2015 MONITORING REPORT
for
MARION MITIGATION BANK
MARION, OR
(PHASE I, II, III)

Submitted to
Oregon Department of State Lands
U.S. Army Corps of Engineers

Submitted by
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Marion Mitigation Bank 2015

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Marion Mitigation Monitoring Report Cover Sheet
Oregon Department of State Lands

Block 1: Report Information

DSL Permit Number: 37253-RF COE Permit Number NWP-2007-701
Permittee: Marion Mitigation Bank LLC
County: Marion Report Date: January 2016 Monitoring Year 15
Date Removal-Fill Activity Completed: 2008
Date mitigation was completed Grading: 2008 Planting: Ongoing
Report submitted by: Marion Mitigation Bank 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 had 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

Block 3: Results

	Success Criteria	Met ? (Y/N)	Comments/Reason for failure*
1.	Open water areas will have no more than 15% cover of undesirable invasive species	Y	
2.	Areas of herbaceous vegetation will be dominated by more than 50% desirable herbaceous wetland species no more than 50% of the area will be dominated by one species, and they will have no more than 15% cover of invasive, undesirable species	Y	
3.	Scrub-shrub areas will have no fewer than 3 species of desirable shrubs and will have a stem density of 100 stems or greater, and will have no more than 15% cover of undesirable invasive species	Y	
4.	Forested areas will have no fewer than 3 species of desirable shrubs and will have a stem density of 100 stems or greater, and will have no more than 15% cover of undesirable invasive species	Y	
5.	Upland (Oak Savannah) will have at least Oak and other desirable tree species with a stem density of at least 25 stems per acre and at least one desirable herbaceous species that covers 50% or more of the Upland area. There will be no more than 15% cover undesirable invasive species	N	We are using buffer areas for site access, will continue to plant native trees and shrubs to meet objective in time

Remedial work recommended Yes ☐ No X
Deed Restriction or other protection instrument attached (note: if a filed deed restriction was required as a permit condition, please attach a copy): Yes ☐ No X
Final Monitoring Report? Yes ☐ No X
GIS Data Submitted? Yes ☐ No X
Requesting release or partial release of bond? Yes ☐ No X

* see report for detailed information

Marion Mitigation Bank 2015

1.0 Regulatory Background

This is the fifteenth monitoring report for the Marion Mitigation Bank Site located 1.5 miles northeast of the community of Marion in Marion County, T9S, R2W, Sec. 27. The original banking instrument was developed and approved in 2001.

The Marion Bank is 57.82 acres, and was built in three phases. The diversity of habitats restored include Emergent, Scrub/shrub, Forested, and Upland (Oak Savannah). Potential credits produced by phase are as follows:

Phase I:

5.65 acres enhanced wetland @2:1	2.82 credits
6.16 acres restored wetland @ 1:1	6.16 credits
3.30 acres created wetland @ 1.5:1	2.20 credits
0.50 acres upland buffer @ 10:1	0.05 credits
Total Credits Produced	11.18 credits

Phase II:

1.82 acres enhanced wetland @ 3:1	0.61 credits
15.16 acres created wetland @ 1.5:1	10.11 credits
2.50 acres upland buffer @ 10:1	0.25 credits
Total Credits Produced	10.72 credits

Phase III:

2.03 acres enhanced wetland @2:1	1.02 credits
10.34 acres restored wetland @ 1:1	10.34 credits
4.61 acres created wetland @ 1.5:1	3.07 credits
0.50 acres upland buffer @ 10:1	0.05 credits
Total Credits Produced	14.43 credits

2.0 Work summary

Goals in 2015 for the Marion Bank include

1. Reducing invasive species- reed canary grass in wetter areas and blackberry and thistles in drier areas
2. Planting native trees and shrubs along buffers, and filling in bare areas that are targeted forest habitat
3. Seeding areas that have been sprayed out
4. Maintaining management access of site by mowing berms for vetch and other plants that may hinder access
5. Improving maps of site- GPS identified all vegetation plots, and well and pond locations

Goals for 2016 will be to establish greater abundance and finish plantings in all buffers and upland

3.0 As-Built Plan

As- Built Plans were submitted with original instrument in 2001. Additional description of regarding was submitted in construction completion report in 2008.

4.0 Hydrology Performance standards, Methodology, and Results

4.1 Performance Standards

Wetland hydrology sufficient to meet the criteria as 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 will be evaluated throughout the site at least once a month using a series of observation wells and vernal pool pond gauges. A final delineation was submitted in 2015.

4.2 Methodology

Ground water levels were measured in 17 deep observation tubes (approximately 120" below ground surface), and 1 shallow wells (approximately 36" below ground surface). These wells are located on map. In addition, 10 pond gauges are located throughout the site to measure vernal pool depths throughout the year. These measurements are taken monthly, and bi-monthly between March and May to demonstrate sufficient duration of wetness to meet the 1987 Wetland Delineation Manual.

4.3 Results

This criteria continues to met the standard despite below average precipitation. In phase I, wells S1-S4, well 11, and all ponds have a water level within 12 inches of the surface for more than 15 days during the growing season. In Phase II, 2,14, 17, S8-S11 and all ponds have a water level within 12 inches of the surface for more than 15 days during the growing season. In Phase III, wells 5, 6, and all ponds have a water level within 12 inches of the surface for more than 15 days during the growing season.

5.0 Vegetation Performance Standards, Methodology, and Results

5.1 Performance Standards

1) Open water areas will have no more than 15% cover of undesirable invasive species
2) Areas of herbaceous vegetation will be dominated (more than 50% cover and more than 50% frequency of occurrence by desirable herbaceous wetland species (FAC or wetter) and plant associations, the species richness will be at least 50% as great as that of the reference; no more than 50% of the area will be dominated by one species; ad they will have no more than 15% cover of invasive, undesirable herbaceous species
3) Scrub-shrub areas will have no fewer than 3 species of desirable shrubs and will have a stem density of planted trees and shrubs (or volunteers of desirable species) of at least 100 stems per acre or at least 50% of the density at the reference (whichever is greater); and will have no more than 15% cover of invasive, undesirable herbaceous species
4) Forested areas will have no fewer than 3 species of desirable shrubs and will have a stem density of planted trees and shrubs (or volunteers of desirable species) of at least 100 stems per acre or at least 50% of the density at the reference (whichever is greater); and will have no more than 15% cover of invasive, undesirable herbaceous species
5) Upland (Oak Savannah) will have at least Oak and other desirable tree species (with a stem density of at least 25 stems per acre) and at least one desirable herbaceous species that covers 50% or more of the upland area. There will be no more than 15% cover of undesirable invasive species. These criteria will be used to demonstrate success after the required five years.

5.2 Methodology

Vegetation assessment and monitoring was conducted at the Marion Mitigation Bank (MMB) site on May 31st, and June 7th and 13th, 2015. Stem density counts were taken in 2008 in phase I and phase II, and in 2013 in phase III.

The approach and rationale for the sampling strategy used can be found in the 2001 report on vegetation monitoring at the MMB. Sampling was completed at the same locations as in 2014. In Phase I, there were 14, 13, and 12 locations in the Emergent, Scrub/Shrub, and Forested habitat types, respectively. In phase II, there were 10 sample locations in each habitat. Vegetation monitoring in Phase III followed the sampling design implemented in 2010. However, in 2013 a change was made in how data were summarized. The ten Scrub/Shrub habitat sampling stations were re-identified as either Emergent habitat (3 stations) or Upland habitat (7 stations). The original Scrub/Shrub habitat was essentially narrow bands around the perimeter of the ponds, but over time those areas developed vegetation that was indistinguishable from either the upland berms or the emergent ponds themselves, depending on the exact position of the sampling stations on the pond banks. Accordingly, all the wetland areas in phase III were considered to be emergent wetland.

Species found in a one-square meter rectangular quadrat placed at each of the sampling locations were recorded and the cover of each was estimated as a percent of the quadrat

area. Estimates of bare ground and other non-vegetated space were made at each quadrat, and estimates of overstory cover (canopy) were also included, if present.

To calculate the relative proportion of typical wetland species, those with an indicator status of FAC or better were considered. Species were assigned the indicator status for the Northwest region from the USFWS 1996 list. The most conservative National indicator status was used when the indicator status for the Northwest region was "NI" or blank. In determining proportions of cover for FAC and better species, the cover of those species was calculated as a percentage of the total cover.

To calculate the number of plots in each delineated habitat type that met "emergent" or "woody" criteria, plots with 2 or more inches of standing water at sampling time, and greater than 30% absolute cover of woody species, were included, respectively.

Calculations were also made which included: 1) the percentage of the total cover comprised of native taxa, and 2) a Soil Moisture Index (SMI). The SMI was calculated by weighting the cover of individual species by their fidelity to wetland habitats (i.e. OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5). All species not on the USFWS 1996 list, taxa identified only to genus, and unknown taxa were assigned a value of 5 for calculating the SMI. The sum of the weighted cover values for all taxa in the plot was then divided by the total un-weighted cover of all taxa in the plot. SMI values for a plant community can range from 1.0 (all plants present are obligate wetland species) to 5.0 (all plants present are upland species), and a value of 3.0 is considered to be the break-point between wetlands and uplands.

Vegetation sampling data for the different habitat types is in the attached tables. The following sections summarize the dominant vegetation within each of the habitat types. Unlike the reports for years prior to 2005, the three wetland types were not evaluated as a combined unit in later years. Each of the habitat types is evaluated only as a distinct unit.

In September 2014 three additional plots were placed in a ponded area in the extreme NE corner of Phase 3. These data are summarized here but should only be considered to represent the immediate area where they were located and not to be valid samples of the entire Phase 3 area, as they were not selected at random from all the possible sampling points as were the other sample locations, but rather were selected with the expressed purpose of representing the ponded area in the extreme NE corner of Phase 3. As such, these data were not included with the other data when calculating Phase 3 vegetation condition.

Vegetative cover for one of the Emergent sampling stations was not assessed because it was still under deep water (more than about three feet) at the time of sampling; no emergent or floating vegetation was observed at this location.

Where shrub or tree strata exist, they are sample in a 10 meter radius around the quadrat. Percent cover shrubs/ saplings is estimated and diameter at breast height is measured for trees. Stem counts are taken for saplings and trees.

5.3 Results

5.3.1 Phase I

MMB Phase 1 Delineated Habitats:	Emergent	Scrub/Shrub	Forested
Percent FAC and better cover	95	92	77
Percent native cover	74	62	52
Invasive species cover	0.1	1.3	0.8
Soil Moisture Index (SMI)	1.70	1.93	2.78
Percent vegetated (under canopy)	76	76	86
Emergent herbaceous plots	1	0	0
Emergent woody plots	0	0	0
Non-emergent woody plots	6	7	3
Non-emergent herbaceous plots	7	6	9

Emergent Habitat Type

This habitat type was dominated by *Carex obnupta* (slough sedge), *Salix sitchensis* (Sitka willow), *Hordeum brachyantherum* (meadow barley), *Mentha pulegium* (pennyroyal), *Agrostis stolonifera* (creeping bentgrass), *Eleocharis palustris* (common spike-rush) and *Polygonum hydropiperoides* (waterpepper). FAC and better species made up 95% of the total cover. Native species accounted for about 74% of the total cover in this area, and the total cover of invasive species was 0.1%. The moisture index for this habitat type was 1.70, and 76% of the area under the canopy was vegetated.

Scrub/Shrub Habitat Type

This habitat type was dominated by *Salix sitchensis* (Sitka willow), *Carex obnupta* (slough sedge), *Agrostis stolonifera* (creeping bentgrass), *Spiraea douglasii* (Douglas' spiraea), *Mentha pulegium* (pennyroyal), *Fraxinus latifolia* (Oregon ash), and *Eleocharis acicularis* (needle spike-rush). FAC and better species made up 92% of the total cover. Native species accounted for about 62% of the total cover in this area, and the total cover of invasive species was 1.3%. The moisture index for this habitat type was 1.93, and 76% of the area under the canopy was vegetated.

Forested Habitat Type

This habitat type was dominated by *Deschampsia cespitosa* (tufted hairgrass), *Equisetum arvense* (common horsetail), *Agrostis stolonifera* (creeping bentgrass), *Salix sitchensis* (Sitka willow), *Agrostis castellana/capillaris* (dryland/colonial bentgrass), and *Fraxinus latifolia* (Oregon ash). FAC and better species made up 77% of the total cover. Native species accounted for about 52% of the total cover in this area, and the total cover of invasive species was 0.8%. The moisture index for this habitat type was 2.78, and 86% of the area under the canopy was vegetated.

Stem Density conducted in 2008 demonstrated 554 stems per acre where shrub or tree strata exist. At least three desirable shrub/ tree species were recorded.

5.3.2 Phase II

MMB Phase 2 Delineated Habitats:	Emergent	Scrub/Shrub	Forested
Percent FAC and better cover	100	98	84
Percent native cover	89	78	63
Invasive species cover	4.9	10.6	17.6
Soil Moisture Index (SMI)	1.61	2.07	2.24
Percent vegetated (under canopy)	69	49	71
Emergent herbaceous plots	4	2	1
Emergent woody plots	4	0	5
Non-emergent woody plots	2	8	3
Non-emergent herbaceous plots	0	0	1

5.3.3
5.3.4
5.3.5
5.3.6
5.3.7

Emergent Habitat Type

This habitat type was dominated by *Salix sitchensis* (Sitka willow), *Juncus effusus* (soft rush), *Polygonum hydropiperoides* (waterpepper), and *Ludwigia palustris* (marsh seedbox). FAC and better species made up 100% of the total cover. Native species accounted for about 89% of the total cover in this area, and the total cover of invasive species was 4.9%. The moisture index for this habitat type was 1.61, and 69% of the area under the canopy was vegetated.

Scrub/Shrub Habitat Type

This habitat type was dominated by *Salix lucida* ssp. *lasiandra* (Pacific willow), *Salix hookeriana* (Hooker willow), *Juncus effusus* (soft rush), *Alnus rhombifolia* (white alder), and *Holcus lanatus* (common velvetgrass). FAC and better species made up 98% of the total cover. Native species accounted for about 78% of the total cover in this area, and the total cover of invasive species was 10.6%. The moisture index for this habitat type was 2.07, and 49% of the area under the canopy was vegetated.

Forested Habitat Type

This habitat type was dominated by *Salix sitchensis* (Sitka willow), *Phalaris arundinacea* (reed-canary grass), *Alnus rhombifolia* (white alder), *Spiraea douglasii* (Douglas' spiraea), and *Holcus mollis* (creeping velvetgrass). The *Holcus* was only in one quadrat. FAC and better species made up 84% of the total cover. Native species accounted for about 63% of the total cover in this area, and the total cover of invasive species was 17.6%. The moisture index for this habitat type was 2.24, and 71% of the area under the canopy was vegetated.

Stem Density conducted in 2008 demonstrated 1,363 stems per acre where shrub or tree strata exist. At least three desirable shrub/ tree species were recorded.

5.3.3 Phase III

MMB Phase 3 Delineated Habitats:	Emergent
Percent FAC and better cover	99
Percent native cover	85
Invasive species cover	4.8
Percent vegetated (under canopy)	73
Soil Moisture Index (SMI)	1.44
Emergent herbaceous plots	14
Emergent woody plots	7
Non-emergent woody plots	0
Non-emergent herbaceous plots	2

Emergent Habitat Type

This habitat type was dominated by *Salix lucida* ssp. *lasiandra* (Pacific willow), *Azolla mexicana* (Mexican mosquito-fern), *Wolffia borealis* (northern watermeal), *Eleocharis palustris* (common spikerush), *Potamogeton* sp. (pondweed), and *Lemna minor* (duckweed). Twenty-one of the 23 sampling stations had standing water on the soil surface at the time of sampling. FAC and better species made up 99% of the total cover. Native species accounted for about 85% of the total cover, and the total cover of invasive species was 4.8%. The SMI for this habitat type was 1.44, and 73% of the area under the canopy was vegetated.

Oak Savannah Habitat Type

This habitat type currently includes 5 random sampling locations on the hill, 4 locations with one each centered on each of the perimeter berms (N, S, E, W), and 7 random sampling locations (previously Scrub/Shrub) on the interior and perimeter berms. This habitat type was dominated by *Agrostis castellana/capillaris* (dryland/colonial bentgrass), *Bromus catharticus* (rescuegrass), *Poa trivialis* (rough bluegrass), *Festuca idahoensis* ssp. *roemeri/ F. occidentalis* (Roemer's fescue/ western fescue), *Vicia pannonica* (Hungarian vetch) and *Galium aparine* (catchweed bedstraw). Native species accounted for 17% of the total cover in this area, and 90% of the area under the canopy was vegetated.

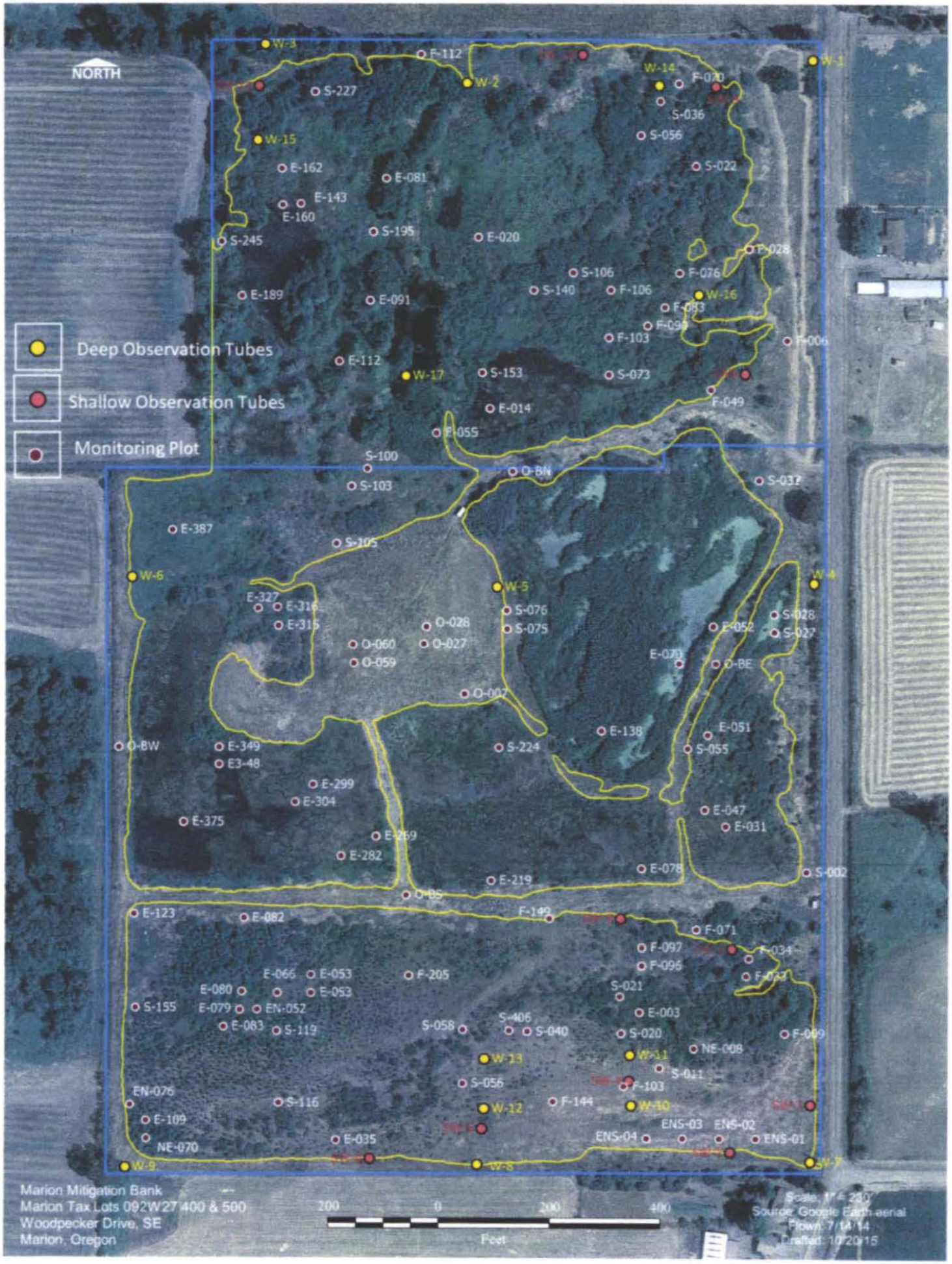
Stem Density conducted in 2012 demonstrated 18,237 stems per acre where shrub or tree strata exist. At least three desirable shrub/ tree species were recorded.

6.0 Credit Sales

No credit Sales in 2015. Appendix 3 shows journal of credit sales to date.

APPENDIX 1

Vegetation and hydrology monitoring plot map


NORTH
Deep Observation Tubes
Shallow Observation Tubes
Monitoring Plot
W-1
W-2
W-3
W-4
W-5
W-6
W-7
W-8
W-9
W-10
W-11
W-12
W-13
W-14
W-15
W-16
W-17
F-112
S-227
F-070
S-036
S-056
S-022
E-162
E-081
E-143
E-160
S-195
E-020
S-245
F-028
S-106
F-076
S-140
F-106
E-189
E-091
F-053
F-096
F-103
F-006
E-112
S-153
S-073
F-049
E-014
E-055
S-100
O-BN
S-103
S-037
E-387
S-105
E-327
E-316
E-315
S-076
S-075
O-028
O-027
O-060
O-059
S-028
S-027
E-052
E-070
O-BE
O-007
E-138
E-051
S-055
O-BW
E-349
E3-48
S-224
E-299
E-304
E-375
E-047
E-031
E-269
E-282
E-078
S-002
E-219
O-BS
E-123
E-082
F-149
F-071
F-097
F-034
F-096
E-066
E-053
F-205
E-080
E-053
S-021
S-155
E-079
EN-052
E-003
E-083
S-119
S-058
S-406
S-040
S-020
F-009
NE-008
S-011
S-056
F-103
EN-076
S-116
F-144
E-109
ENS-03
ENS-02
ENS-04
ENS-01
NE-070
E-035
Marion Mitigation Bank
Marion Tax Lots 092W27 400 & 500
Woodpecker Drive, SE
Marion, Oregon
200
0
200
400
Feet
Scale: 1" = 200'
Source: Google Earth aerial
Flown: 7/14/14
Drafted: 10/20/15

APPENDIX 2

Vegetation monitoring data

Marion Mitigation Bank Plant Monitoring, 2015 Phase 1

		Percent FAC and better												Percent native											
Habitat	Station	2005	2006	2007	2008	2009	2010	2011	2012	2013	2015	2015	2016	2005	2006	2007	2008	2009	2010	2011	2012	2013	2015	2015	2016
E	E-003	86	100	100	100	100	100	100	100	100	100	100		85	89	56	80	95	55	71	100	100	100	100	
E	E-053	80	60	100	100	100	100	100	100	100	100	100		64	84	98	99	98	99	99	99	99	100	100	
E	E-066	99	100	100	100	100	100	100	100	100	100	100		43	48	50	56	29	52	35	50	22	51	31	
E	E-079	100	100	99	99	100	100	100	100	100	100	100		32	47	86	97	94	97	94	97	86	99	97	
E	E-080	100	100	96	99	100	99	100	100	100	100	100		39	60	78	82	72	69	55	92	94	99	99	
E	EN-008	N	100	58	100	100	100	100	100	100	100	100		N	82	31	76	61	41	40	64	51	83	64	
E	EN-052	N	100	68	100	100	100	100	100	100	100	100		N	98	64	83	69	58	54	66	70	86	97	
E	EN-070	N	82	99	90	36	99	90	97	85	100	96		N	48	90	68	27	14	27	66	46	84	67	
E	EN-076	N	87	100	100	R	100	100	100	97	100	59		N	48	95	23	R	8	2	1	12	6	3	
E	ENS-01	N	N	N	N	N	N	N	N	100	99	99		N	N	N	N	N	N	N	N	100	98	87	
E	ENS-02	N	N	N	N	N	N	N	N	99	98	99		N	N	N	N	N	N	N	N	99	88	66	
E	ENS-03	N	N	N	N	N	N	N	N	100	100	98		N	N	N	N	N	N	N	N	100	100	98	
E	ENS-04	N	N	N	N	N	N	N	N	99	98	97		N	N	N	N	N	N	N	N	97	93	87	
E	S-116	100	87	56	100	100	100	100	100	99	100	100		94	12	36	77	40	76	30	29	31	24	13	
F	E-082	N	90	86	91	98	93	99	100	20	97	100		M	63	57	72	68	73	82	74	13	20	46	
F	F-033	87	95	81	97	99	100	100	100	100	99	96		12	75	72	95	97	98	99	100	100	99	95	
F	F-034	81	87	93	100	98	98	100	99	100	100	99		42	91	90	98	98	98	100	100	100	100	99	
F	F-071	33	44	18	54	S	35	59	73	61	45	77		1	1	0	1	S	0	3	2	5	10	47	
F	F-096	53	50	67	55	63	59	91	97	57	91	91		14	26	28	29	43	55	86	94	54	88	88	
F	F-097	76	73	72	84	74	84	98	100	99	99	100		44	57	50	61	68	73	78	91	75	65	67	
F	F-103	38	59	62	95	R	22	38	16	29	15	25		1	1	0	0	R	2	1	0	0	1	4	
F	F-144	9	16	40	21	R	31	40	42	39	32	29		3	1	1	3	R	2	0	0	0	1	1	
F	F-149	77	65	63	61	R	45	81	87	88	49	75		42	62	11	54	R	50	74	82	74	45	52	
F	F-205	47	58	56	74	57	76	69	61	44	80	60		6	7	7	10	11	17	27	34	40	29	26	
F	S-056	13	69	68	88	72	84	95	97	91	95	96		0	18	29	27	31	62	61	66	66	75	78	
F	S-119	77	42	46	65	50	78	85	89	58	93	81		11	15	5	8	7	8	16	46	25	27	34	
S	E-035	26*	82	94	97	75	79	89	97	95	100	99		4*	17	70	12	29	11	30	57	59	77	67	
S	E-052	100	98	100	100	89	100	100	100	100	100	100		61	22	83	73	81	79	85	94	88	88	99	
S	E-086	100	100	99	100	100	100	100	100	100	100	100		56	66	72	48	53	71	75	85	94	94	100	
S	E-109	100	86	99	99	90	93	99	100	99	100	99		33	16	39	43	52	37	31	44	38	69	68	
S	E-123	71	96	70	97	93	81	98	100	96	100	87		60	57	36	20	21	17	3	11	7	44	18	
S	F-009	21	39	95	95	97	99	98	67	97	65	68		3	14	39	47	53	48	49	52	57	62	58	
S	S-011	45	27	12	17	7	41	76	42	52	62	50		10	2	4	0	3	2	9	34	28	46	21	
S	S-020	80	90	99	100	100	100	100	100	100	100	100		88	47	81	65	83	31	48	65	66	62	61	
S	S-021	100	99	92	97	99	100	100	100	100	100	100		28	43	59	46	31	48	45	60	99	95	92	
S	S-040	100	98	99	100	100	100	100	100	100	100	100		42	42	81	59	50	53	48	63	50	87	26	
S	S-046	84	94	100	100	100	100	100	100	100	100	100		65	41	80	83	94	92	87	98	97	90	88	
S	S-058	68	97	89	100	100	100	100	100	100	100	100		59	20	78	34	76	51	24	63	65	90	83	
S	S-155	N	99	87	96	98	90	98	100	100	100	100		M	66	57	41	67	15	6	16	32	13	2	
		*location error?			N = no data			R = remediated			S = sprayed														
		difference in part due to Salix sp. (NOL) vs. S. sitchensis (FACW)																							
	Average:	72	79	79	88	86	85	91	90	87	90	89		37	42	52	51	57	48	48	60	60	66	62	
												Native Species:		N	37	36	40	38	37	37	35	33	36	37	
												Introduced Species:		N	48	44	33	33	38	45	31	38	40	34	
												Total:		N	85	80	73	71	75	82	66	71	76	71	

Marion Mitigation Bank Plant Monitoring, 2015 Phase 1

Emergent Habitat Type — Date(s) sampled: 5/31/15, 6/7/15, 6/13/15

Cover (%)

									Sample Station												
Species	Common Name	Native	Indicator	SMI	Wet	Woody	E-003	E-053	E-066	E-079	E-080	EN-008	EN-052	EN-070	EN-076	ENS-01	ENS-02	ENS-03	ENS-04	S-116	Mean
Carex obnupta	slough sedge	yes	OBL	1	y			72		85	75	2									16.7
Salix sitchensis	Sitka willow	yes	FACW	2	y	y		95		65			15						40		15.4
Hordeum brachyantherum	meadow barley	yes	FACW-	2	y											28	60	65	37		13.6
Mentha pulegium	pennyroyal		OBL	1	y				55	2	1	23	2	2		6	30			50	12.2
Agrostis stolonifera	creeping bentgrass		FACW	2	y				1	1		27	1		80						7.9
Eleocharis palustris	common [creeping] spike-rush	yes	OBL	1	y		4		13	8		1	80							1	7.6
Polygonum hydropiperoides	waterpepper	yes	OBL	1	y		66					3									5.1
Fraxinus latifolia	Oregon ash	yes	FACW	2	y	y								60							4.3
forb	NA	NA	---	5	u										58						4.1
Beckmannia syzigachne	American slough grass	yes	OBL	1	y											45	1				3.3
Populus balsamifera ssp. trichocarpa	black cottonwood	yes	FAC	3	y	y					35	10									3.2
Salix hookeriana	Hooker willow	yes	FACW	2	y	y						45									3.2
Salix lucida ssp. lasiandra	Pacific [red] willow	yes	FACW+	2	y	y	3				27										2.1
Lythrum portula	spatulaleaf loosestrife		OBL	1	y									23	3					3	2.1
Ludwigia palustris	marsh seedbox	yes	OBL	1	y				8			2	12								1.6
Agrostis exarata	spike bentgrass	yes	FACW	2	y													15	5		1.4
Alopecurus geniculatus	water foxtail		OBL	1	y										2	5	1		10		1.3
Juncus articulatus	jointed rush	yes	OBL	1	y				4			11									1.1
Plagiobothrys scouleri	Scouler's popcornflower	yes	FACW	2	y									2	5	4	1		1		0.9
Juncus effusus	soft rush	yes	FACW	2	y							10									0.7
Spiraea douglasii	Douglas' spiraea	yes	FACW	2	y	y		6				3									0.6
Deschampsia cespitosa	tufted hairgrass	yes	FACW	2	y														6		0.4
Eleocharis acicularis	needle spike-rush	yes	OBL	1	y															5	0.4
Lactuca serriola	prickly lettuce		FACU	4												1	1	1	1		0.3
Epilobium ciliatum	fringed willowherb	yes	FACW-	2	y													2	1		0.2
Vicia sativa	common vetch		UPL	5											3						0.2
Agrostis castellana/capillaris	dryland/colonial bentgrass		FAC	3	y									2							0.1
Ambrosia artemisiifolia	annual ragweed		FACU+	4										2							0.1
Anthemis cotula	mayweed chamomile/ stinking mayweed		FACU	4										2							0.1
Phalaris arundinacea	reed-canary grass	invasive	FACW	2	y					2											0.1
Schoenoplectus acutus	hardstem bulrush	yes	OBL	1	y							2									0.1
Bromus hordeaceus ssp. hordeaceus	soft brome		FACU	4															1		0.1
Callitriche sp.	water starwort	NA	OBL	1	y							1									0.1
Daucus carota	wild carrot/ Queen Anne's lace		NOL	5	u										1						0.1
Eleocharis ovata	ovate spikerush	yes	OBL	1	y															1	0.1
Gnaphalium palustre	lowland cudweed	yes	FAC+	3	y									1							0.1
Gratiola ebracteata	bractless hedgehyssop	yes	OBL	1	y															1	0.1
Parentucellia viscosa	parentucellia		FAC-	3														1			0.1
Vicia pannonica	Hungarian vetch		NOL	5	u														1		0.1
bare (soil, mud, rock)	DOES NOT INCLUDE CANOPY, IF ANY								1	5	5	10	2	65	1	2	1	3	3	35	9.5

Marion Mitigation Bank Plant Monitoring, 2015 Phase 1

Emergent Habitat Type — Date(s) sampled: 5/31/15, 6/7/15, 6/13/15

Cover (%)

							Sample Station														
Species	**Common Name**	**Native**	**Indicator**	**SMI**	**Wet**	**Woody**	**E-003**	**E-053**	**E-066**	**E-079**	**E-080**	**EN-008**	**EN-052**	**EN-070**	**EN-076**	**ENS-01**	**ENS-02**	**ENS-03**	**ENS-04**	**S-116**	**Mean**
algae, moss, duff, dead vegetation, etc. (incl. sprayed veg.)	"						30	28	37	10	20	15	12	5	2	12	8	17	10	1	14.8
standing water (inches)							5						1								
	Invasive species cover:	0.1				Total cover:	75	173	81	163	138	140	110	94	152	89	94	84	103	61	111
	Soil Moisture Index:	1.70				FAC and better cover:	75	173	81	163	138	140	110	90	90	88	93	82	100	61	106
	Percent vegetated (under canopy):	76				Native cover:	75	173	25	158	137	89	107	63	5	77	62	82	90	8	82
						Woody cover:	3	101	0	65	62	58	15	60	0	0	0	0	40	0	29
			Percent FAC and better of total:				100	100	100	100	100	100	100	96	59	99	99	98	97	100	95
1	emergent, not woody					Percent native of total:	100	100	31	97	99	64	97	67	3	87	66	98	87	13	74
0	emergent, woody																				
6	woody, not emergent		"e" = >2 inches standing water:				e														
7	herbaceous		"w" = >30% cover of woody species:					w		w	w	w		w					w		

Marion Mitigation Bank Plant Monitoring, 2015 Phase 1																				
Scrub-Shrub Habitat Type							Date(s) sampled:		5/31/2015											
Cover (%)																				
										Sample Station										
Species	**Common Name**	**Native**	**Indicator**	**SMI**	**Wet**	**Woody**	**E-035**	**E-052**	**E-086**	**E-109**	**E-123**	**F-009**	**S-011**	**S-020**	**S-021**	**S-040**	**S-046**	**S-058**	**S-155**	**Mean**
Salix sitchensis	Sitka willow	yes	FACW	2	y	y		27	95			95			55		42			24.2
Carex obnupta	slough sedge	yes	OBL	1	y		58	88	70											16.6
Agrostis stolonifera	creeping bentgrass		FACW	2	y					55	70				1	3			85	16.5
Spiraea douglasii	Douglas' spiraea	yes	FACW	2	y	y	1		12					62	80	15				13.1
Mentha pulegium	pennyroyal		OBL	1	y		26	2		1				2	1	58	20	13	17	10.8
Fraxinus latifolia	Oregon ash	yes	FACW	2	y	y				98										7.5
Eleocharis acicularis	needle spike-rush	yes	OBL	1	y		9									2	80	7		7.5
Deschampsia cespitosa	tufted hairgrass	yes	FACW	2	y		2				1		8					60		5.5
Agrostis castellana/capillaris	dryland/colonial bentgrass		FAC	3	y							20	30							3.8
Eleocharis palustris	common [creeping] spike-rush	yes	OBL	1	y				3	30	15			1			1			3.8
Holcus mollis	creeping velvetgrass		FACU	4								50								3.8
Poa compressa	Canada bluegrass		FACU+	4									50							3.8
Populus balsamifera ssp. trichocarpa	black cottonwood	yes	FAC	3	y	y		25									22			3.6
Lotus corniculatus	birdsfoot trefoil		FAC	3	y		8				30									2.9
Callitriche sp.	water starwort	NA	OBL	1	y									37						2.8
Alopecurus geniculatus	water foxtail		OBL	1	y						8								13	1.6
Hordeum brachyantherum	meadow barley	yes	FACW-	2	y								20							1.5
forb	NA	NA	---	5	u						20									1.5
Phalaris arundinacea	reed-canary grass	invasive	FACW	2	y									1	10				6	1.3
Bromus hordeaceus ssp. hordeaceus	soft brome		FACU	4									15							1.2
Lythrum portula	spatulaleaf loosestrife		OBL	1	y											12		1		1.0
Carex feta	green-sheathed sedge	yes	FACW	2	y						12									0.9
Holcus lanatus	common velvetgrass		FAC	3	y								10							0.8
Gratiola ebracteata	bractless hedgehyssop	yes	OBL	1	y											4		1		0.4
Veronica peregrina ssp. xalapense	hairy purslane speedwell	yes	OBL	1	y											3		1		0.3
Beckmannia syzigachne	American slough grass	yes	OBL	1	y													1	2	0.2
Daucus carota	wild carrot/ Queen Anne's lace		NOL	5	u								2							0.2
Bidens frondosa	leafy beggar's-tick	yes	FACW+	2	y						1				1					0.2
Plantago major	broadleaf plantain		FAC	3	y					2										0.2
Vicia pannonica	Hungarian vetch		NOL	5	u								1							0.1
Hypochaeris radicata	hairy cat's ear		FACU	4			1													0.1
Vicia sativa	common vetch		UPL	5								1								0.1
Trifolium hybridum	alsike [hybrid] clover		FAC	3	y						1									0.1
Epilobium ciliatum	fringed willowherb	yes	FACW-	2	y										1					0.1
Gnaphalium palustre	lowland cudweed	yes	FAC+	3	y											1				0.1
Galium aparine	catchweed bedstraw/ cleavers	yes	FACU	4								1								0.1
Ambrosia artemisiifolia	annual ragweed		FACU+	4						1										0.1
Eleocharis ovata	ovate spikerush	yes	OBL	1	y											1				0.1

Marion Mitigation Bank Plant Monitoring, 2015 Phase 1

Scrub-Shrub Habitat Type — Date(s) sampled: 5/31/2015

Cover (%)

							Sample Station													
Species	**Common Name**	**Native**	**Indicator**	**SMI**	**Wet**	**Woody**	**E-035**	**E-052**	**E-086**	**E-109**	**E-123**	**F-009**	**S-011**	**S-020**	**S-021**	**S-040**	**S-046**	**S-058**	**S-155**	**Mean**
Corylus cornuta var. californica	California hazelnut	yes	FACU	4		y						1								0.1
bare (soil, mud, rock)	DOES NOT INCLUDE CANOPY, IF ANY						5	1	2	5	1	1		5	1	20	3	5	3	4.0
algae, moss, duff, dead vegetation, etc. (incl. sprayed veg.)	"						5	10	28	10	4	30	5	55	85	1	10	8	3	19.5
standing water (inches)																				
	Invasive species cover:	1.3				Total cover:	105	142	180	187	158	168	136	103	149	99	165	84	123	138
	Soil Moisture Index:	1.93				FAC and better cover:	104	142	180	186	138	115	68	103	149	99	165	84	123	127
	Percent vegetated (under canopy):	76				Native cover:	70	140	180	128	29	97	28	63	137	26	145	70	2	86
						Woody cover:	1	52	107	98	0	96	0	62	135	15	64	0	0	48
			Percent FAC and better of total:				99	100	100	99	87	68	50	100	100	100	100	100	100	92
0	emergent, not woody					Percent native of total:	67	99	100	68	18	58	21	61	92	26	88	83	2	62
0	emergent, woody																			
7	woody, not emergent		"e" = >2 inches standing water:																	
6	herbaceous		"w" = >30% cover of woody species:					w	w	w		w		w	w		w			

Marion Mitigation Bank Plant Monitoring, 2015 Phase 1

Forested Habitat Type — Date(s) sampled: 5/31/2015

Cover (%)

										Sample Station									
Species	**Common Name**	**Native**	**Indicator**	**SMI**	**Wet**	**Woody**	**E-082**	**F-033**	**F-034**	**F-071**	**F-096**	**F-097**	**F-103**	**F-144**	**F-149**	**F-205**	**S-056**	**S-119**	**Mean**
Deschampsia cespitosa	tufted hairgrass	yes	FACW	2	y			21	15		90	8					60		16.2
Equisetum arvense	common [field] horsetail	yes	FAC	3	y					55					90				12.1
Agrostis stolonifera	creeping bentgrass		FACW	2	y		28											90	9.8
Salix sitchensis	Sitka willow	yes	FACW	2	y	y		95	22										9.8
Agrostis castellana/capillaris	dryland/colonial bentgrass		FAC	3	y								30	40		35			8.8
Fraxinus latifolia	Oregon ash	yes	FACW	2	y	y				14						27		58	8.3
Holcus lanatus	common velvetgrass		FAC	3	y			1		25					40	8			6.2
Bromus hordeaceus ssp. hordeaceus	soft brome		FACU	4									40	30					5.8
Vicia pannonica	Hungarian vetch		NOL	5	u					4	1		9	5	35	15			5.8
Carex obnupta	slough sedge	yes	OBL	1	y							68							5.7
Daucus carota	wild carrot/ Queen Anne's lace		NOL	5	u					22				40					5.2
Vicia tetrasperma	four-seeded vetch		NOL	5	u						3					25		30	4.8
Lotus corniculatus	birdsfoot trefoil		FAC	3	y		15			8		33							4.7
Eleocharis palustris	common [creeping] spike-rush	yes	OBL	1	y		45												3.8
Salix hookeriana	Hooker willow	yes	FACW	2	y	y			40										3.3
Mentha pulegium	pennyroyal		OBL	1	y		13				3	1				3	8	4	2.7
Juncus effusus	soft rush	yes	FACW	2	y		4	8	18			1						1	2.7
Hypochaeris radicata	hairy cat's ear		FACU	4					1		5			2		13	2	9	2.7
Salix lucida ssp. lasiandra	Pacific [red] willow	yes	FACW+	2	y	y			25										2.1
Festuca rubra	red fescue		FAC+	3	y					25									2.1
Cornus sericea	redosier dogwood	yes	FACW	2	y	y			22										1.8
Juncus patens	spreading rush	yes	FACW	2	y				15							7			1.8
Vicia hirsuta	tiny vetch		NOL	5	u								1	7	6				1.2
Vicia sativa	common vetch		UPL	5				6						7					1.1
Geranium carolinianum	Carolina geranium	yes	NOL	5	u					6			5	2					1.1
Vulpia bromoides	barren fescue		UPL	5									12						1.0
Leucanthemum vulgare	oxeye daisy		UPL	5									11						0.9
Populus balsamifera ssp. trichocarpa	black cottonwood	yes	FAC	3	y	y											10		0.8
Trifolium hybridum	alsike [hybrid] clover		FAC	3	y												10		0.8
Phalaris arundinacea	reed-canary grass	invasive	FACW	2	y		1					5						3	0.8
Juncus tenuis	slender rush	yes	FACW-	2	y				7										0.6
Juncus articulatus	jointed rush	yes	OBL	1	y				3			2							0.4
Spiraea douglasii	Douglas' spiraea	yes	FACW	2	y	y		5											0.4
Bromus sterilis	barren brome		NOL	5	u								5						0.4
Carex leptopoda	Dewey's sedge	yes	FAC	3	y				5										0.4
Rumex acetosella	sheep [red] sorrel		FACU+	4									5						0.4
Alopecurus geniculatus	water foxtail		OBL	1	y		2											2	0.3
Plagiobothrys scouleri	Scouler's popcornflower	yes	FACW	2	y													4	0.3
Convolvulus arvensis	field bindweed		NOL	5	u									4					0.3
Epilobium ciliatum	fringed willowherb	yes	FACW-	2	y													3	0.3
Gnaphalium palustre	lowland cudweed	yes	FAC+	3	y													3	0.3
Parentucellia viscosa	parentucellia		FAC-	3												2		1	0.3

Marion Mitigation Bank Plant Monitoring, 2015 Phase 1

Forested Habitat Type — Date(s) sampled: 5/31/2015

Cover (%)

Species	Common Name	Native	Indicator	SMI	Wet	Woody	E-082	F-033	F-034	F-071	F-096	F-097	F-103	F-144	F-149	F-205	S-056	S-119	Mean
							Sample Station												
Bromus catharticus	rescuegrass		NOL	5	u										3				0.3
Galium aparine	catchweed bedstraw/ cleavers	yes	FACU	4						3									0.3
Sonchus asper	prickly sow-thistle		FAC-	3						3									0.3
Bidens frondosa	leafy beggar's-tick	yes	FACW+	2	y		1					1							0.2
Epilobium densiflora	dense spike-primrose	yes	FACW-	2	y											2			0.2
Lotus unifoliolatus var. unifoliolatus	Spanish clover	yes	UPL	5													2		0.2
Veronica peregrina ssp. xalapense	hairy purslane speedwell	yes	OBL	1	y													2	0.2
Hordeum brachyantherum	meadow barley	yes	FACW-	2	y						1								0.1
Beckmannia syzigachne	American slough grass	yes	OBL	1	y		1												0.1
Galium parisiense	creeping [wall] bedstraw		UPL	5										1					0.1
Typha latifolia	cattail	yes	OBL	1	y				1										0.1
bare (soil, mud, rock)	DOES NOT INCLUDE CANOPY, IF ANY						1	1	1		1	2	2	2		8	2	1	1.8
algae, moss, duff, dead vegetation, etc. (incl. sprayed veg.)	"						7	60	30	1	5	10	8	10		4	15	2	12.7
standing water (inches)																			
	Invasive species cover:	0.8				Total cover:	110	136	174	165	103	119	118	138	174	137	92	210	140
	Soil Moisture Index:	2.78				FAC and better cover:	110	130	173	127	94	119	30	40	130	82	88	170	108
	Percent vegetated (under canopy):	86				Native cover:	51	129	173	78	91	80	5	2	90	36	72	71	73
						Woody cover:	0	100	109	14	0	0	0	0	0	27	10	58	27
			Percent FAC and better of total:				100	96	99	77	91	100	25	29	75	60	96	81	77
	0 emergent, not woody					Percent native of total:	46	95	99	47	88	67	4	1	52	26	78	34	52
	0 emergent, woody																		
	3 woody, not emergent		"e" = >2 inches standing water:																
	9 herbaceous		"w" = >30% cover of woody species:					w	w									w	

Marion Mitigation Bank Plant Monitoring, 2015 Phase 2

Habitat	Station	Percent FAC and better												Percent native											
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EE	E-020	100	100	100	100	100	100	100	100	100	100	100		40	90	56	39	29	44	57	98	88	100	91	
EE	E-143	100	100	100	100	100	100	100	100	100	100	100		19	100	95	95	94	92	60	100	100	100	63	
EE	E-160	100	100	100	100	100	100	100	100	100	100	100		52	89	98	95	95	81	64	100	100	99	68	
EE	E-162	100	99	100	100	100	100	100	100	100	100	100		88	98	88	92	66	72	88	100	100	100	99	
EE	F-083	15	38	34	64	72	85	90	86	94	99	96		3	8	5	6	4	21	50	47	65	85	77	
EE	F-090	32	84	82	100	100	100	100	100	100	100	100		16	78	78	100	100	99	99	100	100	100	100	
EE	F-103	98	100	95	100	100	100	100	97	100	100	100		50	85	79	99	99	94	99	99	100	99	99	
EE	S-073	37	100	91	100	100	100	100	100	100	100	100		27	98	94	100	97	94	95	100	100	100	100	
EE	S-140	100	100	100	100	100	100	100	100	100	100	100		85	97	98	53	49	26	28	100	100	100	100	
EE	S-195	98	100	100	100	100	100	100	100	100	100	100		94	97	97	95	92	81	66	95	70	71	68	
FF	E-014	100	100	100	100	100	100	100	100	100	100	100		84	100	98	100	100	100	100	100	100	100	99	
FF	E-055	16	65	80	100	R	100	100	100	100	100	100		1	6	35	58	R	71	96	88	90	80	50	
FF	E-081	76	98	100	100	100	100	87	92	90	100	100		57	96	58	65	56	98	83	82	48	64	59	
FF	E-091	87	91	99	97	100	100	97	100	100	98	98		75	94	71	67	77	83	87	80	84	91	90	
FF	E-112	84	93	100	100	100	100	100	100	100	100	100		53	63	79	47	48	26	95	99	100	100	96	
FF	E-189	100	100	100	94	100	100	100	100	100	100	100		100	100	100	100	88	46	97	100	100	100	100	
FF	F-006	13	79	58	67	R	4	32	76	53	27	53		0	0	0	3	R	2	0	15	10	3	0	
FF	F-028	15	44	38	23	R	27	45	64	53	40	55		18	9	19	4	R	0	3	12	14	22	27	
FF	F-049	20	74	49	22	R	1	4	34	47	52	51		0	0	0	0	R	2	6	34	48	52	52	
FF	S-245	75	99	98	99	97	100	100	99	96	100	100		63	99	98	100	86	85	49	45	36	48	79	
SS	F-070	68	52	81	57	81	95	100	99	99	96	100		15	28	9	24	19	75	84	73	85	90	80	
SS	F-076	37	55	33	63	55	86	89	96	100	99	99		16	40	16	49	30	76	89	95	90	94	94	
SS	F-106	66	89	93	100	100	100	100	98	100	100	100		32	82	72	100	100	100	100	100	99	99	99	
SS	F-112	67	63	63	63	77	77	60	100	99	100	100		34	38	38	38	46	46	60	99	99	100	100	
SS	S-022	89	82	100	100	100	100	100	100	100	100	100		52	81	80	83	75	53	67	80	100	100	99	
SS	S-036	89	***44***	***17***	98	100	100	100	100	99	100	100		50	***25***	***19***	97	99	98	90	89	75	41	31	
SS	S-056	38	57	66	87	92	96	99	98	100	99	99		1	15	30	48	71	80	73	75	77	68	67	
SS	S-106	89	58	16	48	71	89	90	91	91	85	89		10	5	4	19	23	55	65	64	64	63	57	
SS	S-153	100	99	100	100	100	100	100	100	100	100	100		93	99	100	97	89	52	100	100	100	100	100	
SS	S-227	84	64	95	97	99	100	100	80	78	100	100		58	26	59	66	78	88	83	79	79	69	99	
			location error?			R = remediated			N = no data																
	Average:	70	81	80	86	94	89	90	94	93	93	95		43	61	59	65	70	65	72	82	81	81	78	
													Native Species:	N	29	38	37	29	28	26	35	32	32	33	
													Introduced Species:	N	43	47	41	24	33	34	26	25	28	29	
													Total:	N	72	85	78	53	61	60	61	57	60	62	

Marion Mitigation Bank Plant Monitoring, 2015 Phase 2

Emergent Habitat Type — Date(s) sampled: 6/6/2015

Cover (%)

Species	Common Name	Native	Indicator	SMI	Wet	Woody	E-020	E-143	E-160	E-162	F-083	F-090	F-103	S-073	S-140	S-195	Mean
							Sample Station										
Salix sitchensis	Sitka willow	yes	FACW	2	y	y	3				45	47			78	32	20.5
Juncus effusus	soft rush	yes	FACW	2	y		18	5		15	23	70	3	3		30	16.7
Salix lucida ssp. lasiandra	Pacific [red] willow	yes	FACW+	2	y	y				22			60	70			15.2
Polygonum hydropiperoides	waterpepper	yes	OBL	1	y		40	2		9			16	20	30	18	13.5
Ludwigia palustris	marsh seedbox	yes	OBL	1	y		53			38						4	9.5
Lemna minor	duckweed	yes	OBL	1	y		5	2	1	16			27	10	18	2	8.1
Salix hookeriana	Hooker willow	yes	FACW	2	y	y						30		20			5.0
Fraxinus latifolia	Oregon ash	yes	FACW	2	y	y	8				15	22				4	4.9
Phalaris arundinacea	reed-canary grass	invasive	FACW	2	y		1						1			47	4.9
Azolla mexicana/filiculoides	mosquito-fern [water-fern]	yes	OBL	1	y		4			3			23	2	10	3	4.5
Potamogeton sp.	pondweed	NA	OBL	1	y			20	18								3.8
Elodea canadensis	Canadian waterweed	yes	OBL	1	y			18	12								3.0
Sparganium emersum	European bur-reed	yes	OBL	1	y		1	3	22	1							2.7
Holcus lanatus	common velvetgrass		FAC	3	y						25						2.5
Spirodela polyrrhiza	common duckmeat	yes	OBL	1	y										17		1.7
Agrostis stolonifera	creeping bentgrass		FACW	2	y		12	1		1							1.4
Eleocharis palustris	common [creeping] spikerush	yes	OBL	1	y		10			3	1						1.4
Wolffia borealis	northern watermeal	yes	OBL	1	y			6	4	2			1				1.3
Carex feta	green-sheathed sedge	yes	FACW	2	y						10						1.0
Juncus ensifolius	dagger-leaf rush	yes	FACW	2	y						10						1.0
Myriophyllum hippuroides	western watermilfoil	yes	OBL	1	y								5	5			1.0
Trifolium repens	white clover		FAC-	3							6						0.6
Carex stipata	awl-fruited sedge	yes	OBL	1	y											5	0.5
Leersia oryzoides	rice cut-grass	yes	OBL	1	y					4							0.4
Alisma gramineum	narrowleaf water plantain	yes	OBL	1	y											2	0.2
Deschampsia cespitosa	tufted hairgrass	yes	FACW	2	y						1						0.1
Lotus corniculatus	birdsfoot trefoil		FAC	3	y		1										0.1
bare (soil, mud, rock)	DOES NOT INCLUDE CANOPY, IF ANY										5						0.5
algae, moss, duff, dead vegetation, etc. (incl. sprayed veg.)	"						1	50	48	27	25	30	30	60	28	3	30.2
standing water (inches)							3	24	14	4		1	16	20	8	4	
	Invasive species cover:	4.9				Total cover:	156	57	57	114	136	169	136	130	153	147	126
	Soil Moisture Index:	1.61				FAC and better cover:	156	57	57	114	130	169	136	130	153	147	125
	Percent vegetated (under canopy):	69				Native cover:	142	36	39	113	105	169	135	130	153	100	112
						Woody cover:	11	0	0	22	60	99	60	90	78	36	45.6
			Percent FAC and better of total:				100	100	100	100	96	100	100	100	100	100	100
4	emergent, not woody		Percent native of total:				91	63	68	99	77	100	99	100	100	68	89
4	emergent, woody																
2	woody, not emergent		"e" = >2 inches standing water:				e	e	e	e			e	e	e	e	
0	herbaceous		"w" = >30% cover of woody species:								w	w	w	w	w	w	

Marion Mitigation Bank Plant Monitoring, 2015 Phase 2																	
Scrub/Shrub Habitat Type						Date(s) sampled:	6/6/15, 6/13/15										
Cover (%)																	
										Sample Station							
Species	**Common Name**	**Native**	**Indicator**	**SMI**	**Wet**	**Woody**	**F-070**	**F-076**	**F-106**	**F-112**	**S-022**	**S-036**	**S-056**	**S-106**	**S-153**	**S-227**	**Mean**
Salix lucida ssp. lasiandra	Pacific [red] willow	yes	FACW+	2	y	y				95	98	10	97				30.0
Salix hookeriana	Hooker willow	yes	FACW	2	y	y	80					40		80			20.0
Juncus effusus	soft rush	yes	FACW	2	y			48	58				6				11.2
Alnus rhombifolia	white alder	yes	FACW	2	y	y										97	9.7
Holcus lanatus	common velvetgrass		FAC	3	y			5					43	45		1	9.4
Phalaris arundinacea	reed-canary grass	invasive	FACW	2	y		35				1	52					8.8
Salix sitchensis	Sitka willow	yes	FACW	2	y	y		82	3								8.5
Equisetum arvense	common [field] horsetail	yes	FAC	3	y		55				9					16	8.0
Callitriche sp.	water starwort	NA	OBL	1	y							65					6.5
Elodea canadensis	Canadian waterweed	yes	OBL	1	y										20		2.0
Rubus discolor	Himalayan blackberry	invasive	FACU	4				1					2	15			1.8
Sparganium emersum	European bur-reed	yes	OBL	1	y										15		1.5
Epilobium ciliatum	fringed willowherb	yes	FACW-	2	y					2				1		6	0.9
Veronica americana	American speedwell	yes	OBL	1	y		5		3								0.8
Ludwigia palustris	marsh seedbox	yes	OBL	1	y				5			2					0.7
Poa trivialis	rough [roughstalk] bluegrass		FACW	2	y							2	5				0.7
Azolla mexicana/filliculoides	mosquito-fern [water-fern]	yes	OBL	1	y				4								0.4
Spiraea douglasii	Douglas' spiraea	yes	FACW	2	y	y		3									0.3
Polygonum hydropiperoides	waterpepper	yes	OBL	1	y										3		0.3
Fraxinus latifolia	Oregon ash	yes	FACW	2	y	y			3								0.3
Carex stipata	awl-fruited sedge	yes	OBL	1	y				2								0.2
Juncus tenuis	slender rush	yes	FACW-	2	y							2					0.2
Holcus mollis	creeping velvetgrass		FACU	4				1									0.1
Lemna minor	duckweed	yes	OBL	1	y										1		0.1
Trifolium repens	white clover		FAC-	3										1			0.1
Wolffia borealis	northern watermeal	yes	OBL	1	y										1		0.1
Typha latifolia	cattail	yes	OBL	1	y			1									0.1
Spirodela polyrrhiza	common duckmeat	yes	OBL	1	y										1		0.1
Alisma gramineum	narrowleaf water plantain	yes	OBL	1	y				1								0.1
Lotus corniculatus	birdsfoot trefoil		FAC	3	y			1									0.1
Mentha pulegium	pennyroyal		OBL	1	y				1								0.1
Myosotis laxa	small-flowered forget-me-not	yes	OBL	1	y				1								0.1
bare (soil, mud, rock)	DOES NOT INCLUDE CANOPY, IF ANY						2	3		25				2		5	3.7
algae, moss, duff, dead vegetation, etc. (incl. sprayed veg.)	"						5	47	35	73	90	3	45	38	60	75	47.1
standing water (inches)									4						20		
	Invasive species cover:	10.6			Total cover:		175	142	81	97	108	173	153	142	41	120	123

Marion Mitigation Bank Plant Monitoring, 2015 Phase 2																	
Scrub/Shrub Habitat Type						Date(s) sampled:	6/6/15, 6/13/15										
Cover (%)																	
										Sample Station							
Species	**Common Name**	**Native**	**Indicator**	**SMI**	**Wet**	**Woody**	**F-070**	**F-076**	**F-106**	**F-112**	**S-022**	**S-036**	**S-056**	**S-106**	**S-153**	**S-227**	**Mean**
	Soil Moisture Index:	2.07				FAC and better cover:	175	140	81	97	108	173	151	126	41	120	121
	Percent vegetated (under canopy):	49				Native cover:	140	134	80	97	107	54	103	81	41	119	96
						Woody cover:	80	85	6	95	98	50	97	80	0	97	69
			Percent FAC and better of total:				100	99	100	100	100	100	99	89	100	100	98
2	emergent, not woody					Percent native of total:	80	94	99	100	99	31	67	57	100	99	78
0	emergent, woody																
8	woody, not emergent		"e" = >2 inches standing water:						e						e		
0	herbaceous		"w" = >30% cover of woody species:				w	w		w	w	w	w	w		w	

Marion Mitigation Bank Plant Monitoring, 2015 Phase 2

Forested Habitat Type — Date(s) sampled: 6/6/15, 6/13/15

Cover (%)

							Sample Station										
Species	**Common Name**	**Native**	**Indicator**	**SMI**	**Wet**	**Woody**	**E-014**	**E-055**	**E-081**	**E-091**	**E-112**	**E-189**	**F-006**	**F-028**	**F-049**	**S-245**	**Mean**
Salix sitchensis	Sitka willow	yes	FACW	2	y	y		40		53	85				62		24.0
Phalaris arundinacea	reed-canary grass	invasive	FACW	2	y			78	75	15	5						17.3
Alnus rhombifolia	white alder	yes	FACW	2	y	y			99							68	16.7
Spiraea douglasii	Douglas' spiraea	yes	FACW	2	y	y				77					40		11.7
Holcus mollis	creeping velvetgrass		FACU	4											90		9.0
Lemna minor	duckweed	yes	OBL	1	y		68	5		5	3	1					8.2
Holcus lanatus	common velvetgrass		FAC	3	y								28	32		15	7.5
Salix lucida ssp. lasiandra	Pacific [red] willow	yes	FACW+	2	y	y	58	15									7.3
Trifolium repens	white clover		FAC-	3									3	50			5.3
Wolffia borealis	northern watermeal	yes	OBL	1	y					32	12	8					5.2
Eleocharis palustris	common [creeping] spikerush	yes	OBL	1	y		43										4.3
Agrostis castellana/capillaris	dryland/colonial bentgrass		FAC	3	y								25	15			4.0
Populus balsamifera ssp. trichocarpa	black cottonwood	yes	FAC	3	y	y								35			3.5
Lolium arundinacea	tall fescue		FAC-	3									20				2.0
Typha latifolia	cattail	yes	OBL	1	y			17									1.7
Hypochaeris radicata	hairy cat's ear		FACU	4									5	10			1.5
Equisetum arvense	common [field] horsetail	yes	FAC	3	y				3					11			1.4
Hordeum brachyantherum	meadow barley	yes	FACW-	2	y											9	0.9
Polygonum hydropiperoides	waterpepper	yes	OBL	1	y					2	4	1					0.7
Bromus hordeaceus ssp. hordeaceus	soft brome		FACU	4									7				0.7
Veronica americana	American speedwell	yes	OBL	1	y				7								0.7
Juncus effusus	soft rush	yes	FACW	2	y		6										0.6
Sparganium emersum	European bur-reed	yes	OBL	1	y							6					0.6
Spirodela polyrrhiza	common duckmeat	yes	OBL	1	y		5										0.5
Daucus carota	wild carrot/ Queen Anne's lace		NOL	5	u								1	4			0.5
Parentucellia viscosa	parentucellia		FAC-	3									3	2			0.5
Vicia villosa	winter [woolly] vetch		NOL	5	u									5			0.5
Ludwigia palustris	marsh seedbox	yes	OBL	1	y		2				2						0.4
Plantago lanceolata	buckhorn plantain		FACU+	4									2	2			0.4
Poa trivialis	rough [roughstalk] bluegrass		FACW	2	y								1			3	0.4
Rubus discolor	Himalayan blackberry	invasive	FACU	4						3							0.3
Solanum dulcamara	bittersweet nightshade		FAC+	3	y											3	0.3
Vicia hirsuta	tiny vetch		NOL	5	u										3		0.3
Vicia pannonica	Hungarian vetch		NOL	5	u								1	2			0.3
Vicia sativa	common vetch		UPL	5									1		2		0.3
Elodea canadensis	Canadian waterweed	yes	OBL	1	y						2						0.2
Galium aparine	catchweed bedstraw/ cleavers	yes	FACU	4											2		0.2
Leucanthemum vulgare	oxeye daisy		UPL	5										2			0.2

Marion Mitigation Bank Plant Monitoring, 2015 Phase 2																	
Forested Habitat Type						Date(s) sampled:	6/6/15, 6/13/15										
Cover (%)																	
										Sample Station							
Species	**Common Name**	**Native**	**Indicator**	**SMI**	**Wet**	**Woody**	**E-014**	**E-055**	**E-081**	**E-091**	**E-112**	**E-189**	**F-006**	**F-028**	**F-049**	**S-245**	**Mean**
Agrostis stolonifera	creeping bentgrass		FACW	2	y		1										0.1
Anthemis cotula	mayweed chamomile/ stinking mayweed		FACU	4									1				0.1
Bidens frondosa	leafy beggar's-tick	yes	FACW+	2	y		1										0.1
Centaurium erythraea	European centaury		FAC	3	y									1			0.1
Cerastium glomeratum	sticky chickweed		UPL	5									1				0.1
Crepis setosa	rough hawksbeard		NOL	5	u								1				0.1
Epilobium ciliatum	fringed willowherb	yes	FACW-	2	y					1							0.1
Rumex acetosella	sheep [red] sorrel		FACU+	4									1				0.1
bare (soil, mud, rock)	DOES NOT INCLUDE CANOPY, IF ANY												4	1		8	1.3
algae, moss, duff, dead vegetation, etc. (incl. sprayed veg.)	"						5	10	22	1	75	85	6	8	5	65	28.2
standing water (inches)							5	4	3	2	6	12					
	Invasive species cover:	17.6				Total cover:	184	155	184	188	113	16	101	171	199	98	141
	Soil Moisture Index:	2.24				FAC and better cover:	184	155	184	185	113	16	54	94	102	98	119
	Percent vegetated (under canopy):	71				Native cover:	183	77	109	170	108	16	0	46	104	77	89
						Woody cover:	58	55	99	130	85	0	0	35	102	68	63
			Percent FAC and better of total:				100	100	100	98	100	100	53	55	51	100	84
1	emergent, not woody					Percent native of total:	99	50	59	90	96	100	0	27	52	79	63
5	emergent, woody																
3	woody, not emergent		"e" = >2 inches standing water:				e	e	e	e	e	e					
1	herbaceous		"w" = >30% cover of woody species:				w	w	w	w	w			w	w	w	

Marion Mitigation Bank Plant Monitoring, 2015 Phase 3

		Percent FAC and better							Percent native						
Habitat	**Station**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
E	E-031	100	100	100	100	100	100		100	100	98	100	100	100	
E	E-047	100	100	100	100	100	100		7	73	100	100	100	100	
E	E-051	100	100	100	100	100	100		40	92	88	98	89	68	
E	E-052	100	100	100	100	100	100		90	89	81	100	98	100	
E	E-070	100	100	100	100	100	100		32	93	69	99	100	92	
E	E-078	100	100	100	100	100	100		19	62	100	69	100	100	
E	E-138	100	100	100	100	100	100		80	94	71	100	99	95	
E	E-219	100	100	N	100	100	100		100	100	N	100	87	76	
E	E-315	100	100	100	100	100	100		76	100	100	100	97	98	
E	E-316	99	100	100	100	100	100		88	88	87	100	100	98	
E	E-327	100	100	100	100	100	100		98	95	100	100	100	100	
E	E-224	100	100	100	100	100	100		80	96	100	100	100	100	
E	E-269	N	100	100	100	100	100		N	100	100	99	100	100	
E	E-282	N	N	100	100	100	100		N	N	100	71	100	91	
E	E-299	N	100	100	100	100	100		N	100	93	98	96	90	
E	E-304	N	100	100	100	100	100		N	100	92	99	97	97	
E	E-348	N	100	100	100	100	100		N	100	100	100	100	100	
E	E-349	N	100	100	100	100	100		N	100	100	100	100	100	
E	E-375	N	N	N	N	N	NA		N	N	N	N	N	NA	
E	E-389	N	100	100	100	100	100		N	100	100	100	96	100	
E	S-027	100	100	100	100	100	100		13	48	100	64	100	52	
E	S-028	100	100	100	100	100	100		12	40	96	62	96	58	
E	S-105	74	95	98	84	78	83		0	3	60	40	60	10	
		N = no data													
	Average:	98	100	100	99	99	99		56	84	92	91	96	87	
								Native Species:	NA	NA	20	23	18	24	
								Introduced Species:	NA	NA	6	9	9	16	
								Total:	NA	NA	26	32	27	40	

Marion Mitigation Bank Plant Monitoring, 2015 Phase 3

Emergent Habitat Type — Date(s) sampled: 6/6/15, 6/7/15 — w = deep water; no vegetation

Cover (%)

							Sample Station																								
Species	Common Name	Native	Indicator	MTI	Wet	Woody	E-031	E-047	E-051	E-052	E-070	E-078	E-138	E-219	E-224	E-269	E-282	E-299	E-304	E-315	E-316	E-327	E-348	E-349	E-375	E-387	S-027	S-028	S-105	Mean
Salix lucida ssp. lasiandra	Pacific [red] willow	yes	FACW+	2	y	y			50	82	95		65	4		75			2	4		50		1	w			42		21.36
Azolla mexicana	mexican mosquito-fern [water-fern]	yes	OBL	1	y		50	73		82	30		8	9			1								w	55	60	25		17.86
Wolffia borealis	northern watermeal	yes	OBL	1	y					1	20	28	1	7	83	6	1	1	6	9		20	5	8	w		30	65		13.23
Eleocharis palustris	common [creeping] spikerush	yes	OBL	1	y		27			15	1	32			7	1	17	35	23	6			52	14	w	5		3		10.82
Potamogeton sp.	pondweed	NA	OBL	1	y																				w		85	85		7.73
Lemna minor	duckweed	yes	OBL	1	y		40	12	1	8	10	1	42	2	2	1	1	1	1	2		1	1	1	w	1	1	4		6.05
Paspalum distichum	knotgrass	yes	FACW	2	y												1		16				4	3	w	92				5.27
Juncus effusus	soft rush	yes	FACW	2	y					4				3	10						80	12			w					4.95
Phalaris arundinacea	reed-canary grass	invasive	FACW	2	y				28	1	15		9	18	3	2				7	4	3			w		1	15		4.82
Sparganium emersum	European bur-reed	yes	OBL	1	y		16	42				1		1			15	8		17				3	w		1			4.73
Polygonum hydropiperoides	waterpepper	yes	OBL	1	y					47	4					5	1	4	13	10		5		10	w					4.50
Ludwigia palustris	marsh seedbox	yes	OBL	1	y		1			2	12	4		8	5	2	4	7	2	20		6	18		w					4.14
Holcus lanatus	common velvetgrass		FAC	3	y																				w				68	3.09
Myriophyllum hippuroides	western watermilfoil	yes	OBL	1	y							40			10		4								w					2.45
Typha latifolia	cattail	yes	OBL	1	y		30	12	7																w		2	1		2.36
Populus balsamifera ssp. trichocarpa	black cottonwood	yes	FAC	3	y	y					3		48												w					2.32
Poa trivialis	rough [roughstalk] bluegrass		FACW	2	y																				w				25	1.14
Leersia oryzoides	rice cut-grass	yes	OBL	1	y									24											w					1.09
Salix sitchensis	Sitka willow	yes	FACW	2	y	y							10		1							8			w					0.86
Alisma gramineum	narrowleaf water plantain	yes	OBL	1	y		3		1					1			1								w	12				0.82
Agrostis castellana/capillaris	dryland/colonial bentgrass		FAC	3	y																				w				10	0.45
Spirodela polyrrhiza	common duckmeat	yes	OBL	1	y							4		2	2										w					0.36
Parentucellia viscosa	parentucellia		FAC-	3																					w				7	0.32
Veronica americana	American speedwell	yes	OBL	1	y					6															w					0.27
Elodea canadensis	Canadian waterweed	yes	OBL	1	y									5											w					0.23
Epilobium brachycarpum	tall annual willowherb	yes	UPL	5																					w				5	0.23
Lotus corniculatus	birdsfoot trefoil		FAC	3	y																5				w					0.23
Geranium carolinianum	Carolina geranium	yes	NOL	5	u																				w				4	0.18
Agrostis stolonifera	creeping bentgrass		FACW	2	y									3											w					0.14
Deschampsia danthonioides	annual hairgrass	yes	FACW-	2	y																				w				3	0.14
Myosotis discolor	yellow and blue forget-me-not		FACW	2	y																				w				3	0.14
Epilobium ciliatum	fringed willowherb	yes	FACW-	2	y																				w				2	0.09
Vicia hirsuta	tiny vetch		NOL	5	u																				w				2	0.09
Alopecurus geniculatus	water foxtail		OBL	1	y																				w			1		0.05
Bromus hordeaceus ssp. hordeaceus	soft brome		FACU	4																					w				1	0.05
Cerastium glomeratum	sticky chickweed		UPL	5																					w				1	0.05
Daucus carota	wild carrot/ Queen Anne's lace		NOL	5	u																				w				1	0.05
Lactuca serriola	prickly lettuce		FACU	4																					w				1	0.05

Marion Mitigation Bank Plant Monitoring, 2015 Phase 3

Emergent Habitat Type — Date(s) sampled: 6/6/15, 6/7/15 — w = deep water; no vegetation

Cover (%)

Species	Common Name	Native	Indicator	MTI	Wet	Woody	E-031	E-047	E-051	E-052	E-070	E-078	E-138	E-219	E-224	E-269	E-282	E-299	E-304	E-315	E-316	E-327	E-348	E-349	E-376	E-387	S-027	S-028	S-105	Mean
							Sample Station																							
Schoenoplectus acutu	hardstem bulrush	yes	OBL	1	y																			1	w					0.05
Trifolium repens	white clover		FAC-	3																					w				1	0.05
bare (soil, mud, rock)	DOES NOT INCLUDE CANOPY, IF ANY																				2	3			w				2	0.3
algae, moss, duff, dead vegetation, etc. (incl. sprayed veg.)	"						1	7	63	1	13	8	40	17	5	85	55	45	40	33	18	50	28	65	w	2			5	26.4
standing water (inches)							10	14	10	5	7	12	6	4	14	8	16	20	18	24		6	12	18	36	4	14	12		
	Invasive species cover:	4.8																												
	Soil Moisture Index:	1.44				Total cover:	167	139	87	248	190	110	183	87	123	92	46	56	63	75	89	105	80	41	NA	165	180	241	134	123
	Percent vegetated (under canopy):	73				FAC and better cover:	167	139	87	248	190	110	183	87	123	92	46	56	63	75	89	105	80	41	NA	165	180	241	111	122
	Native Species:	24				Native cover:	167	139	59	247	175	110	174	66	120	90	46	56	63	68	80	102	80	41	NA	165	94	140	14	104
	Introduced Species:	16				Woody cover:	0	0	50	82	98	0	123	4	1	75	0	0	2	4	0	58	0	1	0	0	0	42	0	25
			Percent FAC and better of total:				100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	NA	100	100	100	83	99
14	emergent, not woody		Percent native of total:				100	100	68	100	92	100	95	76	98	98	100	100	100	91	90	97	100	100	NA	100	52	58	10	85
7	emergent, woody																													
0	woody, not emergent		"e" = >2 inches standing water:				e	e	e	e	e	e	e	e	e	e	e	e	e	e		e	e	e	e	e	e	e		
2	herbaceous		"w" = >30% cover of woody species:						w	w	w		w			w						w						w		

Marion Mitigation Bank Plant Monitoring, 2015 Phase 3

Oak Savannah Habitat Type — Date(s) sampled: 6/6/15, 6/7/15, 6/13/15

Cover (%)

			Sample Station																
Species	**Common Name**	**Native**	**O-007**	**O-027**	**O-028**	**O-059**	**O-060**	**O-BW**	**O-BS**	**O-BE**	**O-BN**	**S-002**	**S-037**	**S-055**	**S-075**	**S-076**	**S-100**	**S-103**	**O-Uavg**
Agrostis castellana/capillaris	dryland/colonial bentgrass		85		7			15	85	5						82		4	17.7
Bromus catharticus	rescuegrass		1	5	50	75	10	7		12	80								15.0
Poa trivialis	rough [roughstalk] bluegrass					12				65	14	25		45	1	6	8	4	11.3
Festuca idahoensis ssp. roemeri/ F. occidentalis	Roemer's fescue/ western fescue	yes	10	35	3	7	55												6.9
Vicia pannonica	Hungarian vetch		1		1	2	2	1	1	4		55				6	7	25	6.6
Galium aparine	catchweed bedstraw/ cleavers	yes		1	20	5					50	4						23	6.4
Holcus lanatus	common velvetgrass					7	2				9			68		4			5.6
Poa compressa	Canada bluegrass							85											5.3
Vulpia bromoides	barren fescue		18	10			3		48										4.9
Alopecurus geniculatus	water foxtail														68				4.3
Elymus repens	quackgrass			45	15														3.8
Bromus hordeaceus ssp. hordeaceus	soft brome		5	2	5			5		7	4	5		4			12	9	3.6
Mentha pulegium	pennyroyal														55				3.4
Geranium carolinianum	Carolina geranium	yes						18		3		17		3		1		3	2.8
Parentucellia viscosa	parentucellia													1			9	32	2.6
Elymus glaucus	blue wildrye	yes	4	3	13	5	5												1.9
Lactuca serriola	prickly lettuce			1	6	2						4					8	4	1.6
Cirsium vulgare	bull [common] thistle						20												1.3
Lolium arundinacea	tall fescue									15									0.9
Vicia sativa	common vetch											10						5	0.9
Plantago lanceolata	buckhorn plantain							14											0.9
Bromus sterilis	barren brome				5							8							0.8
Rumex acetosella	sheep [red] sorrel			5			6												0.7
Trifolium repens	white clover														2	8			0.6
Daucus carota	wild carrot/ Queen Anne's lace					2	4							2			1		0.6
Phalaris arundinacea	reed-canary grass	invasive															8		0.5
Dipsacus fullonum	teasel				1		7												0.5
Equisetum arvense	common [field] horsetail	yes															8		0.5
Sonchus asper	prickly sow-thistle																8		0.5
Brassica rapa	field [common] [birdsrape] mustard																6		0.4
Cerastium glomeratum	sticky chickweed																5		0.3
Eleocharis palustris	common [creeping] spikerush	yes													4				0.3
Juncus tenuis	slender rush	yes														3			0.2
Vicia tetrasperma	four-seeded vetch																3		0.2
Polygonum hydropiperoides	waterpepper	yes															2		0.1
Myosotis discolor	yellow and blue forget-me-not																	2	0.1
Epilobium ciliatum	fringed willowherb	yes															1	1	0.1
Vicia hirsuta	tiny vetch																	2	0.1
Agrostis exarata	spike bentgrass	yes															2		0.1
Crepis setosa	rough hawksbeard																1	1	0.1
Deschampsia cespitosa	tufted hairgrass	yes															2		0.1
Galium parisiense	creeping [wall] bedstraw			1			1												0.1
Rumex crispus	curly dock																	2	0.1

Marion Mitigation Bank Plant Monitoring, 2015 Phase 3

Oak Savannah Habitat Type — Date(s) sampled: 6/6/15, 6/7/15, 6/13/15

Cover (%)

			Sample Station																
Species	**Common Name**	**Native**	**O-007**	**O-027**	**O-028**	**O-059**	**O-060**	**O-BW**	**O-BS**	**O-BE**	**O-BN**	**S-002**	**S-037**	**S-055**	**S-075**	**S-076**	**S-100**	**S-103**	**O-Uavg**
Veronica peregrina ssp. xalapense	hairy purslane speedwell	yes												1				1	0.1
Anthemis cotula	mayweed chamomile/ stinking mayweed																1		0.1
Centaurium erythraea	European centaury						1												0.1
Convolvulus sepium	lady's-nightcap/ bell-bind/ Rutland beauty/ hedge bindweed				1														0.1
Hypochaeris radicata	hairy cat's ear			1															0.1
bare (soil, mud, rock)	DOES NOT INCLUDE CANOPY, IF ANY			2			3			2					1		2		0.6
algae, moss, duff, dead vegetation, etc. (incl. sprayed veg.)	"		3	4	8	2	6	1	1	3			100		2	5	18	3	9.8
	Total cover:		124	109	127	117	116	145	134	111	157	128	0	124	130	110	92	118	115
	Native cover:		14	39	36	17	60	18	0	3	50	21	0	4	4	4	15	28	20
	Percent native of total:		11	36	28	15	52	12	0	3	32	16	NA	3	3	4	16	24	17
	Invasive species cover:		0.5																
	Percent vegetated (under canopy):		90																

APPENDIX 3

Journal of credit sales

MARION MITIGATION BANK 12/31/2014

DATE	NAME	LOCATION	PERMIT	ADD	SOLD	BALANCE
10/19/2001	DSL/COE CREDIT RELEASE	INITIAL RELEASE		10.9		10.90
4/20/2003	DSL	RECINDED			10.9	0.00
3/20/2003	DSL/COE CREDIT RELEASE	PHASE I		2.84		2.84
4/24/2003	WILLAMETTE ESTATES, LLC	3900 NE SANTIAM PASS WAY, SALEM,OR	25263RF/1998-00145		0.500	2.34
11/13/2003	OREGON DEPT OF TRANSPORTATION	I-5 N. JEFFERSON TO N.ALBANY	31156RF/2003-00622		2.330	0.010
3/18/2004	DSL/COE CREDIT RELEASE	PHASE II		3.21		3.220
5/26/2004	OREGON DEPT OF STATE LANDS	WETLAND MITIGATION BANK REVOLVING FUND			0.167	3.053
6/14/2004	CITY OF SALEM PUBLIC WORKS	GREEN IS. WATER TREATMENT FACILITY	RP12152/1996-01446		1.540	1.513
10/5/2004	WILLAMETTE DEVELOPMENT LLC	9795 MILL CREEK RD.SE, AUMSVILLE, OR	APP32629/2004-00446		1.510	0.003
4/28/2005	DSL/COE CREDIT RELEASE	PHASE II		2.19		2.193
5/4/2005	TIMOTHY YOUNGKIN	NW 1/4 SEC.33,T13S,R01W,WM SWEETHOME, OR	FP13667/1997-00203		1.000	1.193
6/30/2005	RICH BRANDVOLD	T10S,R1W,SEC18,TAX LOT 100 SCIO,OR	RF33917/2005-00074		0.090	1.103
9/30/2005	RICH BRANDVOLD	T12S,R2W,SEC22,TAX LOT 504,LEBANON,OR	RF34107/2005-00164		1.103	0.000
4/4/2008	DSL CREDIT RELEASE	PHASE II		2.5		2.500
10/3/2008	KSD INVESTMENT,LLC	11770 SUBLIMITY RD.,SUBLIMITY, OR	41232RF/2008-00504		1.845	0.655
11/6/2008	KNIFE RIVER	9710 WHEATLAND RD N.SALEM, OR	39879RP/2008-0067		0.007	0.648
12/5/2008	DSL/COE CREDIT RELEASE	PHASE III		4.5		5.148
12/9/2008	WOOD WASTE, LLC DBA COMPOST OR	TAX LOT 1700,8712 AUMSVILLE HWY, AUMSVILLE,,OR	39365RF/2007-00896		1.83	3.318
6/18/2010	DSL/COE CREDIT RELEASE	PHASE I		4.5		7.818
6/23/2010	ALBANY/LEBANON INVESTMENTS	560 HANSARD AVE,/LEBANON OREGON TX LTS 1900/200(	39843RF/2007-00571		3.83	3.988
11/11/2011	MOUNTAIN WEST SENIOR HOUSING	T8N,R3W.SEC12,TAX LOT 2501	ENF2501		0.21	3.78
5/22/2013	MARION CTY PUBLIC WORKS	HAYSVILLE RD MITIGATION SITE	24306GA/2001-00624		0.16	3.62
6/25/2013	OR DEPT VETERANS AFFAIRS	600 PATRIOTS PLACE. LEBANON, OR	53043RF/2012-00404		0.57	3.05
8/19/2013	HANS THYGESON	T11S,R03W,SEC8,TAX LOT 1000,1100,1208	7379-ENF		2.00	1.05
8/22/2013	JB&B INVESTMENT GROUP	T8S,R2W,SEC5WM,TAX LOT 100	5361-RF/2013-160		0.43	0.62
11/5/2013		PHASE III		2.17		2.79
5/7/2014	CITY OF SALEM PUBLIC WORKS	T7S,R3W,Sec27,28, 8 23	55892RF/2012-493		0.11	2.68
9/4/2014	Linn Benton Comm College	2000 W Oak St,Lebanon, OR	55680RF/2014 76		0.07	2.61
9/4/2014	MARION CO PUBLIC WORKS	T7S,RW2,sec 17	56088RF/2014-123		0.04	2.57
9/9/2014	R4 Sons.LLC	T8S,R3W,Sec7C Tax Lots 1800,2100	56146RF		1.19	1.38
11/24/2014	Carmx Auto Superstores West Coast Inc	T7S,R2W,Sec31 Tax Lots 4900,5400	54939FP/2013-405		1.27	0.11