

## Rich Sloping Fen Baseline Assessment in Support of Construction-Related Activities for the Landfill 1 Closure Former Griffiss Air Force Base Rome, New York

Contract No. DACA41-01-D-0004

Prepared for

U.S. Army Corps of Engineers–New York District
Fort Drum Resident Office
Building T-4895
Watertown, New York 13602-5200

Submitted by

Conti Environmental, Inc. 3001 South Clinton Avenue South Plainfield, New Jersey 07080

Prepared in Association with

EA Engineering, P.C. and Its Affiliate EA Science and Technology 3 Washington Center Newburgh, New York 12550

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#### 1. INTRODUCTION

The U.S. Army Corps of Engineers (USACE)–Kansas City District issued Task Order No. 0003 under Contract No. DACA41-01-D-0004 to Conti Environmental, Inc. Under this Task Order, EA Engineering, P.C. and its affiliate EA Science and Technology were tasked as a subcontractor to conduct closure activities at Landfill 1 at the former Griffiss Air Force Base, Rome, New York. Conti contracted EA to prepare this Rich Sloping Fen Baseline Assessment Report as part of the closure of Landfill 1.

Landfill 1 at the former Griffiss Air Force Base, Rome, New York, is the subject of construction activity related to closure including consolidation, regrading, and capping. An area (approximately 3.1 acres) classified as rich sloping fen was previously delineated in a groundwater seep zone located between the southwestern edge of the landfill and Six Mile Creek (Figure 1).

A collection trench and treatment plant have been designed and are being installed to capture and treat leachate along the toe of Landfill 1 adjacent to this fen. In order to sustain the hydrologic conditions that support and preserve the fen subsequent to completion of the closure, effluent from the treatment plant will be discharged to the fen via a series of four engineered seeps located between the leachate collection trench and the fen.

As part of long-term monitoring associated with the closure of Landfill 1, a work plan was developed to assess the success of the engineered seeps for preservation of the fen. The monitoring plan includes a baseline assessment survey conducted prior to activation of the collection trench, the treatment plant, and engineered seeps. Subsequent annual surveys will be conducted following activation of the system and compared to the baseline survey conditions to document the relative condition of the fen before and following activation of the leachate collection, treatment, and discharge system. This report provides a summary of the results of the baseline assessment survey conducted by EA on 29 September 2003.

<sup>1.</sup> EA Engineering P.C. and Its Affiliate EA Science and Technology. 2003. Proposed Work Elements for a Groundwater and Leachate Collection Trench Pump Test and Rich Sloping Fen Baseline Assessment in Support of Construction-Related Activities for the Landfill 1 Closure, Former Griffiss Air Force Base, Rome, New York.

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#### 2. SURVEY METHODS

The baseline assessment consisted of photo-documentation of vegetative cover and vegetation plot surveys along fixed transects across the fen between the collection trench and Six Mile Creek. Vegetation survey plots were established consistent with vegetation survey methods provided by the U.S. Army Corps of Engineers and Interagency wetland delineation guidance manuals (USACE 1987<sup>2</sup>; Federal Interagency Committee 1989<sup>3</sup>). The *Comprehensive Onsite Determination Method* (Federal Interagency Committee 1989, Section 4.19, Page 39) was implemented for this inventory.

Six transects were established and staked for use in the baseline assessment and post-construction assessments (Figure 2). Transects were laid out approximately perpendicular to the slope contours. Four transects run from the proposed engineered seeps to Six Mile Creek. Additional transects were established approximately mid-way between engineered seep 2 and seep 3 and between engineered seep 3 and seep 4. Photo-documentation points were selected and their geographic coordinates (Table 1) were surveyed to assure that sampling locations will be comparable among annual vegetation assessment surveys. Photographs were taken downslope along each transect from the location of the collection trench and upslope from Six Mile Creek (Figure 2; PDP01-PDP12). Photographs are provided in Appendix A (Photo Nos. 1-18).

Eight fixed vegetation survey plots were established with surveyed geographic coordinates (Table 2) to assure comparability of sampling locations among annual surveys. Two vegetation plots (P01 and P02) were selected along each of four transects (TA, TB, TC, and TD). No vegetation plots were placed along the northern and southern-most transects (Figure 2); however, both transects were photographed from the top and bottom of the slope.

An inventory of vegetation and approximate percent cover was performed for each cover strata type (herbaceous, shrub, woody vines, saplings, and trees) within each plot. Photographs were taken at each plot to provide permanent documentation of conditions at each vegetation plot (Appendix A) for comparison with future post-construction annual vegetation surveys. A 30-ft radius was measured from the center stake at each vegetation plot. Six Mile Creek runs closer to the collection trench at the northern end of the fen; transect TA is, therefore, relatively short and 30-ft radius vegetation plots overlapped. The plots for transect TA were reduced to a 20-ft radius. The species and estimated percent areal cover within each plot were recorded on field data forms for the shrub, vine, and sapling strata (Appendix B).

<sup>2.</sup> U.S. Army Corps of Engineers Environmental Laboratory. 1987. Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 100 pp. plus appendixes.

Federal Interagency Committee for Wetland Delineation. 1989. Federal Manual for Identifying and Delineating Jurisdictional Wetlands. U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and U.S. Department of Agriculture Soil Conservation Service, Washington, D.C. Cooperative Technical Publication. 76 pp. plus appendixes.

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Consistent with U.S. Army Corps of Engineers guidance, individual tree specimens were classified as saplings that were less than 5 in. in diameter breast height (DBH) or as trees with a DBH 5 in. or greater. The *Plot Sampling Technique* (Federal Interagency Committee 1989, Page 44) was used to assess the tree stratum. DBH was measured for individual trees using a diameter tape. Basal area (BA) was calculated from DBH to estimate the coverage by species within the plot:

 $BA = \pi DBH^2 / 4$ 

BA for individual trees is summed within each sample plot to provide an estimate of tree stratum BA coverage (ft<sup>2</sup>) for the plot.

The herbaceous stratum was inventoried using four quadrats within each sampling plot. Each 30-ft radius plot was divided into quarters, and a 36-in.<sup>2</sup> quadrat frame was randomly dropped in each quarter. The percent areal cover for each species within each quadrat was recorded on field data forms. The mean percent areal cover for the four quadrats in each plot was calculated; and the species were ranked in descending order by mean areal cover. The mean areal cover for the highest ranked species was summed until the cumulative sum accounted for greater than 50 percent cover; the species accounting for that cumulative sum plus any additional species accounting for 20 percent or more of the cover were considered dominant species for that plot.

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#### 3. SUMMARY OF OBSERVATIONS

The baseline assessment was conducted on 29 September 2003 near the end of the vegetation growing season after an unusually wet summer. The day of the survey was generally overcast with periods of sun and a few brief, light showers; air temperature was in the upper 50s to low 60s. The soil substrate was generally saturated to the surface; groundwater was observed discharging to the surface and flowing downslope in several areas. During the October-November 2003 leachate collection trench pump test, surface water samples were collected in the vicinity of four of these seeps (Figure 2), LF1-L1, LF1-L2, LF1-LL1, and LF1-LL2. The weather on the day of the seep water quality sampling was overcast with temperatures in the mid- to upper 40s. The analytical results for these samples are presented in Appendix C and summarized in Table C-1; analytes included metals, pesticides, semivolatile organic compounds, volatile organic compounds, and conventional water quality indicators. Results were generally similar among the four sampled seeps (Table 3). Field measurements of pH ranged from 6.8 to 8.0, within the range typically reported in the scientific literature for rich sloping fen ecosystems (Glaser et al. 1990<sup>4</sup>; Bendell-Young 1999<sup>5</sup>; Bendell-Young and Pick 1997<sup>6</sup>; Wassen et al. 1990<sup>7</sup>). Alkalinity (240-447 mg CaCO<sub>3</sub>/L), CaCO<sub>3</sub> hardness (600-1,000 mg/L), total dissolved solids (586-670 mg/L), and total sulfate (114-278 mg/L) were relatively high in the samples. Iron (1.91-120 mg/L) and manganese (0.5-5.7 mg/L) consistently exceeded New York State Ambient Surface Water Quality Standards for protection of aquatic life (chronic). Calcium was also relatively high, generally exceeding 200 mg/L. Of the few pesticides/polychlorinated biphenyls, volatile organic compounds, and semivolatile organic compounds detected, only 1,4-dichlorobenzene was slightly above Ambient Surface Water Quality Standards and only in sample LF1-L1 (5.6 µg/L). Two polychlorinated biphenyls were detected (decachlorobiphenyl and tetrachloro-m-xylene) at mean concentrations of 0.255 µg/L and 0.325 µg/L, respectively.

Baseline hydrologic conditions were evaluated as part of the leachate collection trench pump test (Table 4). In support of pump testing for the leachate collection trench, a piezometer (PZ-06) was installed in the fen near the top of the slope between monitoring transects TC and TD. Piezometer PZ-05 is located outside of the fen northeast of PZ-06 between the fen boundary and the leachate collection trench. On 3 November 2003, prior to the initiation of pump testing, the groundwater level at PZ-06 was at an elevation of 503.46 ft, within 1 ft of ground surface; groundwater elevation at PZ-05 was 504.17 ft, a little more than 1 ft below ground surface. Soil at PZ-06 was wet at the surface. This is consistent with groundwater modeling (MODFLOW) conducted in conjunction with design of the leachate collection trench that indicates the potentiometric water surface is above the ground surface in the fen downslope of the location of

<sup>4.</sup> Glaser, P.H., J.A. Janssens, and D.I. Siegel. 1990. The Response of Vegetation to Chemical and Hydrological Gradients in the Lost River Peatland, Northern Minnesota. *J. of Ecology* 78, 1,021-1,048.

<sup>5.</sup> Bendell-Young, L. 1999. Contrasting the sorption of Zn by oxyhydroxides of Mn and Fe, and organic matter along a mineral-poor to mineral-rich fen gradient. *Applied Geochemistry* 14, 719-734.

Bendell-Young, L. and F.R. Pick. 1997. Base Cation Composition of Pore Water, Peat, and Pool Water of Fifteen Ontario Peatlands: Implications for Peatland Acidification. Water, Air, and Soil Pollution 96, 155-173.

<sup>7.</sup> Wassen M.J., A. Barendregt, A. Palczynski, J.T. De Smidt, and H. De Mars. 1990. The Relationship between Fen Vegetation Gradients, Groundwater Flow, and Flooding in an Undrained Valley Mire at Biebrza, Poland. *J. of Ecology* 78, 1,106 –1,122.

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the leachate collection trench. The water surface elevation at gauge SG-03 (located between baseline assessment transects TC and TD) (Figure 2) in Six Mile Creek before the start of the pump test was 493.69 ft, and 24 hours later, at the end of the test, was 493.48 ft. No significant precipitation occurred during the test period, although significant storm events occurred the week prior to the test. Leachate trench pump stations PS-04, PS-05, PS-06, and PS-07 are located in a northwest to southeast line 30-50 ft to the northeast of the fen (Figure 2). Prior to the pump test on 3 November 2003, groundwater levels at these 4 locations ranged from 503.7 to 504.3 ft, approximately 3-8 ft below ground surface. Two monitoring wells are located northeast of the leachate trench in proximity to the fen (LF 1P-2 and LF 1P-3) (Figure 2); water level in these two wells prior to the pump test was 2-3 ft below ground surface.

Fifty-four plant species were identified within the inventory sampling plots, including 46 in the herb stratum, 6 in the shrub stratum, 7 in the sapling stratum, and 2 in the tree stratum (Table 5). The tree/sapling strata are dominated by northern white cedar; although relatively dense patches of cedar were observed throughout the fen, relatively few cedars were classified in the tree stratum based on a DBH of greater than 5 in. The shrub stratum was sparse and the woody vine stratum was absent. The total number of plant species at each sampling plot ranged from 16 to 24 taxa (Table 6). The hydrophytic indicator status (Table 7) for only 5 of 54 taxa observed was less than facultative, that is, more typically non-wetland; 6 additional taxa, including Sphagnum spp., are not classified on the *National List* (USFWS 1996<sup>8</sup>). The herbaceous understory was characterized through most of the site by a diverse variety of species of moss, hydrophytic ferns, sedge, goldenrod, and aster. In excess of 50 percent of the substrate surface is covered by Sphagnum spp. at most of the inventory sampling plots; coverage by Sphagnum in many of the sample quadrats was 100 percent. The most common ferns and related taxa included marsh horsetail, sensitive fern, royal fern, and marsh fern. New York, New England, and panicled were the most common asters. Rough-leaved, fragrant flat-topped, and rough-stemmed were the dominant goldenrod species. A dense patch of common reed, *Phragmites australis*, dominated Plot 1 on Transect A (TAP01); however, P. australis was uncommon throughout the rest of the fen. A short (maximum 10-12 in. high) sedge (Carex spp) with no identifying inflorescence was common in many of the sampling quadrats. This may have been young tussock sedge (Carex stricta) that had not begun to exhibit the characteristic tussock growth form. The orchid species, Nodding Lady's Tresses (Spiranthes cernua), was common in the vicinity of the lower portion of Transect D (Appendix A, Photo No. 34). The dominant taxa based on cumulative cover (Federal Interagency Committee 1989) were typically sphagmum, marsh horsetail, sensitive fern, and the unidentified sedge in most of the sampling plots (Table 6).

<sup>8.</sup> U.S. Fish and Wildlife Service (USFWS). 1996. National List of Vascular Plant Species that Occur in Wetlands. <a href="http://www.nwi.fws.gov/bha">http://www.nwi.fws.gov/bha</a>

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#### 4. FINDINGS AND RECOMMENDATIONS

#### 4.1 VEGETATION

The baseline assessment survey was conducted at the end of September, approaching the end of the growing season; thus, some early season species may be under-represented in this inventory. Information collected in this baseline assessment related to species composition, wetland indicator status, and relative coverage within the fen will be compared with similar data collected during future annual vegetation surveys to assess the community character of the fen vegetation as a basis for evaluating the effectiveness of the mitigation system.

The Summer of 2003 was relatively wet as a result of above average precipitation. The vegetation, particularly the herbaceous stratum, throughout most of the fen was diverse, dense, and relatively healthy. The cumulative species counts (field data forms are provided in Appendix B) for approximately half of the sampling plots begin to level off with four quadrats which indicates that four sample quadrats per sampling plot are adequate to capture a representative sample of species diversity in the herbaceous stratum. However, the species count for the other four sample plots did not begin to level off with four quadrats. It is recommended that the number of sampling quadrats be increased to five per sampling plot during the next annual assessment to assess the most appropriate sampling density necessary to document the species diversity at the site.

The species *P. australis* and *Typha angustifolia*, known in many areas for their invasive growth character and monotypic stands, occurred in the fen as scattered individual plants in low density (e.g., Appendix A, Pages 13 and 14, Photo Nos. 28 and 25) at several locations in the study site. One exception was a dense patch of *P. australis* that dominated Plot 1 on Transect A (TAP01) (Appendix A; Page 7, Photo No. 13); the edge of this patch was relatively sharply defined.

#### 4.2 SUBSTRATE CONDITION

The substrate in the vicinity of Transect C Plot 2 (TCP02) was moist, but considerably drier than the other sample plots. This sampling plot is downslope from the proposed location of engineered seep 4 (ES-4). Marsh horsetail (*Equisetum palustre*), one of the most common species throughout the study area, was generally still green and upright except in the vicinity of TCP02. Nearly all marsh horsetail at TCP02 was dead, fallen over, and dried to a brown strawlike condition. This condition is documented on Pages 14-16 of Appendix A (Photo Nos. 28-31). There was also extensive iron staining of the soil surface in this area.

Consistent with the high concentrations of iron in surface water samples collected at the seeps in conjunction with the leachate collection trench pump test, extensive staining of the soil surface from precipitated iron was observed in the vicinity of sampling plots TAP01, TAP02, TBP01, and TCP02. The coverage of *Sphagnum* was also significantly reduced in portions of these plots.

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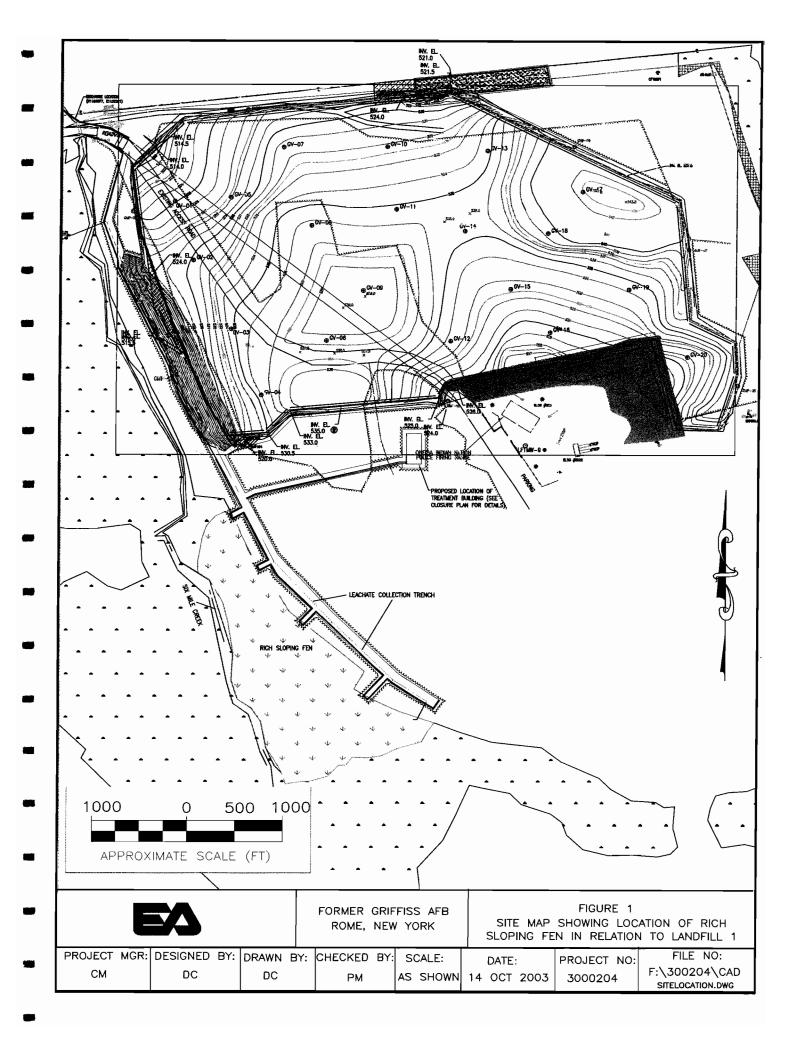
#### 4.3 WATER QUALITY AND HYDROLOGY

The analytes measured in surface water samples collected in the vicinity of the four groundwater seeps will continue to be monitored on a quarterly basis until the leachate collection trench and treatment plant become operational. At that time, water chemistry will be monitored at the discharge from the treatment plant prior to the engineered seeps. It is recommended that orthophosphate be added to the list of analytes, as some authors (Wassen et al. 1990) have reported a correlation between groundwater phosphate concentration and fen characteristics. The quarterly data will be used to document baseline water quality conditions supporting the fen. Pre-operational data can be compared to post-operational data in the event that changes in the fen condition are observed subsequent to initiation of the leachate treatment and engineered seep system to assess the role of potential changes in water quality. Particular attention will be given to concentrations of nutrients, minerals, and other conventional water quality parameters, such as hardness, alkalinity, dissolved solids, and sulfates.

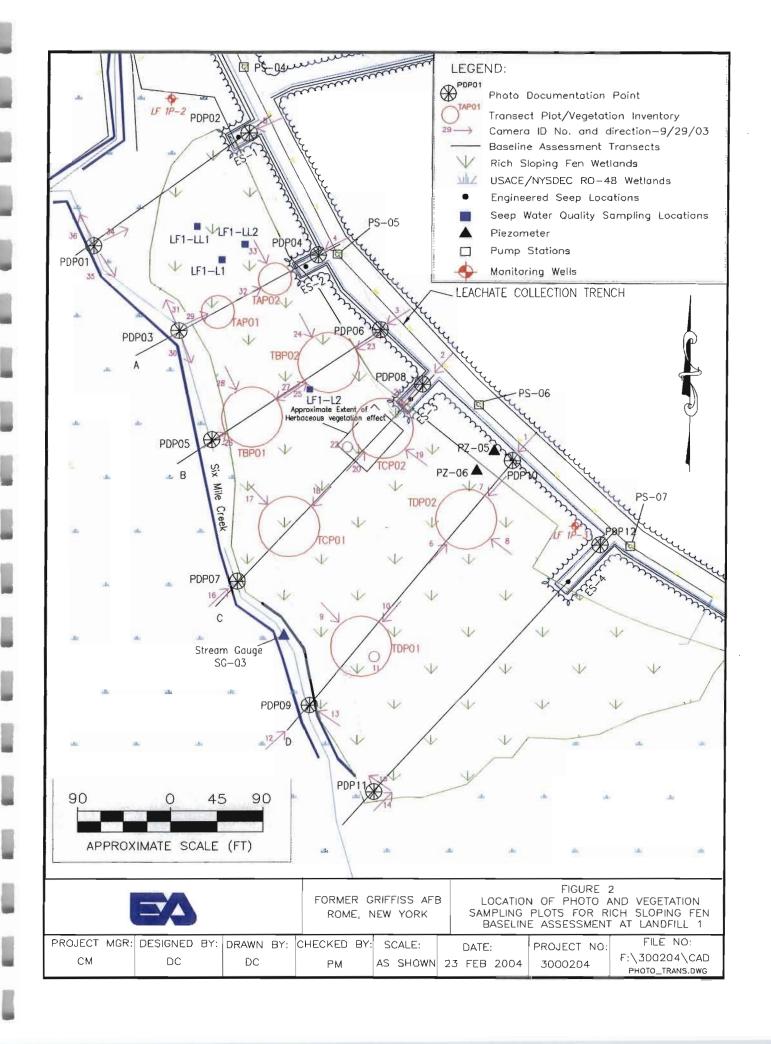
The single piezometer installed within the fen indicates that the groundwater surface during the Fall of 2003 is near ground surface in that area. To better characterize the hydrology within the fen, it is recommended that five additional piezometers be installed within the fen as early as conditions allow during Spring of 2004 (Figure 3). The new piezometers can be installed to a maximum depth of 3-4 ft, and should be installed by hand to minimize impacts to the fen vegetation and soil. Hand installation of relatively shallow piezometers should be feasible considering the sandy nature of the soil in this area. Three of the proposed piezometers will be installed at vegetation sampling plots TAP01, TBP02, and TCP01 in the vicinity of the surveyed stake marking the center of these plots. One piezometer will be installed in the vicinity of seeps LF1-LL1 and LF1-LL2 northwest of plot TAP01. The final piezometer will be installed southeast of plot TDP01 along the transect between photo-documentation points PDP11 and PDP12. Horizontal and vertical datum will be recorded for each piezometer. Groundwater levels will be monitored at each piezometer on a routine basis during 2004.

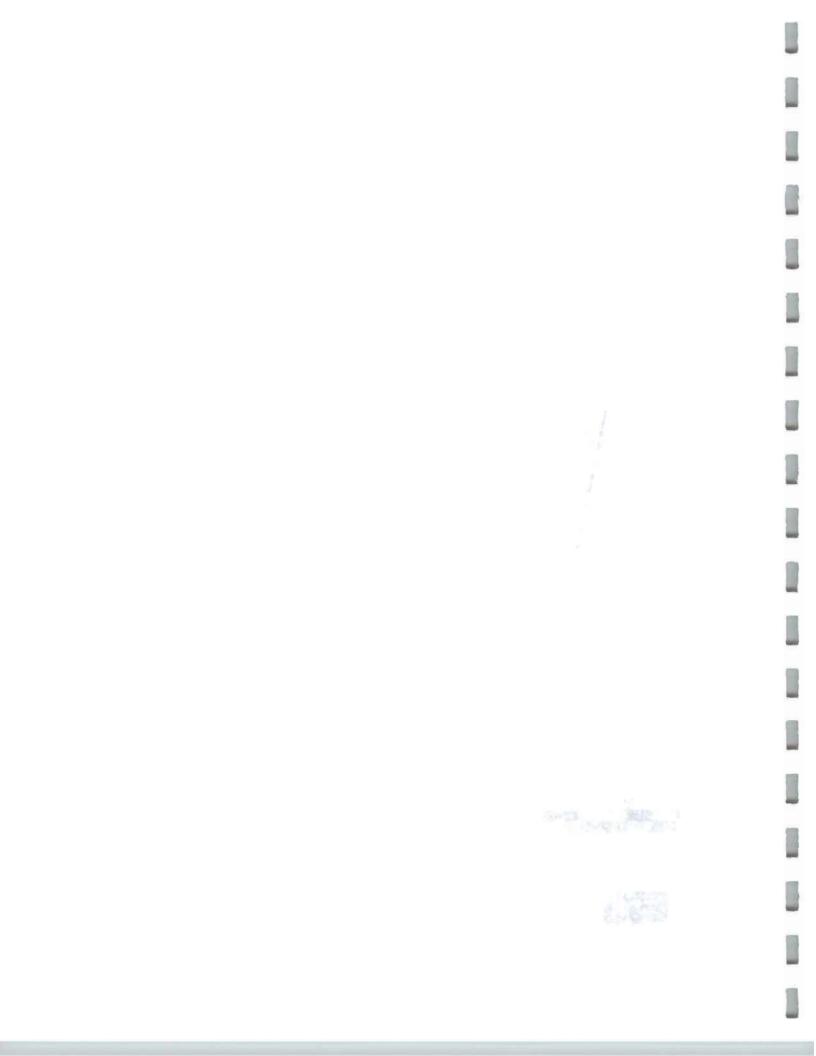
The baseline monitoring survey was conducted at the end of a relatively wet growing season. Groundwater was observed discharging at the ground surface in several locations within the fen and flowing downslope toward Six Mile Creek in concentrated rivulets. Soil conditions throughout the fen were saturated, although somewhat drier in the vicinity of plot TCP02 where the die-back of vegetation was observed. A critical factor in the preservation of the fen will be the level of soil saturation maintained in the fen by the engineered seeps following startup of the leachate collection trench and treatment system. Routine monitoring of the piezometers within the fen will provide the necessary data to determine if an appropriate level of saturation is being maintained.

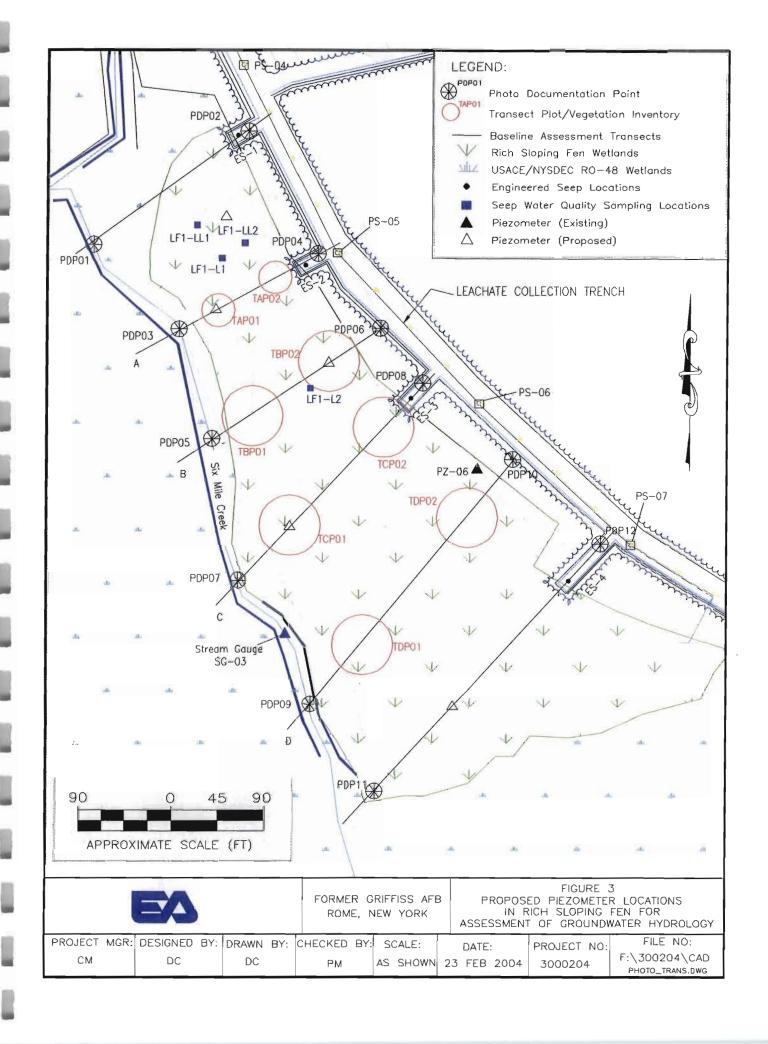
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## TABLE 1 GEOGRAPHIC SURVEY COORDINATES FOR FIXED PHOTO-DOCUMENTATION POINTS ADJACENT TO LEACHATE COLLECTION TRENCH AND SIX MILE CREEK

Fixed Photo-	New York State Plane Coordinates (NAD 1983)	
Documentation Points	X	Y
PDPO1	1132450.48	1183566.51
PDPO2	1132609.11	1183651.45
PDPO3	1132542.75	1183461.35
PDPO4	1132674.67	1183536.58
PDPO5	1132574.31	1183356.19
PDPO6	1132732.14	1183463.77
PDPO7	1132600.21	1183221.09
PDPO8	1132772.60	1183410.38
PDPO9	1132667.41	1183100.29
PDPO10	1132861.66	1183337.31
PDPO11	1132730.54	1183015.35
PDPO12	1132944.21	1183256.41

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## TABLE 2 GEOGRAPHIC SURVEY COORDINATES FOR TRANSECT SAMPLING PLOTS EVALUATED

Transect	New York State Plane Coordinates (NAD 1983)	
Sampling Plots	X	Y
TAP01	1132578.38	1183481.30
TAP02	1132632.61	1183512.04
TBP01	1132612.38	1183382.61
TBP02	1132685.22	1183432.76
TCP01	1132647.99	1183272.59
TCP02	1132735.40	1183367.24
TDP01	1132715.97	1183158.53
TDP02	1132815.52	1183279.87

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## TABLE 3 SUMMARY OF SURFACE WATER ANALYTICAL RESULTS FOR SAMPLES COLLECTED AT GROUNDWATER SEEPS WITHIN THE FEN

			Mea	an Concentra	tion	
Parameter_	Units	OCT 2003	DATE	DATE	DATE	DATE
	L	EACHATE	INDICATO	R		
Alkalinity (as CaCO3)	μ <mark>g/</mark> L	388,750				
Ammonia-Nitrogen	μg/L	2,200				
BOD 5	μg/L	11,100				
Bromide	μg/L	270				
Chemical Oxygen Demand	μg/L	161,500				
Chloride, Total	μg/L	7,850				
Color	PCU	3,087.5				
Nitrate-nitrogen	μg/L	380				
Nitrite nitrogen	μg/L	27.5				
Nitrite-nitrate nitrogen	μg/L	407.5				
Sulfate, Total	μg/L	166,250				
Total Dissolved Solids	μg/L	645,500				
Total Hardness (as CaCO3)	μg/L	712,500				
Total Kjeldahl Nitrogen	μg/L	4,100				
Total Organic Carbon	μg/L	6,225				
Turbidity (NTU)	NTU	6.1				
		MET	ALS			
Aluminum	μg/L	3,622.5				
Arsenic	μg/L	39.7				
Barium	μg/L	210				
Beryllium	μg/L	0.77				
Calcium	μg/L	214,000				
Chromium	μg/L	10.5				
Cobalt	μg/L	19.5				
Copper	μg/L	16.6				
Iron	μg/L	56,302.5				
Lead	μg/L	96				
Magnesium	μg/L	10,280				
Manganese	μg/L	1,841				
Mercury	μg/L	0.29				
Nickel	μg/L	36.03				
Potassium	μg/L	9,202.5				
Selenium	μg/L	6.6				
Silver	μg/L	2.1				
Sodium	μg/L	10,577.5				
Tin	μg/L	7.7				
Vanadium	μg/L	34.2				
Zinc	μg/L	88.3				
		HERBI	CIDES			
2,4,5-TP (Silvex)	μg/L	0.17				
DCAA	μg/L	9.7				

			Mea	n Concentra	tion	
Parameter	Units	OCT 2003	DATE	DATE	DATE	DATE
PEST	ICIDES/	POLYCHLO	RINATED	BIPHENY	LS	
Decachlorobiphenyl	μg/L	0.255				
Tetrachloro-m-xylene	μg/L	0.325				
SE	MIVOL	ATILE ORG	ANIC CON	<b>APOUNDS</b>		
2,4,6-Tribromophenol	μg/L	58				
2-Fluorobiphenyl	μg/L	52.5				
2-Fluorophenol	μg/L	47.5				
Diethylphthalate	μg/L	0.5				
	VOLAT	TLE ORGAN	IC COMP	OUNDS		
1,2,4-Trichlorobenzene	μg/L	1.8				
1,2,4-Trimethylbenzene	μg/L	1				
1,4-Dichlorobenzene	μg/L	3.1				
Acetone	μg/L	2.6				
Bromofluorobenzene	μg/L	51.3				
Chlorobenzene	μg/L	2.8				
Isobutyl Alcohol	μg/L	42				

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# TABLE 4 SUMMARY OF GROUNDWATER ELEVATION DATA COLLECTED TO DOCUMENT HYDROLOGIC CONDITIONS IN THE FEN

	NOV 2003	2003	DATE	Œ	DATE	Œ	DATE	Œ	DATE	Ē
		Below		Below		Below		Below		Below
	Water	Ground	Water	Ground	Water	Ground	Water	Ground	Water	Ground
Station	Elevation (ft) Surface (ft)	Surface (ft)		Surface (ft)	Elevation (ft) Surface (ft) Surface (ft) Surface (ft) Surface (ft) Surface (ft) Surface (ft)	Surface (ft)	Elevation (ft)	Surface (ft)	Elevation (ft)	Surface (ft)
	493.57	NA	_							
	503.7	8.9								
I	504	8.9								
	504.2	8.3								
ı – –	504.3	3.7								
ı	500.1	2.99								
	504.23	1.95								
	504.17									
I	503.46	<b>1</b> >								
Z	OTE: NA = Not applicable.	cable.								

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## TABLE 5 COMMON AND SCIENTIFIC NAMES AND WETLAND INDICATOR STATUS OBSERVED IN RICH SLOPING FEN, 29 SEPTEMBER 2003

		Indicator
Common Name	Scientific Name	Status
	HERBS	· ·
Moss	Sphagnum spp.	
Marsh horsetail	Equisetum palustre	<b>FACW</b>
Royal fern	Osmunda regalis	OBL
Cinnamon fern	Osmunda cinnamomea	<b>FACW</b>
Sensitive fern	Onoclea sensibilis	<b>FACW</b>
Marsh fern	Thelypteris thelypteroides	FACW+
Rice cutgrass	Leersia oryzoides	OBL
Unid. Grass (short, fine-leaf)	•	
Common reed	Phragmites australis	<b>FACW</b>
Grass leaf rush	Juncus marginatus	<b>FACW</b>
Soft rush	Juncus effusus	FACW+
Sallow sedge	Carex lurida	OBL
Wooly sedge	Carex lanuginosa	OBL
Unid. Sedge (short, thick-stem)	Carex spp.	
Narrow leaf cattail	Typha angustifolia	OBL
Nodding lady's tresses	Spiranthes cernua	<b>FACW</b>
Joe-Pye weed	Êupatorium maculatum	<b>FACW</b>
Boneset	Eupatorium perfoliatum	OBL
Beggar ticks	Bidens frondosa	<b>FACW</b>
False nettle	Boehmeria cylindrica	FACW+
Tall nettle	Urtica procera	FAC
Selfheal	Prunella vulgaris	FACU-
Rough-leaved goldenrod	Solidago patula	OBL
Rough-stemmed goldenrod	Solidago rugosa	FAC
Swamp goldenrod	Solidago uliginosa	OBL
Flat topped goldenrod	Euthamia graminifolia	FAC
New England aster	Aster novae-angliae	FACW+
New York aster	Aster novi-belgii	FACW+
Panicled aster	Aster simplex	<b>FACW</b>
Flat topped aster	Aster umbellatus	<b>FACW</b>
Arrow-leaved tearthumb	Polygonum sagittatum	OBL
Touch-me-not	Impatiens pallida	<b>FACW</b>
Bittersweet nightshade	Solanum dulcamara	FAC-
Thimbleberry	Rubus occidentalis	
Wood strawberry	Fragaria vesca	
Riverbank grape	Vitis riparia	<b>FACW</b>
Virginia creeper	Parthenocissus quinquefolia	FACU
Poison ivy	Rhus radicans	

NOTE: A positive (+) or negative (-) sign is used with the indicator categories to more specifically define the regional frequency of occurrence in wetlands. The positive sign indicates a frequency toward the higher end of the category (more frequently found in wetlands). A negative sign indicates a frequency toward the lower end of the category (less frequently found in wetlands).

Dashes (---) indicate that taxa are not listed on the National List (USFW 1996).

Common Name	Scientific Name	Indicator Status
		Status
	ERBS (Continued)	THE CALL
Common plantain	Plantago major	FACU
Red stem plantain	Plantago rugelii	FACU
Round-leaf sundew	Drosera rotundifolia	OBL
Moneywort	Lysimachia nummularia	OBL
Marsh marigold	Caltha palustris	OBL
Northern white cedar	Thuja occidentalis	FACW
Red maple	Acer rubrum	FACW+
Highbush blueberry	Vaccinium corymbosum	FACW-
	SHRUBS	
Gray dogwood	Cornus foemina	FACW
Highbush blueberry	Vaccinium corymbosum	FACW-
Speckled alder	Alnus rugosa	FACW+
Black willow	Salix nigra	FACW+
Pussy willow	Salix discolor	<b>FACW</b>
Cottonwood	Populus deltoides	FAC
	WOODY VINES	
None observed		
	SAPLINGS	
Northern white cedar	Thuja occidentalis	FACW
Gray birch	Betula populifolia	FAC
Black willow	Salix nigra	FACW+
Cottonwood	Populus deltoides	FAC
American elm	Ulmus americana	FACW-
Red maple	Acer rubrum	FACW+
Green ash	Fraxinus pennsylvanica	FACW
	TREES	
Northern white cedar	Thuja occidentalis	FACW
Red maple	Acer rubrum	FACW+

EA Engineering P.C. and Its Affiliate EA Science and Technology

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## TABLE 6 SUMMARY OF VEGETATIVE COVER BY SPECIES AND STRATA OBSERVED AT 8 TRANSECT SAMPLING PLOTS

						Mean Percent Cover	ent Cover					
		TAP01			TAP02			TBP01			TBP02	
Common Name	SEP03	SEP04	SEP05	SEP03	SE04	SEP05	SEP03	SEP04	SEP05	SEP03	SEP04	SEP05
					HERBS							
Moss				$22^{(a)}$			$58.75^{(a)}$			90 <sub>(a)</sub>		
Marsh horsetail	15 <sup>(a)</sup>			$23.75^{(a)}$			47.5 <sup>(a)</sup>			41.25 <sup>(a</sup>		
Royal fern												
Cinnamon fern				11.25								
Sensitive fern	$11.25^{(a)}$			20			1.3					
Marsh fern	1.3			1.3			<1			2.5		
Rice cutgrass	1.3			5								
Unid. Grass (short, fine-leaf)												
Common reed	$23.75^{(a)}$											
Grass leaf rush										1.3		
Soft rush							2.5					
Sallow sedge												l
Wooly sedge												
Unid. Sedge (short, thick-	3.7						18.75			56.25 <sup>(a</sup>		
stem)										^		
Narrow leaf cattail	5											
Nodding lady's tresses												
Joe-Pye weed	2.5											
Boneset							2.5			3.75		
Beggar ticks	2.5											l
False nettle										7		
Tall nettle							10		-			
Selfheal												
Rough-leaved goldenrod				3.7			2.5			1.3		
Rough-stemmed goldenrod												
Swamp goldenrod							3.75			2.5		
(a) Dominant herbaceous taxa for sampling plot based on Federal Interagency Committee (1989)	or sampling	plot based	l on Federa	l Interager	cy Comn	nittee (198	9).					

Project No.: 30002.04 Table 6, Page 2 of 6 February 2004

EA Engineering P.C. and Its Affiliate EA Science and Technology

						Mean Percent Cover	ent Cover					
		TAP01			TAP02			TBP01			TBP02	
Common Name	SEP03	SEP04	SEP05	SEP03	SE04	SEP05	SEP03	SEP04	SEP05	SEP03	SEP04	SEP05
				HERBS (Continued)	Continu	(pa						
Flat topped goldenrod					****		3.75			1.3		
New England aster				3.7			3.75			2.5		
New York aster							3.75					
Panicled aster				6.25								
Flat topped aster												
Arrow-leaved tearthumb							6.25					
Touch-me-not										1.3		
Bittersweet nightshade							8.75					
Thimbleberry	7.5			10								
Wood strawberry	5			2.5								
Riverbank grape												
Virginia creeper	2.5			1.3								
Poison ivy	3.7											
Common plantain				2.5						2.5		
Red stem plantain										⊽		
Round-leaf sundew												
Moneywort	8.75			6.25						1.3		
Marsh marigold	3.7			3.7			3.75			2.5		
Northern white cedar							<1			\ 		
Red maple	1.3											
Highbush blueberry	1.3	•										
				SHI	SHRUBS							
Gray dogwood	10											
Highbush blueberry	\$											
Speckled alder												
Black willow				10.5						<		
Pussy willow												
Cottonwood												
				WOOD	WOODY VINES							
				None o	None observed							

Rich Sloping Fen Baseline Assessment in Support of Construction-Related Activities for the Landfill 1 Closure

EA Engineering P.C. and Its Affiliate EA Science and Technology

Project No.: 30002.04 Table 6, Page 3 of 6 February 2004

						Mean Percent Cover	ent Cover					
		TAP01			TAP02			TBP01			TBP02	
Common Name	SEP03	SEP04	SEP05	SEP03	SE04	SEP05	SEP03	SEP04	SEP04   SEP05	SEP03	SEP03 SEP04 SEP05	SEP05
				SAI	SAPLINGS							
Northern white cedar	15			25			15			22		
Gray birch										<1		
Black willow												
Cottonwood										2		
American elm	5			<1								
Red maple	<1			10			5					
Green ash				<1								
					1	sasal Area	Basal Area $(BA)$ $(ft^2)$					
				T	TREES							
Northern white cedar	0.602			0.616						0.164		
Red maple	5.08			7.736								
TOTAL SPECIES	20			20			18			20		

EA Engineering P.C. and Its Affiliate EA Science and Technology

Project No.: 30002.04 Table 6, Page 4 of 6 February 2004

						Mean Percent Cover	ant Cover					
		TCP01			TCP02			TDP01			TDP02	
Common Name	SEP03	SEP04	SEP05	SEP03	SEP04	SEP05	SEP03	SEP04	SEP05	SEP03	SEP04	SEP05
				H	HERBS							
Moss	$68.75^{(a)}$			$51.75^{(a)}$			$100^{(a)}$			$100^{(a)}$		
Marsh horsetail	$71.25^{(a)}$			$30^{(a)}$			$26.2^{(a)}$			16.25		
Royal fern	16.25						17.5					
Cinnamon fern												
Sensitive fern	3.75						$30.2^{(a)}$					
Marsh fern	1.3			2.5			3.8			13.75		
Rice cutgrass												
Unid. Grass (short, fine-leaf)				<1								
Common reed												
Grass leaf rush												
Soft rush				7								
Sallow sedge	1.3											
Wooly sedge										1.3		
Unid. Sedge (short, thick-stem)	5			$26.25^{(a)}$						2.5		
Narrow leaf cattail	<1			6.25			<1			<		
Nodding lady's tresses										1.3		
Joe-Pye weed	3.75			10						5		
Boneset				2.5						1.3		
Beggar ticks												
False nettle										5		
Tall nettle				12.5								
Selfheal	0.5									<1		
Rough-leaved goldenrod				3.75			5			2.5		
Rough-stemmed goldenrod	2.5						2.5			2.5		
Swamp goldenrod	2.5						1.3					
Flat topped goldenrod				<1			1.3					
New England aster							2.5			<1		
New York aster				2.5								
Panicled aster	6.25									1.3		
Flat topped aster	2.5											

EA Engineering P.C. and Its Affiliate EA Science and Technology

Project No.: 30002.04 Table 6, Page 5 of 6 February 2004

						Mean Percent Cover	ant Cover					
		TCP01			TCP02			TDP01			TDP02	
Common Name	SEP03	SEP04	SEP05	SEP03	SEP04	SEP05	SEP03	SEP04	SEP05 SI	SEP03	SEP04	SEP05
				HERBS	HERBS (Continued)	(pa						
Arrow-leaved tearthumb												
Touch-me-not	1.3											
Bittersweet nightshade												
Thimbleberry												
Wood strawberry										1.3		
Riverbank grape	1.3											
Virginia creeper												
Poison ivy												
Common plantain	1.3											
Red stem plantain										5		
Round-leaf sundew										<1		
Moneywort	1.75			5								
Marsh marigold	3.75			15						5		
Northern white cedar				<1					` '	3.75		
Red maple												
Highbush blueberry												
				SE	SHRUBS							
Gray dogwood												
Highbush blueberry							7					
Speckled alder	5									5		
Black willow										5		
Pussy willow							7					
Cottonwood	7											
				WOO	WOODY VINES	S						
				None	None observed							
				SAI	SAPLINGS							
Northern white cedar	35			15			15			20		
Gray birch												
Black willow							7					
Cottonwood												
American elm	7											
Red maple	<1						7					

Project No.: 30002.04 Table 6, Page 6 of 6 February 2004

> EA Engineering P.C. and Its Affiliate EA Science and Technology

					-	Mean Perc	Mean Percent Cover					
		TCP01			TCP02			TDP01			TDP02	
Common Name	SEP03	SEP04	EP04 SEP05	SEP03	$\mathbf{H}$		SEP03   SEP04   SEP05   SEP03   SEP04   SEP05	SEP04	SEP05	SEP03	SEP04	SEP05
Green ash												
					B	asal Area	Basal Area (BA) (ft²)					
				T	TREES							
Northern white cedar	1.563			0.142			1.455					
Red maple												
TOTAL SPECIES	24			16			16			23		

Project No.: 30002.04 Table 7, Page 1 of 1 February 2004

#### TABLE 7 WETLAND INDICATOR CATEGORIES AS DEFINED IN U.S. FISH AND WILDLIFE SERVICE (1996)

Indicator Category	Code	Descriptor	Estimated Probability
Obligate Wetland	OBL	Occur almost always under natural conditions in wetlands	>99%
Facultative Wetland	FACW	Usually occur in wetlands, but occasionally found in non-	67-99%
		wetlands	
Facultative	FAC	Equally likely to occur in wetlands or non-wetlands	34-66%
Facultative Upland	FACU	Usually occur in non-wetlands, but occasionally found in	1-33%
1		wetlands	
Obligate Upland	UPL	Occur in wetlands in another region, but occur almost always	>99%
		under natural conditions in non-wetlands in the region specified	

NOTE: A positive (+) or negative (-) sign is used with the indicator categories to more specifically define the regional frequency of occurrence in wetlands. The positive sign indicates a frequency toward the higher end of the category (more frequently found in wetlands). A negative sign indicates a frequency toward the lower end of the category (less frequently found in wetlands).

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Appendix A
Photographs

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Project No.: 30002.04 Appendix A, Page 1 of 19 February 2004



Photographer: P. Muessig

Date: 29 September 2003

Site: PDP02

Photo No.: 1 (Camera ID No.: 5)

Direction: SW

Comments: Photo across fen from collection trench, engineered seep ES-1.



Photographer: P. Muessig

Date: 29 September 2003

Site: Transect A, PDP04

Photo No.: 2 (Camera ID No.: 4)

Direction: SW

**Comments:** Photo across fen from collection trench, engineered seep ES-2.



Date: 29 September 2003

Site: Transect B, PDP06

Photo No.: 3 (Camera ID No.: 3)

Direction: SW

Comments: Photo across fen from collection trench at Transect B between engineered seeps ES-2 and ES-3.



Photographer: P. Muessig

Date: 29 September 2003

Site: Transect C, PDP08

Photo No.: 4 (Camera ID No.: 2)

Direction: SW

**Comments:** Photo across fen from collection trench at Transect C, engineered seep ES-3.

Project No.: 30002.04 Appendix A, Page 3 of 19 February 2004



Photographer: P. Muessig

Date: 29 September 2003

Site: PDP10

Photo No.: 5 (Camera ID No.: 1)

Direction: SW

Comments: Photo across fen from collection trench at Transect D between engineered seeps ES-3 and ES-4.



Photographer: P. Muessig

Date: 29 September 2003

Site: PDP12

Photo No.: 6

(Camera ID No.: 897)

Direction: SW

**Comments:** Photo across fen from collection trench, at engineered seep ES-4.

Project No.: 30002.04 Appendix A, Page 4 of 19 February 2004



Photographer: P. Muessig

Date: 29 September 2003

Site: PDP11

Photo No.: 7

(Camera ID No.: 14)

Direction: NE

Comments: Photo across fen from Six Mile Creek below engineered seep ES-4.



Photographer: P. Muessig

Date: 29 September 2003

Site: PDP11

Photo No.: 8 (Camera ID No.: 15)

Direction: NW

Comments: Photo upstream along Six Mile Creek below engineered

seep ES-4.



Date: 29 September 2003

Site: Transect D, PDP09

Photo No.: 9 (Camera ID No.: 12)

Direction: NW

Comments: Photo across fen from Six Mile Creek along Transect D.



Photographer: P. Muessig

Date: 29 September 2003

Site: Transect D, PDP09

Photo No.: 10 (Camera ID No.: 13)

Direction: NW

**Comments:** Photo upstream along Six Mile Creek adjacent to Transect D.

Project No.: 30002.04 Appendix A, Page 6 of 19 February 2004



Photographer: P. Muessig

Date: 29 September 2003

Site: Transect C, PDP07

Photo No.: 11 (Camera ID No.: 16)

Direction: NE

Comments: Photo across fen from Six Mile Creek along Transect C below engineered seep ES-3.



Photographer: P. Muessig

Date: 29 September 2003

Site: Transect B, PDP05

Photo No.: 12 (Camera ID No.: 26)

Direction: NE

**Comments:** Photo across fen from Six Mile Creek along Transect B.



Date: 29 September 2003

Site: Transect A, PDP03

Photo No.: 13 (Camera ID No.: 29)

Direction: NE

Comments: Photo across fen from Six Mile Creek along Transect A at vegetation plot TAP1 below engineered seep ES-2.



Photographer: P. Muessig

Date: 29 September 2003

Site: Transect A, PDP03

Photo No.: 14 (Camera ID No.: 30)

Direction: SE

Comments: Photo downstream along Six Mile Creek at Transect A below engineered seep ES-2.



Date: 29 September 2003

Site: Transect A, PDP03

Photo No.: 15 (Camera ID No.: 31)

Direction: SE

Comments: Photo upstream along Six Mile Creek at Transect A vegetation plot TAP1, below engineered seep ES-2.



Photographer: P. Muessig

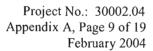
Date: 29 September 2003

Site: PDP01

Photo No.: 16 (Camera ID No.: 34)

Direction: NE

Comments: Photo across fen from Six Mile Creek at PDP01 below engineered seep ES-1.





Date: 29 September 2003

Site: PDP01

Photo No.: 17 (Camera ID No.: 35)

Direction: SE

Comments: Photo downstream along Six Mile Creek at PDP01 below engineered seep ES-1.



Photographer: P. Muessig

Date: 29 September 2003

Site: PDP01

Photo No.: 18 (Camera ID No.: 36)

Direction: NW

Comments: Photo upstream along Six Mile Creek at PDP01 below engineered seep ES-1.



Date: 29 September 2003

Site: Transect A, TAP2

Photo No.: 19 (Camera ID No.: 32)

Direction: NE

Comments: Photo across vegetation plot TAP2 on Transect A toward collection trench below engineered seep ES-2.



Photographer: P. Muessig

Date: 29 September 2003

Site: Transect A, TAP2

Photo No.: 20 (Camera ID No.: 33)

Direction: SE

Comments: Photo across vegetation plot TAP2 on Transect A below engineered seep ES-2.



Date: 29 September 2003

Site: Transect B, TBP1

Photo No.: 21 (Camera ID No.: 27)

Direction: SW

Comments: Photo

downslope across vegetation plot TBP1 on Transect B.



Photographer: P. Muessig

Date: 29 September 2003

Site: Transect B, TBP1

Photo No.: 22 (Camera ID No.: 28)

Direction: SE

Comments: Photo across slope at vegetation plot TBP1 on Transect B.



Date: 29 September 2003

Site: Transect B, TBP2

Photo No.: 23 (Camera ID No.: 23)

Direction: SW

Comments: Photo across vegetation plot TBP2 on Transect B toward Six Mile Creek.



Photographer: P. Muessig

Date: 29 September 2003

Site: Transect B, TBP2

Photo No.: 24 (Camera ID No.: 25)

Direction: NE

Comments: Photo across vegetation plot TBP2 on Transect B toward collection trench.

Project No.: 30002.04 Appendix A, Page 13 of 19 February 2004



Photographer: P. Muessig

Date: 29 September 2003

Site: Transect B, TBP2

Photo No.: 25 (Camera ID No.: 24)

Direction: SE

Comments: Photo across slope at vegetation plot TBP2 on Transect B.



Photographer: P. Muessig

Date: 29 September 2003

Site: Transect C, TCP1

Photo No.: 26 (Camera ID No.: 18)

Direction: SW

Comments: Photo across vegetation plot TCP1 on Transect C toward Six Mile Creek below engineered seep ES-3.



Date: 29 September 2003

Site: Transect C, TCP1

Photo No.: 27 (Camera ID No.: 17)

Direction: SE

Comments: Photo across slope at vegetation plot TCP1 on Transect C below engineered seep ES-3.



Photographer: P. Muessig

Date: 29 September 2003

Site: Transect C, TCP2

Photo No.: 28 (Camera ID No.: 20)

Direction: NE

Comments: Photo across vegetation plot TCP2 on Transect C toward collection trench below engineered seep ES-3.

Project No.: 30002.04 Appendix A, Page 15 of 19 February 2004



Photographer: P. Muessig

Date: 29 September 2003

Site: Transect C, TCP2

Photo No.: 29 (Camera ID No.: 21)

Direction: SW

Comments: Photo across vegetation plot TCP2 on Transect C toward Six Mile Creek below engineered seep ES-3.



Photographer: P. Muessig

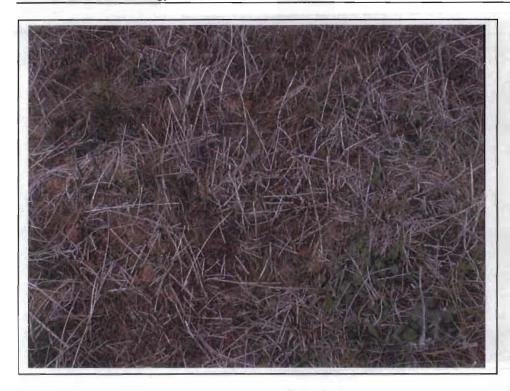
Date: 29 September 2003

Site: Transect C, TCP2

Photo No.: 30 (Camera ID No.: 19)

Direction: NW

Comments: Photo across slope at vegetation plot TCP2 on Transect C below engineered seep ES-3.



Date: 29 September 2003

Site: Transect C, TCP2

Photo No.: 31 (Camera ID No.: 22)

Direction:

Comments: Photo at vegetation plot TBP2 on Transect B showing dead dried vegetation dominated by marsh horsetail, *Equisetum palustre*.



Photographer: P. Muessig

Date: 29 September 2003

Site: Transect D, TDP1

Photo No.: 32 (Camera ID No.: 10)

Direction: SW

Comments: Photo across vegetation plot TDP1 on Transect D down-slope toward Six Mile Creek.

Project No.: 30002.04 Appendix A, Page 17 of 19 February 2004



Photographer: P. Muessig

Date: 29 September 2003

Site: Transect D, TDP1

Photo No.: 33 (Camera ID No.: 9)

Direction: SE

Comments: Photo across slope at vegetation plot TDP1 on Transect D.



Photographer: P. Muessig

Date: 29 September 2003

Site: Transect D, TDP1

Photo No.: 34 (Camera ID No.: 11)

Direction:

Comments: Nodding Ladies' Tresses orchid, Spiranthes cernua growing at vegetation plot TDP1 at Transect D.



Date: 29 September 2003

Site: Transect D, TDP2

Photo No.: 35 (Camera ID No.: 6)

Direction: NE

Comments: Photo across vegetation plot TDP2 on Transect D toward collection trench.



Photographer: P. Muessig

Date: 29 September 2003

Site: Transect D, TDP2

Photo No.: 36 (Camera ID No.: 7)

Direction: SW

Comments: Photo across vegetation plot TDP2 on Transect D toward Six Mile Creek.

Project No.: 30002.04 Appendix A, Page 19 of 19 February 2004



Photographer: P. Muessig

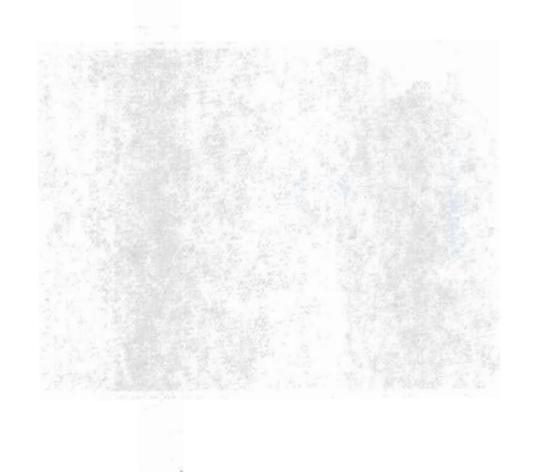
Date: 29 September 2003

Site: Transect D, TDP2

Photo No.: 37 (Camera ID No.: 8)

Direction: NW

**Comments:** Photo across slope at vegetation plot TDP2 on Transect D.



#### Appendix B

Vegetation Inventory Field Data Forms

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## DATA FORM COMPREHENSIVE ONSITE DETERMINATION METHOD QUADRAT SAMPLING PROCEDURE 1

(Herbs and Bryophytes)

Project/Site_CattAss_IP   State: Alf_County: CWEIDS Applicant/Owner: Transect # Tit Plot # Ol Vegetation Unit #/Name: Note: If a more detailed site description is necessary, use the back of data form or a field notebook.    County of the co	Field Investigator(s):		1-/-	Date:	9/29/03	_
Transect # TH Plot # Of Vegetation Unit #Name:  Note: If a more detailed site description is necessary, use the back of data form or a field notebook.    Comment   Co	Project/Site: GACIFFISS, LFT	S-EN	State:\\\	County:	(NAIDA	_
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.    Total of 2	· · · · · · · · · · · · · · · · · · ·	-				_
Species Status O1 O2 O3 O4 O5 O6 O7 O8 \$\bar{x}\$ Rank4  2 Mary 10 1 10 2 03 O4 O5 O6 O7 O8 \$\bar{x}\$ Rank4  2 Mary 10 1 10 2 13 O4 O5 O6 O7 O8 \$\bar{x}\$ Rank4  3 Arthur 10 2 13 15 2 15 2  4 Missis from Cartin City 5 13 16 5  5 Mee (Magner 10 1 10 10 10 10 10 10 10 10 10 10 10 1	Transect # T/+ Plot # 61 V	egetation Uni	t #/Name:			<u>'</u>
Species  1. Aprel 18th 2. August Hermitian 3. Status 40 5 15 15 2 3 3 5 9 9 8  3. Integrate liches Fahren 40 5 15 15 15 2  3. Integrate liches Fahren 40 5 15 15 15 2  3. Integrate liches Fahren 40 5 15 15 15 2  4. Integrate liches Fahren 40 5 15 15 15 2  4. Integrate liches Fahren 40 5 15 15 15 15 15 16 16 16 16 16 16 16 16 16 16 16 16 16	Note: If a more detailed site description	is necessary,	use the back of data	torm or a t	ield notebook.	:
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1. Careful of the second of the Plant Community Transect Sampling Approach and the Fixed Interval Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.  1. This data form can be used for both the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.  1. These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.  1. These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.  1. These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.  2. These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.  3. These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.  3. These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.  3. These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.  3. These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrative per sampling point along a transect.  3. These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrative per sampling point along a transect.  3. These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrative to a determine the dominants. first rank the species by their cover (or mean cover). Then cumulatively sum the cover (mean cover) of the ranked species that the properties of the properties of	Just of 2	Indicator	Quadrat Pe	rcent Areal	Cover	•
1 (anel ant) 2 anel or between the second of the plant Community Transect Sampling Approach and the Fixed Interval Transect Sampling Approach and the Fixed Interval Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.  1 Total Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.  1 Total details additional species having 20% of the total for all species cover (mean cover) is immediately exceeded. All species contributing to that curval but additional species having 20% of the total for all species cover (mean cover) is immediately exceeded. All species contributing to that curval but additional species having 20% of the total for all species cover (mean cover) is immediately exceeded. All species contributing to that curvalities total (the dominance threshold number) plus additional species having 20% of the total cover (mean cover) is immediately exceeded. All species contributing to that curvalities total (the dominance threshold number) plus additional species having 20% of the total cover (mean cover) is immediately exceeded. All species contributing to that curvalities total (the dominance threshold number) plus additional species having 20% of the total cover (mean cover) is immediately exceeded. All species contributing to that curvalities total (the dominance threshold number) plus additional species having 20% of the total cover (mean cover) value should be considered dominants and marked with an asterisk.  1 Advanced Later and Later	Species	Status	Q1 Q2 Q3 Q4	Q5 Q6 C	07 Q8 X Rank⁴	1
3. League Lichs FALL 10	1 Cased sky		15		3.7	9.5
3. Secret without the state of	x marsh hometail	OBL	40 5 - 75	, — — -	<del></del>	
5. The cuttoned CRE 10 10 10 5 56.5  7. And world FACW 95 2.13  8. Array miles FACW 95 2.13  9. Marry work GBL 35 3.7 54  10. Marry work GBL 35 3.7 54  11. Sempling FACW 45 11.5 73  12. Angent form FACW 45 11.5 73  13. Array Miles FACW 45 11.5 73  14. Angent form galdened FAC 15 3.7 57  15. Work structury FACW 15 3.7 57  16. Wignes Crept FACW 10 2.5 75  17. Total Cover 2  Dominance Threshold Number Equals 50% x Total Cover 2  Total of Averages (\$\tilde{x}\$\$\$) 3  Dominance Threshold Number Equals 50% x Total of Averages (\$\tilde{x}\$\$\$\$) 3  This data form can be used for both the Plant Community Transect Sampling Approach and the Fixed Interval Transect Sampling Approach which uses only one quadrat per sampling point along a transect.  3. These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.  4. To determine the dominants, first rank the species by their cover (or mean cover). Then cumulatively sum the cover (mean cover) of the ranked species until 50% of the total for all species cover (mean cover) is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus additional species having 20% of the total cover (mean cover) value should be considered dominants and marked with an asterisk.  **Reduced Factors**  **	3. legges ticks	TACH!			$-2.5 \frac{13}{13}$	- 
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A thrus miles    A thrus miles   Facu   98   31   34   34   35   34   34   34   34   34	5. sice cutopass		. 🛂 — 🚤 —		<u> </u>	<u>\$</u>
9. making with 10. many pages 63L 35 34 37 84 9. 11. many pages 75 12. many pages 75 15. many pages 75	6. philan callad	<u> Cisi</u>	. [일 _ [4] _	<del></del> -	<u> </u>	C612
9. making with 10. many pages 63L 35 34 37 84 9. 11. many pages 75 12. many pages 75 15. many pages 75	7. Sol Pull wood	- 1900	. <del></del>		<del>21</del> 1 5	
10. Provided Interval FACU 45 11.3 13.3 14.3 12.4 14.3 14.5 14.5 15.4 15.4 16.4 16.4 16.4 16.4 16.4 16.4 16.4 16	X8. J. Wacz miles	PHOW	. — <b>15</b> —		<del>2</del> 2 - <del>1</del>	71
11. Semilities from FACL	9. Menery new	- <del> </del>	- <del> </del>		313 B	$\tau_{a}$
12. A A Ministry Ministry  13. A Society Ann Goldward FAC	200	FACU.	· — — 45		11.25 2	3
13. Act of Mary Stimp goldward FAC 15. Wight Stimp goldward FAC 15. Wight Stimp goldward FAC 16. Wight	Kin Dilland Here kerrya	FACIO-	· <del>  -</del> -		<del>1.3</del> - 76.	<u> </u>
Total Cover2  Dominance Threshold Number Equals 50% x Total Cover2  Total of Averages (\overline{x}'s)3  Dominance Threshold Number Equals 50% x Total of Averages (\overline{x}'s)3  Total of Averages (\overline{x}'s)3  Dominance Threshold Number Equals 50% x Total of Averages (\overline{x}'s)3  1 This data form can be used for both the Plant Community Transect Sampling Approach and the Fixed Interval Transect Sampling Approach which uses only one quadrat per sampling point along a transect.  2 These entries are only applicable to the Fixed Interval Transect Sampling Approach which uses only one quadrat per sampling point along a transect.  3 These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.  4 To determine the dominants, first rank the species by their cover (or mean cover). Then cumulatively sum the cover (mean cover) of the ranked species until 50% of the total for all species cover (mean cover) is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus additional species having 20% of the total cover (mean cover) value should be considered dominants and marked with an asterisk.  **Advanced plots on TA To 20 Acadius**  **Descenses** 30 Tradius plots overlayed plots of the total cover (mean cover) and the fixed plots of the total cover (mean cover) which is a fixed plots of the total cover (mean cover) which is a fixed plots of the total cover (mean cover) which is a fixed plots of the total cover (mean cover) which is a fixed plots of the total cover (mean cover) which is a fixed plots of the total cover (mean cover) which is a fixed plots of the total cover (mean cover) which is a fixed plots of the total cover (mean cover) which is a fixed plots of the total cover (mean cover) which is a fixed plots of the total cover (mean cover) which is a fixed plots of the total cover (mean cover) which is a fixed plots of the total cover (mean co	Markey Line				3.7 35	<u> </u>
Total Cover2  Dominance Threshold Number Equals 50% x Total Cover2  Total of Averages (\overline{X}'s)3  Dominance Threshold Number Equals 50% x Total of Averages (\overline{X}'s)3  1 This data form can be used for both the Plant Community Transect Sampling Approach and the Fixed Interval Transect Sampling Approach and the Fixed Interval Transect Sampling Approach which uses only one quadrat per sampling point along a transect.  3 These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.  4 To determine the dominants, first rank the species by their cover (or mean cover). Then cumulatively sum the cover (mean cover) of the ranked species until 50% of the total for all species cover (mean cover) is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus additional species having 20% of the total cover (mean cover) value should be considered dominants and marked with an asterisk.  **Public C1** Also sutseff at banks of banks overlayed plats on TA** To 20 Tradius Plats of Advance of Tradius Plats overlayed plats on TA** To 20 Tradius Plats overlayed plats on TA** To 20 Tradius Plats overlayed plats of Advance of Tradius Plats overlayed plats overlayed plats overlayed plats overlayed plats overlayed plats overl	14. rough stein goldervood	FAC	<i></i>		3.7 - 3.7	_9.5
Total Cover2  Dominance Threshold Number Equals 50% x Total Cover2  Total of Averages (X's)3  Dominance Threshold Number Equals 50% x Total of Averages (X's)3  1 This data form can be used for both the Plant Community Transect Sampling Approach and the Fixed Interval Transect Sampling Approach and the Fixed Interval Transect Sampling Approach which uses only one quadrat per sampling point along a transect. 3 These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect. 4 To determine the dominants, first rank the species by their cover (or mean cover). Then cumulatively sum the cover (mean cover) of the ranked species until 50% of the total for all species cover (mean cover) is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus additional species having 20% of the total cover (mean cover) value should be considered dominants and marked with an asterisk.  **Reduced Plats on TA To 20 Tradicis**  **Reduced Plats of Tradicis**  **Reduced Plats on TA To 20 Tradicis**  **Reduced Plats on Ta 20 Tradicis**  **Reduced Plats on Ta 20 Tradicis**  **Reduced Plats on Ta 20 Trad	15. word strawerry		<u> 20</u>	' — — -	<u> </u>	<u> کرین ک</u>
Total of Averages (\overline{X}'s)3  Dominance Threshold Number Equals 50% x Total of Averages (\overline{X}'s)3  1 This data form can be used for both the Plant Community Transect Sampling Approach and the Fixed Interval Transect Sampling Approach. 2 These entries are only applicable to the Fixed Interval Transect Sampling Approach which uses only one quadrat per sampling point along a transect. 3 These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect. 4 To determine the dominants, first rank the species by their cover (or mean cover). Then cumulatively sum the cover (mean cover) of the ranked species until 50% of the total for all species cover (mean cover) is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus additional species having 20% of the total cover (mean cover) value should be considered dominants and marked with an asterisk.  **Colored July Tradung plus are larged plate of also was plus as a bank of a mile Cradung was a larged by the colored plus and the fixed plate of also was plus as a fixed	16. VIlynia Crept	_ FACU			_ <u>_ ZS _ JZ</u>	_/3
Interval Transect Sampling Approach.  These entries are only applicable to the Fixed Interval Transect Sampling Approach which uses only one quadrat per sampling point along a transect.  These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.  To determine the dominants, first rank the species by their cover (or mean cover). Then cumulatively sum the cover (mean cover) of the ranked species until 50% of the total for all species cover (mean cover) is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus additional species having 20% of the total cover (mean cover) value should be considered dominants and marked with an asterisk.  **Reduced Plots on TA to 20 Reduced Plots of Colored Color	Dominance Thres	hold Number		_		
quarry 4 logey yours	Interval Transect Sampling Approach.  These entries are only applicable to the quadrat per sampling point along a transmitted at the multiple quadrats per sampling point at the cover (mean cover) of the ranked immediately exceeded. All species complus additional species having 20% of dominants and marked with an asterior.	ne Fixed Intendence Insect. The Plant Committee Plant Committee Intended Interest Intributing to the total covers.  I work of the total Covers Interest Inte	val Transect Sampling munity Transect Sampling ct. by their cover (or me 50% of the total for a mat cumulative total ( er (mean cover) value  Lotz cm TA  ex 30 Radio 11 also cut	an cover). Ill species of the dominal e should be the species of the	n which uses only on bach which uses  Then cumulatively surver (mean cover) is note threshold number considered  The considered	im ; er) ed mile Cr.
1 1/	quad	ret 4 le	last upland		<i>J V</i>	

## DATA FORM COMPREHENSIVE ONSITE DETERMINATION METHOD QUADRAT SAMPLING PROCEDURE 1 (Herbs and Bryophytes)

Field Investigator(s): Project/Site:		State:	Date: County:	
Applicant/Owner:				
Transect # Plot # V	egetation I Init	#/Name		\
Note: If a more detailed site description	is necessary,	use the back of	data form or a field r	notebook.
2012012				
300x 20 2	ladianta.	Quadra	t Percent Areal Cove	er .
•	Indicator Status		Q4 Q5 Q6 Q7 C	_
<u>Species</u>		<u>ui uz us</u>	5 =	17 III
7 T. red marke	_FAC_		<u> </u>	- 113 1013
8 z. Thimblelverry			<u>w</u>	_ 13 _210_
3				
5				
6				
7				
8				
9		. <del></del>		
10				
11. ————				_ <del></del>
12. ————				<del> </del>
13. ————————————————————————————————————				
15				
16				
Deminance Threshold Number Family 50	Total Cov	er		<b>-</b> <
Dominance Threshold Number Equals 50	7% x 10tal Cov	er²	otal of Averages (X's	1103.
		T	otal of Averages $(\overline{X}')$	s) <u>75 (7</u> 8)
Dominance Thres	shold Number	Equals 50% x T	otal of Averages ( $\overline{X}$	s) <u>51,8</u> 8

<sup>1</sup> This data form can be used for both the Plant Community Transect Sampling Approach and the Fixed Interval Transect Sampling Approach.

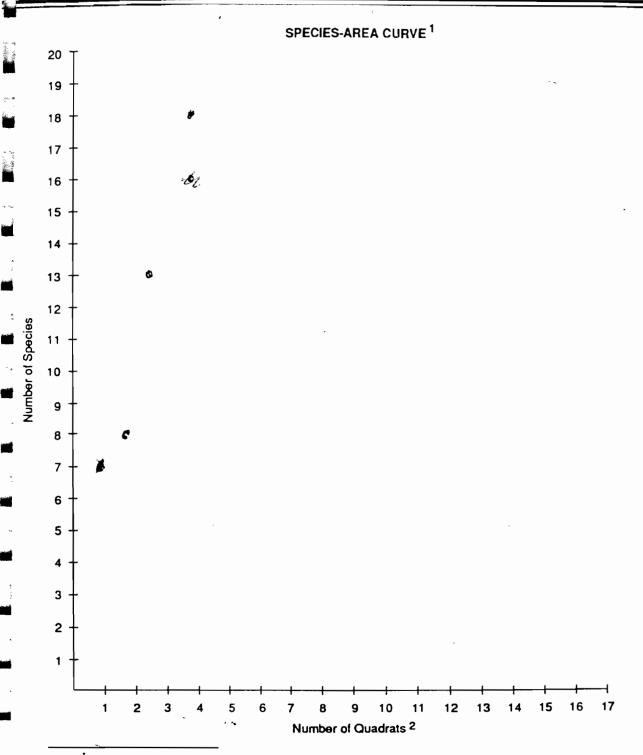
<sup>2</sup> These entries are only applicable to the Fixed Interval Transect Sampling Approach which uses only one

quadrat per sampling point along a transect.

<sup>3</sup> These entries are only applicable to the Plant Community Transect Sampling Approach which uses

multiple quadrats per sampling point along a transect.

<sup>4</sup> To determine the dominants, first rank the species by their cover (or mean cover). Then cumulatively sum the cover (mean cover) of the ranked species until 50% of the total for all species cover (mean cover) is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus additional species having 20% of the total cover (mean cover) value should be considered dominants and marked with an asterisk.



<sup>&</sup>lt;sup>1</sup> Plot the cumulative number of species against the quadrats (e.g., if quadrat #1 has 3 species and quadrat #2 has any, all, or none of those species but has 2 new species, then 5 cumulative species should be plotted against quadrat #2). The number of quadrats sufficient to adequately survey the understory will corresdpond to the point on the curve where it first levels off and remains essentially level.

<sup>&</sup>lt;sup>2</sup>Specify size of sample quadrat: \_\_\_\_\_\_

## DATA FORM COMPREHENSIVE ONSITE DETERMINATION METHOD QUADRAT SAMPLING PROCEDURE (Shrubs and Woody Vines)

Field Investigator(s):			Date	9:	
Project/Site:		State:		nty:	
Applicant/Owner:				,.	
Transect # Plot # Ve	egetation Unit	#/Name:			
Note: If a more detailed site description i	s necessary, i	use the back	of data form of	or a field noteboo	ok.
		Percent		Midpoint <sup>1</sup>	
	Indicator	Areal	Cover <sup>1</sup>	of Cover	_
Shrub Species	Status	Cover	Class	Class	Rank <sup>2</sup>
1 min deliwith	FAC	10	7	10.5	$\neg$
2. This hast fillelying	FACIN-	<u> </u>	$\overline{}$		2
3.	01.0				
4.					
5					
6					
7. ————					
8					
9					
10					
11					
12					
13					
14					
		Sum	of Midpoints		
Dominance Threshold N	umber Equals				
					- <b></b>
		Percent	- 1	Midpoint <sup>1</sup>	
M 11" 0 :	Indicator	Areal	Cover <sup>1</sup>	of Cover	2
Woody Vine Species	Status	Cover	Class	Class	Rank <sup>2</sup>
1					
2					_
3.	_				
4.					
5					
6					
7					
8. —————			<u> </u>		
9			· ——		
10.					
11.			· —		
12					
13					
14	_				_
•.			of Midpoints		_
Dominance Threshold I	Number Equal	ls 50% x Sur	n of <b>Midpo</b> ints		-

<sup>1</sup> Cover classes (midpoints): T<1% (none); 1=1-5% (3.0); 2=6-15% (10.5); 3=16-25% (20.5); 4=26-50% (38.0); 5=51-75% (63.0); 6=76-95% (85.5); 7=96-100% (98.0).

<sup>&</sup>lt;sup>2</sup> To determine the dominants, first rank the species by their midpoints. Then cumulatively sum the midpoints of the ranked species until 50% of the total for all species midpoints is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus any additional species having 20% of the total midpoint value should be considered dominants and marked with an asterisk.

# DATA FORM COMPREHENSIVE ONSITE DETERMINATION METHOD QUADRAT SAMPLING PROCEDURE (Saplings & Trees)

		Percent		Midpoint <sup>1</sup>	
	Indicator	Areal	Cover <sup>1</sup>	of Cover	
apling Speçies	Status	Cover	Class	Class	Ran
1. A. white ceder	- PACUS	15	2	10.5	
2. Angelista eljin	Freed-	_5		- 5	1
3. Tid maple	FAC	<u> </u>			
4					
5. ————					
		. —			
0					
		Sum	of Midpoints -		
Sum of Midpoints  Dominance Threshold Number Equals 50% x Sum of Midpoints    Dominance Threshold Number Equals 50% x Sum of Midpoints					
			Basal		,
dividual Taxa Cassica					_
idividual Tree Species			(sq ft)		Har
1. Sed magli	<u> </u>		3 37	-118	
		7.7	1.324	5.00	$\overline{}$
N. while cedir	FACE	7.7		_ 5/65	
		5.8			
			0.136	0.602	2
7					
8					
9					
0. ————			<del></del>		
1 2					
3					
4					
5					
6				£ 1.0	
			ies Combined		

To determine the dominants, first rank the species by their midpoints. Then cumulatively sum the midpoints of the ranked species until 50% of the total for all species midpoints is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus any additional species having 20% of the total midpoint value should be considered dominants and marked with an asterisk.

#### PREVALENCE INDEX WORKSHEET

LOCATION		DATE		EVALUATO	R	
HYDRIC UNIT NAME				_ TRANSEC	CT NO	
		Fre		Occurrence on nown Indicat	of Identified P or Status	lants
	Frequency of Occurrence	Fo	$F_{fw}$	Ff	F <sub>fu</sub>	F <sub>u</sub> '
Plant Species	Total for Each Species	Obligate	Facult. Wet.	Facult.	Facult. Upland	Upland
		$\overline{}$				
		$\Rightarrow$				
			$\perp$			
Total occurrence for all plant species			,			
Total occurrences ID'd with known indicator status						
E.I. value		1	2	· <u>3</u>	4	5

Total occurrences

identified with known indicator status

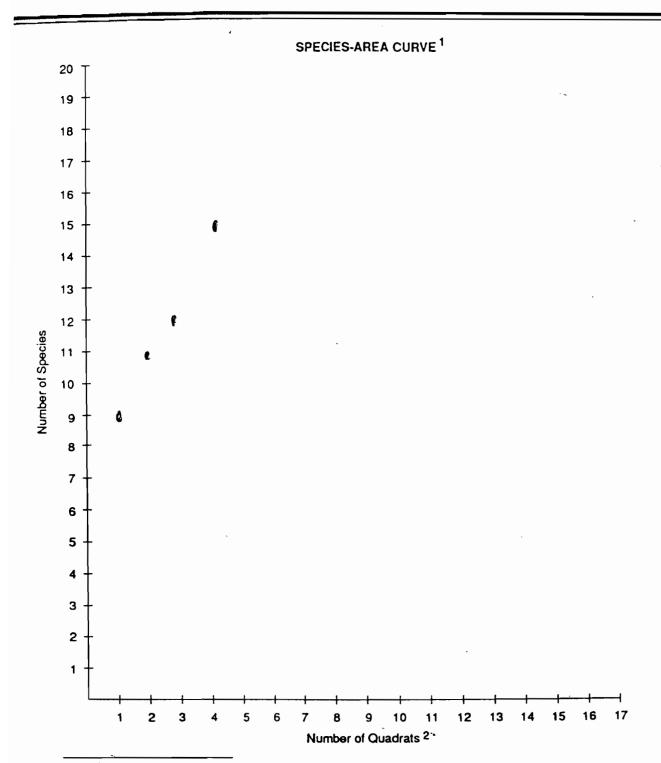
Total occurrence for all plant species

Total occurrence for all plant species

$$PI_{i} = \frac{(1F_{o}) + (2F_{fw}) + (3F_{f}) + (4F_{fu}) + (5F_{u})}{(F_{o} + F_{fw} + F_{f} + F_{fu} + F_{u})}$$

# DATA FORM COMPREHENSIVE ONSITE DETERMINATION METHOD QUADRAT SAMPLING PROCEDURE 1 (Herbs and Bryophytes)

Field Investigator(s): P. MUESS	16		Date: _	9/29/03
Project/Site: Garages, Land	FEN	_ State: <del>/V//</del>	County:	ENEIDA
Applicant/Owner:				
Transect # TA Plot # 02 Ve	egetation Unit	: #/Name:		<u>,                                     </u>
Note: If a more detailed site description i	s necessary,	use the back of data	form or a	field notebook.
	Indicator	Quadrat Pe	rcent Areal	Cover
Species	Status	Q1 Q2 Q3 Q4	Q5 Q6 (	Q7 Q8 X Rank <sup>4</sup>
1 Dictactions	OBL	ZC		
2 Nouve moundaster	FACUL	<del></del>		<del>3.7 10</del>
t3 smitted fem	FACU	55 - 25 -		$-\frac{7}{20}\frac{7}{3}$
A contil structure		5 5 = -		$=\frac{215}{12.5}$
X 5 marsh horsetted	FACCO	15255		23.75 2
6. marsh form	FACE	5		1.3 14.5
7 Thinble berry		15 _ 15 10		
8. maringueit	OBL	205		_ 6.25 6.5
X 9. sphagmin	036	100 100 10 10		- <u>- 55 - 1</u>
10. Commun plantain	FACU	· _ <u> </u>		_ CISCO 12,5
11. marsh malifild	Every	, <u> </u>		$-\frac{37}{125}\frac{10}{11}$
12. cimmon figur	FACIL	· <del> 7_</del>	, —  —  ·	
13. Junited Chall	OBL	. <u> </u>	. — — ·	$-\frac{(c_1c_3)}{3\cdot 7\cdot 10}$
14. Maria Pear grant	FACU	· — — — — — — — — — — — — — — — — — — —		$\frac{1}{12}\frac{19}{19}$
15. / Organia Cheefer	V.1/CC	·		
16				
	Total Cov			
Dominance Threshold Number Equals 50%	% x Total Cov	er2		156.2
		Total	of Average	s (\bar{x}\s) \frac{56}{3}
Dominance Threst	hold Number	Equals 50% x Total	of Average	s (X's) 78.13
<sup>1</sup> This data form can be used for both th	e Plant Comr	nunity Transect Sam	nling Appr	each and the Fixed
Interval Transect Sampling Approach.		nomy manacoroun	,pg , ,pp.	
<sup>2</sup> These entries are only applicable to th		al Transect Samplin	ng Approac	h which uses only one
quadrat per sampling point along a tra		,	J	
3 These entries are only applicable to th			npling Appr	oach which uses
multiple quadrats per sampling point a	long a transe	ct.		- 1-41
<sup>4</sup> To determine the dominants, first rank				
the cover (mean cover) of the ranked				
immediately exceeded. All species con				
plus additional species having 20% of dominants and marked with an asteris		er (mean cover) valu	e snould b	a considered
dominants and marked with an astens	N.	no 1st	18th Car	aluta.
i		20 VX 1000	40000	June 120
\		200	sol Here	to overly as so
•		recei	ucui u s	considered  Plots  to overlap at 36  in parts of on
			6	it of me
		ina at	Torring	in promising
		6. 00 0° _ ZDO		$\mathcal{U}'$
• .			1	V



<sup>&</sup>lt;sup>1</sup> Plot the cumulative number of species against the quadrats (e.g., if quadrat #1 has 3 species and quadrat #2 has any, all, or none of those species but has 2 new species, then 5 cumulative species should be plotted against quadrat #2). The number of quadrats sufficient to adequately survey the understory will corresdpond to the point on the curve where it first levels off and remains essentially level.

<sup>&</sup>lt;sup>2</sup>Specify size of sample quadrat: \_\_\_\_\_\_

		Dat	e:	
	– State: ——			
egetation Unit	#/Name:			
s necessary, u	use the back	of data form	or a field notebo	ok.
Indicator	Percent Areal	Cover <sup>1</sup>	Midpoint <sup>1</sup> of Cover	
Status	Cover	Class	Class	Rank <sup>2</sup>
FACW +	10	2	105	7
· ——				
	Sum	of Midagists		
umber Fauals				
	<del></del>			
Indicator		Cover <sup>1</sup>		
				Rank <sup>2</sup>
	0070.		- 0.400	
				-
			<del></del>	
	Sum	of Midpoints		
	Indicator Status	Percent Indicator Areal Status Cover FACW + 10  Sum of the back  Sum of the back  Sum of the back  Sum of the back  Percent Areal	State: County    State: County    Segetation Unit #/Name: Segetation Unit #/Na	Percent Midpoint Status Cover Class Class  FACW F 10 2 /C.S  Sum of Midpoints  Sum of Midpoints  Percent Midpoints  Midpoint 10 5 /C.S  Midpoint 1

<sup>&</sup>lt;sup>1</sup> Cover classes (midpoints): T<1% (none); 1 = 1-5% (3.0); 2 = 6-15% (10.5); 3 = 16-25% (20.5); 4 = 26-50% (38.0); 5 = 51-75% (63.0); 6 = 76-95% (85.5); 7 = 96-100% (98.0).

<sup>&</sup>lt;sup>2</sup> To determine the dominants, first rank the species by their midpoints. Then cumulatively sum the midpoints of the ranked species until 50% of the total for all species midpoints is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus any additional species having 20% of the total midpoint value should be considered dominants and marked with an asterisk.

Field Investigator(s):					
Project/Site:		_ State:	——— County	/:	
A line at/Owner:					
Transect # Plot # Vec	getation Unit #/N	lame:			
Note: If a more detailed site description	n is necessary, u	ise the back	of data form or	a field notebook	ζ.
Sapling Species  1. Speen and 1 2. American ilm 3. Manthe	Indicator Status FACU FACU FACU	Percent Areal Cover	Cover <sup>1</sup> Class  T  2	Midpoint <sup>1</sup> of Cover Class	Rank <sup>2</sup>
5		Sum	of Midpoints		
Dominance Threshold	d Number Foual	s 50% x Sum	of Midpoints		
Individual Tree Species  1. Ned Maple  2	Indicator Status	DBH (inches)  7.8 7  10.9 6.  5.9  2.7  13.2  5.8  5.3  1.6  5.1	Basal Area (BA) Per Tree (sq ft) 2 0 352/0. 5 0.190 0.192 0.192 2.64 0.95 0.183 0.376 0.238 6.192 0.394 0.394	BA Per Species (sq ft)	Rank <sup>2</sup>
14. N wati ceder? 15	_ Facw_	5.0 5.5 7.6	0.136 0.165 0.315	0.616	2
Dominance Thres			ecies Combined	8.352	

Cover classes (midpoints): T<1% (none); 1 = 1-5% (3.0); 2 = 6-15% (10.5); 3 = 16-25% (20.5); 4 = 26-50% (38.0); 5 = 51-75% (63.0); 6 = 76-95% (85.5); 7 = 96-100% (98.0).</li>
 To determine the dominants, first rank the species by their midpoints. Then cumulatively sum the midpoints.

To determine the dominants, first rank the species by their midpoints. Then cumulatively sum the midpoints of the ranked species until 50% of the total for all species midpoints is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus any additional species having 20% of the total midpoint value should be considered dominants and marked with an asterisk.

#### PREVALENCE INDEX WORKSHEET

LOCATION	DATEEVALUATOR				)R	
HYDRIC UNIT NAME			TRANSECT NO			
		Fre	equency of Occurrence of Identified Plan with Known Indicator Status			Plants
	Frequency of Occurrence	F <sub>o</sub>	$F_{fw}$	F <sub>f</sub>	F <sub>fu</sub>	F <sub>u</sub> '
Plant Species	Total for Each Species	Obligate	Facult. Wet.	Facult.	Facult. Upland	Upland
· · · · · · · · · · · · · · · · · · ·						
		$\rightarrow$				
			$\sqrt{}$			
				<u> </u>		
Total occurrence for all plant species				- \		
Total occurrences ID'd with known indicator status						
E.I. value		1	2	3	4	5
Total occurre	nncec					

Total occurrences

identified with known indicator status

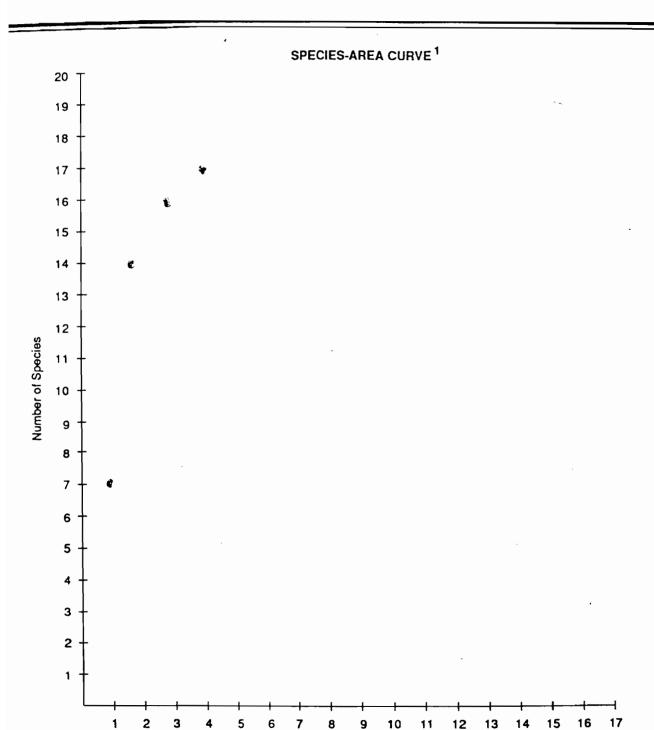
Total occurrence for all plant species = % valid occurrences

$$PI_{i} = \frac{(1F_{o}) + (2F_{fw}) + (3F_{f}) + (4F_{fu}) + (5F_{u})}{(F_{o} + F_{fw} + F_{f} + F_{fu} + F_{u})}$$

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# DATA FORM COMPREHENSIVE ONSITE DETERMINATION METHOD QUADRAT SAMPLING PROCEDURE 1 (Herbs and Bryophytes)

Field Investigator(s): P. MUESS	i (	_,,,,,,	,	5-4 6	1/79/103
Field Investigator(s): 11/255 Project/Site: 6/1/4/155	FN.	State:_	2/4	Date:	(1) NE 100
Applicant/Owner:		_ Otale. =	<del></del>	_ Oddniy	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	getation Unit	#/Name:			1
Note: If a more detailed site description is	necessary, u	ise the ba	ick of data	form or a fi	eld notebook.
4					
	Indicator			rcent Areal	_
Species Luck goldmind	Status	Q1 Q2	Q3 Q4	Q5 Q6 Q	7 Q8 X Rank <sup>4</sup>
1. Porch Cuy working	OBL	<u> </u>	· — —		- <u>- 215 /3</u>
3. Chry SKA	UBL	1 <u>0</u> 70			10:25 3
4. New york aster	FACWY	15			13:13 <u>- 3</u> - 3:75 9
5. flat tan goldinand	PAC	15_	~~~~ ~~~~		3.75 9
*6. marsh horsetwal	FACU	<u> 25 25</u>	45 45		- 425 Z
* 7. spragning	OBL	80 _	65 10		55.1)
9 toll nettle	PAC	<u> </u>	35 1		<del>10</del> - <del>2</del> /
10. sensetwe ferre	FACL	<u> </u>			
11. New English Roll	1-14cu +	<u>/5</u> _	. — —		$-\frac{3.75}{2.75}\frac{9}{8}$
12. Strawy you march ma had	CIRL	<u> </u>			$-\frac{575}{5.75}\frac{-9}{9}$
14. letter swell might stime	FAC-	_ 10	$=\bar{z}$	, — — -	= 815 <del>45</del>
15. N. white coplar	PACW		<u> </u>		_ <1 16.5
16. marsh serve	F30.67		. <del>≤</del> 1		16.5
17. sept must	Total Cove		,,,		2.2 /3
Dominance Threshold Number Equals 50%	x Total Cove	r2			
					$(\bar{X}'s)^{2}(\bar{Y}\cdot\bar{X}^{3})$
Dominance Thresh	old Number E	quals 509	% x Total	of Averages	(X̄'s) <i>4͡ਊ. q</i> ͡
1					
This data form can be used for both the	Plant Comm	unity Trar	isect Sam	pling Appro	ach and the Fixed
Interval Transect Sampling Approach. <sup>2</sup> These entries are only applicable to the	Fixed Interva	al Transer	t Samplin	n Approach	which uses only one
quadrat per sampling point along a tran	sect.				
3 These entries are only applicable to the			isect Sam	pling Appro	ach which uses
multiple quadrats per sampling point all  4 To determine the dominants, first rank t			er (or me	an cover) T	hen cumulatively sum
the cover (mean cover) of the ranked s	pecies until 50	0% of the	total for a	Il species co	over (mean cover) is
immediately exceeded. All species con-	tributing to the	at cumula	tive total (	the dominar	nce threshold number)
plus additional species having 20% of to dominants and marked with an asterisk		•	•		considered
dominants and marked with an asterisk	17		1.4/1	it	
bleavy ison.	Shilling	7 - 4	ruin 1	11 3	
		. 1		1.1.	each quarter
#i ~ . d	ina stol	L WI	1 alla	dum	each quant
30 pt ma	nor pas	/	ŀ		ľ



Plot the cumulative number of species against the quadrats (e.g., if quadrat #1 has 3 species and quadrat #2 has any, all, or none of those species but has 2 new species, then 5 cumulative species should be plotted against quadrat #2). The number of quadrats sufficient to adequately survey the understory will corresdpond to the point on the curve where it first levels off and remains essentially level.

Number of Quadrats 2

<sup>&</sup>lt;sup>2</sup>Specify size of sample quadrat: \_\_\_\_\_\_

Project/Site:		State:		e: inty:	
Applicant/Owner:		— Giaie. —		лку. <u> </u>	
ransect # Plot #	Vegetation Unit	#/Name:		*	
lote: If a more detailed site	description is necessary,		of data form	or a field noteboo	)K. 
hrub Species	Indicator Status	Percent Areal Cover	Cover <sup>1</sup> Class	Midpoint <sup>1</sup> of Cover Class	Rank
2 3					
4 5					
6. — <del>VY</del> 7. — —					
8. ————————————————————————————————————					
0. ————————————————————————————————————					
2. ————————————————————————————————————					
	Threshold Number Equals		of Midpoints of Midpoints		
	Indicator	Percent Areal	Cover <sup>1</sup>	Midpoint <sup>1</sup> of Cover	
Voody Vine Species	Status	Cover	<u>Class</u>	Class	Rani
1					
2					_
2 3 4					
2					
2					
2.					
2. 3. 4. 5. 6. 7. 8. 9. 0. 1.					
2.					

<sup>2</sup> To determine the dominants, first rank the species by their midpoints. Then cumulatively sum the midpoints of the ranked species until 50% of the total for all species midpoints is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus any additional species having

20% of the total midpoint value should be considered dominants and marked with an asterisk.

(38.0); 5 = 51-75% (63.0); 6 = 76-95% (85.5); 7 = 96-100% (98.0).

Field Investigator(s):		04-4	Date:		
		_ State:	County	<b>/</b> :	
Applicant/Owner:					
Transect # Plot # Ve					
Note: If a more detailed site description	n is necessary, u	ise the back o	of data form or	a field notebool	k.
		Percent		Midpoint <sup>1</sup>	
	Indicator	Areal	Cover <sup>1</sup>	of Cover	
Sapling Species	Status	Cover	Class	Class	Rank <sup>2</sup>
1 hed marke	FAC	00001	1	77	ילי -
1. Dea Magace			<del></del> -	700	1
2. N. while cidar	_ Facil			10.5	
3					
4					
5					
6		, <del></del>			
7		·			
8					
9					
10					
		•	of Midociate		
		Sum	OLMIODOINIS -		
Dominance Threshol	ld Number Foual		of Midpoints -		
Dominance Threshold	d Number Equal		of Midpoints -		
Dominance Threshold	ld Number Equal		of Midpoints		
Dominance Threshold	d Number Equal		of Midpoints -  Basal		
Dominance Threshold		s 50% x Sum 	of Midpoints - Basal Area (BA)		
	Indicator	s 50% x Sum 	of Midpoints Basal Area (BA) Per Tree	BA Per Species	,
Individual Tree Species		s 50% x Sum 	of Midpoints - Basal Area (BA)	 BA Per	Rank <sup>2</sup>
Individual Tree Species  1	Indicator	DBH (inches)	Basal Area (BA) Per Tree (sq ft)	BA Per Species	,
Individual Tree Species  1	Indicator	s 50% x Sum 	Basal Area (BA) Per Tree (sq ft)	BA Per Species	,
Individual Tree Species  1	Indicator	DBH (inches)	Basal Area (BA) Per Tree (sq ft)	BA Per Species	,
1	Indicator Status	DBH (inches)	Basal Area (BA) Per Tree (sq ft)	BA Per Species	,
1	Indicator Status	DBH (inches)	Basal Area (BA) Per Tree (sq ft)	BA Per Species	,
1	Indicator Status	DBH (inches)	Basal Area (BA) Per Tree (sq ft)	BA Per Species	,
1	Indicator Status	DBH (inches)	Basal Area (BA) Per Tree (sq ft)	BA Per Species	,
1	Indicator Status	DBH (inches)	Basal Area (BA) Per Tree (sq ft)	BA Per Species	,
1	Indicator	DBH (inches)	Basal Area (BA) Per Tree (sq ft)	BA Per Species	,
1	Indicator	DBH (inches)	Basal Area (BA) Per Tree (sq ft)	BA Per Species	,
Individual Tree Species  1	Indicator	DBH (inches)	Basal Area (BA) Per Tree (sq ft)	BA Per Species	,
Individual Tree Species  1	Indicator	DBH (inches)	Basal Area (BA) Per Tree (sq ft)	BA Per Species	,
Individual Tree Species  1	Indicator	DBH (inches)	Basal Area (BA) Per Tree (sq ft)	BA Per Species	,
Individual Tree Species  1	Indicator Status	DBH (inches)	Basal Area (BA) Per Tree (sq ft)	BA Per Species	,
Individual Tree Species  1	Indicator Status	DBH (inches)	Basal Area (BA) Per Tree (sq ft)	BA Per Species	,
Individual Tree Species  1	Indicator Status	DBH (inches)	Basal Area (BA) Per Tree (sq ft)	BA Per Species	,

<sup>&</sup>lt;sup>1</sup> Cover classes (midpoints): T<1% (none); 1 = 1-5% (3.0); 2 = 6-15% (10.5); 3 = 16-25% (20.5); 4 = 26-50% (38.0); 5 = 51-75% (63.0); 6 = 76-95% (85.5); 7 = 96-100% (98.0).

<sup>&</sup>lt;sup>2</sup> To determine the dominants, first rank the species by their midpoints. Then cumulatively sum the midpoints of the ranked species until 50% of the total for all species midpoints is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus any additional species having 20% of the total midpoint value should be considered dominants and marked with an asterisk.

#### PREVALENCE !NDEX WORKSHEET

LOCATION		DATE		EVALUATO	R		
HYDRIC UNIT NAME		<u> </u>		TRANSE	CT NO		
		Frequency of Occurrence of Identified Plants with Known Indicator Status					
	Frequency of Occurrence Total for	F <sub>0</sub>	F <sub>fw</sub>		Facult.	F <sub>u</sub>	
Plant Species	Each Species	Obligate	Wet	Facult.	Upland	Upland	
		(		/			
		\					
		<del></del>	$-\!\!\!/-$		-		
			/				
	-	1		·			
		X					
		$\longrightarrow$					
			\				
Total occurrence for all plant species							
Total occurrences ID'd with known indicator status				\			
E.I. value		1	2	3	4	5	
Total occurre	/ hcas						
identified with known	indicator status	% valid occ	urrancas	\			
Total occurrence for	all plant species	's faile occ	411011063				
(1F <sub>0</sub> ) + (2F <sub>6</sub>	,,) + (3F <sub>4</sub> ) + (4F	- f <sub>11</sub> ) + (5F <sub>1</sub> ,	)				
$PI_{i} = \frac{(1F_{0}) + (2F_{1})}{(F_{0} + 1)}$	Fe., + Fe + Fe	+ F. )	_				
. 7.0	TW ' 'I' 'IU	· 'u '					

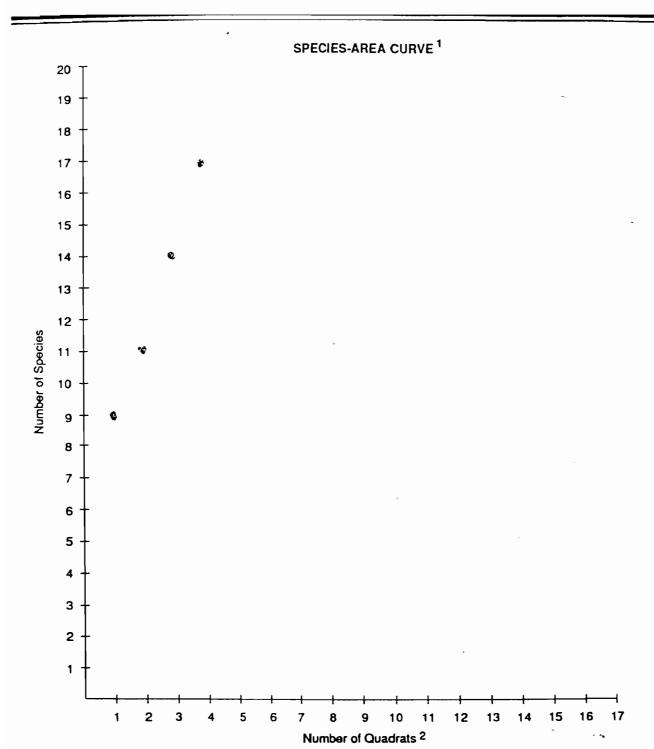
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### DATA FORM COMPREHENSIVE ONSITE DETERMINATION METHOD QUADRAT SAMPLING PROCEDURE 1

(Herbs and Bryophytes)

Field Investigator(s): P. MURSSIC			Date: _9	129/03
Project/Site: GRAFFIS, LEI FA	<u>-</u> ٨'	_ State: 14	County: _	CNRIDO
Applicant/Owner:				
Transect #TR Plot # 82 Ve	getation Unit	#/Name:		1
Note: If a more detailed site description is	necessary, ι	use the back of data	a form or a fie	d notebook.
	Indicator	Quadrat Pe	ercent Areal C	over
Species	Status	Q1 Q2 Q3 Q4	Q5 Q6 Q7	Q8 X Rank <sup>4</sup>
Lange L	ORL	15	as as as	3.75 4
1. frammen selvintain.	POCI	12		25 7
3 swamps goldenrod	030	<del>'</del>		2.5
* Cover som		90 55 80	)	56.25 2
As march thorsetail	CRL	15 40 90 20	$\overline{}$	41.25 3
6. touch -me- not	FACIL	5		_ 1.3 12
7. marsh fem	FACU	5 - 5 -		<u> - 25 7</u>
8. systramin	OBL	100 90 90 90	?	$-\frac{q_0}{12}$
9. flistlift flish nille	PAC	2		-13 /2
10. Ratist City Goldenten	Pacu	<del></del>		$-\frac{13}{13}\frac{72}{72}$
11. Gran stan startion	FACU			- = 76
13. marsh marina	OBL			257
14 N. white cedar	FACUL	<u> </u>		<u> </u>
15. money word	OBL			1.3 12
16. New Consume atter	FACIST	<i></i>	<u> </u>	. <u> </u>
17 false nettle	Total Cove	er2 </td <td></td> <td>=1 /6</td>		=1 /6
Dominance Threshold Number Equals 50%	x Total Cove	er2		125
		Total	of Averages (	X'st46.3 211.75
Dominance Thresh	old Number F	Equals 50% x Total		
Dominance Thicsin		_quais 00 /0 x 1 0 (d)	or merages (	,,
<sup>1</sup> This data form can be used for both the	Plant Comm	unity Transact Sar	molina Approa	ch and the Fixed
Interval Transect Sampling Approach.	er lant Comm	iumity Transect Sai	Tripling Apploa	ch and the rives
<sup>2</sup> These entries are only applicable to the	Fixed Interv	al Transect Sampli	ng Approach v	which uses only one
quadrat per sampling point along a tran	isect.	·	•	
<sup>3</sup> These entries are only applicable to the			mpling Approa	ch which uses
multiple quadrats per sampling point al			Th	an aumulativalu ava
4 To determine the dominants, first rank the cover (mean cover) of the ranked s	tne species b	y their cover (or mo	ean cover). Tr	ver (mean cover) is
immediately exceeded. All species con	tributing to th	at cumulative total	(the dominant	ce threshold number)
plus additional species having 20% of	the total cove	r (mean cover) vali	ue should be o	considered
dominants and marked with an asterisl		, , , , , , , , , , , , , , , , , , , ,		

30 ft rodine plate w/ 1 quadrat/quarter



<sup>&</sup>lt;sup>1</sup> Plot the cumulative number of species against the quadrats (e.g., if quadrat #1 has 3 species and quadrat #2 has any, all, or none of those species but has 2 new species, then 5 cumulative species should be plotted against quadrat #2). The number of quadrats sufficient to adequately survey the understory will corresdpond to the point on the curve where it first levels off and remains essentially level.

<sup>&</sup>lt;sup>2</sup>Specify size of sample quadrat: \_\_\_\_\_

0,0				θ:	
0,000		— State: ——	Cou	inty:	
pplicant/Owner:					
ransect # Plot #	Vegetation Unit	#/Name:	-1-1-4-1	Calal	-1-
ote: If a more detailed site des	scription is necessary,	use the back	of data form of	or a tield noteboo	OK.
		Percent		Midpoint <sup>1</sup>	
	Indicator	Areal	Cover <sup>1</sup>	of Cover	_
- t Cassina					Rank
nrub Species 1. Black willow	Status	Cover	Class	Class	Hank
	PACH +			1	
2				<u> </u>	
3. ————					
4. —————	<del></del>				
5					
6. <del></del>					
7. ————					
3					
9 <del></del>					
)					
1					
. ———					
			_		
2 3					
2					
2 3		Sum	of Midpoints		
3 4			of Midpoints of Midpoints		
3 4		50% x Sum		Midociat <sup>1</sup>	
3 4	eshold Number Equals	50% x Sum  Percent	of Midpoints	Midpoint <sup>1</sup>	
Dominance Three	eshold Number Equals	50% x Sum Percent Areal	of Midpoints Cover <sup>1</sup>	of Cover	Pani
Dominance Three	eshold Number Equals	50% x Sum  Percent	of Midpoints		Rank
Dominance Three	eshold Number Equals	50% x Sum Percent Areal	of Midpoints Cover <sup>1</sup>	of Cover	Rank
Dominance Three  /oody Vine Species  1	eshold Number Equals	50% x Sum Percent Areal	of Midpoints Cover <sup>1</sup>	of Cover	Rank
Dominance Three  Coody Vine Species  1	eshold Number Equals	50% x Sum Percent Areal	of Midpoints Cover <sup>1</sup>	of Cover	Ranl
Dominance Three  Coody Vine Species  1	eshold Number Equals	50% x Sum Percent Areal	of Midpoints Cover <sup>1</sup>	of Cover	Ranl
Dominance Three  Coody Vine Species  1	eshold Number Equals	50% x Sum Percent Areal	of Midpoints Cover <sup>1</sup>	of Cover	Rani
Dominance Three  Coody Vine Species  1	eshold Number Equals	50% x Sum Percent Areal	of Midpoints Cover <sup>1</sup>	of Cover	Rani
Dominance Three  Coody Vine Species  1	Indicator Status	50% x Sum Percent Areal	of Midpoints Cover <sup>1</sup>	of Cover	Rani
Dominance Three  Coody Vine Species  1	Indicator Status	50% x Sum Percent Areal	of Midpoints Cover <sup>1</sup>	of Cover	Rani
Dominance Thro  /oody Vine Species  1	Indicator Status	50% x Sum Percent Areal	of Midpoints Cover <sup>1</sup>	of Cover	Rank
Dominance Thro  /oody Vine Species  1	Indicator Status	50% x Sum Percent Areal	of Midpoints Cover <sup>1</sup>	of Cover	Rank
Dominance Three  /oody Vine Species 1	Indicator Status	50% x Sum Percent Areal	of Midpoints Cover <sup>1</sup>	of Cover	Rank
Dominance Three  /oody Vine Species  1	Indicator Status	50% x Sum Percent Areal	of Midpoints Cover <sup>1</sup>	of Cover	Rank
Dominance Three  /oody Vine Species  1	Indicator Status	50% x Sum Percent Areal	of Midpoints Cover <sup>1</sup>	of Cover	Rank
Dominance Three  /oody Vine Species  1	Indicator Status	50% x Sum Percent Areal	of Midpoints Cover <sup>1</sup>	of Cover	Rank
Dominance Thro  /oody Vine Species  1	Indicator Status	Percent Areal Cover	of Midpoints Cover <sup>1</sup>	of Cover	Rank

<sup>&</sup>lt;sup>1</sup> Cover classes (midpoints): T<1% (none); 1=1-5% (3.0); 2=6-15% (10.5); 3=16-25% (20.5); 4=26-50% (38.0); 5=51-75% (63.0); 6=76-95% (85.5); 7=96-100% (98.0).

<sup>&</sup>lt;sup>2</sup> To determine the dominants, first rank the species by their midpoints. Then cumulatively sum the midpoints of the ranked species until 50% of the total for all species midpoints is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus any additional species having 20% of the total midpoint value should be considered dominants and marked with an asterisk.

			Date:		
Project/Site:		_ State:	——— County	/:	
Applicant/Owner:					
Transect # Plot #	Vegetation Unit #/N	lame:	·		
Note: If a more detailed site de	escription is necessary, t	use the back o	of data form or	a field noteboo	k.
		Percent		Midpoint <sup>1</sup>	
	Indicator	Areal	Cover <sup>1</sup>	of Cover	
Sapling Species	Status	Cover	Class	Class	Rank <sup>2</sup>
10 is hite coder	FACIL	<u> 4,5</u> 5	5	63.0	T
2 chan lunch	FAC	21	<del>-</del>		7
3 Althores	FAC	7	<del></del>	~	3
4					
5					
6					
7		. —	-		
8					
9					
10					
10.		Sum	of Midpoints		
Dominanco T	hreshold Number Equal		or whopon ha		
	mesholo Mumber Equal	S 50% X 5um	or Miopoints -		
			Basal		
			Area (BA)	BA Per	,
	Indicator	DBH	Per Tree	Species	
Individual Tree Species	Status	(inches)	(sq ft)	(sq ft)	Rank <sup>2</sup>
1 N. White celar	FICH	5.5	0.164	0.164	1
2.	9000		0.104	0 110 7	
3. ————	<del></del>				
4					
5					
6. ————					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
	Total Racal A	rea of All Spe	cies Combined	0.164	
Nominano.	e Threshold Number Ed				
~	C TINGSHOO HOMBS EU	logis 30 % X 1	Ciai Dasai Alea	' <b></b> .	

<sup>&</sup>lt;sup>1</sup> Cover classes (midpoints): T<1% (none); 1 = 1-5% (3.0); 2 = 6-15% (10.5); 3 = 16-25% (20.5); 4 = 26-50%

<sup>(38.0);</sup> 5 = 51-75% (63.0); 6 = 76-95% (85.5); 7 = 96-100% (98.0).

To determine the dominants, first rank the species by their midpoints. Then cumulatively sum the midpoints of the ranked species until 50% of the total for all species midpoints is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus any additional species having 20% of the total midpoint value should be considered dominants and marked with an asterisk.

#### PREVALENCE INDEX WORKSHEET

LOCATION		DATE		EVALUATO	R			
HYDRIC UNIT NAME	-	TRANSECT NO						
		Frequency of Occurrence of Identified Plants with Known Indicator Status						
	Frequency of Occurrence Total for	F <sub>o</sub>	F <sub>fw</sub> Facult.	F <sub>f</sub>	F <sub>fu</sub> Facult.	F <sub>u</sub>		
Plant Species	Each Species	Obligate	Wet	Facult.	Upland	Upland		
		·		- —	, ———			
		$\overline{}$		-				
				/				
		<del></del>						
<del></del>			X		<del></del>			
<u>-</u>								
Total occurrence for all plant species	, ————————————————————————————————————							
Total occurrences ID'd with known indicator								
status					\			
E.I. value		1	2	_ 3	4	5_		
Total occurrer	indicator/status	مدد امنادر ۱۵						
Total occurrence for a	Il plant/species	% valid occ	urrences					
(1E ) ± (2E.	) + (3E <sub>c</sub> ) + (4E	, ) + /5E	`					
$Pl_{i} = \frac{(1r_{0}) + (2r_{1}w)}{r_{0}}$	) + (3F <sub>f</sub> ) + (4F F <sub>fw</sub> + F <sub>f</sub> + F <sub>fu</sub> +	tu ) + (3ru	<i>,</i> -					

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### DATA FORM COMPREHENSIVE ONSITE DETERMINATION METHOD QUADRAT SAMPLING PROCEDURE 1

(Herbs and Bryophytes)

on Unit	_ State:/ #/Name: use the back		Date: _ - County: -	CATEINA	
on Unit	#/Name: use the back				
on Unit	#/Name: use the back				
ssary, u	se the back				
		k of data	form or a	field noteboo	k.
cator	Qua	adrat Per	cent Area	l Cover	
				_	· Rank <sup>4</sup>
		<u>40 4                                  </u>	<u> </u>		
		105° \$0			
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73i	100 100	<del>- 75</del>		—— <u>—</u>	5 2
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BL	<1 →			<u>-</u> _ <u>-</u> _	19
	_ 5			<u>/:3</u>	15
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	<u> </u>	<i>I</i> c		$\frac{2if}{i}$	) <u>( )                                 </u>
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	- <del>IS</del>	15		$\frac{7}{57}$	- 16-
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tal Cove	er2			آ کے می	P
		Total o	of Average	es (X's) 19-3' 3	ļ
ımber E	Equals 50%	x Total o	of Average	es (X's) <u>7.89</u> 3	į.
	_'				
t Comm	unity Trans	ect Sam	nling App	roach and the	Fixed
	iointy viano	out our	piling App		·
d Interv	al Transect	Samplin	g Approac	ch which uses	only on
		•	•		
		ect Sam	pling App	roach which u	IS <b>es</b>
transec	t.			<b>T</b>	Al a le
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		301	A dila	The To	SOL
		(	. dis	+1 callan	ten
		190	walnus	1 Great	
	Intervention of the property o	INTERPORT OF THE PROPERTY OF T	Signature of the state of the s	Total of Average al Cover2 al Cover2 al Cover2 for community Transect Sampling Approach transect. Secies by their cover (or mean cover). Suntil 50% of the total for all species and to that cumulative total (the dominal cover (mean cover) value should be all cover (mean cover) value	US

#### **DATA FORM** COMPREHENSIVE ONSITE DETERMINATION METHOD QUADRAT SAMPLING PROCEDURE 1 (Herbs and Bryophytes)

Project/Site:  Applicant/Owner:				
Fransect # T C Plot # 401	Vegetation Linit	#/Name·		
Note: If a more detailed site descript	ion is necessary, ι	ise the back o	f data form or a field	notebook.
Page Zof Z pecies 1. self heal	Indicator	Quadr	at Percent Areal Cov	er er
pecies	Status	Q1 Q2 Q3	Q4 Q5 Q6 Q7	Q8 X - Rank
Tself heal	FACU-	2		0.5 18
a morienticolt	OBL	$-\overline{z}$	<u> </u>	1.75 12
& royal fern	OBL		65	/L.25_3
4				
5 <del></del>				
6			<del></del>	<del></del>
7				
8				
9				
1,				
2				
3				
4				
5				
l6.				
· · ·	Total Cove	er2		
ominance Threshold Number Equals	50% x Total Cove	er2		
•			Total of Averages (X	·s) 3
Daminanaa Th	rochold Alumbor I		Total of Averages (X	

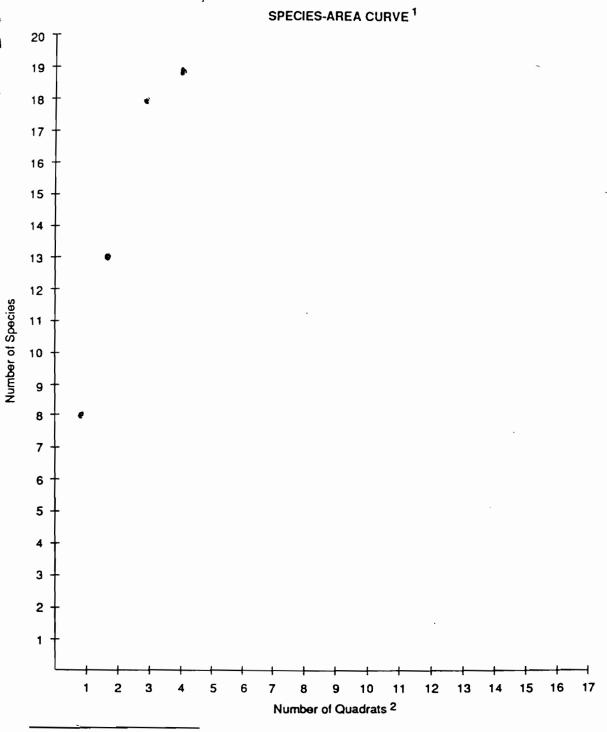
<sup>2</sup> These entries are only applicable to the Fixed Interval Transect Sampling Approach which uses only one quadrat per sampling point along a transect.

3 These entries are only applicable to the Plant Community Transect Sampling Approach which uses

multiple quadrats per sampling point along a transect.

4 To determine the dominants, first rank the species by their cover (or mean cover). Then cumulatively sum the cover (mean cover) of the ranked species until 50% of the total for all species cover (mean cover) is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus additional species having 20% of the total cover (mean cover) value should be considered dominants and marked with an asterisk.

Interval Transect Sampling Approach.



<sup>&</sup>lt;sup>1</sup> Plot the cumulative number of species against the quadrats (e.g., if quadrat #1 has 3 species and quadrat #2 has any, all, or none of those species but has 2 new species, then 5 cumulative species should be plotted against quadrat #2). The number of quadrats sufficient to adequately survey the understory will corresdpond to the point on the curve where it first levels off and remains essentially level.

<sup>&</sup>lt;sup>2</sup>Specify size of sample quadrat: \_\_\_\_\_\_

Field Investigator(s):			Date	9:	
Project/Site:		_ State:	Cou	nty:	
Applicant/Owner:					
Transect # Plot #	Vegetation Unit	#/Name:			
Note: If a more detailed site descri	iption is necessary, ı	use the back	of data form of	or a field noteboo	ok.
			<b></b>		
		Percent		Midpoint <sup>1</sup>	
	Indicator	Areal	Cover <sup>1</sup>	of Cover	-
Shrub Species	Status	Cover	Class	Class	Rank <sup>2</sup>
1 Cottonwood	EAC	<1	1		7-
2. speckled alder	FACULT		<u> </u>	3.0	
3.					
4	•		<u> </u>		
5					
6					
7					
8					
9					
10.		·			
11					
12.					
13					
14					
		Sum	of Midpoints		
Dominance Thres	hold Number Equals				
					·
		Percent		Midpoint <sup>1</sup>	
	Indicator	Areal	Cover <sup>1</sup>	of Cover	a
Woody Vine Species	Status	Cover	_Class	Class	Rank <sup>2</sup>
1					_
2					_
3.					_
4					
5					
6					
7				-	
8			. <u> </u>		
9		-	. <u></u>		_
10			. <del></del>		
11					
12					
13			· <del></del>		
14			·		
<b>s.</b>		Sur	of Midpoints		_
Dominance Three	shold Number Equa	ls 50% x Sur	n of Midpoints	, <del></del>	_
	<u>-</u>				

<sup>1</sup> Cover classes (midpoints): T<1% (none); 1 = 1-5% (3.0); 2 = 6-15% (10.5); 3 = 16-25% (20.5); 4 = 26-50% (38.0); 5 = 51-75% (63.0); 6 = 76-95% (85.5); 7 = 96-100% (98.0).

<sup>&</sup>lt;sup>2</sup> To determine the dominants, first rank the species by their midpoints. Then cumulatively sum the midpoints of the ranked species until 50% of the total for all species midpoints is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus any additional species having 20% of the total midpoint value should be considered dominants and marked with an asterisk.

pling Species N. white color Munerica clim	Indicator Status FACU	Percent Areal Cover	Cover <sup>1</sup> Class	Midpoint <sup>1</sup> of Cover Class	Rank
3					
Dominance Thresi	nold Number Equals	Sum Sum s 50% x Sum	of Midpoints -		
dividual Tree Species  N. White cedar		5.7 5.8 7.2 5.4 5.5	Basal Area (BA) Per Tree (sq ft) 0.165 0.177 0.183 0.283 0.169	BA Per Species (sq ft)	Rank
7. ————————————————————————————————————		5.0	0.136	-1.563	
5 4 5		rea of All Sec	cies Combined	1,563	
Dominance Th	reshold Number Eq				

#### PREVALENCE INDEX WORKSHEET

OCATION DATE		DATE	TEEVALUATOR				
HYDRIC UNIT NAME				TRANSE	CT NO		
		Frequency of Occurrence of Identified Plants with Known Indicator Status					
	Frequency of Occurrence	$F_0$	$F_{fw}$	F <sub>f</sub>	F <sub>fu</sub>	F <sub>u</sub>	
Plant Species	Total for Each Species	Obligate	Facult. Wet.	Facult.	Facult. Upland	Upland	
	·	$\Rightarrow$					
			$\backslash \neq$		· —		
Total occurrence for all plant species	· 			·			
Total occurrences ID'd with known indicator status		/					
E.I. value		1	2	· <u>3</u>	4	5	
Total occurre	ences /						

Total occurrences

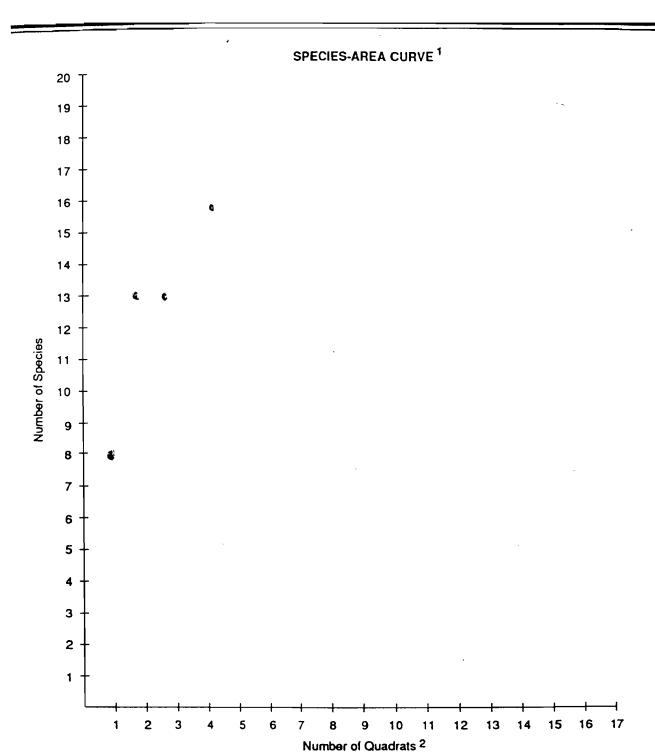
identified with known indicator status

Total occurrence for all plant species = % valid occurrences

$$PI_{i} = \frac{(1F_{o}) + (2F_{fw}) + (3F_{f}) + (4F_{fu}) + (5F_{u})}{(F_{o} + F_{fw} + F_{f} + F_{fu} + F_{u})}$$

### DATA FORM COMPREHENSIVE ONSITE DETERMINATION METHOD QUADRAT SAMPLING PROCEDURE 1

QUAI		Bryophytes)	<b>E</b> .	~
PAR	•	Di yopiiyics/	G	Inclass
	SS16-	Chara 1116	_ Date:/_/	129/03
Project/Site: (SISTEPT S), LIFT S	4-9-0	_ State: _/\_	County: _C	XIIEIIX
	egetation Unit	#/Name:		1
Note: If a more detailed site description is	s necessary,	use the back of dat	a form or a field	d notebook.
	Indicator	Quadrat Pe	ercent Areal Co	over
Species	Status	Q1 Q2 Q3 Q4	Q5 Q6 Q7	Q8 X Rank⁴
1. lakt netti	FAC U	10 15 20 5		<u> 12.5</u>
2. mass fin	FACIL	<del>5</del> 5 — —		<u> </u>
*4. marsh horsetail	FACE	30 35 15 40	<del>-</del>	$-\frac{10}{30}$ —
5. managivant	OBL	20	· — — —	_ 3
*6. spragmen	OBL	100 5 100		<u> </u>
7. hough leaf goldingod	- EBL	15 10 15 35 _		—₩ <u>—</u>
9. Historial coldinged	FAC			<i>− ₽ —</i>
10 Julia Cenar	FACIO	_ = = = = = =		<u> </u>
*11. Carey app		<u> 70 10, 29</u>	<u> </u>	<u>Unis</u>
12. <u>24.1 111.21</u>	FACILIF			- <u>=</u> /
14. marrow cuttail	OBL	$ \frac{\cdot}{25}$		_ [.75]
15. litre set	CIBL	$\frac{-}{-}$ $\frac{-}{-}$ $\frac{76}{-}$		_ 2.5
16. New York aster	PACIET		<del>2</del> — — —	2)
•	Total Cov	er2		
Dominance Threshold Number Equals 50%	% x Total Cov	er2		w2 5
		Total	of Averages (	X's) 1903
Dominance Thresh	old Number I	Equals 50% x Total	of Averages (	X's) <u>f[. 6</u> 9
1 This data form can be used for both the Interval Transect Sampling Approach. 2 These entries are only applicable to the quadrat per sampling point along a transpling and the multiple quadrats per sampling point along a transpling equadrats per sampling point along the transposition of the transpositi	e Fixed Intervinsect. e Plant Commonly long a transective species by	al Transect Samplinunity Transect Samplinunity Transect Samplinunity Transect Samplinunity their cover (or me cover) of the total for mean cover) valuative total or (mean cover) valuative cy surface of the sample	ng Approach with a proach with a process cover (the dominance of the should be constituted to the constituted of the process o	chich uses only one ch which uses en cumulatively sum er (mean cover) is en threshold number) onsidered to downhill and constant dead and
3eft p	adius st	ot w/ I que	advist/a	puarte
· iron stam par	adius of	et w/ 1 que	advat/a	quarter B.9



<sup>1</sup> Plot the cumulative number of species against the quadrats (e.g., if quadrat #1 has 3 species and quadrat #2 has any, all, or none of those species but has 2 new species, then 5 cumulative species should be plotted against quadrat #2). The number of quadrats sufficient to adequately survey the understory will corresdpond to the point on the curve where it first levels off and remains essentially level.

<sup>&</sup>lt;sup>2</sup>Specify size of sample quadrat: \_\_\_\_\_\_

- 40hai	<del></del> -			e:		
Project/Site:		— State: ——	Cou	inty:		
Transect # Plot #	Vegetation Unit	#/Name:				
Note: If a more detailed site des	scription is necessary,	use the back	of data form	or a field noteboo	ok.	
	Percent Midpoint <sup>1</sup>					
	Indicator	Areal	Cover <sup>1</sup>	of Cover		
Shrub Species	Status	Cover	Class	Class	Rank <sup>2</sup>	
1						
2. ————						
3.	•				-	
5.						
6						
7. —						
8. ———						
9						
10						
11						
12. —————						
13					-	
13			of Midpoints			
13						
13				Midpoint <sup>1</sup>		
Dominance Thr		50% x Sum		Midpoint <sup>1</sup>		
Dominance Thr	eshold Number Equals	50% x Sum Percent	of Midpoints		Rank <sup>2</sup>	
Dominance Thr  Woody Vine Species	reshold Number Equals	50% x Sum Percent Areal	of Midpoints  Cover <sup>1</sup>	of Cover	Rank <sup>2</sup>	
Dominance Thr	reshold Number Equals	50% x Sum Percent Areal	of Midpoints  Cover <sup>1</sup>	of Cover	Rank <sup>2</sup>	
Dominance Thr  Woody Vine Species  1	reshold Number Equals	50% x Sum Percent Areal	of Midpoints  Cover <sup>1</sup>	of Cover	Rank <sup>2</sup>	
Dominance Thr  Woody Vine Species  1	reshold Number Equals	50% x Sum Percent Areal	of Midpoints  Cover <sup>1</sup>	of Cover	Rank <sup>2</sup>	
Dominance Thr  Woody Vine Species  1	reshold Number Equals	50% x Sum Percent Areal	of Midpoints  Cover <sup>1</sup>	of Cover	Rank <sup>2</sup>	
Dominance Thr  Woody Vine Species  1	Indicator Status	50% x Sum Percent Areal	of Midpoints  Cover <sup>1</sup>	of Cover	Rank <sup>2</sup>	
Dominance Thr  Woody Vine Species  1	Indicator Status	50% x Sum Percent Areal	of Midpoints  Cover <sup>1</sup>	of Cover	Rank <sup>2</sup>	
Dominance Thr  Woody Vine Species  1	Indicator Status	50% x Sum Percent Areal	of Midpoints  Cover <sup>1</sup>	of Cover	Rank <sup>2</sup>	
Dominance Thr  Woody Vine Species  1	Indicator Status	50% x Sum Percent Areal	of Midpoints  Cover <sup>1</sup>	of Cover	Rank <sup>2</sup>	
Dominance Thr  Woody Vine Species  1	Indicator Status	50% x Sum Percent Areal	of Midpoints  Cover <sup>1</sup>	of Cover	Rank <sup>2</sup>	
Dominance Thr  Woody Vine Species  1	Indicator Status	50% x Sum Percent Areal	of Midpoints  Cover <sup>1</sup>	of Cover	Rank <sup>2</sup>	
Dominance Thr  Woody Vine Species  1	Indicator Status	50% x Sum Percent Areal	of Midpoints  Cover <sup>1</sup>	of Cover	Rank <sup>2</sup>	
Dominance Thr  Woody Vine Species  1	Indicator Status	50% x Sum Percent Areal	of Midpoints  Cover <sup>1</sup>	of Cover	Rank <sup>2</sup>	
Dominance Thr  Woody Vine Species  1	Indicator Status	Percent Areal Cover	of Midpoints  Cover <sup>1</sup>	of Cover	Rank <sup>2</sup>	

<sup>&</sup>lt;sup>1</sup> Cover classes (midpoints): T<1% (none); 1 = 1-5% (3.0); 2 = 6-15% (10.5); 3 = 16-25% (20.5); 4 = 26-50% (38.0); 5 = 51-75% (63.0); 6 = 76-95% (85.5); 7 = 96-100% (98.0).

<sup>&</sup>lt;sup>2</sup> To determine the dominants, first rank the species by their midpoints. Then cumulatively sum the midpoints of the ranked species until 50% of the total for all species midpoints is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus any additional species having 20% of the total midpoint value should be considered dominants and marked with an asterisk.

Field Investigator(s):			Date:		
Project/Site:		_ State:	County	:	
Applicant/Owner:					
Transect # Plot #	Vegetation Unit #/N	ame:			
Note: If a more detailed site de	scription is necessary, u	ise the back o	of data form or a	a field notebook	ί.
Santing Species	Indicator Status	Percent Areal Cover	Cover <sup>1</sup>	Midpoint <sup>1</sup> of Cover Class	Rank <sup>2</sup>
1. A white class	1 PICIV	<u> </u>	Z	10.5	Hank
4 5 6					
7					
	hreshold Number Equal		or miopolitio		
Individual Tree Species	Indicator Status	DBH (inches)	Basal Area (BA) Per Tree (sq ft)	BA Per Species (sq ft)	Rank <sup>2</sup>
1. Nachtt Cedur 2 3 4	FRON	5.1	0.142	0.142	
5. ————————————————————————————————————					
9. ————					-
10					
12					
13					
14				-	
15.					
16					
٠.	Total Basal A se Threshold Number Eq	rea of All Spe uals 50% x T	cies Combined otal Basal Area	0.142 0.071	,

<sup>&</sup>lt;sup>1</sup> Cover classes (midpoints): T<1% (none); 1 = 1-5% (3.0); 2 = 6-15% (10.5); 3 = 16-25% (20.5); 4 = 26-50%

<sup>(38.0);</sup> 5 = 51-75% (63.0); 6 = 76-95% (85.5); 7 = 96-100% (98.0).

To determine the dominants, first rank the species by their midpoints. Then cumulatively sum the midpoints of the ranked species until 50% of the total for all species midpoints is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus any additional species having 20% of the total midpoint value should be considered dominants and marked with an asterisk.

#### PREVALENCE INDEX WORKSHEET

OCATION DATE		EVALUATOR					
HYDRIC UNIT NAME				TRANSE	CT NO		
		Frequency of Occurrence of Identified Plants with Known Indicator Status					
	Frequency of Occurrence	Fo	$F_{fw}$	F <sub>f</sub>	F <sub>fu</sub>	F <sub>u</sub>	
Plant Species	Total for Each Species	Obligate	Facult. Wet.	Facult.	Facult. Upland	Upland	
		$\overline{}$					
		$\Rightarrow$	<del>/</del>				
		<del></del>	<del></del>	<u> </u>			
Total occurrence for all plant species	. ————/						
Total occurrences ID'd with known indicator status							
E.I. value	/	1	2	. 3	4	5	

Total occurrences

identified with known indicator status

Total occurrence for all plant species = % valid occurrences

$$PI_{i} = \frac{(1F_{o}) + (2F_{fw}) + (3F_{f}) + (4F_{fu}) + (5F_{u})}{(F_{o} + F_{fw} + F_{f} + F_{fu} + F_{u})}$$

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# DATA FORM COMPREHENSIVE ONSITE DETERMINATION METHOD QUADRAT SAMPLING PROCEDURE 1 (Herbs and Bryophytes)

Field Investigator(s): TONURSSIG- Project/Site: GATIFFISS, IFI, FEN State: 10	Date: $\frac{9/29/c-3}{}$
Project/Site: 617184/SS 1F1 FEN State: 1	County: CNEITY3
Applicant/Owner: Vegetation Unit #/Name:	
Note: If a more detailed site description is necessary, use the back of the ba	data form or a field notebook.

	Indicator		Qı	Jadra	it Pe	rcen	t Are	al Co	ver		
Species	Status	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Х -	<u>Rank⁴</u>
*1 sensitive form	FACH	20	20	<1	80					30,2	
Analor horritail	FACH	40	20	30	15					76.2	3
3. narrow leaf cuttail	CBL FAC	<u> </u>	<u> य</u>	_	$\leq I$			_		$\equiv I$	_//_
4 march fern	FACULT	5	5	5						3,8	5
*5 Sphagmin 1 to	_CBL	180	(Ca	100	100			_		100	
6. land leaf goldd red	FAC	Ź			,				_	1.3	9.5
7. surch sten golden red	FAC	3			<u> </u>					2.5	7.5
8. rough land goldenry	0136	5	_	<u>15</u>				_	_	5	6
9. soyal form	OBL		7c							17.5	4
10. New England contin	PHCW +	_		10						2.5	7.5
11. swampe golderned	<u> UISL</u>	5				_		_	_	<u>/-3</u>	715
12			_								
13			_			_				_	
14						_	_		—		•
15							_	_	_		
16. ———									_		
			_								

Total Cover \_\_\_2

Dominance Threshold Number Equals 50% x Total Cover \_\_\_2

Total of Averages  $(\bar{X}'s)$  Dominance Threshold Number Equals 50% x Total of Averages  $(\bar{X}'s)$   $(\bar{X}',\bar{Y}')^3$ 

<sup>2</sup> These entries are only applicable to the Fixed Interval Transect Sampling Approach which uses only one quadrat per sampling point along a transect.

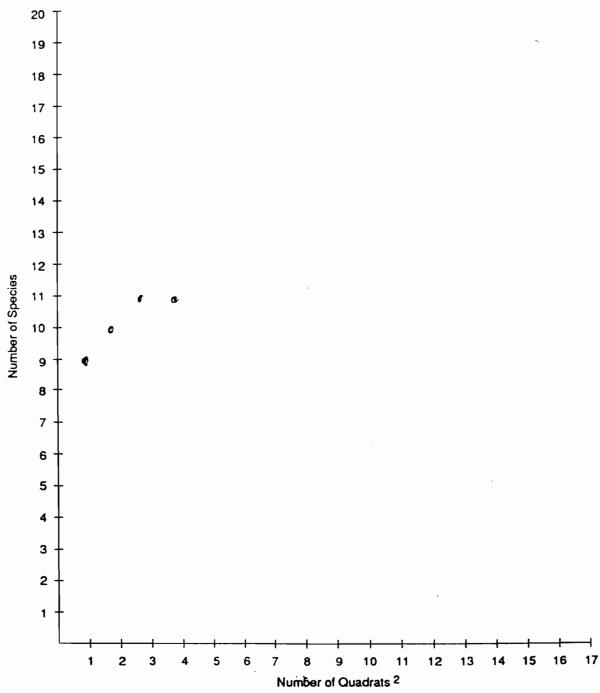
These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.

To determine the dominants, first rank the species by their cover (or mean cover). Then cumulatively sum the cover (mean cover) of the ranked species until 50% of the total for all species cover (mean cover) is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus additional species having 20% of the total cover (mean cover) value should be considered dominants and marked with an asterisk.

30 ft radius flut is a gradual for all species cover (mean cover) and the cover (mean cover) when the cover (mean cover) is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus additional species having 20% of the total cover (mean cover) value should be considered dominants and marked with an asterisk.

<sup>1</sup> This data form can be used for both the Plant Community Transect Sampling Approach and the Fixed Interval Transect Sampling Approach.





<sup>&</sup>lt;sup>1</sup> Plot the cumulative number of species against the quadrats (e.g., if quadrat #1 has 3 species and quadrat #2 has any, all, or none of those species but has 2 new species, then 5 cumulative species should be plotted against quadrat #2). The number of quadrats sufficient to adequately survey the understory will corresdpond to the point on the curve where it first levels off and remains essentially level.

Field Investigator(s):			Dat	e:	
, 10,000		— State: ——	Cou	ınty:	
Applicant/Owner:					
Transect # Plot #	Vegetation Unit	#/Name:		<i></i>	
Note: If a more detailed site desc	ription is necessary, i	use the back	of data form	or a field noteboo	OK.
	la diasta.	Percent Areal	Cover <sup>1</sup>	Midpoint <sup>1</sup> of Cover	
Ol and Onnaine	Indicator				D1.2
Shrub Species	Status	Cover	Class	Class	Rank <sup>2</sup>
1. giver willow 2. aprilied alder	FACW	<u> </u>	<del></del>	1	
2. special wear	PACW +				
3	<del>.</del>				
4					
5					
6. ————————					
7				_	
8. —————					
9					
10					
11. ————					
12					
13					
14					
			of Midpoints		
Dominance Thres	shoid Number Equals	50% x Sum	of Midpoints		
		Percent		Midpoint 1	
	Indicator	Areal	Cover <sup>1</sup>	of Cover	
Woody Vine Species	Status	Cover	Class	Class	Rank <sup>2</sup>
		00101			
1					
2. A/A					
3					
4. ———					
5. ————					
6. ————					
7. ————					
8. ————			<del>.</del>		
9					
10.				•	
11.					
12. ————				<u> </u>	
. 13. ————					
14					
			of Midpoints		_
Dominance Thre	shold Number Equal	s 50% x Sun	n of Midpoints		-
1 Cover elegan (midpoints): Test		2012-61		- 16-25% (20 5):	4 - 26-50

1 Cover classes (midpoints): T<1% (none); 1 = 1-5% (3.0); 2 = 6-15% (10.5); 3 = 16-25% (20.5); 4 = 26-50% (38.0); 5 = 51-75% (63.0); 6 = 76-95% (85.5); 7 = 96-100% (98.0).

<sup>&</sup>lt;sup>2</sup> To determine the dominants, first rank the species by their midpoints. Then cumulatively sum the midpoints of the ranked species until 50% of the total for all species midpoints is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus any additional species having 20% of the total midpoint value should be considered dominants and marked with an asterisk.

Field Investigator(s):			Date:		
Project/Site:					
Applicant/Owner:					
Transect # Plot # Veget					
Note: If a more detailed site description is	necessary, u	ise the back o	of data form or	a field notebool	K.
Cooling Species	Indicator	Percent Areal	Cover <sup>1</sup>	Midpoint <sup>1</sup> of Cover Class	Rank <sup>2</sup>
Sapling Species	Status FAC	Cover	Class	Class	Hank
1. red maple		<u> </u>		10	<u> </u>
2. white coday (Northern)	PACIL	15		10.5	1
3. black william	PACK Y	<u> </u>	_1		615
4	•••				
5					
6		. ———			
7					
8					
9					
10			-4.54:41-4-		
Daminana Thankald M		Sum	of Midpoints		
Dominance Threshold N	umber Equal	s 50% x 5um	of Midpoints -		
Individual Tree Species  1. Nextur White class	Indicator Status	DBH (inches)	Basal Area (BA) Per Tree (sq ft)	BA Per Species (sq ft)	Rank <sup>2</sup>
2		6.3	0,216		
3. ———		4-1	$\theta$		
4.	<del></del>	_5.6_	CIFI		
5. ————		6.0	0.196		
6. —	<del></del>	6.1	0.203		
7. ————		5.4	0.159		
8.	<del></del>	4.4	0.142	1 40	
J		714	-	1133	
11				-	
12					
13					
14					
15					
16		•	• •		
	Total Basal A	rea of All Soc	cies Combined	1.455	
Dominance Threshol					

<sup>&</sup>lt;sup>1</sup> Cover classes (midpoints): T<1% (none); 1 = 1-5% (3.0); 2 = 6-15% (10.5); 3 = 16-25% (20.5); 4 = 26-50%

<sup>(38.0)</sup>; 5 = 51-75% (63.0); 6 = 76-95% (85.5); 7 = 96-100% (98.0).

To determine the dominants, first rank the species by their midpoints. Then cumulatively sum the midpoints of the ranked species until 50% of the total for all species midpoints is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus any additional species having 20% of the total midpoint value should be considered dominants and marked with an asterisk.

#### PREVALENCE INDEX WORKSHEET

LOCATION		DATE		EVALUATO	н		
HYDRIC UNIT NAME		TRANSECT NO					
		Fre		Occurrence o	of Identified P tor Status	Plants	
	Frequency of Occurrence	Fo	F <sub>fw</sub>	F <sub>f</sub>	F <sub>fu</sub>	F <sub>u</sub>	
Plant Species	Total for Each Species	Obligate	Facult. Wet.	Facult.	Facult. Upland	Upland	
		<del></del>	$\neq$				
			$\rightarrow$				
				_/			
Total occurrence for all plant species				_ \			
Total occurrences ID'd with known indicator status	<u> </u>						
E.I. value		1	2	· <u>3</u>	4	5	

Total occurrences

identified with known indicator status

Total occurrence for all plant species = % valid occurrences

$$PI_{i} = \frac{(1F_{o}) + (2F_{fw}) + (3F_{f}) + (4F_{fu}) + (5F_{u})}{(F_{o} + F_{fw} + F_{f} + F_{fu} + F_{u})}$$

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### DATA FORM COMPREHENSIVE ONSITE DETERMINATION METHOD QUADRAT SAMPLING PROCEDURE 1

(Herbs and Bryophytes)

Project/Site: Cell FISS, F.F. State: County: County: Applicant/Owner: Transect # 1) Plot # C2 Vegetation Unit #/Name: Note: If a more detailed site description is necessary, use the back of data form or a field notebook.  Project/Site: Cell FISS Vegetation Unit #/Name: Note: If a more detailed site description is necessary, use the back of data form or a field notebook.  Project/Site: Cell FISS Vegetation or a field notebook.  Project/Site: Note of the project of the	The state of the s	MUTSSIG.		Date: 9/2	770 3
Applicant/Owner:  Transect # 1 Plot # C2	Project/Site: ( ) ,	LFT FIZIV	State: _/v' ½		
Transect #   Plot # © 2   Vegetation Unit #/Name:   Note: If a more detailed site description is necessary, use the back of data form or a field notebook.	Applicant/Owner:				
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.    Part   Species   Status   O1   O2   O3   O4   O5   O6   O7   O8   X   Ran	Transect # 1 Plot # 02	Vegetation Un	it #/Name:		
Species	Note: If a more detailed site de	escription is necessary,	use the back of data	a form or a field no	otebook.
Status					
Status					
Status	Para lof 2	1-4:	Quadrat Pe	rcent Areal Cover	•
1. N. while cedus	Casaisa				_
2. nording leady's traver FACU 5 3. marsh fern FACU 15 20 20 13.15 3 4. marsh thorsetail FACU 5 35 25 16.25 7 5. fabri mettle FACU 7 10 10 5 5 6. spliagrown 186 180 180 180 180 180 180 180 180 180 180	Species City and June			<u> </u>	
3. marsh form 4. marsh horsetail FACU! IS 20 20 13.15 3 4. marsh horsetail FACU! 5 35 25 16.25 7 5. fabri mettle FACU! 70 10 5 5 6. spliagrim ABL 18C 100 10C 19C 10C 19C 19C 19C 19C 19C 19C 19C 19C 19C 19	1. N. wolle Celler		- 4		- <del>317</del> 3 <u>- 38</u>
4. march thorselail FRCW 5 35 25 1605 7  5. fabri mettle FRCW 10 10 5 5  6. aptragrim 08L 16C 100 10C 16C 16C 1  7. red maple FRCW 1 21 21 21  8. self-feet FRCW 2 21 21 21  10. remailtail scindars FRCW 2 21 21 21  11. march marcyld 013L 5 5 10 5  12. red-stim glaintain FRCW 10 5 5  13. ideal stim flaint 180 20 10 5 5  14. Carey sp. 10 215 10  15. carely sp. 10 10 10  Total Cover 2  Dominance Threshold Number Equals 50% x Total Cover 2  Total of Averages (X's) 3	2. moraing eacings to		- <del>2</del> <del>2</del> - <del>1</del>		- 112 19
5. fabri mettle   FACINIT   10 10   5   5    6. sphiagrism   BBL   FC   100   100   100   100   100    7. sed maple   FAC                        8. self   Fac	3. march the	-		, — <del>—</del> — —	
6. Aptragrim   OBL   100	- Pelli mette				
7. Seed marph.  8. Seel-Red.  9. New England aster.  10. New England aster.  11. marri marigida OBL 5510 551  12. red-Atim plantion FACU 10 55  13. inverting the U 10 555 51  14. Carey up.  15. weeky see day.  16. marrow crittarl  Total Cover _2  Dominance Threshold Number Equals 50% x Total Cover _2  Total of Averages (X's)3	5. pare mercel				<u>در ک</u>
8. Self-Rat   FIRUT   -1   -1   -1   -1   -1   -1   -1   -	6. sparagning			<del></del>	
9. New England aster. FACU t = 1 = 1  10. Neumalitain suincleur	7.3. 11. 91			· — — — —	
10. Neimalitail Ninder CTSL = 1  11. Marri marifed OBL 5510 55  12. Ned-Alim plantain FACU 1055 5 5.  13. Next transferry 5 5 10 25.  14. Carin up 22.5 10  15. Next y 29.	0. 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7				- <del></del>
11. marsh maright 013L 5510 55  12. Niet-stim gleintium 7AEU 1055 5 510 55.  13. isod straw (4272y 5 5 10 55.  14. Carey up 5 10 5 5 10 5.  15. isod straw (4272y 5 10 5 5 10 5 5 10 5 5 10 5 5 10 5 5 10 5 5 10 5	10 sundilland as		r — <u>-1 -1</u> —		- <del>//</del>
12. Ned-stim plaints   FAE U   10 5 5   5   5   5   5   5   5   5   5	10 Martine Ball Mark		<del>'</del> = 7		5 5.5
13. (1502) strain (1502)				. — — — —	- 5 - 5x
Total Cover2  Total Cover2  Total of Averages (X's)3  Total of Averages (X's)3			- <del></del>		13 14
Total Cover2  Total Cover2  Total Of Averages (X's)3			-		
Total Cover2  Dominance Threshold Number Equals 50% x Total Cover2  Total of Averages (X's)3	14 Caren un		<del>2</del>		
Total Cover2  Dominance Threshold Number Equals 50% x Total Cover2  Total of Averages (X̄'s)3	14. Caren up.		$-\frac{5}{10}$		
Dominance Threshold Number Equals 50% x Total Cover2  Total of Averages (X's)3	14. Carey up.	- OBL			2.5 .10
Total of Averages (X's)3	14. Carey up.	ARL OBL	= = = = = = = = = = = = = = = = = = = =		2.5 .10
· · · · · · · · · · · · · · · · · · ·	14. Carey up. 15. coccly so des	ARU ORL	<u> </u>		2.5 .10
· · · · · · · · · · · · · · · · · · ·	14. Carey up. 15. coccly so des	ARU ORL	<u> </u>		2.5 .10
	14. Carey up. 15. coccly so des	ARU ORL	ver2 ver2	of Averages (X's)	2.5 10 1.3 14 <1
	14. Carey ap. 15. Carely se day. 16. Marrow Cuittan	Total Co	ver2 ver2 Total		2.5 10 1.3 14 <1
	14. Chris ass. 15. Chris as Aug. 16. Marzon Crittar.  Dominance Threshold Number &  Dominance  This data form can be used	Total Configuration of the Plant Comfor both the Plant Com	ver2 ver2 Total Equals 50% x Total	of Averages (X's)	2.5 10 1.3 14 41 3 -3
Interval Transect Sampling Approach.	14. Chris ass. 15. Chris as Aug. 16. Marrow Crittar.  Dominance Threshold Number &  Dominance  This data form can be used Interval Transect Sampling	Total Confidence Threshold Number for both the Plant Com	ver2 ver2 Total Equals 50% x Total munity Transect Sar	of Averages (X's)	2.5 10 1.3 14 4 4 33 and the Fixed
Interval Transect Sampling Approach.  2 These entries are only applicable to the Fixed Interval Transect Sampling Approach which uses only	14. Christ ass. 15. Christ as Aug. 16. Marrow Crittar.  Dominance Threshold Number &  Dominance This data form can be used Interval Transect Sampling A  These entries are only applied.	Total Confidence Threshold Number for both the Plant Compaphold Number Compaphold Nu	ver2 ver2 Total Equals 50% x Total munity Transect Sar	of Averages (X's)	2.5 10 1.3 14 41 33 and the Fixed
Interval Transect Sampling Approach.  2 These entries are only applicable to the Fixed Interval Transect Sampling Approach which uses only quadrat per sampling point along a transect.	14. Christ ass. 15. Christ as Aug. 16. Marrow Crittar.  Dominance Threshold Number &  Dominance Threshold Number &  This data form can be used Interval Transect Sampling Aug.  These entries are only applied quadrat per sampling point and aug.	Total Connect Threshold Number for both the Plant Compapholach. Cable to the Fixed Interplating a transect.	ver2 ver2 Total Equals 50% x Total munity Transect Sampli	of Averages $(\overline{X}$ 's)   npling Approach a  ng Approach whic	3 3 and the Fixed
Interval Transect Sampling Approach.  These entries are only applicable to the Fixed Interval Transect Sampling Approach which uses only quadrat per sampling point along a transect.  These entries are only applicable to the Plant Community Transect Sampling Approach which uses	14. Christ ass. 15. Christ as des. 16. Marrier Critter.  Dominance Threshold Number &  Dominance Threshold Number &  This data form can be used Interval Transect Sampling &  These entries are only applied quadrat per sampling point a  These entries are only applied.	Total Confidence Threshold Number for both the Plant Compapproach. cable to the Fixed Interdation a transect. cable to the Plant Compable to the Plant Compapproach.	ver2 ver2 Total Equals 50% x Total munity Transect Sar val Transect Sar	of Averages $(\overline{X}$ 's)   npling Approach a  ng Approach whic	3 3 and the Fixed
Interval Transect Sampling Approach.  These entries are only applicable to the Fixed Interval Transect Sampling Approach which uses only quadrat per sampling point along a transect.  These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.	14. Christ ass. 15. Christ as day. 16. Marrow Critter.  Dominare Threshold Number & Dominare  This data form can be used Interval Transect Sampling & These entries are only applied quadrat per sampling point a These entries are only applied multiple quadrats per sampling to the sampling of the sampling point a these entries are only applied to the sampling quadrats per sampling to the sampling quadrats per sampling the sampling quadrats per sampling quadrats per sampling the sampling quadrats per sampling quadrats	Total Confidence Threshold Number for both the Plant Company Approach. cable to the Fixed Interpolation a transect. cable to the Plant Coming point along a transecting point a transecting point a transecting point a transecting point a transecting poin	ver2 ver2 Total Equals 50% x Total munity Transect Sar val Transect Sampli munity Transect Sar	of Averages (X's)  npling Approach a  Approach whice  npling Approach v	3 3 and the Fixed h uses only or
<ul> <li>Interval Transect Sampling Approach.</li> <li>These entries are only applicable to the Fixed Interval Transect Sampling Approach which uses only quadrat per sampling point along a transect.</li> <li>These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.</li> <li>To determine the dominants, first rank the species by their cover (or mean cover). Then cumulatively</li> </ul>	14. Carries age.  15. Carries are cuitaria.  16. Marries are only applied quadrat per sampling point a 3 These entries are only applied multiple quadrats per samplified and a determine the dominants.	Total Confidence Threshold Number for both the Plant Comfidence Threshold Number for both the Plant Comfidence Threshold Number for both the Plant Comfidence to the Plant Comfidence to the Plant Comfing point along a transet, first rank the species	ver2 ver2 Total Equals 50% x Total munity Transect Sar val Transect Sampli munity Transect Sar ect. by their cover (or me	of Averages (X's)  npling Approach a  ng Approach which  npling Approach v  ean cover). Then o	3 3 and the Fixed h uses only or which uses
<ul> <li>Interval Transect Sampling Approach.</li> <li>These entries are only applicable to the Fixed Interval Transect Sampling Approach which uses only quadrat per sampling point along a transect.</li> <li>These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.</li> <li>To determine the dominants, first rank the species by their cover (or mean cover). Then cumulatively the cover (mean cover) of the ranked species until 50% of the total for all species cover (mean cover)</li> </ul>	15. Charles age.  16. Man Transcript Action.  Dominance Threshold Number & Dominance Threshold Number & Dominance These entries are only applied quadrat per sampling point a 3 These entries are only applied multiple quadrats per samplify and the cover (mean cover) of the sampling the cover (mean cover) of the sampling the cover (mean cover)	Total Confidence Threshold Number for both the Plant Comfidence Threshold Number for both the Plant Comfidence Threshold Number for both the Plant Comfidence to the Plant Comfing point along a transet, first rank the species for ranked species until	ver2 ver2 Total Equals 50% x Total munity Transect Sar val Transect Sampli munity Transect Sar est. by their cover (or me	of Averages (X's)  npling Approach which  npling Approach which  npling Approach which  ean cover). Then coall species cover (	3 3 and the Fixed h uses only or which uses cumulatively so mean cover) is
Interval Transect Sampling Approach.  These entries are only applicable to the Fixed Interval Transect Sampling Approach which uses only quadrat per sampling point along a transect.  These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.  To determine the dominants, first rank the species by their cover (or mean cover). Then cumulatively the cover (mean cover) of the ranked species until 50% of the total for all species cover (mean cover) immediately exceeded. All species contributing to that cumulative total (the dominance threshold num	15. Crackly As Again 15. Crackly As Again 16. Man Trans Crickly As Again 16. Dominar Crickly As Again 1	Total Confidence Threshold Number for both the Plant Comfidence Threshold Number for both the Plant Comfidence Threshold Number for both the Plant Comfidence to the Plant Comfing point along a transet, first rank the species in ranked species until pecies contributing to the plant confidence of the plant Comfinence o	ver2 ver2 ver2 Total Equals 50% x Total munity Transect Sar val Transect Sampli munity Transect Sar ect. by their cover (or me 50% of the total for a that cumulative total	of Averages (X's)  npling Approach which  npling Approach which  ean cover). Then could be a cover (  (the dominance the	3 3 and the Fixed h uses only or which uses cumulatively some an cover) is preshold numb
Interval Transect Sampling Approach.  These entries are only applicable to the Fixed Interval Transect Sampling Approach which uses only quadrat per sampling point along a transect.  These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.  To determine the dominants, first rank the species by their cover (or mean cover). Then cumulatively the cover (mean cover) of the ranked species until 50% of the total for all species cover (mean cover) immediately exceeded. All species contributing to that cumulative total (the dominance threshold num	15. Creckly Ab Again 16. Man Tarne Crickly Dominance Threshold Number &  Dominance Threshold Number &  This data form can be used Interval Transect Sampling of a quadrat per sampling point a 3 These entries are only applied multiple quadrats per samplify and the cover (mean cover) of the immediately exceeded. All seplus additional species having	Total Confidence Threshold Number for both the Plant Comfidence Threshold Number for both the Plant Comfidence to the Fixed Interpretation a transect. Cable to the Plant Comfing point along a transect, first rank the species ranked species until pecies contributing to the 20% of the total coverage.	ver2 ver2 ver2 Total Equals 50% x Total munity Transect Sar val Transect Sampli munity Transect Sar ect. by their cover (or me 50% of the total for a that cumulative total	of Averages (X's)  Inpling Approach which  Inpline Approach which  Inplicate Approach	3 3 and the Fixed h uses only or which uses cumulatively some an cover) is preshold numb
Interval Transect Sampling Approach.  These entries are only applicable to the Fixed Interval Transect Sampling Approach which uses only quadrat per sampling point along a transect.  These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.  To determine the dominants, first rank the species by their cover (or mean cover). Then cumulatively the cover (mean cover) of the ranked species until 50% of the total for all species cover (mean cover) immediately exceeded. All species contributing to that cumulative total (the dominance threshold num	14. Christ age. 15. Charles all All Splus additional species having	Total Confidence Threshold Number for both the Plant Comfidence Threshold Number for both the Plant Comfidence to the Fixed Interpretation a transect. Cable to the Plant Comfing point along a transect, first rank the species ranked species until pecies contributing to the 20% of the total coverage.	ver2 ver2 ver2 Total Equals 50% x Total munity Transect Sar val Transect Sampli munity Transect Sar ect. by their cover (or me 50% of the total for a that cumulative total	of Averages (X's)  Inpling Approach which  Inpline Approach which  Inplicate Approach	3 3 and the Fixed h uses only or which uses cumulatively some an cover) is preshold numb
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<ul> <li>Interval Transect Sampling Approach.</li> <li>These entries are only applicable to the Fixed Interval Transect Sampling Approach which uses only quadrat per sampling point along a transect.</li> <li>These entries are only applicable to the Plant Community Transect Sampling Approach which uses multiple quadrats per sampling point along a transect.</li> <li>To determine the dominants, first rank the species by their cover (or mean cover). Then cumulatively the cover (mean cover) of the ranked species until 50% of the total for all species cover (mean cover) immediately exceeded. All species contributing to that cumulative total (the dominance threshold numplus additional species having 20% of the total cover (mean cover) value should be considered</li> </ul>	15. Crackly Ab Again 16. Man Tares Crickly  Dominance Threshold Number & Sampling Number & Dominance Threshold Number & Sampling	Total Confidence Threshold Number for both the Plant Comfidence Threshold Number for both the Plant Comfidence to the Fixed Interpretation a transect. Cable to the Plant Comfing point along a transect, first rank the species ranked species until pecies contributing to the 20% of the total coverage.	ver2 ver2 ver2 Total Equals 50% x Total munity Transect Sar val Transect Sampli munity Transect Sar ect. by their cover (or me 50% of the total for a that cumulative total	of Averages (X's)  Inpling Approach which  Inpline Approach which  Inplicate Approach	3 3 and the Fixed h uses only or which uses cumulatively some an cover) is preshold numb

#### **DATA FORM** COMPREHENSIVE ONSITE DETERMINATION METHOD QUADRAT SAMPLING PROCEDURE 1 (Herbs and Bryophytes)

Field Investigator(s):			Date:	
Project/Site:		_ State:	County:	
Applicant/Owner:				
Transect # Plot # Ve Note: If a more detailed site description is	getation Unit	#/Name:		
Note: If a more detailed site description is	s necessary, i	use the back of	data form or a	field notebook.
. 1 .				
e wfr				•
-	Indicator	Quadra	at Percent Areal	Cover
Species /	Status	Q1 Q2 Q3	Q4 Q5 Q6 (	Q7 Q8 X Rank <sup>4</sup>
In rough-stem wolders and	FAC		la	
87. Doe Prope weed	FACW			
193 Fine sit	OBL		<u>20</u> :	13 14
or rough-leap yolden od	OBL		10	_ 25 10
218. Gennicles aster	FACU		.5	<u>1.314</u>
6.				
7			<del></del>	
8				
9				
10				
12.				
13.				
14				
15	·	•		
16		·		
	Total Cov	er 2		
Dominance Threshold Number Equals 50%				ru d
		· —	Tatal of Avacas	es (X's) 168, 95
Dominance Threat	and Microbian	! 	Total of Average	S (∧ S) <u> </u>
Dominance Thresh	ioia Number I	Equais 50% X I	otal of Average	S (A S) <u>07 + 10</u> 5

<sup>1</sup> This data form can be used for both the Plant Community Transect Sampling Approach and the Fixed Interval Transect Sampling Approach.

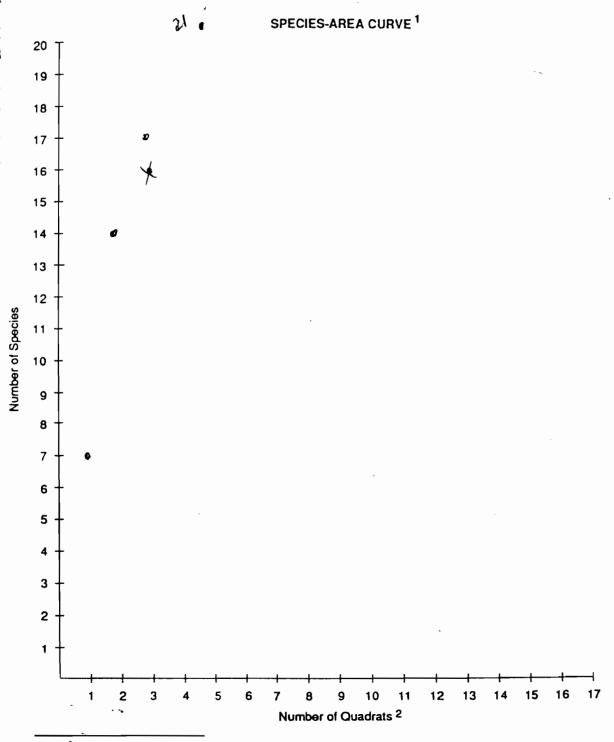
<sup>2</sup> These entries are only applicable to the Fixed Interval Transect Sampling Approach which uses only one

quadrat per sampling point along a transect.

<sup>3</sup> These entries are only applicable to the Plant Community Transect Sampling Approach which uses

multiple quadrats per sampling point along a transect.

<sup>4</sup> To determine the dominants, first rank the species by their cover (or mean cover). Then cumulatively sum the cover (mean cover) of the ranked species until 50% of the total for all species cover (mean cover) is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus additional species having 20% of the total cover (mean cover) value should be considered dominants and marked with an asterisk.



Plot the cumulative number of species against the quadrats (e.g., if quadrat #1 has 3 species and quadrat #2 has any, all, or none of those species but has 2 new species, then 5 cumulative species should be plotted against quadrat #2). The number of quadrats sufficient to adequately survey the understory will corresdpond to the point on the curve where it first levels off and remains essentially level.

<sup>&</sup>lt;sup>2</sup>Specify size of sample quadrat: \_\_\_\_\_\_

## DATA FORM COMPREHENSIVE ONSITE DETERMINATION METHOD QUADRAT SAMPLING PROCEDURE (Shrubs and Woody Vines)

Field Investigator(s):			Date		
Project/Site:		– State:	Cour	nty:	
Applicant/Owner:					
Transect # Plot # Ve	getation Unit	#/Name:		6-1-1	1.
Note: If a more detailed site description is	s necessary, u	ise the back	of data form o	r a tield noteboo	K.
Shrub Species  1. Sparfiled alder 2. Lilach willow 3. ————————————————————————————————————	Indicator Status FACW+	Percent Areal Cover	Cover <sup>1</sup> Class	Midpoint <sup>1</sup> of Cover Class	Rank <sup>2</sup>
7	<del></del>				
8. ——————————					
10					
11					
12. —					
13					
Dominance Threshold No	umber Equals		of Midpoints of Midpoints		
Woody Vine Species	Indicator Status	Percent Areal Cover	Cover <sup>1</sup> Class	Midpoint <sup>1</sup> of Cover Class	Rank <sup>2</sup>
2.				<del></del>	
3.					
5					
6					
7 8					
9					
10					_
11.					
12 13					
14.					
<b>~</b> .		Sum	of Midpoints		_
Dominance Threshold N		s 50% x Sun			- - <i></i> -

<sup>&</sup>lt;sup>1</sup> Cover classes (midpoints): T<1% (none); 1=1-5% (3.0); 2=6-15% (10.5); 3=16-25% (20.5); 4=26-50% (38.0); 5=51-75% (63.0); 6=76-95% (85.5); 7=96-100% (98.0).

<sup>&</sup>lt;sup>2</sup> To determine the dominants, first rank the species by their midpoints. Then cumulatively sum the midpoints of the ranked species until 50% of the total for all species midpoints is immediately exceeded. All species contributing to that cumulative total (the dominance threshold number) plus any additional species having 20% of the total midpoint value should be considered dominants and marked with an asterisk.

# DATA FORM COMPREHENSIVE ONSITE DETERMINATION METHOD QUADRAT SAMPLING PROCEDURE (Saplings & Trees)

Note: If a more detailed site description	on is necessary, t	se the back	of data form or	a field noteboo	k. 
Sapling Species	Indicator Status	Percent Areal Cover	Cover <sup>1</sup> Class	Midpoint <sup>1</sup> of Cover Class	Rank
1. N. white cedar 2			<u>3</u>	20.5	
7			of Midpoints		
Dominance Thresho	ld Number Equal: 	s 50% x Sum	of Midpoints -		
Individual Tree Species	Indicator Status	DBH (inches)	Basal Area (BA) Per Tree (sq ft)	BA Per Species (sq ft)	Rank
2					
7					
11 12 13 14					
15 16	Total Basal Ar	on of All Soc	cies Combined		
Dominance Three	hold Number Eq				

#### PREVALENCE INDEX WORKSHEET

LOCATION		JAIE		EVALUATO	H	
HYDRIC UNIT NAME			_	TRANSE	CT NO	
		Fre	quency of ( with K	Occurrence of nown Indica	of Identified P tor Status	lants
	Frequency of Occurrence	Fo	F <sub>fw</sub>	Ff	F <sub>fu</sub>	F <sub>u</sub> '
Diant Species	Total for Each Species	Obligate	Facult. Wet.	Facult.	Facult. Upland	Upland
Plant Species	Lacit Species	Obligate	***************************************	racuit.	Opianu	Opiand
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		$\overline{}$		<u> </u>		
			\			
Total occurrence for all plant species			\			
Total occurrences ID'd with known indicator status				\		
E.I. value	/	1	2	· <u>3</u>	4	5

Total occurrences

identified with known indicator status

Total occurrence for all plant species = % valid occurrences

$$PI_{i} = \frac{(1F_{o}) + (2F_{fw}) + (3F_{f}) + (4F_{fu}) + (5F_{u})}{(F_{o} + F_{fw} + F_{f} + F_{fu} + F_{u})}$$

Appendix C

Analytical Results

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Project No.: 30002.04 Table C-1, Page 1 of 2 February 2004

TABLE C-1 SUMMARY OF SURFACE WATER ANALYTICAL RESULTS FOR SAMPLES COLLECTED AT GROUNDWATER SEEPS WITHIN THE FEN, NOVEMBER 2003

Parameter	Units	Minimum	Maximum	Mean	N
		TE INDICA			
Alkalinity (as CaCO3)	μg/L	240,000	447,000	388,750	4
Ammonia-Nitrogen	μg/L	1,300	2,900	2,200	4
BOD 5	μg/L	6,300	17,000	11,100	3
Bromide	μg/L	240	300	270	2
Chemical Oxygen Demand	μg/L	32,200	518,000	161,500	4
Chloride, Total	μg/L	4,300	12,900	7,850	4
Color	PCU	50	10,000	3,087.5	4
Nitrate-nitrogen	μg/L	210	790	380	4
Nitrite nitrogen	μg/L	16	41	27.5	4
Nitrite-nitrate nitrogen	μg/L	230	820	407.5	4
Sulfate, Total	μg/L	114,000	278,000	166,250	4
Total Dissolved Solids	μg/L	586,000	686,000	645,500	4
Total Hardness (as CaCO3)	μg/L	600,000	1,000,000	712,500	4
Total Kjeldahl Nitrogen	μg/L	3,200	6,700	4,100	4
Total Organic Carbon	μg/L	5,700	6,900	6,225	4
Turbidity	NTU	1	11.8	6.1	4
	M	IETALS			
Aluminum	μg/L	84.2	14,100	3,622.5	4
Arsenic	μg/L	4.6	96.8	39.7	4
Barium	μg/L	140	269	210	4
Beryllium	μg/L	0.77	0.77	0.77	1
Calcium	μg/L	178,000	235,000	214,000	4
Chromium	μg/L	2.4	18.6	10.5	2
Cobalt	μg/L	3.6	43.4	19.5	4
Copper	μg/L	2.4	58.1	16.6	4
Iron	μg/L	1,910	120,000	56,302.5	4
Lead	μg/L	96	96	96	1
Magnesium	μg/L	9,620	10,900	10,280	4
Manganese	μg/L	500	5,700	1,841	4
Mercury	μg/L	0.29	0.29	0.29	1
Nickel	μg/L	20.7	57.1	36.03	3
Potassium	μg/L	6,400	10,500	9,202.5	4
Selenium	μg/L	3.6	10.5	6.6	3
Silver	μg/L	2.1	2.1	2.1	1
Sodium	μg/L	3,920	19,700	10,577.5	4
Tin	μg/L	4.7	10.7	7.7	2
Vanadium	μg/L	34.2	34.2	34.2	1
Zinc	μg/L	14.5	281	88.3	4
	HEI	RBICIDES			
2,4,5-TP (Silvex)	μg/L	0.17	0.17	0.17	1
DCAA	μg/L	9.4	10	9.7	4

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Parameter	Units	Minimum	Maximum	Mean	N		
PESTICIDES/POLYCHLORINATED BIPHENYLS							
Decachlorobiphenyl	μg/L	0.19	0.31	0.255	4		
Tetrachloro-m-xylene	μg/L	0.31	0.34	0.325	4		
SEMIVOI	ATILE	ORGANIC (	COMPOUND	os			
2,4,6-Tribromophenol	μg/L	55	61	58	4		
2-Fluorobiphenyl	μg/L	49	56	52.5	4		
2-Fluorophenol	μg/L	42	51	47.5	4		
Diethylphthalate	μg/L	0.5	0.5	0.5	1		
VOLATILE ORGANIC COMPOUNDS							
1,2,4-Trichlorobenzene	μg/L	1.8	1.8	1.8	1		
1,2,4-Trimethylbenzene	μg/L	1	1	1	1		
1,4-Dichlorobenzene	μg/L	1.9	5.6	3.1	4		
Acetone	μg/L	2.3	2.9	2.6	4		
Bromofluorobenzene	μg/L	48	53	51.3	4		
Chlorobenzene	μg/L	2.8	2.8	2.8	1		
Isobutyl Alcohol	μg/L	42	42	42	1		

### FORMER GRIFFISS AIR FORCE BASE FEN SAMPLING ANALYTICAL RESULTS OCTOBER 2003

CAS Number	Analyte	Value	Qualifier	Units
	HE	RBICIDES		
19719-28-9	DCAA	9.2		ug/L
_	LEACHA	TE INDICATOR		
N/A	Alkalinity (as CaCO3)	416000		ug/L
N/A	Ammonia-Nitrogen	2600		ug/L
N/A	Chemical Oxygen Demand	44800		ug/L
N/A	Chloride, Total	4500		ug/L
N/A	Sulfate, Total	131000		ug/L
N/A	Total Dissolved Solids	636000		ug/L
N/A	Total Hardness as CaCO3	700000		ug/L
N/A	Total Kjeldahl Nitrogen	3200		ug/L
N/A	Total Organic Carbon	6100		ug/L_
N/A	Turbidity (NTU)	10.6		NTU
N/A	Nitrite-nitrate nitrogen	190		ug/L_
N/A	Nitrate-nitrogen	180		ug/L_
N/A	Nitrite nitrogen	13	J	ug/L
N/A	Color	1000		PCU
		METALS		
7429-90-5	Aluminum	89.4	В	ug/L
7440-38-2	Arsenic	80		ug/L
7440-39-3	Barium	248		ug/L
7440-70-2	Calcium	206000		ug/L
7440-48-4	Cobalt	10.7	В	ug/L
7440-50-8	Copper	. 4	В	ug/L
7439-89-6	Iron	72900		ug/L
7439-95-4	Magnesium	9910		ug/L
7439-96-5	Manganese	547		ug/L
7440-02-0	Nickel	16.3	В	ug/L
7440-09-7	Potassium	10200		ug/L
7782-49-2	Selenium	5.6		ug/L
7440-23-5	Sodium	10100		ug/L
7440-31-5	Tin	5.2	В	ug/L
7440-66-6	Zinc	14.4	В	ug/L_
	PE	STICIDES		
2051-24-3	Decachlorobiphenyl	0.31		ug/L
877-09-8	Tetrachloro-m-xylene	0.37		ug/L
		svocs		
118-79-6	2,4,6-Tribromophenol	52		ug/L
321-60-8	2-Fluorobiphenyl	47		ug/L
367-12-4	2-Fluorophenol	42		ug/L
84-66-2	Diethylphthalate	0.55	J	ug/L
		vocs		
106-46-7	1,4-Dichlorobenzene	4.9	J	ug/L
67-64-1	Acetone	2.1	J J	ug/L
460-00-4	Bromofluorobenzene	52	<del> </del>	ug/L

CAS Number	Analyte	Value	Qualifier	Units
	HE	RBICIDES		
9719-28-9	DCAA	9.4		ug/L
	LEACHA	TE INDICATOR		
N/A	Alkalinity (as CaCO3)	432000		ug/L
N/A	Ammonia-Nitrogen	2900		ug/L
N/A	Chemical Oxygen Demand	53100		ug/L
N/A	Chloride, Total	5100		ug/L
N/A	Sulfate, Total	146000		ug/L
N/A	Total Dissolved Solids	686000		ug/L
N/A	Total Hardness as CaCO3	620000		ug/L
N/A	Total Kjeldahl Nitrogen	3300		ug/L
N/A	Total Organic Carbon	5700		ug/L
N/A	Turbidity (NTU)	5.9		NTU
N/A	BOD 5	17000		ug/L
N/A	Nitrite-nitrate nitrogen	230		ug/L
N/A	Nitrate-nitrogen	210		ug/L
N/A	Nitrite nitrogen	16	J	ug/L
N/A	Color	10000		PCU
	ı	METALS		
7429-90-5	Aluminum	84.2	В	ug/L
7440-38-2	Arsenic	96.8		ug/L
7440-39-3	Barium	269		ug/L
7440-70-2	Calcium	214000		ug/L
7440-48-4	Cobalt	14.3	В	ug/L
7440-50-8	Copper	2.4	В	ug/L
7439-89-6	Iron	86800		ug/L
7439-95-4	Magnesium	10900		ug/L
7439-96-5	Manganese	576		ug/L
7440-02-0	Nickel	20,7	В	ug/L
7440-09-7	Potassium	10500		ug/L
7782-49-2	Selenium	5.7		ug/L
7440-23-5	Sodium	10300		ug/L
7440-31-5	Tin	4.7	В	ug/L
7440-66-6	Zinc	14.5	В	ug/L
	PE	STICIDES		
2051-24-3	Decachlorobiphenyl	0.19		ug/L
877-09-8	Tetrachloro-m-xylene	0.33		ug/L
		svocs		_
118-79-6	2,4,6-Tribromophenol	61		ug/L
321-60-8	2-Fluorobiphenyl	56		ug/L
367-12-4	2-Fluorophenol	51		ug/L
84-66-2	Diethylphthalate	0.5	J	ug/L
		vocs		
106-46-7	1,4-Dichlorobenzene	5.6		ug/L
67-64-1	Acetone	2.9	j	ug/L
460-00-4	Bromofluorobenzene	53		ug/L

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CAS Number	Analyte	Value	Qualifier	Units
	HE	RBICIDES		
19719-28-9	DCAA	9.6		ug/L
_		TE INDICATOR		
N/A	Alkalinity (as CaCO3)	240000		ug/L
N/A	Ammonia-Nitrogen	1300		ug/L
N/A	Chemical Oxygen Demand	518000		ug/L
N/A	Chloride, Total	9100		ug/L
N/A	Sulfate, Total	278000		ug/L
N/A	Total Dissolved Solids	640000		ug/L
N/A	Total Hardness as CaCO3	630000		ug/L
N/A	Total Kjeldahl Nitrogen	6700		ug/L
N/A	Total Organic Carbon	6900		ug/L
N/A	Turbidity (NTU)	11.8		NTU
N/A	BOD 5	6300		ug/L
N/A N/A	Nitrite-nitrate nitrogen Nitrate-nitrogen	260 240		ug/L
N/A_	Nitrite nitrogen	240	J	ug/L
N/A	Color	1300	<u> </u>	ug/L PCU
1970				
		METALS		
7429-90-5	Aluminum	14100		ug/L
7440-38-2	Arsenic	43.1_		ug/L_
7440-39-3	Barium	223		ug/L_
7440-41-7	Beryllium	0,77	В	ug/L
7440-70-2	Calcium	229000		ug/L
7440-47-3	Chrornium	18.6		ug/L
7440-48-4	Cobalt	43.4	В	ug/L
7440-50-8	Copper	58.1		ug/L
7439-89-6 7439-92-1	Iron Lead	120000		ug/L
7439-95-4	Magnesium	10300	-	ug/L ug/L
7439-96-5	Manganese	5700		ug/L
7439-97-6	Mercury	0.29		ug/L
7440-02-0	Nickel	30.3	В	ug/L
7440-09-7	Potassium	6400	_	ug/L
7782-49-2	Selenium	10.5		ug/L
7440-22-4	Silver	2.1	В	ug/L
7440-23-5	Sodium	3920	В	ug/L
440-31-5	Tin	10.7	В	ug/L
440-62-2	Vanadium	34.2	В	ug/L
7440-66-6	Zinc	281		ug/L
	PE	STICIDES		
2051-24-3	Decachlorobiphenyl	0.24		ug/L
877-09-8	Tetrachloro-m-xylene	0.31		ug/L
		svocs		
118-79-6	2,4,6-Tribromophenol	55		ug/L
321-60-8	2-Fluorobiphenyl	55		ug/L_
367-12-4	2-Fluorophenol	50		ug/L
		vocs		
106-46-7	1,4-Dichlorobenzene	1.9	J	ug/L
67-64-1	Acetone	2.9	J	ug/L

CAS	Analyte	Value	Qualifier	Units
lumber	,			
	HE	RBICIDES		
9719-28-9	DCAA	10		ug/L
	LEACHA	TE INDICATOR	<u> </u>	
N/A	Alkalinity (as CaCO3)	436000		ug/L
N/A	Ammonia-Nitrogen	2700		ug/L
N/A	Bromide	300		ug/L
N/A	Chemical Oxygen Demand	42700		ug/L
N/A	Chloride, Total	12900		ug/L
N/A	Sulfate, Total	114000		ug/L
N/A	Total Dissolved Solids	586000		ug/L
N/A	Total Hardness as CaCO3	600000		ug/L
N/A	Total Kjeldahl Nitrogen	3200		ug/L
N/A	Total Organic Carbon	6100		ug/L
N/A	Turbidity (NTU)	5.5		NTU
N/A	BOD 5	10000		ug/L
N/A	Nitrite-nitrate nitrogen	320		ug/L
N/A	Nitrate-nitrogen	280		ug/L
N/A	Nitrite nitrogen	41	J	ug/L
N/A	Color	1000		PCU
		METALS		
7429-90-5	Aluminum	145	В	ug/L
7440-38-2	Arsenic	14.2		ug/L
7440-39-3	Barium	208		ug/L
7440-70-2	Calcium	178000		ug/L
7440-48-4	Cobalt	3.6	В	ug/L
7440-50-8	Copper	3.2	В	ug/L
7439-89-6	Iron	16500		ug/L
7439-95-4	Magnesium	10300		ug/L
7439-96-5	Manganese	500		ug/L
7440-09-7	Potassium	9610		ug/L
7782-49-2	Selenium	3.6	В	ug/L
7440-23-5	Sodium	19700		ug/L
7440-66-6	Zinc	43.1		ug/L
	PE	STICIDES		
2051-24-3	Decachlorobiphenyl	0.28		ug/L
877-09-8	Tetrachloro-m-xylene	0.34		ug/L
		svocs		
118-79-6	2,4,6-Tribromophenol	60		ug/L
321-60-8	2-Fluorobiphenyl	50		ug/L
367-12-4	2-Fluorophenol	47		ug/L
		vocs		
120-82-1	1,2,4-Trichlorobenzene	1.8	JB	ug/L
95-63-6	1,2,4-Trimethylbenzene	1	J	ug/L
106-46-7	1,4-Dichlorobenzene	3	J	ug/L
67-64-1	Acetone	2.5	J	ug/L
460-00-4	Bromofluorobenzene	52		ug/L
108-90-7	Chlorobenzene	2.8	J	ug/L

CAS Number	Analyte	Value	Qualifier	Units
	HE	RBICIDES		
93-72-1	2,4,5-TP (Silvex)	0.17	Р	ug/L
19719-28-9	DCAA	9.7		ug/L
	LEACHA	TE INDICATOR	<u> </u>	
N/A	Alkalinity (as CaCO3)	447000		ug/L
N/A	Ammonia-Nitrogen	1900		ug/L
N/A	Bromide	240		ug/L
N/A	Chemical Oxygen Demand	32200		ug/L
N/A	Chloride, Total	4300		ug/L
N/A	Sulfate, Total	127000		ug/L
N/A_	Total Dissolved Solids	670000		ug/L
N/A	Total Hardness as CaCO3	1000000		ug/L_
N/A	Total Kjeldahl Nitrogen	3200		ug/L
N/A	Total Organic Carbon	6200		ug/L_
N/A	Turbidity (NTU)	1		NTU
N/A	Nitrite-nitrate nitrogen	820 790		ug/L
N/A N/A	Nitrate-nitrogen Nitrite nitrogen	33	J	ug/L
N/A	Color	50	J	ug/L PCU
N/A		METALS		
7429-90-5	Aluminum	161	В	ug/L
7440-38-2	Arsenic Barium	4.6	B	ug/L
7440-39-3 7440-70-2	Calcium	235000	В	ug/L ug/L
7440-70-2	Chromium	2.4	В	ug/L
7440-48-4	Cobalt	16.8	В	ug/L
7440-50-8	Copper	2.8	В	ug/L
7439-89-6	Iron	1910		ug/L
7439-95-4	Magnesium	9620		ug/L
7439-96-5	Manganese	588		ug/L
7440-02-0	Nickel	57.1		ug/L
7440-09-7	Potassium	10300		ug/L
7440-23-5	Sodium	8390		ug/L
7440-66-6	Zinc	14.5	В	ug/L
	PE	STICIDES		
2051-24-3	Decachlorobiphenyl	0.31		ug/L
877-09-8	Tetrachloro-m-xylene	0.32		ug/L
		svocs		
118-79-6	2,4,6-Tribromophenol	56		ug/L
321-60-8	2-Fluorobiphenyl	49		ug/L
367-12-4	2-Fluorophenol	42		ug/L
		vocs		
106-46-7	1,4-Dichlorobenzene	2	J	ug/L
67-64-1	Acetone	2.3	J	ug/L

#### Note:

= Analyte was detected above the NYS AWQS or guidance value. = Not applicable **Bold italic** 

N/A

U B;J = Analyte was not detected

E P

= Analyte was not detected
 = Analyte was detected, but concentration was below the laboratory reporting limit
 = Indicates an estimated value because of the presence of interference
 = This flag is used for a pesticide/Arcolor target analyte when there is greater than 25% difference for detected concentration between the two GC columns. The lower of the two values is reported on Form I and flagged with an "P"

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