

Mud Slough Wetland Mitigation Bank

Phase 4 - 2014 Monitoring Report and Phase 3 – Credit Sales Report

Submitted by:

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1.0 REGULATORY BACKGROUND

The purpose of this report is to summarize the progress of Phase 4 of the Mud Slough Wetland Mitigation Bank (Bank) located at 1875 N. Greenwood Road, Rickreall, Polk County, Oregon. This report will also report on the credit sales from Phase 3 of the Bank.

Phase 3 of the Bank is located in Township 7S, Range 4W, Section 20, Tax Lot 300. Phase 3 occupies 81.5 acres of the 413 acre tax lot. The MOA for Phase 3 was approved in July 2008. All 41.5 Phase 3 credits have been released for sale. The last annual monitoring report Phase 3 was submitted in 2013. The credit sales for Phase 3 are reported on in Section 7.0.

The MOA for Phase 4 was approved in June 2011. Phase 4 of the Bank includes 47.2 acres in Township 7S, Range 4W, Section 17, portions of Tax Lots 400 and 500. The primary goals for Phase 4 are to create 1.77 acres, enhance 1.24 acres and restore 40.1 acres of wet prairie and emergent wetland habitat. The Bank also includes a 4.09 acre upland knoll to provide varied wildlife habitat within the Bank. No credits have been released (see Section 8.0).

Phase 4 Bank credits:

<u>Acres</u>	<u>Mitigation Type</u>	<u>Credit Ratio</u>	<u>Credits Earned</u>
40.10	Restoration of cropped wetland	1:1	40.10
1.77	Creation	1 ½:1	1.18
1.24	Enhancement of cropped wetland	2:1	0.62
<u>4.09</u>	Upland knoll	6:1	<u>0.68</u>
47.20	Total Site		42.58

2.0 WORK SUMMARY

Herbicide applications occurred in October 2009 and in January, May and July 2010. Between August and November 2010, the drainage system was made inoperable and the drainage ditch in the southeast corner filled. The drain system was made inoperable by disconnecting all of the laterals of the system, by removing 15 to 20 feet of pipe at the lower end of the system where they enter the main lines. Some minimal grading was done during this time to fill shallow ditches allowing for inundation of low areas.

Primary seeding of the site was conducted in October 2010. Some additional seeding of fragrant and scouler's popcorn flower (*Plagiobothrys figuratus* and *Plagiobothrys scouleri*) was done in early February 2011. The trees and shrubs were planted on the upland knoll in February 2011. A total of 46 native species were planted.

Vegetation establishment in Phase 4 is unique from the previous phases of the Bank. The entire emergent and wet prairie was seeded with mix predominantly comprised of forbs, sedges and rushes, with slough grass being the only grass species widely planted. The site was seeded with a

mulch-seed mixture planted in a zone planting for individual species. The seed blend then sorted itself out into different zones by moisture tolerance and topography. Individual species seeding was also done for the more dominant species.

This planting method is an effort to increase the forbs present in the prairie, which has been very successful as is indicated in the results section (Section 5). There were some concerns that this method may slow the bank establishment and increase air born invasive species, such as sow thistle (*Sonchus asper*) and prickly lettuce (*Lactuca serriola*). These, however, have been kept to a minimum.

Some additional seeding was done in October 2011, including spike bentgrass (*Agrostis exarata*), meadow barley (*Hordeum brachyantherum*), slender hairgrass (*Deschampsia elongata*), northwest cinquefoil (*Potentilla gracilis*), and wooly sunflower (*Eriophyllum lanatum*).

Manual removal of weeds along with spot spraying of weeds continues on Phase 4. The targeted species includes prickly lettuce, sow thistle, tansy ragwort (*Senecio jacobea*), Himalayan blackberry (*Rubus discolor*), meadow foxtail (*Alopecurus pratensis*), parentucellia (*Parentucellia viscosa*), wild carrot (*Daucus ssp.*), false dandelion (*Nothocalais ssp.*) and velvet grass. No additional maintenance activities have been necessary.

Normal Spot spraying and hand plant removal will continue. Due to the success of the site, no additional plantings are planned.

3.0 AS-BUILT PLANS

No as-built plans were required or submitted for Phase 4 due to the lack of substantial grading changes made.

4.0 PHASE 4 HYDROLOGY PERFORMANCE STANDARDS, METHODOLOGY, AND RESULTS

The Phase 4 objective is to create areas that will hold precipitation to create seasonal saturation and inundation and meet the criteria defined in the 1987 Corps of Engineers Wetlands Delineations Manual (1987 Wetland Delineation Manual) and regional supplements.

A one time hydrology delineation was conducted between February 6 and April 30, 2011. The monitoring included 31 monitoring tubes over the 47.2 acres of Phase 4. The results of the 2011 monitoring indicated the upland knoll area (except for one monitoring location) did not qualify as jurisdictional wetland which is as expected. The hydrology of the remainder of the site all qualified as jurisdictional wetland, with standing water at a maximum of 12" below the surface.

Due to some questions with the upland knoll 2011 results, additional monitoring of this area occurred in March 2012. The results of this monitoring obtained very similar results to the 2011 monitoring. Jamie Davis (USACE) and Dana Field (DSL) reviewed both the monitoring results

and the site itself. They determined that there was a slight variation in the upland knoll perimeter from the original determination but the change in the acreage was negligible, so the original determination acreage was acceptable. All Phase 4 hydrology monitoring requirements have been met and approved.

5.0 PHASE 4 VEGETATION PERFORMANCE STANDARDS, METHODOLOGY AND RESULTS

5.1. Performance Standards

A. HERBACEOUS PERFORMANCE STANDARDS

1. The cover of native species is at least 60%. These densities will be a combination of planted individuals and natural recruitment.
2. The cover of invasive species is no more than 10%.
3. The wetland's prevalence index is less than 3.0.
4. By Year 3 and thereafter, there are at least six different native species or groupings of native species. To qualify, a species must have at least 5% average cover in the habitat class, and occur in at least 10% (three or more based on 31 plots) of the plots sampled. To qualify as a grouping of native species, each member of the grouping must have between 1 and 4% average cover. The grouping, will total 5% average cover and occur in at least 10% (three or more based on 31 plots) of the plots sampled.
5. Bare substrate represents no more than 20% cover.

*Non-native invasive species to be included: any plant species that appears on the current Oregon Department of Agriculture Noxious Weed list, plus known problem species including *Phalaris arundinacea*, *Mentha pulegium*, *Holcus lanatus*, *Anthoxanthum odoratum*, and the last crop plant if it is non-native. Beginning in year two of monitoring, DSL may consider a non-native plant species invasive if it comprises more than 15% cover in 10% or more of the sample plots in any habitat class, and increases in cover or frequency from the previous monitoring period. Plants that meet this definition should be considered invasive for all successive years of monitoring.

B. UPLAND KNOLL PERFORMANCE STANDARDS

1. The cover of native species is at least 60%.
2. The cover of invasive species is no more than 10%.

5.2 Methodology

Transect and sample plot locations were laid out in a stratified arrangement with equal distance between each transect and sample plot (See Attachment 1 - Monitoring Point Location Map). Transects were laid out in a stratified arrangement along one baseline with equal distance between each transect (approximately 400'). Transects run north to south with the sampling plots predetermined and systematically plotted on transects at equal distance from each other; the location of the first was randomly chosen. The starting points of the sample plots were staggered in order to cover a broader area. The sample plots were permanently identified in the field and are plotted on a site map. The upland knoll was monitored with five sample plots. Each sample point is the center of a circular plot, the radius of which will be five feet for the herbaceous layer and 30 feet radius for the overstory layer within the upland knoll, with center point for the herbaceous and overstory radius being the same. Each sample plot will be evaluated for species, indicator status, native/non-native and invasive status, the percent cover of each species present. If a plot includes bare soil, the reason for the bare soil will be noted and the percent it covers of each plot included. The number of stems for each tree species will be counted.

5.3 Phase 4 Vegetation Monitoring Results

Vegetation monitoring was conducted June 11, 2014 by Mark Knaupp and John Knaupp. Attachment 2 includes spread sheets with the results of the sampling. Thirty-six monitoring plots were examined. The spread sheets include the botanical names, common names, indicator status, origin (native or non-native), moisture index, and planted or volunteer status. The plant species list includes all species found within Phase 4 within the plots or found while walking between sample plots throughout the entire year. Phase 4 continues to have a remarkable diverse native forb population. In 2013, there were six different native species or groupings of native species, this year that number increased to 10. As the wetland ages, its diversity will continue to change as both the planted and volunteer species sort themselves out in the restored wetland.

5.3.1 Wet Prairie and Emergent Vegetation

Forty-four native species were identified within the wet prairie and emergent vegetation plots in 2014. The ground cover of Phase 4 is comprised of 49.7% herbaceous species, 48.7% grass species and 1.7% combined bareground and dead grass (primarily due to recent spot spaying). The three most abundant herbaceous species are woolly sunflower at 10.94%, one-sided sedge (*Carex unilateralis*) at 10.81% and creeping spike rush at 6.71%. The most three common grass species are meadow barley (15.58), slender hairgrass at 11.55% and American sloughgrass at 12.29%.

The performance criteria for herbaceous wetland were again met for all five of the requirements.

Required: The cover of native species is at least 60%. These densities will be a combination of planted individuals and natural recruitment. **Met, with 98% of the total ground cover (including bareland) being native species.**

Required: The cover of invasive species is no more than 10%. **Met, with 0.0% of non-native invasive plant cover.**

Required: The wetland's prevalence index is less than 3.0. **Met, with a moisture index of 1.66.**

Required: By Year 3 and thereafter, there are at least six different native species or groupings of native species. To qualify, a species must have at least 5% average cover in the habitat class, and occur in at least 10% (three or more based on 31 plots) of the plots sampled. To qualify as a grouping of native species, each member of the grouping must have between 1% and 4% average cover. The grouping will total 5% average cover and occur in at least 10% (three or more based on 31 plots) of the plots sampled. **Met with ten individual species/groupings with 5% or more average cover in at least 10% of the plots.**

Required: Bare substrate represents no more than 20% cover. *Met with 0.48% bareground and 1.19 dead grass the majority of which is due to recent spot spraying.*

5.3.2 Upland Knoll

In 2013 there were 13 native species identified in the five upland knoll plots, in 2014 this increased to 20 native species. The most common native species are meadow barley (*Hordeum brachyantherum*), California oatgrass (*Danthonia californica*) and northwest cinquefoil (*Potentilla gracilis*).

The performance criteria for **upland knoll** were met for two of the two requirements.

Required: The cover of native species is at least 60%. *Met with 100% native vegetation.*

Required: The cover of invasive species is no more than 10%. *Met, with 0% non-native invasive species.*

6.0 PHOTO POINT MONITORING

Photos from each of the established six photo points Phase 4 are included as Attachment 3. Photos were taken on June 12, 2014.

7.0 CREDIT SALES SUMMARY

Table 3 – Credit Sales Summary

Date	Name	DSL Permit #	ACOE Permit #	Credits Purchased
11/20/09	Advantage Precast, Inc	ENF6899	NA	1.567
12/1/09	State of Oregon	34119-FP	2004-803	0.40
12/14/09	Central School District	42503-RF	2009-00253	1.70
12/14/09	GreenTree, LLC	39251	2007-842	0.44
12/23/09	ODOT	10008-RF	1996-00016	1.46
12/23/09	Pfeiffer Roofing, Inc.	ENF-6902	NA	0.19
2/3/10	Windigo Properties, LLC	42654	2009-302	0.89
4/5/10	State of Oregon	43698-RF	2009-337	0.27
8/3/10	3510 Lancaster LLC	4145552-RF	2008-586	0.057
8/10/10	City of Salem	4925-ENF 4926-ENF 4927-ENF 4928-ENF 4929-ENF	NA	0.22
8/19/10	Troy and Gina Bundy	7014-ENF	NA	0.03
8/12/10	Les Toth dba Kathleen Manor	6994-ENF	NA	0.64

11/22/10	City of Dundee	45474-RF	2010-154	0.64
12/14/10	City of Oregon City	44900	2010-32	0.24
12/28/10	Eyvette & Loran Davidson	6612-ENF	NA	0.07
2/12/11	The Lenity Group	45110	2009-654	1.65
6/6/11	City of Salem	46640-GP	2011-98	0.14
6/23/11	Investors Brokerage, Inc.	46715-RF	2006-348	0.29
Total Phase 3 Credit Sales in Nov. 2009 thru June 2011				10.894
7/5/11	City of Salem	46653-GP	2010-129	0.166
7/14/11	City of Wilsonville	45448-FP	2010- 40	0.40
10/17/11	Eyvette and Loran Davidson	ENF6612	N/A	0.25
10/11-3/12	Sean Tyler Keys LLC	35920-RF	2010-402	0.34
11/14/11	Brian Sparks	47906 RF	2011-348	0.17
12/16/11	ODOT	48315	2011-487	0.042
3/31/12	ODOT	48392	2011-466	0.05
5/28/12	Pac Trust	49112	2012-48	0.41
6/11/12	MWSH Salem, LLC	48938-RF	2012-37	0.05
Total Phase 3 Credit Sales in July 2011 thru June 25, 2012				1.878
6/27/12	NorPac Foods	50096-FP	NA	0.33
8/3/12	NorPac Foods	50096-FP	2011-373	0.50
8/20/12	City of Wilsonville	49456-RF	2012-68	.033
8/31/13	NW Freedom Corp	7125-ENF	NA	0.14
10/1/12	Wells Fargo Bank	50180-RF	2010-402	0.165
10/16/12	Eyvelle Davidson	ENF6612	NA	0.25
11/21/12	City of Salem	51517	2012-458	.31
4/27/13	City of Wilsonville	52665-RF	2013	.01
Total Phase 3 Credit Sales June 27, 2012 thru July 1, 2013				1.738
7/16/13	Chehalem Park & Rec	7275-ENF	NA	0.14
10/15/13	Eyvette Davidson	6612-ENF	NA	0.25
12/26/13	Meriwether Farms	25566-RP	NA	0.75
3/20/14	Baker Rock	14933-RP, 16275-PR	98-1454	0.99
4/3/14	J.C. Compton Co.	7395-ENF	NA	2.40
4/9/14	Mt. West Investment	54536-RF	2013-295	0.063
4/17/14	OR Pride Nurseries	25818-RF	NA	0.14
8/12/14	Eyvette Davidson	6612-ENF	NA	0.25
8/23/14	Calais at Villebois	55979-FP	NA	0.37
Total Phase 3 Credit Sales July 1, 2013 – August 31, 2014				5.353
Total Phase 3 Credits Sold				19.863

There are 41.5 credits available for Phase 3, all of which have been released. Of these 41.5 credits, 19.863 have been sold leaving 21.637 credits released and unsold.

8.0 CREDIT RELEASE REQUEST

No credit release for Phase 4 is being requested due to slow sales and the lack of need for credits at this time. However, Phase 4 is eligible for credit releases #1, #2, #3, #4 and #5 totaling 75% release of the total credits (75% of the 42.58 total potential credits is 31.935 credits available for release). All credits are eligible for release upon signing of the conservation easement and adding Phase 4 to the long term management plan.

9.0 ENDOWMENT AND LONG TERM STEWARD

The sponsor signed a conservation easement on Phase 3 with The Wetlands Conservancy. The language has been finalized with the IRT and The Wetlands Conservancy, and has been recorded by the regulatory agencies.

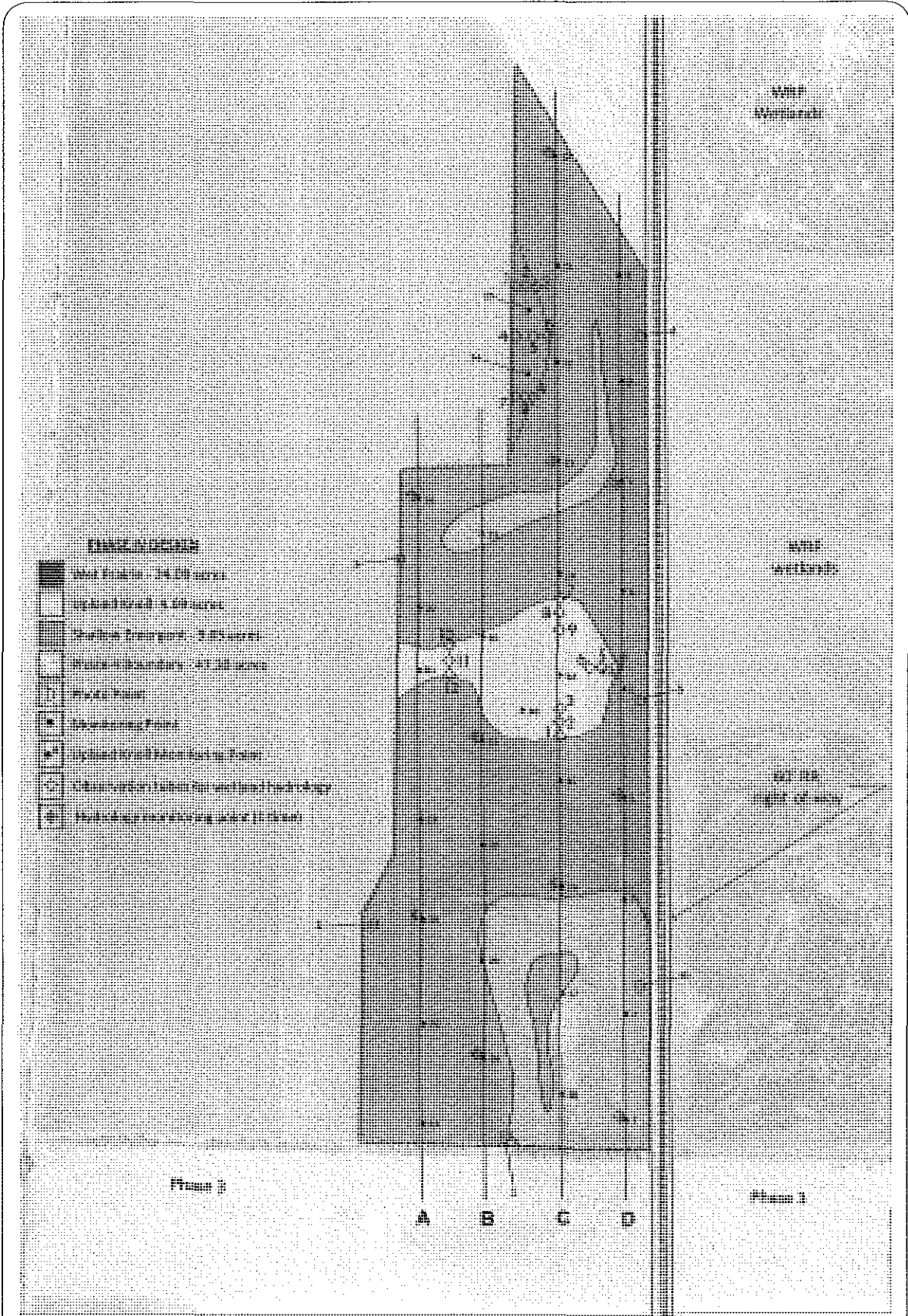
The Wetlands Conservancy has agreed to act as the long-term steward for Phase 4. No easement is yet in place, but the language approved and used for Phase 3 will be used for Phase 4. The long term management plan, including funding information for Phase 4, will be submitted to the IRT for approval, prior to the release of the 25% credit release dedicated to the Long Term Management Plan and Conservation Easement.

10.0 BANK CLOSURE

As requested in the 2013 monitoring report, DSL approved closure of Phases 2 and 3 of the Bank (see Attachment 4). We are still waiting for concurrence by the COE. Phases 1, 2 and 3 of the Bank are now closed and under the Management of the Wetlands Conservancy.

Attachment 1

MONITORING POINT LOCATION MAPS

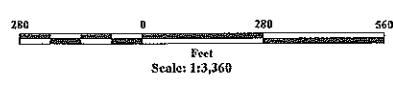


PHASE IV MONITORING

- Area Point - 14.00 acres
- Water Point - 1.00 acres
- Water Point - 2.00 acres
- Water Point - 3.00 acres
- Water Point - 4.00 acres
- Water Point
- Water Point
- Water Point (with bank area)
- Water Point (with bank area)
- Water Point (with bank area)

HYDROLOGY MONITORING MAP

Mark Knaupp Property
Phase IV Mud Slough Mitigation Bank Site



Scale: 1" = 280'
Source: Polk County GIS 1.5 ft pixel
Drawn: 7/8/08
Drafted: 8/11/10
Revised: 10/02/10, 10/06/10, 10/08/10



Phase 4 Monitoring Point Location Map

Attachment 2

SAMPLE PLOT MONITORING DATA

nd Mitigation Bank

nergent Plot Data

2014

Plot #s																						
10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
												3										
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5									8					20								
1	10									5												

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	3				5	T					5										2	
	10									6												5
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	13	0	0	0	5	0	0	0	0	0	5	0	0	0	0	0	2	0	0	2	5	
97.0	87.0	100.0	100.0	100.0	95.0	100.0	100.0	100.0	100.0	100.0	95.0	100.0	100.0	100.0	100.0	100.0	98.0	100.0	100.0	98.0	95.0	
2.04	2.00	2.00	1.94	1.66	2.00	2.17	1.90	1.05	2.00					2.78	2.00	2.00	2.15	2.31	2.00	1.55	1.97	2.11

Phase 4 Mud Slough Wetland
Wetland Prairie and Emergent
June 11, 2014

Species Observed		Status	Origin	Wet/Prairie		Ave. % Cover ea									
Botanical Name	Common Name			Vernal	Moisture		Species	1	2	3	4	5	6	7	8
Overstory/Shrub Species															
<i>Populus trichocarpa</i>	Black cottonwood	FAC	native						1						
<i>Salix sitchensis</i>	Sitka willow	FACW	native				2		7					8	
Herbaceous Species															
<i>Achillea millefolium</i>	Western yarrow	FACU	native		4	0.10									
<i>Alisma plantago</i>	Water plantain	OBL	native		1	0.16	T	5						T	
<i>Allium ampletens</i>	Slimeleaf onion	NOL	native	Yes		0.00									
<i>Aster hallii</i>	Hall's aster	FAC	native	Yes	3	1.48									
<i>Bidens cernua</i>	Nodding beggars-tick	FACW	native		2	0.00									
<i>Carnassia quamash</i>	Common camas	FACW	native	Yes	2	0.00									
<i>Carex densa</i>	Dense sedge	OBL	native	Yes	1	0.35			1	T	T		2	2	
<i>Carex feta</i>	Green-sheathed sedge	FACW	native	Yes	2	0.16									
<i>Carex unifloralis</i>	One-sided sedge	FACW	native	Yes	2	10.81	T		70	10	40	49	5	30	
<i>Centaurium umbellatum</i>	Common centuary	FAC	introduced		3	0.00									
<i>Cirsium vulgare</i>	Bull thistle	FACU	introduced		4	0.00									
<i>Downingia elegans</i>	Showy downingia	OBL	native	Yes	1	0.81		25				T			
<i>Eleocharis acicularis</i>	Needle spike-rush	OBL	native	Yes	1	0.00									
<i>Eleocharis ovata</i>	Ovoid spikerush	OBL	native	Yes	1	0.19									
<i>Eleocharis palustris</i>	Creeping spike-rush	OBL	native		1	6.71		53		75		5		5	
<i>Epilobium ciliatum</i>	Hairy willow-herb	FACW	native	Yes	2	5.61	10		2		50		35	3	
<i>Eriophyllum lanatum</i>	Woolly sunflower	NOL	native	Yes		10.94									
<i>Eryngium petiolatum</i>	Rush leaf coyote thistle	OBL	native	Yes	1	0.00									
<i>Galium trifidum</i>	Small bedstraw	FACW	native		2	0.00			T	T	T				
<i>Gnaphalium integrifolia</i>	Willamette Valley gumweed	FACW	native	Yes	2	4.03		15	10	10		20	T		
<i>Hypochaeris radicata</i>	Cat's ear dandelion	FACU	introduced		4	0.00									
<i>Juncus effusus</i>	Common rush	FACW	native		2	0.10									
<i>Juncus tenuis</i>	Slender rush	FACW	native	Yes	2	0.65			2		T		T		
<i>Lactuca serriola</i>	Prickly lettuce	FACU	introduced		4	0.13								T	
<i>Lotus purshianus</i>	Spanish clover	NOL	native	Yes		0.00									
<i>Madia sativa</i>	Coast tarweed	NOL	native			1.06									
<i>Mentha pulegium</i>	Pennyroyal	OBL	introduced		1	0.00						T			
<i>Mimulus guttatus</i>	Common monkey flower	OBL	native	Yes	1	0.00									
<i>Perideridia gairdneri</i>	Gairdner's yampah	FAC	native	Yes	3	0.00									
<i>Plagiobothrys figuratus</i>	Fragrant popcorn flower	FACW	native	Yes	2	0.00	T								
<i>Potentilla gracilis</i>	Northwest cinquefoil	FAC	native	Yes	3	3.65				T			2		
<i>Prunella vulgaris</i>	Self-heal	FACU	native	Yes	4	0.00									
<i>Ranunculus acris</i>	Western yellowcress	FACW	native	Yes	2	0.00	T					T		T	
<i>Rumex crispus</i>	Curly dock	FAC	introduced		3	0.00									
<i>Rumex salicifolius</i>	Willow dock	FACW	native		2	0.32									
<i>Sida leucantha</i>	Nelson's checkermallow	FAC	native		3	0.03									
<i>Sisyrinchium angustifolium</i>	Pointed blue-eyed grass	FACW	native	Yes	2	0.06									
<i>Sonchus asper</i>	Prickly sow-thistle	FAC	introduced		3	0.00									
<i>Veronica americana</i>	American speedwell	OBL	native		1	1.61								50	
<i>Veronica peregrina</i>	Purslane speedwell	OBL	native	Yes	1	0.00			T						
<i>Veronica scutellata</i>	Marsh speedwell	OBL	native		1	0.32						5			
<i>Vicia tetrasperma</i>	Slender vetch	NOL	introduced			0.35									
% Herbaceous Species						49.65									
Grass Species															
<i>Agrostis exarata</i>	Spike bentgrass	FACW	native	Yes	2	7.32							T	T	
<i>Alopecurus geniculatus</i>	Water foxtail	OBL	native		1	0.00									
<i>Beckmannia syzigachne</i>	American sloughgrass	OBL	native	Yes	1	12.29	90	2	15	5	5	20	1	10	
<i>Danthonia californica</i>	California oatgrass	NOL	native	Yes		0.48				T					
<i>Deschampsia cespitosa</i>	Tufted hairgrass	FACW	native	Yes	2	0.16									
<i>Deschampsia elongata</i>	Slender hairgrass	FACW	native	Yes	2	11.55							10		
<i>Glyceria occidentalis</i>	Western mangrass	OBL	native		1	0.00								T	
<i>Hordeum brachyantherum</i>	Meadow barley	FACW	native	Yes	2	15.58				5	1	25			
<i>Poa pratensis</i>	Kentucky bluegrass	FAC	introduced		3	0.16									
<i>Poa trivialis</i>	Rough bluegrass	FACW	introduced		2	1.13					T		20		
% Grass Species						48.68									
Dead grass						1.19									
Bareground						0.48								15	
Relative % non-native invasive canopy cover:		Mean =	0.0				0	0	0	0	0	0	0	0	
Relative % non-native canopy cover:		Mean =	1.8				0	0	0	0	0	0	20	0	
Vegetation that is Native		Mean =	98.2				100.0	100.0	100.0	100.0	100.0	100.0	80.0	100.0	
Sample plot average moisture index		Mean =	1.66				1.1	1.15	1.84	1.4	1.95	1.70	1.99	1.38	
Total # of native Species: 44		# of Wet Prairie or Vernal Pool Species = 24													
Total number of Species Sampled: 55 Total Number of Sample Plots: 31															
*Non-native invasive species to be included: any plant species that appears on the current Oregon Department of Agriculture Noxious Weed list, plus known problem species including <i>Phalaris arundinacea</i> , <i>Mentha pulegium</i> , <i>Holcus lanatus</i> , <i>Anthoxanthum odoratum</i> , and the last crop plant if it is non-native. Beginning in year 2 of monitoring, DSL may consider a non-native species invasive if it comprises more than 15% cover in 10% or more of the sample plots in any habitat class, and increases in cover or frequency from the previous monitoring period. Plants that meet this definition should be considered invasive for all successive years of monitoring.															

**Phase 4 Mud Slough Wetland Mitigation Bank
Upland Knoll Plot Data - June 11, 2014**

Species Observed					Ave. %	Sample Plot Number				
Botanical Name	Common Name	Status	Origin	Index	Ave. % Cover	1	2	3	4	5
Overstory/Shrub - number of plants										
<i>Crataegus douglasii</i>	Black hawthorne	FAC	native	3				1		
<i>Pinus ponderosa</i>	Willamette V. ponderosa	FACW	native	2						1
<i>Quercus garryana</i>	Oregon white oak	NOL	native			2	2	2	3	
<i>Symphoricarpos albus</i>	Snowberry	FACU	native	4						5
Herbaceous Species - percent cover					ea. Species					
<i>Achillea millefolium</i>	Western yarrow	FACU	native		11.00	15	5	10	15	10
<i>Allium amplexans</i>	Slimleaf onion	NOL	native		0.00		T			
<i>Cirsium arvense</i>	Canada thistle	FACU	introduced	4	0.00		T			
<i>Eleocharis ovata</i>	Ovoid spikerush	OBL	native	1	0.00					T
<i>Epilobium ciliatum</i>	Hairy willow-herb	FACW	native	2	1.00	5		T		T
<i>Epilobium angustifolium</i>	Fireweed	FACU	native	4	0.00		T			T
<i>Eriophyllum lanatum</i>	Woolly sunflower	NOL	native		7.00	15	5	3	2	10
<i>Potentilla gracilis</i>	Northwest cirquefoil	FAC	native	3	19.00	40	40	10	5	
<i>Prunella vulgaris</i>	Self-heal	FACU	native	4	0.00				T	T
<i>Sidalcea nelsoniana</i>	Nelson's checkermallow	FAC	native	3	0.00		T			
<i>Wyethia angustifolia</i>	Narrow-leaf mules' ear	FACU	native	4	0.00				T	
Grass Species										
<i>Agrostis exarata</i>	Spike bentgrass	FACW	native	2	0.00					T
<i>Bromus carinatus</i>	California brome	NOL	native		1.00					5
<i>Danthonia californica</i>	California oatgrass	NOL	native		23.60	15	10	45	38	10
<i>Hordeum brachyantherum</i>	Meadow barley	FACW	native	2	37.40	10	40	32	40	65
<i>Sisyrinchium angustifolium</i>	Blue-eyed grass	FACW	native	2	0.00		T			
<i>Elymus glaucus</i>	Blue wild rye	FACU	native	4			T			T
Bareground	Mean =	0.00								
Relative Percent Native Cover	Mean =	100.00				100	100	100	100	100
Relative Percent Non-Native Cover	Mean =	0.00				0	0	0	0	0
Total # of Native Species: 20										

**Phase 4 Mud Slough Wetland Mitigation Bank
Plant Species List
June, 2014**

Includes species identified in monitored plots, planted, or found while walking between sample plots throughout the entire year.

		Status	Origin	Wet Prairie Vernal pool	Moisture Index	Planted
Overstory						
<i>Crataegus douglasii</i>	Black hawthorne	FAC	native		3	
<i>Pinus ponderosa</i>	Willamette V. ponderosa pine	FACW	native		2	X
<i>Populus trichocarpa</i>	Black cottonwood	FAC	native		3	
<i>Pyrus fusca</i>	Pacific crab apple	NOL	native			X
<i>Quercus garryana</i>	Oregon white oak	NOL	native			X
<i>Salix sitchensis</i>	Sitka willow	FACW	native		2	
<i>Tsuga heterophylla</i>	Western red cedar	FACU	native		4	X
Shrubs						
<i>Amelanchier alnifolia</i>	Serviceberry	FACU	native		4	X
<i>Oemleria cersiformis</i>	Indian plum	FACU	native		4	X
<i>Symphoricarpos albus</i>	Snowberry	FACU	native		4	X
Herbaceous Species						
<i>Achillea millefolium</i>	Western yarrow	FACU	native		4	X
<i>Alisma plantago</i>	Water plantain	OBL	native		1	
<i>Allium amplexans</i>	Slimleaf onion	NOL	native	Yes		X
<i>Aster halii</i>	Hall's aster	FAC	native	Yes	3	X
<i>Bidens cernua</i>	Nodding beggars-tick	FACW	native		2	X
<i>Bidens frondosa</i>	Leafy beggars-tick	FACW	native		2	X
<i>Boisduvalia densiflora</i>	Dense spike-primrose	FACW	native	Yes	2	X
<i>Camassia quamash</i>	Common camas	FACW	native	Yes	2	X
<i>Castilleja tenuis</i>	Hairy Indian paintbrush	NOL	native			
<i>Cerastium vulgatum</i>	Mouse-ear chickweed	FACU	introduced		4	
<i>Carex densa</i>	Dense sedge	OBL	native	Yes	1	X
<i>Carex feta</i>	Green-sheathed sedge	FACW	native	Yes	2	X
<i>Carex unilateralis</i>	One-sided sedge	FACW	native	Yes	2	X
<i>Centaureum umbellatum</i>	Common centuary	FAC	introduced		3	
<i>Cerastium vulgatum</i>	Mouse-ear chickweed	FACU	introduced		4	
<i>Cirsium arvense</i>	Canada thistle	FACU	introduced		4	
<i>Cirsium vulgare</i>	Bull thistle	FACU	introduced		4	
<i>Clarkia amoena var caurina</i>	Farrwell to spring	NOL	native			X
<i>Crepis setosa</i>	Bristly hawksbeard	NOL	native			
<i>Daucus carota</i>	Queen Anne's lace	NOL	introduced			
<i>Downingia elegans</i>	Showy downingia	OBL	native	Yes	1	X
<i>Eleocharis acicularis</i>	Needle spike-rush	OBL	native	Yes	1	
<i>Eleocharis ovata</i>	Ovoid spikerush	OBL	native	Yes	1	X
<i>Eleocharis palustris</i>	Creeping spike rush	OBL	native		1	
<i>Eryngium petiolatum</i>	Rush leaf coyote thistle	OBL	native	Yes	1	X
<i>Epilobium angustifolium</i>	Fireweed	FACU	native		4	
<i>Epilobium ciliatum</i>	Hairy willow-herb	FACW	native	Yes	2	
<i>Epilobium paniculatum</i>	Autumn willow-herb	NOL	native	Yes		
<i>Eriophyllum lanatum</i>	Woolly sunflower	NOL	native	Yes		X
<i>Galium trifidum</i>	Small Bedstraw	FACW	native		2	
<i>Galium parisiense</i>	Wall bedstraw	UPL	introduced		5	
<i>Ghaphalium palustre</i>	Lowland cudweed	FAC	native	Yes	3	
<i>Grindelia integrifolia</i>	Willamette Valley gumweed	FACW	native	Yes	2	X
<i>Hypochaeris radicata</i>	Cat's ear dandelion	FACU	introduced		4	
<i>Juncus bufonius</i>	Toad rush	FACW	native	Yes	2	
<i>Juncus effusus</i>	Common rush	FACW	native		2	
<i>Juncus tenuis</i>	Slender rush	FACW	native	Yes	2	X
<i>Kickxia elatine</i>	Sharppoint fluvelin	UPL	introduced		5	
<i>Lactuca serriola</i>	Prickly lettuce	FACU	introduced		4	
<i>Lathyrus sphaericus</i>	Grass pea-vine	NOL	introduced			
<i>Lamium amplexicaule</i>	Henbit	NOL	introduced			

<i>Lomatium nudicaule</i>	Barestem desert-parsley	NOL	native	Yes		X
<i>Lotus purshianus</i>	Spanish clover	NOL	native	Yes		X
<i>Lupinus micranthus</i>	Minature lupine	NOL	native			
<i>Lupinus polyphyllus</i>	Bigleaf lupine	FAC	native	Yes	3	X
<i>Lythrum hyssopifolia</i>	Hyssop loosesstrife	OBL	introduced		1	
<i>Lythrum portula</i>	Spatulaleaf loosesstrife	NOL	introduced			
<i>Madia sativa</i>	Coast tarweed	NOL	native			
<i>Medicago lupulina</i>	Black medic	FAC	introduced		3	
<i>Mentha pulegium</i>	Pennyroyal	OBL	introduced		1	
<i>Mimulus guttatus</i>	Common monkey flower	OBL	native	Yes	1	
<i>Navarretia intertexta</i>	Needle-leaved navarretia	FACW	native	Yes	2	
<i>Parentucellia viscosa</i>	Parentucellia	FAC	introduced		3	
<i>Perideridia gairdneri</i>	Gairdner's yampah	FAC	native	Yes	3	X
<i>Plagiobothrys figuratus</i>	Fragrant popcorn flower	FACW	native	Yes	2	X
<i>Plagiobothrys scouleri</i>	Scouler's popcorn flower	FACW	native	Yes	2	X
<i>Plantago major</i>	Common plantain	FACU	introduced		4	
<i>Polygonaceae persicaria</i>	Lady's thumb	FACW	introduced		2	
<i>Potentilla gracilis</i>	Northwest cirquefoil	FAC	native	Yes	3	X
<i>Prunella vulgaris</i>	Self-heal	FACU	native	Yes	4	X
<i>Ranunculus sceleratus</i>	Cellery leaf buttercup	OBL	native		1	
<i>Ranunculus occidentalis</i>	Western buttercup	FAC	native	Yes	3	X
<i>Rorippa curvisiliqua</i>	Western yellowcress	FACW	native	Yes	2	
<i>Rumex crispis</i>	Curly dock	FAC	introduced		3	
<i>Rumex salicifolius</i>	Willow dock	FACW	native		2	
<i>Senecio jacobea</i>	Tansy ragwort	FACU	introduced		4	
<i>Sidalcea campestris</i>	Meadow checker-mallow	NOL	native			X
<i>Sidalcea nelsoniana</i>	Nelson's checkermallow	FAC	native		3	X
<i>Sisyrinchium augustifolium</i>	Pointed blue-eyed grass	FACW	native	Yes	2	X
<i>Sonchus asper</i>	Prickly sow-thistle	FAC	introduced		3	
<i>Taraxicum officinale</i>	Dandelion	FACU	introduced		4	
<i>Typa latifolia</i>	Cat-tail	OBL	native		1	
<i>Veronica americana</i>	American speedwell	OBL	native		1	
<i>Veronica peregrina</i>	Purslane speedwell	OBL	native	Yes	1	
<i>Veronica scutellata</i>	Marsh speedwell	OBL	native		1	
<i>Vicia hirsuta</i>	Hairy vetch	NOL	introduced			
<i>Vicia tetrasperma</i>	Slender vetch	NOL	introduced			
<i>Wyethia angustifolia</i>	Narrow-leaf mule's ears	FACU	native		4	X
Grass Species						
<i>Agrostis exarata</i>	Spike bentgrass	FACW	native	Yes	2	X
<i>Alopecurus aequalis</i>	Short-awned foxtail	OBL	native		1	
<i>Alopecurus geniculatus</i>	Water foxtail	OBL	native		1	
<i>Alopecurus pratensis</i>	Meadow foxtail	FACW	introduced		2	
<i>Beckmania syzigachne</i>	American sloughgrass	OBL	native	Yes	1	X
<i>Bromus carinatus</i>	California brome	NOL	native			
<i>Danthonia californica</i>	California oatgrass	NOL	native	Yes		X
<i>Deschampsia cespitosa</i>	Tufted hairgrass	FACW	native	Yes	2	X
<i>Deschampsia elongata</i>	Slender hairgrass	FACW	native	Yes	2	X
<i>Echinochloa crus-galli</i>	Barnyard grass	FACW	introduced		2	
<i>Elymus glaucus</i>	blue wild rye	FACU	native		4	
<i>Festuca arundinacea</i>	Tall fescue	FAC	introduced		3	
<i>Festuca myuros</i>	Rat-tail fescue	NOL	introduced			
<i>Glyceria borealis</i>	Northern mannagrass	OBL	native		1	
<i>Glyceria occidentalis</i>	Western mannagrass	OBL	native		1	X
<i>Holcus lanatus</i>	Velvet grass	FAC	introduced		3	
<i>Hordeum brachyantherum</i>	Meadow barley	FACW	native	Yes	2	X
<i>Panicum capillare</i>	Common witchgrass	FACU	native	Yes	4	
<i>Poa annua</i>	Annual bluegrass	FAC	introduced		3	
<i>Poa pratensis</i>	Kentucky bluegrass	FAC	introduced		3	
<i>Poa trivialis</i>	Rough bluegrass	FACW	introduced		2	
<i>Vulpia myuros</i>	Rat-tail fescue	FAC	introduced		3	

Attachment 3

MONITORING PHOTOS

PHOTO POINT #1 Facing North (June 2014)

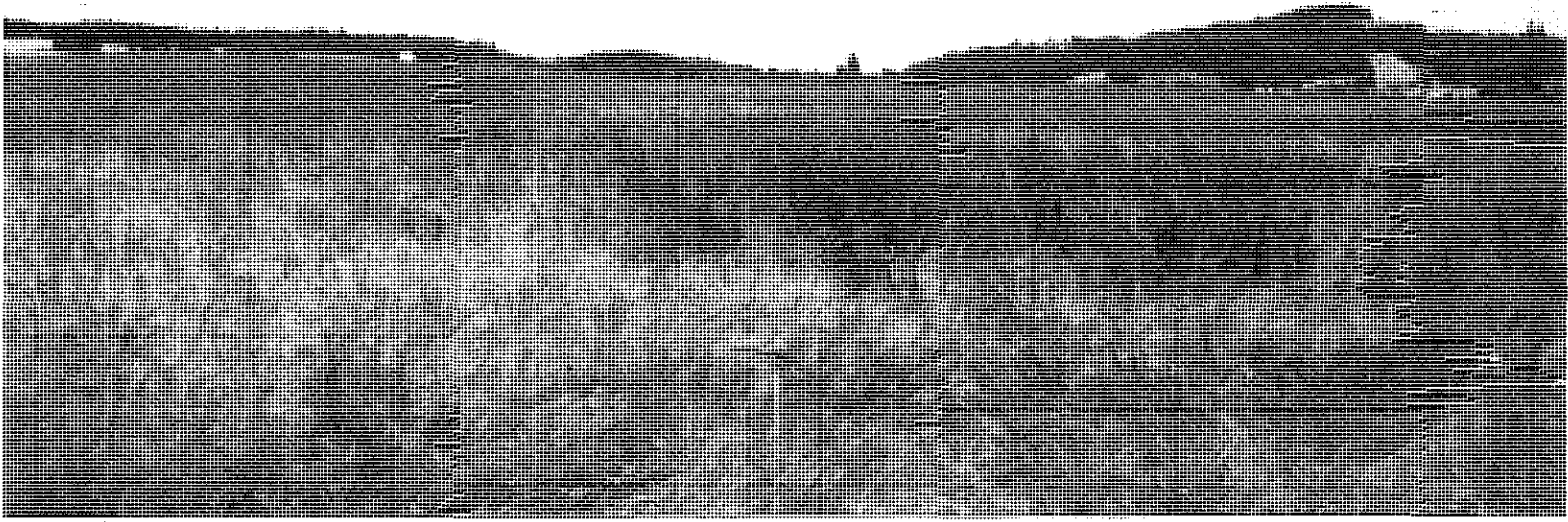


PHOTO POINT #2 Facing East (June 2014)

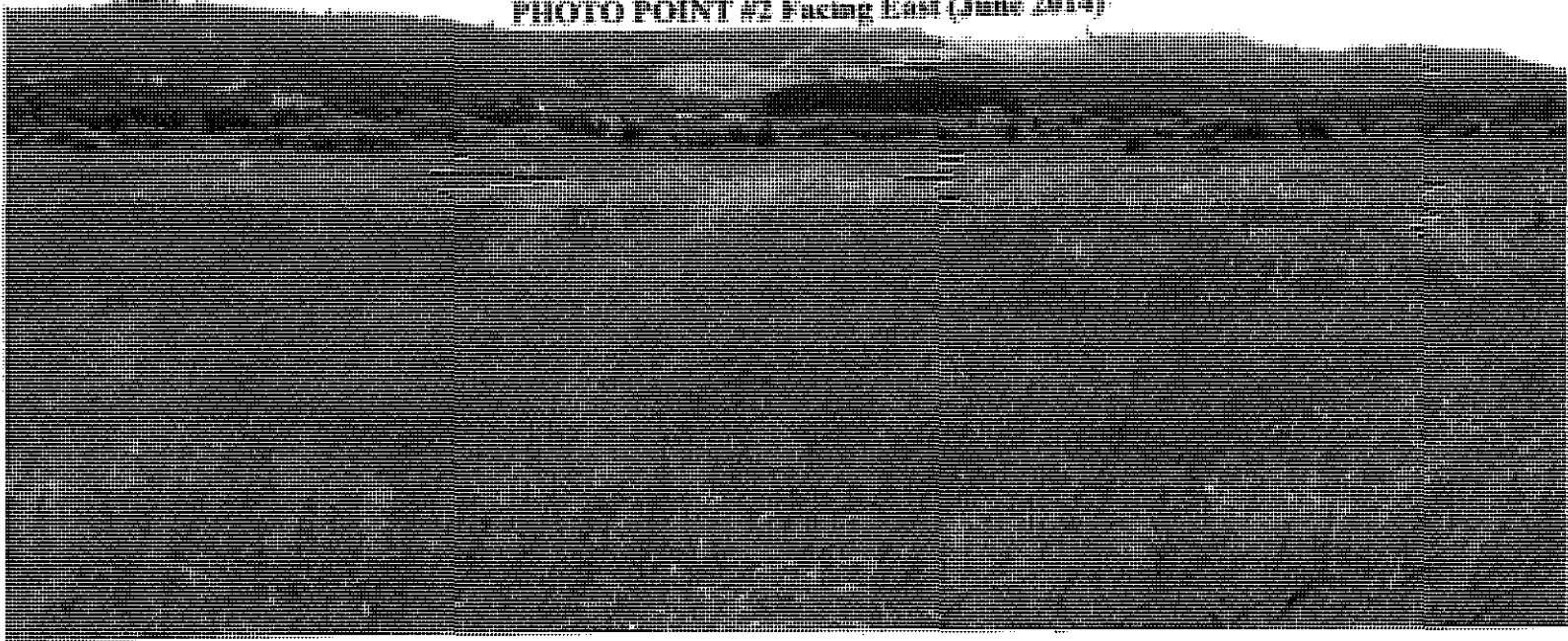


PHOTO POINT #3 Facing East (June 2014)

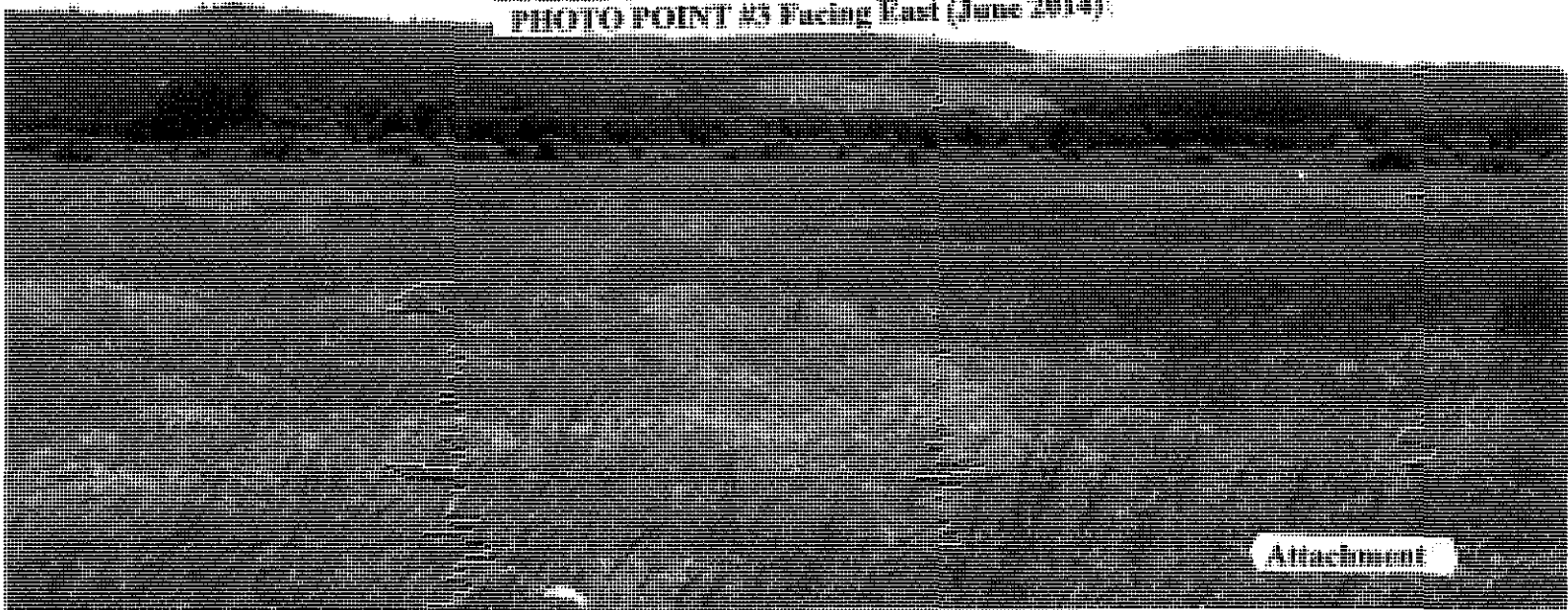


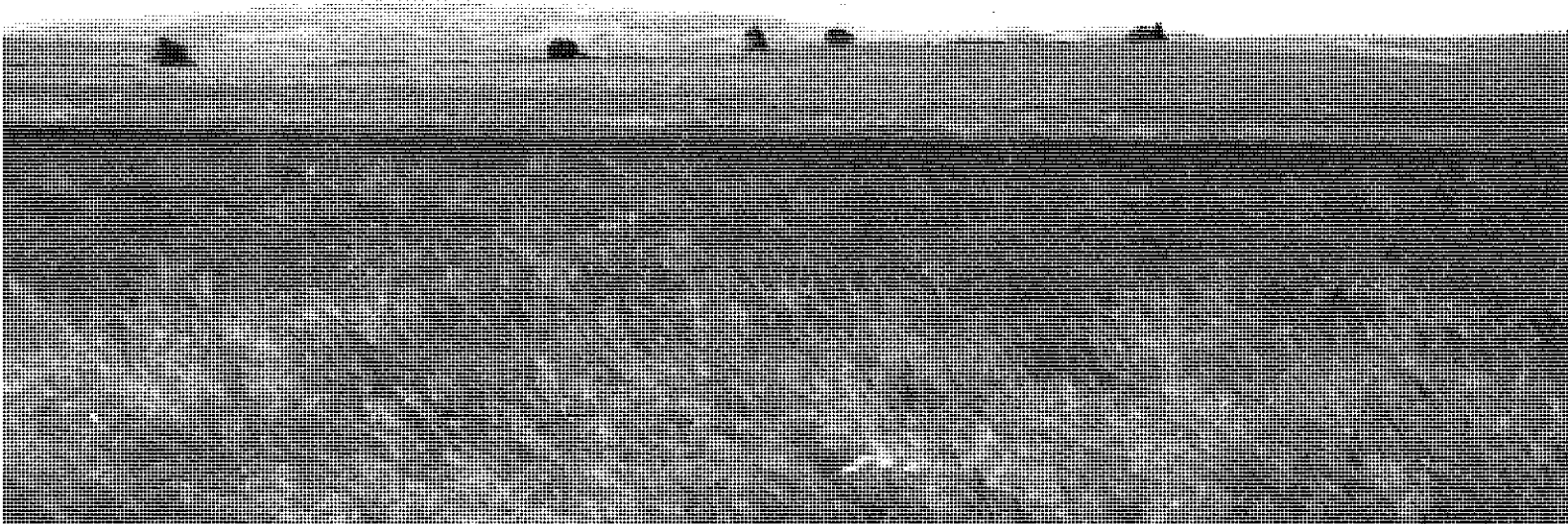
PHOTO POINT #4 Facing West (June 2014)



PHOTO POINT #5 Facing West (June 2014)



PHOTO POINT #6 Facing West (June 2014)



Attachment 4

DSL Phases 2 and 3 Closure Letter



Oregon

John A. Kitzhaber, MD, Governor

Department of State Lands

775 Summer Street NE, Suite 100

Salem, OR 97301-1279

(503) 986-5200

FAX (503) 378-4844

www.oregonstatelands.us

March 19, 2014

DF 600

MARK KNAUPP

1857 N GREENWOOD RD

RICKREALL OR 97371

State Land Board

John A. Kitzhaber, MD

Governor

RE: Mud Slough Mitigation Bank:
Completion and Bank Closure Certification for phases 1, 2 and 3.

Kate Brown

Secretary of State

Dear Mark;

Ted Wheeler

State Treasurer

I have reviewed the monitoring reports for the 2013 growing season and am pleased to confirm that the expectations for the performance of the bank have been met. The Bank Instrument for phase 3 provides the bank may be closed at the end of the formal monitoring period and satisfaction of all standards. Phases 1 and 2 met their standards previously.

I understand that a Conservation easement and endowment were established voluntarily for phases 1 and 2 of the bank, and that an easement and endowment consistent with the bank Instrument has been established for phase 3. The Wetlands Conservancy has accepted stewardship of these 3 phases of the bank. Today we received an update from the Wetlands Conservancy stating that the endowment account has grown sufficiently to meet the expected maintenance costs for phase 1, 2, and 3 as identified in the Long Term Plan approved by DSL in 2012. Therefore, DSL hereby certifies that Phases 1, 2, and 3 of the bank are closed. DSL will release the financial surety via separate letter.

Please note that the Bank Instrument for Phase 3 calls for annual reporting sufficient to verify that performance standards continue to be met until 5 years after the last credit is sold.

Acreage adjustments to phases 1 and 2 were noted in the phase 4 bank Instrument. These adjustments revise upward the acres and credits due for phases 1 and 2. These additional **1.22** credits (noted * below) will be released with the first release for phase 4. They will not trigger further monitoring.

Credit summary:

Phase 1 was approved in 2000 and sold out all **28.12*** credits in 2005.

Phase 2 was approved in 2004 and sold out all **45.7*** credits in 2009.

Phase 3 was approved in 2008 and earned **41.5** credits; sales are still in progress.

Acreage summary:

Phase 1 enhanced 57.6 acres of cropped wetland, total adjusted **57.6** acres

Phase 2 enhanced 8 ac cropland, restored 41.7ac, total adjusted **50.3** acres

Phase 3 enhanced 77.4 ac cropland, restored 1.5 ac, total **81.5** acres.

Phase 4 of the Bank has been underway since approval in 2011, but at your request none of the expected 42.58 credits have yet been released. Phase 4 will enhance 1.24 ac cropland, restore 40.1 ac, create 1.77 ac, and manage 4.09 ac of upland buffer, for a total of 47.2 acres. We understand a similar conservation easement will be prepared and an appropriate endowment amount will be proposed for agency approval when Phase 4 is ready to begin long-term stewardship.

Congratulations on completing another phase of your bank. We look forward to further successes in phase 4. You may choose to inquire whether the Corps concurs with DSL findings in these matters. Please contact me if there are any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Dana Field", written over a horizontal dashed line.

Dana Field
Mitigation Specialist

CC: IRT
Esther Lev, The Wetlands Conservancy
Dan Cary, DSL