Mitigation Monitoring Report Cover Sheet
Oregon Department of State Lands

Block 1: Report Information

DSL Permit Number: RF-36703
COE Permit Number: *Nationwide Permit 27* -#200500701
Permittee: *Gilmour*
County: *Benton* Report Date: December 26, 2012 Monitoring Year 6
Date Removal-Fill Activity Completed:
Date mitigation was completed Grading: 10*/06* Planting: *5/07, 10/07*
Report submitted by: Oregon Wetlands LLC

Block 2: Monitoring Report Purpose

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

X Compensatory **freshwater** 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 has a monitoring requirement.
Voluntary wetland enhancement, creation or restoration (General authorization or individual permit) not funded with money from our wetland mitigation revolving fund.
Voluntary wetland enhancement, creation or restoration (General authorization or individual permit) funded with money from **our wetland mitigation revolving fund.**
X **Mitigation Bank** Report
Other: _____

Block 3: Results

	Success Criteria	Met? (Y/N)	Comments/Reasons for Failure*
1.	Emergent Herbaceous	3 of 3 requirements	
2.	Wetgrass Prairie	5 of 6 requirements	Weighted Moisture index is 1.96, slightly wetter than the 2-3 goal.
3.	Shrub and Forest Restoration	6 of 6 requirements	
4.	Forest - Enhanced	2 of 2 requirements	Year 5 performance standard
5.	Hydrology - Delineation	1 of 1 requirements	

Remedial work recommended	Yes	No X
Deed Restriction or other protection instrument attached (noted: if a filed deed restriction was a required as a permit condition, please attach a copy): *previously submitted*	Yes	No
Final Monitoring Report?	Yes	No X
Requesting release or partial release of bond/credits	Yes	No X

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LIST OF ATTACHMENTS

1.0 REGULATORY BACKGROUND

The purpose of this report is to summarize the progress of the Evergreen Creek Wetland Mitigation Bank (Bank). The Bank is located on the west side of Bellfountain Road, at the intersection of Bellfountain and 53rd Street in T12S, R5W, Sec. 19, Tax Lot 700. The letter of approval for the Bank was signed on February 27, 2007 and is permitted as ACOE permit #200500701.

The Bank is 174.52 acres, which includes a combination of enhancement of cropped wetland (161.5 acres), enhancement of remnant ash and shrub/scrub riparian area (13.4 acres). The total potential credits produced include:

Type of Credit	Acres	Ratio	Credits
Cropped Wetland Enhancement	161.12	2:1	80.31
Enhancement	13.4	3:1	4.46
Total	174.52 acres		84.77
Credits Used for Graveled Parking Area			(0.25)
Total Credits Produced	**84.52 credits**		

2.0 WORK SUMMARY

Beginning in early March, efforts concentrated on covering all older prairie areas to spot treat unwanted species before native grasses got tall and inhibited detection. All prairie areas were walked at least two times targeting velvet grass, annual ryegrass, rough-stalk bluegrass, annual blue grass, and any other non-natives encountered. Prairie areas where fobs were planted were walked multiples times targeting Prickly lettuce, Thistle spp., and any other non-native species encountered. The existing forested area was periodically spot treated throughout the season, with St. John's wart and Curly dock being the main targets. All tree and shrub plantings were walked several times thru July to spot treat any invading species, Canadian thistles, prickly lettuce, and sow thistles were the primary targets. Since decreasing mowing in the PFO/PSS areas, non-natives have become much less of an issue, and some areas are beginning to get enough canopy cover to eliminate herbaceous species.

In October 2011~ 15 acres of scatted plots ,that were mowed for forbs planting in early 2012 received a Glysophate application to eliminate existing grasses. Approximately 25 acres were planted with forbs in early 2012, some areas to increase diversity and others to create forbs dominated areas within the prairie matrix. The new forbs plots received another Glysophate application around the time of planting, and all forbs areas were closely monitored through spring. These areas will likely receive a grass specific herbicide treatment in 2013, if needed, to take out any newly germinated grasses, and allow forbs to fully develop..

The forbs area off of the parking lot, the South prairie test plot and a several acre portion of the SW prairie all received a grass specific herbicide treatment in early spring to decrease grass cover. As spring moved to summer focus shifted towards patrolling the emergent draw down zones for opportunistic species such as spatula-leaf loosestrife and penny royal. A 60ft band along the South, North and West boundaries were broadleaf herbicide treated when conditions were favorable. All borders were spot

treated for non-natives to prevent these species from entering the site.

Following the site visit in June, all levees, a 60ft buffer along borders, maintenance trails through prairies, ~15 acres in the North prairie, and North side forbs were mowed. In early fall ~6 more acres of forbs were planted, mainly on the North side.

Table 1 - Summary of Restoration Activities at Evergreen Mitigation Bank from November 2011 through December 2012

Activity	Location
Site Preparation	Ongoing on borders
Existing forested vegetation treatment	All non-native vegetation treated (on-going)
Prairie seeding (Spring	A diverse mix of forbs was planted in ~25 acres of prairie, mainly on the south side.
Prairie seeding (Fall)	A diverse mix of forbs was planted in ~6 acres of prairie, mainly on the north side.
Spot weed control	100% of mitigation bank area (on going)
Broadleaf weed control	60ft band along south and west borders (spring)
Mowing 2012	All levees, 60ft band along borders, maintenance trails, new prairie plots, North side forbs area, and ~15 acres on North side.

3.0 AS-BUILT PLANS

The as-built plans were submitted within 60 days of grading as specified in the final instrument.

4.0 HYDROLOGY PERFORMANCE STANDARDS, METHODOLOGY, AND RESULTS

4.1 PERFORMANCE STANDARDS

Wetland hydrology sufficient to meet the criteria defined in the 1987 Corps of Engineers Wetland Delineation Manual (1987 Wetland Delineation Manual), will be present in at least three out of five years if the weather records are close to normal and no irrigation is supplied. Water depth and depth of saturation will be evaluated throughout the site using a combination of monitoring wells and a one time hydrology and vegetation delineation designed to meet the requirements of the 1987 Wetland Delineation Manual. The soil parameter is expected to be disturbed by the proposed grading, therefore lock of hydric soils indicators will not be interpreted as disqualifying a plot as wetland.

4.2 METHODOLOGY:

Water Monitoring Tubes: Ten (number of tubes will be driven by the site conditions, following bank grading) groundwater monitoring tubes will be constructed and monitored to show the duration of saturation. Tube monitoring data shall be collected three times between approximately March 1 and May 30 to demonstrate sufficient duration of wetness to meet the 1987 Wetland Delineation Manual. The monitoring report will also include precipitation date for the monitoring period from the nearest recording station. The locations of the monitoring tubes will be representative of the hydrological variation on site to prove duration of saturation needed to meet the 87 Manual criteria. These will be included on the as-built drawings.

Delineation: Paired plots concentrating along the wetland boundary, for any plots dominated by upland vegetation, and in any high areas will be utilized to indicate the exact location of the wetland boundary. The paired plots will be evaluated using soil probes or pits. This will be done to document that wetland hydrology has been achieved throughout the site. In addition to plot data, these areas will be visually documented with photographs to show a dominance of wetland species. The wetland boundary will then be displayed on a site map to confirm acreage achieving the performance standard.

4.3 RESULTS

This provision has been met for at least three years and is no longer being monitored

5.0 VEGETATION PERFORMANCE STANDARDS, METHODOLOGY AND RESULTS

5.1. Performance Standards

Emergent Herbaceous

1. A minimum of 55% of the relative plant cover (including bare soil) is comprised of native species.
2. No more that 15% of the relative plant cover is comprised of non-native invasive species as define below.
3. The wetland's moisture index is less than 3.0.

*Non-native invasive species to be included: reed canary grass (*Phalaris arundinacea*), purple loosestrife (*Lythrum salicaria*), Himalayan blackberry (*Rubus discolor*), and Japanese knotweed (*Polygonum cuspidatum*), Eurasion water milfoil (*Myriophyllum spicatum*), climbing nightshade (*solanium dulcamara*) (and yellow-flag iris (*Iris pseudacorus*), Anne•s lace (*Daucus carota*), Canadian thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), orchard grass (*Dactylis glomerata*) and annual ryegrass (*Lolium multiflorum*) or others as determined by the MBRT.

Wetland Prairie

The above performance standard along with the following:

1. At least 10 wetgrass prairie species are present as listed in "Species Composition for Willamette Valley Vegetation Types" by Kathy Pendergrass, August 2003, *supplied by John Marshall (USFWS) author of "Draft Guidance on Vegetation Performance Standard and Monitoring Protocols for Reference Sites and Mitigation Sites"* to enhance Appendix II of this document.
2. Tufted hairgrass (*Deschampsia cespitosa*) is represented by 25% or greater relative plant cover.
3. At least 50% of the relative plant cover (including bare soil) is comprised of native species.
4. No more that 15% of the relative plant cover is comprised of non-native invasive species as define above.
5. The prairie's moisture index is between 2.0 and 3.0.
6. No more than 5% relative plant cover by shrubs or trees.

Shrub and Forest - Restoration

By the end of the second growing season, the newly planted shrub and forest component of the wetland will meet or exceed 75% of the species richness of the reference site (excluding non-native invasive species). The plant density in forested and shrub/scrub wetlands will be at least 80% of the reference site, of species that are rated FAC or wetter, excluding FAC- species. This must be achieved by the end of the second growing season following planting and maintained through the end of the monitoring period until trees and shrubs are established and free to grow. There will be no more than 15% aerial coverage of non-native invasive species*. These densities will be a combination of planted individuals and natural recruitment.

In addition, the herbaceous layer in the forest and shrub areas, will meet or exceed the performance standards for emergent herbaceous wetlands as stated above.

Forest and scrub/shrub - Enhanced

Year five performance standard for the enhanced forested wetland will be to maintain the existing wetland forest and scrub/shrub layers while managing for no more than 15% of non-native invasive species*.

5.2 Methodology

A stratified, systematic plot method was used to conduct vegetation sampling in all areas except the enhanced forest. Vegetation data was collected at each of 103 sample points that had been pre-determined and plotted along 6 transects. The monitoring point location map is included as Attachment 1. Each transect crosses the entire wetland (north to south) and they are located approximately 400 feet apart (north-south). Sampling plots were then located at 200 foot intervals along each transect. Herbaceous data was collected using one meter quadrants on the NW corner of each plot, and tree and shrub data was collected in 30ft diameter around plots. In the enhanced forest areas, four 50 ft square plots were marked, with the percent cover of non-native invasive species determined. The four plots were picked at random, two on each side of the Evergreen Creek. Extensive knowledge of the forested areas by the monitoring crew confirms that these four plots were representative of the entire area.

5.3 VEGETATION MONITORING RESULTS

Vegetation monitoring was conducted by Ray Fiori and Marvin Gilmour. On June 13, 2011 all WP, PFO, PSS, and existing forested areas were monitored. The PEMC was monitored on July 21, 2011 to allow for significant plant growth following an extremely cold/wet spring. Attachment 2 includes spread sheets with the results of the sampling. The spread sheets include a complete listing of all plant species identified in the monitoring plots. 103 monitoring plots were examined. The data spread sheets include the botanical names, common names, indicator status, origin (native or non-native), moisture index, and percent cover for each species. During the 2007 monitoring, 48 plant species were identified in the Bank, with 43 natives. During the 2008 monitoring, 55 plant species were identified within the plots and of these 50 were native. In 2009 55 plant species were identified within the plots and of these 52 were native. In 2010 60 plant species were identified within the plots and of these 57 were native. In 2011 55 plant species were identified within the plots and of these 54 were native. In 2012 54 plant species were identified within the plots, of these 51 were native. Several new species were present in the plots this year, but several others that were present in previous years did not show up. Attachment 2 shows all species that have been present in the plots at one point, with a total of 66 native species. The low occurrence and cover of invasive and non-native species on site is a reflection of the continued effectiveness of site preparation, monitoring, establishment, care and spot treatment that the Bank sponsors continue.

5.3.1 Emergent Vegetation

The native herbaceous cover (including open water) averaged 96.67% in 2011 and was the same at 96.67% in 2012. There were no non-native invasive species and only 3.33% non-native cover. The amount of open water was the same as last year at 1.5% and no bare ground was present during monitoring which is the same as last year. The open water/bareground percentages will vary widely depending on the timing of the monitoring

and spring precipitation timing and intensity.

All three of the performance criteria for **emergent herbaceous** vegetation were met.

Required: At least 55% of the relative plant cover (including bare soil) is comprised of native species -- ***Met****, with 96.67% of the relative plant cover including open water as native species.*

Required: No more than 15% of the relative plant cover is comprised of non-native invasive species –***Met,*** *with no non-native invasive species.*

Required: The wetland's moisture index is less than 3 –***Met,*** *with an average weighted moisture index of 1.09.*

5.3.2 Wetland Prairie

Native herbaceous cover averaged 81.73% (not including bareland) throughout the wet prairie area and of the vegetation itself, 99.50% were native species in 2012. In 2011 native herbaceous cover averaged 98% (including bareland) throughout the wet prairie area and of the vegetation itself, 99.29% were native species. Bareland represented 17.14% cover in 2012, up from the 1.3% cover in 2011. The increase in bareground was due to an accumulation of organic litter while decreasing Tufted hairgrass cover, and several new forbs planting areas which were still developing during monitoring There was no non-native, invasive cover, while other non-natives represented 0.62%. .

The performance criteria for **wetland prairie** were met for 5 of the 6 requirements. The only requirement not met was the weighted moisture index which was slightly below the target at 1.97. This was the second year that the Prevelance index was utilized which slightly raised it. The moisture index issue is partially related to the mapping of habitat types by John Marshall and Ray Fiori. Due to the size and topographical diversity of the site, and only mapping areas with visible water as emergent marsh on one site visit, mapping didn't take into account all the micro habitats that support obligate wetland species, thus lowering the moisture index. In addition, many of the species on the prairie cohort list are either obligate or facultative wetland species, so a more appropriate target moisture index would be 1.5-2.5.

Required: At least 10 wetgrass prairie species are present as listed in "Species Composition for Willamette Valley Vegetation Types" by Kathy Pendergrass. In conversations with John Marshall (USF&W) (Date, 2008) it was agreed upon to include the vernal pool species from this same source in the 10 required species, and this is reflected in the wetland prairie cohort species list as well. ***Met****. Eighteen wet grass prairie and vernal pool species were identified within the prairie plots.*

Required: Tufted hairgrass (*Deschampsia cespitosa*) is represented by 25% or greater relative plant cover***. Met.*** *Tufted hairgrass represented an average cover of 26.94%.* **As discussed during the annual site visits, this provision needs removed, as its be the biggest factor in reducing diversity. As seen with all Oregon Wetlands LLC banks, the reduction in cover of tufted hairgrass is directly correlated to and increase in diversity (i.e. forbs/sedge/rush cover).**

Required: At least 50% of the relative plant cover (including bare soil) is comprised of native species. ***Met***. *Non-natives and non-native invasives combined for 0.62%, bare soil was 17.14%, with native cover at 81.73%.*

Required: No more that 15% of the relative plant cover is comprised of non-native invasive species. ***Met****, with no non-native invasive species.*

Required: The wetland prairie moisture index is between 2.0 and 3.0. ***Not Met***. *The average prevelance index of the prairie plots ranged from 1.25 to 2.57, the average prevelance index is slightly low at 1.97. This can partially be explained by the way habitat types are displayed, the numerous microhabitats within the prairie, the lack of facultative upland species (only 1), and the presence of obligate prairie cohort species.*

Required: No more than 5% relative plant cover is comprised of shrubs or trees. ***Met***. *Plots # 51 ,#82, and #87 all contained planted and volunteer tree and shrub species. Plots # 51 and #82 are at the edge of the wet prairie and forested portions so the forested area fell within the 30ft diameter tree/shrub sampling. Plot #87 is in an area where we are working to increase forbs abundance/diversity. Anytime significant bareground and moisture are present when trees are dispersing seeds, they will get established, which often happens in emergent drawdown zones. This area was mowed this fall to set back the woody plants.*

5.3.3 Forest Enhanced

Required: Year five performance standard. The existing stem density of the native wetland forest and shrub species will be maintained. ***Met.*** ***N****o native wetland trees or shrubs have been removed intentionally. The stem/plant count has varied since the initial survey. Reconnecting evergreen creek to its historic forested floodplain has greatly increased frequency of flood events, and has directly taken out many trees and due to increased duration of saturation has increased windfall. These are natural events that will contribute to the long term health of this habitat.*

Required: Year five performance standard. There will be no more than 15% aerial coverage of non-native invasive species. ***Met,*** *with no non-native invasive species.*

5.3.4 Shrub and Forest Restoration

Species richness for woody plants exceeded the reference site. Eleven species were found in the reference site and 13 were found in the restoration area. Ponderosa pine (*Pinus ponderosa*) exists on site, however, it does not show up in a monitoring plots.

The reference site stem density is 635 trees and shrubs per acre. The planted plots showed an average stem density of 7.7 trees per plot and 14.31 shrubs per plot (Fac or wetter). This equates to a stocking density of 1356 stems per acre. Plot 13 was added to the scrub/shrub sampling in 2009, as the small area (.25 acres) around this plot is being managed for that habitat to increase the habitat complexity on the site. This plot is 95% aerial coverage of Pacific willow, which equates to a stem count of 150 which skews the overall stem count. If this plot is left out of the equation, average shrubs per plot drops to

8.88 which equates to an overall stocking density of 1022 stems per acre (FAC or wetter).

This is a significant overall increase from the 2008 monitoring. It should be noted, that many plots contained seedling trees and shrubs in 2008. During the 2008 site visit it was discussed that these seedlings should not be counted until they are at least 18" tall (2-3 years old), which more reached that point this year and were counted.

Required: The shrub and forest component will meet or exceed 75% of the species richness of the reference site (excluding non native invasive species). ***Met,*** *with 13 overstory and shrub species identified in the bank, compared to 11 in the reference site.*

Required: Plant density will be at least 80% of the reference site with FAC or wetter. ***Met****, FAC or wetter woody stem density is 1022 stems per acre, (excluding #13) which exceeds 80% of the reference site which has 635 stems per acre (635 x 80% = 508).*

Required: There will be no more than 15% aerial coverage of non-native invasive species. **Met,** *with no non-native invasive species.*

The herbaceous layer in the shrub and forest restoration area will meet or exceed the emergent habitat performance standards.

Required: At least 55% of the relative plant cover (including bare soil) is comprised of native species. Met, with an average of 83.46% native herbaceous plant cover. Bare ground represented 16.15% this year

Required: No more that 15% of the relative plant cover is comprised of non-native invasive species. Met, with no non-native invasive species.

Required: The wetland's moisture index is less than 3. Met, with an average weighted moisture index of 2.43.

6.0 PHOTO POINT MONITORING

Photos from the photo points are included as Attachment 3; a map of photo point locations is located in Attachment 1. Photos were taken on 5/29/2012.

7.0 CREDIT SALES SUMMARY

An initial 25.4 credits (30%) were released in February 2007, due to meeting all the requirements for Release #1.

Release *1 (Fall/Winter 2006): Up to 30 percent upon submission of the grading as-built, submission of a copy of the financial assurance, Restrictive Covenant, submission of financial assurance and the MBRT conducts a field inspection.*

Release 2 *(Spring/Summer 2007): Up to 20 percent upon demonstration of all performance measures being achieved and delineation of acreage meeting the 1987 Wetland Delineation Manual hydrology (if*

weather conditions are close to normal).

Release 3 *(Spring/Summer 2008): Up to 20 percent upon demonstration of all performance measures being.*

An additional 29.62 credits (35%) were released in September 2008, due to meeting all the requirements for a total release of 55.02 credits (65%).

Release *4 (Spring/Summer 2009): Up to 20 percent upon demonstration of all performance measures being.*

An additional 21.05 credits (25%) were released in March 2010, due to meeting all the requirements for a total release of 76.07 credits (90%).

Release *5 (End of 5th year monitoring or 5 years after replanting for those areas replanted)): All remaining credits (10%) upon demonstration of all performance standards being achieved. In addition, the long term management plan and funding must be received and approved by the MBRT.*

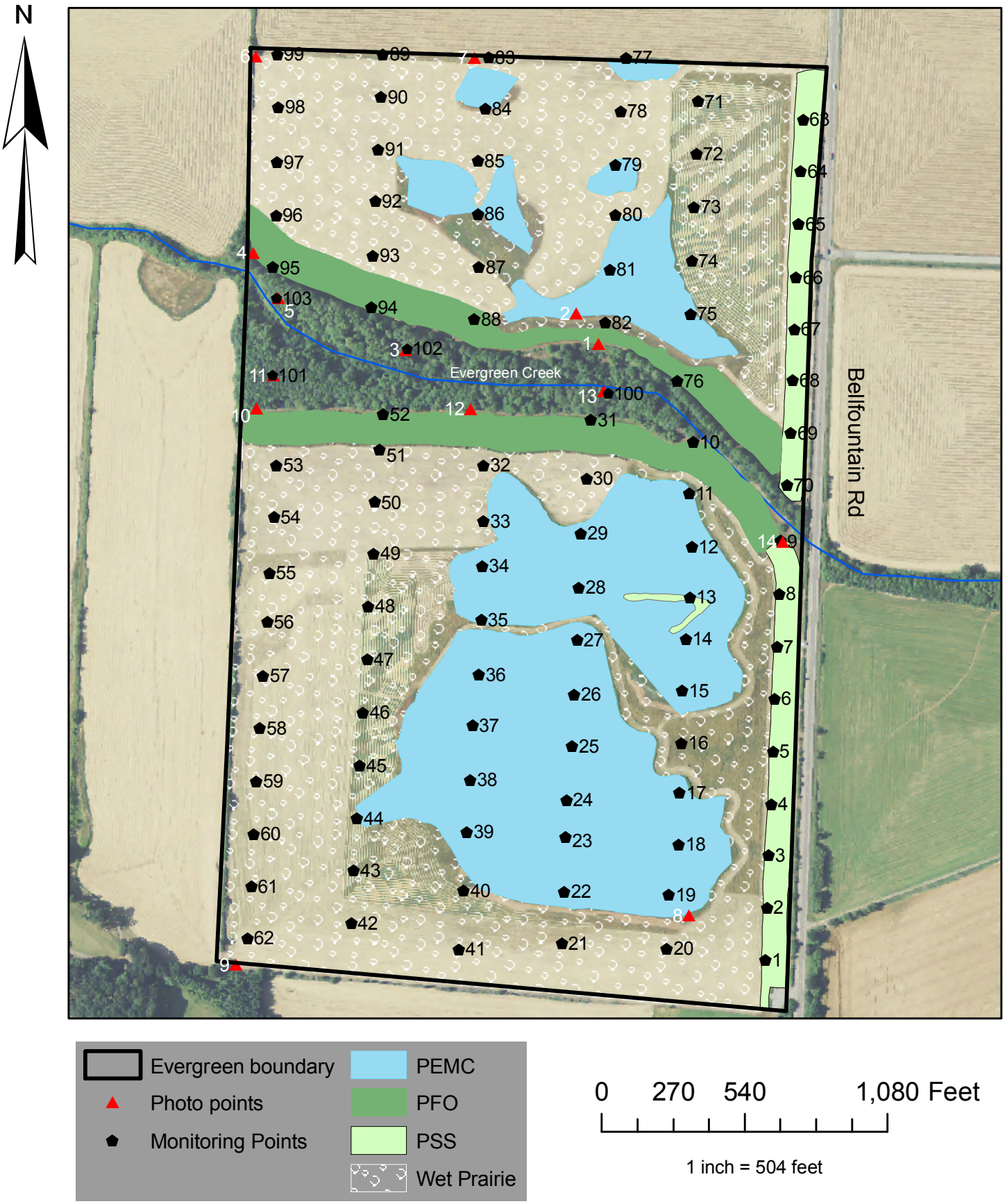
Table 2 below contains all credit sales to date. Should any credit sales occur between submission of this report and 12/31/12, an updated spreadsheet will be sent to both agencies to reflect the calendar year credit sales.

Table 2 - Evergreen Credit Sales Summary

DATE	*NAME*	*LOCATION*	*DSL*	*CORP*	*ADDED*	*SOLD*	*BALANCE*
2/27/07	**CORPS/DSL INITIAL RELEASE-30%**		**Permit Number**		**25.4**		**25.4**
3/20/07	WSS, LLC	Hill Street Subdivision, Albany	37470	2006-910			**21.5**
5/7/07	DR Horton	Benton Woods	37557-RF	2006-930		2.5	**19**
9/27/07	City of Albany	COA 53rd Ave Park	39021-RF	2007-751		0.14	**18.86**
5/10/07	Greater Albany Public School	Knox Butte Road School Site	38849-RF	2007-582		1.26	**17.6**
12/10/07	Weirich Drive Development, LLC	Weirich Drive	39237-RF			0.1	**17.503**
3/20/08	ODOT	Wren Hill	730	199400929		1	**16.503**
3/24/08	Greater Albany Public School	Knox Butte Road School Site	38849-RF	2007-0582		0.34	**16.163**
4/1/08	Greater Albany Public School	Knox Butte Road School Site	38849-RF	2007-0582		0.04	**16.123**
9/8/08	**CORPS/DSL 2nd & 3rd RELEASE-35%**				**29.62**		**45.743**
4/29/09	Hyland Business Park LLC	Intersection of 31st St and Commercial St, Springfield	31129-FP & FP-7343	1997-00294		1.9	**43.843**
9/29/09	Junction City Prison Project	Lane County, ~ 3.5 miles south of Junction City, Oregon	41791-RF	2008-378		20	**23.843**
11/2/09	Lane-Wendson No 1	T18, R 6W, sect 10	43512	2009-580		0.22	**23.623**
3/10/10	**CORPS/DSL 4th RELEASE 25%**				**21.05**		**44.673**
8/17/11	OSU	SW 15th st & Philomath BLVD	46865-RF	2011-181		0.53	**44.143**
5/15/12	Grain Millers	~4 mi South of Junction City, OR	47997	2009-00036/1		17.98	**26.163**
9/6/12	American towers, AT&T	T11S, R3W, Sect. 16 Tax lot 1801	46538-RF	NWP-2011-92		0.09	**26.073**
Total Sold						49.997	

Attachment 1: Monitoring Map

Evergreen Mitigation Bank
Vegetation and Photo Monitoring Points



Attachment 2: Monitoring Data

Botanical Name	Common Name	Status	Origin	Wet Prairie Cohort Species	Moisture Index	Ave. Cover ea. Species	16	20	21	30	32	33	40	41	42	43	44	45	46	47	48	49	50	51	53	54	55
Evergreen Wetland Mitigatigation Bank																											
Wet Prairie (WP) Plot Data																											
June 13, 2012																											
Oversory Species. - stem count within 30' Diameter (over 18" tall)																											
Alnus rhombifolia	White alder	FAC	native		3																			1			
Fraxinus latifolia	Oregon ash	FACW	native		2																			1			
Malus fusca	Flowering crabapple	FACW	native		2																			2			
Populus trichocarpa	Black cottonwood	FAC	native		3																			3			
Rosa nutkana	Nootka rose	FAC	native	Yes	3																						
Salix lasiandra	Pacific Willow	FACW	native		2																						
Herbaceous Species - percent cover																											
Alisma triviale	Northern water plantain	OBL	native		1	0.00																					
Carex unilateralis	One-sided sedge	FACW	native	Yes	2	0.00																					
Centuarium erythraea	European centuary	FAC	non		3	0.20																		10			
Eleocharis ovata	Ovate spike rush	OBL	native	Yes	1	0.00																					
Epilobium angustifolium	Fireweed	FACU	native		4	0.51																		25			
Epilobium ciliatum	Fringed willoweed	FACW	native	Yes	2	2.96	10		10	5	10	5		20	5	5				10		20	10			5	25
Epilobium densiflorum	Dense spike-primrose	FACW	native	Yes	2	3.47		5		10	5	5			15	5						5	5			5	20
Eriophyllum lanatum	Oregon sunshine	NOL	native	Yes	5	0.71			5	15																10	
Gratiola ebracteata	Bractless hedgehyssop	OBL	native	Yes	1	0.00																					
Gnaphalium palustre	Cudweed	FACW	native	Yes	2	1.33	5		10						5	20	5									5	
Juncus bufonius	Toad rush	FACW	native	Yes	2	1.22	5									15										15	
Juncus effusus	Soft rush	FACW	native		2	0.00																					
Juncus tenuis	Slender rush	FACW	native	Yes	2	0.10																					
Lupinus bicolor	Two-colored lupine	NOL	native		5	0.10																					
Lupinus polyphyllus	Bigleaf lupine	FAC	native	Yes	3	0.10		5																			
Lythrum portula	Spatulaleaf loosestrife	OBL	non		1	0.41							5														
Plagiobothrys figuratus	Fragrant popcorn flower	FACW	native	Yes	2	0.92										5											
Plagiobothrys scouleri	Scouler's popcorn flower	FACW	native	Yes	2	0.41																					
Potentilla gracilis	Northwest cinqufoil	FAC	native	Yes	3	0.00																					
Prunella vulgaris	Common selfheal	FACU	native	Yes	4	0.51																5				5	
Rorippa curvisiliqua	Western yellowcress	OBL	native	Yes	1	1.63								5		5	5					25					15
Sidalcea cusickii	Cusick's checkermallow	FACW	native	Yes	2	10.71	10	35		35	35	10			5			5		5			40		75	25	40
Veronica peregrina var. xalapensis	Hairy purlane speedewell	OBL	native	Yes	1	0.20																					
Grass Species - percent cover																											
Agrostis exarata	Spike bentgrass	FACW	native	Yes	2	7.24	45		15				10	40	5	15	15	5		10	20	25		45			
Alopecurus aequalis	Short-awned foxtail	OBL	native		1	0.00																					
Alopecurus geniculatus	Water foxtail	OBL	native		1	2.14							55									5					
Beckmania syzigachne	Slough grass	OBL	native	Yes	1	2.76	5						15			10	5			10		5					
Deschampsia cespitosa	Tufted hairgrass	FACW	native	Yes	2	26.94		25	25	20	10	70	15	25	35		30	50	80	10	70			10	10		
Deschampsia danthonioides	Annual hairgrass	FACW-	native	Yes	2	0.00																					
Deschampsia elongata	Slender hairgrass	FACW	native	Yes	2	1.02																					
Glyceria occidentalis	Western mannagrass	OBL	native		1	0.00																					
Hordeum brachyantherm	Meadow barley	FACW	native	Yes	2	16.73		5	5	15	40	10		10	10			20			10		45	10	15		
Lolium multiflorum	Annual rye grass	FACU	non		4	0.00																					
Poa trivialis	Rough-stalk bluegrass	FAC	non		3	0.00																					
Bareground :(recent inundation: 16,49)(Litter: 21,45-47,51,57,62,71,85,90-92,97,99)(Forbs Planting: 20, 43, 54, 60,61)					Mean =	**17.14**	20	25	30							20	30	20	20	55		15				30	
Relative % non-native cover, includes bareground:		Mean=	**17.76**				20	25	30	0	0	0	5	0	0	20	30	20	20	55	0	15	0	10	0	30	0
Relative % native cover,		Mean=	**81.73**				80	75	70	100	100	100	95	100	80	80	60	80	80	45	100	90	100	90	100	70	100
Relative % non-native invasive canopy cover :		Mean=	**0.00**				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Total Vegetation that is Native:	**99.50**	Percent of Total Vegetation that is Non-nativ				**0.50**																					
Total # of native Species: 25																											
Sample Plot Prevelance Index (herbaceous layer only)		Mean=	**1.97**				1.94	2.07	2.21	2.45	2.00	2.00	1.25	1.95	2.00	1.81	1.83	2.00	2.00	1.78	2.00	1.72	2.00	2.60	2.00	2.57	1.85
Total Sample Size = 49 plots	# of Wet Prairie Cohort Species = 18																										

Attachment 2: Monitoring Data

56	**57**	**58**	**59**	**60**	**61**	**62**	**71**	**72**	**73**	**74**	**78**	**79**	**80**	**83**	**84**	**85**	**86**	**87**	**89**	**90**	**91**	**92**	**93**	**96**	**97**	**98**	**99**
																		10									
5																											
25				20	30	5											10										
				5																							
															5					10							
					10										5			10									
															5												
				5																							
															15												
												40															
				5	10										5												
				5	10																						
5				10									10														
65		5		10	20	10											25	70									
																											10
		5											20		15	15	20									30	
													5	40													
												50	25	10													
	40	90	100	25		10	30	80		20	30		25	15	20	35	15	20	70	20	35	35	15	20	30	30	25
																			10								40
					10	35	30	20	20		30			35	30	25	20		20	30	25	40	85	80	50	40	
	60			15	10	40	40		80	80	40	10	15			25	10			40	40	25			20		25
0	60	0	0	15	10	40	40	0	80	80	40	10	15	0	15	25	10	0	0	40	40	25	0	0	20	0	25
100	40	100	100	85	90	60	60	100	20	20	60	90	85	100	85	75	90	100	100	60	60	75	100	100	80	100	75
0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.95	2.00	2.00	2.00	2.35	2.22	2.00	2.00	2.00	2.00	2.00	2.00	1.44	1.53	1.50	1.85	2.00	2.00	2.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9

Attachment 2: Monitoring Data

Evergreen Wetland Mitigatigation Bank												
Emergent Marsh (PEMC) Plot Data - July 21,2011												
Species Observed												
				Wet Prairie	**Moisture**	**Ave.**						
Botanical Name	**Common Name**	**Status**	**Origin**	**Cohort**	**Index**	**Cover**	**11**	**12**	**14**	**15**	**17**	**18**
				Species	**ea. Species**							
Scrub/Shrub Species -stem count within 30' radius												
Populus trichocarpa	Black cottonwwod	FACW	native		2							
Salix lasiandra	Pacific willow	FACW+	native		2		3					
Herbaceous Species - percent cover												
Alisma gramineum	Narrow leaf water plantair	OBL	native		1	20.83	50	40	30	50	30	25
Alisma triviale	Northern water plantain	OBL	native		1	27.50	20	20	65	50	30	25
Bidens cemua	Nodding beggarticks	FACW+	native		2	0.21						
Eleocharis ovata	Ovate spike rush	OBL	native	Yes	1	2.92						
Eleocharis palustris	Creeping spike rush	OBL	native		1	8.75						
Epilobium ciliatum	Fringed willoweed	FACW	native	Yes	2	1.25						
Gnaphalium palustre	Cudweed	FACW	native	Yes	2	5.00						
Juncus bufonius	Toad rush	FACW	native	Yes	2	0.00						
Ludwigia palustris	Marsh seedbox	OBL	native		1	0.63						
Lythrum portula	Spatulaleaf loosestrife	OBL	non		1	3.33			5			
Rorippa curvisiliqua	Western yellowcress	OBL	native	Yes	1	1.67						
Sagittaria latifolia	Wapato	OBL	native		1	1.04					10	15
Sparganium emersum	Simple-stem bur-reed	OBL	native		1	1.67	20				10	
Grass Species - percent cover												
Agrostis exarata	Spike bentgrass	FACW	native	Yes	2	1.67						
Alopecurus aequalis	Short-awned foxtail	OBL	native		1	0.42						
Alopecurus geniculatus	Water foxtail	OBL	native		1	6.46						
Beckmania syzigachne	Slough grass	OBL	native	Yes	1	5.42						
Deschampsia cespitosa	Tufted hairgrass	FACW	native	Yes	2	0.83						
Glyceria borealis	Floating manna grass	OBL	native		1	2.92		25			20	25
Glyceria occidentalis	Western mannagrass	OBL	native		1	1.67						
Hordeum brachyantherm	Meadow barley	FACW	native	Yes	2	0.21						
Leersia oryzoides	Rice cut-grass	OBL	native		1	0.21						
Bareground (*-due to recent spraying/planting, **-due to recent inundation or age) Mean =												
Open Water Mean=	**1.5**						10	15				10
Relative % native cover includes bareground:		**Mean =**	**96.67**				100	100	95	100	100	100
Relative % non-native cover :		**Mean =**	**3.33**				0	0	5	0	0	0
Relative non-native invasive cover:		**Mean =**	**0.00**									
Percent of Total Vegetation that is Native:		**Mean =**	**94.70**									
Percent of Total Vegetation that is Non-native:		**Mean =**	**5.30**									
Sample Plot Prevelance Index (herbaceous layer only)		**Mean =**	**1.09**				1.00	1.00	1.00	1.00	1.00	1.00
Total # of Native Species	21											
Total Sample points	24											

Attachment 2: Monitoring Data

Sample Plot Number																				
19	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**34**	**35**	**36**	**37**	**38**	**39**	**75**	**77**	**81**			
								3												
	10	60	30	20	25	25	25	40			30				10		20			
25		35	60	30	75	55		60	30		70	10								
									5											
	15														55					
70	50			20			60								10		40			
										30										
												40	80							
				15																
5	5	5		10			5		10			10	5		5	10	5			
	5								10				5			20				
																	10			
			10																	
										40										
													10				15			
	15								35	10				30		65				
						20	10		10					70	20					
										20										
												40					10			
																5				
				5																
95	95	95	100	90	100	100	95	100	90	100	100	90	95	100	95	90	95			
5	5	5	0	10	0	0	5	0	10	0	0	10	5	0	5	10	5			
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.90	1.00	1.40	1.80	1.00	1.00	1.05	1.00			

Attachment 2: Monitoring Data

Botanical Name	Common Name	Status	Origin	Wet Prairie Cohort Species	Moisture Index	Ave Cover ea. Species	1	2	3	4	5	6	7	8	9	10	13
Evergreen Wetland Mitigatigation Bank																	
Forested (PFO) Plot Data																	
June 13, 2012																	
Oversory Species. - stem count within 30' Diameter (over 18" tall)																	
Alnus rhombifolia	White alder	FAC	native		3			1									
Crataegus douglasii	Black hawthorn	FAC	native		3								1				
Fraxinus laifolia	Oregon ash	FACW	native		2			1		1	1	2			8	9	
Malus fusca	Flowering crabapple	FACW	native		2		4	1									
Populus trichocarpa	Black cotton wood	FACW	native		2					1		4		1			
Total # of Plos: 26																	
Total Stems per plot	**Mean=**	7.7					4	3	0	2	1	6	1	1	8	9	0
Average Stems per Plot (FAC or Wetter)		7.7					4	3	0	2	1	6	1	1	8	9	0
Mean trees/Acre	474																
Amelanchier alnifolia	Service berry	FACU	native		4												
Cornus sericea	Red osier dogwood	FACW+	native		2		2	1						1			
Oemlaria cerasiformis	Indian plum	FACU	native		4												
Physocarpus capiaus	Pacific ninebark	FACW-	native		2		1										
Rosa nukana	Nooka rose	FAC	native	Yes	3			5	2	3	2		1	2	1		
Rosa pisocarpa	Clustered rose	FAC	native		3			1	3	3	1		3	3			
Salix lasiandra	Pacific willow	FACW+	native		2			4	3	9	3	15	3	11	3		150
Spirea douglasii	Douglas spiraea	FAC	native		3		1	7	4		9		7				
Symphoricarpos albus	Snowberry	FACU	native		4		6										
Total # of Plots: 26																	
Total Stems per plot	**Mean=**	14.9					10	18	12	15	15	15	14	17	4	0	150
Average Stems per Plot (FAC or Wetter)		14.308					4	18	12	15	15	15	14	17	4	0	150
Mean Shrubs/Acre (FAC or Wetter)		882															
Average Stems per Plot (FAC or Wetter) W/O #13		8.88															
Mean Shrubs/Acre (FAC or Wetter) W/O #13		548															
Herbaceous Species - percent cover																	
Achillea millefolium	Yarrow	FACU	native		4	0.19	5										
Alisma triviale	Northern water plantain	OBL	native		1	0.58										15	
Camassia quamash	Camas	FACW	native	Yes	2	0.58											
Epilobium ciliatum	Fringed willoweed	FACW	native	Yes	2	4.23	10	5	10			5	5	25	10		
Epilobium densiflorum	Dense spike-primrose	FACW	native	Yes	2	0.19											
Eriophyllum lanatum	Oregon sunshine	NOL	native	Yes	5	14.42	70										
Geum macrophyllum	Large leaf avens	FACW-	native		2	2.12											
Gnaphalium palustre	Cudweed	FACW	native	Yes	2	4.04		5	10	15	5						
Gratiola ebracteata	Bractless hedgehyssop	OBL	native	Yes	1	0.19											
Juncus bufonius	Toad rush	FACW	native	Yes	2	0.58		15									
Juncus tenuis	Slender rush	FACW	native	Yes	2	3.27				10			10				
Lupinus bicolor	two-colored lupine	NOL	native		5	0.00											
Lupinus polyphyllus	Bigleaf lupine	FAC	native	Yes	3	0.19											
Lythrum portula	Spatulaleaf loosestrife	OBL	non		1	0.00											
Kickxia elatine	Sharp-point fluellin	FAC	non		3	0.00											
Madia saiva	Coast tarweed	NOL	native		5	0.00											
Poenilla gracilis	Northwest cinqufoil	FAC	native	Yes	3	5.77		10									
Persicaria hydropiperoides	Waterpepper	OBL	native		1	0.00											
Rorippa curvisiliqua	Western yellowcress	OBL	native	Yes	1	3.65		15	10	5		5			10	15	
Sidalcea campestris	Meadow checkermallov	FACU	native		4	4.04											
Sidalcea cusickii	Cusick's checkermallov	FACW	native	Yes	2	4.62				15							
Veronica peregrina var. xalapei	Hairy purlane speedew	OBL	native		1	0.38											
Grass Species - percent cover																	
Agrosis exaraa	Spike bentgrass	FACW	native	Yes	2	10.96		10	30	35	10		40	50		20	
Alopecurus geniculatus	Water foxtail	OBL	native		1	3.85					40	50	10				
Beckmania syzigachne	Slough grass	OBL	native	Yes	1	1.35					25					10	
Deschampsia cespitosa	tufted hairgrass	FACW	native	Yes	2	6.54		10	40						10	25	
Deschampsia danthonioides	Annual hairgrass	FACW-	native	Yes	2	0.00											
Deschampsia elongata	Slender hairgrass	FACW	native	Yes	2	5.77		10		20			30	25			
Elymus glaucus	Blue wildrye	FACU	native		4	0.00											
Glyceria occidentalis	Western mannagrass	OBL	native		1	0.00											
Hordeum brachyantherm	Meadow barley	FACW	native	Yes	2	5.96	15				20		5		10	5	
Poa trivialis	Rough-stalk bluegrass	FAC	non		3	0.00											
Vulpia myuros	Rattail fescue	FAC	non		3	0.38											
Bareground (*-due to canopy closure, ** Organic Litter)					**Mean=**	**16.15**		20*				40*			60*	10**	100*
Relative % native cover, excluding bareground (herbaceous layer only):					**Mean=**	**83.46**	100	80	100	100	100	60	100	100	40	90	0
Relative % non-native invasive cover (herbaceous layer only):					**Mean=**	**0**	0	0	0	0	0	0	0	0	0	0	0
Sample Plot Prevelance Index (herbaceous layer only)					**Mean=**	**2.43**	4.20	1.94	1.90	1.95	1.35	1.08	1.90	2.00	1.75	1.56	
# of Wet Prairie Cohort Species = 18																	
Total # of Native Species = 37		Total Sample points = 26															

Attachment 2: Monitoring Data

31	**52**	**63**	**64**	**65**	**66**	**67**	**68**	**69**	**70**	**76**	**82**	**88**	**94**	**95**
1	1									2	8			
					1						3		2	1
25	8							1	11	23		12	18	30
		3	3		1	2			1		1			
	4										2		1	
26	13	3	3	0	2	2	0	1	12	25	14	12	21	31
26	13	3	3	0	2	2	0	1	12	25	14	12	21	31
						1		2						
								1		2				
		1				2	7	2	1					
1			1	1	3			1	2				1	
	1			2		2		2	3					1
10	13			3									2	12
			3	3	7	4	3	10	1					
		3			1	2								
11	14	4	4	9	11	11	10	18	7	2	0	0	3	13
11	14	1	4	9	10	8	10	16	7	2	0	0	3	13
									15					
		5			25					5		5		
										5				
25		55				80	100	40			5			
													30	25
				10	60									
					5									
	30									10				25
										5				
50		10	25					20	10		25			
											35			
10	15		30						50					
				70					15					20
										5		5		
			20	20	5	5						40		
			15		5					20			45	
15		25				5						20		
		5	10			10			10	20		20	25	
												10		
	55*							40**		30**	35**			30*
100	45	100	100	100	100	100	100	60	100	70	65	90	100	70
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.25	2.00	3.75	2.25	2.00	1.95	4.40	5.00	4.33	2.10	2.00	2.08	2.05	2.00	2.00

Attachment 2: Monitoring Data

Evergreen Mitigation Bank

Existing and Enhanced Shrub/Forest (PFOE) Sample Plot Monitoring Results 2011

				Moisture				
Common Name	**Botanical Name**	**Status**	**Origin**	**Index**	**100 - SE**	**101 - SW**	**102 - NE**	**103 - NW**
Overstory Species. - stem count within 50' square								
Douglas Hawthorne	*Crataegus douglassi*	FAC	native	3	10	2	16	7
Oregon ash	*Fraxinus latifolia*	FACW	native	2	23	31	6	27
Scrub/Shrub Species -stem count within 50' square								
Cascara	Rhamnus purshiana	FAC-	native	3	10	1	3	5
Himalayan blackberry	*Rubis discolor*	FACU	non	4				
Nootka rose	*Rosa nutkana*	FAC	native	3	4	1		1
Snowberry	*Symphoricarpos albus*	FACU	native	4	10	5	10	40
Douglas spiraea	*Spirea douglasii*	FAC	native	3			4	
Trailing blackberry	*Rubus ursinus*	NL	native		24	10	30	40

* Mowing, non-native species control, flooding, and wind damage eliminated some Ash trees, while allowing the shrub layer to prosper.

Evergreen Mitigation Bank 2012 Photo Monitoring

Photo Point 1 North

Photo Point 1 East

Photo Point 1 South

Photo Point 1 West

Photo Point 2 North

Photo Point 2 East

Photo Point 2 South

Photo Point 2 West

Photo Point 3 North

Photo Point 3 East

Photo Point 3 South

Photo Point 3 West

Attachment 3: Monitoring Photos

Photo Point 4 North

Photo Point 4 East

Photo Point 4 South

Photo Point 4 West

Photo Point 5 North

Photo Point 5 East

Photo Point 5 South

Photo Point 5 West

Photo Point 6 East

Photo Point 6 Southeast

Photo Point 6 South

Attachment 3: Monitoring Photos

Photo Point 7 East

Photo Point 7 South

Photo Point 7 West

Photo Point 8 North

Photo Point 8 East

Photo Point 8 South

Photo Point 8 west

Photo Point 9 North

Photo Point 9 East

Photo Point 9 Northeast

Attachment 3: Monitoring Photos

Photo Point10 North

Photo Point 10 East

Photo Point 10 South

Photo Point 10 West

Photo Point11 North

Photo Point11East

Photo Point11 South

Photo Point 11 West

Photo Point 12 North

Photo Point12 East

Photo Point12 South

Photo Point 12 West

Attachment 3: Monitoring Photos

Photo Point 13 North

Photo Point 13 East

Photo Point 13 South

Photo Point 13 West

Photo Point 14 North

Photo Point 14 East

Photo Point 14 South

Photo Point 14 West