Mitigation Monitoring Report Cover Sheet
Oregon Department of State Lands

Block 1: Report Information

DSL Permit Number: COE Permit Number: *Nationwide Permit 27 - 200400726*
Permittee: *Gilmour*
County: *Benton* Report Date: 12/14/2015 Monitoring Year 10
Date Removal-Fill Activity Completed:
Date mitigation was completed Grading: *2/05* Planting: *5/06*

Report submitted by: Marvin and Cindy Gilmour

Block 2: Monitoring Report Purpose

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

- ■ 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 Vegetation	3 of 3 requirements	
2.	Wetgrass Prairie	6 of 6 requirements	
3.	Created Tree/Shrub	5 of 5 requirements	
4.	Forest - Enhanced	2 of 2 requirements	5th year performance standard, met in 2010
5.	Buffer Areas - Upland Forest and Pond	4 of 4 requirements	5th year performance standard, met in 2010

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 X No
Final Monitoring Report? Yes No X
Requesting release or partial release of bond/credits Yes No X
*see report for detailed information

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LIST OF ATTACHMENTS

1.0 REGULATORY BACKGROUND

The purpose of this report is to summarize the progress of Phase 1 of the Mid-Valley Wetland Mitigation Bank (Bank). The Bank is located approximately one mile east of Independence Highway and one and one-half miles south of Springhill Drive in T10S, R4W, Sec. 15, Tax Lot 700. The letter of approval for the Bank was signed on September 27, 2005 and is permitted as ACOE permit #2004-000726. Phase 1 of the Bank consists of 33.1 acres.

Development of the Bank was through a combination of restoration of previously drained wetlands (10.58 acres), restoration of wet prior converted (1.02 acres), enhancement of remnant ash swales and shrub/scrub (10.17 acres), and the creation of wetlands from upland agricultural land (4.78 acres). The inclusion of adjacent 4.89 acres of upland forest as buffer to the Bank is also planned.

Anticipated Bank credits:

Type of Credit	Acres	Ratio	Credits
Restoration	10.58	1:1	10.580
WPC Restoration	1.02	2:1	0.510
Creation	4.78	1½:1	3.187
Enhancement	10.17	5:1	2.034
Buffer	4.89	10:1	0.489
Total	**31.44**		**16.8**

2.0 WORK SUMMARY

Beginning in early March, efforts concentrated on covering all prairie areas to spot treat unwanted species before native grasses got tall and inhibited detection. All prairie areas were walked or ridden with ATV targeting velvet grass (*Holcus lanatus*), meadow foxtail (*Alopecurus pratensis*), penny royal (*Mentha pulegium*), parentucellia (*Parentucellia viscosa*) and any other non-natives encountered. As water receded, emergent areas were checked several times for penny royal (*Mentha pulegium*), with little detected and sprayed. The existing forested area was spot treated in early fall for several seedling reed canary grass plants. Again this year, most of this time was spent on surveillance, with little spraying as non-natives are well under control.

Mowing this year totaled ~10 acres. Mowing concentrated on the outside borders, where new weeds are most likely to move in, and corridors through the prairie areas to aid in weed surveillance. Also several grass dominated areas were mowed in the prairie to prepare for additional forbs planting. These areas were sprayed out in late October and planted to a wet prairie pollinator blend.

Table 1. Summary of Restoration Activities December 2014-November 2015.

Activity	Location
Site Preparation	Borders only
Existing forested vegetation treatment	All non-native vegetation treated
Spot weed control	100% of bank was patrolled
Mowing	60ft along borders, new forbs areas, and access trails through prairie.
Additional Forbs Planting	Several plots in grass dominated prairie areas

3.0 AS-BUILT PLANS

The as-built plans were submitted with the first monitoring report in April 2006.

4.0 HYDROLOGY PERFORMANCE STANDARDS, METHODOLOGY, AND RESULTS

4.1 Performance standards:

Wetland hydrology, defined as saturation of the major part of the root zone (in the upper 12-inches of the soil profile) or ponding upon the soil surface for at least 12.5% of the growing season must be achieved (for the purpose of this determination, the growing season is defined as the period in which temperatures are expected to be above 28^0 F in 5 out of 10 years. This is the period between March and November in Benton County. Wetland hydrology will be present in three out of five years or less if the weather records are close to normal and no irrigation is supplied.

4.2 Methodology:

Water depth and depth of saturation will be indicated throughout the site using a combination of groundwater monitoring tubes as an aid to show how the water level follows the site topography, and paired plots along the site boundary and any high areas to indicate the exact location of the wetland boundary. The paired plots will be done using soil probes or pits. In addition, 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.

4.3 Results

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

5.0 VEGETATION PERFORMANCE STANDARDS AND METHODOLOGY

Vegetation monitoring was conducted on all areas.

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*), Eurasian 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.

Wetgrass Prairie

The above performance standards 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 - Created

By the end of the second growing season, the 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 wetlands will be at least 50 to 100 living stems per acre and shrub/scrub wetlands at least 200 to 300 living woody stem per acre, 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 canopy coverage is greater than 30%. 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 - Enhanced

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

Buffer Areas - Upland Forest and Pond

Year five performance standard for the upland forest buffer will be to maintain the forest cover with 20% or less of non-native invasives. The five year performance standard for the existing pond will be to maintain it as a pond/wetland and maintain 20% or less of non-native invasives.

5.2 Methodology

Monitoring was conducted on the existing monitoring points that had been laid out using a stratified systematic plot method. The transects were laid out in a stratified arrangement along one baseline with equal distance between each transect (approximately 250'). The transects crossed the entire wetland, generally perpendicular to the topography. The sampling plots were predetermined and plotted on the transects at 100-foot intervals from each other. Two additional plots were added for 2010 per the 5th year monitoring requirements. These plots were #34 in the existing forested area, and photo point 6 which is illustrated on the map (attachment 2) and utilized as both a vegetation and photo monitoring point.

The herbaceous sample plots were conducted using one meter quadrants, located at the northwest corner of each point. When needed, a 30-foot diameter forest/shrub sample plot was placed with its center at the plot center point encompassing the herbaceous plots. The starting point of the sample plots was staggered in order to cover a broader area. The sample plots were permanently identified in the field and were plotted on a site map.

5.3 Vegetation Monitoring Results

Vegetation monitoring was conducted on June 4, 2015 by Marvin Gilmour, and Ray

Fiori. Attachment 1 includes spread sheets with the monitoring results. The monitoring point location map is included as Attachment 2. The spread sheets include a complete listing of all species identified in the Bank's monitoring plots including both the botanical and common names, the indicator status, origin (native or non-native), and moisture index. Thirty-six monitoring plots were examined.

During the June 2015 monitoring, 41 native plant species were identified in the Bank monitoring plots. Although considerably more diversity exists on the site, species were only counted if they occurred in a monitoring plot. Species encountered in previous years remain on the list as they are likely to show up again, but were not counted in the total species. As the bank matures, some of the annual, early seral species are beginning to disappear, but will resurface through various disturbance regimes.

As with last year, several areas of bareland were included in the monitoring results. In the prairie areas an accumulation of organic matter is a natural process, and helps to maintain some sparse vegetation for grassland bird species, with an ideal range of 15%-25% bareland. The most substantial bare ground areas are associated with the planted tree/shrub areas which are nearing canopy closure. These areas lose their herbaceous layer as woody plant density increases, which will re-develop as succession moves forward and ultimately opens the canopy back up.

This year grass species represent 45.49% of the vegetation cover with the two most abundant species Meadow barley (*Hordeum brachyantherm*) and Tufted hairgrass (*Deschampsia cespitosa*) covering 8.17% and 12.83% respectively throughout all monitored habitats. Forbs, sedges, and rushes represented 50.23% cover this year and bareground was 4.43%.

5.3.1 Emergent Vegetation

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

Required: At least 55% of the mean plant cover (including bare soil) will be comprised of native species. – ***Met;****, Plots 2, 16, 19, 20, 24, 25, 26 and 29 are the planned emergent vegetation plots, which are comprised of 83.75% native species.*

Required: No more that 15% of the mean plant cover will be comprised of non-native invasive species. –***Met;*** *with 0% of non-native invasive species.*

Required: The wetland's moisture index is less than 3.0. –***Met;*** *with an average prevalence index of 1.44.*

5.3.2 Wetgrass Prairie

The performance criteria for **wetgrass prairie** were met for 6 of the 6 requirements.

Required: At least 10 wetgrass prairie species are present as listed in "Species Composition for Willamette Valley Vegetation Types" by Kathy Pendergrass. – **Met**; fifteen wet grass prairie species were identified within the wet prairie plots this year with sixteen species throughout all the monitoring points.

Required: Tufted hairgrass is represented by 25% or greater mean cover. – **Met; tufted hairgrass represented 20.45% cover. As discussed during the annual site visits, this provision needs removed, as it's been 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 an increase in diversity (i.e. forbs/sedge/rush cover).**

Required: At least 55% of the mean plant cover (including bare soil) will be comprised of native species. – ***Met****; In the 20 wetland prairie plots there was 96.75% native plant cover. Non-native and bare ground accounted for 3.25%.*

Required: No more that 15% of the mean plant cover will be comprised of non-native invasive species. – ***Met;*** *0% of non-native invasive species.*

Required: The prairie's moisture index is between 2.0 and 3.0.--***Met****; the average prevalence index of the prairie plots is 2.07.*

Required: The prairie has no more than 5% mean cover by shrubs or trees. – ***Met****; four of the 20 prairie plots have any shrub or overstory component, none of which accounts for significant shading. There were 86 stems noted: 26 Oregon ash (Fraxinus latifolia), and 60 Nootka rose (Rosa nutkana). This standard will be more closely reviewed as the shrub and tree components begin to grow and age, but this represents the approximately same number as last year, and Nooka rose is on the prairie cohort list.*

5.3.3 Shrub and Forest - Created

The performance criteria for **shrub and forest - created** were met for 5 of the 5 requirements.

Required: By the end of the second growing season, the 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)

—***Met****; reference site (in-Bank) contains a combination of six overstory and scrub/shrub species, while the Bank (not including the reference sites) includes 10 overstory and scrub/shrub species, which exceeds the 75% species richness required. (6 x .75 = 4.5 required species).*

Required The plant density in forested wetlands will be at least 50 to 100 living stems per acre and shrub/scrub wetlands at least 200 to 300 living woody stem per acre, of species that are rated FAC or wetter. This must be maintained through the end of the monitoring period until canopy coverage is greater than 30%. -- ***Met****; there are 61.7 trees per acre and 339.1 shrubs per acre.*

Required: There will be no more than 15% aerial coverage of non-native invasive species*. – ***Met*** *with 0% non-native invasives.*

In addition, the herbaceous layer in the forest and shrub areas will meet or exceed the performance standards for emergent herbaceous wetlands (below):

Required: At least 55% of the mean plant cover (including bare soil) will be comprised of native species. – ***Met****; this standard has been met for nine years, with a steady increase in bare ground as canopy closure has increased. plots 27, 27a (not monitored for herbaceous), 28 and 33 are the planned forest/shrub vegetation plots, which are comprised of 48.33% native plant cover, 30% cover is from bare ground, and non-native cover is 21.67. Of the vegetation itself, 69% in native.*

Required: The wetland's moisture index is less than 3.0. –***Met****; with an average weighted moisture index of 2.58.*

5.3.4 Forest - Enhanced

The performance criteria for **Forest - Enhanced** were met for 2 of the 2 requirements.

Required: Year five performance standard for the enhanced forested wetland will be maintaining the existing wetland forest and shrub layers while managing for no more than 15% of non-native invasive species. ***Met,*** *This was documented in 2010 as part of the year 5 monitoring report and is no longer being monitored.*

5.3.5 Buffer Areas - Upland Forest and Pond

The performance criteria for **Buffer Areas - Upland Forest and Pond** were met for 4 of the 4 requirements.

Required: Year five performance standard for the upland forest buffer will be to maintain the forest cover with 20% or less of non-native invasives. The five year performance standard for the existing pond will be to maintain it as a pond/wetland and maintain 20% or less of non-native invasives.— ***Met,*** *This was documented in 2010 as part of the year 5 monitoring report and is no longer being monitored.*

6.0 PHOTO POINT MONITORING

Monitoring point photos are included as Attachment 3, taken on June 4, 2015.

7.0 CREDIT SALES SUMMARY

Mid-Valley Mitigation Bank (Phase 1) has a possible 16.8 credits. On 12/21/10 the Corps released the final credits and DSL did the same on 12/29/10 verifying all credits available to sell. The final credits were sold from the bank in 2011, resulting in a balance of zero credits. This is the fourth of the final five monitoring report. Table 2 summarizes the credit sales. An accounting error in 2008 was realized by DSL in 2012, and the resulting 0.8865 credits were shifted to the Mid-Valley Phase 2 ledger.

Table 2 – Mid-Valley Phase 1 Credit Summary

DATE	*NAME*	*LOCATION*	*PERMIT NUMBER*		*SOLD*	*BALANCE*
9/28/05	**CORPS/DSL INITIAL RELEASE - 30% CREDITS - 5.04**					**5.04**
			DSL	**CORP**		
10/4/05	Investor's Equity Inc - Keith Nakayama	Charlies Estates, Lebanon	35040-RF	200500499	0.18	**4.86**
10/4/05	RMA Development	Clearview III, Lebanon	34107-RF	200500164	0.47	**4.39**
10/4/05	Gordon Vogt	Skyview III, North Albany	33916-RF	200500075	0.09	**4.3**
10/7/05	Conser Homes	Morningstar Phase III	34842-SP	200500432	0.13	**4.17**
10/11/05	BBF Dev. Clover Ridge-Myles Breadner	Edgewater, Albany	NA	200500365	0.87	**3.3**
10/11/05	Wulf Const	Creekside at Adair, Adair Village,	NA	199900325	0.13	**3.17**
10/17/05	Ken Kohl-ODOT	OR 228: Or99E to I-5	NA	200500163	2.57	**0.6**
10/25/05	Conser Homes	Sweetwater Subdivision	15198/5877-ENF	DSL only	0.27	**0.33**
11/7/05	City of Philomath		NA	NA	0.34	**-0.01**
6/9/06	**CORPS/DSL 2ND RELEASE - 30% CREDITS - 5.04**					**5.03**
6/16/06	GRS Enterprises	Eagle View Estates	34707-RF	200500435	0.28	**4.75**
8/29/06	Kingdom Estates	31707 S Fifth Street, Lebanon	3642-FP	200600291	0.2695	**4.4805**
12/6/06	RC Ventures LLC	Millersburg	37196-RF	200600615	0.978	**3.5025**
12/6/06	Gregory M. Perry		37033-RF	200600550	0.07	**3.4325**
9/5/06	Home Solutions	Kevin Spillman	NA	NA	0.07	**3.3625**
1/5/07	North Coast Electric	Ferry Street, Albany	37472-RF	200600886	0.27	**3.0925**
2/14/07	Progressive Design Builders	Philomath	37098-FP	NA	0.5	**2.5925**
10/11/06	Fernwood Environmental	Lake Point Estates, Sweet Home	36435-RF	NA	0.2	**2.3925**
3/8/07	IWM, LLC - R & D Construction		37275-RF	2006-945	0.49	**1.9025**
8/13/07	**CORPS/DSL 3RD RELEASE - 20% CREDITS - 3.36**					**5.2625**
4/19/07	Arrt Properties, LLC		37469-RF	2006-909	1.12	**4.1425**
2/26/07	Brownsville JV, LLC	Brownsville	38586	2007-478	0.13	**4.0125**
3/28/08	Hendgen-McMinville LLC	Albany Heights, Albany	39616-RF	NA	1.65	**2.3625**
4/4/08	**CORPS/DSL 4th RELEASE - 15% CREDITS - 2.52**					**4.8825**
4/4/08	DSL	Per Dana Hicks	33347 & 36174	NA	3.099	**1.7835**
7/23/09	ODOT	I-5 Bridges-Various Locations	42585-GA	NA	0.092	**1.6915**
8/25/09	ODOT	Locke Creek Bridge OR99W	42796-RF	NA	0.015	**1.6765**
12/29/10	**CORPS/DSL 5th/Final RELEASE - 5% CREDITS - 0.84**					**2.5165**
8/17/11	OSU	SW 15th St. & Philomath BLVD	46865-RF	2011-181	1.63	**.8865**
1/18/12	Accounting error from 2008 DSL Credit purchase	Shift credits to Phase 2 Ledger for accounting purposes			0.8865	**0**
	Total Released = 16.8			Total Sold =16.8		

Attachment 1: Sample Plot Monitoring Data

Mid-Valley Mitigation Bank - Phase 1																						
Sample Plot Monitoring Results - June 04, 2015																						
				Wet	Moisture															REF		
Botanical Name	**Common Name**	**Status**	**Origin**	**Prairie**	**Index**						**1**	**2**	**3**	**4**	**5**	**6**	**6a**	**7**	**8**	**8a**	**9**	**10**
				Species						**Entire**												
Overstory Species. - stem count (within 30' diameter)						**Wet Prairie**	**FOE**	**F/SN**	**Emergent**	**Bank**												
Acer macrophyllum	Bigleaf maple	FACU	native		4					0												
Alnus rubra	Red alder	FAC	native		3					1												
Crataegus douglasii	Black hawthorn	FAC	native		3					33										31		
Fraxinus latifolia	Oregon ash	FACW	native		2					84			11			1	25	1		4		
Malus fusca	Western crabapple	FACW	native		2					3												
Populus trichocarpa	Black cottonwood	FAC	native		3					1												
AVG Trees/plot (fac or wetter)	1.00																					
AVG Trees/ac. (fac or wetter)	61.7																					
Scrub/Shrub Species - stem count (within 30' diameter)																						
Cornus sericea	Red osier dogwood	FACW	native		2					22												
Rosa nutkana	Nootka rose	FAC	native	Yes	3					60							45					
Salix lasiandra	Pacific willow	FACW	native		2					6												
Sambucus racemosa	Elderberry	FACU	native		4					0												
Symphoricarpos albus	Snowberry	FACU	native		4					1												
AVG Shrubs/plot (fac or wetter	5.5																					
AVG Shrubs/ac. (fac or wetter)	339.1																					
Herbaceous Species - percent cover (1 meter square sample plots)						**Average Cover each Species**																
Achillea millefolium	Yarrow	FACU	native		4	0.00	0.00	0.00	0.00	0.00%												
Alisma gramineum	Narrow leaf water plantain	OBL	native		1	0.00	0.00	0.00	0.00	0.00%												
Alisma triviale	Northern water plantain	OBL	native		1	0.00	0.00	0.00	0.00	0.00%												
Bidens cernua	Nodding beggarticks	FACW+	native		2	0.00	0.00	0.00	0.00	0.00%												
Camassia quamash	Common camas	FACW	native	Yes	2	0.00	0.00	0.00	0.00	0.00%												
Carex densa	Dense sedge	OBL	native	Yes	1	0.50	0.00	0.00	0.00	0.29%												10
Carex obnupta	Slough sedge	OBL	native		1	4.00	40.00	0.00	0.00	6.86%										80	80	
Carex unilateralis	One-sided sedge	FACW	native	Yes	2	2.00	0.00	0.00	3.75	2.00%											10	30
Centaurium erythraea	Centaury	FAC	non		3	0.25	0.00	5.00	0.00	0.71%												
Cicuta douglassi	Western water-hemlock	OBL	native		1	0.00	2.50	0.00	0.00	0.29%										10		
Downingia elegans	Showy downingia	OBL	native	Yes	1	0.00	0.00	0.00	3.75	0.86%												
Eleocharis ovata	Ovoid spike rush	OBL	native	Yes	1	0.00	0.00	0.00	0.00	0.00%												
Eleocharis palustris	Creeping spike rush	OBL	native		1	0.00	0.00	0.00	6.25	1.43%												
Epilobium ciliatum	Fringed willowherb	FACW	native	Yes	2	1.75	2.50	0.00	0.00	1.29%					5	30						
Epilobium densiflorum	Dense spike-primrose	FACW	native	Yes	2	1.50	0.00	0.00	0.00	0.86%												
Eriophyllum lanatum	Oregon sunshine	NOL	native	Yes	5	0.00	0.00	0.00	0.00	0.00%												
Galium trifidum var. pacificum	Small bedstraw	FACW	native		2	1.50	1.25	2.50	0.00	1.29%					30							
Geum macrophyllum	large leaf avens	FACW	native		2	0.00	15.00	0.00	0.00	1.71%			60									
Geranium molle	Dovefoot geranium	NOL	non		5	0.00	0.00	0.00	0.00	0.00%												
Gratiola ebracteata	Bractless hedgehyssop	OBL	native	Yes	1	0.00	0.00	0.00	0.00	0.00%												
Juncus bufonius	Toad rush	FACW	native	Yes	2	0.00	0.00	0.00	0.00	0.00%												
Juncus effusus	Soft rush	FACW	native		2	6.65	0.00	0.00	3.75	4.66%	33	30					45				5	50
Juncus filiformis	Thread rush	FACW	native		2	0.00	0.00	0.00	0.00	0.00%												
Juncus tenuis	Slender rush	FACW	native	Yes	2	1.50	0.00	0.00	0.00	0.86%												
Kickxia elatine	Sharp point flevellin	FAC	non		3	0.00	0.00	0.00	1.25	0.29%												
Lapsana communis	Nipplewort	FACU	non		4	0.00	2.50	0.00	0.00	0.29%												
Lupinus rivularis	Stream-side lupine	FAC	native		3	0.50	0.00	0.00	0.00	0.29%												
Lythrum portula	Spatulaleaf loosestrife	OBL	non		1	0.00	0.00	0.00	1.25	0.29%												
Montia sibirica	Spring Beauty	FAC	native		3	0.00	17.50	0.00	0.00	2.00%										10		
Parentucellia viscosa	Parentucellia	FAC	non		3	0.00	0.00	0.00	0.00	0.00%												
Plagiobothrys figuratus	Fragrant popcornflower	FACW	native	Yes	2	0.00	0.00	0.00	18.75	4.29%												
Plagiobothrys scouleri	Scouler's popcorn flower	FACW	native	Yes	2	0.00	0.00	0.00	0.00	0.00%												
Potenilla gracilis	Slender cinquefoil	FAC	native	Yes	3	0.50	0.00	0.00	0.00	0.29%						10						
Polygonum amphibium	Water smartweed	OBL	native		1	0.00	0.00	0.00	0.00	0.00%												
Polystichum munitum	Sword fern	FACU	native		4	0.00	0.00	0.00	0.00	0.00%												
Ranunculus orthorhynchus	Straight beaked buttercup	FACW	native	Yes	2	0.00	1.25	0.00	0.00	0.14%												
Rorippa curvisiliqua	Western yellowcress	OBL	native	Yes	1	0.00	0.00	0.00	0.00	0.00%												
Rubis discolor	Himalayan blackberry	FACU	non		4	0.00	0.00	0.00	0.00	0.00%												
Rumex crispus	Curly dock	FAC	non		3	0.00	0.00	0.00	0.00	0.00%												
Rubus ursinus	Trailing blackberry	FACU	native		4	0.00	11.25	0.00	0.00	1.29%			25									
Sagittaria latifolia	Wapato	OBL	native		1	1.70	0.00	0.00	1.25	1.26%	34	10										
Sidalcea campestris	Meadow sidalcea	FACU	native		4	3.25	0.00	0.00	0.00	1.86%					5							
Sidalcea cusickii	Cusick's checkermallow	FACW	native	Yes	2	12.50	0.00	0.00	0.00	7.14%					35	50						
Sidalcea nelsoniana	Nelson's checkermallow	FACW	native	Yes	1	4.40	0.00	0.00	0.00	2.51%				33	15							
Sisyrinchium angustifolium	Blue eyed grass	FACW	native	Yes	2	0.00	0.00	0.00	0.00	0.00%												
Tellima grandiflora	Fringe cup	FACU	native		4	0.00	0.00	0.00	0.00	0.00%												
Typha latifolia	Cat-tail	OBL	native		1	0.00	0.00	0.00	16.88	3.86%		60										
Veronica americana	American speedwell	OBL	native		1	1.65	0.00	0.00	0.00	0.94%	33											
Veronica peregrina var. xalapei	Hairy purlane speedewell	OBL	native	Yes	1	0.25	0.00	0.00	0.00	0.14%											5	
Vicia hirsuta	Hairy vetch	NOL	non		5	0.00	2.50	0.00	0.00	0.29%			5									
										50.23%												
Grass Species - percent cover (1 meter square sample plots)																						
Agrostis exarata	Spike bentgrass	FACW	native	Yes	2	3.65	0.00	0.00	2.50	2.66%				33	10							
Alopecurus geniculatus	Water foxtail	OBL	native		1	3.00	0.00	0.00	15.00	5.14%												
Beckmania syzigachne	Slough grass	OBL	native	Yes	1	0.50	0.00	0.00	11.88	3.00%												
Briza Minor	Little quaking grass	FAC	non		3	0.00	0.00	0.00	0.00	0.00%												
Danthonia californica	California oatgrass	FAC	native	Yes	3	2.75	0.00	22.50	0.00	4.14%												
Deschampsia cespitosa	Tufted hairgrass	FACW	native	Yes	2	20.45	0.00	0.00	5.00	12.83%				34		10		30				
Deschampsia danthonioides	Annual hairgrass	FACW-	native	Yes	2	0.00	0.00	0.00	0.00	0.00%												
Deschampsia elongata	Slender hairgrass	FACW	native	Yes	2	0.00	0.00	0.00	0.00	0.00%												
Elymus Trachycaulus	Slender wheatgrass	FAC	native		3	12.75	0.00	5.00	0.00	7.86%												
Hordeum brachyantherm	Meadow barley	FACW	native	Yes	2	9.50	2.50	6.25	7.50	8.14%			10					70	100			10
Lolium multiflorum	Annual rye grass	FACU	non		4	0.00	0.00	0.00	0.00	0.00%												
Poa trivialis	Rough-stalk bluegrass	FACW	non		2	0.00	1.25	0.00	0.00	0.14%												
Vulpia myuros	Rattail fescue	FAC	non		3	0.50	0.00	11.25	0.00	1.57%												
										45.49%												
Sample Plot #											**1**	**2**	**3**	**4**	**5**	**6**	**6a**	**7**	**8**	**8a**	**9**	**10**
Bareground:(canapoy closure: 6a, 27)						**mean=**	**4.43**										55					
Relative % native cover including bareland as non-native (herbaceous only):											100	100	95	100	100	100	45	100	100	100	100	100
wet prairie mean =	**96.75**	**emergent mean=**			**83.75**		**shrub/tree herbaceous only mean=**						**48.33**									
% non-native invasives as defined in Final Document											0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
wet prairie mean =	**0.00**	**emergent mean=**			**0.00**		**shrub/tree herbaceous only mean=**						**0.00**									
Sample plot Prevelence index (herbaceous layer only)											1.33	1.30	2.65	1.67	1.95	2.10	2.00	2.00	2.00	1.20	1.15	1.90
wet prairie mean =	**2.07**	**emergent mean=**			**1.44**		**shrub/tree herbaceous only mean=**						**2.58**									
Wet Prairie (WP), Emergent (EM), Forest Existing (FOE), Forest/Shrub (F/SN)											WP	EM	FOE	WP	WP	WP	WP	WP	WP	FOE	WP	WP

Attachment 1: Sample Plot Monitoring Data

																	Stem Ct.						
				REF								REF					Only						
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**27a**	**28**	**29**	**30**	**31**	**32**	**33**
																		1					
				1								1											
				25	10							7											
																	1	2					
					1																		
																2	8	4					8
						4				11													
					3								3										
												1											
				80																			
					20				10														
			5															10					10
													20	10									
														40					10				
												10											
							30																
												5											10
						30																	
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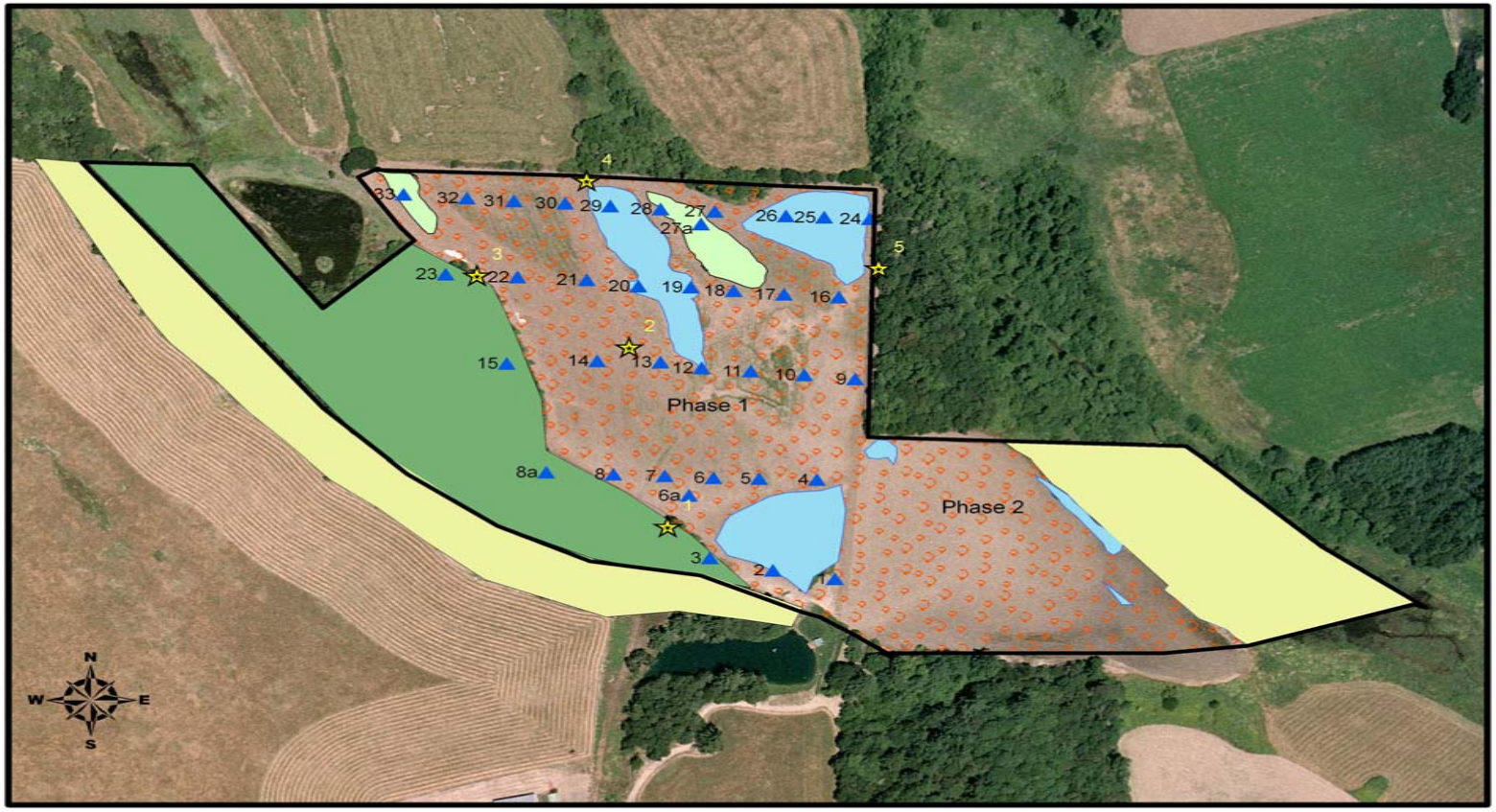
												60											
													10	40	100								
												5											
				20																			
			60																				
			30			50	60			25													
	20	20																					
																			75				
												5											
20					20	10																	
60					20			100															
10					20				60										15				
																		30		20	35		60
	80	80	10		10				30	40	70									20	20	15	
										35	30									60	45	85	20
10													60			10		15					
												5											
						10												45					
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**27a**	**28**	**29**	**30**	**31**	**32**	**33**
					10											90							
100	100	100	100	100	90	90	100	100	100	100	100	80	90	90	100	10		45	100	100	100	100	90
0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%
1.30	1.80	1.80	3.19	1.60	1.56	2.10	2.10	1.00	1.40	2.35	2.30	2.95	1.90	1.40	2.00	2.00		2.85	1.00	2.80	2.80	2.85	2.90
WP	WP	WP	WP	FOE	EM	WP	WP	EM	EM	WP	WP	FOE	EM	EM	EM	F/SN	F/SN	F/SN	EM	WP	WP	WP	F/SN

Attachment 2: Monitoring Point Location Map

Mid-Valley Mitigation Bank Phase 1 Vegetation/Photo Monitoring Points



Phase 1 Monitoring points
Photo Points
PFO
PEMC
PSS
Wet Prairie
Buffer

0 250 500 1,000 Feet

1 inch equals 329 feet

Mid-Valley Phase 1 Mitigation Bank 2015 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

Photos Taken June 4, 2015

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