	SA03-SP05-S01	Soil	4/27/18 0949	A	C	A		A	A
K1804671-013	SA03-SP06-S01	Soil	4/27/18 1020	A	C	A		A	A
K1804671-014	SA03-SP07-S01	Soil	4/27/18 1051	A	C	A		A	A

				160.3 Modified TS-Air Dried	1631app Hg LL T	6020A Metals T	7471B Hg	Archive Archive -20C	Sieve Sieve
K1804671-015	SA03-SP08-S01	Soil	4/27/18 1129	A	C	A		A	A
K1804671-016	SA03-SP09-S01	Soil	4/27/18 1320	A	C	A		A	A
K1804671-017	SA03-SP10-S01	Soil	4/27/18 1346	A	A	A	C	A	A
K1804671-018	SA03-SP11-S01	Soil	4/27/18 1409	A	A	A	C	A	A
K1804671-019	SA03-SP12-S01	Soil	4/27/18 1449	A	C	A		A	A
K1804671-020	SA01-SP01-S01	Soil	4/27/18 1603	A	C	A		A	A

Test Comments:

Group	Test/Method	Samples	Comments
Metals	6020A/Metals T	1-20	Al,Sb,As,Ba,Be,Cd,Cr,Co,Cu,Fe,Pb,Mn,Ni,Se,Ag,Tl,V,Zn



1317 South 13th Avenue
Kelso, WA 98626

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 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!

A - Test is Authorized

H - Test is On Hold

HP - Test is On Hold
Pending InputP - Test is Authorized for
Prep Only

C - Test has been Cancelled

* - Test has assigned QC

				160.3 Modified TS-Air Dried	1631app Hg LL T	6020A Metals T	Archive Archive -20C	Sieve Sieve
K1804672-001	SA01-SP02-S01	Soil	4/27/18 1626	A	C	HP	A	A
K1804672-002	SA01-SP04-S01	Soil	4/28/18 1040	A	C	HP	A	A
K1804672-003	SA01-SP05-S01	Soil	4/28/18 1105	A	C	HP	A	A
K1804672-004	SA01-SP06-S01	Soil	4/28/18 1158	A	C	HP	A	A
K1804672-005	SA01-SP07-S01	Soil	4/28/18 1305	A	C	HP	A	A
K1804672-006	SA01-SP08-S01	Soil	4/28/18 1355	A	C	HP	A	A
K1804672-007	SA01-SP09-S01	Soil	4/28/18 1330	A	C	HP	A	A
K1804672-008	SA01-SP10-S01	Soil	4/28/18 1450	A	C	HP	A	A
K1804672-009	SA01-SP11-S01	Soil	4/28/18 1510	A	C	HP	A	A
K1804672-010	SA01-SP12-S01	Soil	4/28/18 1544	A	C	HP	A	A
K1804672-011	SA05-SP01-S01	Soil	4/30/18 0925	A	C	HP	A	A
K1804672-012	SA05-SP02-S01	Soil	4/30/18 0926	A	C	HP	A	A
K1804672-013	SA05-SP03-S01	Soil	4/30/18 1015	A	C	HP	A	A
K1804672-014	SA05-SP04-S01	Soil	4/30/18 1116	A	C	HP	A	A

				160.3 Modified TS-Air Dried	1631app Hg LL T	6020A Metals T	Archive Archive -20C	Sieve Sieve
K1804672-015	SA05-SP05-S01	Soil	4/30/18 1132	A	C	HP	A	A
K1804672-016	SA05-SP06-S01	Soil	4/30/18 1151	A	C	HP	A	A
K1804672-017	SA05-SP07-S01	Soil	4/30/18 1250	A	C	HP	A	A
K1804672-018	SA05-SP08-S01	Soil	4/30/18 1317	A	C	HP	A	A
K1804672-019	SA05-SP09-S01	Soil	4/30/18 1345	A	C	HP	A	A
K1804672-020	SA05-SP10-S01	Soil	4/30/18 1417	A	C	HP	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Metals	6020A/Metals T	1-20	Al,Sb,As,Ba,Be,Cd,Cr,Co,Cu,Fe,Pb,Mn,Ni,Se,Ag,Tl,V,Zn



1317 South 13th Avenue
Kelso, WA 98626

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 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

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!

A - Test is Authorized

H - Test is On Hold

HP - Test is On Hold
Pending InputP - Test is Authorized for
Prep Only

C - Test has been Cancelled

* - Test has assigned QC

				160.3 Modified TS-Air Dried	1631app Hg LL T	6020A Metals T	7471B Hg	Archive Archive -20C	Sieve Sieve
K1804673-001	SA04-SP01-S01	Soil	4/30/18 1533	A	A	A	C	A	A
K1804673-002	SA04-SP02-S01	Soil	4/30/18 1536	A	A	A	C	A	A
K1804673-003	SA04-SP03-S01	Soil	4/30/18 1605	A	A	A	C	A	A
K1804673-004	SA04-SP04-S01	Soil	4/30/18 1623	A	A	A	C	A	A
K1804673-005	SA04-SP05-S01	Soil	5/ 1/18 1442	A	A	A	C	A	A
K1804673-006	SA04-SP06-S01	Soil	5/ 1/18 1457	A	A	A	C	A	A
K1804673-007	SA04-SP07-S01	Soil	5/ 1/18 1553	A	C	A	C	A	A
K1804673-008	SA04-SP08-S01	Soil	5/ 1/18 1610	A	C	A	C	A	A
K1804673-009	SA16-SP01-S01	Soil	5/ 1/18 0951	A	A	A	C	A	A
K1804673-010	SA16-SP02-S01	Soil	5/ 1/18 0959	A	A	A	C	A	A
K1804673-011	SA16-SP03-S01	Soil	5/ 1/18 1020	A	A	A	C	A	A
K1804673-012	SA16-SP04-S01	Soil	5/ 1/18 1037	A	A	A	C	A	A
K1804673-013	SA16-SP05-S01	Soil	5/ 1/18 1057	A	A	A	C	A	A
K1804673-014	SA16-SP06-S01	Soil	5/ 1/18 1109	A	A	A	C	A	A

				160.3 Modified TS-Air Dried	1631app Hg LL T	6020A Metals T	7471B Hg	Archive Archive -20C	Sieve Sieve
K1804673-015	SA16-SP07-S01	Soil	5/ 1/18 1122	A	A	A	C	A	A
K1804673-016	SA06-SP01-S01	Soil	5/ 1/18 1700	A	A	A	C	A	A
K1804673-017	SA06-SP02-S01	Soil	5/ 1/18 1703	A	A	A	C	A	A
K1804673-018	SA07-SP01-S01	Soil	5/ 2/18 1555	A	C	A	C	A	A
K1804673-019	SA07-SP02-S01	Soil	5/ 2/18 1608	A	C	A	C	A	A
K1804673-020	SA07-SP03-S01	Soil	5/ 2/18 1626	A	C	A	C	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Metals	6020A/Metals T	1-20	Al,Sb,As,Ba,Be,Cd,Cr,Co,Cu,Pb,Fe,Mn,Ni,Se, Ag,Tl,V,Zn



1317 South 13th Avenue
Kelso, WA 98626

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 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

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 -130 through -138

MS,MSD,SRMs required per every 20 samples.

Air Dry/Sieve with 150 µm sieve.

Thank you for your business!

A - Test is Authorized

H - Test is On Hold

HP - Test is On Hold
Pending Input

P - Test is Authorized for
Prep Only

C - Test has been Cancelled

* - Test has assigned QC

				160.3 Modified TS-Air Dried	1631app Hg LL T	6020A Metals T	7471B Hg	Archive Archive -20C	Sieve Sieve
K1804674-001	SA08-SP01-S01	Soil	5/2/18 0945	A	C	A	C	A	A
K1804674-002	SA08-SP02-S01	Soil	5/2/18 1018	A	C	A	C	A	A
K1804674-003	SA08-SP03-S01	Soil	5/2/18 1055	A	C	A	C	A	A
K1804674-004	SA08-SP04-S01	Soil	5/2/18 1113	A	C	A	C	A	A
K1804674-005	SA08-SP05-S01	Soil	5/2/18 1132	A	C	A	C	A	A
K1804674-006	SA08-SP06-S01	Soil	5/2/18 1145	A	C	A	C	A	A
K1804674-007	SA08-SP07-S01	Soil	5/2/18 1255	A	C	A	C	A	A
K1804674-008	SA08-SP09-S01	Soil	5/2/18 1351	A	C	A	C	A	A
K1804674-009	SA08-SP10-S01	Soil	5/2/18 1425	A	C	A	C	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Metals	6020A/Metals T	1-9	Al,Sb,As,Ba,Be,Cd,Cr,Co,Cu,Fe,Pb,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:		Fax:	360-636-1068
Phone:	509-623-4530	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

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: Samples are a re-issue from K1804201.

Thank you for your business!

A - Test is Authorized H - Test is On Hold HP - Test is On Hold Pending Input P - Test is Authorized for Prep Only C - Test has been Cancelled * - Test has assigned QC

				1631E Hg LL T	6020A Metals T
K1805751-001	Rinsate Blank	Water	5/9/18 1110	A	A
K1805751-002	Homog. Blank	Water	5/9/18 1135	A	A
K1805751-003	Homog. Blank	Water	5/9/18 1348	A	A
K1805751-004	Rinsate Blank	Water	5/10/18 0849	A	A
K1805751-005	Homog. Blank	Water	5/10/18 1019	A	A
K1805751-006	Homog. Blank	Water	5/10/18 1135	A	A
K1805751-007	Rinsate Blank	Water	5/11/18 0911	A	A
K1805751-008	Homog. Blank	Water	5/11/18 0958	A	A
K1805751-009	Homog. Blank	Water	5/11/18 1020	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Metals	6020A/Metals T	1-9	Al,Sb,As,Ba,Be,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:		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!

A - Test is Authorized H - Test is On Hold HP - Test is On Hold Pending Input P - Test is Authorized for Prep Only C - Test has been Cancelled * - Test has assigned QC

				160.3 Modified TS-Air Dried	1631app Hg LL T	6020A Metals T	7471B Hg	Archive Archive -20C	Sieve Sieve
K1805922-001	SA01-JU01-S01	Soil	6/19/18 0819	A	HP	HP	C	A	A
K1805922-002	SA01-JU02-S01	Soil	6/19/18 0852	A	HP	HP	C	A	A
K1805922-003	SA01-JU03-S01	Soil	6/19/18 0858	A	HP	HP	C	A	A
K1805922-004	SA01-JU04-S01	Soil	6/19/18 0926	A	HP	HP	C	A	A
K1805922-005	SA03-JU01-S01	Soil	6/18/18 1432	A	HP	HP	C	A	A
K1805922-006	SA03-JU02-S01	Soil	6/18/18 1454	A	HP	HP	C	A	A
K1805922-007	SA03-JU03-S01	Soil	6/18/18 1513	A	HP	HP	C	A	A
K1805922-008	SA03-JU04-S01	Soil	6/18/18 1604	A		HP	C	A	A
K1805922-009	SA03-JU05-S01	Soil	6/18/18 1641	A		HP	C	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Metals	6020A/Metals T	1-9	Al,Sb,As,Ba,Be,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:		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 **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

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!

A - Test is Authorized H - Test is On Hold HP - Test is On Hold Pending Input P - Test is Authorized for Prep Only C - Test has been Cancelled * - Test has assigned QC

				160.3 Modified TS-Air Dried	1631app Hg LL T	6020A Metals T	7471B Hg	Archive Archive -20C	Sieve Sieve
K1805923-001	SA04-JU01-S01	Soil	6/19/18 1243	A	HP	HP	C	A	A
K1805923-002	SA04-JU02-S01	Soil	6/19/18 1308	A	HP	HP	C	A	A
K1805923-003	SA04-JU03-S01	Soil	6/19/18 1314	A	HP	HP	C	A	A
K1805923-004	SA04-JU04-S01	Soil	6/19/18 1335	A	HP	HP	C	A	A
K1805923-005	SA04-JU05-S01	Soil	6/19/18 1411	A		HP	C	A	A
K1805923-006	SA04-JU06-S01	Soil	6/19/18 1438	A		HP	C	A	A
K1805923-007	SA04-JU07-S01	Soil	6/19/18 1501	A		HP	C	A	A
K1805923-008	SA04-JU08-S01	Soil	6/20/18 0832	A		HP	C	A	A
K1805923-009	SA04-JU09-S01	Soil	6/20/18 0858	A		HP	C	A	A
K1805923-010	SA04-JU10-S01	Soil	6/20/18 0924	A		HP	C	A	A
K1805923-011	SA06-JU01-S01	Soil	6/20/18 1031	A	HP	HP	C	A	A
K1805923-012	SA06-JU02-S01	Soil	6/20/18 1051	A	HP	HP	C	A	A
K1805923-013	SA06-JU03-S01	Soil	6/20/18 1054	A	HP	HP	C	A	A
K1805923-014	SA06-JU04-S01	Soil	6/20/18 1118	A	HP	HP	C	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Metals	6020A/Metals T	1-14	Al,Sb,As,Ba,Be,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:		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 **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

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: 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!

A - Test is Authorized H - Test is On Hold HP - Test is On Hold Pending Input P - Test is Authorized for Prep Only C - Test has been Cancelled * - Test has assigned QC

				1631app Hg LL T	6020A Metals T	Archive Archive RT	Calculation Moisture Calc_ FreezeDry	Fiz Dry Fiz Dry	Homogen Homogen
K1805926-001	SA01-JU01-P01	Plant Tissue	6/19/18 0814	HP	HP	A	A	A	A
K1805926-002	SA01-JU02-P01	Plant Tissue	6/19/18 0839	HP	HP	A	A	A	A
K1805926-003	SA01-JU03-P01	Plant Tissue	6/19/18 0845	HP	HP	A	A	A	A
K1805926-004	SA01-JU04-P01	Plant Tissue	6/19/18 0922	HP	HP	A	A	A	A
K1805926-005	SA03-JU01-P01	Plant Tissue	6/18/18 1418	HP	HP	A	A	A	A
K1805926-006	SA03-JU02-P01	Plant Tissue	6/18/18 1449	HP	HP	A	A	A	A
K1805926-007	SA03-JU03-P01	Plant Tissue	6/18/18 1507	HP	HP	A	A	A	A
K1805926-008	SA03-JU04-P01	Plant Tissue	6/18/18 1551		HP	A	A	A	A
K1805926-009	SA03-JU05-P01	Plant Tissue	6/18/18 1628		HP	A	A	A	A
K1805926-010	SA04-JU01-P01	Plant Tissue	6/19/18 1237	HP	HP	A	A	A	A
K1805926-011	SA04-JU02-P01	Plant Tissue	6/19/18 1302	HP	HP	A	A	A	A
K1805926-012	SA04-JU03-P01	Plant Tissue	6/19/18 1304	HP	HP	A	A	A	A
K1805926-013	SA04-JU04-P01	Plant Tissue	6/19/18 1329	HP	HP	A	A	A	A
K1805926-014	SA04-JU05-P01	Plant Tissue	6/19/18 1406		HP	A	A	A	A

				1631app Hg LL T	6020A Metals T	Archive Archive RT	Calculation Moisture Calc_ FreezeDry	Fiz Dry Fiz Dry	Homogen Homogen
K1805926-015	SA04-JU06-P01	Plant Tissue	6/19/18 1431		HP	A	A	A	A
K1805926-016	SA04-JU07-P01	Plant Tissue	6/19/18 1456		HP	A	A	A	A
K1805926-017	SA04-JU08-P01	Plant Tissue	6/20/18 0825		HP	A	A	A	A
K1805926-018	SA04-JU09-P01	Plant Tissue	6/20/18 0842		HP	A	A	A	A
K1805926-019	SA04-JU10-P01	Plant Tissue	6/20/18 0912		HP	A	A	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Metals	6020A/Metals T	1-19	Al,Sb,As,Ba,Be,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:		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 **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
 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 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!

A - Test is Authorized H - Test is On Hold HP - Test is On Hold Pending Input P - Test is Authorized for Prep Only C - Test has been Cancelled * - Test has assigned QC

				1631app Hg LL T	6020A Metals T	Archive Archive RT	Calculation Moisture Calc_ FreezeDry	Fiz Dry Fiz Dry	Homogen Homogen
K1805927-001	SA06-JU01-P01	Plant Tissue	6/20/18 1022	HP	HP	A	A	A	A
K1805927-002	SA06-JU02-P01	Plant Tissue	6/20/18 1046	HP	HP	A	A	A	A
K1805927-003	SA06-JU03-P01	Plant Tissue	6/20/18 1047	HP	HP	A	A	A	A
K1805927-004	SA06-JU04-P01	Plant Tissue	6/20/18 1116	HP	HP	A	A	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Metals	6020A/Metals T	1-4	Al,Sb,As,Ba,Be,Cd,Cr,Co,Cu,Pb,Fe,Mn,Ni,Se, Ag,Tl,V,Zn



1317 South 13th Avenue
Kelso, WA 98626

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 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

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:

Thank you for your business!

A - Test is Authorized H - Test is On Hold HP - Test is On Hold Pending Input P - Test is Authorized for Prep Only C - Test has been Cancelled * - Test has assigned QC

1631E Hg LL T	6020A Metals T
------------------	-------------------

K1806187-001	Rinsate Blank K1805926	Water	6/28/18 1430	A	A
K1806187-002	Homog. Blank K1805926	Water	6/28/18 1515	A	A
K1806187-003	Homog. Blank K1805926	Water	6/28/18 1615	A	A
K1806187-004	Rinsate Blank K1805926,5927	Water	6/29/18 0840	A	A
K1806187-005	Homog. Blank K1805926,5927	Water	6/29/18 0905	A	A
K1806187-006	Homog. Blank K1805926,5927	Water	6/29/18 0920	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Metals	6020A/Metals T	1-6	Al,Sb,As,Ba,Be,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:		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 **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

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!

A - Test is Authorized H - Test is On Hold HP - Test is On Hold Pending Input P - Test is Authorized for Prep Only C - Test has been Cancelled * - Test has assigned QC

				6020A Metals T	Archive Archive RT	Calculation Moisture Calc_ FreezeDry	Frz Dry Frz Dry	Grind Grind	Homogen Homogen
K1808212-001	SA07-AU01-P01	Plant Tissue	8/24/18 0922	HP	A	A	A	A	A
K1808212-002	SA07-AU02-P01	Plant Tissue	8/24/18 0932	HP	A	A	A	A	A
K1808212-003	SA07-AU03-P01	Plant Tissue	8/24/18 0946	HP	A	A	A	A	A
K1808212-004	SA07-AU04-P01	Plant Tissue	8/24/18 1004	HP	A	A	A	A	A
K1808212-005	SA07-AU05-P01	Plant Tissue	8/24/18 1020	HP	A	A	A	A	A
K1808212-006	SA07-AU06-P01	Plant Tissue	8/24/18 1040	HP	A	A	A	A	A
K1808212-007	SA07-AU07-P01	Plant Tissue	8/24/18 1050	HP	A	A	A	A	A
K1808212-008	SA07-AU08-P01	Plant Tissue	8/24/18 1110	HP	A	A	A	A	A
K1808212-009	SA07-AU09-P01	Plant Tissue	8/24/18 1231	HP	A	A	A	A	A
K1808212-010	SA07-AU10-P01	Plant Tissue	8/24/18 1249	HP	A	A	A	A	A
K1808212-011	SA07-AU11-P01	Plant Tissue	8/24/18 1306	HP	A	A	A	A	A
K1808212-012	SA07-AU12-P01	Plant Tissue	8/24/18 1324	HP	A	A	A	A	A
K1808212-013	SA07-AU13-P01	Plant Tissue	8/24/18 1342	HP	A	A	A	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Metals	6020A/Metals T	1-13	Al,Sb,As,Ba,Be,Cd,Cr,Co,Cu,Pb,Fe,Mn,Ni,Se, Ag,Tl,V,Zn



1317 South 13th Avenue
Kelso, WA 98626

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 **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!

A - Test is Authorized H - Test is On Hold HP - Test is On Hold Pending Input P - Test is Authorized for Prep Only C - Test has been Cancelled * - Test has assigned QC

				1631app Hg LL T	6020A Metals T	Archive Archive RT	Calculation Moisture Calc_ FreezeDry	Fiz Dry Fiz Dry	Grind Grind	Homogen Homogen
K1808217-001	SA14- AU01-P01	Plant Tissue	8/27/18 0903	HP	HP	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

				1631app Hg LL T	6020A Metals T	Archive Archive RT	Calculation Moisture Calc_ FreezeDry	Fiz Dry Fiz Dry	Grind Grind	Homogen Homogen
K1808217-015	SA14-AU15-P01	Plant Tissue	8/27/18 1237	HP	HP	A	A	A	A	A
K1808217-016	SA14-AU16-P01	Plant Tissue	8/27/18 1250	HP	HP	A	A	A	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Metals	6020A/Metals T	1-16	Al,Sb,As,Ba,Be,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:		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 **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!

A - Test is Authorized H - Test is On Hold HP - Test is On Hold Pending Input P - Test is Authorized for Prep Only C - Test has been Cancelled * - Test has assigned QC

				6020A Metals T	Archive Archive RT	Calculation Moisture Calc_ FreezeDry	Frz Dry Frz Dry	Grind Grind	Homogen Homogen
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:

Group	Test/Method	Samples	Comments
Metals	6020A/Metals T	1-12	Al,Sb,As,Ba,Be,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:		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 **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

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!

A - Test is Authorized H - Test is On Hold HP - Test is On Hold Pending Input P - Test is Authorized for Prep Only C - Test has been Cancelled * - Test has assigned QC

				6020A Metals T	Archive Archive RT	Calculation Moisture Calc_ FreezeDry	Frz Dry Frz Dry	Grind Grind	Homogen Homogen
K1808222-001	SA03-AU01-P01	Plant Tissue	8/21/18 0847	HP	A	A	A	A	A
K1808222-002	SA03-AU02-P01	Plant Tissue	8/21/18 0918	HP	A	A	A	A	A
K1808222-003	SA03-AU03-P01	Plant Tissue	8/21/18 0927	HP	A	A	A	A	A
K1808222-004	SA03-AU04-P01	Plant Tissue	8/21/18 0959	HP	A	A	A	A	A
K1808222-005	SA03-AU05-P01	Plant Tissue	8/21/18 1032	HP	A	A	A	A	A
K1808222-006	SA03-AU06-P01	Plant Tissue	8/21/18 1055	HP	A	A	A	A	A
K1808222-007	SA03-AU07-P01	Plant Tissue	8/21/18 1212	HP	A	A	A	A	A
K1808222-008	SA03-AU08-P01	Plant Tissue	8/21/18 1233	HP	A	A	A	A	A
K1808222-009	SA03-AU09-P01	Plant Tissue	8/21/18 1259	HP	A	A	A	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Metals	6020A/Metals T	1-9	Al,Sb,As,Ba,Be,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:		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 **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

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!

A - Test is Authorized H - Test is On Hold HP - Test is On Hold Pending Input P - Test is Authorized for Prep Only C - Test has been Cancelled * - Test has assigned QC

				6020A Metals T	Archive Archive RT	Calculation Moisture Calc_ FreezeDry	Frz Dry Frz Dry	Grind Grind	Homogen Homogen
K1808224-001	SA06-AU01-P01	Plant Tissue	8/23/18 1043	HP	A	A	A	A	A
K1808224-002	SA06-AU02-P01	Plant Tissue	8/23/18 1105	HP	A	A	A	A	A
K1808224-003	SA06-AU03-P01	Plant Tissue	8/23/18 1153	HP	A	A	A	A	A
K1808224-004	SA06-AU04-P01	Plant Tissue	8/23/18 1210	HP	A	A	A	A	A
K1808224-005	SA06-AU05-P01	Plant Tissue	8/23/18 1225	HP	A	A	A	A	A
K1808224-006	SA06-AU06-P01	Plant Tissue	8/23/18 1246	HP	A	A	A	A	A
K1808224-007	SA06-AU07-P01	Plant Tissue	8/23/18 1300	HP	A	A	A	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Metals	6020A/Metals T	1-7	Al,Sb,As,Ba,Be,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:		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 **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

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!

A - Test is Authorized H - Test is On Hold HP - Test is On Hold Pending Input P - Test is Authorized for Prep Only C - Test has been Cancelled * - Test has assigned QC

				160.3 Modified TS	1631app Hg LL T	6010C Metals T	6020A Metals T	7471B Hg	Archive Archive -20C	Sieve Sieve
K1808225-001	SA01-AU01-S01	Soil	8/22/18 0822	A	C	C	A	C	A	A
K1808225-002	SA01-AU02-S01	Soil	8/22/18 0903	A	C	C	A	C	A	A
K1808225-003	SA01-AU03-S01	Soil	8/22/18 0907	A	C	C	A	C	A	A
K1808225-004	SA01-AU04-S01	Soil	8/22/18 0927	A	C	C	A	C	A	A
K1808225-005	SA01-AU05-S01	Soil	8/22/18 0950	A	C	C	A	C	A	A
K1808225-006	SA01-AU06-S01	Soil	8/22/18 1015	A	C	C	A	C	A	A
K1808225-007	SA01-AU07-S01	Soil	8/22/18 1038	A	C	C	A	C	A	A
K1808225-008	SA01-AU08-S01	Soil	8/22/18 1059	A	C	C	A	C	A	A
K1808225-009	SA01-AU09-S01	Soil	8/22/18 1123	A	C	C	A	C	A	A
K1808225-010	SA01-AU10-S01	Soil	8/22/18 1240	A	C	C	A	C	A	A
K1808225-011	SA01-AU11-S01	Soil	8/22/18 1325	A	C	C	A	C	A	A
K1808225-012	SA01-AU12-S01	Soil	8/22/18 1355	A	C	C	A	C	A	A
K1808225-013	SA02-AU01-S01	Soil	8/21/18 1410	A	C	C	A	C	A	A
K1808225-014	SA02-AU02-S01	Soil	8/21/18 1423	A	C	C	A	C	A	A

				160.3 Modified TS	1631app Hg LL T	6010C Metals T	6020A Metals T	7471B Hg	Archive Archive -20C	Sieve Sieve
K1808225-015	SA02-AU03-S01	Soil	8/21/18 1440	A	C	C	A	C	A	A
K1808225-016	SA02-AU04-S01	Soil	8/21/18 1508	A	C	C	A	C	A	A
K1808225-017	SA02-AU05-S01	Soil	8/21/18 1509	A	C	C	A	C	A	A
K1808225-018	SA02-AU06-S01	Soil	8/21/18 1536	A	C	C	A	C	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Soils Prep	Sieve/Sieve	1-18	150 micron Sieve Number 100 Mesh.
Metals	6010C/Metals T	1-18	6010C Fe
Metals	6020A/Metals T	1-18	Al,Sb,As,Ba,Be,Cd,Cr,Co,Cu,Pb,Fe,Mn,Ni,Se, Ag,Tl,V,Zn



1317 South 13th Avenue
Kelso, WA 98626

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 **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

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!

A - Test is Authorized H - Test is On Hold HP - Test is On Hold Pending Input P - Test is Authorized for Prep Only C - Test has been Cancelled * - Test has assigned QC

				1631app Hg LL T	6020A Metals T	Archive Archive RT	Calculation Moisture Calc_ FreezeDry	Fiz Dry Fiz Dry	Grind Grind	Homogen Homogen
K1808226-001	SA08-AU01-P01	Plant Tissue	8/27/18 1355	HP	HP	A	A	A	A	A
K1808226-002	SA08-AU02-P01	Plant Tissue	8/27/18 1410	HP	HP	A	A	A	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Metals	6020A/Metals T	1-2	Al,Sb,As,Ba,Be,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:		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 **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

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!

A - Test is Authorized H - Test is On Hold HP - Test is On Hold Pending Input P - Test is Authorized for Prep Only C - Test has been Cancelled * - Test has assigned QC

				6020A Metals T	Archive Archive RT	Calculation Moisture Calc_ FreezeDry	Frz Dry Frz Dry	Grind Grind	Homogen Homogen
K1808228-001	SA02-AU01-P01	Plant Tissue	8/21/18 1407	HP	A	A	A	A	A
K1808228-002	SA02-AU02-P01	Plant Tissue	8/21/18 1420	HP	A	A	A	A	A
K1808228-003	SA02-AU03-P01	Plant Tissue	8/21/18 1436	HP	A	A	A	A	A
K1808228-004	SA02-AU04-P01	Plant Tissue	8/21/18 1500	HP	A	A	A	A	A
K1808228-005	SA02-AU05-P01	Plant Tissue	8/21/18 1510	HP	A	A	A	A	A
K1808228-006	SA02-AU06-P01	Plant Tissue	8/21/18 1534	HP	A	A	A	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Metals	6020A/Metals T	1-6	Al,Sb,As,Ba,Be,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:		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 **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

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!

A - Test is Authorized H - Test is On Hold HP - Test is On Hold Pending Input P - Test is Authorized for Prep Only C - Test has been Cancelled * - Test has assigned QC

				160.3 Modified TS	1631app Hg LL T	6010C Metals T	6020A Metals T	7471B Hg	Archive Archive -20C	Sieve Sieve
K1808229-001	SA03-AU01-S01	Soil	8/21/18 0850	A	C	C	A	C	A	A
K1808229-002	SA03-AU02-S01	Soil	8/21/18 0929	A	C	C	A	C	A	A
K1808229-003	SA03-AU03-S01	Soil	8/21/18 0932	A	C	C	A	C	A	A
K1808229-004	SA03-AU04-S01	Soil	8/21/18 1001	A	C	C	A	C	A	A
K1808229-005	SA03-AU05-S01	Soil	8/21/18 1038	A	C	C	A	C	A	A
K1808229-006	SA03-AU06-S01	Soil	8/21/18 1100	A	C	C	A	C	A	A
K1808229-007	SA03-AU07-S01	Soil	8/21/18 1215	A	C	C	A	C	A	A
K1808229-008	SA03-AU08-S01	Soil	8/21/18 1238	A	C	C	A	C	A	A
K1808229-009	SA03-AU09-S01	Soil	8/21/18 1302	A	C	C	A	C	A	A
K1808229-010	SA04-AU01-S01	Soil	8/23/18 0845	A	C	C	A	C	A	A
K1808229-011	SA04-AU02-S01	Soil	8/23/18 0846	A	C	C	A	C	A	A
K1808229-012	SA04-AU03-S01	Soil	8/23/18 0901	A	C	C	A	C	A	A
K1808229-013	SA04-AU04-S01	Soil	8/23/18 0914	A	C	C	A	C	A	A
K1808229-014	SA04-AU05-S01	Soil	8/23/18 0941	A	C	C	A	C	A	A

K1808229-015	SA04-AU06-S01	Soil	8/23/18 1005	160.3 Modified TS	1631app Hg LL T	6010C Metals T	6020A Metals T	7471B Hg	Archive Archive -20C	Sieve Sieve
				A	C	C	A	C	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Soils Prep	Sieve/Sieve	1-15	150 micron Sieve Number 100 Mesh.
Metals	6010C/Metals T	1-15	6010C Fe
Metals	6020A/Metals T	1-15	Al,Sb,As,Ba,Be,Cd,Cr,Co,Cu,Pb,Fe,Mn,Ni,Se, Ag,Tl,V,Zn



1317 South 13th Avenue
Kelso, WA 98626

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 **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

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!

A - Test is Authorized H - Test is On Hold HP - Test is On Hold Pending Input P - Test is Authorized for Prep Only C - Test has been Cancelled * - Test has assigned QC

				6020A Metals T	Archive Archive RT	Calculation Moisture Calc_ FreezeDry	Frz Dry Frz Dry	Grind Grind	Homogen Homogen
K1808230-001	SA09-AU01-P01	Plant Tissue	8/25/18 0859	HP	A	A	A	A	A
K1808230-002	SA09-AU02-P01	Plant Tissue	8/25/18 0910	HP	A	A	A	A	A
K1808230-003	SA09-AU03-P01	Plant Tissue	8/25/18 0916	HP	A	A	A	A	A
K1808230-004	SA09-AU04-P01	Plant Tissue	8/25/18 0932	HP	A	A	A	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Metals	6020A/Metals T	1-4	Al,Sb,As,Ba,Be,Cd,Cr,Co,Cu,Pb,Fe,Mn,Ni,Se, Ag,Tl,V,Zn



1317 South 13th Avenue
Kelso, WA 98626

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 **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!

A - Test is Authorized H - Test is On Hold HP - Test is On Hold Pending Input P - Test is Authorized for Prep Only C - Test has been Cancelled * - Test has assigned QC

				1631app Hg LL T	6020A Metals T	Archive Archive RT	Calculation Moisture Calc_ FreezeDry	Fiz Dry Fiz Dry	Grind Grind	Homogen Homogen
K1808231-001	SA15-AU01-P01	Plant Tissue	8/28/18 0945	HP	HP	A	A	A	A	A
K1808231-002	SA15-AU02-P01	Plant Tissue	8/28/18 0955	HP	HP	A	A	A	A	A
K1808231-003	SA15-AU03-P01	Plant Tissue	8/28/18 1013	HP	HP	A	A	A	A	A
K1808231-004	SA15-AU04-P01	Plant Tissue	8/28/18 1020	HP	HP	A	A	A	A	A
K1808231-005	SA15-AU05-P01	Plant Tissue	8/28/18 1036	HP	HP	A	A	A	A	A
K1808231-006	SA15-AU06-P01	Plant Tissue	8/28/18 1055	HP	HP	A	A	A	A	A
K1808231-007	SA15-AU07-P01	Plant Tissue	8/28/18 1105	HP	HP	A	A	A	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Metals	6020A/Metals T	1-7	Al,Sb,As,Ba,Be,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:		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 **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!

A - Test is Authorized H - Test is On Hold HP - Test is On Hold Pending Input P - Test is Authorized for Prep Only C - Test has been Cancelled * - Test has assigned QC

				160.3 Modified TS	1631app Hg LL T	6010C Metals T	6020A Metals T	7471B Hg	Archive Archive -20C	Sieve Sieve
K1808232-001	SA06-AU01-S01	Soil	8/23/18 1050	A	C	C	A	C	A	A
K1808232-002	SA06-AU02-S01	Soil	8/23/18 1110	A	C	C	A	C	A	A
K1808232-003	SA06-AU03-S01	Soil	8/23/18 1200	A	C	C	A	C	A	A
K1808232-004	SA06-AU04-S01	Soil	8/23/18 1215	A	C	C	A	C	A	A
K1808232-005	SA06-AU05-S01	Soil	8/23/18 1234	A	C	C	A	C	A	A
K1808232-006	SA06-AU06-S01	Soil	8/23/18 1253	A	C	C	A	C	A	A
K1808232-007	SA06-AU07-S01	Soil	8/23/18 1311	A	C	C	A	C	A	A
K1808232-008	SA08-AU01-S01	Soil	8/27/18 1358	A	A	C	A	C	A	A
K1808232-009	SA08-AU02-S01	Soil	8/27/18 1419	A	A	C	A	C	A	A
K1808232-010	SA09-AU01-S01	Soil	8/25/18 0905	A	C	C	A	C	A	A
K1808232-011	SA09-AU02-S01	Soil	8/25/18 0921	A	C	C	A	C	A	A
K1808232-012	SA09-AU03-S01	Soil	8/25/18 0922	A	C	C	A	C	A	A
K1808232-013	SA09-AU04-S01	Soil	8/25/18 0937	A	C	C	A	C	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Soils Prep	Sieve/Sieve	1-13	150 micron Sieve Number 100 Mesh.
Metals	6010C/Metals T	1-13	6010C Fe
Metals	6020A/Metals T	1-13	Al,Sb,As,Ba,Be,Cd,Cr,Co,Cu,Pb,Fe,Mn,Ni,Se, Ag,Tl,V,Zn



1317 South 13th Avenue
Kelso, WA 98626

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!

A - Test is Authorized H - Test is On Hold HP - Test is On Hold Pending Input P - Test is Authorized for Prep Only C - Test has been Cancelled * - Test has assigned QC

				1631app Hg LL T	6020A Metals T	Archive Archive RT	Calculation Moisture Calc_ FreezeDry	Fiz Dry Fiz Dry	Grind Grind	Homogen Homogen
K1808233-001	SA04-AU01-P01	Plant Tissue	8/23/18 0835	C	HP	A	A	A	A	A
K1808233-002	SA04-AU02-P01	Plant Tissue	8/23/18 0839	C	HP	A	A	A	A	A
K1808233-003	SA04-AU03-P01	Plant Tissue	8/23/18 0856	C	HP	A	A	A	A	A
K1808233-004	SA04-AU04-P01	Plant Tissue	8/23/18 0913	C	HP	A	A	A	A	A
K1808233-005	SA04-AU05-P01	Plant Tissue	8/23/18 0930	C	HP	A	A	A	A	A
K1808233-006	SA04-AU06-P01	Plant Tissue	8/23/18 0959	C	HP	A	A	A	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Metals	6020A/Metals T	1-6	Al,Sb,As,Ba,Be,Cd,Cr,Co,Cu,Pb,Fe,Mn,Ni,Se, Ag,Tl,V,Zn

Service Request Summary

50 - 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

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

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

Project Chemist: Mark Harris
Logged By: DPLIMPTON
Date Received: 8/29/18
Time Received: 1231
Archive? Y, 365 Days, Y
Folder Due Date: 9/19/18
Internal Due Date: 9/14/18
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Report to MDL?: Y
Merged?: Y **Batch QC?:** N
PC Approved?: Y
State of Sampling Location: WA
EDD: No EDD Specified

Location: K-Disposed, SMO

Lab Samp No.	Client Samp No.	Matrix	Collected	Metals				SMO	Soils Prep	
				1631app/Hg LL T	6010C/ Metals T	6020A/ Metals T	7471B/Hg		Archive/ Archive -20C	160.3 Modified/ TS
K1808234-001	SA14-AU01-S01	Soil	8/27/18 0909	IV	IV(C)	IV	IV(C)	IV	IV	IV
K1808234-002	SA14-AU02-S01	Soil	8/27/18 0923	IV	IV(C)	IV	IV(C)	IV	IV	IV
K1808234-003	SA14-AU03-S01	Soil	8/27/18 0940	IV	IV(C)	IV	IV(C)	IV	IV	IV
K1808234-004	SA14-AU04-S01	Soil	8/27/18 0953	IV	IV(C)	IV	IV(C)	IV	IV	IV
K1808234-005	SA14-AU05-S01	Soil	8/27/18 1020	IV	IV(C)	IV	IV(C)	IV	IV	IV
K1808234-006	SA14-AU06-S01	Soil	8/27/18 1022	IV	IV(C)	IV	IV(C)	IV	IV	IV
K1808234-007	SA14-AU07-S01	Soil	8/27/18 1035	IV	IV(C)	IV	IV(C)	IV	IV	IV
K1808234-008	SA14-AU08-S01	Soil	8/27/18 1055	IV	IV(C)	IV	IV(C)	IV	IV	IV
K1808234-009	SA14-AU09-S01	Soil	8/27/18 1110	IV	IV(C)	IV	IV(C)	IV	IV	IV
K1808234-010	SA14-AU10-S01	Soil	8/27/18 1115	IV	IV(C)	IV	IV(C)	IV	IV	IV
K1808234-011	SA14-AU11-S01	Soil	8/27/18 1120	IV	IV(C)	IV	IV(C)	IV	IV	IV
K1808234-012	SA14-AU12-S01	Soil	8/27/18 1205	IV	IV(C)	IV	IV(C)	IV	IV	IV
K1808234-013	SA14-AU13-S01	Soil	8/27/18 1218	IV	IV(C)	IV	IV(C)	IV	IV	IV
K1808234-014	SA14-AU14-S01	Soil	8/27/18 1227	IV	IV(C)	IV	IV(C)	IV	IV	IV
K1808234-015	SA14-AU15-S01	Soil	8/27/18 1240	IV	IV(C)	IV	IV(C)	IV	IV	IV
K1808234-016	SA14-AU16-S01	Soil	8/27/18 1255	IV	IV(C)	IV	IV(C)	IV	IV	IV

Folder Comments:

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

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 Number:
P.O. Number:

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

Project Chemist: Mark Harris
Logged By: DPLIMPTON
Date Received: 8/29/18
Time Received: 1231
Archive? Y, 365 Days, Y
Folder Due Date: 9/19/18
Internal Due Date: 9/14/18
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Report to MDL?: Y
Merged?: Y **Batch QC?:**N
PC Approved?: Y
State of Sampling Location: WA
EDD: No EDD Specified

Test Comments:

Group	Test/Method	Samples	Comments
Metals	Metals T/6020A	1-16	Al,Sb,As,Ba,Be,Cd,Cr,Co,Cu,Pb,Fe,Mn,Ni,Se, Ag,Tl,V,Zn
Soils Prep	Sieve/Sieve	1-16	150 micron Sieve Number 100 Mesh.

Test/Method	Samples	Elements
6010C/Metals T	1-16	Iron
6020A/Metals T	1-16	Aluminum / Antimony / Arsenic / Barium / Beryllium / Cadmium / Chromium / Cobalt / Copper / Iron / Lead / Manganese / Nickel / Selenium / Silver / Thallium / Vanadium / Zinc



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 **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**

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!

A - Test is Authorized H - Test is On Hold HP - Test is On Hold Pending Input P - Test is Authorized for Prep Only C - Test has been Cancelled * - Test has assigned QC

				160.3 Modified TS	1631app Hg LL T	6010C Metals T	6020A Metals T	7471B Hg	Archive Archive -20C	Sieve Sieve
K1808237-001	SA07-AU01-S01	Soil	8/24/18 0935	A	C	C	A	C	A	A
K1808237-002	SA07-AU02-S01	Soil	8/24/18 0936	A	C	C	A	C	A	A
K1808237-003	SA07-AU03-S01	Soil	8/24/18 0952	A	C	C	A	C	A	A
K1808237-004	SA07-AU04-S01	Soil	8/24/18 1012	A	C	C	A	C	A	A
K1808237-005	SA07-AU05-S01	Soil	8/24/18 1032	A	C	C	A	C	A	A
K1808237-006	SA07-AU06-S01	Soil	8/24/18 1100	A	C	C	A	C	A	A
K1808237-007	SA07-AU07-S01	Soil	8/24/18 1104	A	C	C	A	C	A	A
K1808237-008	SA07-AU08-S01	Soil	8/24/18 1115	A	C	C	A	C	A	A
K1808237-009	SA07-AU09-S01	Soil	8/24/18 1237	A	C	C	A	C	A	A
K1808237-010	SA07-AU10-S01	Soil	8/24/18 1257	A	C	C	A	C	A	A
K1808237-011	SA07-AU11-S01	Soil	8/24/18 1315	A	C	C	A	C	A	A
K1808237-012	SA07-AU12-S01	Soil	8/24/18 1335	A	C	C	A	C	A	A
K1808237-013	SA07-AU13-S01	Soil	8/24/18 1345	A	C	C	A	C	A	A
K1808237-014	SA15-AU01-S01	Soil	8/28/18 0950	A	A	C	A	C	A	A

				160.3 Modified TS	1631app Hg LL T	6010C Metals T	6020A Metals T	7471B Hg	Archive Archive -20C	Sieve Sieve
K1808237-015	SA15-AU02-S01	Soil	8/28/18 0957	A	A	C	A	C	A	A
K1808237-016	SA15-AU03-S01	Soil	8/28/18 1022	A	A	C	A	C	A	A
K1808237-017	SA15-AU04-S01	Soil	8/28/18 1023	A	A	C	A	C	A	A
K1808237-018	SA15-AU05-S01	Soil	8/28/18 1041	A	A	C	A	C	A	A
K1808237-019	SA15-AU06-S01	Soil	8/28/18 1059	A	A	C	A	C	A	A
K1808237-020	SA15-AU07-S01	Soil	8/28/18 1108	A	A	C	A	C	A	A

Test Comments:

Group	Test/Method	Samples	Comments
Soils Prep	Sieve/Sieve	1-20	150 micron Sieve Number 100 Mesh.
Metals	6010C/Metals T	1-20	6010C Fe
Metals	6020A/Metals T	1-20	Al,Sb,As,Ba,Be,Cd,Cr,Co,Cu,Pb,Fe,Mn,Ni,Se, Ag,Tl,V,Zn

Appendix F

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

✓
120 5/14

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

GPS Unit #:

83128

check if composited

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~~ 15:55

WEIGHT (grams) (% if composited)

PHOTO ID Camera B

a. 1.7 Total (35%)

56; 101-0058

b. 1.1 2.8 (22%)

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

check if composited

SAMPLERS (initials): SH, MS

DATE: 4-27-18

TIME (GPS point taken): ~~15:59~~ 16:03

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

PHOTO ID Camera B

a. 0-3 (40%)

59; 101-0061

b. 0-3 (20%)

c. 0-3 (40%)

d.

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

collected w/ spade

Dark Brown silt and Fine sand w/ organic matter. Moist.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

✓
E9

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

check if composited

SA01-SP02-P01

GPS Unit #:

83128

PLANT SPECIES: *Camasia 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)

PHOTO ID Camera B

	Total	%	f.	Total	%	
a. 1.3	1.3	(27)				60; 101-0062 99%
b. 0.7	2.0	(14)	0.7	4.9	(14)	
c. 1.0	3.0	(20)				
d. 0.6	3.6	(12)				
e. 0.6	4.2	(12)				

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
~~16:26~~ JP

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

PHOTO ID

a. 0-3	(30)	e. 0-3	(10)	a. 65; 101-0067
b. 0-3	(10)	f. 0-3	(10)	b. 64; 101-0066
c. 0-3	(30)			c. 61; 101-0063
d. 0-3	(10)			d. 66; 101-0068
				e. 62 62; 101-0064
				f. 63; 101-0065

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

Collected w/ Spade

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

NOT SAMPLED

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

✓✓
EO

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

GPS Unit #:

check if composited

PLANT SPECIES: *Lomatium* Spp

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

SAMPLERS (initials): GM, LN

DATE: 4-28-18

TIME (GPS point taken): 9:26

WEIGHT (grams) (% if composited)

PHOTO ID camera A

a. 0.3

a. 17; 100-0018

b.

b. 18; 100-0019

c.

c, d. 19; 100-0020

d.

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

a. greater than 3 meters from ~~a~~, b, c, & d.

Based on size of a. & b. determined we could not achieve min mass with 4 individuals flagged at this patch. Reburied a. & b. and did not collect at this ~~LD~~.

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

check if composited

No soil collected at this sample location.

SAMPLERS (initials):

DATE:

TIME (GPS point taken):

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

PHOTO ID

a.

b.

c.

d.

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

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018



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

SA01-SP04-P01

GPS Unit #:

8328

check if composited

PLANT SPECIES: Claytonia lanceolata

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

SAMPLERS (initials): SH, GM, NS

DATE: 4-28-18

TIME (GPS point taken): 10:34

WEIGHT (grams) (% if composited)

PHOTO ID Camera A

	Total	%		Total	%
a. 0.3g	1.2	(65)	f. 0.3	2.7	(65)
b. 0.9g	1.7	(20)	g. 0.3	3.0	(65)
c. 0.5g	2.0	(11)	h. 0.3	3.3	(65)
d. 0.3	2.4	(65)	i. 0.3	4.6	(28)
e. 0.4		(9)			

20,100-2021

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

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

SA01-SP04-S01

check if composited

SAMPLERS (initials): SH, MB

DATE: 4-28-18

TIME (GPS point taken): 1040

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

PHOTO ID Surface
Tablet 2

a. 0-3	(7%)	e. 0-3	(7%)	i. 0-3	(25%)
b. 0-3	(25%)	f. 0-3	(7%)		
c. 0-3	(7%)	g. 0-3	(7%)		
d. 0-3	(7%)	h. 0-3	(7%)		

Camera A
100-0022

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

Collect w/ Mist Sampler

Dark Brown Fine sand, silt, and organic matter. moist

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

EQ ✓
✓
✓

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

SA01-SP05-P01

GPS Unit #:

83128

PLANT SPECIES:

JW, PH ^(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 CAMERA

22;100-0023

a. 2.3g

b.

c.

d.

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

~~1 plot 20 diameter Rd.~~

Sample taken from several trees within 20m diameter

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

SA01-SP05-S01

check if composited

SAMPLERS (initials): SH, ms

DATE: 4-28-18

TIME (GPS point taken): 11:05

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

PHOTO ID

a. 0-3"

23;100-0023

b.

c.

d.

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

collected w/ spade

Dark Brown fine sand, silt, and organic matter. moist

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

ESD

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

SA01-SP06-P01

GPS Unit #:

83128

PLANT SPECIES: *Claytonia lanceolata*

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

SAMPLERS (initials): GMSH, MS, LN

DATE: 4-28-18

TIME (GPS point taken): 11:37

Soak 4

WEIGHT (grams) (% if composited)

PHOTO ID Camera A

a. 0.6 / ^{Total} 1.4 (2)	f. 0.3 / ^{Total} 2.3 (7)
b. 0.7 / 1.3 (6)	g. 0.5 / 2.8 (11)
c. 0.2 / 1.5 (5)	h. 0.2 / 3.0 (5)
d. 0.2 / 1.7 (5)	i. 0.4 / 3.4 (9)
e. 0.3 / 2.0 (7)	j. 0.3 / 3.7 (7)
	k. 0.7 / 4.4 (16)

24; 100-0025

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): SH, MS

DATE: 4-28-18

TIME (GPS point taken): 11:58

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

PHOTO ID

a. 17.6%	e. 5.9%
b. 17.6% (25%)	f. 5.9%
c. 5.9%	g. 5.9%
d. 5.9%	h. 5.9%
	i. 5.9%
	j. 5.9%
	k. 17.6% (25%)

~~24; 100-0025~~ 2A

25; 100-0026

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

Collected w/ spade

Light - dark brown silty fine sand with organic matter. Moist.

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

✓
EO ✓
91

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

SA01-SP07-P01

GPS Unit #:

83128

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 4e~~ Scale 7 calibrated with snack baggie w/ 20g by JP

PHOTO ID CAMERA A

a. 16g

27; 100-0029

- b.
- c.
- d.

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 20m diameter.

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

SA01-SP07-S01

check if composited

SAMPLERS (initials): SH, GW, MS

DATE: 4-28-18

TIME (GPS point taken): 11:57 13:05 GP

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

PHOTO ID CAMERA A

a. 0-3"

28; 100-0029

- b.
- c.
- d.

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

collected w/ Spade

Brown organic matter and silt with fine-medium sand. Moist.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

VEG ✓

PLANT SAMPLE ID (e.g. SA01-SP01-P01):	SA01-SP08-P01	GPS Unit #:	83128
<input checked="" type="checkbox"/> check if composited			

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): 13:45

Scale 7

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

- a. 9g 33; 100-034
- 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):	SA01-SP08-S01
<input checked="" type="checkbox"/> check if composited	

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" 34; 100-0035
- b.
- c.
- d.

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

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

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

✓
E0 1/31

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

GPS Unit #:

check if composited

SA01-SP09-P01

83128

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

SAMPLERS (initials): GM, SH, MS, LN DATE: 4-28-18 TIME (GPS point taken): 13:25

WEIGHT (grams) (% if composited)

PHOTO ID Camera A

	Total	%
a. 2.4		(52)
2.2		(48)
b. 4.6	4.6	

#30; 100-0031

c.

d.

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

Replanted 3rd *Cannas* that did not need.

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

SH, 5-11-18

check if composited

SA01-SP09-~~P01~~^{S01}

SAMPLERS (initials): SH, MS

DATE: 4-28-18

TIME (GPS point taken): 13:30

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

PHOTO ID Camera A

a. 0-3	(50%)
b. 0-3	(50%)

32; 100-0033

c.

d.

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

✓
EG 511

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

GPS Unit #:

check if composited

SA01-SP10-P01

83128

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

JW, LH, MS, SH, LN, MS

SAMPLERS (initials): ~~SH, MS~~

DATE: 4-28-18

TIME (GPS point taken): 1440

WEIGHT (grams) (% if composited)

PHOTO ID

camera A

a. 6.1 g

36; 100-0037

b.

c.

d.

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):

check if composited

SA01-SP10-S01

SAMPLERS (initials): SH, MS

DATE: 4-28-18

TIME (GPS point taken): 1450

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

PHOTO ID

camera

A

a. 0-3"

35; 100-0036

b.

c.

d.

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

collected w/ spade

Dark Brown organic matter, silt, and fine-medium sand. Moist.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

✓✓
ED

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

SA01-SP11-SP01

GPS Unit #:

83128

PLANT SPECIES: Black lichen (Bryoria)

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

PH, GM, JP, MT, KB

SAMPLERS (initials): SH, MS

DATE: 4-28-18

TIME (GPS point taken): 1524

WEIGHT (grams) (% if composited) 5.3g

PHOTO ID camera A

38; 100-0039

- 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):

SA01-SP11-SP01

check if composited

SAMPLERS (initials): SH, MS

DATE: 4-28-18

TIME (GPS point taken): 15:05

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited) 0-3 (100%)

PHOTO ID camera A

37; 100-0038

- 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

✓
EQ

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA01-SP12-P01 GPS Unit #: 83128

check if composited

PLANT SPECIES: Black lichen (Bryoria) TARGET PLANT TISSUE (e.g. leaves, bulbs): Whole organism
Scale 7

SAMPLERS (initials): PH, GM, MT, KO DATE: 4-28-18 TIME (GPS point taken): 15:43

WEIGHT (grams) (% if composited) 10.3g Camera A
PHOTO ID

- a. 10.3g 40,100-0041
- 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): SA01-SP12-S01

check if composited

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

COLLECTION UPPER DEPTH/LOWER DEPTH (in. cm) (% if composited) Camera A
PHOTO ID 1543^{SH} 15:44

- a. 0-3" 39,100-0040
- 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.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

~~Photo = 17~~

PLANT SAMPLE ID (e.g. SA01-SP01-P01): ~~SA02-SP01-P01~~
 check if composited SA02-SP01-P01

GPS Unit #: 83128

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

Camera A photo / img#
 PHOTO ID 436 438
 20180425-
 P000001
 thru 18

~~Edg scale~~
 a. 0.5g
 b. 1.0g (cumulative)
 c. 1.0g (c)
 d. ~~PH:~~
 Changed to 10g scale + divided 0.8g between corms already collected.
 a. 0.2 cumulative
 b. 0.4 f. 1.7
 c. 0.6 g. 2.3
 d. 0.8 end composite
 e. 1.2
 b. 2; 439
 c. 3; 441
 d. 5; 443
 e. 11; 447

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 g. 1 corm (2 stems)
 d. 1 corm

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): ~~SPO2-SP01-S01~~
 check if composited SPO2-SP01-S01

Camera A
 Photo 18, 454

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

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

20180425-
 P00000
 photo / img# P000-00

a. 8.6% e 17.39 see logbook for
 b. 8.6% f ~~21.74~~ 23.9 clarification on
 c. 8.6% g ~~21.74~~ 23.9 soil composite sample.
 d. 8.6%
 a. 4; 442
 b. 8; 444
 c. 9; 445
 d. 10; 446
 e. 13; 449
 f. 15; 451
 g. 16; 452

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

Dark Brown Silty Organic Matter. Minor sand and gravel. woody debris.
 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):

GPS Unit #:

check if composited

SA02-SP02-P01

83128

PLANT SPECIES: Kinnikinnick (*Archostaphylos* ~~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)

PHOTO ID Camera #

a. 6.5 gm (~~130 (composited)~~) 130 Leaves

0001

b.

c.

d.

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)

PHOTO ID 0004

a. 0-3 ^{1 IN} ~~cm~~ _{PH}

b.

c.

d.

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, ~~nutsh~~
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):

GPS Unit #:

check if composited

SA02-SP03-P01

83128

PLANT SPECIES: Kinnikinnick (*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)

(Camera) PHOTO ID 0002

a. 5.9 grams (120 Leaves)

b.

c.

d.

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):

check if composited

SA02-SP03-S01

SAMPLERS (initials): SH, MS

DATE: 04/26/18

TIME (GPS point taken): 1023

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

PHOTO ID 0003

a. 0-3 ^{IN} ~~cm~~ _{PK}

b.

c.

d.

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

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 split SA02-SP04-P01

GPS Unit #:

83128

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

SAMPLERS (initials): LH, GM, SH, MS

DATE: 4/26/18

TIME (GPS point taken): 10:57

WEIGHT (grams) (% if composited)

Camera: PHOTO ID 0005

a. 11.4

b.

c.

d.

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

Split, target for mercury

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

check if composited split SA02-SP04-S01

SAMPLERS (initials): SH, MS

DATE: 4/26/18

TIME (GPS point taken): 11:00

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited) in. (SH, 4-26-18)

PHOTO ID 0006

a. 0-3"

b.

c.

d.

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

Dark Brown Silty Organic Matter. Minor fine sand. Moist
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-SP05-P01

GPS Unit #: 83128

check if composited

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

SAMPLERS (initials): LH, GM

DATE: 4/26/18

TIME (GPS point taken): 11:29

WEIGHT (grams) (% if composited)

Camera A
PHOTO ID 0007

a. 6.0

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

check if composited

SAMPLERS (initials): SH, MS

DATE: 4/26/18

TIME (GPS point taken): 11:35

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited) in (SH, 4-26-18)

PHOTO ID 0008

a. 0-3"

b.

c.

d.

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

Dark Brown sandy silt. Organic matter, roots. Moist 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-SP06-P01

GPS Unit #:

83128

check if composited

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

SAMPLERS (initials): GW, SH

DATE: 4/26/18

TIME (GPS point taken):

12:04

12:16

SH, S-10-18

Camera B

WEIGHT (grams) (% if composited)

PHOTO ID

a. 2.0 total

2, 101-0001 } 11:42

b. 0.3 (2.3)

3, 101-0002 } 11:56

c. 1.6 (3.9)

4, 101-0003 — 12:04

d.

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

check if composited

SAMPLERS (initials): SH, MS

DATE: 4/26/18

timestamp
TIME (GPS point taken): 12:27

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

PHOTO ID

a. 45 ~ 0-3 in

5, 101-0004 12:24

b. 10 ~ 0-3 in

6, 101-0005 12:24

c. 45 ~ 0-3 in

7, 101-0006 12:25

d.

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.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA02-SP07-P01a

GPS Unit #:

83128

check if composited

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

SAMPLERS (initials): GW, MS, SH

DATE: 4/26/18

TIME (GPS point taken):

13:56

WEIGHT (grams) (% if composited)

Camera B
PHOTO ID

a. 0.2 e. 0.2 (1.1) j.
b. 0.2 (0.4) f. ~~0.3~~ (1.4) 0.5 (1.0) k.
c. 0.3 (0.7) g. 0.3 (1.9)
d. 0.2 (0.9) h. 0.1 (1.9)
i. ~~0.3~~ (2.2)
0.3

a. 8, 101-0007 h. 15, 101-0014
b. 9, 101-0008 i. 16, 101-0015
c. 10, 101-0009 j. 17, 101-0016
d. 11, 101-0010 k. 18, 101-0017
e. 12, 101-0011
f. 13, 101-0012
g. 14, 101-0013

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

Composite, Decided not to collect j. & k. at this site because min. 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): SA02-SP07-S01

check if composited

SAMPLERS (initials): SH, MS

DATE: 4/26/18

TIME (GPS point taken): 14:19

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

PHOTO ID

a. 0-3" e. 0-3"
b. 0-3" f. 0-3"
c. 0-3" g. 0-3"
d. 0-3" h. 0-3"
i. 0-3"

a. 19, 101-0018
b. 20, 101-0019
c. 21, 101-0020
d. 22, 101-0021
e. 23, 101-0022
f. 24, 101-0023
g. 25, 101-0024
h. 26, 101-0025
i. 27, 101-0026

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

Collected w/ Spade. Sample composited in equal proportions.

Dark Brown silt and organic matter. Minor fine sand, gravel. Roots. Moist.

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
<input type="checkbox"/> check if composited	

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

SAMPLERS (initials): SH, GM DATE: 4/26/18 TIME (GPS point taken): 1547

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

- a. 5.6 g. 28, 101-0027
- 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): SA03-SP01-S01
<input type="checkbox"/> check if composited

SAMPLERS (initials): SH, GM DATE: 4-26-18 TIME (GPS point taken): 1554

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited) PHOTO ID in. (SH, 4-26-18)

- a. 0-3" ~~0-5~~ 31, 101-0030 SH, 4-26-18
- 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.

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

GPS Unit #:

83128

check if composited

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)

Camera B
PHOTO ID

a. 5.7 grams

29, 101-0028

+
30, 101-0029

b.

c.

d.

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-S01

check if composited

SAMPLERS (initials): LH, GM

DATE: 4-26-18

TIME (GPS point taken): 1604

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

PHOTO ID

a. 0-3"

32, 101-0031

b.

c.

d.

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

collected w/ spade

Dark Brown silt and organic matter w/ gravel @ 2.5". Trace fine sand. Dry-moist

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

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

SA03-SP03-P01

GPS Unit #:

83128

check if composited

PLANT SPECIES: *Camasia quamash*

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

SAMPLERS (initials): EM, MS

DATE: 4/26/18

TIME (GPS point taken): 16:34

WEIGHT (grams) (% if composited)

Camera B
PHOTO ID

a. ~~2.2~~ 2.3 Totalg (38%)
 b. 1.4 (3.7) (23%)
 c. 2.4 (6.1) (40%)
 d.

a) 33, 101-0032
 b) 34, 101-0033
 c) 35, 101-0034

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

Composite

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

SA03-SP03-S01

check if composited

SAMPLERS (initials): SH, MS

DATE: 4/26/18

TIME (GPS point taken): 16:40

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

PHOTO ID

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

a. 36, 101-0035
 b. 37, 101-0036
 c. 38, 101-0037

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

Collected w/ spade

Dark Brown silt and organic matter w/ gravel. (at ~ 2.5-3"). Trace 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):

GPS Unit #:

check if composited

SA03-SP04-P01

83134

PLANT SPECIES: Camassia quamash

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

SAMPLERS (initials): GM, MS

DATE: 4-27-18

TIME (GPS point taken): 09:07

WEIGHT (grams) (% if composited)

PHOTO ID Camera B

a. 1.6 ^{Total} (20%)

a. 39, 101 - 0038

b. 1.2 / 2.8 (22%)

b. 40, 101 - 0039

c. 1.2 / 4.0 (22%)

c. 41, 101 - 0040

d. 1.4 / 5.4 (30%)

d. 42, 101 - 0041

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

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA03-SP04-S01

check if composited

SAMPLERS (initials): GM, MS

DATE: 4-27-18

TIME (GPS point taken): 09:20

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

PHOTO ID Camera B

a. 0-3 (30%)

a. 43, 101 - 0042

b. 0-3 (20%)

b. 44, 101 - 0043

c. 0-3 (20%)

c. 46, 101 - 0046

d. 0-3 (30%)

d. 45, 101 - 0045

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

Collected w/ spade

Dark Brown silt and Organic Matter. Some gravel, trace 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):

check if composited

SA03-SP05-P01

GPS Unit #:

83134

PLANT SPECIES: *Camassia quamash*

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

SAMPLERS (initials): Gm, ms

DATE: 4-27-18

TIME (GPS point taken): 09:41

WEIGHT (grams) (% if composited)

PHOTO ID camera B

a. 2.6	Total	
	/	(57%)
JP + G	4.6	(43%)
b. 2.0		

a. 47, 101-0047

b. 48, 101-0048

~~c. 49, 101-0049~~

~~d. 50, 101-0050~~

reached target mass with a. + b. JP

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

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA03-SP05-S01

check if composited

SAMPLERS (initials): SH, MS

DATE: 4-27-18

TIME (GPS point taken): 9:49

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited) in (SH, 4-27-18)

PHOTO ID camera B

a. 0-3 (50%)

b. 0-3 (50%)

a. 49, 101-0051

b. 50, 101-0052

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):

SA03-SP06-P01

GPS Unit #:

83134

check if composited

PLANT SPECIES: *Claytonia lanceolata*

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

SAMPLERS (initials): GM, MS

DATE: 4-27-18

TIME (GPS point taken): 10:09

WEIGHT (grams) (% if composited)

PHOTO ID camera B

a. 0.6 ^{Total} / ~~(136)~~ (132)

b. 2.5 / 3.1 (56%)

c. ^{1.4} / ~~2.0~~ 4.5 (~~44%~~) (31%)

d.

a. }
b. } 51, 101-0053
c. }

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

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA03-SP06-S01

check if composited

SAMPLERS (initials): SH, MS

DATE: 4-27-18

TIME (GPS point taken): 10:20

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

PHOTO ID camera B

a. 0-3 (10%)

b. 0-3 (60%)

c. 0-3 (30%)

d.

a. 53, 101-0055

b. 54, 101-0056

c. 55, 101-0057

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

Collected w/ Spade

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

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

check if composited

PLANT SPECIES: Claytonia lanceolata

TARGET PLANT TISSUE (e.g. leaves, bulbs): ^{root} ~~bulb~~ DP

SAMPLERS (initials): Gm

DATE: 4-27-18

TIME (GPS point taken): 10:35

WEIGHT (grams) (% if composited)

PHOTO ID Camera B

a. 0.5 / Total (282)

b. 0.5 1.0 (282)

c. 0.5 1.5 (282)

d. 0.3 1.8 (178)

a. }
b. }
c. }
d. }

52,101-0054

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): 10:51

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

PHOTO ID Camera A

a. 0-3 25%

b. 0-3 25%

c. 0-3 25%

d. 0-3 25%

a. }
b. }
c. }
d. }

9,100-009

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

collected w/ spade

Dark Brown silt and Organic Matter. Abundant cobbles, minor gravel. Moist.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

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

SA03-SP08-P01

GPS Unit #:

83134

check if composited

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

SAMPLERS (initials): MS, LN

DATE: 4-27-18

TIME (GPS point taken): ~~11:15~~ 11:26 ^{SH}

WEIGHT (grams) (% if composited)

PHOTO ID Camera A

a. 6.8

10, 100-0010

b.

c.

d.

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

- Large, 3 stems very close to each other, going to consider ^{individual} ~~one~~ 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

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

SA03-SP08-S01

check if composited

SAMPLERS (initials): SH, MS

DATE: 4-27-18

TIME (GPS point taken): ~~11:33~~ 11:29 ^{JP}

COLLECTION UPPER DEPTH/LOWER DEPTH _{in (SH, 4-27-18)} (cm) (% if composited)

PHOTO ID

a. 0-3 (100%)

11, 100-0011

b.

c.

d.

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

Collected w/ spade

Dark Brown silt and organic matter. cobbles. moist

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

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

GPS Unit #:

check if composited

SA03-SP09-P01

83134

PLANT SPECIES: *Lomatium*

triternatum
~~sp. sp.~~

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

SAMPLERS (initials): GM, MS

DATE: 4-27-18

TIME (GPS point taken):

13:04^{5th}
~~12:29~~

WEIGHT (grams) (% if composited)

PHOTO ID CAMERA A

a. 1.0 $\frac{\text{Total}}{21\%}$ 0.9

b. 1.0 2.0 (21%)

c. 0.8 2.8 (16%)

d. 0.6 3.4 (13%)

e. 0.5 3.9 (10%)

$\frac{\text{Total}}{4.8}$ (19%)
100%

12,100-0013

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

c. was on bark root

e. was on bark 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 (in) (% if composited)

PHOTO ID CAMERA A

a. 0-3", 16.7%

e. 0-3", 16.7%

b. 0-3", 16.7%

f. 0-3", 16.7%

c. 0-3", 16.7%

d. 0-3", 16.7%

13,00-0014

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

collected w/ spade

Dark Brown silt and Organic Matter with cobbles, minor gravel, moist

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

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

SA03-SP0-P01

GPS Unit #:

83134

check if composited

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)

PHOTO ID

a. 5.8g

14; 100-0015

b.

c.

d.

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

- Mercury

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA03-SP10-S01

check if composited

SAMPLERS (initials): SH, MS

DATE: 4-27-18

TIME (GPS point taken):

13:48^{SH}
1:47

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

PHOTO ID

a. 0-3 (100%)

15, 100-0016

b.

c.

d.

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

Collected w/ spade

Dark Brown silt + organic matter with cobbles. Some gravel. moist.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

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

GPS Unit #:

check if composited

SA03-SP11-P01

83134

PLANT SPECIES:

Kinnikinnick (Arctostaphylos uva-ursi)

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

leaves

SAMPLERS (initials):

LH, ms, GM

DATE:

4-27-18

TIME (GPS point taken):

13:57

~~13:53~~

WEIGHT (grams) (% if composited)

PHOTO ID CAMERA

A

a. 11.2 g total

16, 100-007

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 composited

SAMPLERS (initials):

SH, ms

DATE: 4-27-18

TIME (GPS point taken): 14:09

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

PHOTO ID Tablet 2

a. 0-3 (100%)

#P01H1513

b.

c.

d.

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

collected w/ spade (2x mass)

Dark Brown silt + organic matter. Mineral gravel. Moist

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 ~~sp~~ ^{trifloratum} TARGET PLANT TISSUE (e.g. leaves, bulbs): root

SAMPLERS (initials): SH, GM, MS, LS DATE: 4-27-18 TIME (GPS point taken): 14:33

WEIGHT (grams) (% if composited) PHOTO ID Surface Tablet 2

- a. 0.5 / Total (7%) e. 0.4 / 2.4 (6%)
b. 0.1 / 0.6 (16%) f. 0.5 / 2.9 (7%)
c. 1.0 / 1.6 (14%) g. 0.2 / 3.1 (3%)
d. 0.4 / 2.0 (6%) h. 2.2 / 5.3 (31%)
i. 1.6 / 6.9 (23%)

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: 4-27-18 TIME (GPS point taken): (14:49)

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited) PHOTO ID Surface Tablet 2

- a. 0-3 (7.5%) e. 0-3 (7.5%)
b. 0-3 (0-1%) f. 0-3 (7.5%)
g. 0-3 (7.5%)
c. 0-3 (12.5%) h. 0-3 (25%)
d. 0-3 (7.5%) i. 0-3 (25%)

SOIL NOTES (e.g. collection method, color, texture): collected w/ spade Dark Brown silt/organic matter, with cobbles. Moist

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

✓
✓_{SH}
E0

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA04-SP01-P01 GPS Unit #: 83128
 check if composited *Not a composite*

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

SAMPLERS (initials): MS, LH, SH DATE: 4/30/2018 TIME (GPS point taken): 15:29
 Camera A

WEIGHT (grams) (% if composited) PHOTO ID 69, 100-0070

- a. 5.8g Photo board says composite, but not a composite. SH =
- b.
- c.
- d.

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

Replicate of SA04-SP02-P01

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

SAMPLERS (initials): SH, MS DATE: 4/30/2018 TIME (GPS point taken): 15:33
~~15:31~~ JP

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited) PHOTO ID 71, 100-0072

- a. 0-3" ⁱⁿ
- b.
- c.
- d.

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

collected w/ Spade
 Dark Brown Silty Fine Sand and Organic Matter. Moist.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

✓
✓_{SH}
E0

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA04-SP02-P01
 check if composited
GPS Unit #: 83128

PLANT SPECIES: Kinninnick (^{Arctostaphylos} ~~uva-ursi~~) 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 71, 100-0071

- a. 6.1g
 - b.
 - c.
 - d.
- photo board says composite, but not a composite. JTB

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

Replicate of SA04-SP02-P01

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA04-SP02-S01
 check if composited NOT COMPOSITE

SAMPLERS (initials): SH, MS DATE: 4/30/2018 TIME (GPS point taken): 15:31^{2H}

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited) PHOTO ID: 15:36 Camera B

- a. 0-3"
 - b.
 - c.
 - d.
- 67, 101-0069

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

collected w/ spade
Dark Brown Silty Fine Sand and Organic Matter - Moist

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

✓
E P ✓ SH

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

GPS Unit #:

check if composited

SA04-SP03-P01

83128

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

SAMPLERS (initials): MS, LH, JP

DATE: 4/30/18

TIME (GPS point taken): 1602

WEIGHT (grams) (% if composited)

PHOTO ID CAMERA B

a. 11.5 grams

68, 101-0071

b.

c.

d.

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

~~Target~~ mass enough for mercury; ~~Repeat~~ 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

in

CAMERA B

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

PHOTO ID

a. 0-3"

69, 101-0072

b.

c.

d.

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

split, two jars

collected w/ spade

Dark brown silty fine-medium sand w/ organic matter. Moist.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

VJ
EQ

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

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

SAMPLERS (initials): SH, LH, MLS DATE: 4/30/18 TIME (GPS point taken): 1619
 Camera B

WEIGHT (grams) (% if composited) PHOTO ID

- a. 6.4 grams 7c 101-0073
- 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): SA04-SP04-S01
 check if composited

SAMPLERS (initials): SH, MS DATE: 4/30/18 TIME (GPS point taken): 1623
 Camera B

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

- a. 0-3" 7d, 101-0077
- b.
- c.
- d.

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

Collected Soil sample with spade
 Dark Brown silty Fine-med. Sand w/ organics. Moist.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

✓
50 1/2

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

check if composited

SA04-SP05-P01

GPS Unit #:

83128

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

SAMPLERS (initials): JW, PH

DATE: 5-1-2018

TIME (GPS point taken): 14:36

WEIGHT (grams) (% if composited)

PHOTO ID Camera B

a. 60g

90, 101-0093

b.

c.

d.

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

SA04-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"

91, 101-0094

b.

c.

d.

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

collected w/ spade

Dark Brown Sandy silt and Organic Matter. Moist.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

✓/1514
E0

PLANT SAMPLE ID (e.g. SA01-SP01-P01): <input type="checkbox"/> check if composited	SA04-SP06-P01	GPS Unit #: 83128
---	---------------	----------------------

PLANT SPECIES: *Kinnikinnick* (*Arctostaphylos uva-ursi*) 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 composited) PHOTO ID Camera B

- a. 6.0g 92, 101-0095
- 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): <input type="checkbox"/> check if composited	SA04-SP06-S01
---	---------------

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

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

- a. 0-3" 93, 101-0096
- b.
- c.
- d.

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

collected w/ spade
Dark Brown silty sand (fine-med) and organic matter. Moist.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

✓
✓
1=0

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA04-SP07-P01
 check if composited
 GPS Unit #: 83128

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 composited)			Camera B PHOTO ID 94,101-0097		
	Total	%		Total	%
a.	0.4	0.4 (12)	e.	0.2	1.8 (6)
b.	0.3	0.7 (9)	f.	0.2	2.0 (6)
c.	0.3	1.0 (9)	g.	0.5	2.5 (15)
d.	0.6	1.6 (18)	h.	0.3	2.8 (9)
			i.	0.4	3.2 (12)
			j.	0.1	3.3 (3)

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): SA04-SP07-S01
 check if composited

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

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)			PHOTO ID 97,161-0100		
		%			%
a.	0-3	(10)	e.	0-3	(5)
b.	0-3	(10)	f.	0-3	(5)
c.	0-3	(10)	g.	0-3	(15)
d.	0-3	(20)	h.	0-3	(10)
			i.	0-3	(10)
			j.	0-3	(5)

SOIL NOTES (e.g. collection method, color, texture):
 collected w/ spade
 Dark brown silt and organic matter w/ fine sand. Moist

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

✓
✓_{5/18}
E0

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA04-SP08-P01
 check if composited
 GPS Unit #: 83128

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

SAMPLERS (initials): MS, GM, SH DATE: 5-1-18 TIME (GPS point taken): 1534

WEIGHT (grams) (% if composited)			Camera B PHOTO ID 96, 101-0099		
	Total	%		Total	%
a.	0.7	0.7 (17)	e.	0.1	2.6 (2)
b.	0.7	1.4 (17)	f.	1.5	4.1 (37)
c.	0.8	2.2 (20)			
d.	0.3	2.5 (7)			

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): SA04-SP08-S01
 check if composited

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

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)		Camera B PHOTO ID 98, 101, 0101	
a.	0-3 (15%)	e.	0-3 (5%)
b.	0-3 (15%)	f.	0-3 (40%)
c.	0-3 (20%)		
d.	0-3 (5%)		

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

collected w/ spade
 Dark Brown silt 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): SA05-SP01-P01

GPS Unit #:

83126

check if composited

PLANT SPECIES: *Lomatium* ^{*trifurcatum*} ~~sp. sp.~~ TARGET PLANT TISSUE (e.g. leaves, bulbs): roots

SAMPLERS (initials): Gm, ms, SH

DATE: 4-30-18

TIME (GPS point taken): 09:06

WEIGHT (grams) (% if composited)

PHOTO ID camera A

a. 3.3 (70)

b. 0.6 (13)

c. 0.5 (11)

d. 0.3 (6)

4.7

42,100-0043 Composite patch for SP01 + SP02

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

plants collected from hard packed cobble/soil. 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): 0925

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

PHOTO ID camera A

a. 75%, 0-3"

b. } 25%, 0-3"

c. }

d. }

43,100-00411

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

collected w/ 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.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

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

GPS Unit #:

check if composited

SA05-SP02-P01

33128

PLANT SPECIES: *Lomatium*

triteratum
~~SP01~~

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

SAMPLERS (initials): GM, MS, SH

DATE: 4-30-18

TIME (GPS point taken): 09:00

WEIGHT (grams) (% if composited)

PHOTO ID camera A

a. 7.0

42, 100-0043 Composite patch
for SP01 + SP02

b.

c.

d.

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

Plants collected from hard pitted cobble. Top roots growing between cobbles.

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

check if composited

SA05-SP02-S01

SAMPLERS (initials): SH, MS

DATE: 4-30-18

TIME (GPS point taken): 09:23
~~09:20~~ 09

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

PHOTO ID camera A

a. 0-3"

44, 100-0045

b.

c.

d.

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

Collected w/ spade

Dark brown silt 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

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

SA05-SP03-P01

GPS Unit #:

83128

PLANT SPECIES: *Lomatium* ^{fraternatum} ~~SPP~~

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

SAMPLERS (initials): GN, MS, SH

DATE: 4-30-18

TIME (GPS point taken): 09:49

WEIGHT (grams) (% if composited)

Camera A
PHOTO ID 45, 100-0046^{a-e}

	Total	(%)		Total	(%)	
a. 0.2g		(3)	e. 1.0	2.8	28 (14)	#5, 47, 100-0048
b. 0.5g	0.7g	(7)	f. 0.5	3.3	33 (7)	
c. 0.6g ^{0.4g}	1.1	(16)	g. 3.2	6.5	(46)	
d. 0.7	1.8	(26)	h. 0.5	7.0	(7)	

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

- Plants collected in mounded soil with numerous embedded cobbles.
 a, b, c, d, e
- One remaining small *Lomatium* not collected adjacent to a, b, c, d, e because it is the last individual at this location and would not meet the minimum mass.
- f, g, and h collected greater than 3m from a, b, c, d, e.

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

SA05-SP03-S01

check if composited

SAMPLERS (initials): SH, MS

DATE: 4-30-18

TIME (GPS point taken): 10:15

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

Camera A
PHOTO ID

a. 0-3" (44)	e 0-3" (4)	a-e. 46, 100-0047
b. 0-3" (4)	f 0-3" (4)	a-f g. 48, 100-0049.
c. 0-3" (15) ^{4% sh}	g 0-3" (46) (50)	f-h
d. 0-3" (25)	h 0-3" (4)	

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

Collected w/ spade

Dark Brown Silty Fine-medium sand w/ organic matter, cobbles, and gravel.
Moist.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

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

GPS Unit #:

check if composited

SA05-SP04-P01

83128

PLANT SPECIES: Black Lichen (Bryoria) TARGET PLANT TISSUE (e.g. leaves, bulbs): ^{whole} organism

SAMPLERS (initials): LH, JP, JS, MS, JF
LN, em DATE: 4-30-18

TIME (GPS point taken): 11:09

WEIGHT (grams) (% if composited)

camera A
PHOTO ID 49, 100-0050

a. 5.1g

b.

c.

d.

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):

check if composited

SA05-SP04-S01

SAMPLERS (initials): SH, MS

DATE: 4-30-18

TIME (GPS point taken): 11:16
11:15 JP

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

camera
PHOTO ID A

a. 0-3"

50, 100-0051

b.

c.

d.

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

Collected w/ spade

Dark brown silt and organic matter w/ fine sand and trace med. 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 #: 83123

check if composited

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

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

WEIGHT (grams) (% if composited) PHOTO ID Camera A
51,100-0052

- | | Total | |
|---------|-----------|--|
| a. 1.6g | (32) | |
| b. 1.7g | 3.3g (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): SH, MS DATE: 4-30-18 TIME (GPS point taken): 11:30

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

- | | |
|---------------------------|-------------|
| a. 0-3 (33 ^b) | 52,100-0053 |
| b. 0-3 (33 ^b) | |
| c. 0-3 (33 ^b) | |
| d. | |

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

Dark Brown silt and Organic Matter w/ some Fine Sand. Moist.

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):

check if composited

SA05-SP06-P01

GPS Unit #:

8328

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)

53,100-0054

b. 2.6g 3.9 (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

SA05-SP06-S01

SAMPLERS (initials): SH, MS

DATE: 4-30-18

TIME (GPS point taken): ^{11:51} ~~11:47~~ 11:51

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

PHOTO ID

a. 0-3" (33%)

54,100-0055

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-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):

P01

GPS Unit #:

83123

check if composited

SA05-SP07-P01

PLANT SPECIES: *Camasia quamash*

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

SAMPLERS (initials): SH, GM

DATE: 4-30-18

TIME (GPS point taken): 12:48

WEIGHT (grams) (% if composited)

PHOTO ID Camera A

a. 3.4g $\frac{\text{Total}}{(75\%)}$

55,100-0056

b. 1.1 4.5 (25)

c.

d.

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

check if composited

SAMPLERS (initials): SH,

DATE: 4-30-18

TIME (GPS point taken): 12:50

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

PHOTO ID Camera A

a. 0-3" (75%)

56,100-0057

b. 0-3" (25%)

c.

d.

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

Collected w/ Spade

Dark Brown silt + 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):

SA05-SP08-P01

GPS Unit #:

83123

PLANT SPECIES: *Carrassia quamah*

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

SAMPLERS (initials): ~~SM~~ MS, SH

DATE: 4-30-18

TIME (GPS point taken): 13:05

WEIGHT (grams) (% if composited)

PHOTO ID camera A

	Total	(n)	#	Total	(n)	#
a. 0.7g	0.7	(15)	F 0.8	4.8	(16)	# 57,100-0058
b. 0.6g	1.3	(13)	0.9			
c. 0.6g	1.9	(4) (13)				
d. 1.5g	3.4	(31)				
e. 0.5g	3.9	(10)				

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

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

SA05-SP08-S01

check if composited

SAMPLERS (initials): SH,

DATE: 4-30-18

TIME (GPS point taken): 13:17

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

PHOTO ID Camera A

a. 0-3" (14)	e. 0-3", (14)	a. } 60,100-0061
b. 0-3" (14)	f. 0-3" (14)	
c. 0-3" (14)		e. } 57,100-0060
(14)		
d. 0-3" (30)		d) 58,100-0059

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

Dark Brown silt and Organic Matter w/ some fine sand. ~~f)~~ moist.
 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):

SA05-SP09-P01

GPS Unit #:

83123

check if composited

PLANT SPECIES: *Camassia quamash*

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

SAMPLERS (initials): SH, MS

DATE: 4-~~19~~³⁰-18

TIME (GPS point taken): 13:43

WEIGHT (grams) (% if composited)

PHOTO ID camera A

	Total %		Total %	
a. 0.4g	→ (7)	b. 1.2g	→ (22)	# 61, 100-0062
b. 1.3g	→ (24)			
c. 1.4g	→ (25)			
d. 0.4g	→ (7)			
e. 0.4g	→ (7)			
	3.5 (7)			
	3.9 (7)			
	4.3 (7)			

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

Scale 4 recalibrated with 5g

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

SA05-SP09-S01

check if composited

SAMPLERS (initials): SH

DATE: 4-30-18

TIME (GPS point taken): 13:45

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

PHOTO ID camera A

a. 0-3" (5)	e. 0-3" (5)	a. 64, 100-0065
b. 0-3" (25)	f. 0-3" (25)	b. > 66, 100-0067
c. 0-3" (25)		c. > 62, 100-0063
d. 0-3" (15)		e. 65, 100-0066
		f. 63, 100-0064

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

collected w/ MIST

Brown silt and organic matter w/ Fine Sand, Trace Gravel. Moist.

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
 check if composited

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

SAMPLERS (initials): LH, JP, ^{MLS}MS, 6m, **DATE:** 4-30-18 **TIME (GPS point taken):** 14:15
KO, LN, JF

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

- a. 4.1g 68, 100-0069
- b.
- c.
- d.

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): SA05-SP10-~~P01~~^{S01} JP.
 check if composited

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

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited) ^{in.} **PHOTO ID Camera A**

- a. 0-3" 67, 100-0068
- b.
- c.
- d.

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

collected w/ spade
Brown silt and organic matter with some fine sand, trace gravel, moist

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

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

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

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

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

- a. 8.7 g 99, 101-0102
- b.
- c.
- d.

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): SA06-SP01-S01
 check if composited

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

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited) Camera B
PHOTO ID 101, 101-0104

- 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):

GPS Unit #:

check if composited

SA06-SP02-P01

83128

PLANT SPECIES: ~~Kinnikinnick~~ (*Arctostaphylos*
uva-ursi)

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

SAMPLERS (initials): JW, PH

DATE: 5-1-2018

TIME (GPS point taken): 16:57

WEIGHT (grams) (% if composited)

PHOTO ID Camera B

a. 6.4g

100, 101-0103

b.

c.

d.

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): SH, MS

DATE: 5-1-2018

TIME (GPS point taken): 1703

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

PHOTO ID Camera B

a. 0-3"

102, 101-0105

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): SA07-SP01-P01 GPS Unit #: 83134
 check if composited

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): 1540

WEIGHT (grams) (% if composited)		Camera A	PHOTO ID ¹⁰³ 100-0104
	Total		Total
a.	0.8 (18)	0.6	4.5 (13)
b.	0.9 1.7 (20)		
c.	1.3 3.0 (29)		
d.	0.9 3.9 (20)		

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): SA07-SP01-S01
 check if composited

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

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)		PHOTO ID 104, 100-005
	IN PA	
a.	0-3" (20)	0-3 (10)
b.	0-3" 1-2" (20)	
c.	0-3" (30)	
d.	0-3" (20)	

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):

SA07-SP02-P01

GPS Unit #:

83134

check if composited

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)

Camera A

PHOTO ID 105,100-0106

	Total	%
a.	1.5	(33)
b.	0.5 2.0	(11)
c.	1.3 ^{PH} 3.1 3.3 ^{PH} 3.3	(28)
d.	1.3 4.6	(28)

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):

SA07-SP02-S01

check if composited

SAMPLERS (initials): SH, MS

DATE: 5-2-18

TIME (GPS point taken): 1608

COLLECTION UPPER DEPTH/LOWER DEPTH ^{IN PK} (cm) (% if composited)

PHOTO ID 106,100-0107

a.	0-3"	30
b.	0-3"	10
c.	0-3"	30
d.	0-3"	30

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-SP03-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): 1618

WEIGHT (grams) (% if composited)

		Camera A		PHOTO ID 107, 100-0108	
	Total	%		Total	%
a. 0.7		(11)	e. 4.4 PA	1.8	4.4 (28)
b. 0.6	1.3	(20) PA (9)	f.	2.0	6.4 (31)
c. 0.7	2.0	(11)			
d. 0.6	2.6	(9)			

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

Composite

flat grassy field, scattered Ponderosa Pine

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

check if composited

SA07-SP03-S01

SAMPLERS (initials): SH, MS DATE: 5-2-18 TIME (GPS point taken): 1626

COLLECTION UPPER DEPTH/LOWER DEPTH (cm) (% if composited)		IN PA		PHOTO ID	
	%		%		
a. 0-3"	(10)	e. 0-3"	(30)	d.	108, 100-0109
b. 0-3"	(10)	f. 0-3"	(30)	a.	109, 100- 0110 ^{PH} 110
c. 0-3"	(10)			b, c.	110, 100-0111
d. 0-3"	(10)			e, f	111, 100-0112

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

Collected w/ 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 #: 83128
 check if composited

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

SAMPLERS (initials): SH, GM, ms DATE: 5-2-18 TIME (GPS point taken): 0937

WEIGHT (grams) (% if composited) Camera A
 PHOTO ID 73,100-0074

	Total	%
a.	4.2	(47)
b.	0.9	(10)
c.	3.8	(43)
d.		

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-GP01-S01
 check if composited

SAMPLERS (initials): SH DATE: 5-2-18 TIME (GPS point taken): 0945

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

a.	0-3"	(45)	74,100-0075
b.	0-3"	(10)	75,100-0076
c.	0-3"	(45)	
d.			

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

collected w/ spade
 Dark brown silt and organic matter. Trace 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-SP02-P01

GPS Unit #:

83128

check if composited

PLANT SPECIES: *Lomatium triterenatum* 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)

PHOTO ID ^{Camera A} 78, 100-0079

- a. 2.3g (28) e. 0.9g 7.0g (21)
- b. 1.7g 4.0g (20) f. 1.3 8.3g (16)
- c. 0.4g 4.4g (5)
- d. 1.7g 6.1g (20)

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

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

SA08-SP02-S01

check if composited

SAMPLERS (initials): SH, MS

DATE: 5-2-18

TIME (GPS point taken): 10:18

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

PHOTO ID ^{Camera A}

- a. 0-3" (30) e. (10) 0-3 a, b, c - 79, 100-0080
- b. 0-3" (20) f. (15) 0-3 e, f
- c. 0-3" (5) d, e, f - 30, 100-0081
- d. 0-3" (20)

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

collected w spade

Dark Brown silt and organic matter w/ some 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

SA08-SP03-P01

GPS Unit #:

83128

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

SAMPLERS (initials): MS, SH, GW

DATE: 5-2-18

TIME (GPS point taken): 10:45

WEIGHT (grams) (% if composited)

CAMERA A
PHOTO ID 83,100-0082

	Total	%	(n)
a. 1.2g			(12)
b. 5.7g	6.9g	(58)	
c. 0.8g	7.7	(8)	
d. 2.1g	9.8	(2)	

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

collected in open field in boulder / rubble area

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

check if composited

SA08-^{SP03 HP}~~SP08~~-S01

SAMPLERS (initials): SH, MS

DATE: 5-2-18

TIME (GPS point taken): 10:55

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

CAMERA A
PHOTO ID

a. 0-3" (1 of)
b. 0-3" (6 of)
c. 0-3" (10 of)
d. 0-3" (20 of)

a, b, c - 83, 100-0083
d - 83, 100-0084

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

collected w/ spade

Dark Brown silt and organic matter w/ some gravel. Moist.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA08-SP04-P01 **GPS Unit #:** 83128
 check if composited

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

SAMPLERS (initials): JP, PH, JW **DATE:** ^{JH} 5-2-18 **TIME (GPS point taken):** 11:07

WEIGHT (grams) (% if composited) 5.0g **PHOTO ID** camera A 84, 100-0088

- a. 5.0g
- b.
- c.
- d.

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): SA08-SP04-S01
 check if composited

SAMPLERS (initials): SH, MS **DATE:** 5-2-18 **TIME (GPS point taken):** 11:13

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

- a. 0-5" 85, 100-0086
- 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-SP05-P01 **GPS Unit #:** 83128
 check if composited

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

SAMPLERS (initials): PH, JP, MS, MT **DATE:** 5-2-18 **TIME (GPS point taken):** 11:28

WEIGHT (grams) (% if composited): ^{4.1g} 4.1g **PHOTO ID** ^{Camera A} 86,100-0087

- a. 4.1g
- b.
- c.
- d.

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): SA08-SP05-S01
 check if composited

SAMPLERS (initials): SH, MS **DATE:** 5-2-18 **TIME (GPS point taken):** 11:32

COLLECTION UPPER DEPTH/LOWER DEPTH (in cm) (% if composited) ^{Camera A} **PHOTO ID**
87,100-0088

- 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): <input checked="" type="checkbox"/> check if composited	SA08-SP06-P01	GPS Unit #: 83128
---	---------------	-----------------------------

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

SAMPLERS (initials): PH, JP, MS, JJW DATE: 5-2-2018 TIME (GPS point taken): 11:41

WEIGHT (grams) (% if composited) Camera A
PHOTO ID 88, ~~SA08-100-0089~~

- a. 5.8g
- 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): <input checked="" type="checkbox"/> check if composited	SA08-SP06-S01
---	---------------

SAMPLERS (initials): SH, MS DATE: 5-2-2018 TIME (GPS point taken): 1145

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

- a. 0-3" 89, 100-0090
- b.
- c.
- d.

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

collected w/ spade
Dark Brown loose silt and organic matter. Trace 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):

check if composited

SA08-SP07-P01

GPS Unit #:

83128

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

SAMPLERS (initials): PH, MT, MS, JP

DATE: 5-2-18

TIME (GPS point taken): 12:46

WEIGHT (grams) (% if composited) 3.8g

Camera A
PHOTO ID 90,100-0091

a. 3.8g

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

SA08-SP07-S01

SAMPLERS (initials): SH, MS

DATE: 5-2-18

TIME (GPS point taken): 12:55

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

PHOTO ID Camera A

a. 0-3" ⁱⁿ

91,100-0092

b.

c.

d.

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

Collected w/ Spade

Dark Brown silt + organic matter. Gravel at 2" Moist.

NOT SAMPLED

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

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

GPS Unit #:

check if composited

SA08-SP08-P01

83128

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 composited)

PHOTO ID camera A

a.

92,100-0093

not camas

b.

c.

d.

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

Not camas - ~~Brodia~~^{JW} Brodiaea
Aborted sample SH-

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

check if composited

SA08-SP08-S01

SAMPLERS (initials): SH

DATE: 5-2-18

TIME (GPS point taken):

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

PHOTO ID

a.

b.

c.

d.

aborted SH-

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

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA08-SP09-P01 GPS Unit #: 83128
 check if composited

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

SAMPLERS (initials): GM, SH, MS DATE: 5/2/18 TIME (GPS point taken): 13:37

WEIGHT (grams) (% if composited) PHOTO ID 93,100-0094

a. 0.2 / 0.2	Total 5%	e. 0.6 / 2.5	Total 15%	l. 0.6	Total 4.1%	15%
b. 0.3 / 0.5	7%	f. 0.4 / 2.9	10%	9 total		
2H c. 0.9 / 1.4	22%	g. 0.2 / 3.1	5%			
d. 0.5 / 1.9	12%	h. 0.4 / 3.5	5% 5%			

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

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA08-SP09-S01
 check if composited

SAMPLERS (initials): SH DATE: 5/2/18 TIME (GPS point taken): 1351

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

a. 0-3" (5)	e. 0-3" (15)	i. 0-3" (15)	a,b,d,f - 94,100-0095
b. 0-3" (5)	f. 0-3" (10)		c. - 95,100-0096
c. 0-3" (25)	g. 0-3" (5)		e.g. - 96,100-0097
d. 0-3" (10)	h. 0-3" (10)		h. si. - 97,100-0098

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

collected w/ spade
 Dark Brown silt + organic matter (0-1"). Gray silt (1-3"). moist.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

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

GPS Unit #:

check if composited

SA08-SP10-P01

83128

PLANT SPECIES: *Claytonia lanceolata*

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

SAMPLERS (initials): GM, MS, SH

DATE: 5/2/18

TIME (GPS point taken): 11:15

WEIGHT (grams) (% if composited)

Camera A

PHOTO ID 98, 100-0099

	Total	n		Total	n
a. 0.3g	0.3g	(8)	f. 0.2	3.0	(5)
b. 0.3	0.6	(8)	g. 0.2	3.2	(5)
c. 0.6	1.2	(16)	h. 0.6	3.8	(16)
d. 0.3	1.5	(8)			
e. 1.3	2.8	(34)			

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-SP10-S01

SAMPLERS (initials): SH

DATE: 5-2-18

TIME (GPS point taken): 14:25

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

PHOTO ID

a. (10)	e. (30)	a, d, e, f, g	100, 100-0101
b. (10)	f. (5)	c, h	101, 100-0102
c. (15)	g. (5)	b	102, 100-0103
d. (10)	h. (15)		

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

collected w/ spade
Dark Brown silt + organic matter w/ trace fine sand. Moist.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

✓/54
E0

PLANT SAMPLE ID (e.g. SA01-SP01-P01): <input type="checkbox"/> check if composited	SA16 - SP01 - P01	GPS Unit #: 33128
---	-------------------	----------------------

PLANT SPECIES: Willow (*Salix exigua*) TARGET PLANT TISSUE (e.g. leaves, bulbs): Branches

SAMPLERS (initials): SH, LH, MS DATE: 5/1/2018 TIME (GPS point taken): 9:27
JW, PH, GM

LENGTH WEIGHT (grams) (% if composited) PHOTO ID Camera A 100-073

- a. 150 in ; 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): <input type="checkbox"/> check if composited	SA16 - SP01 - S01
---	-------------------

SAMPLERS (initials): SH, MS DATE: 5/1/2018 TIME (GPS point taken): 0951

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

- a. 0-3" 101-0079
101-0080
- b.
- c.
- d.

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

collected w/ spade
Fine - medium sand, light brown. Dry - slightly moist.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

✓ JSH
E0

PLANT SAMPLE ID (e.g. SA01-SP01-P01): <input type="checkbox"/> check if composited	SA16-SP02-P01	GPS Unit #: 83129
---	---------------	----------------------

PLANT SPECIES: Willow (*Salix Exigua*) TARGET PLANT TISSUE (e.g. leaves, bulbs): Branch

SAMPLERS (initials): JW, SH DATE: 5/1/2018 TIME (GPS point taken): 0942

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

- a. 105 cm ; 85 cm = 190 cm ~~101-0078~~^e
- b. ~~101-0080~~
- c. 101-0078
- 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): <input type="checkbox"/> check if composited	SA16-SP02-S01
---	---------------

SAMPLERS (initials): SH, MS DATE: 5/1/2018 TIME (GPS point taken): 0959

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

- a. 0-3" ~~101-0080~~⁶
- b. 101-0081
- c.
- d.

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

collected w/ spade
Light Brown Fine-Medium sand. Dry-movst.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

✓
LEO
HT

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

GPS Unit #:

check if composited

SA16-SP03-P01

83128

PLANT SPECIES: Willow (*Salix exigua*) TARGET PLANT TISSUE (e.g. leaves, bulbs): Branches

SAMPLERS (initials): JW, GM,

DATE: 5-1-2018

TIME (GPS point taken): 1012

Length
WEIGHT (grams) (% if composited)

PHOTO ID Camera B

a. $140^{cm} + 125\text{ cm} = 265\text{ cm} + 140\text{ cm} = 405\text{ cm}$

79, 101-0082

b.

c.

d.

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

Split (2x mass)
MKS 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): 1020

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

Camera B
PHOTO ID

a. 0-3"

80, 101-0083

b.

c.

d.

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

Split, collected w/ Spade
Fine-coarse sand w/ minor Gravel. Light Brown, slightly moist.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

✓
EP

PLANT SAMPLE ID (e.g. SA01-SP01-P01): <input type="checkbox"/> check if composited	SA16-SP04-P01	GPS Unit #: 83128
---	---------------	----------------------

PLANT SPECIES: Willow (*Salix Eriogon*) TARGET PLANT TISSUE (e.g. leaves, bulbs): Branches

SAMPLERS (initials): JW, GM, MS DATE: 5-1-2018 TIME (GPS point taken): 10:32

WEIGHT (grams) (% if composited) PHOTO ID Cam. B.

a. 55 cm + 150 cm = 205 cm

81, 101-0084

- b.
- c.
- d.

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): <input type="checkbox"/> check if composited	SA16-SP04-S01
---	---------------

SAMPLERS (initials): SH, MS DATE: 5-1-18 TIME (GPS point taken): 1037

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

a. 0-3"

82, 101-0085

- b.
- c.
- d.

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

✓
E0

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

check if composited

SA16-SP07-P01

GPS Unit #:

83128

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 composited)

PHOTO ID Camera B

83, 101-0086

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
surrounding willows observed (evidence recent clipping
fire tracks near sample 30 feet west of sample

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

check if composited

SA16-SP05-S01

SAMPLERS (initials): SH, MS

DATE: 5-1-2018

TIME (GPS point taken): 1057

inches

Camera B

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

PHOTO ID 1057

a. 0-3"

85, 101-0088

b.

c.

d.

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

collected w/ spade

Light Brown Fine Sand w/ some medium sand. Moist

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

✓
✓
E.O. 12812

PLANT SAMPLE ID (e.g. SA01-SP01-P01): SA16-SP06-P01 GPS Unit #: 83128
 check if composited

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): 1105

length (cm) PHOTO ID Cam. B
 WEIGHT (grams) (% if composited) 86, 106-0089

- a. 152 cm + 65 cm = 217 cm
- b.
- c.
- d.

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

enough mass for Hg
 willow in reed canopy grass field

SOIL/SEDIMENT SAMPLE ID (e.g. SA01-SP01-S01): SA16-SP06-S01
 check if composited

SAMPLERS (initials): SH MS DATE: 5-1-2018 TIME (GPS point taken): 1109

COLLECTION UPPER DEPTH/LOWER DEPTH ^{inch} ~~(cm)~~ (% if composited) PHOTO ID Camera B

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

87, 101-0090

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

collected w/ spade
 Brown silty fine sand. Moist.

PLANT TISSUE AND SOIL/SEDIMENT DATA FORM

UPPER COLUMBIA RIVER PLANT TISSUE STUDY 2018

✓
ED

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

GPS Unit #:

check if composited

SA16-SP07-P01

83128

PLANT SPECIES: Willow (*Salix Elymifolia*)

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

SAMPLERS (initials): JW, GM

DATE: 5-1-2018

TIME (GPS point taken): 1118

Length (cm)

WEIGHT (grams) (% if composited)

PHOTO ID camera B

88, 100-0091

a. 130 cm + ~~70~~ cm = ~~200~~ cm

b.

c.

d.

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

enough mass for Hg

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

check if composited

SA16-SP07-P01

SAMPLERS (initials): SH, MS

DATE: 5-1-2018

TIME (GPS point taken): 1122

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

PHOTO ID camera B

a. 0-3"

89, 100-0092

b.

c.

d.

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

collected w/ spade

light brown fine-med. sand w/ gravel from 2-3" bgs, moist

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

PLANT SAMPLE ID: (e.g. SA01-JU01-P01) SA01-JU01-P01	GPS Unit #: 34	Camera ID: Blue
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Rosa sp.	TARGET PLANT TISSUE (e.g. leaves, bulbs): leaves, stems	
SAMPLERS (initials): GM, DL, MS, LH	DATE: 6-19-18	TIME (GPS point taken): 08:14
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID
a. 43 + 28 + 75 + 81 + 48	275 cm	# 123
b.		
c.		
d.		
e.		
f.		
g.		

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA01-JU01-S01	GPS Unit #: 34	Camera ID: Blue
<input type="checkbox"/> check if composited		

SAMPLERS (initials): DL, MS, LH	DATE: 6-19-18	TIME (GPS point taken): 08:19
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID
a. 0-3		# 124
b.		
c.		
d.		
e.		
f.		
g.		

SOIL NOTES (e.g. collection method, color, texture):
 Split, metals + mercury

Brown, dry, loose silty soil w/ organic material (small roots)

Checked by:	Date Checked: 6-19-18
--------------------	---------------------------------

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

PLANT SAMPLE ID: (e.g. SA01-JU01-P01)	SA01-JU02-P01	GPS Unit #:	34	Camera ID:	Blue
<input type="checkbox"/> check if composited					

PLANT SPECIES (scientific name): Rosa sp.	TARGET PLANT TISSUE (e.g. leaves, bulbs): leaves, stems
SAMPLERS (initials): CWH, DL, MS, LH	DATE: 6-19-18 TIME (GPS point taken): 08:39
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g) (m) PHOTO ID
a. 17 + 15 + 11 + 19 + 20 + 16	96 ^{J.P.} 98 cm # 125
b.	
c.	
d.	
e.	
f.	
g.	

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01)	SA01-JU02-S01 S01	GPS Unit #:	34	Camera ID:	Blue
<input type="checkbox"/> check if composited					

SAMPLERS (initials): DL, MS, LH	DATE: 6-19-18 TIME (GPS point taken): 08:52
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g) PHOTO ID
a. 0-3	# 127
b.	
c.	
d.	
e.	
f.	
g.	

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

Brown, dry, loose silty soil w/ organic material

Checked by: <i>[Signature]</i>	Date Checked: 6-19-18
---------------------------------------	------------------------------

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

PLANT SAMPLE ID: (e.g. SA01-JU01-P01) SA01-JU03-P01	GPS Unit #: 34	Camera ID: Blue
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Rosa sp.	TARGET PLANT TISSUE (e.g. leaves, bulbs): leaves, stems	
SAMPLERS (initials): GM, DL, MS	DATE: 6-19-18	TIME (GPS point taken): 08:45
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID
a. 17 + 15 + 13 + 9 + 9 + 6 + 8	77 in. cm J.P.	# 126
b.		
c.		
d.		
e.		
f.		
g.		

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA01-JU03-S01	GPS Unit #: 34	Camera ID: Blue
<input type="checkbox"/> check if composited		

SAMPLERS (initials): DL, MS, LH	DATE: 6/19/18	TIME (GPS point taken): 08:58
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID
a. 0-3	2	# 128
b.		
c.		
d.		
e.		
f.		
g.		

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

Brown, dry, loose silty soil w/ organic material

Checked by:	Date Checked: 6-19-18
-------------	---------------------------------

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

PLANT SAMPLE ID: (e.g. SA01-JU01-P01) SA01-JU04-P01	GPS Unit #: 34	Camera ID: B1ne
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Rosa sp.	TARGET PLANT TISSUE (e.g. leaves, bulbs): leaves, stems	
SAMPLERS (initials): WM, DL, MS, LH	DATE: 6-19-18	TIME (GPS point taken): 09:22
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g) (in)	PHOTO ID
a. 20 + 18 + 17 + 18 + 13 + 14	98cm 100cm	#129
b.	J.P.	
c.		
d.		
e.		
f.		
g.		

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA01-JU04-S01	GPS Unit #: 34	Camera ID: B1ne
<input type="checkbox"/> check if composited		

SAMPLERS (initials): DL, MS, LH	DATE: 6-19-18	TIME (GPS point taken): 0926
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID
a. 0-3		#130
b.		
c.		
d.		
e.		
f.		
g.		

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

Brown, dry, loose silty 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

PLANT SAMPLE ID: (e.g. SA01-JU01-P01) SA03-JU01-P01	GPS Unit #: 34	Camera ID: Blue
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Rosa mathamensis sp. (PH)	TARGET PLANT TISSUE (e.g. leaves, bulbs): leaves, stems	
SAMPLERS (initials): DL, MS, LH	DATE: 6-18-18	TIME (GPS point taken): 14:18
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID

a. 5cm + 6cm + 7cm + 15cm + 13cm + 12cm + 12cm = 50.57cm = 70cm #103

- b. _____
- c. _____
- d. _____
- e. _____
- f. _____
- g. _____

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA03-JU01-S01	GPS Unit #: 34	Camera ID: Blue
<input type="checkbox"/> check if composited		

SAMPLERS (initials): DL, MS	DATE: 6-18-18	TIME (GPS point taken): 14:32
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID

- a. 0-3 #104
- b. _____
- c. _____
- d. _____
- e. _____
- f. _____
- g. _____

SOIL NOTES (e.g. collection method, color, texture):
 Dark brown, dry, silty soil w/ 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: (e.g. SA01-JU01-P01) SA03-JU02-P01	GPS Unit #: 34	Camera ID: Blue
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Rosa sp.	TARGET PLANT TISSUE (e.g. leaves, bulbs): leaves, stems	
SAMPLERS (initials): GM, DL	DATE: 6-18-18	TIME (GPS point taken): 14:49

	WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID
a.	16+15+8+10+7+5+20 = 81cm	81cm	105
b.			
c.			
d.			
e.			
f.			
g.			

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA03-JU02-S01	GPS Unit #: 34	Camera ID: Blue
<input type="checkbox"/> 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
a.	0-3		106
b.			
c.			
d.			
e.			
f.			
g.			

SOIL NOTES (e.g. collection method, color, texture):
 Dark brown, dry, silty soil w/ 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: (e.g. SA01-JU01-P01) SA03-JU03-P01	GPS Unit #: 34	Camera ID: Blue
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Rosa sp.	TARGET PLANT TISSUE (e.g. leaves, bulbs): leaves, stems	
SAMPLERS (initials): Gm, SD, ms, LH	DATE: 6-18-18	TIME (GPS point taken): 15:07
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID
a. 22 + 17 + 18	J.P. - 55cm	# 107 & 108
b.	57cm	
c.		
d.		
e.		
f.		
g.		

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

Mercury

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA03-JU03-S01	GPS Unit #: 34	Camera ID: Blue
<input type="checkbox"/> 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		# 109
b.		
c.		
d.		
e.		
f.		
g.		

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

Dark Brown, dry, loose silt w/ organic material & 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: (e.g. SA01-JU01-P01) SA03-JU04-P01 **GPS Unit #:** 34 **Camera ID:** Bine

check if composited

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

SAMPLERS (initials): EM, MS, LH, MAS, DL **DATE:** 6-18-18 **TIME (GPS point taken):** 9:44 15:51

WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID
a. 4.5 (52)	4.5	#110
b. 1.5 (17)	6.0	#111
c. 1.5 (17)	7.5	#112
d. 1.1 (13)	8.6	#113
e.		
f.		
g.		

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA03-JU04-S01 **GPS Unit #:** 34 **Camera ID:** Bine

check if composited

SAMPLERS (initials): DL, MS **DATE:** 6-18-18 **TIME (GPS point taken):** 16:04

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID
a. 0-3 (50%)	2	# 114
b. 0-3 (16.5)		# 115
c. 0-3 (16.5)		# 116, 117
d. 0-3 (16.5)		d
e.		
f.		
g.		

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

Dark brown, loose, dry silt w/organic material + sparse gravel

Checked by: [Signature] Date Checked: 6-18-18

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

PLANT SAMPLE ID: (e.g. SA01-JU01-P01) SA03-JU05-P01 **GPS Unit #:** 34 **Camera ID:** Blue

check if composited

PLANT SPECIES (scientific name): <u>Lomatium triternatum</u>		TARGET PLANT TISSUE (e.g. leaves, bulbs): <u>roots</u>	
SAMPLERS (initials): <u>GM, JW, MS, LH</u>		DATE: <u>6-18-18</u>	TIME (GPS point taken): <u>16:28</u>
WEIGHT/LENGTH (g/cm) (% if composited)		TOTAL WEIGHT(g)	PHOTO ID
a.	<u>2.9 (37)</u>	<u>2.9</u>	<u>a-d7 #118</u>
b.	<u>0.9 (12)</u>	<u>3.8</u>	
c.	<u>1.0 (13)</u>	<u>4.8</u>	
d.	<u>3.0 (38)</u>	<u>7.8</u>	
e.			
f.			
g.			

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA03-JU05-S01 **GPS Unit #:** 34 **Camera ID:** Blue

check if composited

SAMPLERS (initials): <u>DS, MS</u>		DATE: <u>6-18-18</u>	TIME (GPS point taken): <u>J.P. #16 # 16:41</u>
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)		TOTAL WEIGHT(g)	PHOTO ID
a.	<u>0-3 (40)</u>	<u>2</u>	<u>120</u>
b.	<u>0-3 (10)</u>		<u>5) 121</u>
c.	<u>0-3 (10)</u>		<u>e) 121</u>
d.	<u>0-3 (40)</u>		<u>#122</u>
e.			
f.			
g.			

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

Brown, loose, dry silty silt w/ organic material + sparse gravel

Checked by: [Signature] Date Checked: 6-18-18

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

PLANT SAMPLE ID: (e.g. SA01-JU01-P01) <u>SA04-JU01-P01</u>	GPS Unit #: <u>34</u>	Camera ID: <u>Blue</u>
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): <u>Rosa sp.</u>	TARGET PLANT TISSUE (e.g. leaves, bulbs): <u>leaves, stems</u>	
SAMPLERS (initials): <u>GM, DL, MS, LH</u>	DATE: <u>6-19-18</u>	TIME (GPS point taken): <u>12:37</u>
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID
a. <u>27+27+24+19+18+13+11+11</u>	<u>150 cm</u>	<u># 131</u>
b. <u>SE 26 10 1</u>		<u>#132 (LH)</u>
c.		
d.		
e.		
f.		
g.		

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) <u>SA04-JU01-S01</u>	GPS Unit #: <u>34</u>	Camera ID: <u>Blue</u>
<input type="checkbox"/> check if composited		

SAMPLERS (initials): <u>DL, MS</u>	DATE: <u>6-19-18</u>	TIME (GPS point taken): <u>12:43</u>
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID
a. <u>0-3</u>	<u>2</u>	<u>#132</u>
b.		
c.		
d.		
e.		
f.		
g.		

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

Brown, dry, loose, very fine sandy silt w/ organic material

Checked by: 	Date Checked: <u>6-19-18</u>
------------------------	--

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

PLANT SAMPLE ID: (e.g. SA01-JU01-P01) <i>SA04-Ju02-P01</i>	GPS Unit #: <i>34</i>	Camera ID: <i>orange</i>
<input type="checkbox"/> <i>check if composited</i>		

PLANT SPECIES (scientific name): <i>Rosa sp.</i>	TARGET PLANT TISSUE (e.g. leaves, bulbs): <i>leaves, stems</i>	
SAMPLERS (initials): <i>GM, MS, DL, LH</i>	DATE: <i>6-19-18</i>	TIME (GPS point taken): <i>13:02</i>
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID
<i>a. 34 35 + 21 + 14</i>	<i>70cm</i>	<i># 112</i>
b.		
c.		
d.		
e.		
f.		
g.		

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) <i>SA04-Ju02-S01</i>	GPS Unit #: <i>34</i>	Camera ID: <i>orange</i>
<input type="checkbox"/> <i>check if composited</i>		

SAMPLERS (initials): <i>DL, MS, LH</i>	DATE: <i>6-19-18</i>	TIME (GPS point taken): <i>13:08</i>
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID
<i>a. 0-3</i>		<i># 114</i>
b.		
c.		
d.		
e.		
f.		
g.		

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

Light brown/tan, dry, loose fine sandy silt w/ organic material

Checked by: <i>[Signature]</i>	Date Checked: <i>6-19-18</i>
---------------------------------------	--

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

PLANT SAMPLE ID: SA04-JU03-P01 (e.g. SA01-JU01-P01)	GPS Unit #: 34	Camera ID: orange
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Rosa sp.	TARGET PLANT TISSUE (e.g. leaves, bulbs): Leaves, stems	
SAMPLERS (initials): Gm, ms, DL, LH	DATE: 6-19-18	TIME (GPS point taken): 13:04
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g) (in)	PHOTO ID
a. 23 + 27 + 32	82 cm	# 113
b.		
c.		
d.		
e.		
f.		
g.		

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

SOIL/SEDIMENT SAMPLE ID: SA04-JU03- P01 ^{P2} S01 (e.g. SA01-JU01-S01)	GPS Unit #: 34	Camera ID: orange Jeff's blue camera
<input type="checkbox"/> check if composited		

SAMPLERS (initials): DL, ms	DATE: 6/19/18	TIME (GPS point taken): 13:14
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID
a. 0-3		# 62
b.		
c.		
d.		
e.		
f.		
g.		

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

light brown/tan, dry, loose, fine sandy silt w/ organic material

Checked by: <i>[Signature]</i>	Date Checked: 6-19-18
---------------------------------------	------------------------------

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

PLANT SAMPLE ID: SA04-JU04-P01 (e.g. SA01-JU01-P01)	GPS Unit #: 34	Camera ID: Jeff's camera
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Rosa Sp.	TARGET PLANT TISSUE (e.g. leaves, bulbs): leaves, stems	
SAMPLERS (initials): Gm, DL, MS, LH	DATE: 6/19/18	TIME (GPS point taken): 1329
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID

a. 19+20+19+19+14	91 cm	#64 (#63 was bad photo)
b.		
c.		
d.		
e.		
f.		
g.		

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

metals + mercury

SOIL/SEDIMENT SAMPLE ID: SA04-JU04-P0 (e.g. SA01-JU01-S01)	GPS Unit #: 34	Camera ID: Jeff's camera
<input type="checkbox"/> check if composited		

SAMPLERS (initials): DV, MS	DATE: 6/19/18	TIME (GPS point taken): 1325
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID

a. 0-3	#65
b.	
c.	
d.	
e.	
f.	
g.	

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

DUFF/PINE NEEDLE LITER 3.5 INCHES

DARK BROWN, DRY, LOOSE, FINE SANDY SILT WITH ORGANIC MATERIAL

Checked by:	Date Checked: 6-19-18
--------------------	---------------------------------

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

PLANT SAMPLE ID: SA04-JU05-P01 (e.g. SA01-JU01-P01)	GPS Unit #: 34	Camera ID: Jeff's
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Vaccinium sp. cespitosum	TARGET PLANT TISSUE (e.g. leaves, bulbs): berries
SAMPLERS (initials): LH, CM, JP, JW, DL	DATE: 6-19-2018 TIME (GPS point taken): 14:26

WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID
a.	17g	# 66
b.		
c.		
d.		
e.		
f.		
g.		

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

SOIL/SEDIMENT SAMPLE ID: SA04-JU05-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 34	Camera ID: Jeff's
<input type="checkbox"/> check if composited		

SAMPLERS (initials): DL, ms,	DATE: 6-19-2018 TIME (GPS point taken): 14:11
--	---

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID
a. 0-3		#67
b.		
c.		
d.		
e.		
f.		
g.		

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

Reddish brown, dry, loose sandy silt w/ organic materials & charcoal

Checked by: <i>[Signature]</i>	Date Checked: 6-19-18 <i>6/19/18</i>
--------------------------------	--------------------------------------

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

PLANT SAMPLE ID: (e.g. SA01-JU01-P01) SA04-JU06-P01	GPS Unit #: 34	Camera ID: Jeffs
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Vaccinium cespitosum	TARGET PLANT TISSUE (e.g. leaves, bulbs): berries	
SAMPLERS (initials): LH, DL, JW	DATE: 6-19-2018	TIME (GPS point taken): 14:31
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID
a.	18g	# 68
b.		
c.		
d.		
e.		
f.		
g.		

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA04-JU06-S01	GPS Unit #: 34	Camera ID: Jeffs
<input type="checkbox"/> check if composited		

SAMPLERS (initials): DL, MS	DATE: 6-19-2018	TIME (GPS point taken): 14:36
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID
a. 0-3		# 69
b.		
c.		
d.		
e.		
f.		
g.		

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

1.5 inch duff removed, charcoal
 reddish brown, dry, loose, fine sandy silt with organic material + charcoal

Checked by:	Date Checked: 6-19-18
--------------------	---------------------------------

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

PLANT SAMPLE ID: (e.g. SA01-JU01-P01) <u>SA04-JU07-P01</u>	GPS Unit #: <u>34</u>	Camera ID: <u>JEFF</u>
<input type="checkbox"/> check if composited		
PLANT SPECIES (scientific name): <u>Vaccinium cespitosum</u>	TARGET PLANT TISSUE (e.g. leaves, bulbs): <u>BERRIES</u>	
SAMPLERS (initials): <u>LH, MS, JW</u>	DATE: <u>6/19/2018</u>	TIME (GPS point taken): <u>1456</u>
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID
a.	<u>18g</u>	<u>#70</u>
b.		
c.		
d.		
e.		
f.		
g.		

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

Vaccinium cespitosum

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) <u>SA04-JU07-S01</u>	GPS Unit #: <u>34</u>	Camera ID: <u>JEFF</u>
<input type="checkbox"/> check if composited		
SAMPLERS (initials): <u>DL, MS</u>	DATE: <u>6/19/2018</u>	TIME (GPS point taken): <u>1501</u>
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID
a. <u>0-3</u>		<u>#71</u>
b.		
c.		
d.		
e.		
f.		
g.		

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

Reddish brown, dry, loose, fine sandy silt with organic material

Checked by: <u>[Signature]</u>	Date Checked: <u>6-19-18</u>
---------------------------------------	--

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

PLANT SAMPLE ID: (e.g. SA01-JU01-P01) SA04-JU08-P01	GPS Unit #: 34	Camera ID: Jeff's camera
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Vaccinium cespitosum	TARGET PLANT TISSUE (e.g. leaves, bulbs): fruits	
SAMPLERS (initials): LH, GM, MT, MS, DL, WF, MS, JW	DATE: 6-20-18	TIME (GPS point taken): 08:25
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID

- a. 16g 259
- b.
- c.
- d.
- e.
- f.
- g.

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA04-JU08-S01	GPS Unit #: 34	Camera ID: Jeff's camera
<input type="checkbox"/> check if composited		

SAMPLERS (initials): DL, MS	DATE: 6-20-18	TIME (GPS point taken): 08:32
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID

- a. 0-3 # 260
- b.
- c.
- d.
- e.
- f.
- g.

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

Reddish Brown, dry, loose silt w/organic material

Checked by:	Date Checked: 6-20-18
-------------	--------------------------

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

PLANT SAMPLE ID: (e.g. SA01-JU01-P01) SA04-JU09-P01		GPS Unit #: 34	Camera ID: Jeff's
<input type="checkbox"/> check if composited			
PLANT SPECIES (scientific name): Vaccinium cespitosum		TARGET PLANT TISSUE (e.g. leaves, bulbs): Fruits	
SAMPLERS (initials): JW, LH, DL, MS, GM, WF, MT, MSA		DATE: 6-20-18	TIME (GPS point taken): 0842
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID	
a. 18g		261	
b.			
c.			
d.			
e.			
f.			
g.			

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA04-JU09-S01		GPS Unit #: 34	Camera ID: Jeff's
<input type="checkbox"/> check if composited			
SAMPLERS (initials): DL, MS		DATE: 6-20-18	TIME (GPS point taken): 0858
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g)	PHOTO ID	
a.		262	
b.			
c.			
d.			
e.			
f.			
g.			

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

Reddish Brown, dry, loose silt w/organic material

Checked by:	Date Checked: 6-20-18
-------------	--------------------------

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

PLANT SAMPLE ID: (e.g. SA01-JU01-P01) SA04-JU01 SA04-JU10-P01		GPS Unit #: 34	Camera ID: Jeff's
<input type="checkbox"/> check if composited			
PLANT SPECIES (scientific name): Vaccinium cespitosum		TARGET PLANT TISSUE (e.g. leaves, bulbs): Fruits	
SAMPLERS (initials): JW, LH, JP, MS, DL, GM, WF		DATE: 6-20-18	TIME (GPS point taken): 0910 0912
WEIGHT/LENGTH (g/cm) (% if composited)		TOTAL WEIGHT(g)	PHOTO ID
a.	19g		#263
b.			
c.			
d.			
e.			
f.			
g.			

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA04-JU10-P01		GPS Unit #: 34	Camera ID: Jeff's
<input type="checkbox"/> check if composited			
SAMPLERS (initials): DL, MS		DATE: 6-20-18	TIME (GPS point taken): 0924
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)		TOTAL WEIGHT(g)	PHOTO ID
a.	0-3		#264
b.			
c.			
d.			
e.			
f.			
g.			

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

Reddish brown, dry, loose silt & organic material

Checked by: JM	Date Checked: 6-20-18
--------------------------	---------------------------------

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

PLANT SAMPLE ID: (e.g. SA01-JU01-P01) SADH-JU01-P01 SADU	GPS Unit #: 34	Camera ID: Jeff's
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Rosa sp.	TARGET PLANT TISSUE (e.g. leaves, bulbs): ROSE SP. leaves, stems
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 + 28 + 27 + 20 + 23	195 218	# 265
b.	J.P.	
c.		
d.		
e.		
f.		
g.		

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SADU-JU01-S01	GPS Unit #: 34	Camera ID: Jeff's
<input type="checkbox"/> 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		# 266
b.		
c.		
d.		
e.		
f.		
g.		

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

Reddish brown, dry, loose silt w/ organic material

Checked by: <i>[Signature]</i>	Date Checked: 6-20-18
--------------------------------	-----------------------

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

PLANT SAMPLE ID: (e.g. SA01-JU01-P01) <i>SAϕle - Jϕp4 - Pϕ1</i>		GPS Unit #: <i>34</i>	Camera ID: <i>Jeff's</i>
<input type="checkbox"/> <i>check if composited</i>			
PLANT SPECIES (scientific name): <i>Rosa sp.</i>		TARGET PLANT TISSUE (e.g. leaves, bulbs): <i>leaves, stems</i>	
SAMPLERS (initials): <i>GM, DL, ms, zH</i>		DATE: <i>6-20-18</i>	TIME (GPS point taken): <i>11:16</i>
WEIGHT/LENGTH (g/cm) (% if composited)		TOTAL WEIGHT(g) <i>length</i>	PHOTO ID
a.	<i>29 + 28 + 19 + 18 + 22 = 116cm</i>		<i># 86</i>
b.			
c.			
d.			
e.			
f.			
g.			

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) <i>SAϕle - Jϕp4 - Sϕ1</i>		GPS Unit #: <i>34</i>	Camera ID: <i>Jeff's</i>
<input type="checkbox"/> <i>check if composited</i>			
SAMPLERS (initials): <i>DL, ms</i>		DATE: <i>6-20-18</i>	TIME (GPS point taken): <i>11:18</i>
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)		TOTAL WEIGHT(g) <i>3</i>	PHOTO ID
a.	<i>0-3</i>		<i># 87</i>
b.			
c.			
d.			
e.			
f.			
g.			

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

Reddish brown, dry, loose silt w/organic material + decaying wood

Checked by: <i>[Signature]</i>	Date Checked: <i>6-20-18</i>
---------------------------------------	-------------------------------------

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

PLANT SAMPLE ID: (e.g. SA01-AU01-P01) <u>SA01-AU01-P01</u>	GPS Unit #: <u>83134</u>	Camera ID: <u>orange</u>
<input type="checkbox"/> <i>check if composited</i>		

PLANT SPECIES (scientific name): <u>Prunus virginiana</u>	TARGET PLANT TISSUE (e.g. leaves, bulbs): <u>berries</u>	
SAMPLERS (initials): <u>LH, ms, AU</u>	DATE: <u>082218</u>	TIME (GPS point taken): <u>0818</u>
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
a. <u>76.5g</u>		<u>345</u>
b.		
c.		
d.		
e.		
f.		
g.		

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) <u>SA01-AU01-SA01</u>	GPS Unit #: <u>83134</u>	Camera ID: <u>orange</u>
<input type="checkbox"/> <i>check if composited</i>		

SAMPLERS (initials): <u>SH, ms</u>	DATE: <u>082218</u>	TIME (GPS point taken): <u>0822</u>
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID	
a. <u>0-3 in.</u>	<u>346</u>	
b.		
c.		
d.		
e.		
f.		
g.		

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

Collected w/ hand spade
Brown sandy silt w/ organic matter (rootlets). Dry

Checked by: <u>Stu Holmes</u>	Date Checked: <u>8-22-18</u>
--------------------------------------	--

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

PLANT SAMPLE ID: (e.g. SA01-AU01-P01) <i>SA01 - AU02 - P01</i>	GPS Unit #: <i>83134</i>	Camera ID: <i>orange</i>
<input type="checkbox"/> <i>check if composited</i>		

PLANT SPECIES (scientific name): <i>Prunus virginiana</i>	TARGET PLANT TISSUE (e.g. leaves, bulbs): <i>berries</i>
---	--

SAMPLERS (initials): <i>LM SM MS</i>	DATE: <i>08 22 18</i>	TIME (GPS point taken): <i>0851</i>
--	---------------------------------	---

	WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
a.	<i>82 g</i>		<i>347</i>
b.			
c.			
d.			
e.			
f.			
g.			

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

Replicate

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) <i>SA01 - AU02 - S01</i>	GPS Unit #: <i>83134</i>	Camera ID: <i>orange</i>
<input type="checkbox"/> <i>check if composited</i>		

SAMPLERS (initials): <i>SM MS</i>	DATE: <i>08 22 18</i>	TIME (GPS point taken): <i>0903</i>
---	---------------------------------	---

	COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID
a.	<i>0-3</i>	
b.		
c.		
d.		
e.		
f.		
g.		

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

*collected w/ hand spade
 Brown sandy silt w/ organic matter (rootlets). any*

Checked by: <i>Stu Holmes</i>	Date Checked: <i>8-22-18</i>
--------------------------------------	-------------------------------------

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

PLANT SAMPLE ID: SA01-AU03-P01 (e.g. SA01-AU01-P01)	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Prunus virginiana	TARGET PLANT TISSUE (e.g. leaves, bulbs): berries
--	---

SAMPLERS (initials): LH MS SH JS	DATE: 082218	TIME (GPS point taken): 0858
--	------------------------	--

WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
---	---------------------	-----------------

- a. 112g 348
- b.
- c.
- d.
- e.
- f.
- g.

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

Replicate

SOIL/SEDIMENT SAMPLE ID: SA01-AU03-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited		

SAMPLERS (initials): SH LH ^{MS} 8-22-18 MS	DATE: 082218	TIME (GPS point taken): 0907
--	------------------------	--

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

- a. 0-3 349
- b.
- c.
- d.
- e.
- f.
- g.

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

collected w/ hand sledge
 Brown sandy silt w/ organic matter (rootlets). Dry

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: (e.g. SA01-AU01-P01) SA01-AU04-P01	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Prunus Virginiana	TARGET PLANT TISSUE (e.g. leaves, bulbs): Berries
--	---

SAMPLERS (initials): LH SM AU MS	DATE: 8-22-18	TIME (GPS point taken): 0923
--	-------------------------	--

	WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
a.	79g		351
b.			
c.			
d.			
e.			
f.			
g.			

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA01-AU04-S01	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited		

SAMPLERS (initials): MS SM AN	DATE: 8-22-18	TIME (GPS point taken): 0927
---	-------------------------	--

	COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID
a.	0-3 in	352
b.		
c.		
d.		
e.		
f.		
g.		

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

collected w/ hand squee
 Light brown silt and organic matter (rootlets). Dry.

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-AU05-P01 (e.g. SA01-AU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Amelanchier 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)	TOTAL (g/cm)	PHOTO ID
a.	8.9 g		353
b.			
c.			
d.			
e.			
f.			
g.			

PLANT NOTES (e.g. replicate, conditions, mass target enough for split or mercury):
 * SH, MS, + Marc Stiffler assisted (w/ holding bags)

SOIL/SEDIMENT SAMPLE ID: SA01-AU05-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> 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)	PHOTO ID
a.	0-3"	354
b.		
c.		
d.		
e.		
f.		
g.		

SOIL NOTES (e.g. collection method, color, texture):
 collected w/ hand spade
 Dark brown sandy silt w/ minor organic matter (weed chips, roots/leaves). 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: (e.g. SA01-AU01-P01) <u>SA01-AU01-P01</u>	GPS Unit #: <u>83134</u>	Camera ID: <u>orange</u>
<input type="checkbox"/> <i>check if composited</i>		

PLANT SPECIES (scientific name): <u>Amelanchier alnifolia</u>	TARGET PLANT TISSUE (e.g. leaves, bulbs): <u>Fruit</u>
---	--

SAMPLERS (initials): <u>PH, AU, LH</u>	DATE: <u>08-22-18</u>	TIME (GPS point taken): <u>10:06</u>
--	---------------------------------	--

WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
---	---------------------	-----------------

- | | | |
|---------------|--|------------|
| a. <u>10g</u> | | <u>355</u> |
| b. | | |
| c. | | |
| d. | | |
| e. | | |
| f. | | |
| g. | | |

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) <u>SA01-AU01-S01</u>	GPS Unit #: <u>83134</u>	Camera ID: <u>orange</u>
<input type="checkbox"/> <i>check if composited</i>		

SAMPLERS (initials): <u>SH, MS</u>	DATE: <u>08-22-18</u>	TIME (GPS point taken): <u>10:15</u>
--	---------------------------------	--

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

- | | |
|----------------|------------|
| a. <u>0-3"</u> | <u>356</u> |
| b. | |
| c. | |
| d. | |
| e. | |
| f. | |
| g. | |

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

collected w/ hand spade
Brown silt + organic matter w/ trace very fine sand. Dry

Checked by: <u>Stu Holmes</u>	Date Checked: <u>8-22-18</u>
-------------------------------	------------------------------

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

PLANT SAMPLE ID: SA01-A07-P01 (e.g. SA01-AU01-P01)	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Amelanchier alnifolia	TARGET PLANT TISSUE (e.g. leaves, bulbs): fruit	
*SAMPLERS (initials): LH, PH, AU	DATE: 8-22-18	TIME (GPS point taken): 10:30
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
a. 0.2g		357
b.		
c.		
d.		
e.		
f.		
g.		

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

* MS + SH holding the collection bags

SOIL/SEDIMENT SAMPLE ID: SA01-A07-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> 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)	PHOTO ID	
a. 0-3"	358	
b.		
c.		
d.		
e.		
f.		
g.		

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

collected w/ hand sifter
 Brown silty sand w/ 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
 (e.g. SA01-AU01-P01)

check if composited

PLANT SPECIES (scientific name): *Amelanchier alnifolia* **TARGET PLANT TISSUE (e.g. leaves, bulbs):** fruit

SAMPLERS (initials): LH, PH, AU, SH, LS, JW **DATE:** 8-22-18 **TIME (GPS point taken):** 10:53

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
 (e.g. SA01-JU01-S01)

check if composited

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

collected w/ hand spade
 Brown silty fine sand w/ organic matter (rootlets), slightly moist.

Checked by: sta Holmes **Date Checked:** 8-22-18

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

PLANT SAMPLE ID: (e.g. SA01-AU01-P01) SA01-AU09-P01	GPS Unit #: 38134	Camera ID: Orange
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Amelanchier alnifolia	TARGET PLANT TISSUE (e.g. leaves, bulbs): Fruit
--	---

+ SAMPLERS (initials): AU, LH, MS, LN	DATE: 08-22-18	TIME (GPS point taken): 11:13
---	--------------------------	---

WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
---	---------------------	-----------------

- a. 6g 361
- b.
- c.
- d.
- e.
- f.
- g.

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA01-AU09-S01	GPS Unit #: 38134	Camera ID: Orange
<input type="checkbox"/> check if composited		

SAMPLERS (initials): SH, MS	DATE: 08-22-18	TIME (GPS point taken): 11:23
---------------------------------------	--------------------------	---

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

- a. 0-3" 362
- b.
- c.
- d.
- e.
- f.
- g.

SOIL NOTES (e.g. collection method, color, texture):
 collected w/ hand spade
 Brown silty sand w/ organic matter (rootlets). Dry

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-AU10-P01 (e.g. SA01-AU01-P01)	GPS Unit #: 38134	Camera ID: orange
---	-----------------------------	--------------------------

check if composited

PLANT SPECIES (scientific name): LH SH JW ^{AU} P. invs Ponderosa	TARGET PLANT TISSUE (e.g. leaves, bulbs): 082218 Cones
--	---

SAMPLERS (initials): LH SH JW	DATE: AU 08 22 18	TIME (GPS point taken): 12:30
---	-----------------------------	---

WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
a. 12 cones		366
b.		
c.		
d.		
e.		
f.		
g.		

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

cut from tree with lopper

SOIL/SEDIMENT SAMPLE ID: SA01-AU10-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 38134	Camera ID: orange
---	-----------------------------	--------------------------

check if composited

SAMPLERS (initials): SH MS AU	DATE: 08.22.18	TIME (GPS point taken): 1240
--------------------------------------	-----------------------	-------------------------------------

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID
a. 0-3"	365
b.	
c.	
d.	
e.	
f.	
g.	

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

collected w/ round spade
 Brown silty fine sand w/ organic matter (rootlets). Dry.

Checked by: SH Holmes	Date Checked: 8-22-18
------------------------------	------------------------------

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

PLANT SAMPLE ID: SA01-AU11-P01 **GPS Unit #:** 38134 **Camera ID:** Orange
 (e.g. SA01-AU01-P01)

check if composited

PLANT SPECIES (scientific name): Pinus Ponderosa **TARGET PLANT TISSUE (e.g. leaves, bulbs):** Cones

SAMPLERS (initials): PH, LH, LN ~~SW~~ 8-22-18 **DATE:** 08-22-18 **TIME (GPS point taken):** 13:18

WEIGHT/LENGTH (g/cm) (% if composited) **TOTAL (g/cm)** **PHOTO ID**

a.	11 cones		368
b.			
c.			
d.			
e.			
f.			
g.			

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

cones collected by hand on ground

SOIL/SEDIMENT SAMPLE ID: SA01-AU11-S01 **GPS Unit #:** 38134 **Camera ID:** Orange
 (e.g. SA01-JU01-S01)

check if composited

SAMPLERS (initials): SH MS **DATE:** 08-22-18 **TIME (GPS point taken):** 13:25

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

a.	0-3"		369
b.			
c.			
d.			
e.			
f.			
g.			

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 Holmes

Date Checked: 8-22-18

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
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Pinus ponderosa	TARGET PLANT TISSUE (e.g. leaves, bulbs): cones	
SAMPLERS (initials): AV SH PH	DATE: 8-22-18	TIME (GPS point taken): 1345
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
a. 10 cones		370
b.		
c.		
d.		
e.		
f.		
g.		

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)	GPS Unit #: 38134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-22-18	TIME (GPS point taken): 1355
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID	
a. 0-3"	371	
b.		
c.		
d.		
e.		
f.		
g.		

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

collected w/ hand spade
 Brown silt w/ minor very fine sand. Dry. Covered by 3" of pine needles

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: SA02-AU01-P01 (e.g. SA01-AU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Corylus cornuta	TARGET PLANT TISSUE (e.g. leaves, bulbs): nuts	
SAMPLERS (initials): AU, LH, MS, SH	DATE: 8-21-18	TIME (GPS point taken): 14:07
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
a. 21 nuts		332
b.		
c.		
d.		
e.		
f.		
g.		

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

SOIL/SEDIMENT SAMPLE ID: SA02-AU01-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-21-18	TIME (GPS point taken): 14:10
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID	
a. 0-3"		333
b.		
c.		
d.		
e.		
f.		
g.		

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 GPS Unit #: 83134 Camera ID: orange
 (e.g. SA01-AU01-P01)

check if composited

PLANT SPECIES (scientific name): *Corylus coranata* TARGET PLANT TISSUE (e.g. leaves, bulbs): nuts

SAMPLERS (initials): PH, SH, AU DATE: 8-21-18 TIME (GPS point taken): 14:20

WEIGHT/LENGTH (g/cm) (% if composited) TOTAL (g/cm) PHOTO ID

a.	31 nuts	335
b.		
c.		
d.		
e.		
f.		
g.		

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

SOIL/SEDIMENT SAMPLE ID: SA02 - AU02 - S01 GPS Unit #: 83134 Camera ID: orange
 (e.g. SA01-JU01-S01)

check if composited

SAMPLERS (initials): SH, MS DATE: 8-21-18 TIME (GPS point taken): 14:23

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

a.	0-3"	336
b.		
c.		
d.		
e.		
f.		
g.		

SOIL NOTES (e.g. collection method, color, texture):
 collected w/ hand spade
 brown sandy silt w/ organic matter. 0.4.

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-AU03-P01 (e.g. SA01-AU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Corylus cornuta	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)	TOTAL (g/cm)	PHOTO ID
---	---------------------	-----------------

- a. 21 nuts 337
- b. _____
- c. _____
- d. _____
- e. _____
- f. _____
- g. _____

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

SOIL/SEDIMENT SAMPLE ID: SA02-AU03-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-21-18	TIME (GPS point taken): 14:40
---------------------------------------	-------------------------	---

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

- a. 0-3" 338
- b. _____
- c. _____
- d. _____
- e. _____
- f. _____
- g. _____

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

collected by hand spade
 brown 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: SA02 - AU04 - P01 (e.g. SA01-AU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Pinus ponderosa	TARGET PLANT TISSUE (e.g. leaves, bulbs): cones	
SAMPLERS (initials): AU, LH, PH,	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: SA02 - AU04 - S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-21-18	TIME (GPS point taken): 15:08
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID	
a. 0-3"	341	
b.		
c.		
d.		
e.		
f.		
g.		

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

Collected w/ hand spade
 Brown silty sand with some 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: SA02-AU05-P01 (e.g. SA01-AU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Pinus ponderosa	TARGET PLANT TISSUE (e.g. leaves, bulbs): Cones	
SAMPLERS (initials): PH, LH, WF*	DATE: 8-21-18	TIME (GPS point taken): 15:10
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
a. 10 cones		340
b. 54 8-21-18		
c.		
d.		
e.		
f.		
g.		

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

replicate for SA02-AU04-001 * = Whitney Fraser

SOIL/SEDIMENT SAMPLE ID: SA02-AU05-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-21-18	TIME (GPS point taken): 15:09
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID	
a. 0-3"		342
b.		
c.		
d.		
e.		
f.		
g.		

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

collected w/ hand spade
 Brown silty sand w/ 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: SA02-AU06-P01 GPS Unit #: 83134 Camera ID: orange
 (e.g. SA01-JU01-P01)

check if composited

PLANT SPECIES (scientific name):

Pinus ponderosa

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

cones

SAMPLERS (initials):

LH, LN, PH

DATE:

8-21-18

TIME (GPS point taken):

15:34

WEIGHT/LENGTH (g/cm) (% if composited)

TOTAL WEIGHT(g)

g/cm PHOTO ID

a. 10 cones

343

b.

c.

d.

e.

f.

g.

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

SOIL/SEDIMENT SAMPLE ID: SA02-AU06-S01 GPS Unit #: 83134 Camera ID: orange
 (e.g. SA01-JU01-S01)

check if composited

SAMPLERS (initials):

SH, MS

DATE:

8-21-18

TIME (GPS point taken):

15:36

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

TOTAL WEIGHT(g)

PHOTO ID

a. 0-3"

344

b.

c.

d.

e.

f.

g.

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

Collected w/ hand spade
 Brown silty sand w/ trace organic matter. Dry.

Checked by: Jodie Smith

Date Checked: 8-21-18

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

PLANT SAMPLE ID: SA03-AWΦ1-PΦ1 (e.g. SA01-JU01-P01)	GPS Unit #: 83134	Camera ID: Orange
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Corylus cornuta var. californica	TARGET PLANT TISSUE (e.g. leaves, bulbs): nuts	
SAMPLERS (initials): LH, AY, MS, SH	DATE: 08-21-18	TIME (GPS point taken): 08:47
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g) 913.13 913.13	PHOTO ID 374 312
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, ¹⁹florators and 1 seaker

SOIL/SEDIMENT SAMPLE ID: SAΦ3-AWΦ1-SΦ1 (e.g. SA01-JU01-S01)	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited		

SAMPLERS (initials): SH, MS	DATE: 0821-18	TIME (GPS point taken): 0850
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g) JAS 8-13-18	PHOTO ID 375 313
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. Dry.

Checked by: JAS	Date Checked: 8-21-18
------------------------	------------------------------

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

PLANT SAMPLE ID: SA03-AU02-P01 (e.g. SA01-JU01-P01)	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Corylus cornuta var. californica	TARGET PLANT TISSUE (e.g. leaves, bulbs): nuts
---	--

SAMPLERS (initials): PH, AV, LH	DATE: 08-21-18	TIME (GPS point taken): 0918
---	--------------------------	--

WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g) ^{SA 8-21-18} g/cm	PHOTO ID
---	---	-----------------

- a. 12 nuts ~~276~~ 314
- b.
- c.
- d.
- e.
- f.
- g.

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

SOIL/SEDIMENT SAMPLE ID: SA03-AU02-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited		

SAMPLERS (initials): SH, MS	DATE: 08-21-18	TIME (GPS point taken): 0929
---------------------------------------	--------------------------	--

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g) ^{SA 8-21-18}	PHOTO ID
--	--	-----------------

- a. 0-3" ~~278~~ 316
- b.
- c.
- d.
- e.
- f.
- g.

SOIL NOTES (e.g. collection method, color, texture):
 Collected w/ hand spade
 Brown silt and organic 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 - AU03 - P01 (e.g. SA01-JU01-P01)	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> 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): 0927
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g) 277 315	g/cm 277 315
a. 20 nuts		8-21-18
b.		
c.		
d.		
e.		
f.		
g.		

PLANT NOTES (e.g. epicate, conditions, mass target enough for split or mercury):
 Some nuts were in green husks ; replicate

SOIL/SEDIMENT SAMPLE ID: SA03 - AU03 - S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited		

SAMPLERS (initials): SH, MS	DATE: 08-21-18	TIME (GPS point taken): 0932
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g) 277 317	PHOTO ID 277 317
a. 0-3"		8-21-18
b.		
c.		
d.		
e.		
f.		
g.		

SOIL NOTES (e.g. collection method, color, texture):
 Collected w/ hand spade
 Brown silt/organic 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 (e.g. SA01-JU01-P01)		GPS Unit #: 83134		Camera ID: orange	
<input type="checkbox"/> 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): 0959	
WEIGHT/LENGTH (g/cm) (% if composited)			TOTAL WEIGHT (g) 318.75 318.75		g/cm 1.0
a. 57 nuts			PHOTO ID 8-21-18 8-21-18		318.75 319
b.					
c.					
d.					
e.					
f.					
g.					

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

split

SOIL/SEDIMENT SAMPLE ID: SA03-AU04-S01 (e.g. SA01-JU01-S01)		GPS Unit #: 83134		Camera ID: orange	
<input type="checkbox"/> check if composited					
SAMPLERS (initials): SH, MS		DATE: 08-21-18		TIME (GPS point taken): 16:01	
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)			TOTAL WEIGHT (g) 318.75 318.75		PHOTO ID 320
a. 0-3"					
b.					
c.					
d.					
e.					
f.					
g.					

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

Collected w/ hand sledge
 Brown silt and very fine sand, trace gravel. Dry.

2 jars

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 <small>(e.g. SA01-JU01-P01)</small>		GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited			
PLANT SPECIES (scientific name): Prunus virginiana		TARGET PLANT TISSUE (e.g. leaves, bulbs): fruit	
SAMPLERS (initials): LH, PH, LN		DATE: 08-21-18	TIME (GPS point taken): 10:32
WEIGHT/LENGTH (g/cm) (% if composited)		TOTAL WEIGHT(g) ³²¹	PHOTO ID
a.	177g		321
b.			
c.			
d.			
e.			
f.			
g.			

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

SOIL/SEDIMENT SAMPLE ID: SA03-AU05-S01 <small>(e.g. SA01-JU01-S01)</small>		GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited			
SAMPLERS (initials): SH, MS		DATE: 08-21-18	TIME (GPS point taken): 10:38
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)		TOTAL WEIGHT(g) ³²²	PHOTO ID
a.	0-3"		322
b.			
c.			
d.			
e.			
f.			
g.			

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

collected w/ hand spade
 Brown silt organic matter. Abundant 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 - AU06 - P01 (e.g. SA01-JU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): <i>Prunus virginiana</i>	TARGET PLANT TISSUE (e.g. leaves, bulbs): fruit
SAMPLERS (initials): LH, PH, LN	DATE: 08-21-18 TIME (GPS point taken): 10:55
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT (g) 178.12 g 188 g/cm PHOTO ID
a. 188 g	323
b.	
c.	
d.	
e.	
f.	
g.	

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

SOIL/SEDIMENT SAMPLE ID: SA03 - AU06 - S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 08-21-18 TIME (GPS point taken): 11:00
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT (g) 0.8-1.2 g PHOTO ID
a. 0-3"	324
b.	
c.	
d.	
e.	
f.	
g.	

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

Brown silt + organic matter w/ abundant cobbles. Dry.
 Collected w/ hand spade

Checked by: Joie Smith	Date Checked: 8-21-18
-------------------------------	------------------------------

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

PLANT SAMPLE ID: SA 03-AU 07-P01 (e.g. SA01-JU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> 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 taken): 12:12
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g) ^{326 g/cm} PHOTO ID

- a. 86g 326
- b.
- c.
- d.
- e.
- f.
- g.

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

SOIL/SEDIMENT SAMPLE ID: SA 03-AU 07-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-21-2018 TIME (GPS point taken): 12:15
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g) PHOTO ID

- a. 0-3" 327
- b.
- c.
- d.
- e.
- f.
- g.

SOIL NOTES (e.g. collection method, color, texture):
 Collected w/ hand spade
 Brown silt 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: SA03-AU08-P01 (e.g. SA01-JU01-P01)	GPS Unit #: 83134	Camera ID: Orange
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Amelanchier alifolia	TARGET PLANT TISSUE (e.g. leaves, bulbs): berries	
SAMPLERS (initials): AU, LH, LN	DATE: 08-21-18	TIME (GPS point taken): 12:33
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g) SA03-13-18	PHOTO ID
a.	17g	328
b.		
c.		
d.		
e.		
f.		
g.		

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

Semi-shrivelled berries
 split

SOIL/SEDIMENT SAMPLE ID: SA03-AU08-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited		

SAMPLERS (initials): SH, ms	DATE: 08 21 18	TIME (GPS point taken): 1238
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g) SA03-13-18	PHOTO ID
a.	0-3	329
b.		
c.		
d.		
e.		
f.		
g.		

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

collected w/ hand spade
 Brown silt with minor organic matter. Trace gravel. Dry

Checked by: Joie Smith	Date Checked: 8-21-18
-------------------------------	------------------------------

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

PLANT SAMPLE ID: SA03-AU09-P01 GPS Unit #: 83134 Camera ID: orange
 (e.g. SA01-JU01-P01)

check if composited

PLANT SPECIES (scientific name):

Pinus ponderosa

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

nuts

SAMPLERS (initials):

PH, LH, MS

DATE:

8-21-2018

TIME (GPS point taken):

12:59

WEIGHT/LENGTH (g/cm) (% if composited)

TOTAL WEIGHT(g)

g/cm

PHOTO ID

a. 11 cones

330

b.

c.

d.

e.

f.

g.

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

MS = Marc Stilleman (EPA)

SOIL/SEDIMENT SAMPLE ID: SA03-AU09-S01 GPS Unit #: 83134 Camera ID: orange
 (e.g. SA01-JU01-S01)

check if composited

SAMPLERS (initials):

SH, MS

DATE:

8-21-2018

TIME (GPS point taken):

13:02

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

TOTAL WEIGHT(g)

PHOTO ID

a. 0-3"

331

b.

c.

d.

e.

f.

g.

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

collected w/ hand spade
 Brown silt and fine sand w/ organic matter. Dry

Checked by: Joste Smith

Date Checked: 8-21-18

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

PLANT SAMPLE ID: SA04-AU01-P01 **GPS Unit #:** 83134 **Camera ID:** orange
 (e.g. SA01-AU01-P01)

check if composited

PLANT SPECIES (scientific name): *Corylus cornuta var. californica* **TARGET PLANT TISSUE (e.g. leaves, bulbs):** nuts

SAMPLERS (initials): LH, AU **DATE:** 8-23-18 **TIME (GPS point taken):** 08:35

	WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
a.	22 nuts		372
b.			
c.			
d.			
e.			
f.			
g.			

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

replicate juv - 8-23-18

SOIL/SEDIMENT SAMPLE ID: SA04-AU01-S01 **GPS Unit #:** 83134 **Camera ID:** orange
 (e.g. SA01-JU01-S01)

check if composited

SAMPLERS (initials): SH, MS **DATE:** 8-23-18 **TIME (GPS point taken):** 08:45

	COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID
a.	0-3"	374
b.		
c.		
d.		
e.		
f.		
g.		

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

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

PLANT SAMPLE ID: SA04-AU02-P01 (e.g. SA01-AU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Corylus cornuta var. californica	TARGET PLANT TISSUE (e.g. leaves, bulbs): nuts
SAMPLERS (initials): LH, AU	DATE: 8-23-18 TIME (GPS point taken): 08:39
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm) PHOTO ID
a. 22 nuts	373
b.	
c.	
d.	
e.	
f.	
g.	

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

replicate

SOIL/SEDIMENT SAMPLE ID: SA04-AU02-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-23-18 TIME (GPS point taken): 08:46
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID
a. 0-3"	375
b.	
c.	
d.	
e.	
f.	
g.	

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

collected w/ hand spade
 Brown fine sand w/ some silt, scattered organic debris (nutlets). Slightly moist

Checked by: Paul Smith	Date Checked: 8-23-18
-------------------------------	------------------------------

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

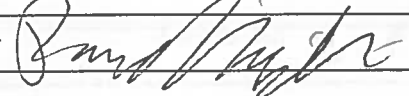
PLANT SAMPLE ID: SA04-AU03-P01 (e.g. SA01-AU01-P01)		GPS Unit #: 83134 Camera ID: orange	
<input type="checkbox"/> check if composited			
PLANT SPECIES (scientific name): Corylus coraeta var. californica		TARGET PLANT TISSUE (e.g. leaves, bulbs): nuts	
SAMPLERS (initials): LH, AU		DATE: 8-23-16	TIME (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-S01 (e.g. SA01-JU01-S01)		GPS Unit #: 83134 Camera ID: orange	
<input type="checkbox"/> 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):

collected w/ hand spade
 Brown fine sand w/ minor silt, and organic matter (rootlets), 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: SA04-AU04-P01 (e.g. SA01-AU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> 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
a. 17 cones	378
b.	
c.	
d.	
e.	
f.	
g.	

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

SOIL/SEDIMENT SAMPLE ID: SA04-AU04-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> 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	
a. 0-3"	379	
b.		
c.		
d.		
e.		
f.		
g.		

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

collected w/ hand spade
 light brown, fine sand w/ minor silt and organic matter (root/leaves). Dry. Covered by ~4" pine needles + bark

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: (e.g. SA01-AU01-P01)	SA04-AU05-P01	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited			

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 composited)	TOTAL (g/cm)	PHOTO ID
a. 26 cones		380
b.		
c.		
d.		
e.		
f.		
g.		

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

Split 20 collected from tree with lopper. 6 collected on ground by hand

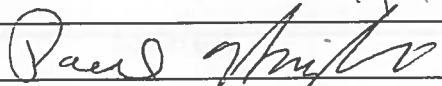
SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01)	SA04-AU05-S01	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited			

SAMPLERS (initials): SH, MS	DATE: 8-23-18 TIME (GPS point taken): 0941
------------------------------------	--

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID
a.	389
b.	
c.	
d.	
e.	
f.	
g.	

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

Split collected w/ hand spade. Brown fine silty fine sand w/ organic matter (rootlets). Dry. 6" pine duff

Checked by: 	Date Checked: 8-23-18
--	------------------------------

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

PLANT SAMPLE ID: SA04 - AU06 - P01 (e.g. SA01-AU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> 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)	TOTAL (g/cm) PHOTO ID
a. 16 cones	390
b.	
c.	
d.	
e.	
f.	
g.	

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

SOIL/SEDIMENT SAMPLE ID: SA04 - AU06 - S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> 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)	PHOTO ID
a. 0-3"	391
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 (rootlets). Dry. 2" pine duff

Checked by: Paul Wright	Date Checked: 8-23-18
--------------------------------	------------------------------

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

PLANT SAMPLE ID: SA06-AU01-P01 (e.g. SA01-AU01-P01)	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Corlys cornuta 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
a. 62 nuts		392
b.		
c.		
d.		
e.		
f.		
g.		

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

split

SOIL/SEDIMENT SAMPLE ID: SA06-AU01-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> 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	
a. 0-3"		393
b.		
c.		
d.		
e.		
f.		
g.		

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

collected w/ hand spade
 Dark brown silty fine sand w/ organic matter (rootlets). Dry.

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: SA06-AU02-P01 **GPS Unit #:** 83134 **Camera ID:** orange
 (e.g. SA01-AU01-P01)

check if composited

PLANT SPECIES (scientific name): *Corylus cornuta* var. *californica* **TARGET PLANT TISSUE (e.g. leaves, bulbs):** nuts

SAMPLERS (initials): SM LM **DATE:** 8-23-18 **TIME (GPS point taken):** 1105

WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
a. 27 nuts		394
b.		
c.		
d.		
e.		
f.		
g.		

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

SOIL/SEDIMENT SAMPLE ID: SA06-AU02-S01 **GPS Unit #:** 83134 **Camera ID:** orange
 (e.g. SA01-JU01-S01)

check if composited

SAMPLERS (initials): SM MS **DATE:** 8-23-18 **TIME (GPS point taken):** 1110

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID
a. 0-3"	395
b.	
c.	
d.	
e.	
f.	
g.	

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

collected w/ hand spade
 Dark brown silty fine sand w/ organic matter (rootlets). Dry.

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: SA06-AU03-P01 (e.g. SA01-AU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> 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): 11:53
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm) PHOTO ID
a. 20 nuts	396
b.	
c.	
d.	
e.	
f.	
g.	

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

SOIL/SEDIMENT SAMPLE ID: SA06-AU03-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-23-18 TIME (GPS point taken): 12:00
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID
a. 0-3"	397
b.	
c.	
d.	
e.	
f.	
g.	

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

collected w/ hand spade
 Dark brown silty fine sand and abundant organic matter (rockets). dry.

Checked by: Paul [Signature]	Date Checked: 8-23-18
-------------------------------------	------------------------------

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

PLANT SAMPLE ID: (e.g. SA01-AU01-P01) SA06-AU04-P01		GPS Unit #: 83134	Camera ID: Orange
<input checked="" type="checkbox"/> check if composited			
PLANT SPECIES (scientific name): Rosa sp		TARGET PLANT TISSUE (e.g. leaves, bulbs): hip	
SAMPLERS (initials): JW, AU		DATE: 08-23-18	TIME (GPS point taken): 1210
WEIGHT/LENGTH (g/cm) (% if composited)		TOTAL (g/cm)	PHOTO ID
a.	3.3 g (61%)	5.4	398
b.	2.1 (39%)		399
c.			
d.			
e.			
f.			
g.			

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA06-AU04-S01		GPS Unit #: 83134	Camera ID: Orange
<input type="checkbox"/> check if composited			
SAMPLERS (initials): SH MS		DATE: 08-23-18	TIME (GPS point taken): 1215
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)		PHOTO ID	
a.	0-3 (60%)	} 400	
b.	0-3 (40%)		
c.			
d.			
e.			
f.			
g.			

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

Collected w/ ^{hand} spade
 Dark brown silty fine sand w/ abundant rootlets. Dry.

Checked by: Paul White	Date Checked: 8-23-18
-------------------------------	------------------------------

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

PLANT SAMPLE ID: (e.g. SA01-AU01-P01) SA06-AU04 ^{JH 8/23/18} AU05-P01	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Rosa sp.	TARGET PLANT TISSUE (e.g. leaves, bulbs): hip
---	---

SAMPLERS (initials): JW	DATE: 23, JH 8/23/18 08-22-18	TIME (GPS point taken): 12:25
-----------------------------------	--	---

WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
---	---------------------	-----------------

- a. 7.0g -401 ^{JH}
08-23-18
- b. 402
- c.
- d.
- e.
- f.
- g.

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA06-AU05-S01	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited		

SAMPLERS (initials): SH, MS	DATE: 08-23-18	TIME (GPS point taken): 12:34
---------------------------------------	--------------------------	---

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
 Dark brown silty fine sand w/ organic matter (rootlets). Dry.

Checked by: <i>Paul Spry</i>	Date Checked: 8-23-18
------------------------------	-----------------------

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

PLANT SAMPLE ID: (e.g. SA01-AU01-P01) SAΦU-AUΦU-PΦ1	GPS Unit #: 38183	Camera ID: Orange
<input type="checkbox"/> check if composited		
PLANT SPECIES (scientific name): Rosa sp.	TARGET PLANT TISSUE (e.g. leaves, bulbs): hips	
SAMPLERS (initials): JW, PH	DATE: 08-23-18	TIME (GPS point taken): 12:46
	08-22-18 xH.	
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
a. 15 g		404
b.		
c.		
d.		
e.		
f.		
g.		

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SAΦU-AUΦU-SΦ1	GPS Unit #: 38183	Camera ID: Orange
<input type="checkbox"/> check if composited		
SAMPLERS (initials): SH, MS	DATE: 08-23-18	TIME (GPS point taken): 12:53
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID	
a. 0-3"		405
b.		
c.		
d.		
e.		
f.		
g.		

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

collected w/ hand spade
 0-0.5" Gray lamination of silt. 0.5"-3" light brown sandy silt. Abundant rootlets. Dry.

Checked by: <i>[Signature]</i>	Date Checked: 8-23-18
---------------------------------------	------------------------------

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

PLANT SAMPLE ID: (e.g. SA01-AU01-P01) SA06-AU07-P01		GPS Unit #: 38134	Camera ID: orange
<input type="checkbox"/> check if composited			
PLANT SPECIES (scientific name): Rosa sp.		TARGET PLANT TISSUE (e.g. leaves, bulbs): hip	
SAMPLERS (initials): JW, PH		DATE: 08-23-18	TIME (GPS point taken): 1300
WEIGHT/LENGTH (g/cm) (% if composited)		TOTAL (g/cm)	PHOTO ID
a.	9.5 g		406
b.			
c.			
d.			
e.			
f.			
g.			

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA06-AU07-S01		GPS Unit #: 38134	Camera ID: orange
<input type="checkbox"/> check if composited			
SAMPLERS (initials): SH, ms		DATE: 08-23-18	TIME (GPS point taken): 1311
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)		PHOTO ID	
a.	0-3"		407
b.			
c.			
d.			
e.			
f.			
g.			

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

collected w/ hand spade.
 0-0.5" Gray silt lamination. 0.5"-3" brown silty fine sand w/ rootlets. Dry.

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: SA07-AU01-P01 **GPS Unit #:** 83134 **Camera ID:** orange
 (e.g. SA01-JU01-P01)

check if composited

PLANT SPECIES (scientific name): *Prunus virginiana* **TARGET PLANT TISSUE (e.g. leaves, bulbs):** fruit

SAMPLERS (initials): LH, SS, MS **DATE:** 8-24-18 **TIME (GPS point taken):** 9:22

WEIGHT/LENGTH (g/cm) (% if composited) **TOTAL WEIGHT (g)** ¹⁰⁵ ~~115~~ **g/cm** **PHOTO ID**

a. 105g 408

b.

c.

d.

e.

f.

g.

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

SOIL/SEDIMENT SAMPLE ID: SA07-AU01-S01 **GPS Unit #:** 83134 **Camera ID:** orange
 (e.g. SA01-JU01-S01)

check if composited

SAMPLERS (initials): SH, MS **DATE:** 8-24-18 **TIME (GPS point taken):** 9:35

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited) **TOTAL WEIGHT (g)** ~~115~~ **PHOTO ID**

a. 0-3" 410

b.

c.

d.

e.

f.

g.

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

Collected w/ hand grade
 Brown very fine sand and silt. w/ organic matter (rootlets). Dry.

Checked by: *Lynne M Howard* **Date Checked:** 8-24-18

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

PLANT SAMPLE ID: SA07 - AU02 - P01 (e.g. SA01-AU01-P01)		GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited			
PLANT SPECIES (scientific name): Prunus virginiana		TARGET PLANT TISSUE (e.g. leaves, bulbs): fruit	
SAMPLERS (initials): LH, SS, MS		DATE: 8-24-18	TIME (GPS point taken): 9:32
WEIGHT/LENGTH (g/cm) (% if composited)		TOTAL (g/cm)	PHOTO ID
a.	105g		409
b.			
c.			
d.			
e.			
f.			
g.			

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

replicate

SOIL/SEDIMENT SAMPLE ID: SA07 - AU02 - S01 (e.g. SA01-JU01-S01)		GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited			
SAMPLERS (initials): SH, MS		DATE: 8-24-18	TIME (GPS point taken): 9:36
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)		PHOTO ID	
a.	0-3"		411
b.			
c.			
d.			
e.			
f.			
g.			

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

collected w/ hand spade
 brown very fine sand and silt - w/ organic matter (rootlets). 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

PLANT SAMPLE ID: SA07-AU03-P01 (e.g. SA01-AU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Prunus virginiana	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)	TOTAL (g/cm) PHOTO ID
a. 98g	412
b.	
c.	
d.	
e.	
f.	
g.	

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

SOIL/SEDIMENT SAMPLE ID: SA07-AU03-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-24-18	TIME (GPS point taken): 0952
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID	
a. 0-3"	413	
b.		
c.		
d.		
e.		
f.		
g.		

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

collected w/ hand spade
 Brown patty fine sand w/ abundant organic matter (rootlets). Dry.

Checked by: Landa M. Howard	Date Checked: 8/24/18
------------------------------------	------------------------------

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

PLANT SAMPLE ID: SA07 - AU04 - P01 (e.g. SA01-AU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Amelanchier alnifolia	TARGET PLANT TISSUE (e.g. leaves, bulbs): Berries
--	---

SAMPLERS (initials): LH, JS, PH	DATE: 8-24-18	TIME (GPS point taken): 10:04
---	-------------------------	---

WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
---	---------------------	-----------------

- a. 21.5g 415
414 pm 8-24-18
- 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-S01) SA07 - AU04 - S01	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-24-18	TIME (GPS point taken): 1012
---------------------------------------	-------------------------	--

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

- a. 0-3" 416
- b.
- c.
- d.
- e.
- f.
- g.

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

collected w/ hand spade ; collected in 2 jars

Dark brown silt and very fine sand w/ abundant organic matter (rootlets), 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

PLANT SAMPLE ID: (e.g. SA01-AU01-P01)	SA07 - AU05 - P01	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited			

PLANT SPECIES (scientific name): Amelanchier alnifolia	TARGET PLANT TISSUE (e.g. leaves, bulbs): fruit	
SAMPLERS (initials): Pit, LH	DATE: 8-24-18	TIME (GPS point taken): 10:20
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
a. 22g		418
b.		
c.		
d.		
e.		
f.		
g.		

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01)	SA07 - AU05 - S01	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited			

SAMPLERS (initials): SH, MS	DATE: 8-24-18	TIME (GPS point taken): 16:32
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID	
a. 0-3"		420
b.		
c.		
d.		
e.		
f.		
g.		

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

collected w/ hand spade
 Brown silty very fine sand w/ abundant organic matter (rootlets). Dry

Checked by: Linda Howard	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 (e.g. SA01-AU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Ame lanchiar alnifolia	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		421
b.		
c.		
d.		
e.		
f.		
g.		

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

SOIL/SEDIMENT SAMPLE ID: SA07-AU06-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> 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"	424	
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 (rootlets). 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

PLANT SAMPLE ID: (e.g. SA01-JU01-P01) SA07-AU07-P01	GPS Unit #: 83134	Camera ID: Orange
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Amelanchier alnifolia	TARGET PLANT TISSUE (e.g. leaves, bulbs): fruit
SAMPLERS (initials): PH LH JS MS	DATE: 8-24-18 TIME (GPS point taken): 1050
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g) 813.16 g/cm PHOTO ID 423
a. 17g	
b.	
c.	
d.	
e.	
f.	
g.	

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

Replicate for SA07-AU06-P01

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA07-AU07-S01	GPS Unit #: 83134	Camera ID: Orange
<input type="checkbox"/> check if composited		

SAMPLERS (initials): SH MS	DATE: 8-24-18 TIME (GPS point taken): 1104
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	MS 8-13-18 TOTAL WEIGHT(g) PHOTO ID 425
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 (rootlets). 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

PLANT SAMPLE ID: SA07 - AU08 - P01 (e.g. SA01-JU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Prunus virginiana	TARGET PLANT TISSUE (e.g. leaves, bulbs): fruit
SAMPLERS (initials): PH, LH, JS	DATE: 8-24-18 TIME (GPS point taken): 11:10
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g) ^{JMS 8/24/18} 426 PHOTO ID
a. 85g	
b.	
c.	
d.	
e.	
f.	
g.	

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

SOIL/SEDIMENT SAMPLE ID: SA07 - AU08 - S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-24-18 TIME (GPS point taken): 11:15
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g) ^{JMS 8/24/18} 427 PHOTO ID
a. 0-3"	
b.	
c.	
d.	
e.	
f.	
g.	

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

Collected w/ hand spade
 Brown silty very fine-fine sand w/ organic matter (leaflets). Dry

Checked by: <i>Lizelle M. Howard</i>	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-AU01-P01) SA07-AU09-P01		GPS Unit #: 83184	Camera ID: orange
<input type="checkbox"/> check if composited			
PLANT SPECIES (scientific name): Pinus ponderosa		TARGET PLANT TISSUE (e.g. leaves, bulbs): cone	
SAMPLERS (initials): PH, JW		DATE: 082418	TIME (GPS point taken): 12:31
WEIGHT/LENGTH (g/cm) (% if composited)		TOTAL (g/cm)	PHOTO ID
a.	13 cones		0428
b.			
c.			
d.			
e.			
f.			
g.			

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

All cones collected using lopper

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA07-AU09 S01		GPS Unit #: 83184	Camera ID: orange
<input type="checkbox"/> check if composited			
SAMPLERS (initials): SH, ms		DATE: 082418	TIME (GPS point taken): 17:37
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)		PHOTO ID	
a.	0-3"		429
b.			
c.			
d.			
e.			
f.			
g.			

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

collected w/ hand spade
 Dark brown silty fine sand w/ organic matter (woody debris, roots) 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

PLANT SAMPLE ID: (e.g. SA01-AU01-P01)	SA07-AU10-P01	GPS Unit #: 83184	Camera ID: orange
<input type="checkbox"/> check if composited			

PLANT SPECIES (scientific name): Pinus virginiana	TARGET PLANT TISSUE (e.g. leaves, bulbs): fruit
---	---

SAMPLERS (initials): DH LH MS	DATE: 8-24-18	TIME (GPS point taken): 1249
---	-------------------------	--

WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
a. 100g		430

- b. _____
- c. _____
- d. _____
- e. _____
- f. _____
- g. _____

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01)	SA07-AU10-S01	GPS Unit #: 83184	Camera ID: orange
<input type="checkbox"/> check if composited			

SAMPLERS (initials): SH MS	DATE: 8-24-18	TIME (GPS point taken): 1257
--------------------------------------	-------------------------	--

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID
a. 0-3"	431

- 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/ trace coarse sand and fine gravel, organic matter (nutlets), etc.

Checked by: <i>Linda M. H. Maul</i>	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 #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited			

PLANT SPECIES (scientific name): Pinus virginiana	TARGET PLANT TISSUE (e.g. leaves, bulbs): Fruit
---	---

SAMPLERS (initials): PH JW LH	DATE: 8-24-18	TIME (GPS point taken): 1306
---	-------------------------	--

WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT (g) 212g 212g	g/cm	PHOTO ID
---	---	-------------	-----------------

- a. 212g 433
- 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-S01)	SA07-AU11-S01	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited			

SAMPLERS (initials): SH MS	DATE: 8-24-18	TIME (GPS point taken): 1315
--------------------------------------	-------------------------	--

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT (g) 434g 434g	PHOTO ID
--	---	-----------------

- a. 0-3" 434
- b.
- c.
- d.
- e.
- f.
- g.

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

split (2 soil jars). collected w/ hand spade.
 Brown silty fine sand w/ gravel and organic matter (woody debris, roots). 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

PLANT SAMPLE ID: (e.g. SA01-AU01-P01) SA07-AU12-P01	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Pinus ponderosa	TARGET PLANT TISSUE (e.g. leaves, bulbs): cone
--	--

SAMPLERS (initials): PH JW	DATE: 08-24-18	TIME (GPS point taken): 1324
--------------------------------------	--------------------------	--

WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
---	---------------------	-----------------

- a. 14 cones 435
- 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)

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA07-AU12-S01	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited		

SAMPLERS (initials): SM MS	DATE: 8-24-18	TIME (GPS point taken): 1335
--------------------------------------	-------------------------	--

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

- a. 0-3" 436
- b.
- c.
- d.
- e.
- f.
- g.

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

collected w/ hand spade
 Brown silty fine sand w/ gravel, organic matter (rocklets). 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

PLANT SAMPLE ID: (e.g. SA01-AU01-P01)	GPS Unit #:	Camera ID:
SA07-AU13-P01	83134	orange
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name):	TARGET PLANT TISSUE (e.g. leaves, bulbs):
<i>Pinus ponderosa</i>	cone

SAMPLERS (initials):	DATE:	TIME (GPS point taken):
PM JW	8-24-18	1342

WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
---	---------------------	-----------------

- a. 12 cones 437
- b.
- c.
- d.
- e.
- f.
- g.

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

all cones collected from tree (w/ toppe); none collected from ground

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01)	GPS Unit #:	Camera ID:
SA07-AU13-P01	83134	orange
<input type="checkbox"/> check if composited		

SAMPLERS (initials):	DATE:	TIME (GPS point taken):
BHMS	8-24-18	13:45

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

- a. 0-3" 438
- 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/ minor gravel and organic matter (rootlets). Dry,

Checked by: <u>Linda M. Howard</u>	Date Checked: <u>8/24/18</u>
------------------------------------	------------------------------

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

PLANT SAMPLE ID: SAØ8 - AUØ1 - PØ1 (e.g. SA01-JU01-P01)	GPS Unit #: 83134 Camera ID: Orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Amelanchier alnifolia	TARGET PLANT TISSUE (e.g. leaves, bulbs): fruit
SAMPLERS (initials): JW, SH, AV, LH, PH	DATE: 8-27-18 TIME (GPS point taken): 13:55
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT (g) 158.13 g/cm PHOTO ID
a. 25 g	481
b.	
c.	
d.	
e.	
f.	
g.	

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

SOIL/SEDIMENT SAMPLE ID: SAØ8 - AUØ1 - SØ1 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: Orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-27-18 TIME (GPS point taken): 13:58
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT (g) 158.13 PHOTO ID
a. 0-3"	482
b.	
c.	
d.	
e.	
f.	
g.	

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

collected w/ hand spade

Brown, dry silty fine-coarse sand and gravel w/ organic matter.

Checked by: PH	Date Checked: 8/27/18
-----------------------	------------------------------

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

PLANT SAMPLE ID: SA08 - AU02 - P01 GPS Unit #: 83134 Camera ID: orange 8-27-18
 (e.g. SA01-JU01-P01)

check if composited

PLANT SPECIES (scientific name):

Amelanchier alnifolia

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

fruit

SAMPLERS (initials):

SH PM

DATE:

8-27-18

TIME (GPS point taken):

1410

WEIGHT/LENGTH (g/cm) (% if composited)

TOTAL WEIGHT (g)

13.8 g/cm

PHOTO ID

a.

13 g

483

b.

c.

d.

e.

f.

g.

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

SOIL/SEDIMENT SAMPLE ID: SA08 - AU02 - S01 GPS Unit #: 83134 Camera ID: orange
 (e.g. SA01-JU01-S01)

check if composited

SAMPLERS (initials):

SH, MS

DATE:

8-27-18

TIME (GPS point taken):

1419

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

TOTAL WEIGHT (g)

PHOTO ID

a.

0-3"

484

b.

c.

d.

e.

f.

g.

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

collected w/ hand spade

Brown, dry silty fine sand w/ abundant gravel.

Checked by:

SH

Date Checked:

8/27/18

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

PLANT SAMPLE ID: (e.g. SA01-JU01-P01)	SA09-AU01-P01	GPS Unit #: 83134	Camera ID: Orange
<input type="checkbox"/> check if composited			

PLANT SPECIES (scientific name): Corylus cornuta var. californica	TARGET PLANT TISSUE (e.g. leaves, bulbs): Nuts
---	--

SAMPLERS (initials): LH, JS, MS	DATE: 8-25-18	TIME (GPS point taken): 8:59
---	-------------------------	--

WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT (g) 28	g/cm 0.7	PHOTO ID 439
---	-------------------------------	--------------------	------------------------

- a. 28 nuts
- b.
- c.
- d.
- e.
- f.
- g.

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01)	SA09-AU01-S01	GPS Unit #: 83134	Camera ID: Orange
<input type="checkbox"/> check if composited			

SAMPLERS (initials): SH, MS	DATE: 8-25-18	TIME (GPS point taken): 9:05
---------------------------------------	-------------------------	--

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):

collected w/ hand spade
 Dark brown silt and organic matter (rootlets) w/ trace very fine sand. Slightly moist

Checked by: Paul Smith	Date Checked: 8-25-18
----------------------------------	---------------------------------

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

PLANT SAMPLE ID: SA09 - AU02 - P01 (e.g. SA01-JU01-P01)	GPS Unit #: 83134 Camera ID: Orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Rosa sp.	TARGET PLANT TISSUE (e.g. leaves, bulbs): fruit (hips)
SAMPLERS (initials): LH	DATE: 8-25-18 TIME (GPS point taken): 9:10
WEIGHT/LENGTH (g/cm) (% if composited)	JAS 8-13-18 TOTAL WEIGHT(g) g/cm PHOTO ID
a. 17g	441
b.	
c.	
d.	
e.	
f.	
g.	

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

Replicate

SOIL/SEDIMENT SAMPLE ID: SA09 - AU02 - S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-25-18 TIME (GPS point taken): 9:21
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	JAS 8-13-18 TOTAL WEIGHT(g) PHOTO ID
a. 0-3"	443
b.	
c.	
d.	
e.	
f.	
g.	

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

collected w/ hand spade

Dark brown silt and organic matter (rootlets) w/ trace fine sand. slightly moist.

Checked by: Paul Martin	Date Checked: 8-25-18
--------------------------------	------------------------------

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

PLANT SAMPLE ID: (e.g. SA01-JU01-P01)	SA09 - AU03 - P01	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited			

PLANT SPECIES (scientific name): Rosa sp.	TARGET PLANT TISSUE (e.g. leaves, bulbs): fruit (hips)
SAMPLERS (initials): LH	DATE: 8-25-18 TIME (GPS point taken): 9:16
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g) 9 / cm PHOTO ID 442
a. 16g	
b.	
c.	
d.	
e.	
f.	
g.	

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

replicate of SA09 - AU02 - P01

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01)	SA09 - AU03 - S01	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited			

SAMPLERS (initials): SH, MS	DATE: 8-25-18 TIME (GPS point taken): 9:22
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g) SA09-13-18 PHOTO ID 444
a. 0-3"	
b.	
c.	
d.	
e.	
f.	
g.	

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

Collected w/ hand spher
 Dark brown silt and organic matter (walnuts) w/ trace fine sand. Slightly moist

Checked by: Paul [Signature]	Date Checked: 8-25-18
-------------------------------------	------------------------------

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

PLANT SAMPLE ID: (e.g. SA01-JU01-P01)	SA09 - AU04 - P01	GPS Unit #:	83134	Camera ID:	orange
<input type="checkbox"/> check if composited					

PLANT SPECIES (scientific name): Prunus virginiana	TARGET PLANT TISSUE (e.g. leaves, bulbs): fruit
SAMPLERS (initials): LH, JS	DATE: 8-25-18 TIME (GPS point taken): 9:32
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT (g) SA08-12-18 8/cm PHOTO ID
a. 89g	445
b.	
c.	
d.	
e.	
f.	
g.	

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01)	SA09 - AU04 - S01	GPS Unit #:	83134	Camera ID:	orange
<input type="checkbox"/> 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)	TOTAL WEIGHT (g) SA08-12-18 PHOTO ID
a. 8-25-18 0-3"	446
b.	
c.	
d.	
e.	
f.	
g.	

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

collected w/ hand spade
 Dark brown silt and organic matter (rootlets) w/ trace very fine sand and coarse gravel. Slightly moist.

Checked by: Paul Miller	Date Checked: 8-25-18
--------------------------------	------------------------------

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

PLANT SAMPLE ID: (e.g. SA01-JU01-P01)	SA14-AUφ1-Pφ1	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> 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): 9:03
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT (g) JLS 8-13-18 11g/cm	PHOTO ID 447
a.		
b.		
c.		
d.		
e.		
f.		
g.		

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

mercury

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01)	SA14-AUφ1-Sφ1	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> 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 (g) JLS 8-13-18	PHOTO ID
a.	0-3"	448
b.		
c.		
d.		
e.		
f.		
g.		

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

Collected w/ hand spade
 Dark brown, moist clayey silt w/ trace fine sand.

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-AUP2-P01 GPS Unit #: 83134 Camera ID: orange
 (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) ~~8-27-18~~

g/cm

PHOTO ID

a.

10.5g

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-AUP2-S01 GPS Unit #: 83134 Camera ID: orange
 (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) ~~8-27-18~~

PHOTO ID

a.

0-3"

450

b.

c.

d.

e.

f.

g.

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

collected w/ hand spade
 moist
 Dark brown n clayey silt w/ trace fine sand.

Checked by: LH

Date Checked: 8/27/18

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

PLANT SAMPLE ID: SA14-AU03-P01 GPS Unit #: 83134 Camera ID: orange
 (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, AV, PH, SH DATE: 8-27-18 TIME (GPS point taken): 9:32

WEIGHT/LENGTH (g/cm) (% if composited) TOTAL WEIGHT (g) 22g PHOTO ID 451

a. 22g

b.

c.

d.

e.

f.

g.

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

split; mercury

SOIL/SEDIMENT SAMPLE ID: SA14-AU03-S01 GPS Unit #: 83134 Camera ID: orange
 (e.g. SA01-JU01-S01)

check if composited

SAMPLERS (initials): SHMS DATE: 8-27-18 TIME (GPS point taken): 9:40

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited) TOTAL WEIGHT (g) PHOTO ID

a. 0-3" 452

b.

c.

d.

e.

f.

g.

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

Collected in 2 jars w/ hand squee
Dark brown, moist clayey silt and organic matter.

Checked by: SH Date Checked: 8/27/18

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

PLANT SAMPLE ID: SA14-AV04 - P01 GPS Unit #: 83134 Camera ID: orange
(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, PH DATE: 8-27-18 TIME (GPS point taken): 9:47

WEIGHT/LENGTH (g/cm) (% if composited) TOTAL WEIGHT(g) ~~8/13-18~~ 8/cm PHOTO ID

- a. 12g ~~453~~ 455
8-27-18
- 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-AV04 GPS Unit #: 83134 Camera ID: orange
(e.g. SA01-JU01-S01)

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) ~~8/13-18~~ TOTAL WEIGHT(g) PHOTO ID

- a. 0-3" ~~454~~ 456
8-27-18
- b.
- c.
- d.
- e.
- f.
- g.

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

collected w/ hand spade
Dark brown ^{moist} clayey silt and organic matter.

Checked by: JH. Date Checked: 8/27/18

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

PLANT SAMPLE ID: SA14-AU05-P01 (e.g. SA01-JU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Mentha arvensis	TARGET PLANT TISSUE (e.g. leaves, bulbs): leaves
SAMPLERS (initials): PH, AU, LH	DATE: 8-27-18 TIME (GPS point taken): 1008
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT (g) 11g g/cm PHOTO ID

- | | |
|--------|-----|
| a. 11g | 457 |
| 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-AU05-P01 SA14-AU05-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> 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) PHOTO ID

- | | |
|---------|-----|
| a. 0-3" | 459 |
| 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: *SH*

Date Checked: 8/27/18

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

PLANT SAMPLE ID: SA14-AU06-P01 (e.g. SA01-JU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Mentha arvensis	TARGET PLANT TISSUE (e.g. leaves, bulbs): leaves
SAMPLERS (initials): PH, AU, LH	DATE: 8-27-18 TIME (GPS point taken): 1010
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT (g) 11.87 g/cm PHOTO ID
a. 11g	458
b.	
c.	
d.	
e.	
f.	
g.	

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

replicate (not noted on photo board) of SA14-AU06-P01 ; mercury

SOIL/SEDIMENT SAMPLE ID: SA14-AU06-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-27-18 TIME (GPS point taken): 10:22
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT (g) 11.87 PHOTO ID
a. 0-3"	460
b.	
c.	
d.	
e.	
f.	
g.	

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

Checked by: <i>SH</i>	Date Checked: 8/27/18
------------------------------	------------------------------

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

PLANT SAMPLE ID: SA14-AV07-P01 (e.g. SA01-JU01-P01)	GPS Unit #: 83134 (Camera ID: orange)
<input type="checkbox"/> 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)	TOTAL WEIGHT (g) 0.2773 0.2773 g/cm PHOTO ID
a. 12g	461
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-AV07-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 (Camera ID: orange)
<input type="checkbox"/> 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)	TOTAL WEIGHT (g) 0.8138 0.8138 PHOTO ID
a. 0-3"	462
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: LH	Date Checked: 8/27/18
-----------------------	------------------------------

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
<input type="checkbox"/> 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)	TOTAL WEIGHT(g) 115 269 g/cm PHOTO ID
a. 115 _{cm} + 154 _{cm} = 269	463
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-AU08-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> 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)	TOTAL WEIGHT(g) 115 464 PHOTO ID
a. 0-3"	464
b.	
c.	
d.	
e.	
f.	
g.	

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

collected w/ hand spade
 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

PLANT SAMPLE ID: SAH-AU09 - P01 (e.g. SA01-JU01-P01)	GPS Unit #: 93134 Camera ID: orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Schoenodectus acutus	TARGET PLANT TISSUE (e.g. leaves, bulbs): stems
SAMPLERS (initials): LH, AU	DATE: 8-27-18 TIME (GPS point taken): 11:00
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT (g) 158.13 g/cm PHOTO ID
a. 150cm + 140cm = 290cm	465
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 - AU09 - S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-27-18 TIME (GPS point taken): 11:10
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT (g) 158.13 PHOTO ID
a. 0-3"	467
b.	
c.	
d.	
e.	
f.	
g.	

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

collected w/ hand spade
 Dark brown moist clayey silt and organic matter (snail shells)

Checked by: LH	Date Checked: 8/27/18
-----------------------	------------------------------

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

PLANT SAMPLE ID: SA14-AU14-P01 <small>(e.g. SA01-JU01-P01)</small>		GPS Unit #: 83134 Camera ID: orange	
<input type="checkbox"/> 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): 11:05
WEIGHT/LENGTH (g/cm) (% if composited)		TOTAL WEIGHT (g): 140g	g/cm PHOTO ID
a.	140cm + 120cm = 260cm		466
b.			
c.			
d.			
e.			
f.			
g.			

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

replicate of SA14-AU14-P01; mercury

SOIL/SEDIMENT SAMPLE ID: SA14-AU14-S01 <small>(e.g. SA01-JU01-S01)</small>		GPS Unit #: 83134 Camera ID: orange	
<input type="checkbox"/> check if composited			
SAMPLERS (initials): SH, MS		DATE: 8-27-18	TIME (GPS point taken): 11:15
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)		TOTAL WEIGHT (g): 140g	PHOTO ID
a.	0-3'		468
b.			
c.			
d.			
e.			
f.			
g.			

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

collected w/ hand spade
 Dark brown moist clayey silt and organic matter (snail shells).

Checked by:

SH

Date Checked:

8/27/18

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

PLANT SAMPLE ID: SA14-AU-11-P01 (e.g. SA01-AU01-P01)	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): <i>Scheuchzeria acutis</i>	TARGET PLANT TISSUE (e.g. leaves, bulbs): stems	
SAMPLERS (initials): LH, AU	DATE: 8-27-18	TIME (GPS point taken): 11:18
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
a. 135 cm * 98 cm = 233 cm		469
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-AU11-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited		

SAMPLERS (initials): SH, MS	DATE: 8-27-18	TIME (GPS point taken): 11:20
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID	
a. 0-3"		470
b.		
c.		
d.		
e.		
f.		
g.		

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

collected w/ hand spade

Dark brown, moist clayey silt and organic matter (weedlebs)

Checked by: LH	Date Checked: 8/27/18
-----------------------	------------------------------

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

PLANT SAMPLE ID: SA14-AU12-P01 <small>(e.g. SA01-JU01-P01)</small>	GPS Unit #: 43134 Camera ID: Orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Schoenoplectus acutus	TARGET PLANT TISSUE (e.g. leaves, bulbs): stems
SAMPLERS (initials): PH	DATE: 8-27-18 TIME (GPS point taken): 12:00
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT (g) 473 471 g/cm PHOTO ID

- a. 137cm + 138cm + 137cm = 412cm 471
- b.
- c.
- d.
- e.
- f.
- g.

PLANT NOTES (e.g. replicate conditions, mass target enough for split of mercury)
 PH - 8-27-18
 split; mercury

SOIL/SEDIMENT SAMPLE ID: SA14-AU12-S01 <small>(e.g. SA01-JU01-S01)</small>	GPS Unit #: 43134 Camera ID: Orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-27-18 TIME (GPS point taken): 1205
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT (g) 473 PHOTO ID

- a. 0-3 472
- b.
- c.
- d.
- e.
- f.
- g.

SOIL NOTES (e.g. collection method, color, texture):
 Collected in 2 jars w/ hand spade
 Dark brown, moist clayey silt and organic matter (rootlets, snail shells).

Checked by: SH	Date Checked: 8/27/18
-----------------------	------------------------------

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

PLANT SAMPLE ID: SA14 - AU13 - P01 <small>(e.g. SA01-JU01-P01)</small>	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Schoenoplectus acutus	TARGET PLANT TISSUE (e.g. leaves, bulbs): stems
SAMPLERS (initials): PH, SH	DATE: 8-27-18 TIME (GPS point taken): 12:15
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g) 528.13 473 g/cm PHOTO ID
a. 156cm + 116cm = 272cm	473
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 - AU13 - S01 <small>(e.g. SA01-JU01-S01)</small>	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-27-18 TIME (GPS point taken): 12:18
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	TOTAL WEIGHT(g) 115.8-13-16 PHOTO ID
a. 0-3"	474
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: <i>[Signature]</i>	Date Checked: 8/27/18
---------------------------------------	------------------------------

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

PLANT SAMPLE ID: SA14 - A014 - P01 (e.g. SA01-JU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Schoenoplectus acutus	TARGET PLANT TISSUE (e.g. leaves, bulbs): stems
SAMPLERS (initials): PH, SH	DATE: 8-27-18 TIME (GPS point taken): 12:23
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL WEIGHT(g) 468.13-18 g/cm PHOTO ID
a. 147cm + 130cm = 277cm	475
b.	
c.	
d.	
e.	
f.	
g.	

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

Mercury

SOIL/SEDIMENT SAMPLE ID: SA14 - A014 - S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> 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)	TOTAL WEIGHT(g) 458.13-18 PHOTO ID
a. 0-3"	476
b.	
c.	
d.	
e.	
f.	
g.	

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

collected w/ hand spade
 Dark brown moist clayey silt and organic matter (rootlets, snail shells).

Checked by: SH	Date Checked: 8/27/18
-----------------------	------------------------------

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

PLANT SAMPLE ID: SA14-AU15-P01 (e.g. SA01-AU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Rosa sp.	TARGET PLANT TISSUE (e.g. leaves, bulbs): fruit (hips)
SAMPLERS (initials): LH, SH	DATE: 8-27-18 TIME (GPS point taken): 12:37
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm) PHOTO ID
a. 7.2g	477
b.	
c.	
d.	
e.	
f.	
g.	

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

SOIL/SEDIMENT SAMPLE ID: SA14-AU15-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-27-18	TIME (GPS point taken): 12:40
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID	
a. 0-3"	478	
b.		
c.		
d.		
e.		
f.		
g.		

SOIL NOTES (e.g. collection method, color, texture):
 collected w/ hand spade
 light brown silt, fine-coarse sand w/ minor gravel and cobbles. with organic matter (rootlets).

Checked by: LH	Date Checked: 8/27/18
-----------------------	------------------------------

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

PLANT SAMPLE ID: SA14-AU16-P01 GPS Unit #: 83134 Camera ID: Orange
 (e.g. SA01-JU01-P01)

check if composited

PLANT SPECIES (scientific name):

Amelanchier alnifolia

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

fruit

SAMPLERS (initials):

AJ, LH, PH, SH

DATE:

8-27-18

TIME (GPS point taken):

12:50

WEIGHT/LENGTH (g/cm) (% if composited)

TOTAL WEIGHT (g)

g/cm

PHOTO ID

479

a. 8.15 g

b.

c.

d.

e.

f.

g.

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

SOIL/SEDIMENT SAMPLE ID: SA14-AU16-S01 GPS Unit #: 83134 Camera ID: Orange
 (e.g. SA01-JU01-S01)

check if composited

SAMPLERS (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

a. 0-3"

480

b.

c.

d.

e.

f.

g.

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

collected w/ hand spade

Brown, dry silt and very fine sand.

Checked by: LH.

Date Checked: 8/27/18

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

PLANT SAMPLE ID: SA15-AU01-P01 (e.g. SA01-AU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): <i>Salix exigua</i>	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)	TOTAL (g/cm)	PHOTO ID
a. 75cm + 75cm + 68cm + 66cm + 57cm + 70cm = 411cm		485
b.		
c.		
d.		
e.		
f.		
g.		

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

split, mercury

SOIL/SEDIMENT SAMPLE ID: SA15-AU01-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-28-18	TIME (GPS point taken): 9:50
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID	
a. 0-3"		486
b.		
c.		
d.		
e.		
f.		
g.		

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: LH	Date Checked: 8/28/18
-----------------------	------------------------------

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

PLANT SAMPLE ID: SA 15 - AUØ2 - PØ1 (e.g. SA01-AU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> 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. 57cm + 75cm + 58cm = 190cm		487
b.		
c.		
d.		
e.		
f.		
g.		

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

photo board said split, but this is not a split; mercury

SOIL/SEDIMENT SAMPLE ID: SA15 - AUØ2 - SØ1 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-28-18	TIME (GPS point taken): 9:57
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID	
a. 0-3"	488	
b.		
c.		
d.		
e.		
f.		
g.		

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

collected w/ hand spade
 Tan, dry very-fine to medium sand.

Checked by: <i>SH</i>	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 #: 83134 Camera ID: orange
<input type="checkbox"/> 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 (g) ^{117g} g/cm PHOTO ID 489
a. 117cm + 85cm = 202cm	489
b.	
c.	
d.	
e.	
f.	
g.	

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

SOIL/SEDIMENT SAMPLE ID: SA15-AU03-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> 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 (g) ^{117g} g/cm PHOTO ID 491
a. 0-3"	491
b.	
c.	
d.	
e.	
f.	
g.	

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

collected w/ hand spade
 Tan to black, slightly moist fine-medium sand and gravel. collected b/t cobbles

Checked by: LH	Date Checked: 8/28/18
-----------------------	------------------------------

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

PLANT SAMPLE ID: SA15-AU04-P01 (e.g. SA01-AU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> 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): 10:20
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm) PHOTO ID
a. 95cm + 68cm + 70cm = 233cm	496
b.	
c.	
d.	
e.	
f.	
g.	

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

replicate of SA15-AU03-P01; mercury

SOIL/SEDIMENT SAMPLE ID: SA15-AU04-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-28-18 TIME (GPS point taken): 10:23
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID
a. 0-3"	492
b.	
c.	
d.	
e.	
f.	
g.	

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

collected w/ hand spade
 tan to black, slightly moist very fine to medium sand and gravel. Collected b/w cobbles.

Checked by: SH	Date Checked: 8/28/18
-----------------------	------------------------------

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

PLANT SAMPLE ID: (e.g. SA01-AU01-P01) SA15-AU05-P01	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited		
PLANT SPECIES (scientific name): Salix exigua	TARGET PLANT TISSUE (e.g. leaves, bulbs): Stems	
SAMPLERS (initials): PH, SH, ms	DATE: 08-28-18	TIME (GPS point taken): 10:30
WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
a. $66 + 74 + 78 = 218 \text{ cm}$	218 cm	493
b.		
c.		
d.		
e.		
f.		
g.		

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

Mercury

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA15-AU05-S01	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited		
SAMPLERS (initials): SH, ms	DATE: 08-28-18	TIME (GPS point taken): 10:41
COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID	
a. 0-3"		494
b.		
c.		
d.		
e.		
f.		
g.		

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

Collected w/ hand spade
 Tan to black, moist fine-medium sand and gravel. Collected beneath large cobble.

Checked by: <i>SH</i>	Date Checked: 8/28/18
-----------------------	-----------------------

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

PLANT SAMPLE ID: (e.g. SA01-AU01-P01) SA15-AU06-P01	GPS Unit #: 83134	Camera ID: Orange
<input type="checkbox"/> check if composited		

PLANT SPECIES (scientific name): Salix exigua	TARGET PLANT TISSUE (e.g. leaves, bulbs): Stems
---	---

SAMPLERS (initials): PH, SH, MS	DATE: 08-28-18	TIME (GPS point taken): 10:55
---	--------------------------	---

WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
a. 68 + 50 + 79	203 cm	0495
b.		
c.		
d.		
e.		
f.		
g.		

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

SOIL/SEDIMENT SAMPLE ID: (e.g. SA01-JU01-S01) SA15-AU06-P01	GPS Unit #: 83134	Camera ID: orange
<input type="checkbox"/> check if composited		

SAMPLERS (initials): SH, MS	DATE: 08-28-18	TIME (GPS point taken): 10:59
---------------------------------------	--------------------------	---

COLLECTION UPPER DEPTH/LOWER DEPTH (in) (% if composited)	PHOTO ID
a. 0-3	0496
b.	
c.	
d.	
e.	
f.	
g.	

SOIL NOTES (e.g. collection method, color, texture):
 Collected w/ hand spade
 Tan, slightly moist very fine-medium sand.

Checked by: <i>SH</i>	Date Checked: 8/28/18
-----------------------	--------------------------

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

PLANT SAMPLE ID: SA15-AU07-P01 (e.g. SA01-AU01-P01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

PLANT SPECIES (scientific name): Salix exigua	TARGET PLANT TISSUE (e.g. leaves, bulbs): stems
---	---

SAMPLERS (initials): PH, SH, MS	DATE: 8-28-18	TIME (GPS point taken): 11:05
---	-------------------------	---

WEIGHT/LENGTH (g/cm) (% if composited)	TOTAL (g/cm)	PHOTO ID
---	---------------------	-----------------

- a. 79 cm + 62 cm + 67 cm = 208 cm 497
- b. _____
- c. _____
- d. _____
- e. _____
- f. _____
- g. _____

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

SOIL/SEDIMENT SAMPLE ID: SA15-AU07-S01 (e.g. SA01-JU01-S01)	GPS Unit #: 83134 Camera ID: orange
<input type="checkbox"/> check if composited	

SAMPLERS (initials): SH, MS	DATE: 8-28-18	TIME (GPS point taken): 11:08
---------------------------------------	-------------------------	---

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

- a. 0-3" 498
- b. _____
- c. _____
- d. _____
- e. _____
- f. _____
- g. _____

SOIL NOTES (e.g. collection method, color, texture):
 Collected w/ hand spade
 Tan to light brown, slightly moist very fine to medium sand. loose.

Checked by: SH	Date Checked: 8/28/18
-----------------------	------------------------------

Appendix G



Name _____

Address _____

Phone _____

Email _____

Projects _____

AECOM

Jennifer Pretare, PhD
Senior Biologist
Project Manager

AECOM
1111 3rd Avenue
Suite 1600
Seattle, WA 98101

206 438 2700 tel
206 438 2175 direct
510 681 6401 mobile
866 496 5288 fax
jennifer.pretare@aecom.com

aecom.com

Teck American, Inc.
Plant Tissue Study
Upper Columbia River
2018 - April, May,



RiteintheRain.com

April 25, 2018

page 1

Teck American Inc.
Plant Tissue Study

writer = J. Pretare

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, Paul Hamidi, Mike Kelly

TAI: Denise Mills, Kris McCaig

Ramboll: Dina Johnson, Lis Nelis

JACOBS (CH2M): Marilyn Gauthier, Kelly O'Neill

CCT: Finie, Glo, Sharon, Cree, Pendelton Moses, Arrow Ayote, Kali

Joe Wichmann - Citizens for clean Columbia

Lodestone: Whitney Fraser

EPA: Monica Toney, Marc Stifelman

1351 - Jeff Walker led survey team on re-con of SAQ2.

Linda, Glen, Stu prepared decon solution w/ alconox &

D.I. water at sampling table

Calibrated pesola scales w/ 5g. + 100g. (J.P.) 10g + 50g.

Turned on GPS units: Trimble R1 w/ surface tablet.

using R1 # 83128

Sampling table set up with black garbage bag on top.

Decontaminated multiple trowels, catipers, soil auger, spoons, bawls.

Jenny Pretare corrected the plant sample labels. The matrix said "soil". I crossed it out and wrote "plant". Initialed each label.

1423 - Decon complete.

Additional calibration notes: 100g. pesola scale calibrated to a quart size ziploc. 50g. scale to quart size ziploc using 5g. + 10g. weights.

4-25-18

page 2

50 gram scale is #7.
100 gram scale is #8.

1450 - Jeff found Indian potato. Sample team walked to this location.

Sample # ~~SA02-SP-P01-01~~ J.A.P.

Took photograph. Laid out black garbage bag on ground. Cleared large woody debris and pine needle duff. Glen used clean trowel 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.

1500 - At a patch of Indian potato. Michelle took one picture of the general area, then one picture of sample # ~~SA02-SP-P01-01~~ crossed out by J.A.P.

photo taken - #1

GPS point taken

~~SA02-SP01-P01~~ (J.A.P.)

comprised of composite points

1530 -

Stu H. collecting soil sample from location "a" while Glen moved onto location "c"

a; 0.5 gram corm

b; 0.5 gram corm

c; <0.1 gram corm

d; N/A

Kelly (EPA observer) reviewed soil sampling procedure with Stu Holmes and J. Protare and approved the removal of debris from surface of location "a".

~~SA02-SP01-S01~~

soil sample is ~~SA02-SP-S01-01~~ (J.A.P.)

1555 - In coordination between Lis (Ramboll) & Kelly (EPA) it was decided to seek only 1.9 g mass of Indian potato from ~~SA02-SP-P01-01~~ because of the very small size of each corm. (J.A.P.)

~~SA02-SP01-P01~~

Field team also decided to cut down the size of the ziploc bags to more accurately measure the corms. Using scale #5, we re-calibrated and

4-25-18

re-tared the scale. using 10^5 (J.P.)
10 gram scale.

page 3

Transferred the 4 existing corms to smaller bag. total is now 0.8 grams. Disregard weight measurements 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 SA01-SP01-P/S01
* the soil (S) and plant (P) designator is in wrong spot a through G
* in addition, the photo point for SA02-SP01-P01e was erroneously
labeled as a soil photo with an "S" instead of a "P"

Claytonia lanceolata (Indian potato) found in one cluster just outside SA boundary. We received Teck approval to sample these plants. Collected 7 plants to achieve minimum sample mass. The plants were growing in Ponderosa pine forest with open understory of scattered *Achillea millefolium*, *Rumex*, *Lupinus*, *Collinsia*, *Symphoricarpos albus*, and *Carex geyer*, *Betula glandulosa*. All plants were relatively small with one or two flowering stalks per corm. Corms 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 Dina, Mark, US, + Kelly that approximately equal proportions of soil would be mixed to form the composite.

Stu took approximately $\frac{1}{2}$ cup of soil from each baggie, mixed in stainless steel bowl, then mixed and placed in soil jar.

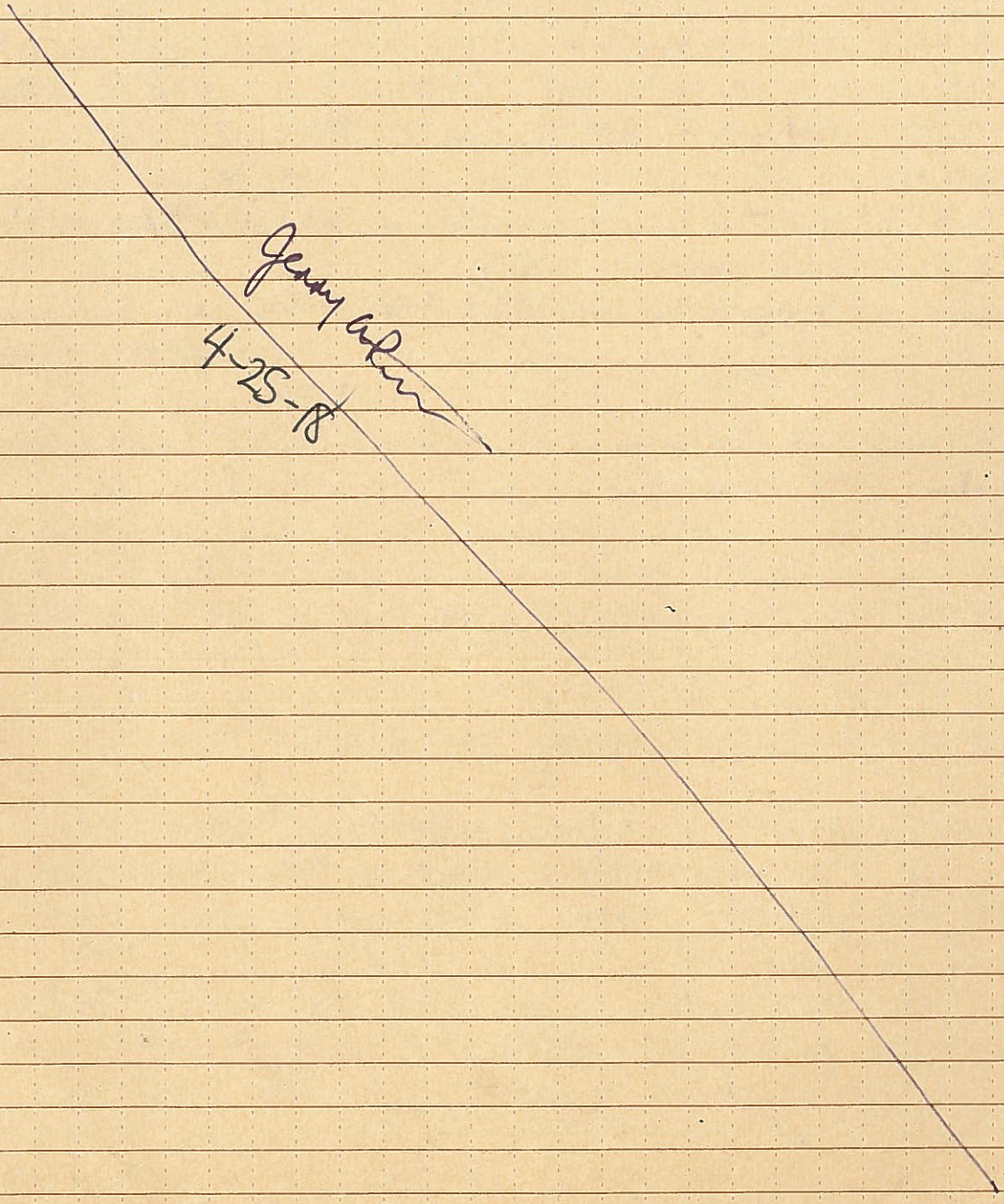
1657 - Linda carried the 2 samples to the car to put into cooler. Excess soil returned to holes.

1702 - Back to vehicles.

There is Kinnickinnick at SA 2, but we will come back tomorrow to collect it

1809 - transferred samples back to Eric Weatherman's shop.

Total samples today: 1 composite Indian potato sample
1 co-located composite soil sample



Jenny Adams
4-25-18

Met at Northport Boat Launch at 0800

People present:

AECOM: Jenny Pretare, Jeff Walker, Linda Howard,
Michelle Stegner, Paul Hamid, Stu Holmes,
Glen Mejia

TAI: Chris McKaug, Denise Mills

RAMBOLL: Dira Johnson, Lis Melis

JACOBS: Kelly O'Neal

EPA: Monica Tonel, Mark Stifelman

Lodestone: Whitney Fraser

CCT: Perleston Moss

Completed Safety Briefing

Safety observations

Hydrate

Don't wander off

maintain awareness

Dusty road - turn on taillights, clean windshield
& stock up on windshield wiper fluid.

- Headcount 16

- Dira & Kris leaving early

- Headcount @ end of day

will be 14

Arrived at SA02 0914

Sunny and clear weather
cool in morning. mid-70s in after-
noon.

0925 - First target species is Kinnickinnick.

Sample no. SA02-SP02-S01

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

run. It might be that the leaves were drier
in August. So we decided we should be

always getting the target mass or more
when possible in case they dry down more than
expected. 130 leaves = 6.5 grams.

Linda just collected leaves, no stipula.

0954 - sample collected w/ this time stamp.

0956 - MS & SH began collecting SA02-SP03-P01
which is a replicator of SA02-SP02-P01

0959 - time stamp for SA02-SP03-S01

5.9 grams for 120 leaves Kinnickinnick

4-26-18

Page 2

1005 - Began collecting ~~SPQ2~~^{JP} SAQ2-SPQ2-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

1038 - Began sample collection for
SAQ2-SPQ4-PQ1 5.6g + 5.8 = TOTAL 11.4 grams
SAQ2-SPQ4-SQ1 put in 2 jars

This will be a split ~~SE~~ sample of Kinnickinnick
with double the mass within the ~~same~~ same sample

1109 - All samples from SPQ4 transferred to cooler
with ice.

General notes: * Three Kinnickinnick sample locations were chosen to be
distributed across sample area. Kinnickinnick is growing with *Ponderosa*
pine, *Betula aquifolium*, *Symphoricarpos albus*, and *Achillea millefolium*

* ~~A~~ A second *Claytonia lanceolata* sample location was identified
immediately adjacent to the first sampling location

* *Lomatium triternatum* was observed next to second *Claytonia* sample
location. Only 2 plants observed just beginning to flower.

1120 - New location SAQ2-SPQ5
Kinnickinnick - individual sample SAQ2-SPQ5-PQ1

6.0 grams, approx. 125 leaves

JAP
1133 → collected SAQ2-SPQ5-SQ1
1135

triternatum

1142 - *Lomatium* excavated to determine if it is big
enough by Glen. Location SAQ2-SPQ6(JP)

This will be a composite SAQ2-SPQ6-~~SQ1~~ PQ1 (JP)

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 = 1216

1217 - Began composite soil sample SAQ2-SPQ6-SQ1

1236 - Finished soil collection + broke for lunch

1330 - Still at SAQ2, collecting an Indian potato composite, location is SAQ2-SPQ7

	a - 0.2 g	} SAQ2-SPQ7-PQ1 1.9 <u>2.2 grams total</u>
	b - 0.2 g	
	c - 0.3 g	
	d - 0.2 g	
	e - 0.2 g	
weighed out of order ↓ not a mistake	f - 0.3 g	
	g - 0.5 g	
	h - < 0.1 g	
	i - 0.3 g	

cumulative

Though there are more Indian potato 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 roses found during survey at SAQ1 (JW + PH), they have not leafed out, Pendleton Moses thought they could be collected with or w/o leaves.

Mark Stifelman, Dina Johnson, Lis Nelis and Kris McCaig discussed the options. ~~we~~ Mark thought it likely that sooner or

4-26-18

page 4

later, either during this deployment or in June, we will find enough stems with leaves to meet the target mass. So, ^{mark} 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 SA03. 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 Kinnickinnick sample numbers SA03-SP01-P01 and SA03-SP02-P01 which is a replicate

1553 - Begin collection of soil samples SA03-SP01-S01 and SA03-SP02-S01 which is a replicate only took one GPS point at this location because they are within 3m of each other. Labelled as SA03-SP01-P01 in GPS.

1604 - End collection

1615 - to 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. SA03-SP03-P01
"a" = 2.3 grams - 1 bulb
"b" = 1.4 grams - 1 bulb
3.7 grams
"c" (JP) = 2.4 grams - 1 bulb
6.1 grams

Broke off the leaves (shoots?) from the top and roots from the bottom. No flowers present on any of the plants at this time.

All 3 bulbs located within 3 meters of each other (closer to 2 feet total diameter).

1636 - Begin soil sampling for
SAQ3 - SPQ3 - SQ1

1649 - Finished soil collection

1808 - Put samples in storage facility. All
soil in frig. All plants in freezer.
Temperature blanks in freezer are frozen
solid.

Per Survey notes for SAQ3 (J. Walker)

- began survey at 13:30; finished at 17:00
- Kinnikinnik (Arctostaphylos uva-ursi) - flagged 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 corms 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 triseriale: 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 they have leaves.
- Strawberry (Fragaria): strawberries were observed across the sample area. We collected GPS polygons for the patches.
- Black Lichen (Bryoria sp.): survey for this species revealed it was only on 2 shrubs and one ponderosa pine. Not enough to collect for a sample. (much less than the 200+ individuals needed)
- Camass (Camassia quamash): Penelope Moses from CCT observed camass on this sample area in fall of 2017. He confirmed the new growth of this species in the same location. We dug up a bulb and we confirmed the identity. (the plants are not flowering yet and could be confused with the death camas). After confirmation, we sampled the plant.

Total samples today:

- 1 camass
- 2 indian potato
- 1 Lomatium
- 4 ~~x~~ Kinnikinnik
(JP) (1 split, 1 replicate)
for Kinnikinnik

Jennifer AP
4-26-18

4-27-18 0715 - Checked freezer at storage facility page 1
0800 Temp. blanks are frozen.

* Tailgate meeting at Northport Boat Launch park.

AELM - Jenny Pretare, Jeff Walker, Linda Howard, Glen Mejia,
Pam Hamidi, Michelle Stegner, Stu Holmes

EPA - Monica Tonel, Marc Stifelman, Kelly O'Neil

Ramboll - his Nelis

CCT - Pendleton Moses, Whitney Fraser

TAI - 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 call 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 SAQ3

First sample today will be a camas bulb. No flowers
SAQ3 - SPQ4 - PQ1 on this plant. Only green
shoots.

0856 - Calibrated scales #4 + #5. w/ snack
size ziploc's and 5 gram weights.

Photo taken, GPS point recorded on RI #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

"d" =

5.4 grams

4.0 total after 3 bulbs

All bulbs located within 1 meter of each other.

It was discussed between the field team and Mark
Stifelman that travels do not need to be declared.

4-27-18

between digging bulbs and soil for the same sample.

0920: Soil sample SAQ3-SPQ4-SQ1
composite

0930: Soil sample done. Decon equipment.

0933: New location SAQ3-SPQ5
camas - plant with no flowers, only green shoots

SAQ3-SPQ5-PQ1

"a" = 2.6 grams

"b" = 2.0 grams

4.6 grams

0943: Begin soil sample SA^(SP)Q3-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 1 picture of all plants in patch. We will dig up corms until mass is acquired.

Sample No. SAQ3-SPQ6-PQ1

"a" = 0.6 g

"b" = 2.5 g

"c" = 1.4 g

4.5 g. total

cumulative

(3.1)

4.5

1014: soil sample SAQ3-SPQ6-SQ1 composite

1024: soil sample complete

Decon 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 overhead. Lots of pine needle duff on ground. Ground is sloped towards the river

1027: SAQ3-SPQ7-PQ1 Indian potato composite

"a" = 0.5 g	cum
"b" = 0.5 g	1.0
"c" = 0.5 gram	1.5
"d" = 0.3	1.8 grams

This is w/ 10% of the minimum target mass, so it will be retained.

Jeff W. called w/ survey notes from SAQ1:

- 2 potato sites
 - 1 Lomatium
 - 3 Camas
- roses not leafed out enough to sample @ SAQ1

1041: Begin soil sample SAQ3-SPQ7-SQ1

1116: Lomatium samp location SAQ3-SPQ8

this plant has 3 stems that are growing so close as to be indistinguishable. They will be considered one sample. Approved by M. Stifelman. On a east facing slope, just downhill from SAQ3-SPQ7.

All 3 stems appear to be coming out of the same root system.

1125 collected SAQ3-SPQ8-PQ1 6.8 grams individual sample

1129 Soil sample SAQ3-SPQ8-SQ1

1132 - Break for lunch

1225 - Lomatium patch which appears to be very close to the border of the SA. ~~Goat~~ Going to attempt to get 2 samples, though they are spatially grouped together.

Group stopped to check that we are not inside the SA TES plot.

1235 - Began SAQ3-SPQ9-PQ1

"a" = 1.0 gram	cum	"d" = 0.6 g	3.4
"b" = 1.0 gram	2.0	"e" = 0.5 g	3.9
"c" = 0.8 gram	2.8	"f" = 0.9 g	4.8

1304 - done

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 more 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-SP1Q which is Kinnikinnik

SAQ3-SP1Q-PQ1 5.8 grams (w/ Hg)
 individual sample plant

1348. SAQ3-SP1Q-SQ1 Soil

1353: SAQ3-SP11-PQ1 Kinnikinnik ^(JP) ~~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

Location 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

g = 0.2 g

h = 2.2 g

i = 1.6 g

5.3
 6.9 grams
 total

1437 - Soil sample SAQ3-SP12-SQ1

Composite from 9 holes made by digging locations

4-27-18

SAQ3-SP12 - the location is dispersed 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

"a" = 1.7 g		
"b" = 1.1 g		2.8 g
"c" = 2.1 2.1 g	(JP)	4.9 gram

cumulative

1600 SAQ1-SPQ1-SQ1 soil composite

1608 New location SAQ1-SPQ2
Camas composite SAQ1-SPQ2-PQ1

"a" = 1.3 g		
"b" = 0.7 g		2.0
"c" = 1.0 g		3.0
"d" = 0.6 g		3.6 grams
"e" = 0.8 g		4.2 g
"f" = 0.7 g		4.9 g

cum

1626 SAQ1-SPQ2-SQ1 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.

4-27-18

page 6

Total for 10 day:

Camas		
Lomatium		
Kinnikinnik		+ 1 split
Indian potato		

Survey notes: (Jeff Walker)

Survey began at 8:30 and ended at 11:15. Finished survey of six sites: SA01, SA04, SA05, SA06, SA07, and SA15 (Deadman's Edge)

Results of scouting:

SA01

Flagged 3 species: Camas, spring beauty / potato, 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 / Indian potato (*Claytonia lanceolata*) = flagged 2 sample locations. plants are in flower.

Lomatium (*Lomatium triternatum*): flagged 1 sample location with 4 plants. Flowers just starting to emerge.

Rose (*Rosa* sp.) = not ready to collect (as determined by Pendleton Moses of CCT) because leaves not fully emerged

Strawberry - mapped 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 8 plants

Strawberry = mapped a few patches with GPS

Black Lichen = did not observe

SA05

Flagged 3 species: Camas, Lomatium triternatum, and spring beauty / Indian potato

Camas = flagged 6 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 leaves for sample

Black Lichen = not enough present to collect

SA06

Flagged one species: Kinnikinnick

Kinnikinnick = flagged one location - a large patch

Rose - not leafed out yet Black Lichen: present, but not enough for sample

4-27-18

page 7

SA07

No plants flagged. Camas present, but no additional sample locations needed. Mapped strawberry location at edge of SA inside treeline. Black taken present in very small amount - not enough for sample

BA15

Deadman's Eddy. No willow present. Whitney reports that CCT member made ID of willows at site when leaves were not present. The plants are not willow, but are all cottonwood.

Jennifer R
4-27-18

4-28-18

page 1

0700 - Stopped by sample storage facility
temperature blanks in freezer checked - still frozen

0800 - arrived Northport Boat Launch

Weather: low 50's sprinkling rain

- Discussed revised schedule, SA15 now off the list due to willow not present.

- Will discuss potential new location for willow sample collection with Teck + EPA for ~ high lead Du within the next few days

- Discussed black lichen sampling - concluded that the Survey team will collect black lichen on SA01 in order to determine the level of effort to achieve a full sample mass. If not enough for a sample, will return to site. (defined as w/ 10% of sample mass)

- Health + Safety briefing

- Raining + 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 Follansbee

for public meeting.

0839:

Staff Present

End briefing + head to SA01

AELOM: Jenny Pretore, Jeff Walker, Linda Howard, Glen Mejia, Paul Hamid

EPA: Monica Tond, Marc Strifelman, Kelly O'Neill, Michele Stegner, Stu Holmes,

Ramboll: Lis Nelis

No one from CCT

0915 Arrive at SA01. Dec on equipment.

Jeff and Paul (survey team) will spend an initial 30 minutes collecting black lichen to determine

4-28-18

page 2

how much ~~the~~ mass can be collected within that time period

Meanwhile ~~survey~~ JP
sampling

sample team will begin

0922 New location SAQ1-SPQ3
Location

calibrating scale #4 with 5 gram weight.

Today using GPS 83134

SAQ1-SPQ3-PQ1

a = 0.3 g

b - dug 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 reburied. ~~the~~

This sample number will be skipped and data sheet retained.

NO SAQ1-SPQ3-SQ1 collected.

0939

New location SAQ1-SPQ4 Indian potato

patch of 8 or more plants w/i 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

"a" = 0.3 g

cumulative

"b" = 0.9 g

1.2

"c" = 0.5

1.7

"d" = 0.3

2.0

"e" = 0.4

2.4

"f" = 0.3

2.7

"g" = 0.3

3.0

"h" = 0.3

3.3

"i" = 0.7

4.0

1040

SAQ1-SPQ4-SQ1

Composite

4-28-18

page 3

1030 survey team of 2 collected lichen for 30 minutes and returned with a ziploc baggie.

Calibrated scale #5 with ~~small~~^{JP} 5 g weight in small sandwich baggie.

Transferred lichen to clean, small ziploc. It weighed 2.3 g. so it will be retained as sample SAQ1-SPQ5-PQ1. We are calling this a composite plant sample.

~~No corresponding JP~~
However, the soil will not be a composite.
SAQ1-SPQ5-SQ1

107 Just after begin collecting another lichen sample in NE corner of SAQ1

117 New location SAQ1-SPQ6 Indian potato composite

SAQ1-SPQ6-PQ1

a = 0.6 cumulative

b = 0.7 1.3

c = 0.2 1.5

d = 0.2 1.7

e = 0.3 2.0

f = 0.3 2.3

g = 0.5 2.8

h = 0.2 3.0

i = 0.4 3.4

j = 0.3 3.7

k = 0.7 4.4

140 SAQ3-SPQ6-SQ1 soil composite
calibrated 50 g scale #7 with 20 g. weight.

200 SAQ3-SPQ7-PQ1 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

4-28-18

Page 4

1251 - SAQ1 - SPQ7 - SQ1

1255 - JW + PH began black-lichen location SAQ1 - SPQ8

1318 New location SAQ1 - SPQ9 Camas composite

"a" = 2.4 g.

"b" = 4.6 g. total SAQ1 - SPQ9 - PQ1

one Camas bulb dug up but not needed, so replanted.

1329 SAQ1 - SPQ9 - SQ1 Soil composite

1345 SAQ1 - SPQ8 - PQ1 Black lichen composite
9 grams total

1354 SAQ1 - SPQ8 - SQ1 soil discrete sample

1407 Entire team will collect 3 more black lichen samples. M. Stifelman expressed a preference for getting 6 total ~~to~~ over having them spatially distributed on different high lead sites. SA's JP.

1450 SAQ1 - SP10 - PQ1
Black lichen 6.1 grams
SAQ1 - SP10 - SQ1

1505 SAQ1 - SP11 - PQ1
Black lichen 5.3 grams

1521 SAQ1 - SP11 - SQ1

1534 SAQ1 - SP12 - PQ1 10.3g
Black lichen

~~1544 SAQ1 - SP12 - SQ1~~

JH.
Jenny AP
4-28-18

April 30, 2018

page 1

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 Boat Launch
AECOM: Jenny Procz, Stu Holmes, Michelle Steyer, Linda Howard, Jeff Walker, Glen Mejia, Paul Hamidi
Ramboll: HS Nelis, Julie Weincheid
EPA: Monica Tanel, Marc Stifelmen, Kelly O'Neill (CH2M)
No CCT
John Espinoza

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 - SPQ1
Lomatium - 3 visible flowers on edge of vehicle track. Soil compacted + rocky.

Scale #4 calibrated w/ 5 gram weight

All equipment previously decontaminated.

Scale #3 calibrated w/ 5 gram weight

SAQ5 - SPQ1 - PQ1

Scale #7 - 20 gr. weight calibration

"a" = 3.3 gr.

b = 0.6 gr

c = 0.5

c = 0.3

4.7 grams

From same patch, one large 7.0 gram Lomatium is SAQ5 - SPQ2 - PQ1

0925 SAQ5 - SPQ1 - SQ1

0926 SAQ5 - SPQ2 - SQ1

4-30-18

page 2

call from survey team at SAQ9:

SAQ9 - only target in survey is black lichen. Some located inside SA on hazelnut. Some additional lichen located outside SA on hawthorne, but still within T.A.

0940. New location SAQ5-SPQ3 Lomatium
7 flowers in cluster about 10 feet from vehicle track. Lots of ~~F~~ cobbles

		cumulative
"a" = 0.2 g		
"b" = 0.7 ^{up} g	0.5 g	0.7 g
"c" = 0.4 g		1.1 g
"d" = 0.7 g		1.8 g
"e" = 1.0 g		2.8 g
2.8 grams		

Not enough for the minimum mass. There is another cluster of Lomatium just outside SA boundary. These will be collected and composted with the 5 above.

1002: Survey report

SAQ12 Camas - 1 inside, 1 outside - GPS bounding Lichen just outside SA on a larch. around. 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 g	3.3 g	(cumulative)
"g" = 3.2 g	6.5 g	
"h" = 0.5 g	7.0 g	
7.0 g total mass for SAQ5-SPQ3-PQ1		

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-PQ1 is 5.1 grams

1116: Soil sample SAQ5-SPQ4-SQ1

4-30-18

Page 3

message from survey team: SAQ8 | Location site w/ 6 plants
1 potato site with 2 plants (too low?). Couple of puffballs.
1 more large location. 2 more potato locations (8 plants, 4 plants)

1126 : New location : Indian potato SAQ5-SPQ5

a =	1.6 grams	
b =	1.7 g.	<u>Cumulative</u>
c =	JP + 1.2	3.3
	1.6	4.9 g.
JP	<hr/>	
	4.9 g. for SAQ5-SPQ5-PQ1	

1132 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 (TAI) 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. Checked with Marc Stifelman and we agreed it was ok to collect another sample.

~~JP~~
11457 ~~SP JP~~ ~~SAQ6~~ ~~JP~~ SAQ5-SPQ6 Indian potato
SPQ5-SPQ6-PQ1

a =	1.3 g.	
b	2.6 g.	<u>Cumulative</u>
c	<hr/>	3.9
	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 + SAQ8. Mark Stifelman agrees we can return here if needed later.

1200 - lunch break
After lunch at SAQ5: ~~3~~⁶ camas, 1 black lichen
~~JP~~

4-30-18

1235: Survey team report

SAQ8 - now found camera ⁱⁿ SA, but TMS of Lomatium

SA12 - 2 cameras ^{JP}
might be outside

SAQ4 - 1 potato

SAQ8 - 2 potato

1247 - new location SAQ5-SPQ7 camera composite

SAQ5-SPQ7-PQ1

a = 3.4

b = 1.1

4.5 g.

Cumulative

4.5 g.

1250 - SAQ5-SPQ7-SQ1 soil sample composite

SAQ5-SPQ7 is located within 6 feet of the dirt road

1302 New location SAQ5-SPQ8 camera composite

SAQ5-SPQ8-PQ1

a = 0.7 g.

b = 0.6 g.

c = 0.6 g.

d = 1.5 g.

e = 0.5 g.

f = 0.8 g.

This composite \rightarrow 3m. spread so multiple

Cumulative

1.3 g.

1.9 g.

3.4 g.

3.9 g.

4.8 g.

GPS points will be taken.

1317 SAQ5-SPQ8-SQ1 composite soil sample

1334 New location SPQ5-SPQ6 ^{JP} camera composite

SPQ5-SPQ6-PQ1

a = 0.4 g.

b = ^{JP} 1.3

c = 1.4 g.

d = 0.4 g.

e = ~~0.8~~ 0.4 g.

f = 1.2 g.

Cumulative

1.7 ~~1.7~~ JP g.

3.1 ~~1.7~~ JP g.

3.5 g.

4.3 ~~3.9~~ g.

5.5 g.

recalibrated scale #4
w/ 5 g. weight

1345 soil composite SAQ5-SPQ6 ^{JP}-SQ1

4-30-18

Page 5

1400: Survey team update - SA16 is not accessible. Recon will be SKIPPED. They are going on to Barnaby Island.

1413 New location SA05 - SP10 black lichen composite

SA05 - SP10 - PQ1

Lichen growing on a clump of chokecherry tree

1427. Finished sampling at ~~SA05~~ SA05. Picked up all flags. JP

1440 - Headed to SA04 to pick Kinnikinnik

1509 - Arrive at SA04. Goal = 5 Kinnikinnik + 1 split + 1 replicate samples

1518 = 2 Kinnikinnik samples to be replicated

1529 SA04 - SP01 - PQ1 5.8 grams

1530 SA04 - SP02 - PQ1 6.1 grams

Jeff @ 1530

SA16 survey: lots of willows right by parking spot. Soil sandy

1533 SA04 - SP01 - SQ1

1536 SA04 - ~~SP01~~ - SQ1
SP02

1548 ~~SF~~ New location SA04 - SP03

Kinnikinnik. This will be a split.

SA04 - SP03 - PQ1 11.5 g

SA04 - SP03 - SQ1 : 2 jars

calibrated scale #7 (50g) w/ a 20g. weight

1614 New location SA04 - SP04 Kinnikinnik

SA04 - SP04 - ~~PQ1~~ PQ1 6.4 g

1623 SA04 - SP04 - SQ1

1627: Finished at SA04 for today. Headed back to cars.

Survey Results

Began surveys at 8:30, ended at 15:30

Surveyed four sites: SA09, SA12, SA08, and SA16

SA09

Blackberry: observed on hazelnut stems within SA and on hawthorn just outside SA boundary (but still on tribal allotment)

Rose: present but not fully leafed out

Strawberry: collected a few plants where plants observed

Note: observed ^{one} more growing under aspen, but it was off tribal allotment

SA12

Comas: flagged 2 comas locations just outside SA boundary (but still on allotment)
Flowers just beginning to emerge

Blackberry: observed on larch just outside SA boundary (still on allotment)
x no strawberry observed

SA08

Lomatium triternatum: flagged two locations, but many more present

Blackberry: growing on hawthorn in northwest corner of allotment

Ratibida pinnatifida: flagged three locations; 15 plants total; in south-central portion of SA

Comas: flagged one location with 5 plants

Pathball: flagged three small pathballs

Rose: plants are more leafed out in this SA

SA16

Observed abundant Salix exigua (willow) near Barkaby Creek Campground

SA10

Not able to survey; Pathballwater Creek crossing of road is washed out and the water is deep. Alternative routes to get there are uncertain (in terms of access and trespass)

Jenny A. Fox
4-30-18

5-1-2018

Page 1

0800 - Freezer + frig 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 team: Jeff Walker, Jenny Pretura, Paul Hamidi, Stu Holmes,
 Michelle Steigner, Linda Howard, Glen Mejia,
 Mark Stifelman, Monica Tord, Julie Weinscheld
 John Espinoza

9:27 SA16-SP01-P01 ^{green} sampling willow
 - measured main stem ^{110cm} _{150cm} kept all lateral branches,
 then cut one lateral branch ^{40cm} to complete target length.

* willow samples labeled on outside of plastic baggie; label to be applied later.

9:42 SA16-SP02-P01 green willow replicate
 - main stem 105cm
 - main stem 85cm

9:51 SA16-SP01-S01 soil sample beneath crown of green willow

9:59 SA16-SP02-S01 replicate soil sample beneath crown of green willow.

10:12 SA16-SP03-P01 green willow split
 main stem 140
 main stem 125
 main stem 140
 40.5cm

10:20
~~10:50~~ SA16-SP03-S01 green willow soil split

10:23 Decon sample equipment

10:32 SA16-SP04-P01
 main stem 55cm
 main stem 150cm / 205cm

~~5-3~~ 5-1-18

10:37 SA14-SP04-S01 Green willow

~~10:52~~ SA14-SP05-P01 Green willow

10:54
115cm
100cm
215cm

10:54 Decontaminated sampling equipment

10:57 SA14-SP05-S01 Green willow

10:59 Decontaminated sample equip.

11:05 SA14-SP06-P01 Green willow
manst. 152cm
manst. 65cm
217cm

11:07 Decontaminated sample equipment

11:09 SA14-SP06-S01 ***soil sample stored in
reusable plastic bag &
put inside 2nd plastic bag
to be transferred to sampling
jar later. Label placed inside
2nd plastic bag to be affixed
to sample jar later.

11:10 Decontaminated sample equipment

11:18 ~~SA14-SP06-P01~~ LH

SA14-SP07-P01

130cm
73cm
203cm

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 into LH. Added plant labels to →

5-11-18

page 3

willow sample bags.

Added Transferred soil samples SA14-SP06-S01 & SA14-SP07-S01 to sample jars, affixed labels and transferred to freezer.

12:57 Left storage unit

~~2:20~~ ^{2H} Arrived at SA04
04:20

04:30 Calibrated Scale #5

04:36 SA04-SP05-P01 Kinnikinnik

~~2H~~ 6.0g

14:42 SA04-SP05-S01

14:46 Decontaminated sampling equipment

14:54 SA04-SP06-P01 Kinnikinnik

6.0g

14:57 SA04-SP06-S01

14:58 Decontaminated sampling equipment

~~3:25~~ ^{2H} SA04-SP07-P01 Claytonia lanceolata composite

15:25

a. 0.4

b. 0.3 0.7

c. 0.3 1.0

d. 0.6 1.6

e. 0.2 1.8

f. 0.2 2.0

g. 0.5 2.5

h. 0.3 2.8

i. 0.4 3.2

j. 0.1 3.3

← left plant

05:34 SA04 - SP08 - P01 Claytonia lanceolata composite
 a. 0.7 — e. 0.1 2.6
 b. 0.7 1.4 f. 1.5 4.1
 c. 0.8 2.2
 d. 0.3 2.5

03:37 Julie called us to discuss whether to take last
 15:37 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.

03:15:53 SA04 - SP07 - S01 composite

16:10 SA04 - SP08 - S01 composite

16:18 Completed sampling at SA04
 JH.

Note Julie will be leaving after SA04
 and not present at SA05 for Kinnikinnick replicate

16:18 Decontaminated sampling equipment

Survey results

Conducted scouting survey ~~on~~ one sample area: SA11; found 2 spray target
 species: puffball and black lichen

Puffball: flagged 8 puffballs; these are small, brown individuals

Black lichen: present on SA, but in very low amounts (also there are few shrubs on the SA;
 not enough to sample.

16:40 Arrived SA06

16:55 SA06 - SP01 - P01 Kinnikinnick Replicate
 8.7g w/SP02

16:57 SA06 - SP02 - P01 Kinnikinnick Replicate
 6.4g w/SP01

5-31-18

Page 5

17:00 SAΦ6H
SAΦ4 - SPΦ1 - SΦ1

17:03 SAΦ6H
SAΦ4 - SPΦ2 - SΦ1

17:09 Completed sampling at SAΦ6

~~William Howard
May 1, 2018~~

~~LH~~

5-2-18

Page 1

7:00: Check sample frig & freezer: both at temperature

8:00: Arrived Northport Boat Launch

Weather: Clear skies; mid -40's

Present: Jenny Pretare, Jeff Walker, Linda Howard,

AECOM: Glen Mejia, Stu Holmes, Michelle Stegner
Paul Hamidi

Ramboll: Julie Weincheid

Teck: ~~Cristina~~^{JP} Denise Mills

EPA: Monica Tonell, John Espinoza (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

09:19 Arrived at SAH. SAΦ8

09:20 Calibrated scale #5 with 5g & tared to small baggie

09:37 SAΦ8 - SPΦ1 - PΦ1 *Lomatium triternatum*
a. 4.2g collected near top of SAΦ8
b. 0.9 5.1 in open field.
c. 3.8 8.9

09:45 SAΦ8 - SPΦ1 - SPΦ1 a-c

09:40 Calibrated scale #7 with small baggie

10:10 SAΦ8 - SPΦ2 - PΦ1 *Lomatium triternatum*
a 2.3 Total e. 0.9 / 7.0 collected in open
b 1.7 / 4.0 f 1.3 8.3 field,
c 0.4 / 4.4
d. 1.7 / 6.1

- 10:18 SAØ8 - SPØ2 - SØ1 Lomatium triteratum - soil
- 10:45 SAØ8 - SPØ3 - PØ1 Lomatium triteratum
 a. 1.2 Total
 b. 5.7 6.9
 c. 0.8 7.7
 d. 2.1 9.8
 Collected in open field among
 boulders & cobbles
- 10:34 Mark F. From SOC joined field team
- 10:55 SAØ8 - SPØ3 - SØ1
- 11:07 SAØ8 - SPØ4 - PØ1 Black lichen collected from
 5.0g hawthorn trees on side of
 gulch
- 11:13 SAØ8 - SPØ4 - SØ1
- 11:28 SAØ8 - SPØ5 - PØ1 Black Lichen
- 11:32 SAØ8 - SPØ5 - SØ1
- 11:41 SAØ8 - SPØ6 - PØ1 Black Lichen
 5.8g
- 11:45 SAØ8 - SPØ6 - SØ1

Jeff Walker showed Kali (CCT botanist) and Penleton Moss (CCT biologist and member) the small puffballs. Penleton does not have experience with ~~the~~ 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 *Lycoperdon*.

1200 - Took picture of puffball and texted to Arrow Coyote for further review by CLT members;

5-2-18.

page 3

possibly Ernie if he can be reached

1230 - Talked to Kali, Pendelton and Denise and got approval to pick + weigh ~~an~~ one puffball for mass ~~data~~ information. Will then also cut in ^{or} half to look at inside. Also photographed (JP).
1 puffball approx. 2 cm x 2.5 cm weighed 0.8 g.
Put in plastic bag but not recorded as a sample.

12:43 Finished lunch break + back to sampling

12:46 SAφ8 - SAφ7 - Pφ1 Black lichen
3.8g

12:55 SAφ8 - SAφ7 - Sφ1

~~SAφ8 - SA~~ L.H.

SAφ8 - SPφ8 - Pφ1 - No sample taken

1312: Examining a reicon target thought to be camas, but we are digging up for Pendelton to look at bulb/roots to confirm the identification. Located in ponderosa pine patch. It is NOT a camas. Might be brodiaea. Outer layer peeled back to look.

1327 New location SAφ8 - SPφ9 Indian potato.

Checked with Pendelton and Kali about the development of rose plants. They said it is still too early to be collected.

1337: SAφ8 - SPφ9 - Pφ1

"a"	=	0.2	g	
"b"	=	0.3	g	Cumulative
"c"	=	0.9	g	0.5 g.
"d"	=	0.5	g	1.4 g.
"e"	=	0.6	g	1.9 g.
				2.5 g.

5-2-18

cumulative

page 4

"f" = 0.4 g	2.9 g
"g" = 0.2 g	3.1 g
"h" = 0.4 g	3.5 g
"i" = 0.6 g	3.4.1 g
<hr/>	HP

4.1 grams total

1351: SAØ8 - SPØ9 - SØ1 Composite soil sample.

135a: Monica, talked to Sharon (CCT), Sharon and Julie
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 its not ~~not~~ inhaled or ingested. Because there is no ~~not~~ ingestion, we will not collect these puffballs, for the human health risk assessment. Those present and in agreement are: Monica Tonel, Mark Follansbee, Denise Mills, Julie Weinheld, Jenny Preture and John Espinosa.

1415 SAØ8 - SP1Ø - PØ1 Claytonia lanceolata composite

a.	0.3	-	
b.	0.3	0.6	
2H c.	0.7	1.5	1.2
d.	0.3	1.5	
e.	1.3	2.8	
f.	0.2	3.0	
g.	0.2	3.2	
h.	0.6	3.8	

1425 SAØ8 - SP1Ø - SØ1 soil composite

1437 Completed SAØ8 sampling

Weather: Skies clear, low 70's temp.

5-2-18

page 5

1442: Depart SAØ8 and go to SAØ7 to collect Camas, per discussion with US Ndis and agreement with EPA.

1530: Arrive at SAØ7

1540: New location - SAØ7 - SPØ1 Camas

1541 SAØ7 - SPØ1 - PØ1

"a" = 0.8 g.	<u>Cumulative</u>
"b" = 0.9 g	1.2 g 1.7 g
"c" = 1.3 g	3.0 g.
"d" = 0.9 g	3.9 g
"e" = 0.6 g.	4.5 g.
<u>4.5 g.</u>	

SAØ7 - ~~SPØ2~~ SPØ1 JP Soil composite

1559 - New location SAØ7 - SPØ2 Camas

1600 - SAØ7 - SPØ2 - PØ1

"a" = 1.5 g.	<u>Cum.</u>
"b" = 0.5	2.0
"c" = 2.6 g.	4.6
<u>4.6 g total</u>	

1608: SAØ7 - SPØ2 - SPØ1 Soil composite

1616: New location SAØ7 - SPØ3 Camas

1618 SAØ7 - SPØ3 - PØ1

"a" = 1.7 g 0.7 g	<u>Cumulative</u>
"b" = 0.6 g	1.3 g
"c" = 0.7 g	2.0 g
"d" = 0.6 g.	2.6 g
"e" = 2.2 g.	4.4 g.
"f" = 2.0 g.	6.4 g

5-2-18

page 6

1626: SA07-SP03-S01 composite soil sample.

This completes sampling at the lower lead SAs.

Samples delivered to freezer (tissue) and frig (soil)
in Kettle Falls.

~~January
5-2-18~~

May 3, 2018

Page 1

Demobilization Day for AELM field team.

0800 - Met in lobby at Comfort Inn for daily tailgate meeting.

Glen, Jeff, Linda, Paul, Michelle, and Stu 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 Chain of Custody forms.

H/S 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.

Jenny
5-3-18

May 4, 2018

Page 1

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 coolers as heavy as you feel comfortable with.

Long distance driving - take breaks, check in with a contact.

Kickoff for June Plant Sampling Event

Northport Boat Launch Park - 1230

People present:

AELOM: Jenny Pretare, Linda Howard, Dave Lewis, Jeff Walker, Glen Mejia, Michelle Stegner.

EPA: Monica Tonel, Marc Stifelman

Ramboll: Lis Nelis

Jacobs (for EPA): Kelly O'Neill, Ellie Traudi

TAI: Kris McCaughey

CCT: Whitney Fraser (Lodestone)

Citizens for a Clean Columbia: Joe Wichmann.

Michelle Stegner acting as Cultural Resource monitor

Sampling overview by Lis Nelis

Intro CCT perspective by Whitney Fraser

Health + Safety Briefing by Jenny Pretare

Everyone signed HHS Acknowledgment Sheet.

1330: TO ~~SAQ2~~^{JP} SAQ3

Recon for Strawberry, rose + Lomatium

Lots of strawberry plants present, but very few berries.

Begin rose sampling 14:18

SAQ3 - JuQ1 - PQ1

a - 15 cm

b - 13 cm

c - 12 cm

d - 12 cm

52 cm

e - 6 cm

f - 5 cm

JP

~~63 cm total~~

+ 7 cm = 70 cm total

14:32 = SAQ3 - JuQ1 - SQ1

all from the same rose plant so not a composite, but just measured in different segments because individual stems were clipped and measured individually individual soil sample

1445: SAQ3 - JuQ2 - PQ1 rose

lengths (cm): 16 + 15 + 8 + 10 + 7 + 5 + 20 = 81 cm

Not quite enough for a split or replicate. collected all branches on plant

June 18, 2018

page 2

1454: SA03-JU02-S01 individual soil sample

1507: SA03-JU03-P01 rose
lengths (cm) = 22 + 17 + 18 + = 57 total.
Collected all branches from individual plant;
not enough present for split or replicate.

1513 SA03-JU03-S01 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 (Monica + Marc) and TAI (Kris)

^{HP} 1537. SA03-JU04-P01 Lomatium Composite

1551	a - 4.5 g	<u>cumulative</u>
	b - 1.5 g	6.0
	c - 1.5 g	7.5 g.
	d - 1.1 g	8.6 g.

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 (Monica + Marc S.), TAI (Kris M.), Whitney F (CCT).

For Sarvisberry: it does not appear ripe at this SA, though berries are present. It was decided to look for riper berries at other high leaf SA's over the next day or 2 and then decide where to sample.

1604: SA03-JU04-S01 soil composite

We collect 1 more Lomatium sample at SA03.

June 18, 2018

page 3

1628: SAQ3 - JUD5 - P01

$a = 2.9 \text{ g.}$
 $b = 1.1^{0.9} \text{ g.}$
 $c = 1.0 \text{ g.}$
 $d = 3.0 \text{ g.}$

Lomatium composite

Cumulative

3.8 g.

4.8 g.

7.8 g total

1 Lomatium dug up by michelle that had no root mass. Not collected. Put back in ground.

1641: SAQ3 - JUD5 - S01

composite soil sample

Sampling complete for the day.

Total at SAQ3: 2 Lomatium
3 rose

Jenny Miller
6-18-18

Added 6-19-18:
 All soil samples stored
 in ~~ref~~ refrigerator
 All plant samples stored
 in freezer. Storage location
 is ~~the~~ locked warehouse in
 Kettle Falls owned by Eric Weatherman.
 Samples placed in storage at end of
 sampling day.

Jenny Miller
6-19-18

June 19, 2018

Page 1

0715 - ~~Kickoff~~ Daily Tailgate at Northport
Boat Launch park

AELOM: J. Pretare, L. Howard, G. Mejia, M. Stegner,
~~D.~~ D. Lewis, J. Walker

Ramboll: L. Nellis

EPA: M. Toner, M. Stifelman

Jacobs: K. O'Neill, E. Trandt

CCT: W. Fraser (Lodestone)

Michelle Stegner acting as Cultural Resource monitor.

Sampling location for morning: Rose, Sarvisberry, Strawberry

0800 - Arrive at SAQ1

0814: SAQ1 - JUQ1 - PQ1 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 - PQ1 rose - individual sample
stem length (cm) = $17 + 15 + 11 + 19 + 20 + 16 = 96$

0845: SAQ2 - JUQ3 - PQ1 rose (Replicate of
 $8 + 17 + 15 + 13 + 9 + 9 + 6$ SA-Q1 - JUQ2)

SAQ1 - JUQ2 - SQ1

0858: SAQ1 - JUQ4 - SQ1

Notes about Sarvisberry: berries on ~~SA~~ 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. Nellis,
J. Walker, J. Pretare. Marc Stifelman agreed
it was OK to defer collection.

June 19, 2018

page 2

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 - SA01 - JU04 - P01 Rose
 $20 + 18 + 17 + 18 + 13 + 14 = 98 \text{ cm}$

0922 - SA01 - JU04 - S01

JP collected one white puffball from corner of SATES plot. Send pictures to Arrow Coyote, Kali + Pendleton. Puffball dimensions approx. $2 \text{ cm} \times 1.5 \text{ cm}$
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 sparsely vegetated intervals.

1003: Done at SAQ1. total: 3 rose samples, 1 split, 1 replicate.

1027: Arrive at SAQ^{UP}2 to do rework for strawberry, pine cones, sarvisberry & 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 sarvisberry observed on SAQ2.
A few strawberry plants, but no berries

1100 - lunch

June 19, 2018

Page 3

1200 - Recon at SAQ4 for rose

1225 - Arrive at SAQ4 to sample rose

SAQ4 - JUQ1 - PQ1 rose-split
plant pieces (cm) = 27 + 27 + 24 + 19 + 19 + 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~~ SOP-9 (6) of the FSP.

1243: SAQ4 - JUQ1 - SQ1 soil split

1302 SAQ4 - JUQ2 - PQ1 rose
1304 SAQ4 - JUQ3 - PQ1 rose - replicate
 23 + 27 + 32 = 82 cm
stem length (cm): 35 + 21 + 14 = 70 cm total

1308: SAQ4 - JUQ2 - SQ1
1314: SAQ4 - JUQ3 - SQ1 } replicates. D. Lewis dug through 2-3 inches of pine needle duff before reaching soil.

The 3 rose samples at SAQ4 are close together. The recon did not identify and 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
 JP

1335: SAQ4 - JUQ4 - SQ1 individual soil sample.
3.5 inches of duff removed before collecting soil.

1349 10 huckleberries = 1.4g → Jenny and Jeff sampled small quantity of huckleberries to assess quantity needed to collect a sample.

June 19, 2018

Page 4

1354 Linda calibrated scale #7 50g w/ 20g weight

1354 SA04-Ju05-P01 *Vaccinium cespitosum*

Li & Nelis confirmed SOP 4 Sarrisberry, Strawberry and wild huckleberry section → will collect one soil sample from center of patch of wild huckleberry

1411 : SA04-Ju05-S01

charcoal^a is ~~apparent~~ in the soil
apparent
removed 1.5 inches of duff
Michelle Stegner says it's on the surface right below the duff, so likely a modern burn.

1431: SA04-Ju06-P01 : *Vaccinium cespitosum*
a patch of plants used to collect one individual sample.

1438: SA04-Ju06-S01 : soil sample 1.5 inch of duff removed. charcoal present in soil.

1456: SA04-Ju07-P01 *vaccinium cespitosum* "patch"

1501: SA04-Ju07-S01 1 inch of duff over soil sample.

1530: Leave SA04

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 felt hollow and/or with holes so appear to have been eaten by insects. →

June 19, 2018

page 5

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 _____ bracts. Conservative estimate would be one nut per bract, or a total of _____ nuts.

~~Jan 2018~~
6-19-18

June 20, 2018

Page 1

0715 - Daily Tailgate at Northport boat launch park

AECOM: J. Preture, J. Walker, M. Stegner, L. Howard,
D. Lewis, G. Mejia

ERA: M. Tonel, M. Stifelman

Jacobs: K. O'Neil, E. Traudt

CLT: W. Frazer (Lodestone)

Michelle Stegner acting as Cultural Resource monitor.

Objective for today: 3 huckleberry samples at SAQ4. 3 rose samples at SAQ6. Survey / re-survey at SAQ7.

H/S Briefing by M. Stegner.
poison 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 needle duff

0842: SAQ4 - JU09 - 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 needle 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 ~~Gap~~^{HP} canopy - in GPS.

June 20, 2018

page 2

0955 - Finish @ SA04

1003 - Arrive at SA06

Target is 3 rose samples + split + replicate

Poison ivy present at this [#] sites along sides of path.
sampling area

1022: SA06 - JU01 - P01 rose - split sample
stem lengths (cm): 61 + 53 + 28 + 27 + 26 + 23 = 218 cm

1031: SA06 - JU01 - S01 soil split sample
2 jars

1046: SA06 - JU02 - P01 Rosa sp.
1047: SA06 - JU03 - P01 replicate of SA06 - JU02
33 + 35 + 40 + 41 = 149 cm
stem length (cm): 26 + 24 + 22 + 43 = 115 cm

1051: SA06 - JU02 - S01 soil

1054: SA06 - JU03 - S01 soil ≠ replicate

We looked for ponderosa pine trees at SA06. 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: SA06 - JU04 - P01 Rose - individual sample
stem length (cm): 29 + 28 + 19 + 18 + 22 = 116 cm

1118: SA06 - JU04 - S01 soil

Rose hip observations: no flowers on roses in SA03, SA04
(J. Walker)

* no roses observed on SA02

* hips (few observed) on SA01, hips (several) observed on SA06

June 20 2018

Page 3

1130 - finish at SA#6. Lunch break

1240 - SA#7 Recon for strawberry, pine cones
& any other spp on target list.

Puffball seen on the way to SA#7 → White
outside, black inside.

1310 - Finished recon at SA#7

Several ponderosa pine w/ cones GPSed.
No strawberry, no rose

1319 - SA#1 Recon for pine cones
GPSed mostly large trees with cones up
high

1343 - Finished

Willow reconnaissance

Jeff Walker accompanied Marc and Monica (both GFA) and Whitney (Lobster) to observe possible willow site. Drove onto Mills Road off Highway 25. Drove past residence and parking. Walked down to river. Monica said it is the "Dial" property. Looked across side channel at "island" with cottonwood and willow. Made observations through binoculars. Cottonwood with shiny broader leaves, with warts lower on stems. Willow leaves are linear. There is good chance they are *Salix exigua*. Monica thinks island could also be ~~at~~ owned by the Dials.

1400 - pine cone recon at SA#3

1420 - recon completed

1425 - Confirmed verbally with Monica Tanel, Marc Stifelman that sampling is complete for June. Jenny to confirm with TAI on the phone at 5 pm today.

Also, standing at SA#3 access road, willow observed just 30 feet from X Sheep Creek Road, but outside the sample area.

June 21, 2018

Page 1

AELOM: J. Pretare, J. Walker, G. Mojica, D. Lewis,
M. Stegner, L. Howard, Josie Smith

TAI: Cristy Kessel.

Start 0800

Working today in Kettle Falls warehouse facility
to package samples for transport, consolidate
& organize gear, then demob to Spoke
Spokane. Samples to be driven to ALS Kelso.

Jeff Walker counted 3 ponderosa pine cone for the
number of bracts

1- 87

1- 109

1- 122

} results

106 average

Did not observe any viable "nuts" in the cones that were counted.
These were collected from the ground.

1021- protocol modification form written for SOP 7
~~both~~ 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-kickoff 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 (Anders + Jane). 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 WDNR. Linda called WDNR 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 + should be no issue with us driving on the road. Park to side of road. Call floor coordinator at (509) 685-6900 to check conditions each morning. Monitor 911 on radio CH9.

11:30 Jeff W. and Lis^{Nelis} collected some pinecones from Yep Kanum Park in Colville. The cones were collected from the ground under ponderosa pine. The park 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 openness 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:

AECOM: Stu Holmes, Jeff Walker, Paul Hamidi, Michelle Stegner,
Linda Howard, Jasie Smith Anders utter

RAMBOLL: Lis Nelis

Lodestone: Whitney Fraser

Jacobs: Elte Trandic
(for EPA)

EPA: Marc Stifelman

Sampling Overview by Lis Nelis

August 20, 2018

Page 2

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 Boat lunch.

Planning for tomorrow:

if above 300ppm (Hazardous) - 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 team before leaving Colville.

0100 Pine cone dissection - cones collected in Colville from the ground.

Degree of maturity

Degree of maturity	Cone - Seeds	Ratio of Nut / Cone	Weight(g)
Bracts open	Paul 1 -		0.4 g
	Paul 11		0.5 g
	Jeff 1 - 15		0.2 g
	Josie 1 - 9		0.1 g
	Anders 1 - 3		1.8 g
	Paul 2 - 39		0.2 g
* observed falling from tree	Anders 2 - 12		0.4 g
	Jeff 2 - 11*		

- Jeff, Paul, Anders, Josie, dissected pine cones

- Stu removing wings from seeds

- Lis weighing samples

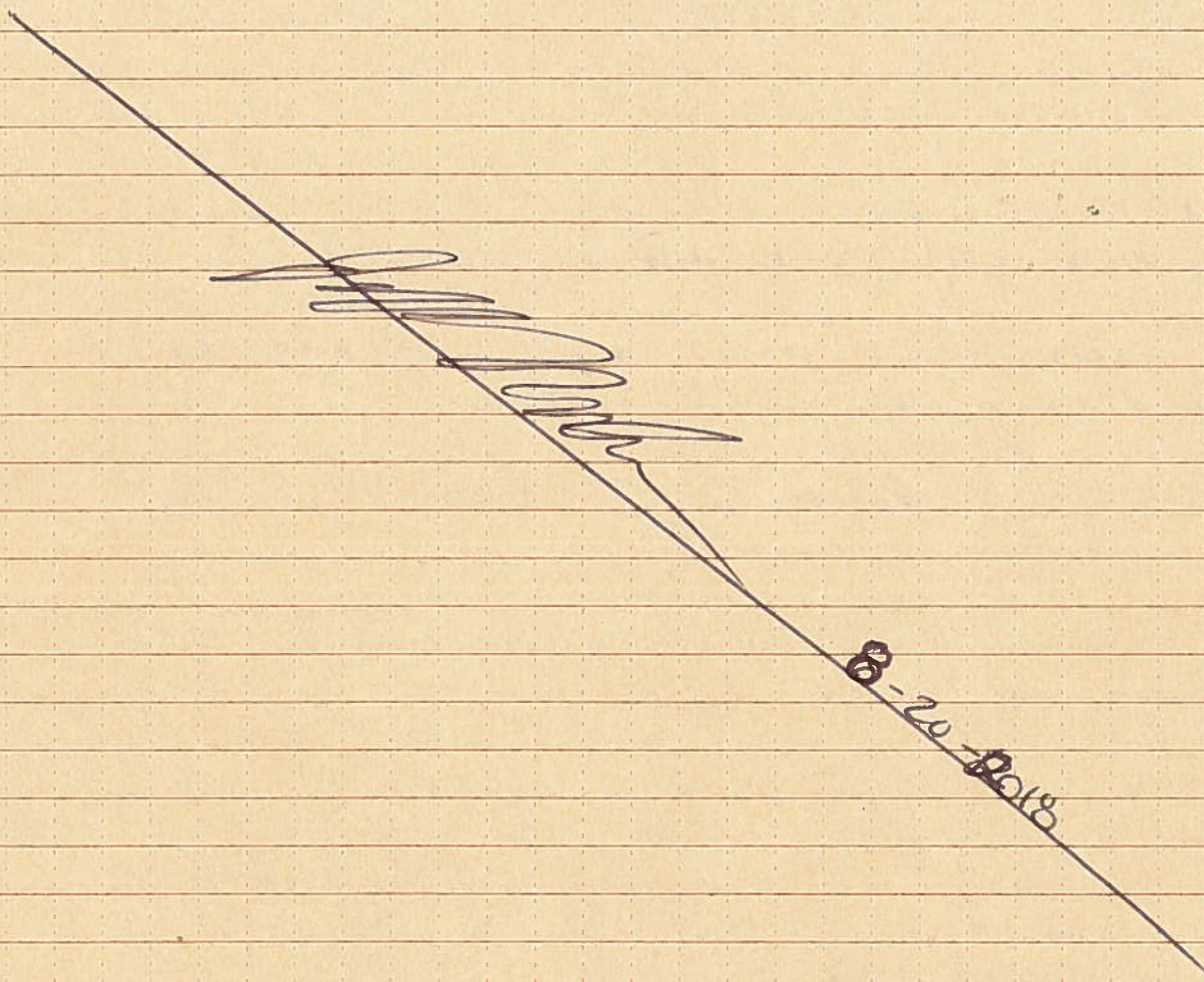
Josie 2 - 2	0.2 g
Josie 3 - 45	2.1 g
Paul 4 - 19	0.9 g
Jeff 3 - 11	0.3 g

Pine cone dissection
(cont)

Cone	Seeds	Weight (g)
Lis 1	4	0.15g
Anders 4	4	0.15g
Lis 2	17	0.4g
Paul 5	13	0.3g
Josie 4	29	1.8
Anders 5	27	0.5

Sample average seed mass = 0.5g
Would need 6-10 cones to collect target mass

Decision to start at SAD3 on Tuesday morning.



August 20, 2018

pg 3

August 21, 2018

Page 1
unhealthy
for sens prov
5

Weather 70°F Hazy Smokey AQ 12
0713 - Daily Tailgate at NorthPort boat launch park

AECOM: J. Walker, P. Hamidi, L. Howard, J. Smith,
A. Utter, S. Holmes, M. Stegner

Jacobs: Eli Traudie

Ramboll: Lis Nelis

EPA : Mark Stifelman

ERM : Wade Brunham

Teck : Cristy Kessel

Lodestone Whitney Fraser

CCT

M. Stegner Safety Briefing

Discussed fit for duty

If not well can sit in vehicle

Smoky conditions may cause issues

Use Buddy system, Biological Hazards

Snakes, Ticks - do tick checks,

Snake & haps 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 Sheeps Creek road has been
contained and DNR is monitoring but not
actively fighting fire. DNR OK with our activities
in SA's off lot

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 AECOM will

wear masks. > 300 stop work

in between use judgement. Do negative
pressure test.

Stay hydrated

Plan for today: SA03 by racetrack

Wide

Hazel, check, service by

Then to SAO 2 (potentially)
Lis - Pine cones test yesterday
0.5 g seeds / cone

Page 2

min 30 cones target 6 cones / sample

0727 - Organize supplies for the day

0747 - Depart Northport Boat launch park for SAO3

0754 - Arrive SAO3

0805 - Lis Give briefing on hazelnut collection

Do float test, collect ~~in husk~~ ^{in husk} husk will be peeled off

3-12 nuts per sample target is 6 nuts

Will collect 3 Hazelnut samples this SA

1 rose hip spotted by mark, flagged

Sample IDs should be "LA" 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.

~~Will~~ 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

Cheat sheet consulted, target #124 min 32g target 62g
serviceberry dried will be flagged then
determine quantity

0826 - Float test on first nut, it floats, inside is
desiccated, no nut meat inside.

2nd nut floats, has nut meat

0830 - Calibrate scale 93054 using 5g wt

- test nut 0.4g

^{OAS} ~~Based on test & float~~ 4 more nuts tested
7-21-18 ~~1~~ 1 sinks.

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 0.65g

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

→ FSP SOP 4 Hazelnut section pg 13 skipping step 2, 4, & 5. Will pick all hazelnuts on the bush, will not do float test will remove outer hairy husk but not shells

Agreed with by EPA & Lode stone

0847 - Collect 1st hazelnut sample SA03-AU01-P01 20 nuts

0850 - Collect Soil sample SA03-AU01-S01

0855 - Discuss splits and replicates Further guidance will be provided to laboratory to crack all nuts. Include all acceptable nut meats (not severely degraded or desiccated) no signs of insect damage

Back to discussion of splits and replicates If at least 20 nuts per tree, will do

^{JMS 8-21-18} split & divide min 10 per replicate

0904 - Discussion of Rose Hips. Whitney noted large patch of rose hips ~ 20 ft outside SA03. Will note where rose hips found, may have to return and/or determine later where to collect & whether to collect outside SA03

0908 - proceed to next hazelnut tree

0910 - begin collecting next set of hazelnut sample collect 10, ~ 16-17 left ^{JMS 8-21-18} on tree, collect 12 each for sample & replicate

0918 - SA03-AU02-P01 collected by Anders & Paul 20 nuts

0927 - SA03-AU03-P01 collected by Anders & Paul 20-nuts hazelnut

0929 significant # small & green nuts/husks hazelnut

0932 → SA03-AU02-S01 Soil replicate by SH, MS

^{JMS 8-21-18} 0932 - SA03-AU03-S01 soil replicate by SH, MS

0941 - Depart for next hazelnut location

0944 - Arrive next hazelnut location, begin collecting next sample

0959 - SA03-AU04-P01 ^{JMS 8-21-18} Replicate Split sample 57 nuts in sample hazelnut

1001 - SA03-AU04-S01 Split sample 2 jars collected by SH & MS

1010 - Decon equipment MS & AU

1020 - Begin sampling First chokecherry. Will pick all fruit and determine if enough for split

01025 - Calibrate 100g scale 6 with 50g ^{MS 8-21-18} wt ~ 100g berries weigh 78g
710F Weather now more sunny & clear, still hazy AS 59
1028 - Calibrate 500g scale 9 w/ 1-50g, 2-20g, 1-10g wts

1032 - SA03-AU05-P01 ~ 177g Chokecherry

1038 - SA03-AU05-S01 Collected by SH & MS
Cherries bright red

1047 - Start collecting next choke cherry these fruit much darker color than previous sample, dark purple color, almost black some desiccated fruit on tree

1055 SA03-AU06-P01 collected by LH, MS, LN, PH
188 g Chokecherry

1100 SA03-AU06-S01 Collected by SH, MS

1105 - Picked 2 rose hips from bush in same area as previous choke cherry location
Rose hips min 4.2g, wt was 1.55g

1109 - Return to vehicles for mid-day break

1200 - Gather to continue sampling
1 more choke cherry to collect. 1 pine then discuss Rose hip

1209 - Begin collecting 3rd chokecherry sample by PH, LH, MS, AU, SH

1212 SA03-AU07-P01 86g Chokecherry

1215 SA03-AU07-S01 Soil sample collected by SH, MS

1218 Additional recon to look for serviceberry some bushes, ~~may~~ ^{MS 8-21-18} may be inside SA03 consulting maps and measuring to see if in SA, will pick in area to potentially get sample, check wts and determine course after

1228 begin pickin berries
AU, LH, LN, CK, PH, MS, Mark S, WF, SH

1233 SA03-AU08-P01 17g possible split sample
1238 SA03-AU08-S01 Collected by MS, SH

1247 proceed to pine cone location MS + SH
recon equipment
Discuss collecting, don't get decomposed
get some closed

1250 Start looking for cones

1259 SA03-AU09-P01 PH, LH, Mark S, Page 5
 1302 SA03-AU09-S01 MS, SH cones
 1306 Depart site go back to Vehicles Collected
 PH Sweep for any flags left
 1318 Depart for SA02

Arrive SA02 Weather 81°F Sunny with smoky skies AQI 68

1334 Arrive SA02
 1340 Gather + discuss plan Go to far side of site for chokecherry, serviceberry check for pines on the way back.

1351 Arrive 1st sampling area begin recon for serviceberry + chokecherry + hazelnut
 Found some Hazelnut & Try for ~~more~~ more hazelnut samples First location 31305 SA02 ~ North.

Begin collecting 1st hazelnut sample

SA03-^{MS}821-18

1407 SA02-AU01-P01 SH, MS, AU 26 nuts ^{Hazelnut}

1410 SA02-AU01-S01 SH + MS

1415 proceed to next potential tree ^{MS 821-18}

1420 SA02-AU02-P01 AU, SH, LH, MS ^{33 27 nuts}

1423 SA02-AU02-S01 MS + SH hazelnut 31 nuts

1430 Depart for next hazelnut sample

1433 Begin collecting 3rd hazelnut sample ^{Hazelnut}

1436 SA02-AU03-P01 PH, LH, MS, SH, AU 21 nuts

1440 SA02-AU03-S01 MS, SH
 Recon towels SH

1448 depart for 1st pine cone sample

1455 Recon 1st pine cone sample location

* From Dave ENOS is on Mitchell Road + have real time air monitoring on site particulate 2.5 calculated AQI

1500 SA02-AU04-P01 ponderosa pine cones ^{15 cones} MS, WF, PH

1510 SA02-AU05-P01 ponderosa pine cones ^{11 cones} replicate sample

1508 SA02-AU04-S01 MS + SH

1509 SA02-AU05-S01 MS + SH replicate sample

1518 proceed to next pond. pine cone location

- 1520 Scout trees in next area not promising [page 6]
- 1525 Move to scout different ~~are~~ location ^{at 8:18} Tree
- 1533 Begin collecting cones this area
- 1534 [SA02-AU06-P01] LH, LN, PH 10 pond. ^{one} cones
- 1536 [SA02-AU06-S01] SH, MS, AU Decon travels
- 1545 Depart sampling area for vehicles
- 1548 Load vehicles
- Note: Wade B.ERM left at 11:30 returned 1515
- 1553 Depart SA02 ^{group}
- 1659 Arrive Weatherman Warehouse in Kettle falls. Unload samples and restock supplies for tomorrow. (Anders, Josie, Linda, Stu)
- 1706 Paul H, Jeff, Michelle arrive warehouse
- 1733 Josie checked Field Collection Sample forms against Field Log. Also check labels on samples against Field Collection Forms
Michelle S.S will take Field Sampling forms and scan and save to AECOM Network
- 1747 Debrief for the day
- 1752 Depart Warehouse EOD

8-21-18

[Handwritten signature]

8-22-18

Weather 55°F Smoky sky no clouds

0700 AQI 111 Worse to the North so here ^{may be worse}
0708 Safety Meeting - Tailgate ^{Northport}

Lis Jeff Northport Boat Launch Park
Paul Stu Mark
Wade Josie Anders
Whitney Linda Michelle
Cristy Ellie

SA01 to get cones chorecherry serviceberry, rose
Then to SA04 or SA06
SA06 rose hips (poison ivy there)
SA04 if time

Safety - Driving is biggest risk, keep lights on
Dust smoke (decreased visibility)

Cristy - Dave Enos monitoring dust
SO₂ readings are not necessarily accurate
for smoke, ^{on 8/22/18} local air quality ^{AS 8-22-18}
maintained by clean air quality agencies ^{more accurate}

0719 ^{on 8/22/18} Jeff Linda & Michelle depart Park to
plu lunches. Stu & Anders depart park
to plu 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

0741 Depart Northport Boat Launch park for

^{on 8-22-18} SA01
0759 Arrive SA01 Paul & Jeff scout 1st

Sampling area

0808 Proceed to 1st chokecherry location

0812 Calibrate 10g scale w 5g wt 93054
begin collecting 1st chokecherry sample

0815 Calibrate 100g scale w 50g wt #6
Calibrate 500g scale w 50+2x20+10g wts #93049

0818 SA01-AU01-OP01 AU, LH, MS [chokecherry] 6.5g

0822 SA01-AU01-S01 SH, MS

0838 Jeff, Whitney, Mark return from recon
proceed to next chokecherry location

0841 Arrive 2nd chokecherry location Page 2

Will attempt replicate at this location

0844 Begin collecting 2nd chokecherry sample

0851 SA01-AU02-P01 SH, MS, LH, LN³⁵ Chokecherry 82g

0858 SA01-AU03-P01 SH, MS, LN³⁵ Chokecherry P112g

0903 SA01-AU02-S01 MS, SH } Replicate sample

0907 SA01-AU03-S01 MS, SH }

0900 Whitney and Wade depart site to visit

~~MS 8-21-18~~ ~~the~~ diddman's eddy bar

0913 Depart for next location ~~ponderosa pine~~ for chokecherry. Jeff and Paul & Mark leave to scout sarvisberry location. Begin collecting next chokecherry sample. ^{MS 8-22-18}

0923 SA01-AU04-P01 AU, SH, LH, LN Chokecherry 79g

0927 SA01-AU04-S01 SH, MS

0931 Depart for next location sarvisberry

0933 Arrive sarvisberry location

0938 Begin collecting sarvisberry

0941 SA01-AU05-P01 Sarvisberry AU, MS, SH, LH, LN, MS 8.9g

0950 SA01-AU05-S01 MS, SH

photo 354

0956 Weather 66°F Sunny smoke, no clouds AOT 113

0958 Depart for next sarvisberry location

1001 Arrive 2nd sarvisberry location begin picking next sample. SH & MS decon towels

1006 SA01-AU06-P01 Sarvisberry LH, PH, AU 10g

photo ID 355

1015 SA01-AU06-S01 MS, SH photo 356

1017 Whitney & Wade return to group

1025 Begin sampling at SA01-AU07

1030 SA01-AU07-P01 Sarvisberry LH, PH, AU 6.2g

photo 357

Skeletal remains noted in vicinity of this location probably ~~SA 8-22-18~~

1038 [SA01-AU07-SA1] MS, SH photo 358 Page 3

1048 Depart for next

Sampling location sarvisberry ~~MS 8-22-18~~

1044 Cristy & Wade depart for Boat launch park

1048 RIGPS has location right on the border of SA01 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 berries not abundant on one so may not be enough for sample.

1050 Begin sampling sarvisberry for this current location

1053 [SA01-AU08-PO1] [sarvisberry] PH, SH, LH, AU [7.5g]
photo 359

1059 [SA01-AU08-SA1] MS, SH photo 360
~~MS + SH~~ ~~date~~ MS 8-22-18

1105 Depart to collect next sarvisberry sample

1107 Arrive next sarvisberry location.

Begin sampling next sarvisberry bush

1113 [SA01-AU09-PO1] [sarvisberry] AU, LH [6.0g]
photo 361

1123 [SA01-AU09-SA1] MS, SH photo 362

1125 Cristy returned, she left Wade at his vehicle. He will text him when we move to next SA but ~~we~~ ~~8-22-18~~ and he may rejoin group later.

1130 Return to vehicles, break for lunch

Note: ~~only~~ ~~3~~ ~~observed~~ total of 3 rose hips on total of SA01, so inadequate amount 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 Page 4
for insects/nests or loose branches
Weather Sunny smoky skies no clouds

AQI 121 coldville

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
on the ground

1230 [SAQ1-AU1Q-PQ1] ponderosa pine cone LH, SH, JW
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 WQI 172 will don masks

Jeff leave to get masks

1240 [SAQ1-AU1Q-PQ1] SH, MS [SAQ1-AU1Q-SQ1]
ONS 8-22-18 Photo 365

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
SAQ1. Jeff + Michelle ^{10:55-11:00} and 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-AU11-PQ1] 11 cones seeds observed in cones
ponderosa pine cone PH, LH, LN

1325 [SAQ1-AU11-SQ1] MS, SH Photo 368

Photo 369

1328 Proceed to last ponderosa pine cone sampling
location. Begin sampling cones with lopper on

majority long pole Anders + Paul + Stu
9:56-10:15 cones cut directly from tree, 12 cones
found on the ground under tree

1345 [SAQ1-AU12-PQ1] AU, LH, PH, Jeff W [10 cones]
ponderosa pine cones [photo 370]

- 1355 SAQI - A412 - 501 MS, SH photo 371 Page 5
Weather 85°F mostly sunny smoke no clouds
AQI 121 Colville Northport 153
- 1405 Depart site for vehicles
- 1410 Mark and Ellie, Cristy & his
Depart site
- 1415 Depart Site, Josie Anders, Stu to Kettle Falls
Weatherman warehouse to drop off
Samples at WJAS 8-22-18, Paul, Michelle, Linda
Jeff to Colville
- 1521 Arrive Weatherman Warehouse Kettle Falls
Check samples in JAS + SH
Restock supplies decon towels + clippers
(AU + SH)
- 1552 Depart Weatherman's for Colville, Josie + Stu
Check Data Forms for today against field log
- 1605 Stop at Safeway for Gas
- 1615 Arrive Comfort INN EOD

8-22-18

8-23-2018

Weather 51°F Partly Cloudy AQI 112-121

Arcadis Air Mon Station 175

0715 Safety Tailgate meeting

Whitney Linda Stu Ellie

Mark Paul Josie

Jeff Michelle Anders

Northport Boat Launch Park
Start Lower Lead areas today

Do not have to wear hard hat & safety glasses unless using looper but stay well away from work area. Safety glasses & hardhat could contribute to tripping.

Do we have discretion on when to use masks. If over heated 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 due to additional sweating as masks are hot. Will take group breaks if have to wear masks for all the time.

Air Quality - ~~HA~~ ^{QAS} 8-23-18 Not in mask territory right now.

SADY Jared First today for pine cones hazelnut, sarvisberry, rose hips.

Jeff + Paul will start recon for everything

^{QAS} 8-23-18 ~~Next w~~ but pine cones

SADle. Maybe Rosehips hazelnuts, sarvisberry there.

Progress Report three more sites to visit then

visit insufficient volume sites. Will

consider ^{QAS} 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. Page 2

1743 Stu, Josie, Anders, Linda & Michelle return to Northport Boat Launch Park

1749 Depart Northport Boat Launch Park for SA04.

0807 Arrive SA04

0824 Mobilize to 1st hazelnut bush
Begin collecting nuts

0835 SA04-AU01-P01 hazelnut AU, LH, 22 nuts Photo 372 + 373 ans 8-22-18 photo 372

0839 SA04-AU02-P01 hazelnut AU, LH, Replicate 22 nuts photo 373
Calibrate 10g scale 93054 w/ 5g wt (OK)
Calibrate 100g scale 6 w/ 50g wt (OK)
calibrate 500g scale 930490 w/ 50 + 2x20 + 10g wts (OK)

0845 SA04-AU01-S01 SH, MS photo 374

0846 SA04-AU02-S01 SH, MS replicate photo 375

~~SA04-AU02-S01~~ ans 8-22-18

0850 Walk to next hazelnut bush

0853 Begin collecting next hazelnut sample

0856 SA04-AU03-P01 hazelnut photo 376 AU, LH, MS 24 nuts

0901 SA04-AU03-S01 MS, SH photo 377

0908 Proceed to first pine cone location this SA
Begin collecting cones from ground

0913 SA04-AU04-P01 ponderosa pine photo 378 LH, PH, AU
All cones collected from ground 17 cones

0914 SA04-AU04-S01 MS, SH photo 379 Cones ans 8-22-18

0920 Proceed to next pine cone 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 SA04-AU05-P01 ponderosa pine photo 380 PH, LH, JW 26
collected from ground 20 collected from tree potential split cones ans 8-22-18

~~0930~~ SA04-AU05-S01 MS, SH photo ans 8-22-18 potential split photo 389

0941 2 jars collected

0953 Depart for next ponderosa pine location

0955 Begin collecting cones - all cones collected from ground this location

0959 SA04-AU06-P01 ponderosa pine photo 390 LH, AU, WF, MS

cont 16 cones collected

1005 [SA04-AU06-S01] MS, SH [Photo 391]

MS, SH

1007 Weather 63°F Partly Cloudy
AQI 121 pm 2.5

1014 Depart for Vehicles

1020 Arrive Vehicles Load up sampling Supplies

1028 Depart SA04 proceed to SA06

1032 Arrive SA06

1035 Proceed to first sampling location. Stop to show poison ivy so plant can be recognized by those not familiar with it.

1040 Begin collecting hazelnuts at first location
Poison ivy observed here

1043 [SA06-AU01-P01] hazelnut MS, LH, SH, marks [62 nuts]

potential split sample [Photo 392]

MS-823-18

Discuss Poison Ivy mitigation, have wipes for if exposed

1050 [SA06-AU01-S01] MS, SH [Photo 393]

potential split sample

1102 Begin collecting hazelnuts at next location

1105 [SA06-AU02-P01] hazelnut [photo 394] Mark S, LH, SH, MS [27 nuts]

1110 [SA06-AU02-S01] MS, SH [Photo 395]

Michelle on

1115 Break for lunch

1145 ReGroup + discuss additional sampling at SA06, 3rd hazelnut then collect rose hips.

1150 Arrive 2nd hazelnut location SA06, begin collecting nuts. Michelle decontaminate + clippers

1153 [SA06-AU03-P01] hazelnut [photo 396] AU, PH, LH, MS, marks [20 nuts]

1200 [SA06-AU03-S01] MS, SH [Photo 397]

1204 Collect rose hips adjacent to 3rd hazelnut site

1210 [SA06-AU04-P01] rose hips [photo 398] JW, composite sample

MS-823-18

1st planta 3.3g

MS-823-18

2nd planta 2.1g Total 9 hips

1215 [SA06-AU04-S01] MS, SH [Photo 399] [Photo 400] [Photo 400] (same photo)

MS-823-18

Photo for b plant in composite [399]

1224 Move to next Rose location

1225 [SA06-AU05-P01] rose hip JW [7g] Page 4
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], [15g], 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
9.5g 11 hips

1311 [SA06-AU07-S01] MS, SH [Photo 407]

1317 Return to vehicles, Load Equipment
Two locals ? + Perry approached.

Jeff and Mark spoke with them they
passed through sampling area on ATVs
Mark briefed them on ~~ms~~ activities +


They were interested but ~~not~~ ^{not} and friendly
Jeff brief Mark + Ellie on tomorrow's
plan, will meet in North port at 8:00am
at boat launch park.

Everyone returning

1329 All Depart site for Kettle Falls

Weather 78°C Partly Cloudy

1434 Arrive Weatherman's ward house Kettle Falls
Unload samples, re stock supplies QC
samples ~~ag~~ ^{ag} j#8-23-18 labels against Field
Forms and Field log book. Decon
trowels and clippers


8-23-18

August 24, 2018

Weather 56°C Partly Cloudy AQI 174 (Colville)

0817 Tail Gate Safety Meeting

Northport Boat Launch part

Jeff Walker	Stu Holmes	Ellie Traudl
Linda Howard	Anders Utter	Marc Stifelman
Michelle Stegner	Josie Smith	
Paul Hamidi	Anna Iverson	

Safety briefing by Michelle

Watch for branches swinging back as group is passing. Make sure of footing as there is loose debris underneath. Review General safety issues for Anna Iverson.

Air Quality → AQI is above 150 so will be wearing masks. Will visit SA07 first today sarvis berry and chokecherry and ponderosa pine at this site. Take more frequent breaks while wearing masks.

0834 Depart Northport Boat launch park for SA07

0852 Arrive SA07

0857 Jeff + Paul depart to recon potential sampling locations

0901 Rest of crew departs vehicles to sampling locations

0915 Stu calibrated scale #9054 with 5g weight (10g scale)
scale 6 with 50g weight (100g scale)
scale 93049 with 50g + 2x 20g weight 500g scale

0922 Begin sampling SA07-AU01-P01: chokecherry [LH, JS, MS] Photo # 408

0932 Begin sampling SA07-AU02-P01: chokecherry [Samplers] Photo # 409

Sample will be replicate

SA07-AU01-P01 ⁹⁰⁵⁴ weight sample mass: 105g
SA07-AU02-P01 sample mass: 105g

Replicate Sample

0935 Begin sampling SA07-AU01-S01: chokecherry soil sample Photo # 410

0936 Begin sampling SA07-AU02-S01: chokecherry soil sample Photo # 411
MS + SU soil samplers replicate

0946 Begin sampling SA07-AU03-P01: chokecherry Photo # 412
samplers - LH, JS, PH sample mass: 98g

0952 Begin sampling SA07-AU03-S01: chokecherry soil sample Photo # 413
SM + MS - samplers

10:04 Begin sampling SA07-AU04-P01: Sarvisberry Photo# ~~414~~ (AU) 415
samplers - LM, JS, PH Sample mass: 21.5g
Split

10:12 Begin sampling SA07-AU04-S01: sarvisberry soil sample Photo# 416
samplers - SM, 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 1 hour when website updates to evaluate.

10:20 Begin sampling SA07-AU05-P01: Sarvisberry Photo# ~~417~~ (AU) 418
samplers - LM, PH, Sample mass: 22g

10:32 Begin sampling SA07-AU05-S01: sarvisberry soil sample Photo# 420
samplers - SM, MS

1035 Meeting to discuss air quality. Colville improved to 111. Arcadis AQI next to excavation site reads above 200. Decision for masks is up to each members discretion now.

1038 Soil sampling equip. decon by SM, MS Photo# 421

1040 Begin sampling SA07-AU06-P01: Sarvisberry Photo# 421
samplers - LM, PH, JS Sample mass: 17g
Replicate

1100 Begin sampling SA07-AU06-S01: sarvisberry soil sample Photo# 424
samplers - SM, MS

10:50 Begin sampling SA07-AU07-P01: sarvisberry Photo# 423
samplers - LM, PH, JS Sample mass: 17g
Replicate

1104 Begin sampling SA07-AU07-S01: sarvisberry soil sample Photo# 425
samplers - SM, MS replicate

1110 Begin sampling SA07-AU08-P01: chokecherry Photo# 426
samplers - LM JS PH sample mass: 85g repli

1115 Begin sampling SA07-AU08-S01: chokecherry soil sample Photo# 427
samplers - SM, MS replicate

1120 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 SAØ7-AUØ9-PØ1: Ponderosa Pine Photo # 428
 Samplers - PH JW Sample # 13 cones
 * All cones collected using lopper
- 1237 Begin Sampling SAØ7-AUØ9-SØ1: Ponderosa Pine Soil Sample Photo # 429
 Samplers - SH JW
- 1249 Begin sampling SAØ7-AU1Ø-PØ1: Chokecherry Photo # 430
 Samplers - PH LH MS Sample mass: 100 g
- 1257 Begin sampling SAØ7-AU1Ø-SØ1: Chokecherry soil sample Photo # 431
 samplers - SH MS
- 1306 Begin sampling SAØ7-AU11-PØ1: chokecherry Photo # 433
 Split Sample mass: 212 g
 Samplers - LH MS PH JW
- 1315 Begin sampling SAØ7-AU11-SØ1: chokecherry soil sample Photo # 434
 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 SAØ7-AU12-PØ1: Ponderosa Pine Photo # 435
 Samplers - JW PH Sample # 14 cones
 * all collected by lopper
- 1335 Begin Sampling SAØ7-AU12-SØ1: Ponderosa Pine Soil sample Photo # 436
 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. decan by MS, AU, LH
 +
 Pine pruners

1342 Begin sampling SA 07-A113-P01; Ponderosa pine Photo # 437
Samplers - PH, JW Sample # 12 cones

1345 Begin sampling SA 07-A113-S01; Ponderosa pine Soil sample Photo # 438
Samplers - SM, MS

1400 Depart SA 07

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 AQI 174
Arcadis 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 Stegner Paul Hamidi

0850 Arrived at SA09, mobilized to sampling area to collect samples

0859 Begin sampling SA09-AU01-P01: Hazelnut Photo# 439
Samplers-LM JS MS Sample# 28 nuts

0905 Begin sampling SA09-AU01-S01: Hazelnut soil sample Photo# 440
Samplers-SM MS

0900 Calibrated scale 93054 using 5g weight (10g scale)

0901 Calibrated scale 6 using 5g weight (100g scale)

0910 Begin sampling SA09-AU02-P01: Rose hips Photo# 441
Sampler-LM Sample mass: 17g

Replicate

0921 Begin sampling SA09-AU02-S01: Rose hips soil sample Photo# 443
Samplers-SM MS

0916 Begin sampling SA09-AU03-P01: Rose hips Photo# 442
Samplers-LM Sample mass: 16g

Replicate

0922 Begin sampling SA09-AU03-S01: Rose hips soil sample Photo# 444
Samplers-SM MS

0930 Soil sampling equip. decan by AU

0932 Begin sampling SA07-A04-P01: chokecherry Photo # 445
Samplers - LMJS Sample mass: 89g

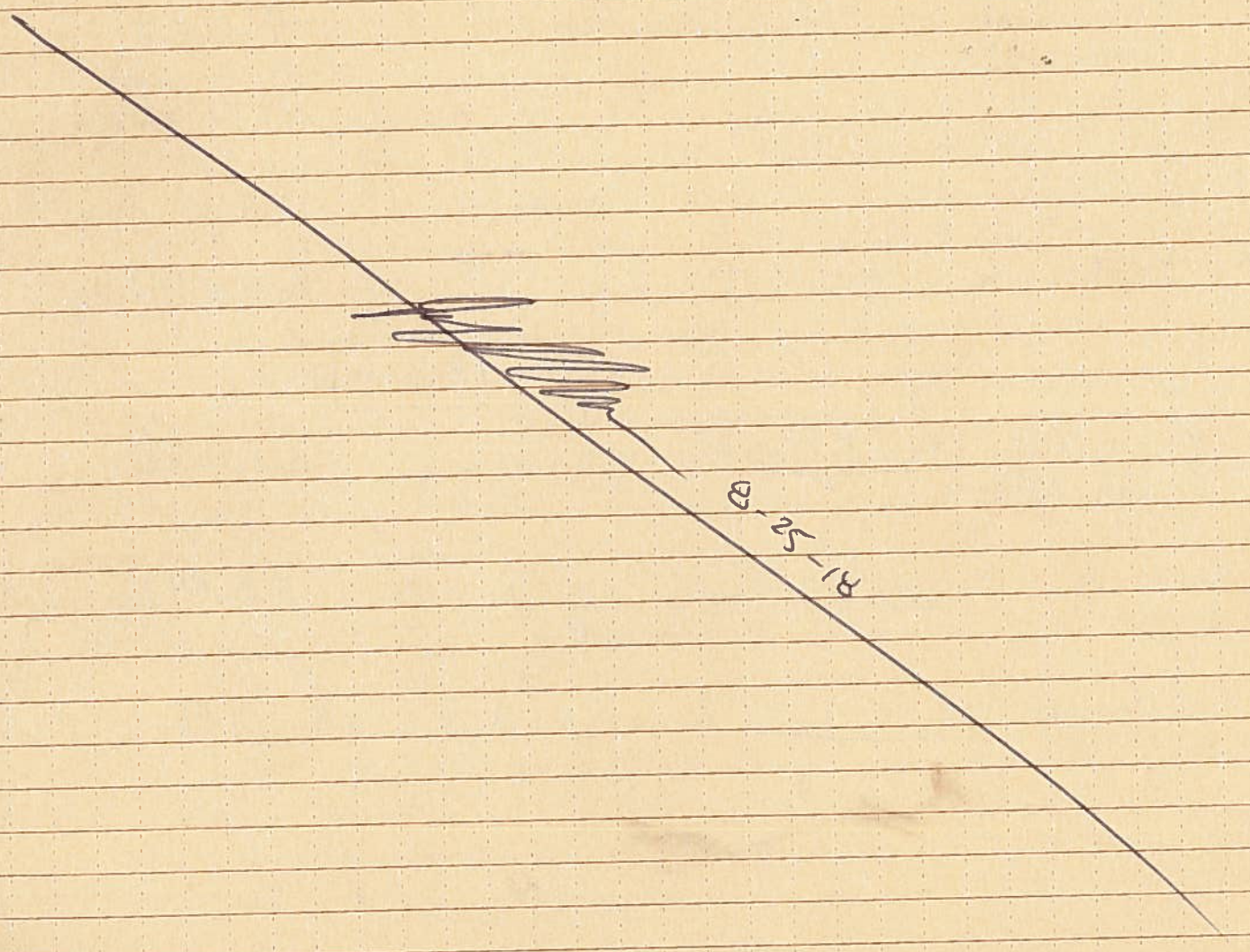
0937 Begin sampling SA07-A04-S01: chokecherry soil sample Photo # 446
Samplers - SM MS

0953 Back at vehicles; shutting down sampling for day due to poor air quality; Aradis team already shut down as their AQ station was reading 7400

1005 Depart site Stu, Linda, Jeff + vehicle for recon Josie, Anders ~~Paul~~, Michelle to warehouse

1053 Arrive Weatherman's warehouse. Decontaminate ALL QC sample labels, Field Forms and Field log. Restock sampling supplies

1120 Stu, Jeff, Linda arrive warehouse



August 27 2018

Weather 53°F Rain

0715 Safety Tailgate Meeting

Paul Hamidi	Linda Howard
Jeff Walker	Osie Smith
Michelle Stegner	Stu Holmes
Anders Utter	Anna Iverson

Hazards

Footing & roads slippery, watch footing

Rattlesnakes - make noise, loose cows

SA14 for Tule mint, possibly
Sarcisberry & rose if present

0730 Depart for Northport

0837 Arrive SA14

0853 Begin collecting mint

calibrate 10g scale 93054 w 5g wt

calibrate 100g scale 6 w 50g wt

^{JAS 8-27-18}
0903 ~~SA14~~ SA14-AU01-P01 photo 447 mint
AU, SH, LH, MS 11g

^{JAS 8-27-18}
0909 ~~SA14-AU01~~ SA14-AU01-S01 photo 448
SH, MS

0915 SA14-AU02-P01 photo 449 mint
SH, LH, MS, AU 10.5g

0923 SA14-AU02-S01 photo 450
SH, MS

0932 SA14-AU03-P01 photo 451 mint split
LH, AU, PH, MS, SH 22g

0940 SA14-AU03-S01 photo 452 split
SH, MS

^{JAS 8-27-18}
0947 SA14-AU04-P01 photo ~~453~~ 455 mint
PH, LH, MS 12g

0953 SA14-AU04-SOI photo 454 456
SH, MS

0955 Au Decon travels 095 8-27-18

1008 SA14-AU05-POL photo 453 457 mint 11g
1010 SA14-AU06-POL mint replicate photo 458 11g
LH, PH, AU, MS (both samples)

1020 SA14-AU05-SOI photo 459

1022 SA14-AU06-SOI photo 460 replicate
SH + MS (both samples)

1027 SA14-AU07-POL photo 461 mint 12g
095 8-27-18 LH, PH, SH, AU

1035 SA14-AU07-SOI photo 462
SH, MS

1040 MS, Au Decon travels + pruners

1050 SA14-AU08-POL photo 463 tule 115 + 154 cm
269 cm total
LH, AU

1055 SA14-AU08-SOI photo 464
SH, MS

1100 SA14-AU09-POL photo 465 Tule LH + AU (both samples)
150 + 140 cm 290 cm total

1105 SA14-AU10-POL photo 466 replicate 140 + 160 cm 200 cm total

1110 SA14-AU09-SOI photo 467

1115 SA14-AU10-SOI photo 468 replicate

1118 SA14-AU11-POL photo 469 Tule 135 + 98 cm 233 cm total
LH, AU

1120 SA14-AU11-SOI photo 470 Tule
095 8-27-18
SH, MS

1125 Au Decon travels + pruners

1130 Break for lunch

1200 SA14-AU12-POL Tule photo 471
PH 137 + 137 + 138 cm 275 cm 412 cm Total

1205 SA14-AU12-SOI photo 472 Split 2 jars
095 8-27-18
SH, MS

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

1227 SA14-AU14-SQ1 photo 476
SH, MS

AU + LH decon trowels and pruners

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 sarvisberry
PH, SH, AU, LH

1255 SA14-AU16-SQ1 photo 480
SH, 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

GPS 8-27-18

~~1350~~ SA08-AU01-PQ1 photo 481 sarvisberry 25 g
1355 SH, PH, AU, JW

snake observed nearby
1358 SA08-AU01-SQ1 photo 482
SH, MS

1410 SA08-AU02-PQ1 photo 483 sarvisberry 13 g
PH, SH, MS

1419 SA08-AU02-SQ1 photo 484
SH, MS

1425 Depart for vehicles

1455 Depart Northport

August 28, 2018

Tailgate Safety Meeting

Jeff Walker Paul Hamidi Josie Smith
Linda Holmes Anders Uter Anna Iverson
8-28-18 Linda Howard Michelle Stegner (Jacobs)
Stu Holmes

Meet weathermen at Northport Boat Launch
Collect Willows @ Deadmans Eddy
transport via weatherman's boat
Will collect enough length for mercury
analysis, may have to composite
Start demobe

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, Man overboard
discussion, Watch footing on dock, PFDs
worn on dock, Hand of gear over to someone
on boat, 2 hands free I keep 3 pts of
contact before boarding + unboarding
boat launch is rendezvous point for
Emergency services.

0900 Board vessel, discuss fire-runout onto
shore & disembark right away. Don't lift motor
deck covers. Disembark through windshield port or
starboard. Fire extinguishers in overhead compartments
Stay seated until boat is stable.

0912 Depart boat launch

0927 Arrive deadmans 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-AU01-P01 photo 485 Willow Split
PH, LH, SH 75+75+68+66+57+70 = 411 cm total

0950 SA15-AU01-S01 photo 486
SH, MS

- 0955 SA15-AU02-P01 photo 487 willow
PH, LH, SH $57+75+58 = 190$ 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 489 willow replicate
PH, LH, SH $117+85 = 202$ ^{MS 8-28-18} 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 } 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~~495~~ willow
PH, SH, MS $79+68+56 = 203$ ^{MS 8-28-18} cm total
- 1059 ~~SA15-AU06-S01~~ ^{MS 8-28-18} AU0 SA15-AU06-S01 photo 496
~~SA15-AU06~~ ^{MS 8-28-18} MS, SH
- 1105 SA15-AU07-P01 photo 497 willow
PH, SH, MS $79+62+67 = 208$ 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, Demobilize