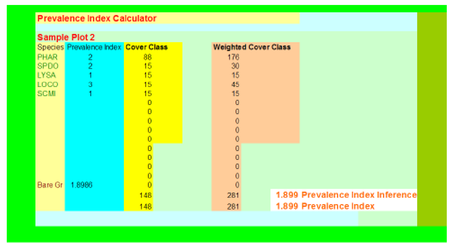
Sellwood Riverfront Park Wetland Boundary Determination: A Work in Progress

Hydrophytic Vegetation

Vegetation Prevalence Index = 3.0 or less

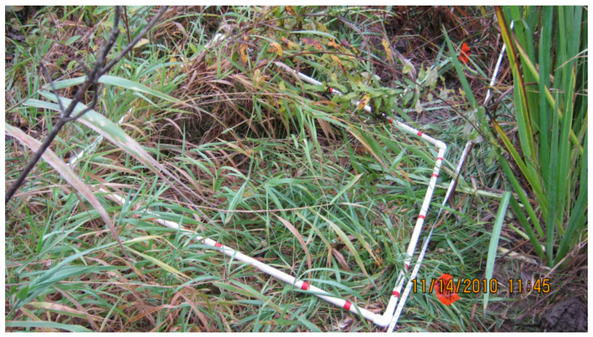
The U.S. Fish and Wildlife Service classifies plant species by their wetland indicator status. This classification has been translated through a Corps of Engineers Prevalence Index (PI) so that species that are considered obligate wetland indicators are assigned a numeric indicator status of 1.0. Plants that are found almost exclusively outside of wetlands are assigned higher numeric indicators generally between 3 and 4.5. For the purposes of this effort, plants considered unique to upland conditions were assigned an indicator status of 5.0. Plants that are considered faculative wetland indicator species (commonly found both in wetlands and uplands) are assigned wetland indicator status numbers generally in a range between 2.0 and 3.0.

Plant sample plots along a transect (ideally running up-slope from obvious wetland to obvious upland) are assigned sample plot prevalence indexes based on a collective weighted numeric indicator status for all of the species in a given sample plot. If the pervalence index for a sample plot is 3.0 or less, the sample is considered to contain a predominance of hydrophytic (wetland) plant cover.



OBJECTID	DATE_	LAT	LON	SPLOT_ID	PINDEX	HYDROLOGY_	HYDRIC_SOILS	TECH	GPS_UNIT
4	11/14/2010	45.467088	-122.66305	1	1.5	Yes	Yes	Marshall	GEO XH 2005
3	11/14/2010	45.46708	-122.663024	2	1.89	Yes	Yes	Marshall	GEO XH 2005
2	11/14/2010	45.46708	-122.663024	3	2	Yes	Yes	Marshall	GEO XH 2005
1	11/14/2010	45.467041	-122.66295	4	2.44	No	Yes	Marshall	GEO XH 2005
5	11/14/2010	45.467055	-122.663142	5	2	Yes	ND	Marshall	GEO XH 2005
7	11/14/2010	45.467012	-122.66315	6	2.46	No	No	Marshall	GEO XH 2005
6	11/14/2010	45.467042	-122.663148	7	2	Yes	Yes	Marshall	GEO XH 2005
8	11/18/2010	45.467057	-122.66334	8	3.79	ND	ND	Marshall	GEO XH 2005

SPLOT_ID	DATE_	LAYER	PINDEX	PCOVER	Species and Substrate	Type
1		Herb_Emergent	2	38	Juncus effusus	JUEF
1	11/14/2010	Herb_Emergent	2.5	2	Epilobium ciliatum	EPCI
1	11/14/2010	Herb_Emergent	2	38	Phalaris arundinaceae	PHAR
1	11/14/2010	Herb_Emergent	1	2	Scirpus microcarpus	SCMI
1	11/14/2010	Substrate	1.5	15	Thatch	
1	11/14/2010	Substrate	1.5	15	Shallow Water - about 0.25 inches	
2	11/14/2010	Herb_Emergent	2	88	Phalaris arundinaceae	PHAR
2	11/14/2010	Shrub	2	15	Spirea douglassii	SPDO
2	11/14/2010	Shrub	1	15	Lythrum salicaria	LYSA
2	11/14/2010	Herb_Emergent	3	15	Lotus corniculatus	LOCO
2	11/14/2010	Herb_Emergent	1	15	Scirpus microcarpus	SCMI
3	11/14/2010	Herb_Emergent	2	88	Phalaris arundinaceae	PHAR
3	11/14/2010	Shrub	3	2	Rosa spp	ROSA SPP
4	11/14/2010	Shrub	3	15	Populus balsamifera	POBA
4	11/14/2010	Shrub	4	2	Rubus discolor	RUDI
4	11/14/2010	Herb_Emergent	4.5	2	Geranium spp	GERANIUM SPP
4	11/14/2010	Herb_Emergent	2	38	Phalaris arundinaceae	PHAR
4	11/14/2010	Herb_Emergent	3	2	Galium spp	GALIUM SPP
5	11/14/2010	Herb_Emergent	2	88	Juncus effusus	JUEF
5	11/14/2010	Shrub	3	15	Solanum dulcamara	SODU
5	11/14/2010		2	15	Phalaris arundinaceae	PHAR
5	11/14/2010	Substrate	2	38	Thatch	
7	11/14/2010	Herb_Emergent	2	88	Phalaris arundinaceae	PHAR
6	11/14/2010	Shrub	2	15	Cornus sericia	COSE
6	11/14/2010	Shrub	2.5	15	Physocarpus capitatus	PHCA
6	11/14/2010	Shrub	4	2	Rubus ursinus	RUUR
6	11/14/2010	Shrub	3	2	Populus balsamifera	POBA
6	11/14/2010	Shrub	2	2	Salix spp	SALIX SPP
6	11/14/2010	Shrub	5	2	Mahonia aquifolium	MAAQ
6	11/14/2010	Shrub	2.5	2	Lonicera involucre	LOIN
6	11/14/2010	Herb_Emergent	1	2	Carex obnupta	CAOB
6	11/14/2010	Herb_Emergent	4.5	15	Geranium spp	GERANIUM SPP
6	11/14/2010	Herb_Emergent	2.5	15	Agrostis spp	AGROSTIS SPP
6	11/14/2010	Herb_Emergent	2	2	Phalaris arundinaceae	PHAR
6	11/14/2010	Substrate	2	15	Rock	
6	11/14/2010	Substrate	2	2	Bare ground	
8	11/18/2010	Shrub	4	63	Symphoricarpus albus	SYAL
8	11/18/2010	Shrub	3	3	Populus balsamifera	POBA
8	11/18/2010	Herb_Emergent	3.79	15	Dipsacus fullunum	DIFO
8	11/18/2010	Herb_Emergent	3.79	15	Tanacetum vulgare	TAVU
9	11/18/2010		3	15	Plantago lanceolata	PLLA
9	11/18/2010		3.79	15	Galium spp	GALIUM SPP
8	11/18/2010	Herb_Emergent	4	3	Cirsium vulgare	CIVU
8	11/18/2010	Herb_Emergent	3.79	63	Unidentified grass	UIG



Hydrophytic Plants Present

Plants with specialized adaptations to tolerate a low oxygen environment in the root zone due to a high or perched water table.

Hydric Soils Present

The sampled soils show color evidence of iron reduction due to a low oxygen environment induced by a high or perched water table. Soil ped colors were generally grey or dark brown. In some samples there were also weak signatures of red-orange specks (mottles) distributed throughout the soil ped surfaces, indicating re-oxidation of iron due to a fluctuating water table.

Wetland Hydrology Present

Water table within 12 inches of the surface for 7 to 10 consecutive days during the growing season in a normal rainfall period.

	Planning: List of DOP values						
http://www.trimble.com/	Planning / Copyright (C) 2001 - 2010 by Trimble Navigation Limited.						
Station name		Portland,OR					
Latitude		45° 28'					
Longitude		122° 39'					
Height		1 [m]					
Time span		11/14/2010/9:50:00 AM - 11/14/2010/12:50:00 PM					
Time zone		(GMT-08:00) Pacific Time (US & Canada) (DST)					
Offset UTC		-7.0 [h]					
Elevation cutoff		10°					
Obstruction Editor		0%					
GPS Satellites		2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 26 27 28 29 30 31 32					
Glonass Satellites		- none -					
Galileo Satellites		- none -					
Compass Satellites		- none -					
Time	GDOP	TDOP	PDOP	HDOP	VDOP	GPS	
09:50	2.39	1.75	1.64	0.88	1.38	8	
10:00	3.10	2.26	2.12	1.12	1.79	7	
10:10	3.18	2.33	2.16	1.10	1.86	7	
10:20	3.30	2.43	2.24	1.11	1.95	7	
10:30	3.42	2.51	2.32	1.14	2.02	7	
10:40	3.44	2.52	2.34	1.17	2.03	7	
10:50	7.15	5.44	4.64	1.39	4.42	6	
11:00	6.53	4.95	4.25	1.41	4.02	6	
11:10	5.20	3.91	3.43	1.38	3.14	6	
11:20	2.43	1.76	1.68	0.98	1.37	8	
11:30	2.47	1.79	1.70	0.97	1.40	8	
11:40	2.47	1.80	1.69	0.96	1.39	8	
11:50	2.44	1.77	1.67	0.97	1.36	8	
12:00	2.40	1.74	1.66	0.99	1.33	8	
12:10	3.29	2.41	2.24	1.25	1.86	7	
12:20	2.86	2.07	1.97	1.14	1.60	9	
12:30	2.99	2.17	2.06	1.18	1.69	8	
12:40	3.01	2.19	2.06	1.15	1.71	8	
12:50	3.24	2.37	2.21	1.21	1.85	7	

Hydric Soils

Hydric Soils found on the wetland delineation transects appear to generally match the characteristics of the hydric soil that is mapped along this stretch of the waterfront. The deep poorly drained Rafton soil series is formed from recently deposited river sediments on the broad alluvial floodplains of larger river systems .

Willamette Rver 100-year floodplain

While the Sellwood Riverfront Park is nearly completely inside the Willamette River 100-year floodplain, this does not automatically indicate the area is mostly a wetland. In order for a site to be considered a wetland it must have: 1. hydrophytic plants, 2. hydric soils, *and* 3. wetland hydrology. Floodplains are generally a composite mosaic of wetlands and uplands. However, the park's position in the floodplain and in the lower Willamette River watershed does help us understand that the wetland area that is determined to be present inside the park boundary may provide a modest function with regard to floodwater storage.

Means there is sufficient evidence to determine that a wetland is present. But the boundary position remains uncertain.

Conclusion: Based on preliminary water level and plant community observations, the wetland boundary within the immediate area of interest is likely within 10-feet of the upside down blue horseshoe shaped line above (inside the yellow striped area). The horseshoe is left open-ended because the wetland expands out underneath the wooden footbridge and into a relatively large and yet to be examined area to the north. A final determination should not be made without more field work, more site history investigation, more recent local climate trend tracking, and then . . . . . a best professional judgement made on the preponderance of the evidence . . . . OR . . . . . If time is available, longer term monitoring of the surface and groundwater hydrology.

The work exhibited on this poster should not to be considered to represent the proper methodology to make a wetland boundary determination for the purpose of defining the areal extent of any regulatory or planning authority, including but not necessarily limited to the Federal Clean Water Act or the Oregon State Removal-Fill Law. While the procedures followed in principle adhere to the three parameter wetland delineation approach used by State and Federal agencies, there were significant field and reporting method deviations from their adopted protocols.

Special Considerations in Data Interpretation:

- **Sample Plot 4 contained hydrophytic vegetation and hydric soils but not hydrology. A single observation of the absence of hydrology may be insufficient to make a final wetland boundary decision.**
- **Sample 6 was collected across a steep gradient. So plants at the lower end of the sample plot tended to be dominated by wetland indicators while those at the upper end included stronger representation by upland indicators, and the soil pit was dug at the upper end of the plot. The relatively sharp changes in plant community and elevation, therefore, warrant departing from sample size protocol and splitting the samples into two separate plots Sharp elevation changes and associated plant community changes are very good indications you may be crossing a wetland boundary.**
- **The water levels in soil pits associated with sample plots 1 - 3 were progressively higher in elevation in the upslope direction. This indicates a sloped water table. If this is the case, the wetland boundary may extend further upslope than the abrupt topographical change below sample plot 4 would otherwise suggest.**
- **This may not be a normal rainfall period for the area of interest which, if this is the case, will affect how water level observations are interpreted. If it is a below average or an average rainfall period, the water levels will be stronger indications of hydrology and if it is an above average rainfall period, they will be less reliable as evidence.**
- **A thick plastic liner was found within 5-inches of the soil surface in Sample Plot 5 indicating this an atypical and artificially constructed aquatic feature. Therefore, the construction history of the site should be further investigated before proceeding with field work and making a final wetland boundary determination.**