

2018

Mitigation Monitoring Annual Report Template

1. Mitigation Monitoring Report Cover Sheet

1: Project Name Identifiers: Long Tom Mitigation Bank

DSL Permit # <u>41168-RF</u>	Corps Permit # <u>NWP-2007-719</u>	Permittee: <u>EcoBank LLC</u>
County <u>Lane</u>	Report Date <u>14DEC15</u>	Monitoring Year <u>1 2 3 4 5 6</u> <u>7 8 9 10</u>
Date Removal-Fill Activity Completed <u>31MAY11</u>		
Date mitigation was completed: Grading <u>31MAY11</u>		Planting <u>ongoing</u>
Date(s) of data collection: <u>20-10JUN18</u>		
Report prepared by: <u>Timothy A. Acker</u>		

2: Monitoring Report Purpose:

This monitoring report is for a project that includes: (check all that apply):

- Compensatory **freshwater, non-tidal** wetland mitigation for permanent wetland impacts.
- Compensatory **estuarine** wetland mitigation for permanent wetland impacts.
- Only non-wetland** compensatory mitigation.
- Only** mitigation for **temporary** impacts that had a monitoring requirement.
- Voluntary** wetland enhancement, creation or restoration (General authorization or individual permit) not funded with money from DSL's wetland mitigation fund.
- Voluntary wetland enhancement, creation or restoration (General authorization or individual permit) funded with money from DSL's **wetland mitigation fund**.
- Mitigation Bank Report**
- Other _____

3: Results: (add more rows if needed)

	Performance standards (verbatim from permit)	Fully Met? (Y/N)	Comments/Reason for shortfall (mark NA if doesn't apply this year)
1.	The PEM areas shall be wetland as determined using the <u>'87 Manual</u> and applicable guidance and supplements as of 31DEC07.	Y	See post-construction delineation report
2.	A minimum of 55% of the mean relative plant cover for the PEM habitat type as a whole (including substrate) is comprised of native species.	Y	76% ($CI_{80\%} = 71-81\%$)
3.	No more than 15% mean relative percent cover for the PEM habitat type as a whole is comprised of non-native invasive species as set forth in Exhibit C1 of the Mitigation Plan.	Y	0% ($CI_{80\%} = 0-0\%$)
4.	The moisture index for the PEM habitat type as calculated in <u>Marshall</u> , appendix VII, is equal to or less than 3.0	Y	2.08

5.	For FACW-dominated PEM communities, a minimum of 10 wet prairie cohort species a set forth in the Mitigation Plan Exhibit C2 shall be present in the pertinent sample plots by year 5.	Y	12 wet prairie species present in plots; 20 known to occur.
6.	The PFO areas shall be wetland as determined using the <u>'87 Manual</u> and applicable guidance and supplements as of 31DEC07.	Y	See post-construction delineation report
7.	A minimum of 55% of the mean relative plant cover for the PFO habitat type as a whole (including substrate) is comprised of native species.	Y	74% ($CI_{80\%} = 60-86\%$)
8.	No more than 15% mean relative percent cover for the PFO habitat type as a whole is comprised of non-native invasive.	Y	0% ($CI_{80\%} = 0-0\%$)
9.	The moisture index of the herbaceous and shrub strata for the PFO habitat type is equal to or less than 3.0	Y	1.75
10.	The mean tree d.b.h. for the largest 85 percent of the stems in the PFO habitat type shall be at least 3"	N	Mean d.b.h. = 1.04" Mean ht. = 9.1'
11.	By the end of six full calendar years after planting there shall be a minimum of 160 free-to-grow trees per acre in the PFO habitat type	Y	FTG/ac = 183 ($CI_{80\%} = 137-228$) Tree count suspended after year 8.
12.	Not more than 5% of the tree count in the PFO habitat type shall be non-native	Y	0% ($CI_{80\%} = 0-0\%$)
13.	The PSS areas shall be wetland as determined using the <u>'87 Manual</u> and applicable guidance and supplements as of 31DEC07.	Y	See post-construction delineation report
14.	A minimum of 55% of the mean relative plant cover for the PSS habitat type as a whole (including substrate) is comprised of native species.	Y	95% ($CI_{80\%} = 92-99\%$)
15.	No more than 15% mean relative percent cover for the PSS habitat type as a whole is comprised of non-native invasive species.	Y	0% ($CI_{80\%} = 0-0\%$)
16.	The moisture index of the herbaceous and shrub strata for	Y	1.43

	the PSS habitat type is equal to or less than 3.0		
17.	The Upland Savanna areas shall be upland as determined using the <i>'87 Manual</i> and applicable guidance and supplements as of 31DEC07.	Y	See post-construction delineation report
18.	A minimum of 55% of the mean relative plant cover for the Upland Savanna habitat type as a whole (including substrate) is comprised of native species.	Y	89% ($CI_{80\%} = 84-95\%$)
19.	No more than 15% mean relative percent cover for the Upland Savanna habitat type as a whole is comprised of non-native invasive species.	Y	0% ($CI_{80\%} = 0-0\%$)
20.	The moisture index of the herbaceous stratum for the Upland Savanna habitat type is greater than 3.0	N	2.61
21.	There shall be between 15 and 25 live trees per acre at least 3" d.b.h. and free-to-grow ($\geq 5'$ tall) in the Upland Savanna habitat type, and at least 9 of which shall be <i>Quercus garryana</i>.	N	$TPA_{Total} = 20$ $FTG WVPP_{Total} = 35$ $Q. garryana ((OWO)) = 13$ $FTG OWO_{Total} = 12$ $FTGTPA_{Total} = 13$
22.	The Upland Forest areas shall be upland as determined using the <i>'87 Manual</i> and applicable guidance and supplements as of 31DEC07.	Y	See post-construction delineation report
23.	A minimum of 55% of the mean relative plant cover for the Upland Forest habitat type as a whole (including substrate) is comprised of native species.	Y	72% ($CI_{80\%} = 64-81\%$)
24.	No more than 15% mean relative percent cover for the Upland Forest habitat type as a whole is comprised of non-native invasive species.	Y	0% ($CI_{80\%} = 0-0\%$)
25.	The moisture index of the herbaceous stratum for the Upland Forest habitat type is greater than 3.0	N	2.21
26.	The mean tree d.b.h. for the largest 85 percent of the stems shall be at least 3" in the Upland Forest habitat type	N	Mean d.b.h. = 1.26" Mean ht. = 7.10'
27.	By the end of six full calendar years after planting there shall be a minimum of 160 free-to-grow	Y	Live trees per acre = 256 ($CI_{80\%} = 246-267$) $FTG tpa = 221$ ($CI_{80\%} = 210-233$)

	trees per acre in the Upland Forest habitat type		
28.	Not more than 5% of the tree count in the Upland Forest habitat type shall be non-native	Y	0% (CI _{80%} = 0-0%)

4: Further Actions:

Remedial work recommended

Yes

No

Deed Restriction or other protection instrument attached

Yes

No

Final Monitoring Report?

Yes

No

Requesting release or partial release of financial security?

Yes

No

2. Long Tom Mitigation Bank Plan Purpose and Overview

A. Location.

The mitigation site is located in the NE1/4 Section 26, T15S R05W, W.M. on Lane County tax lot 15052610-102 at N44°14'14.84", W123°15'15.61". From Interstate 5 exit 209 go west six miles to the Hwy 99E intersection in Harrisburg. Turn left at the light and travel south on Hwy 99E to Junction City. At the Safeway turn right and go north on Hwy 99W for 1.9 miles. Turn left onto Ferguson Road and travel west for 1.3 miles. Turn left onto Washburn Lane and travel south for 1.0 mile. Turn right onto Cox Butte Rd. and travel west for ¼ mile. The Long Tom Mitigation Bank gate is on your right.

B. Mitigation goals and objectives.

The Long Tom Mitigation Bank mitigation plan is intended to replace the functions and values lost due to unavoidable adverse impacts to wetlands as authorized by the Oregon Department of State Lands (DSL) and/or the U.S. Army Corps of Engineers (Corps) in its service area (HUC 17090003). The mitigation bank consists of aquatic habitats created, restored, enhanced, or preserved in accordance with state and federal regulations to compensate for permitted impacts in the categories shown in Table 1.

Table 1. Long Tom Mitigation Bank habitats achieved.

Mitigation Method	Acres	HGM	Cowardin	Mitigation Ratio	Credits Achieved
Conservation	0.00	N/A	N/A	0.00	0.00
Enhance	67.43	S/F	PEM	2:1	33.72
Enhance	1.75	S/F	PSS	2:1	0.88
Enhance	7.76	S/F	PFO	2:1	3.88
Create	27.30	S/F	PEM	1.5:1	18.20
Create	0.19	S/F	PFO	1.5:1	0.12
Restore	1.77	S/F	PEM	1:1	1.77
Restore	2.93	S/F	PFO	1:1	2.93
Buffer	11.09	N/A	Forest	10:1	1.11
Buffer	4.24	N/A	Savanna	10:1	0.42

124.46

Ervo vs

63.02

FIGURE 1. HABITATS, STRUCTURES & AS-BUILT TOPOGRAPHIC MAP

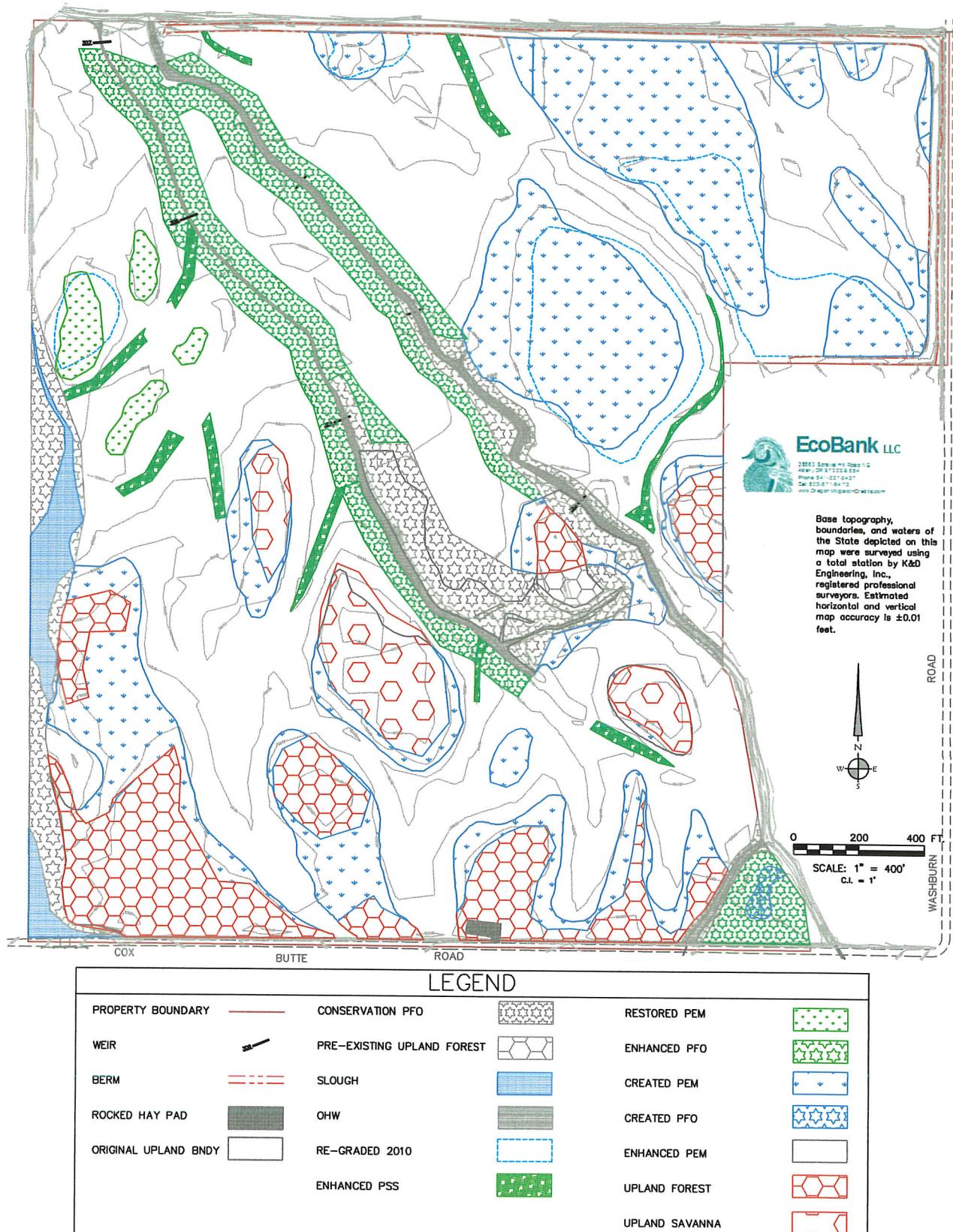
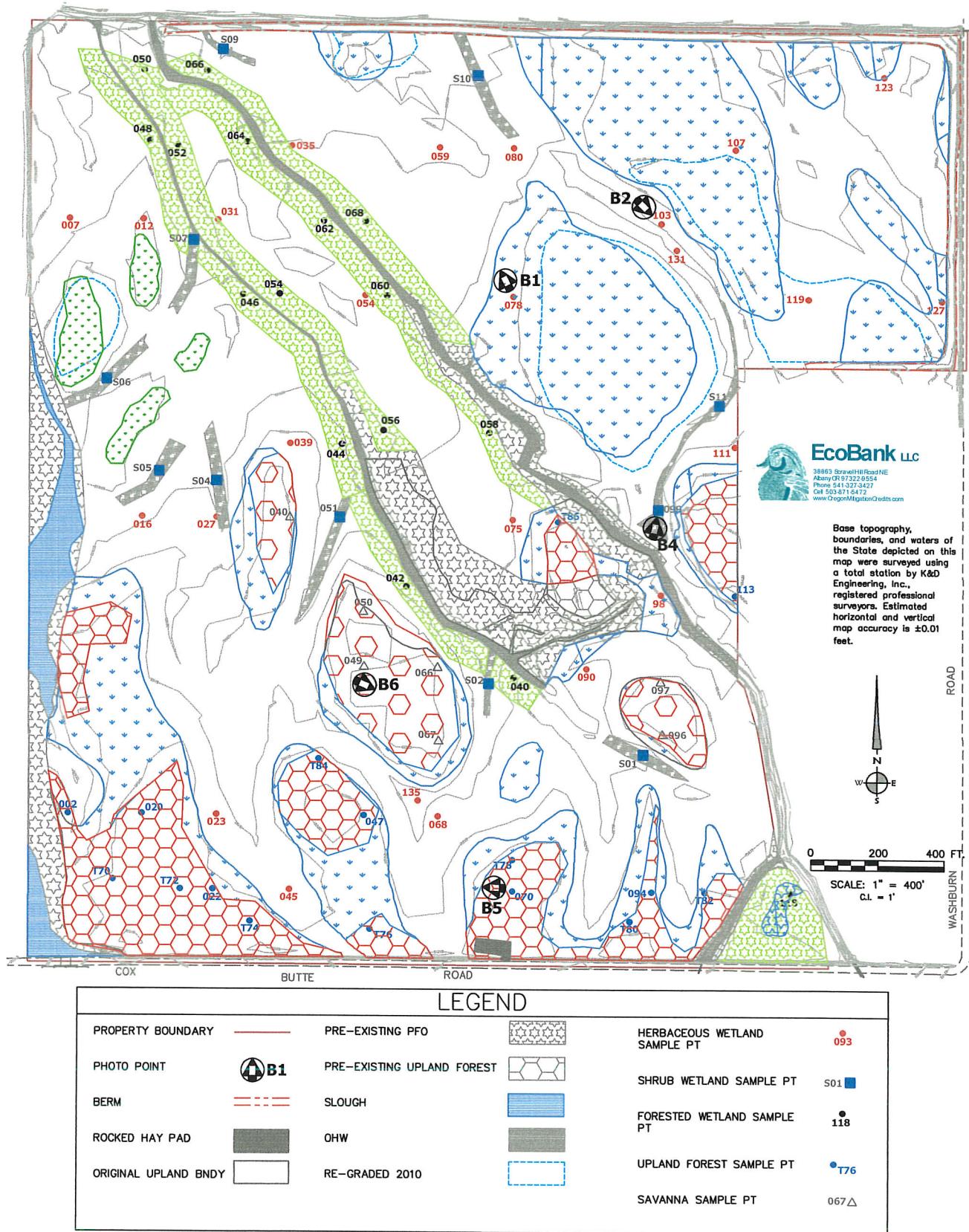


FIGURE 2. MONITORING PLAN MAP



Site: Long Tom Mitigation Bank Herbaceous Wetland Habitat Unit		Sample Date(s):	02-03JUN										Number of plots >5% cover	Species present in plot
Species	Origin (N, NN, I)	Wetland Status (1 - 5)	107	111	119	123	127	131	134	135				
Native Herbaceous Species														
<i>species-latin name</i>														
Achillea millefolium	N	4	0	0	0	0	0	0	0	0	0.00	0	0	0
Agrostis exarata*	N	2	0	0	0	0	0	0	0	0	0.17	1	1	1
Alisma plantago-aquatica	N	1	0	0	0	0	0	0	0	0	0.69	1	1	1
Alopecurus geniculatus*	N	1	0	0	0	0	0	0	0	0	0.00	0	0	0
Beckmannia syzigachne	N	3	0	0	0	0	0	0	0	0	0.34	1	1	0
Bromus carinatus	N	5	0	0	0	0	0	0	0	0	0.69	1	1	0
Camassia leichtlinii*	N	2	0	0	0	0	0	0	0	0	0.00	0	0	0
Camassia quamash*	N	2	0	0	0	0	0	0	0	0	0.00	0	0	0
Cardamine oligosperma	N	2	0	0	0	0	0	0	0	0	0.34	1	1	1
Carex densa*	N	1	0	0	0	0	0	0	0	0	0.00	0	0	0
Carex unilateralis*	N	2	0	0	0	0	0	0	0	0	0.34	1	1	0
Ceratium arvense	N	4	0	0	0	0	0	0	0	0	0.00	0	0	0
Danthonia californica*	N	3	0	0	0	0	0	0	0	0	0.00	0	0	0
Deschampsia cespitosa*	N	2	20	30	0	90	60	10	0	0	37.24	24	1	1
Downingia elegans*	N	1	0	0	0	0	0	0	0	0	0.69	1	1	1
Eleocharis palustris	N	1	0	0	0	0	0	80	0	35	3.97	2	0	0
Elymus glaucus	N	4	0	0	0	0	0	0	0	0	1.72	1	0	0
Epilobium brachycarpum	N	4	0	0	0	0	0	0	0	0	0.69	3	1	1
Epilobium ciliatum*	N	2	0	0	0	0	0	0	0	0	5.69	6	1	1
Festuca roemeri	N	4	0	0	0	0	0	0	0	0	0.00	0	0	0
Festuca rubra	N	3	0	0	0	0	0	0	0	0	0.00	0	0	0
Galium aparine	N	4	0	0	5	0	0	0	0	0	2.93	8	0	0
Glyceria occidentalis*	N	1	0	0	0	0	0	0	0	0	0.00	0	0	0
Gnaphalium palustre	N	2	0	0	0	0	0	0	0	0	0.00	0	0	0
Grindelia integrifolia*	N	4	0	0	0	0	0	0	0	0	0.69	1	1	1
Hordeum brachyantherum	N	2	0	0	60	0	0	0	0	0	2.24	2	0	0
Juncus bufonius*	N	2	0	0	0	0	0	0	0	0	0.00	0	0	0
Juncus effusus	N	2	0	0	0	0	0	0	0	0	0.00	0	0	0
Juncus patens	N	2	0	0	0	0	0	0	0	0	0.00	0	0	0
Juncus tenuis*	N	3	0	0	0	0	0	0	0	0	2.76	4	1	1
Lemna minor	N	1	0	0	0	0	0	0	0	0	0.00	0	0	0
Lomatium nudicaule	N	4	0	0	0	0	0	0	0	0	0.00	0	0	0
Lotus unifoliolatus	N	4	0	0	0	0	0	0	0	0	0.52	2	0	0
Lupinus bicolor	N	4	0	0	0	0	0	0	0	0	0.00	0	0	0
Lupinus polyphyllus*	N	3	0	0	0	0	0	0	0	0	0.69	1	1	0
Montia linearis	N	3	0	0	0	0	0	0	0	0	0.00	0	0	0
Myosotis laxa	N	1	0	0	0	0	0	0	0	0	0.00	0	0	0
Neveraea intertexta	N	2	0	0	0	0	0	0	0	0	0.00	0	0	0
Plagiobothrys figuratus*	N	2	0	0	30	0	0	0	0	5	3.97	5	1	1
Plagiobothrys scouleri*	N	2	0	0	0	0	0	0	0	0	0.34	1	1	0
Potentilla gracilis*	N	3	0	0	0	0	0	0	0	0	0.00	0	0	0
Prunella vulgaris*	N	4	0	0	0	0	0	0	0	0	1.03	1	1	0
Ranunculus aquatilis	N	1	0	0	0	0	0	0	0	0	0.00	0	0	0
Ranunculus occidentalis	N	2	0	0	0	0	0	0	0	0	0.00	0	0	0
Ranunculus orthorhynchus*	N	2	0	0	0	0	0	0	0	0	0.00	0	0	0
Rorippa curvisiliqua	N	1	0	0	0	0	0	0	0	0	0.00	0	0	0
Rumex salicifolius	N	2	0	0	0	0	0	0	0	0	0.00	0	0	0
Sidalcea cicutaria*	N	4	0	0	0	0	0	0	0	0	0.00	0	0	0
Veronica peregrina	N	1	0	0	0	0	0	0	0	0	0.00	0	0	0
Invasive Herbaceous Species														
<i>species-latin name</i>														
Cirsium vulgare	I	4	0	0	0	0	0	0	0	0	0.00	0	0	0
Hypericum perforatum	I	4	0	0	0	0	0	0	0	0	0.00	0	0	0
Phalaris arundinacea	I	2	0	0	0	0	0	0	0	0	0.00	0	0	0
Senecio jacobaea	I	4	0	0	0	0	0	0	0	0	0.00	0	0	0
Non-Native Herbaceous Species														
<i>species-latin name</i>														
Agrostis stolonifera	NN	3	0	0	0	0	0	0	0	0	0.00	0	0	0
Anthriscus scandinica (bur chervil)	NN	4	0	0	0	0	0	0	0	0	0.00	0	0	0
Briza minor	NN	3	0	0	0	0	0	0	0	0	0.00	0	0	0
Bromus diandrus	NN	3	0	0	0	0	0	0	0	0	0.34	0	0	0
Bromus hordeaceus	NN	4	0	10	0	0	0	0	0	0	0.00	0	0	0
Cirsium arvense	NN	3	0	0	0	0	0	0	0	0	0.00	0	0	0
Crepis setosa	NN	4	55	0	0	0	0	0	0	0	2.07	0	0	0
Daucus carota	NN	4	0	0	0	0	0	0	0	0	0.00	0	0	0
Festuca ovina	NN	5	0	0	0	0	0	0	0	0	0.00	0	0	0
Geranium dissectum	NN	3	0	40	0	0	10	0	0	0	3.28	0	0	0
Holcus lanatus	NN	3	0	0	0	0	0	0	0	0	0.00	0	0	0
Hypochaeris radicata	NN	4	0	0	0	0	0	0	0	0	0.00	0	0	0
Kickxia elatine	NN	3	0	0	0	0	0	0	0	0	0.17	0	0	0
Lactuca serriola	NN	4	0	0	0	0	5	0	0	0	0.00	0	0	0
Lathyrus sphaericus	NN	3	0	0	0	0	0	0	0	0	0.00	0	0	0
Lolium multiflorum	NN	2	0	0	0	0	0	0	0	0	0.34	0	0	0
Lythrum portula	NN	1	0	0	0	0	0	0	0	0	0.00	0	0	0
Myosotis discolor	NN	3	0	0	0	0	5	0	0	0	2.41	0	0	0
Parentucellia viscosa	NN	3	0	0	0	0	0	0	0	0	0.17	0	0	0
Poa palustris	NN	3	0	0	0	0	0	0	0	0	0.00	0	0	0
Poa pratensis	NN	3	0	0	0	0	0	0	0	0	0.00	0	0	0
Poa trivialis	NN	3	0	0	0	0	0	0	0	0	0.00	0	0	0
Senecio vulgaris	NN	4	0	0	0	0	5	0	0	0	0.17	0	0	0
Sherardia arvensis	NN	5	0	0	0	0	0	0	0	0	0.00	0	0	0
Sonchus asper	NN	4	0	0	0	0	5	0	0	0	0.17	0	0	0
Stellaria media	NN	2	0	0	0	0	0	0	0	0	0.00	0	0	0
Taraxacum officinale	NN	4	0	0	0	0	0	0	0	0	0.00	0	0	0
Vicia tetrasperma	NN	5	0	0	0	0	0	0	0	0	0.86	0	0	0
Vulpia bromoides	NN	4	0	0	0	0	0	0	0	0	0.00	0	0	0
Vulpia myuros	NN	4	5	20	0	0	0	0	0	0	1.03	0	0	0
Bare Substrate	N/A	10	0	5	0	0	0	10	10	40	5.69	11.72	0	0
Native Diversity		21												
Prevalence Index		≤3.0	0.75	3.00	1.47	2.00	2.28	1.11	1.00	0.92	2.08	N/A	YES	
Weighted Prevalence Index			60	300	140	180	205	100	80	55				
Sum of plant cover			50	100	95	90	90	90	80	60				

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
1	Instructions: Use this sheet for Shrub and Forested Wetlands. Add or delete columns and rows to reflect the data collected. Review formulas in highlighted cells (green) and fix formulas as needed.																					
2	After completing, use the Summary Information to evaluate site performance against the specific standards found in your authorization. These standards and the Summary Information should be filled into the Monitoring Report Cover Sheet.																					
3	Print this worksheet and include it in Section 3 of the monitoring report.																					
4	Site: Long Tom Mitigation Bank Sample Date(s): 02-03JUN18																					
5	Forest Wetland Habitat Unit																					
6	Species	Origin	Wetland Status	118	T40	T42	T44	T46	T48	T50	T52	T54	T56	T58	T60	T62	T64	T66	T68	Row Average		
7	Native Herbaceous Species																					
8	species-latin name																					
9	Agrostis exarata	N	2	0	0	0	0	0	0	0	0	0	0	5	5	0	0	0	0	0	1	
10	Bromus carinatus	N	5	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	
11	Camassia leichtlinii	N	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12	Carex densa	N	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	
13	Ceratium arvense	N	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	Deschampsia cespitosa	N	2	30	30	0	30	30	10	5	80	* 10	50	0	0	20	60	0	0	22		
15	Epilobium brachycarpum	N	4	0	0	0	10	0	0	0	0	0	0	5	0	0	0	0	0	0	1	
16	Epilobium ciliatum	N	2	0	20	10	10	5	30	30	10	* T	0	20	65	40	10	0	10	10	17	
17	Festuca rubra	N	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
18	Galium aparine	N	4	0	15	10	0	5	30	0	0	* 40	10	0	0	0	0	0	0	20	10	9
19	Juncus tenuis	N	3	0	0	0	0	0	0	5	0	0	0	0	5	0	0	0	0	0	1	
20	Lotus unifoliolatus	N	4	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	
21	Lupinus polyphyllus	N	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
22	Plagiodothrys figuratus	N	2	0	0	0	0	0	0	20	0	0	20	5	10	20	10	0	0	5		
23	Plagiodothrys scouleri	N	2	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	
24	Prunella vulgaris	N	4	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
25	Ranunculus orthorhynchus	N	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
26	Invasive Herbaceous Species																					
27	species-latin name																					
28	Cirsium vulgare	I	3	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
29																						
30	Non-Native Herbaceous Species																					
31	species-latin name																					
32	Aira caryophyllea	NN	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
33	Bromus hordeaceus	NN	3	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
34	Centaurium erythraea	NN	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
35	Crepis setosa	NN	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
36	Festuca ovina	NN	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
37	Geranium dissectum	NN	3	0	0	5	5	5	0	0	0	0	0	0	0	0	0	0	0	0	1	
38	Lactuca serriola	NN	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
39	Myosotis discolor	NN	3	20	0	5	5	5	20	0	0	20	0	0	5	0	0	30	0	7		
40	Parentucellia viscosa	NN	3	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0		
41	Poa palustris	NN	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
42	Poa trivialis	NN	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
43	Sonchus asper	NN	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
44	Vicia tetrasperma	NN	5	10	0	45	0	0	0	0	0	* 10	0	0	0	0	0	0	0	0	4	
45	Vulpia bromoides	NN	4	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0		
46	Native Shrub and Tree Species																					
47	species-latin name																					
48	Crataegus douglasii	N	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
49	Fraxinus latifolia	N	2	40	0	0	3	3	3	2	2	2	5	10	80	7	5	5	5	11		
50	Populus trichocarpa	N	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
51	Non-Native Shrub and Tree Species																					
52	species-latin name																					
53																						
54																						
55	Invasive Shrub and Tree Species																					
56	species-latin name																					
57																						
58																						
59	Bare Substrate		10	0	5	10	0	0	10	0	0	0	0	0	0	0	0	0	0	0	4	
60	Thatch		40	30	0	30	30	10	30	10	20	0	0	20	30	20	30	30	30	60	24	
61																						
62	Native Shrub and Tree Count																					
63	species-latin name																					
64	Crataegus douglasii	N	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
65	Fraxinus latifolia	N	2	40	0	0	3	3	3	2	2	2	5	10	80	7	5	5	5	11	5.2	
66	Populus trichocarpa	N	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
67	Free-to-Grow (\geq 5')																					
68	Summary		118	T40	T42	T44	T46	T48	T50	T52	T54	T56	T58	T60	T62	T64	T66	T68	Habitat A	Standard E	Meets Sta	
69	Cover of Native Herbaceous Species		40	70	25	60	50	70	70	50	100	80	65	80	70	40	40	40	63	5.1		
70	Lower CI (80%)																					
71	Upper CI (80%)																					
72	Cover of Native Shrubs and Trees		40	0	0	3	3	3	2	2	2	5	10	80	7	5	5	5	11	4		
73	Lower CI (80%)																					
74	Upper CI (80%)																					
75	Cover of Invasive Herbaceous Species		0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
76	Lower CI (80%)																			0		
77	Upper CI (80%)																			0		
78	Cover of Invasive Shrubs and Trees		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
79	Lower CI (80%)																			0		
80	Upper CI (80%)																			0		
81	Bare Substrate		50	30	5	40	30	10	40	10	20	0	20	30	20	30						

Instructions: Use this sheet for Upland Buffers. Add or delete columns and rows to reflect the data collected. Review formulas in highlighted cells (green) and fix form after completing, use the Summary Information to evaluate site performance against the specific standards found in your authorization. These standards and the Summ

Print this worksheet and include it in Section 3 of the monitoring report.

Site: Long Tom Mitigation Bank

Shrub Wetland Habitat Unit

Sample Date(s): 02-03JUN18

Species species-latin name	Native Herbaceous Species	Origin (N, NN, I)	Wetland Status (1 - 5)	Soil Type										Row Average
				S01-1	S02-1	S03-1	S04-1	S05-1	S06-1	S07-1	S09-1	S10-1	S11-1	
Agrostis exarata		N	2	20	0	0	0	0	0	0	0	0	0	5
Alisma plantago-aquatica		N	1	0	0	0	0	0	0	0	0	0	0	2
Alopecurus geniculatus		N	1	0	0	0	0	0	0	0	0	0	0	0
Beckmannia syzigachne		N	3	0	0	0	0	0	0	0	0	0	0	40
Calitrichace spp.		N	1	0	0	0	0	0	0	0	0	0	0	0
Deschampsia cespitosa		N	2	0	20	40	65	65	15	75	10	0	0	26
Downingia elegans		N	1	0	0	0	0	0	0	0	0	0	0	0
Epilobium brachycarpum		N	4	20	20	10	0	0	20	5	0	0	0	7
Epilobium ciliatum		N	2	20	0	0	0	10	0	0	0	0	0	4
Gaultheria aparine		N	4	0	0	0	0	0	5	0	0	0	0	1
Glyceria occidentalis		N	1	0	0	0	0	0	0	0	0	0	0	0
Gnaphalium palustre		N	2	0	0	0	0	0	0	0	0	0	0	0
Hordeum brachyantherum		N	2	0	0	0	0	0	0	0	0	0	0	1
Juncus tenuis		N	3	0	0	0	0	5	0	0	0	0	0	0
Lotus uliginosus		N	4	0	0	0	0	0	0	0	0	0	0	0
Plagiodontia australis		N	2	10	20	10	0	5	10	0	0	0	0	20
Plagiodontia scouleri		N	2	0	0	0	0	0	0	10	0	0	0	8
Prunella vulgaris		N	4	0	0	0	0	0	0	0	20	0	0	2
Rorippa curvisiliqua		N	1	0	0	0	0	0	0	0	0	0	0	0
Invasive Herbaceous Species														#DIV/0!
Non-Native Herbaceous Species														
Species-latin name														
Festuca ovina		NN	5	0	0	0	0	0	0	0	0	0	0	0
Lactuca serriola		NN	4	0	0	0	0	0	0	0	0	0	0	0
Lythrum portula		NN	1	0	0	0	0	0	0	0	0	0	0	0
Mystrois discolor		NN	3	0	0	0	0	0	10	0	0	0	0	2
Sonchus asper		NN	3	0	0	0	0	0	0	0	0	0	0	0
Vulpia bromoides		NN	4	0	0	0	0	0	0	0	0	0	0	0
Native Shrub and Tree Species														
Species-latin name														
Spiraea douglasii		N	2	20	20	50	30	20	30	10	30	10	20	24
Rosa nutkana		N	3	0	0	0	0	10	0	10	0	0	0	2
Thatch			30	10	0	20	10	30	0	40	70	40	20	26
Bare														15
Performance Standards	Standard		S01-1	S02-1	S03-1	S04-1	S05-1	S06-1	S07-1	S09-1	S10-1	S11-1	S09-1	Average
Cover of Native Species & Substrate		≥55%	100	100	70	100	100	90	100	100	90	100	95	95
		Lower CI (80%)												92
		Upper CI (80%)												99
Cover of Invasive Species		≤15%	0	0	0	0	0	0	0	0	0	0	0	0
		Lower CI (80%)												0
		Upper CI (80%)												0
Cover of Native Shrubs and Trees			20	20	50	30	20	30	10	30	10	20	20	24
			Lower CI (80%)											19
		Upper CI (80%)												28
Shrub stem count (5' rad. plot)			2	2	7	4	2	9	3	4	1	2	0	3
Shrub stem count per acre (Exp f=555)			1110	1110	3885	2220	1110	4995	1665	2220	555	1110	0	1816
Prevalence Index		<3.0	1.78	1.50	1.00	1.45	1.60	1.70	1.89	0.80	1.00	1.00	2.00	1.43
Weighted Prevalence Index			160	120	145	160	170	170	40	40	30	30	160	80
Sum of plant cover			90	80	120	100	100	90	50	40	30	30	15	80

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	
1	Long Tom Mitigation Bank	02-03-JUNG																					
2	Upland Forest Habitat Unit		Wetland																				
3	Species	Origin (N, Status (1 - 5))	2	20	22	47	70	776	778	780	782	784	94	113	770	772	774	786	Row Average	Diversity			
4	Name Herbaceous Species	N	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5	Achillea millefolium	N	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	Ajuga reptans	N	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	Alpeocurus geniculatus	N	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8	Bromus carinatus	N	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9	Comassia leichtlinii	N	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10	Cortex linsii	N	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11	Ceratostilis avense	N	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12	Dactyloctenium aegyptium	N	2	20	5	10	50	85	5	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	Eryngium glaucum	N	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	Epilobium brachycarpum	N	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15	Epilobium ciliatum	N	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
16	Festuca roemeri	N	3	30	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
17	Festuca rubra	N	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
18	Galium aparine	N	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
19	Gentiana integerrima	N	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
20	Genista brachycalyx	N	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
21	Lomatium nudicaule	N	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
22	Louisianella	N	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
23	Lupinus polyphyllus	N	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
24	Psathyrotes gracilis	N	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
25	Prunella vulgaris	N	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
26	Non-Native Herbaceous Species	NN	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
27	Agrostis stolonifera	NN	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
28	Bryonia alba	NN	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
29	Bromus hordeaceus	NN	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
30	Carex siccata	NN	3	30	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
31	Geranium dissectum	NN	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
32	Hippocratea radicans	NN	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
33	Actaea spicata	NN	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
34	Lathyrus palustris	NN	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
35	Lathyrus palustris	NN	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
36	Myrsinopsis glabra	NN	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
37	Perilla frutescens	NN	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
38	Sonchus asper	NN	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
39	Taraxacum officinale	NN	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
40	Vulpia bromoides	NN	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
41	Vulpia myuros	NN	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
42	Invasive Species	NN	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
43	Cirsium vulgare	NN	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
44	Sennecio lautus	NN	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
45	Native Tree Species	NN	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
46	Pinus ponderosa	NN	5	5	5	7	5	7	3	3	5	3	3	5	5	5	5	5	5	5	5	5	
47	Bare Substrate	NN	30	40	30	30	10	20	20	30	20	20	10	35	40	30	20	20	20	20	25	25	
48	Native Shrub and Tree Count	NN	20	28	26	22	20	24	22	20	24	22	22	26	24	20	20	26	20	30	26	25	
49	Free-to-Grow	NN	18	24	26	24	22	20	24	22	22	26	26	20	20	22	18	30	22	30	22	22	
50	Native Shrub and Tree Count	NN	20	28	26	22	20	24	22	20	24	22	22	26	24	20	20	26	20	30	26	25	
51	Free-to-Grow	NN	18	24	26	24	22	20	24	22	22	26	26	20	20	22	18	30	22	30	22	22	
52	Native Shrub and Tree Count	NN	18	24	26	24	22	20	24	22	22	26	26	20	20	22	18	30	22	30	22	22	
53	Performance Standards	Threshold	2	20	22	47	70	776	778	780	782	784	94	113	770	772	774	786	Habitat Average	Standard Error	Meets Standard	?	
54	Cover of Native Species plus Substrate	Upper CI (80%)	85	70	40	50	80	70	100	85	30	80	95	95	100	60	100	72	67	YES			
55	Cover of Invasive Species (all strata)	Upper CI (80%)	5	15%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	81	0	0	YES	
56	Cover of Non-Native Herbaceous Species NO STANDARD	Upper CI (80%)	15	30	60	50	20	5	80	0	45	70	20	5	5	0	40	0	28	67	N/A		
57	Bare Substrate	NO STANDARD	30	40	30	30	10	20	30	20	10	20	10	20	10	35	40	30	20	36	25	25 N/A	
58	Lower CI (80%)	Upper CI (80%)	NO STANDARD	30	40	30	30	10	20	30	20	10	20	10	20	10	35	40	30	20	36	25 N/A	
59	Upper CI (80%)	Upper CI (80%)	NO STANDARD	30	40	30	30	10	20	30	20	10	20	10	20	10	35	40	30	20	36	25 N/A	
60	Native Diversity Index-All strata	>3.0	2.42	2.43	3.20	1.75	1.89	0.00	3.42	3.42	3.20	1.90	1.93	1.85	2.00	1.71	2.94	2.21 N/A	NO				
61	Prevalence Index-All strata	>3.0	1.45	35	15	25	57	90	7	73	38	25	63	88	65	65	35	85	28	28	28		
62	Density of Woody Vegetation	≥ 160/ac.	200	280	260	220	300	260	220	260	260	300	280	260	240	200	300	260	260	260	260	260	
63	Pilot Area Shrub/Tree Pct	Upper CI (80%)	43.5%																	267	#DIV/0!	#DIV/0!	
64	Area entered in B94 is in sq meters or sq feet	Upper CI (80%)	43550																	#DIV/0!	#DIV/0!	#DIV/0!	
65	Cover of Native Herbaceous Shrub/Trees	Lower CI (80%)	55%																	266	8.2		
66	Cover of Native Shrub and Tree	Lower CI (80%)	80%																	266	8.2		
67	Free-to-Grow Density per Acre ≥ 160/ac.	Upper CI (80%)	180	240	160	240	220	200	240	220	220	260	200	260	220	200	300	260	260	260	260	260	
68	Free-to-Grow Density per Acre ≥ 160/ac.	Lower CI (80%)	175																	266	8.2		
69	(do not print), Use absolute cover																			266	8.2		

Site: Long Tom Mitigation Bank	Sample Date(s):							
Upland Buffer Savanna Habitat Unit	02-03JUN18							
Species	Origin (N, NN, I)	Wetland Status (1 - 5)	40H1	49H1	50H1	66H1	67H1	96H1
Native Herbaceous Species								
<i>species-latin name</i>								
Achillea millefolium	N	4	0	0	0	0	0	0
Agrostis exarata	N	2	0	0	0	0	0	0
Cerastium arvense	N	4	0	0	0	0	0	0
Deschampsia cespitosa	N	2	0	10	20	10	5	0
Elymus glaucus	N	4	65	0	0	0	0	0
Epilobium brachycarpum	N	4	0	0	0	0	0	0
Festuca rubra	N	3	0	40	60	70	60	95
Galium aparine	N	4	10	0	0	0	0	0
Lotus unifoliolatus	N	4	0	0	0	0	0	0
Lupinus micranthus	N	3	0	0	0	0	0	0
Prunella vulgaris	N	4	0	0	0	0	0	0
Invasive Herbaceous Species								
<i>species-latin name</i>								
			0	0	0	0	0	0
Non-Native Herbaceous Species								
<i>species-latin name</i>								
Bromus hordeaceus	NN	3	0	0	0	0	0	0
Crepis capillaris	NN	4	0	0	0	0	0	0
Latuca serriola	NN	3	0	0	0	0	0	0
Myosotis discolor	NN	3	20	0	0	0	0	0
Vulpia bromoides	NN	4	0	30	0	0	15	5
Native Shrub and Tree Species								
<i>species-latin name</i>								
Pinus ponderosa	N	4	0	0	0	0	0	0
Quercus garryanna	N	4	0	0	0	0	0	0
Thatch			5	0	20	20	15	0
Bare			0	20	0	0	5	0
Performance Standards	Standard		40H1	49H1	50H1	66H1	67H1	96H1
Cover of Native Species & Substrate	≥55%		80	70	100	100	85	95
Lower CI (80%)								
Upper CI (80%)								
Cover of Invasive Species	≤15%		0	0	0	0	0	0
Lower CI (80%)								
Upper CI (80%)								
Cover of Native Shrubs and Trees			0	0	0	0	0	0
Lower CI (80%)								
Upper CI (80%)								
Free-to-Grow Tree Count per ac. (≥5')	15≤t.p.a.≤25							
Free-to-Grow Quercus garryanna	≥9							
Prevalence Index	>3.0		3.16	1.75	2.75	2.88	2.38	2.85

Site: Long Tom Mitigation Bank	Sample Date(s):				
Upland Buffer Savanna Habitat Unit	02-03JUN18				
Species	Origin (N, NN, I)	Wetland Status (1 - 5)	97H1	Row Average	
Native Herbaceous Species					
<i>species-latin name</i>					
Achillea millefolium	N	4	0	0	
Agrostis exarata	N	2	0	0	
Cerastium arvense	N	4	0	0	
Deschampsia cespitosa	N	2	30	11	
Elymus glaucus	N	4	0	9	
Epilobium brachycarpum	N	4	0	0	
Festuca rubra	N	3	40	52	
Galium aparine	N	4	5	2	
Lotus unifoliolatus	N	4	0	0	
Lupinus micranthus	N	3	0	0	
Prunella vulgaris	N	4	0	0	
Invasive Herbaceous Species					
<i>species-latin name</i>					
			0	0	
Non-Native Herbaceous Species					
<i>species-latin name</i>					
Bromus hordeaceous	NN	3	0	0	
Crepis capillaris	NN	4	0	0	
Latuca serriola	NN	3	0	0	
Myosotis discolor	NN	3	5	4	
Vulpia bromoides	NN	4	0	7	
Native Shrub and Tree Species					
<i>species-latin name</i>					
Pinus ponderosa	N	4	0	0	
Quercus garryanna	N	4	0	0	
Thatch			20	11	
Bare			0	4	
Performance Standards	Standard			Habitat	Standard
Cover of Native Species & Substrate	≥55%		97H1	Average	Error
Lower CI (80%)			95	89	4.3
Upper CI (80%)				84	
Cover of Invasive Species	≤15%		0	95	
Lower CI (80%)			0	0	0
Upper CI (80%)				0	
Cover of Native Shrubs and Trees			0	0	0
Lower CI (80%)				0	
Upper CI (80%)				0	
Free-to-Grow Tree Count per ac. (≥5')	15≤t.p.a.≤25				complete census
Free-to-Grow Quercus garryanna	≥9				complete census
Prevalence Index	>3.0		2.50	2.61	