CLEVELAND METROPARKS Plant Community Assessment Program: Quality Control Form Cleveland Metroparks

Project Label: PCAP **Plot No:** 1039 **Date Sampled:** 07/10/15 **Lead:** CKM

Comment required if item answer is NO

Parking/Access outside of Park Boundaries:		Y	(N)	If yes, write details in Comments section below
Field journals completed		(Y)	N	
Site sketch made on 1:3000 map?		(Y)	N	
Check cover page	X-axis Bearing of plot recorded	(Y)	N	
	GPS coords. Recorded	(Y)	N	
	North direction recorded	(Y)	N	
	Photographs taken?	(Y)	N	
	Relocated Pins Mapped	(Y)	N	
Plot No., Date agreement on all pages?		(Y)	N	
Header data completed all pages?		(Y)	N	
Cover classes recorded in all Intensive modules		(Y)	N	
Browse Level By Species		(Y)	N	
Woody stem quality control check		(Y)	N	Check every line *and* cross check with the Tree Cover Sheet
Invasive plant quality control check		Y	N	NA
Ash trees mapped		(Y)	N	
Completed Forest Pest/Pathogen Datasheet		(Y)	N	
Cover by Strata? (confirm cover type)		(Y)	N	
Soil samples collected with matching plot #.		(Y)	N	
Cross check 2010 information		(Y)	N	Highlight any changes from 2010 information
Vouchers labeled on datasheet with initials and number		(Y)	N	
Vouchers labeled on collection bag		(Y)	N	
Pink flags removed		(Y)	N	
Data sheet QA before leaving site?		(Y)	N	
Common equipment returned to tub.		Y	N	
Data sheets scanned?				Enter date to left
Final data sheets scanned?				Enter date to left
Buffer Widths measured?		Y	N	
Web Soil Survey		Y	N	
Voucher Location	Refrigerator	Y	N	
(# vouchers collected)	Press (#)			Enter number to left
CKM148-172	Drier	Y	N	
	Identified	Y	N	
	Mounted	Y	N	
	Thrown away	Y	N	

GRTS point verification: Is plot sampleable?	
☐ Yes	Original GRTS point is sampleable
☐ No	Original GRTS point lands in a non-sampleable area (fill in category below)
	☐ Point falls in a water (i.e. river, lake)
	☐ Managed mowed area (i.e. golf course, picnic area, right-of-way)
	☐ Paved area (i.e. parkinglot, road)
	☐ Unsafe to sample (i.e. steep slope)
	☐ Other

Additional Comments:

2015 Collect Soil *If dry, ask Sarah if ok to park closer to Bridle Trail Entrance into woods

CLEVELAND METROPARKS Plant Community Assessment Program - Background Data Sheet

GENERAL INFORMATION

Project Label: PCAP

Project Name: 02 MS2015

Plot Name: Multiflora Misery

Plot No.: 1039

- ☐ Level 4 (no nested corners sampled)
- ■ Level 5 (nested corners sampled)

Date (mm/dd/yyyy): 07/10/2015

End date (if > 1 day): 07/14/2015

Party	Role**
C. Minney	Plot leader
[redacted]	[redacted]
T. Cochran	Woody Tech
M. Busam	Woody Tech

** Roles: Co-leader, Asst., Guide, Owner, Taxonomist, etc.

PLOT NOT SAMPLED: ☐ Other

☐ Perm. water ☐ Paved ☐ Slope ☐ Safety

SAMPLING QUALITY*

Effort Level:
- X Very thorough
- ☐ Accurate
- ☐ Hurried

subjective evaluation of how much effort put into sampling. Hurried plots may still provide good data

TAXONOMIC ACCURACY

	high	modera.	low	not smpl
vascul.	X			n/a
bryo			X	
lichen				X

TAXONOMIC STANDARD

Authority: G&C **Pub Date:** 1998

LOCATION

State: OH **County:** Cuyahoga

Quadrangle: Berea

Local Place Names: Paw Paw Picnic Area

Landowner: CMP

Data Confidentiality:

Check one: X Public data ☐ Private Data

☐ Fuzz 100m ☐ Fuzz 250m ☐ Fuzz 500m

Reason:

If data not public why?

Source of coordinates ☐ MAP ■ GPS

Coordinate system:	Coord. Units
■ Lat/Long ☐ UTM ☐ StatePlane	■ deg ☐ deg min
☐ Other (specify)	■ m ☐ ft ☐

Datum: ■ NAD83/WGS84 ☐ NAD27

GPS location in plot x=0 to 5, y=-1,0,+1:

x = 0 y = 0 (base of plot x=0, y=0)

Latitude: 41.30306

Longitude: 81.78182

Coord. Accuracy: X m ☐ ft +- 4

GPS File Name: 1039A

Plot size for cover data: _____ (hectares)

X-axis Bearing of plot: [90] °

Depth: (1-5): 4

Intensive modules: 2, 3, 8, 9 (EDIT IF MODIFIED)

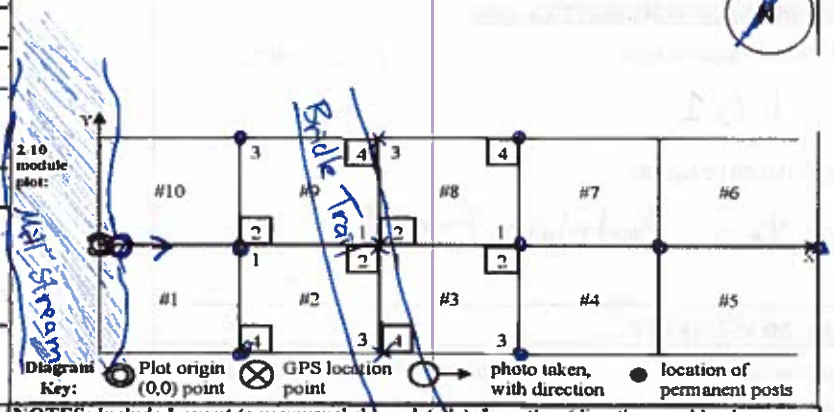
Camera No.: C4

Photo Nos.: C4531

Plot placement: X GRTS ☐ Representative

☐ Random ☐ Stratified Random ☐ Transect component

☐ Systematic (grid) ☐ Capture specific feature ☐ Other



NOTES: Include **Layout** (any unusual shape details), **Location** (directions and landscape content), **Rationale** (why here), and **Veg Characterization** (description of community, dominants, strata, BROWSE). Additional notes in space on back.

Layout: 2 x 5

Location: Park at Paw Paw Picnic Area, walk southeast along APT for a long time, then cross Valley Pkwy and continue into woods via the bridle trail. Walk ~100m in. ~~Plot~~ Trail runs through plot.

Rationale: GRTS

Veg Characterization: The canopy is sparse dominated by Sycamore, Tulip, Juglans and a couple others. The shrub layer is dominated by Wingstem, Multiflora rose, and a few trees. The herb layer is dense and diverse with nonnatives, woody's and graminoids all well represented.

* Note the entrance of Bridle Trail into woods is concealed by a narrow woodland strip.

Minimum required fields in Bold and Underlined

*Definitions and values in CM PCAP FOM v. 1.0 and CVS Field Guide

OVER

CLEVELAND METROPARKS Plant Community Assessment Program - Background Data Sheet — Cleveland Metroparks

Project Label: PCAP Project Name: 02MS2015 Plot No.: 1039

MODIFIED NATURESERVE CLASS*

CODE (on separate form): Fit=___ Conf=___

L01

COMMUNITY NAME:

Mesic Floodplain Forest

DISTURBANCES

type*	severity**	yrs ago	% of plot	description
Human	MH	0	5	Bridle Trail
Natural				
Fire				
Cut				
Animal	MH	0	100	Deer Browse
Other	ML	0	3	Deer Trail

**L=low, ML=med low, M=med, MH=med high, H=high, VH=very high

Current Land Use: CMP

Former Land Use:

HOMOGENEITY

- ☐ Homogeneous
- ☐ Compositional trend across the plot
- ☒ Conspicuous inclusions
- ☐ Irregular/pattern mosaic

HYDROLOGIC REGIME*

- ☐ Upland (seldom flooded)
- ☐ Intermittently/seasonally saturated (seldom flooded)
- ☐ Permanently/Semipermanent. saturated (dry <1/yr, seldom flooded)
- ☒ Occasionally flooded (≤1/yr)
- ☐ Temporarily flooded
- ☐ Intermittently flooded
- ☐ Semipermanently flooded
- ☐ Permanently flooded
- ☐ Tidal/Seiche flooded daily
- ☐ Tidal/Seiche flooded monthly
- ☐ Tidal/Seiche flooded irregular (e.g. wind, storms)
- ☐ Unknown

SALINITY*

- ☐ Saltwater
- ☐ Brackish
- ☐ Fresh
- ☒ Upland (n/a)

(by default unless plot is a wetland)

Additional notes & diagrams: (Representativeness of plot to the stand, successional status, maturity, etc.)

The base line of origin is eroding into Mill Stream. Several meters of the (1+10) mods are gone/slid down. There is a bridle trail that goes through the middle of the plot. The canopy is sparse with some young-middle aged trees. The canopy openings are probably one of the main reasons there is so much going on in the herb layer and the roses (Multiflora) are doing so well. The trail margins are very diverse with lawn weeds. There were some stones arranged in Mod 7/8 by humans.

CLEVELAND METROPARKS Plant Community Assessment Program Species Cover Data Sheet Page 1 of 5

Project Label: PCAP Project name: 02MS2015 Plot no.: 1039

Total modules: 10 Intensive modules: 4 Plot configuration: 2x5 Plot area (ha): .1

Cleveland Metroparks

Br = Browse Level. Use cover classes to describe amount of browse per species over entire plot

Strata - Cov. entire plot

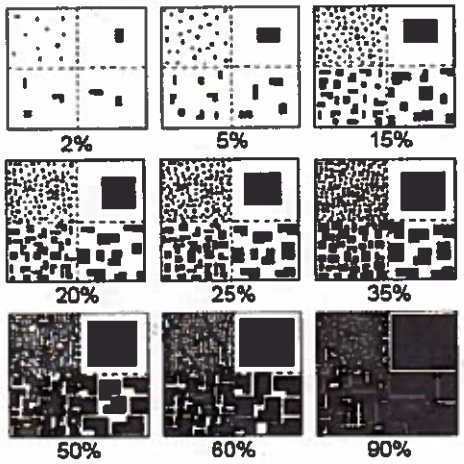
Estimate for each intensive module:

	mod	corner	mod	corner	mod	corner	mod	corner	mod	corner	mod	corner	mod	corner	mod	corner	mod
	2	4	2	1	3	3	3	2	8	1	8	4	9	2	9	3	R
	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth
%open water	1	0			1	0			1	0			1	0			
%unvegetated open water	1	0			1	0			1	0			1	0			
%unveg. ground (bare soil)	1	2			1	2			1	2			1	4			
%unveg. litter (bare litter)	1	5			1	3			1	2			1	2			

S	H	(F)	(A)	Br	Species	C	Voucher #	mod depth	mod cov	mod depth	corner depth	corner cov	corner depth	mod depth	mod cov	mod depth	corner depth	corner cov	corner depth	mod depth	mod cov	mod depth	corner depth	corner cov	corner depth	mod depth	mod cov	mod depth	corner depth	corner cov	corner depth	mod depth
	2				Osmorhiza claytonii			4	2																							
2	2			7	Lindera benzoin			4	2																		3	2				
	5			5	Polygonum virginianum			4	4	3				4	4					4	4	4				2	2	2				
	2				Viola sp. striata CKM	X	CKM168	4	3	4					2	2											2					
2	5				Cryptotaenia canadensis			4	4	4										1	2					4	6					
	2			6	Circaea lutetiana			4	4	4					2	2					2	2				4	2	3				
	2				ALLIARIA PETIOLATA			4	3	3																2	2	3				
	1			10	Euonymus obovatus			4	2																							
	2				Ranunculus hispidus		CH572-536	4	2						2	2											2	2				
	2				Geum canadense		CH-530-552	4	3	4				3	2					2	2	3				2	2	3				
7	3				Verbesena alternifolia			3	7	4				4	5	4				4	6	4				2	8	4				
	2				Arisaema triphyllum var triphyllum			3	2																	3	2					
3				4	Asimina triloba			3	7	3				4													4	4				
	2			7	Aster lateriflorus			3	2	4				3	2	4				4	2					4	2	4				
7	3			9	ROSA MULTIFLORA			3	5	4				3	3	4				3	7	4				4	5	3				
2	2				Elymus virginicus CKM	X	CKM149	3	2	2				4	2											2	2	4				
2	3			5	Parthenocissus quinquefolia			3	2					2	2	4				4	5	4				2	2	2				
2	2				Sanicula canadensis CKM	X	CKM149	3	2	2				3	2					2	1					2	2	3				
5	1			6	Vitis riparia			3	2					2	3	2					1	2										
6	2			4	Acer negundo			3	4	4				4	3	2				2	1					4	4					
	1				Acer sp. (seedling)			2	1											1	1					3	1					
	1				Allium tricoccum			2	2																							
					~~Asarum canadense~~			2	2																			2				
2	2				Eupatorium rugosum			2	4	4																3	3	4				
3	2			6	Rubus occidentalis			2	2					2	2					1	2					2	2	2				

EXAMPLES OF PERCENT OF AREA COVERED

The following graphic can be used for various data elements to convey "Amount" or "Quantity". NOTE: Within any given box, each quadrant contains the same total area covered, just different sized objects.



cover class	% cover	midpoint
1	solitary or few	0.0001
2	0-1%	0.005
3	1-2%	0.015
4	2-5%	0.035
5	5-10%	0.075
6	10-25%	0.175
7	25-50%	0.375
8	50-75%	0.625
9	75-95%	0.850
10	95-100%	0.975

BROWSE RATING NARRATIVE DESCRIPTION

LOW OR NONE: there is no measurable browse line AND there are very few or no plants 1-m nested quadrat and intensive module. In general, low values relate to less than 10 percent, by numbers of stems browsed.

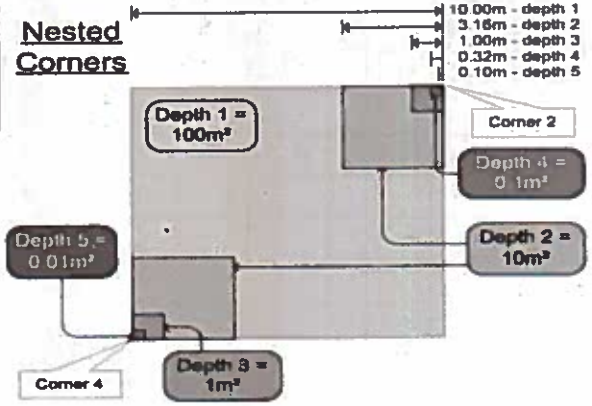
MEDIUM LOW values include evidence of browse at about 10 percent of the stems with no significant impact to plant reproduction evident. In this rating, plants are browsed but preferential species are observed to be reproducing in numbers that appear normal or near-normal in comparison to low browse areas. For example, trilliums may flower and fruit, but jewelweed and arrowwood viburnum exhibit browse.

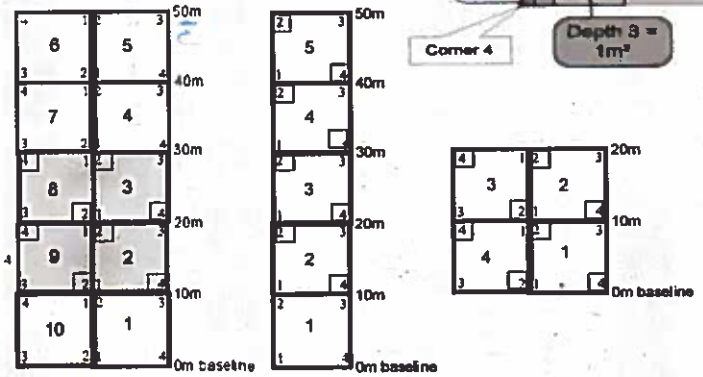
MEDIUM: browse affects greater than 10 percent and less than 25 percent of stems in the 1 m2 nested quadrat and intensive module. A browse line is usually not evident or obvious for all classes and species of vegetation, but careful examination may show preferential browse and/or browse lines for some species of plants.

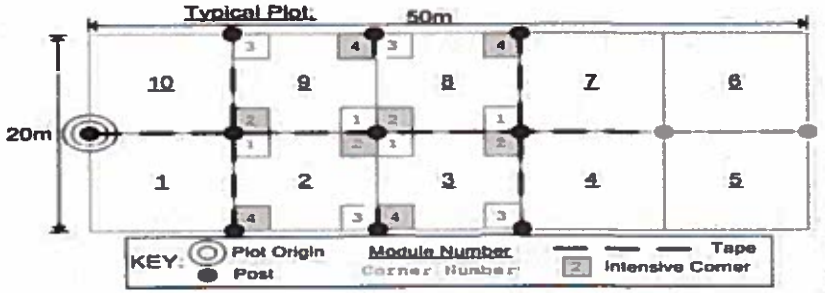
MEDIUM HIGH values include evidence of a browse line and 25 percent of stems browsed with very little vegetation regeneration evident. In this rating, for some species of plants, reproduction does not appear to occur or it is very severely limited.

HIGH: greater than 25 percent of the stems of plants in the 1 m2 nested quadrat and intensive module AND a browse line is evident.

VERY HIGH values include extensive browse conditions, where the browse line is very evident AND almost all seedlings and herbs are severely browsed or missing. Browse line may be 5 to 6 feet in height with no or little green growth beneath.







CLEVELAND METROPARKS Plant Community Assessment Program Species Cover Data Sheet

Project Label: PCAP   Project name: 02 MS 2015   Plot no.: 1039
Total modules: 10   Intensive modules: 4   Plot configuration: 2x5   Plot area (ha): .1

Cleveland Metroparks

Br = Browse Level. Use cover classes to describe amount of browse per species over entire plot

Strata - Cov. entire plot

Estimate for each intensive module:

	mod 2 / corner 4 depth	cov	mod 2 / corner 1 depth	cov	mod 3 / corner 3 depth	cov	mod 3 / corner 2 depth	cov	mod 8 / corner 1 depth	cov	mod 8 / corner 4 depth	cov	mod 9 / corner 2 depth	cov	mod 9 / corner 3 depth	cov	mod R depth
%open water	1				1				1				1				
%unvegetated open water	1				1				1				1				
%unveg. ground (bare soil)	1				1				1				1				
%unveg. litter (bare litter)	1				1				1				1				

S	H	(F)	(A)	Br	Species	C	Voucher #	2-4 depth	cov	2-1 depth	cov	3-3 depth	cov	3-2 depth	cov	8-1 depth	cov	8-4 depth	cov	9-2 depth	cov	9-3 depth	cov	R depth
	2				~~Grass #1~~ Festuca subverticillata	X	CKM 150	2	2	3										2	2			
	2			6	Fraxinus sp. (seedling)			2	1				1	2										
	2			8	Prunus serotina			2	2	2						1	2							
5+	2			6	Crataegus sp.			2	4	4		2	2				6	2		4	2	2		
1+	2				Carya sp. (seedling)			2	1							1	2							
	3			4	Toxicodendron radicans			2	2	4		[illegible]	3	4		3	2	4		2	2	2		
	4				~~[illegible]~~ Grass #2			2	2	3		[illegible]	3	4						4	3	4		
	2				Moss sp.				2	3		3	2	4			2	3		2	2			
2	2			8	Ribes cynosbati				2	3										4	2			
2+	2				Lysimachia ciliata		+160		2	3		[illegible]	3				3	4			2	4		
2+	2				Galium ~~#1~~ triflorum	X	CKM 151+172		2	3			2	4		4	2	3		4	2			
	2				TARAXACUM OFFICINALE				2	[illegible]		1	2			1	2			3	2			
	2				Ulmus sp. (seedling)				1	3		2	1			1	1			3	1			
	1				Cornus alternifolia				2	2														
2+	2				Pyrus sp				1	2						1	2							
	1				~~UK#2~~		~~C4537-539~~		2	3														
	2				Carex ~~#1~~ amphibola SRE 12-15	X	CKM153/165		2	2		1	2			1	2			1	2			
2+				10	Prunus virginiana	X	CKM152	1	2							1	[illegible]							
	4				LYSIMACHIA NUMMULARIA			1	3			[illegible]	3	2		2	5	3		2	3	4		
2+	2				HESPERIS MATRONALIS		C4537-539	1	2			[illegible]					[illegible]			2	2	3		
2	2				Solidago canadensis			1	2											1	2			
1+	2				~~[illegible]~~ Thalictrum dasycarpum		C4540-541	1	2			1	2			1	2							
2+					Ulmus rubra			1	2											1	2			
	2				~~A~~ Aster lanceolatus			1	2			2	2				2	[illegible]						
	2				Pilea pumila			1	2							1	2			1	2			

Margin notes: Festuca subvert hairy sheath; a - prob pratense; yn; ciliate petiole; sticky; Hesperis / Hieracium; axillar / spindly thin pedicels; virginiana 7,8,10 moneywort; Thalictrum UK#3; Aster simplex; combined SRE 12-15-15; combined SRE 12-15-15

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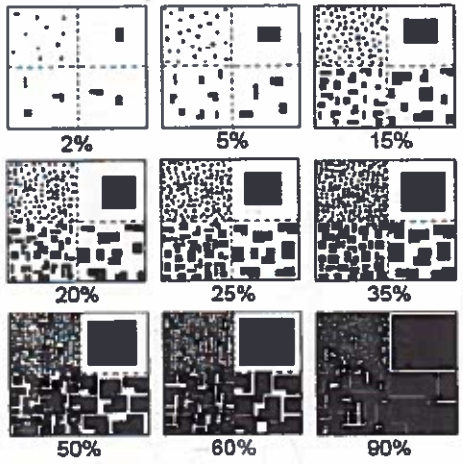

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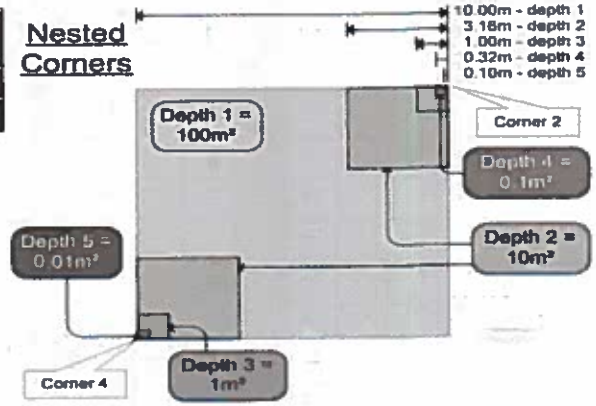

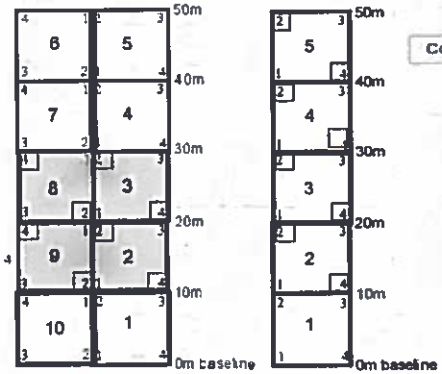

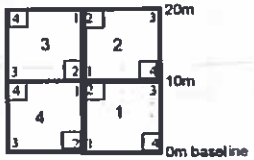

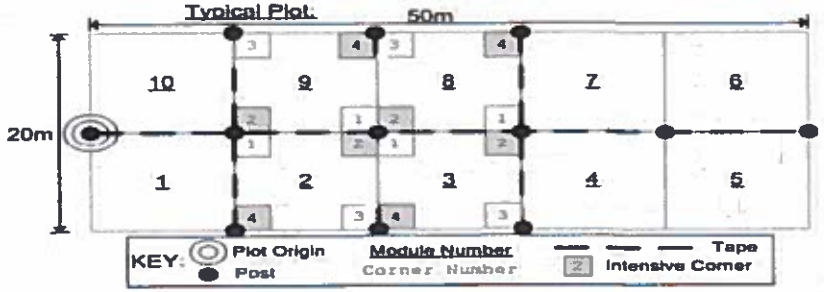

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Cleveland Metroparks

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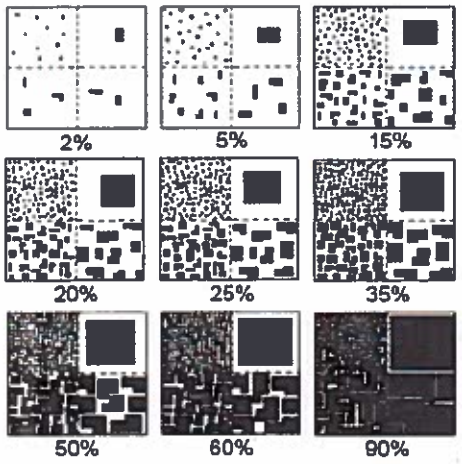
Estimate for each intensive module: %open water	1				1				1				1				
%unvegetated open water	1				1				1				1				
%unveg. ground (bare soil)	1				1				1				1				
%unveg. litter (bare litter)	1				1				1				1				

S	H	(F)	(A)	Br	Species	C	Voucher #	2/4 depth	cov	2/1 depth	cov	3/3 depth	cov	3/2 depth	cov	8/1 depth	cov	8/4 depth	cov	9/2 depth	cov	9/3 depth	cov	R depth
	2				Oxalis stricta			1	2			1	2			1	2			1	2			
	2				~~Geranium~~ UK#4 RANUNCULUS ACRIS		CKM157 C4542-544	1	2				1	3						1	1			
	2				Leersia virginica			1	2			2	2	2		2	2	2		1	2			
	2				Juncus tenuis			1	3			1	2			1	2			1	2			
	2				Plantago rugelii CKM		CKM154	1	2			1	2			1	2			1	2			
	2				Trifolium REPENS			1	2			1	2			1	2			1	2			
	2				Veronica serpyllifolia			1	2			1	2			1	2							
	2				Carex ~~#2~~ radiata	X	CKM155	1	2															
	2				~~Grass #2~~ Poa pratensis	X	CKM156	1	3							1	2			1	2			
	2				~~Grass #3~~ Poaceae sp	X	C4 545-547 CKM158	1	2			1	2			1	2			1	2			
	1				Cerastium vulgatum CKM	X	CKM159	1	1															
	~~2~~				~~Galium #2 triflorum ck~~		~~CKM160~~	~~1~~	~~2~~								~~1~~	~~3~~						
	2				~~Grass #4~~ DACTYLIS GLOMERATA	X	CKM161	1	2							1	2							
4=	2				Carya cordiformis			1	2			2	2				3	2		1	1			
	2				Prunella vulgaris var. VULGARIS			1	2							1	2			1	2			
2=	2				LIGUSTRUM VULGARE							1									2	2		
	1				Allium canadense							1	1								1	2		
	2			6	Impatiens capensis							2	2	2						1	2			
2=					Solidago gigantea		SRE 12-15-15					4	3			4	2							
	2				Impatiens pallida		Calystegia sepium					4	2	2										
2					~~Polygonum Vulnus Dict~~	X	CKM162					2	2											
2=	2			5	UK#5 Clematis virginiana		C4548-549					2	3	2		2	2							
2=					Carya ovata							2	2											
	2				Fraxinus pennsylvanica								1	3		2	2			2	2			
2=	2			8	Rubus pensylvanica								2	2		2	2	2						

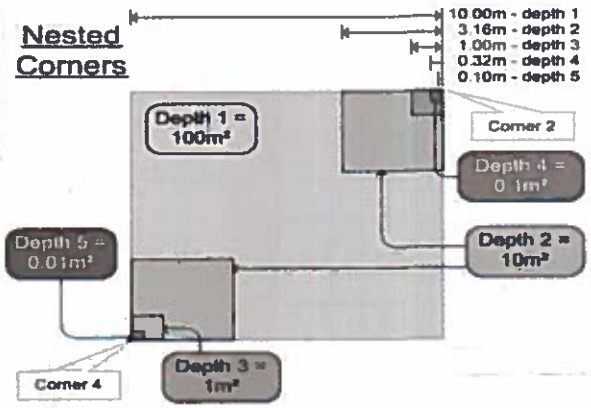
combined SRE 12-15-15

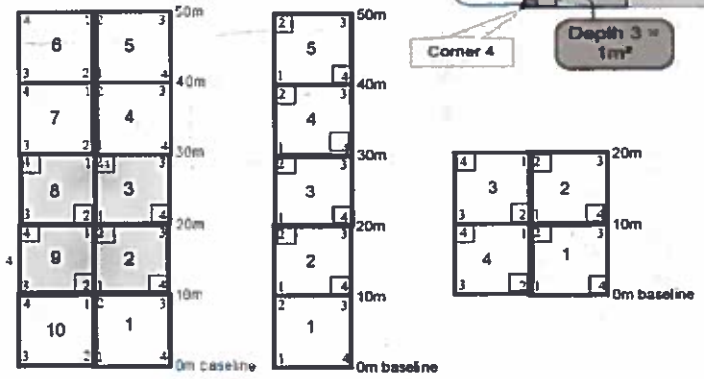
EXAMPLES OF PERCENT OF AREA COVERED

The following graphic can be used for various data elements to convey "Amount" or "Quantity". *NOTE:* Within any given box, each quadrant contains the same total area covered, just different sized objects.



cover class	% cover	midpoint
1	solitary or few	0.0001
2	0-1%	0.005
3	1-2%	0.015
4	2-5%	0.035
5	5-10%	0.075
6	10-25%	0.175
7	25-50%	0.375
8	50-75%	0.625
9	75-95%	0.850
10	95-100%	0.975





BROWSE RATING NARRATIVE DESCRIPTION

LOW OR NONE: there is no measurable browse line AND there are very few or no plants 1-m nested quadrat and intensive module. In general, low values relate to less than 10 percent, by numbers of stems browsed.

MEDIUM LOW values include evidence of browse at about 10 percent of the stems with no significant impact to plant reproduction evident. In this rating, plants are browsed but preferential species are observed to be reproducing in numbers that appear normal or near-normal in comparison to low browse areas. For example, trilliums may flower and fruit, but jewelweed and arrowwood viburnum exhibit browse.

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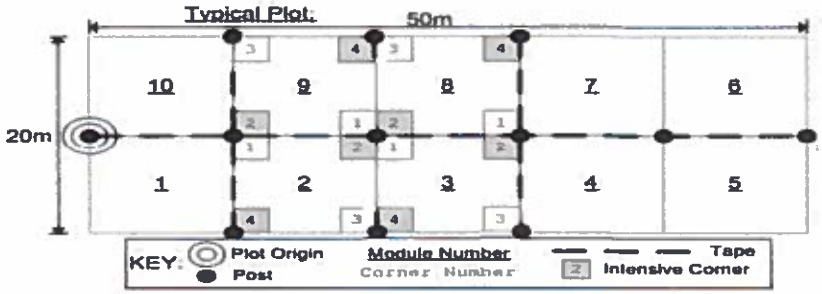
MEDIUM HIGH values include evidence of a browse line and 25 percent of stems browsed with very little vegetation regeneration evident. In this rating, for some species of plants, reproduction does not appear to occur or it is very severely limited.

HIGH: greater than 25 percent of the stems of plants in the 1 m2 nested quadrat and intensive module AND a browse line is evident.

VERY HIGH values include extensive browse conditions, where the browse line is very evident AND almost all seedlings and herbs are severely browsed or missing. Browse line may be 5 to 6 feet in height with no or little green growth beneath.



CLEVELAND METROPARKS Plant Community Assessment Program Species Cover Data Sheet Page 4 of 5

Project Label: PCAP Project name: OZMS2015 Plot no.: 1039

Total modules: 10 Intensive modules: 4 Plot configuration: 2x5 Plot area (ha): .1

Cleveland Metroparks

Br = Browse Level. Use cover classes to describe amount of browse per species over entire plot

Strata - Cov. entire plot

Estimate for each intensive module:

	mod 2	corner 4	mod 2	corner 1	mod 3	corner 3	mod 3	corner 2	mod 8	corner 1	mod 8	corner 4	mod 9	corner 2	mod 9	corner 3	mod R
	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth
%open water	1				1				1				1				
%unvegetated open water	1				1				1				1				
%unveg. ground (bare soil)	1				1				1				1				
%unveg. litter (bare litter)	1				1				1				1				

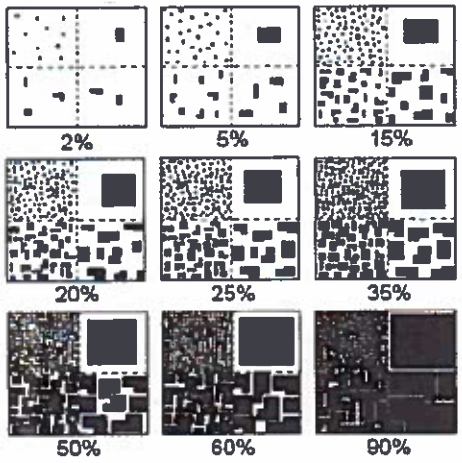
S	H	(F)	(A)	Br	Species	c	Voucher #	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth
	1				Bidens sp.							1	2											
	2				Ranunculus hispid							2	2											
	2				Carex #3 sp	X	CKM163					2	2											
	1				Arisaema dracontium						1	2												
	2				Cinna grundinacea						1	2												
	2				Fern I Dryopteris carthusiana	X	CKM164				1	2												
	2				Agrimonia parviflora						1	3			2	2								
					Viola #6		c4550-552				1	2												
2					Rosa setigera	X	CKM165				1	3												
	2				Carex #4 amphibola ckm	✓	CKM166				1	2			2	2			1	2				
2	2			7	Cornus sp. racemosa ckm	X	CKM167								4	2								
	1			9	Viburnum dentatum										3	1								
	1				Carex #5										3	1								
					Acer negundo										2									
	3				Viola sp.		c4556-557	1	2		1	2			2	2	2		2	3	4			
	1				VIBURNUM OPULUS VAR. OPULUS										2	1								
	2				Dryopteris carthusiana											2	4		2	1				
2	2				Elymus sp. virginicus ckm	X	CKM166								"	2	2							
	2				Lactuca sp.										1	2								
	1				Erigeron sp.										1	1			1	1				
	2				Heracleum lanatum										1	2			2					
	2			9	Smilax hispida														1	2				
	2				Elymus hystrix														2				2	
2	2			9	LONICERA MORROWII																		2	
	2				Actaea (pachypoda)																		2	

SRE_CM PCAP Species Cover Data .xls last revised 6/10/2015 jjm

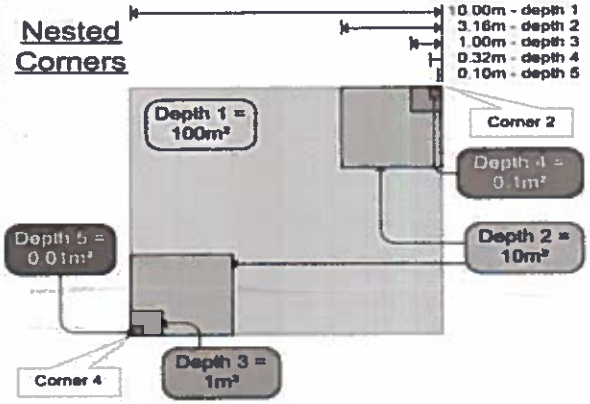
Natural Resource Management FORM NR/2010-02a

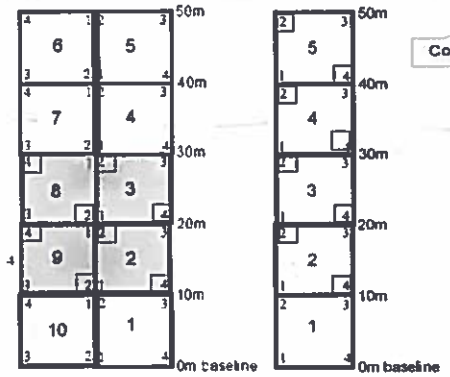
EXAMPLES OF PERCENT OF AREA COVERED

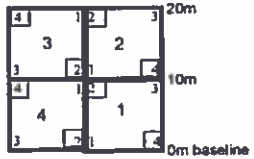
The following graphic can be used for various data elements to convey "Amount" or "Quantity". *NOTE:* Within any given box, each quadrant contains the same total area covered, just different sized objects.



cover class	% cover	midpoint
1	solitary or few	0.0001
2	0-1%	0.005
3	1-2%	0.015
4	2-5%	0.035
5	5-10%	0.075
6	10-25%	0.175
7	25-50%	0.375
8	50-75%	0.625
9	75-95%	0.850
10	95-100%	0.975







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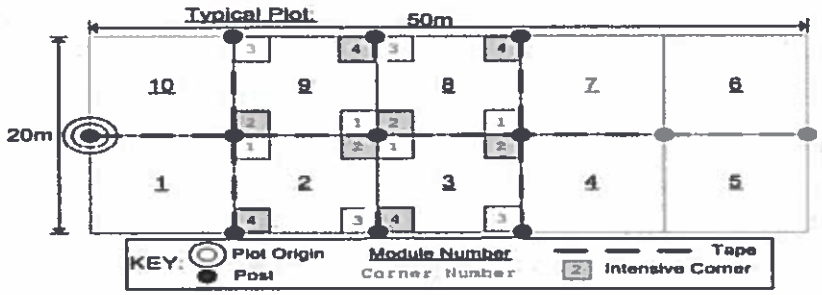

CLEVELAND METROPARKS Plant Community Assessment Program Species Cover Data Sheet Page 5 of 5

Project Label: PCAP Project name: 02MS2015 Plot no.: 1039

Total modules: 10 Intensive modules: 4 Plot configuration: 2x5 Plot area (ha): .1

Cleveland Metroparks

Br = Browse Level. Use cover classes to describe amount of browse per species over entire plot

Strata - Cov. entire plot

Estimate for each intensive module:

	mod 1	corner	mod 2	corner	mod 3	corner	mod 4	corner	mod 5	corner	mod 6	corner	mod 7	corner	mod 8	corner	mod 9	corner	mod 10	mod R
	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	depth
%open water	1				1				1						1					
%unvegetated open water	1				1				1						1					
%unveg. ground (bare soil)	1				1				1						1					
%unveg. litter (bare litter)	1				1				1						1					

S	H	(F)	(A)	Br	Species	c	Voucher #	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth
					~~Allium tricoccum~~																						+
	2				Hackelia virginiana																						2
	2				Caulophyllum thalictroides																						2
	1				Maianthemum racemosum																						1
	2				Carex #6 lupulina	X	CKM169																				2
	2				~~Satureja~~ vulgaris Clinopodium vulgare		set 1-3-15																				2
	2				Carex #7 cristatella	X	CKM170																				2
	2				Onoclea sensibilis																						2
2	2				Agrimonia gryposepala	X	CKM171																					2
	1			10	TORILLIS JAPONICUS																						1
	2				Glyceria striata																						2
4					Juglans nigra																						5
	2			10	RHAMNUS FRANGULA																						2
	1				Verbena urticifolia																						1
	2				Polystichum acrostichoides																						2
	1				Ranunculus recurvatis																						1
	2				Botium asprellum		CKM172																				2

SRE 12-15-15

Lg -fat geri
ld Basil
Dvalian
ellow
Hire?
ative?

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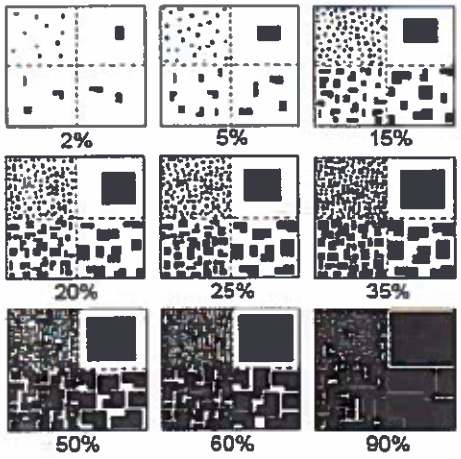

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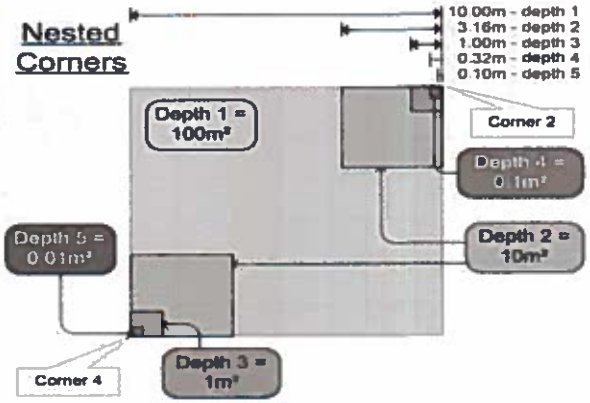

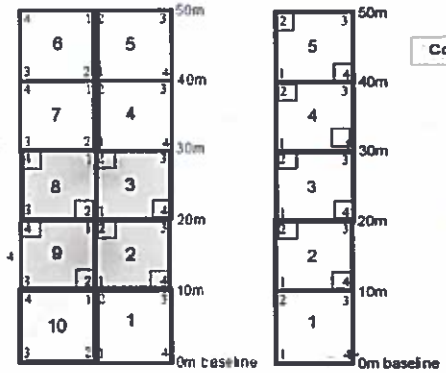

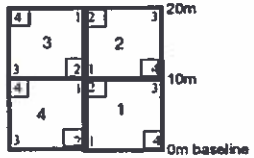

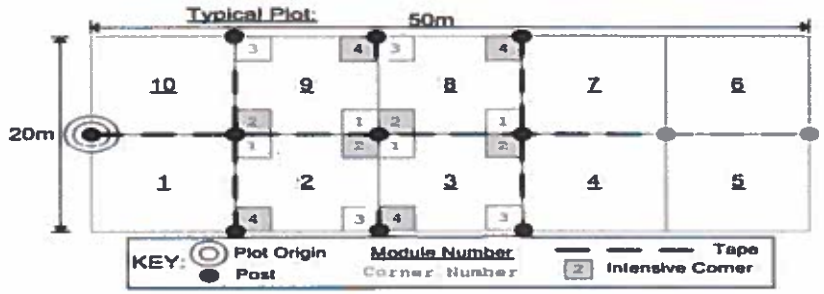

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CLEVELAND METROPARKS Plant Community Assessment Program Tree Cover Data Sheet Page 1 of 1

Project Label: PCAP Project name: 02MS2015 Plot no.: 1039

% COVER Strata - Cov. entire plot				Prensence of tree species (X)	mod 2	mod 3	mod 8	mod 9	R R
T	Br	Species	c	Voucher #					
7	10	Juglans nigra			X	X	X	X	X
6		Tilia americana			X	X			X
6		Acer negundo			X		X	X	
6		Platanus occidentalis			X		X		X
4		Asimina triloba			X				
4		Vitis riparia			X	X			
6		Ulmus americana				X	X		X
6		Liriodendron tulipifera				X	X		X
5		Acer nigrum						X	X
6		Carya cordiformis						X	X
4		Parthenocissus quinquefolia							X
5		Prunus serotina							X
6	9	Fraxinus sp.							X
5		Vitis aestivalis							X

CLEVELAND METROPARKS Plant Community Assessment Program Tree Cover Data Sheet *Page ___ of ___*

Project Label: PCAP Project name: _____ Plot no.: _____

% COVER Strata - Cov. entire plot				Prensence of tree species (X)	mod	mod	mod	mod	R
									R
T	Br	Species	c	Voucher #					

CLEVELAND METROPARKS Plant Community Assessment Program Natural Woody Stem Data Sheet

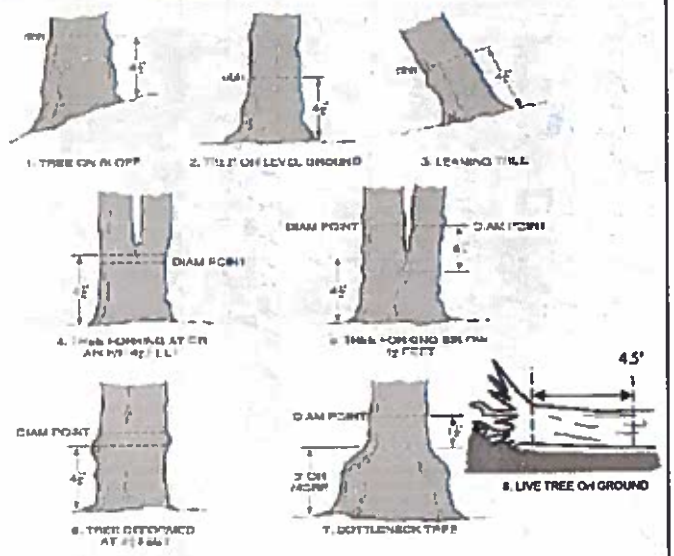
Project Label: PCAP Project Name: CEMS2015 Plot No.: 1089 Page: 1 of 6

Explain subsample (additional room on back):

mod #	species	c	voucher#	# stems 0-1.4m browsed	% sub or super sample	# shrub clumps	size class (cm) woody stems >1.4m 1 0-<1	2 1-<2.5	3 2.5-<5	4 5-<10	5 10 - <15	6 15 - <20	7 20 - <25	8 25 - <30	9 30 - <35	10 35 - <40	11 >40 (record each tree)
1	Vitis riparia																
1	Asimina triloba																
1	Lindera benzoin																
1	Acer negundo																
1	STANDING DEAD																
1	Ulmus Americana																
1	Fraxinus [redacted] sp.																
1	Prunus serotina																
1	Crataegus sp.																
1	Rosa multiflora																
2	Asimina triloba																
2	Acer negundo																
2	Rosa multiflora																
2	Acer nigrum																
2	Carya cordiformis																
2	STANDING DEAD																
2	Crataegus sp.																
2	[redacted] Crataegus																
2	Ulmus Americana																
2	Juglans nigra																61.0,
2	Toxicodendron radicans																
2	Prunus sp. (virginiana)																
2	Parthenocissus quinquefolia																
2	Rubus occidentalis																

missing 20-2.

DBH Measurement Rules



Woody Stem Deer Browse

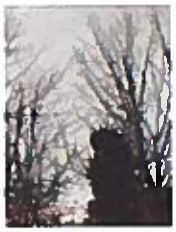
Record the number of stems/plants between 0.5-1.0 meters tall that exhibit evidence of this years deer browse.

Record using the tally system from 1 to 10

1 2 3 4 5

ASH CANOPY CONDITION

1. **Healthy, full canopy:** A healthy ash canopy is normally thinner than many other trees such as maple.
2. **Thinning canopy:** There aren't as many leaves as there ought to be, but all top branches exposed to sunlight have leaves.
3. **Dieback:** Canopy is thinning and some top branches exposed to sunlight are dead (have no leaves). Lower branches, not exposed to sunlight, die naturally and are not considered.
4. **>50% Dieback:** The canopy has less than half of the leaves that should be there and/or half of the top branches are dead.
5. **Dead canopy:** No leaves remain in the cancpy portion of the tree. It still counts as a 5 even if there are epicormic sprouts below the canopy (lowest branch) on the trunk.



A B C D E

ASH CANOPY BREAKUP CONDITION (for dead trees):

(If an ash receives a score of 5 (dead) under canopy condition it must also receive a breakup condition rank as described below)

A: All main branches contain fine twigs (newly dead).
B: Over 50% of main branches have fine twigs.
C: Less than 50% of main branches have fine twigs.
D: Stem still standing and tertiary main branches present.
E: Central stem still standing.

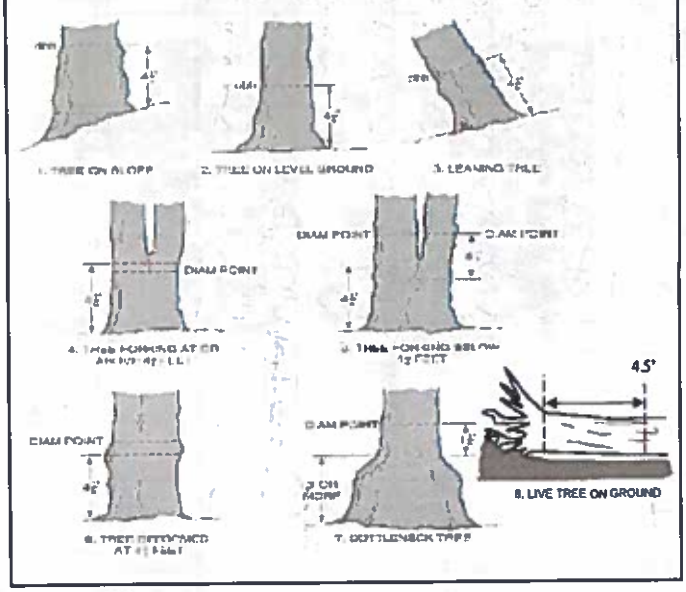
CLEVELAND METROPARKS Plant Community Assessment Program Natural Woody Stem Data Sheet

Project Label: PCAP Project Name: OZMS2015 Plot No.: 1039 Page: 2 of 6 Cleveland Metroparks

Explain subsample (additional room on back) Count only live dots, black dots smudged

mod #	species	c	voucher#	# stems 0-1.4m browsed	% sub or super sample	# shrub clumps	size class (cm) woody stems >1.4m 1 0-<1	2 1-<2.5	3 2.5-<5	4 5-<10	5 10 - <15	6 15 - <20	7 20 - <25	8 25 - <30	9 30 - <35	10 35 - <40	11 >40 (record each tree)
2	Ribes cynosbati																
2	Lindera benzoin																
3	ROSA MULTIFLORA																
3	Toxicodendron radicans																
3	Rubus occidentalis																
3	Carya cordiformis																
3	Acer negundo																
3	STANDING DEAD																
3	Quercus rubra																
3	Vitis riparia																
3	Tilia americana																
3	Lindera benzoin																
3	Fraxinus pennsylvanica																42.1
4	Ulmus americana																
4	ROSA MULTIFLORA																
4	Vitis riparia																
4	Carya cordiformis																
4	Acer negundo																
4	Rubus occidentalis																
4	Crataegus sp.																
4	Fraxinus sp.																
4	Lonicera morrowii		morrow														
4	Parthenocissus quinquefolia																
5	ROSA MULTIFLORA																

DBH Measurement Rules



Woody Stem Deer Browse

Record the number of stems/plants between 0.5-1.0 meters tall that exhibit evidence of this years deer browse.

Record using the tally system from 1 to 10

1 2 3 4 5

ASH CANOPY CONDITION

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E: Central stem still standing.

CLEVELAND METROPARKS Plant Community Assessment Program Natural Woody Stem Data Sheet

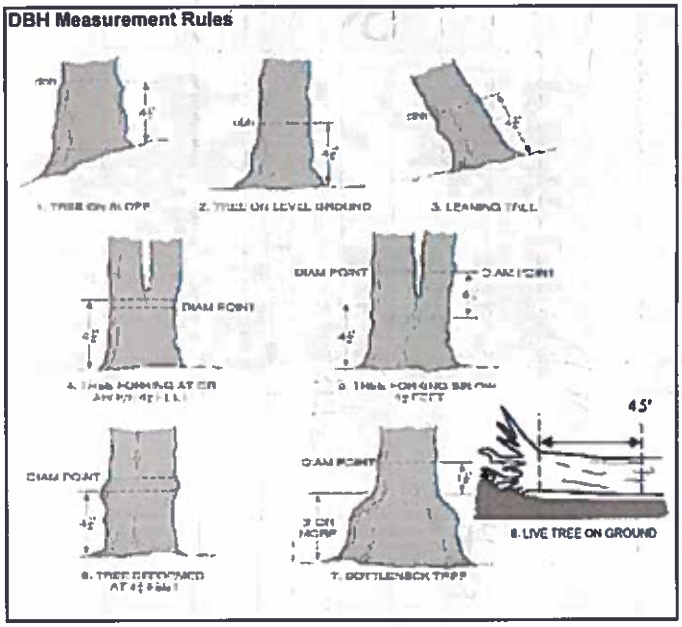
Project Label: PCAP Project Name: 07MS205 Plot No.: 1039 Page: 3 of 6

Cleveland Metroparks

Explain subsample (additional room on back):

mod #	species	c	voucher#	# stems 0-1.4m browsed	% sub or super sample	# shrub clumps	size class (cm) woody stems >1.4m 1 0-<1	2 1-<2.5	3 2.5-<5	4 5-<10	5 10 - <15	6 15 - <20	7 20 - <25	8 25 - <30	9 30 - <35	10 35 - <40	11 >40 (record each tree)
5	Ulmus rubra							•									
5	Ulmus americana									•	•						
5	Fraxinus pennsylvanica						••										
6	Liriodendron tulipifera																54.4
5	Carya cordiformis									•							
5	Rosa multiflora																
5	Crataegus sp.									•							
5	Viburnum dentatum																
5	Juglans nigra									••							
5	Lindera benzoin																
5	Parthenocissus quinquefolia						•										
5	Platanus occidentalis																42.7
5	Rubus occidentalis																
5	Fraxinus pennsylvanica						••										
5	Lonicera maackii																
6	Rosa multiflora																
6	Juglans nigra											•					
6	Fraxinus pennsylvanica									•							
6	Ulmus rubra							••	•								
6	Ulmus americana									X••	•						
6	Ulmus rubra							•									
6	Standing dead							X	•	•							
6	Lindera benzoin						••										
6	Fraxinus sp.																

DBH Measurement Rules



Woody Stem Deer Browse

Record the number of stems/plants between 0.5-1.0 meters tall that exhibit evidence of this years deer browse.

Record using the tally system from 1 to 10

1 2 3 4 5

ASH CANOPY CONDITION

1. **Healthy, full canopy:** A healthy ash canopy is normally thinner than many other trees such as maple.
2. **Thinning canopy:** There aren't as many leaves as there ought to be, but all top branches exposed to sunlight have leaves.
3. **Dieback:** Canopy is thinning and some top branches exposed to sunlight are dead (have no leaves). Lower branches, not exposed to sunlight, die naturally and are not considered.
4. **>50% Dieback:** The canopy has less than half of the leaves that should be there and/or half of the top branches are dead.
5. **Dead canopy:** No leaves remain in the canopy portion of the tree. It still counts as a 5 even if there are epicormic sprouts below the canopy (lowest branch) on the trunk.

A B C D E

ASH CANOPY BREAKUP CONDITION (for dead trees):
(If an ash receives a score of 5 (dead) under canopy condition it must also receive a breakup condition rank as described below)

A: All main branches contain fine twigs (newly dead).
B: Over 50% of main branches have fine twigs.
C: Less than 50% of main branches have fine twigs.
D: Stem still standing and tertiary main branches present.
E: Central stem still standing.

CLEVELAND METROPARKS Plant Community Assessment Program Natural Woody Stem Data Sheet

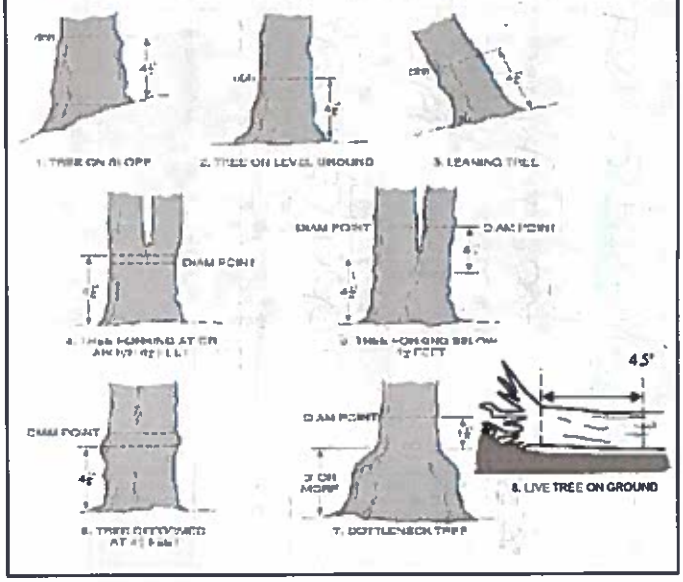
Project Label: PCAP Project Name: 02MS2015 Plot No.: 1039 Page: 4 of 10

Cleveland Metroparks

Explain subsample (additional room on back):

mod #	species	c	voucher#	# stems 0-1.4m browsed	% sub or super sample	# shrub clumps	size class (cm) woody stems >1.4m 1 0-<1	2 1-<2.5	3 2.5-<5	4 5-<10	5 10 - <15	6 15 - <20	7 20 - <25	8 25 - <30	9 30 - <35	10 35 - <40	11 >40 (record each tree)
6	Juglans pennsylvanica			•													
6	Cornus sp.			••													
7	Acer rubrum						•	•	••	•							
7	Cornus florida		racemosa						•								
7	STANDING DEAD							•	••		•						
7	Prunus serotina			X							•	•					
7	Rosa multiflora			⊠ ⊠		⊠											
7	Vitis riparia			•			•										
7	Fraxinus pennsylvanica									•							46.5
7	Lindera benzoin														•		35
7	Parthenocissus quinquefolia			11			•										
7	Lonicera morrowii					•											
7	Rubus sp.							•									
7	Fraxinus sp.			•													
8	Rosa multiflora			⊠ ⊠ ⊠		⊠ ⊠											
8	Acer rubrum			•							••						
8	Rubus pensylvanicus					•											
8	Fraxinus pennsylvanica							•									
8	Toxicodendron radicans						•										
8	Crataegus sp.			••				•	••	••	•						
8	Parthenocissus quinquefolia			••			••										
8	Prunus serotina													•			
8	Juglans nigra																47.3
8	STANDING DEAD							•									

DBH Measurement Rules



Woody Stem Deer Browse

Record the number of stems/plants between 0.5-1.0 meters tall that exhibit evidence of this years deer browse.

Record using the tally system from 1 to 10

1 2 3 4 5

ASH CANOPY CONDITION

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CLEVELAND METROPARKS Plant Community Assessment Program Natural Woody Stem Data Sheet

Project Label: PCAP Project Name: 02MS205 Plot No.: 1039 Page: 5 of 6 Cleveland Metroparks

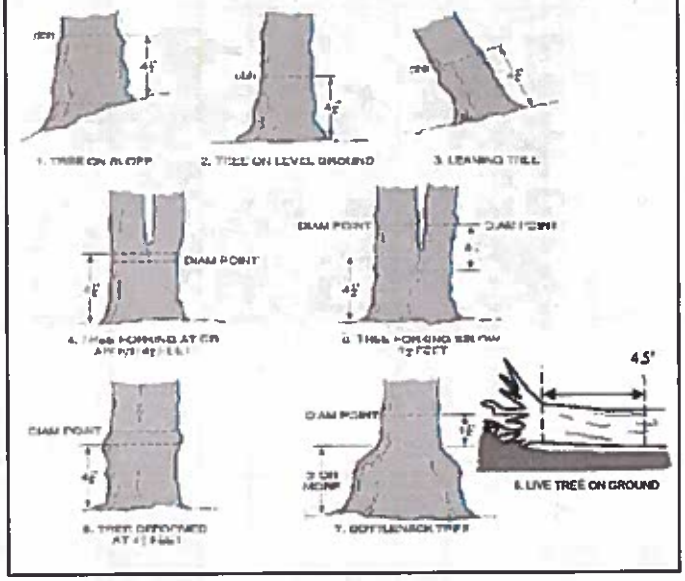
Explain subsample (additional room on back):

mod #	species	c	voucher#	# stems 0-1.4m browsed	% sub or super sample	# shrub clumps	size class (cm) woody stems >1.4m 1 0-<1	2 1-<2.5	3 2.5-<5	4 5-<10	5 10 - <15	6 15 - <20	7 20 - <25	8 25 - <30	9 30 - <35	10 35 - <40	11 >40 (record each tree)
8	Ulmus americana																47.7
8	Carya cordiformis							•									
8	Rubus occidentalis			••													
8	Lindera benzoin			••													
8	Fraxinus sp.			•													
8	Prunus serotina			•													
9	Acer negundo			•			•	••		•							
9	Rosa multiflora			11		2											
9	Lindera benzoin						•										
9	Amelanchier arborea							3	••								
9	Parthenocissus quinquefolia					••											
9	Ribes occidentale			••			•										
9	Lonicera morrowii					•											
9	Smilax rotundifolia			••													
9	Parthenocissus quinquefolia			•													
9	Ligustrum vulgare					•											
10	Prunus serotina									••							
10	Carya cordiformis														•		
10	STANDING DEAD					••		••									
10	Parthenocissus quinquefolia			••			••										
10	Rosa multiflora			2		1											
10	Vitis riparia			••													
10	Acer nigrum											•	•		••		
10	Fraxinus pennsylvanica			•					•								

3aCM PCAP Natural Woody Stem Data Sheet ver 2.0.xls last revised 5/29/2012 jjm

Natural Resources Management FORM NR/2010-03a

DBH Measurement Rules



Woody Stem Deer Browse

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Record using the tally system from 1 to 10

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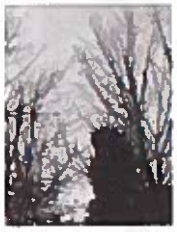

A B C D E

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CLEVELAND METROPARKS Plant Community Assessment Program Natural Woody Stem Data Sheet

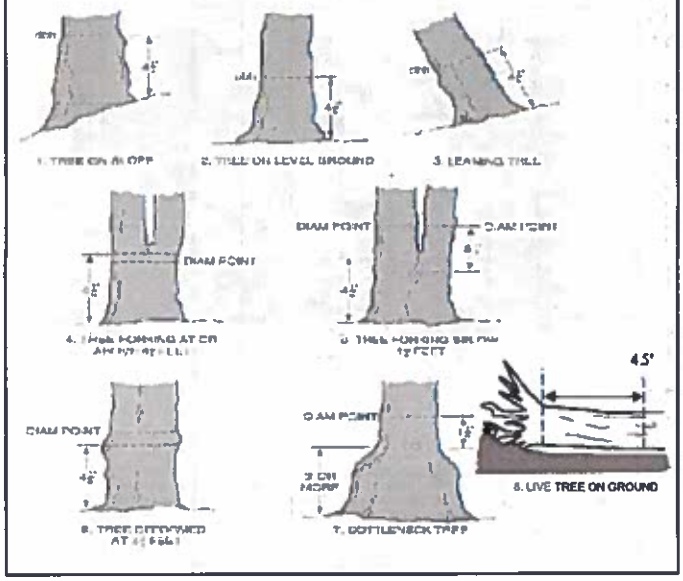
Project Label: PCAP Project Name: 5TMS2015 Plot No.: 1039 Page: 6 of 6

Cleveland Metroparks

Explain subsample (additional room on back):

mod #	species	c	voucher#	# stems 0-1.4m browsed	% sub or super sample	# shrub clumps	size class (cm) woody stems >1.4m 1 0-<1	2 1-<2.5	3 2.5-<5	4 5-<10	5 10 - <15	6 15 - <20	7 20 - <25	8 25 - <30	9 30 - <35	10 35 - <40	11 >40 (record each tree)
10	Asimina triloba							••	•	•							
10	Smilax hispida			•			•										
10	Ribes cynosbati			□													
10	Juglans nigra														•		
10	Acer negundo			°						°			°				
10	Rubus occidentalis			•													
10	Fraxinus sp.			••			X										
10	Toxicodendron radicans			•													
10	Lindera benzoin			••													
10	Prunus virginiana			•													

DBH Measurement Rules



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Record using the tally system from 1 to 10

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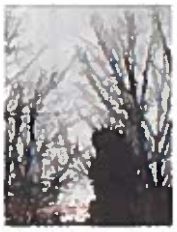

A B C D E

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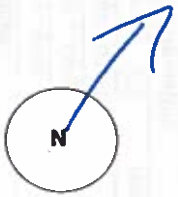
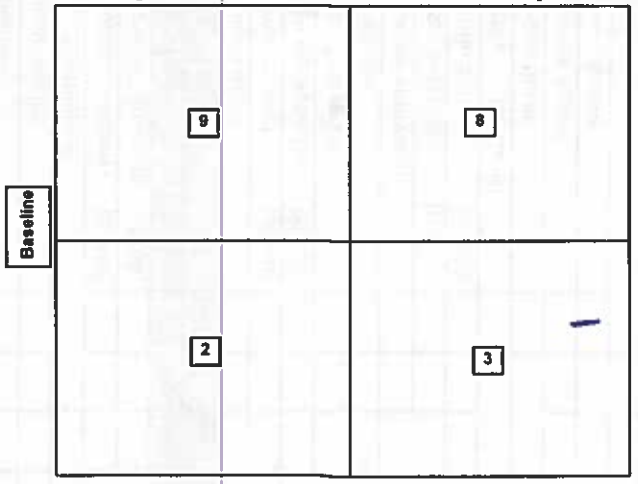
CLEVELAND METROPARKS Emerald Ash Borer - Fraxinus Sheet — *INTENSIVE MODULES ONLY* — *TREES ≥ 10CM ONLY*

Project Label: PCAP Project Name: OZMS2015 Plot No.: 1034 Date: 7/10/15 Page: 1 of 2

Module	Tree ID.	Species	Dead	c	Voucher #	DBH (cm)	Ht @ DBH	ASH Only: Ash condition	*Dead condition	# Exit holes	Epicormic present	Woodpecker holes
3	1	Fraxinus pennsylvanica				42.1		4	-	5	0	1
	2											
	3											
	4											
	5											
	6											
	7											
	8											
	9											
	10											
	11											
	12											
	13											
	14											
	15											
	16											
	17											
	18											
	19											
	20											
	21											
	22											
	23											
	24											
	25											



*** Change intensive module numbers when necessary



Map all ash trees ≥10cm in each module using Tree ID number

* If Ash Condition scores 5 (dead) provide breakup score (A-E)
Count EAB exit holes 1.25m≥ x ≥1.5m
Woodpecker and epicormic marked present (1) or absent (0)

CLEVELAND METROPARKS Plant Community Assessment Program: Invasive Species Survey

Cleveland Metroparks

Tier 1: Early detection/ Rapid response		Presence				GPS
		NE	SE	SW	NW	
Microstegium vimineum	Japanese stiltgrass					
Ranunculus ficaria	Lesser Celandine					
Cynanchum louiseae (vine)	Black Swallow-wort					
Butomus umbellatus (wetland)	Flowering Rush					
Heracleum mantegazzianum	Giant Hogweed					
Tier 2: Assess as Needed		**# of Plants**				**comments**
		NE	SE	SW	NW	
Acer platanoides	Norway Maple					
Ailanthus altissima	Tree of Heaven					
Lonicera japonica (vine)	Japanese Honeysuckle					
Lythrum salicaria (wetland)	Purple Loosestrife					
Aegopodium podagraria (G-cover)	Bishop's Goutweed					
Celastrus orbiculatus (vine)	Asian Bittersweet					
Torilis sp.	Hedgeparsley					
Conium maculatum	Poison Hemlock					
Rhamnus cathartica	Common Buckthorn (shrub)					
Berberis thunbergii	Japanese Barberry (shrub)					
Alnus glutinosa	European Alder					
Dipsacus laciniatus	Cut-leaf Teasel					
Elaeagnus umbellata	Autumn Olive (shrub)					
Lonicera maackii	Amur Honeysuckle (shrub)					
Euonymus fortunei	Wintercreeper					
Tier 3: Presence is of Interest		**# of Plants**				**comments**
		NE	SE	SW	NW	
Convallaria majalis (G-cover)	Lily of the Valley					
Coronilla varia (G-cover)	Crown Vetch					
Eleutherococcus pentaphyllus	Five-leaf Aralia (shrub)					
Pachysandra terminalis (G-cover)	Japanese Pachysandra					
Philadelphus coronarius	Mock Orange (shrub)					
Pulmonaria officinalis (G-cover)	Lungwort					
Rubus phoenicolasius	Wineberry					
Iris pseudacorus (wetland)	Yellow Flag Iris					
Ornithogalum umbellatum	Star of Bethlehem					
Viburnum opulus var. opulus	European Cranberry (shrub)					
Viburnum plicatum	Doublefile Viburnum (shrub)					
Tier 4: Widespread and abundant		**Presence**				**comments**
		NE	SE	SW	NW	
Alliaria petiolata	Garlic Mustard					
Ligustrum vulgare	Common Privet (shrub)					
L. morrowii, L. tatarica	Bush Honeysuckles (shrub)					
Phalaris arundinacea	*Reed Canarygrass*					
Phragmites australis (wetland)	Phragmites					
Polygonum cuspidatum	Japanese Knotweed					
Frangula alnus	Glossy Buckthorn (shrub)					
Rosa multiflora	Multiflora Rose (shrub)					
Typha angustifolia, T. x.glauca	Cattails (wetland)					
Cirsium arvense	Canada thistle					
Dipsacus fullonum	Common Teasel					
Hesperis matronalis	Dame's Rocket					
Vinca minor (G-cover)	Periwinkle					

Presence
X: yes

of Plants
1: 1-10
2: 11-50.
3: 51-100
4: 101-1,000
5: >1,000

of Plants
1: 1-10
2: 11-50.
3: 51-100
4: 101-1,000
5: >1,000

of Plants
1: 1-10
2: 11-50.
3: 51-100
4: 101-1,000
5: >1,000

Note: For Ground-cover plants record "stem #" but in comment field describe # of colonies and patch size (S,M, L)

CLEVELAND METROPARKS Plant Community Assessment Program Forest Pest and Pathogens Data Sheet

Cleveland Metroparks

Project Label: PCAP Project Name: 07M52015 Plot No.: 1039 Page: 1 of 1

mod #	species	voucher#	# shrub clumps	size class (cm) woody stems >1m 1 0-<1	2 1-<2.5	3 2.5-<5	4 5-<10	5 10 - <15	6 15 - <20	7 20 - <25	8 25 - <30	9 30 - <35	10 35 - <40	11 >40 (record each tree)
1	No pathogens found													
2														
3														
4														
5														
6														
7														
8														
9														
10														

*** IF EVIDENCE OF PEST OR PATHOGEN RECORD TOTAL SPECIES POPULATION IN THE PLOT EVEN THE NOT INFECTED**

Strata	# of stem infected	Severity (H,M, or L)
Tree (size class 3 or above)		
Shrub (size class 2 or below including shrub clumps)		

* Write **None Present** if no evidence:

_____ Beech (Fungus) _____ Asian Longhorned Beetle

_____ Hemlock (HWA) _____ Other Pest or Pathogen

_____ Walnut (Thousand Canker)

Severity
High = more than 50% of leaf/needle cover exhibiting symptoms
Medium = Less than 50% of leaf/needle cover exhibiting symptoms
Low = Only a few leaves or branches are exhibiting symptoms

CLEVELAND METROPARKS Plant Community Assessment Program - Plant Cover and Earth Surface

Project Label: PCAP Project Name: 02MS2015 Plot No.: 1039

Cleveland Metroparks

STANDING BIOMASS (required for emergent wetlands): collected in 0.1m clip plots (32x32 cm) from corners 1 and 3 in each intensive module. Required for VIBI-E score calculation. C?=check when collected

Module #	C?	Corner	Corner

CLASSIFICATION

(FI = excellent, g Fit and Confidence

Hydrogeomorphic class (WETLANDS ONLY):

- ☐ DEPRESSION Fit=___ Conf=___
- ☐ IMPOUNDMENT ☐ Beaver ☐ Human Fit=___ Conf=___
- ☐ RIVERINE ☐ Headwater ☐ Mainstem ☐ Channel Fit=___ Conf=___
- ☐ SLOPE (ground water hydrology or on a physical slope) Fit=___ Conf=___
- ☐ FRINGING ☐ Reservoir ☐ Natural Lake Fit=___ Conf=___
- ☐ COASTAL (specify subclass) Fit=___ Conf=___
- ☐ BOG (strongly, moderately, weakly ombrotrophic) Fit=___ Conf=___

Ohio EPA VIBI Plant Community Class (WETLANDS ONLY):

- ☐ FOREST ☐ swamp forest ☐ bog forest ☐ forest seep Fit=___ Conf=___
- ☐ EMERGENT ☐ marsh ☐ wet meadow ☐ open bog Fit=___ Conf=___
- ☐ SHRUB ☐ shrub swamp ☐ tall sh. bog ☐ tall sh. fen Fit=___ Conf=___

McNAB INDICES (degrees) + for up - for down

(FILLED OUT USING GIS PROGRAM - DO NOT FILL OUT IN FIELD)

		LFI*	TSI**
At aspect	N		
+45 degrees	NE		
+90 degrees	E		
+135 degrees	SE		
+180 degrees	S		
+225 degrees	SW		
+270 degrees	W		
+315 degrees	NW		

LFI is angle of plot to the horizon. TSI is angles formed by local slopes. For TSI measure angle from recorders eye to eye of person standing ~10 m away

* Landform Index (position within landscape)

** Terrain Shape Index (site microtopographic shape)

MICROTOPOGRAPHIC FEATURE COUNTS - Intensive modules only

Ranks for microhabitat features. Select one or select two and average the score.NOTE: If mod falls on a slope automatically gets ranked based on steepness (1-3) to begin + any features present

Slope 1 = slight elevational grade across module (hill) Slope 2 = falls on slope ~20° Slope 3 = maximum steepness that can be safely sampled ~45°

0 feature is absent or functionally absent from the wetland

3 feature is present in the wetland in very small amounts or if more common, of low quality

7 feature is present in moderate amounts, but not of highest quality, or in small amounts of highest quality

10 feature is present in moderate or greater amounts and of highest quality

c.w.d. - count for pieces with minimum 1m length

mod#	corner	no. of tussocks depth 3 1x1m (count)	no. of hummocks uplands (Tip-Ups) depth 2 3.16x3.16m (count)	no. macro. depressions depth 1 10x10m (count)	c.w.d (2-12 cm) depth 1 10x10m (count)	c.w.d (12-40cm) depth 1 10x10m (count)	c.w.d >40 cm depth 1 10x10m (count)	microhab. interspers. depth 1 10x10m (rank)	microhab. SLOPE 10x10m (rank)
2		0	0	0	4	0	0	7	1
3		0	0	0	5	0	0	7	1
8		0	0	0	2	0	0	3	1
9		0	0	0	3	0	0	2	11

NOTE: tussock and hummocks are counted in BOTH nested quadrat corners but counts are aggregated.

CROWN COVER (DENSIOMETER)

Make 4 readings per module facing N, S, E, W. Place dot count in corresponding space. (4 dots per grid square)

Module	N	S	E	W
2	4	4	3	0
3	1	2	1	2
8	0	1	1	1
9	17	11	11	13

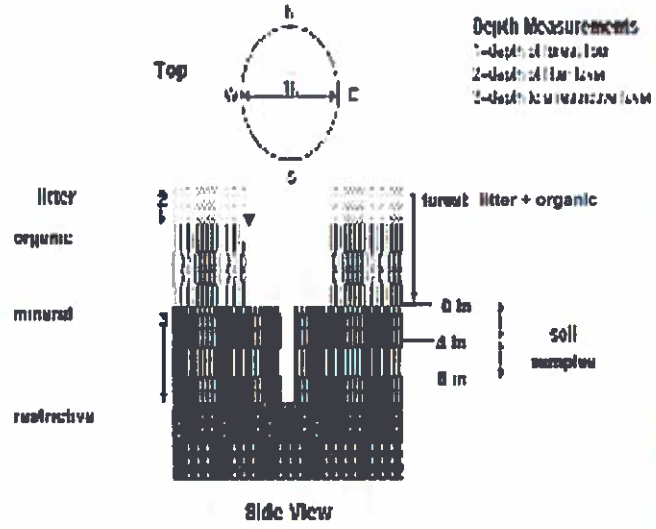
COVER BY STRATA

STRATUM	GENERAL FORM
Tree (generally >5 m)	Tree (overstory), very tall shrubs*, liana, epiphyte)
Shrub (generally 0.5 to 5 m)	Tree (sapling), shrub, liana, epiphyte)
Herb (Field)	Herb, dwarf-shrub**, tree (seedling***)
Floating	Floating
Aquatic (submerged)	Submerged

*Very tall shrubs are sometimes included in the tree stratum

**Can also include seedlings of shrubs, i.e. all shrubs <0.5m

***Tree seedlings are often defined as up to 1.4 m height or as <2.5 cm DBH in which case they would span the herb and shrub layers.



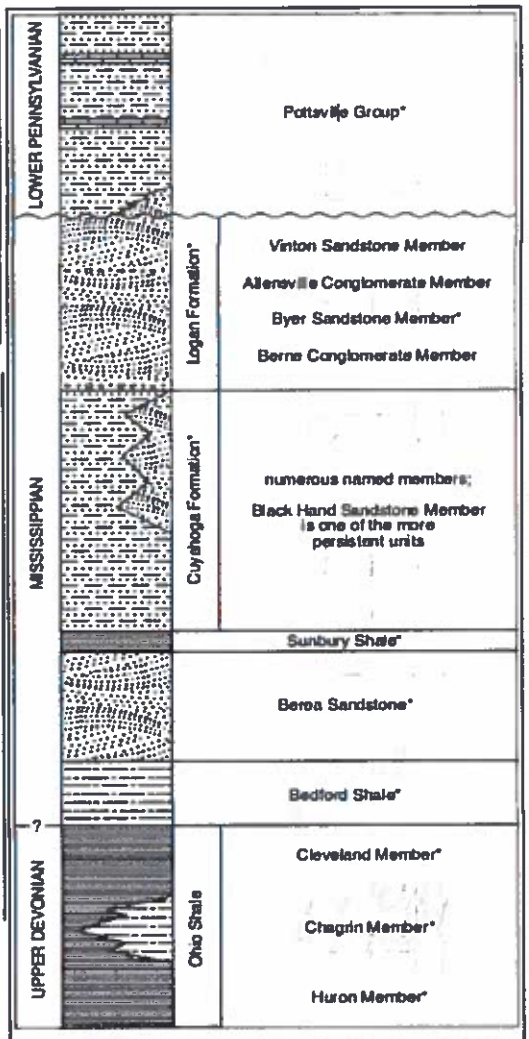


FIGURE 3-20.—Generalized section of Upper Devonian, Mississippian, and Lower Pennsylvanian formations in northeastern Ohio. Asterisks indicate units that are fossiliferous. This composite section represents about 400 meters of rock exposed across the area. The section is not to scale, but the thicknesses indicated are proportional. The term "Waverly" is used in the older literature to refer to Mississippian rocks in Ohio. Some geologists use the European term "Carboniferous," which encompasses the Mississippian and Pennsylvanian Periods of the U.S. Many units have been named within the Cuyahoga Formation, but most units are local and cannot be traced over great distances. The Black Hand Member is a spectacular massive sandstone that is fairly widespread but discontinuous. See Hyde (1953), Hoover (1960), and Collins (1979) for more information on Mississippian rocks in Ohio. See figure 3-18 for explanation of rock types.

CLEVELAND METROPARKS Plant Community Assessment Program - Soils, Crown Cover, Standing Biomass Data Sheet 6a

Project label: PCAP Project Name: CLS2015 Plot No.: 1039

Cleveland Metroparks

SOIL PIT DESCRIPTION: Excavate 20 cm plug with shovel. Describe using Munsell chart, visual exam, texture, and odor.

SOIL SAMPLES Standard procedure: collect a soil sample of the top 10 cm of soil from center of each intensive module and composite the sample.

Soil pit module # ____ (one per entire plot)

5 cm	matrix color				
	mottle color				
	%mottle				
	oxid roots	Y	N		
	texture*				
	redox features**	Y	N		
	hydr. cond.***	I	S	M	D
20 cm	matrix color				
	mottle color				
	%mottle				
	oxid roots	Y	N		
	texture*				
	redox features**	Y	N		
	hydro. cond.***	I	S	M	D

* refer to texture classes on reverse side

** e.g. hydrogen sulfide odor, gleying, etc.

*** Circle one: I=indundated S=saturated M=moist D=dry

Notes: include evidence of earthworms (worms, castings, middens)

2- worm castings
3- worms, castings
8- worms and castings present
9- worms and castings present

Soil Collection Module	Horizon (A, B, C)
2,3,8,9 composited	A

Web Soil Survey Information:

Soil Series/Type:

Soil Series Source: Ohio Soil Survey

Landform type:

Depth to rest. Layer:

Parent Material:

DRAINAGE

- ☐ Excessively dr.
- ☐ Somewhat excessively
- ☐ Well drained
- ☐ Moderately well dr.
- ☐ Somewhat poorly dr.
- ☐ Very poorly dr.
- ☐ Impermeable surface

SOIL DEPTH MEASUREMENT: Measure to the nearest 0.1 cm in center of intensive modules. If >30.5 cm, record as >30

mod#	1 litter+ organic depth (cm)	2 litter depth (cm)	water depth (cm)	depth sat soil (cm)
2	0.4	0.4	-	-
3	0.3	0.3	-	-
8	0.6	0.6	-	-
9	0.7	0.7	-	-

EARTH SURFACE & GROUND COVER

Underlying Earth Surface* (Sum = 100%)	percent	Ground Cover (Each ≤ 100%)	percent
Histosol	-	Coarse Woody Debris***	4
Mineral Soil	98	Fine Woody Debris****	3
Gravel-Cobble*	1	Litter	2
Boulder**	1	Duff (Ferm.+ Humus)	0
Bedrock	-	Bryophyte- Lichen	1
* Gravel-Cobble = 1/16-10"		Water	3
**Boulder = > 10 in		Bare Soil	5
*** >5 cm in diameter		Road/Trail	8
**** <5 cm in diameter		Other	

COVER BY STRATA %
estimate using midpoints of 5,ex:3, 8, 13

Strata	Height Range (m)	Total Cover (%)
Tree	5.0 - 0	53
Shrub	.5 - 5.0	83
Herb	0 - .5	73
(Floating)*	-	
(Aquatic)*	-	

* rooted and floating or slightly emersed

** submersed, most plant mass below surface

SEE BACK OF PAGE FOR "TYPICAL" STRATA DESCRIPTIONS. STRATA CAN VARY BY COVER TYPE.

TRAIL INFORMATION:

record type and cover for each

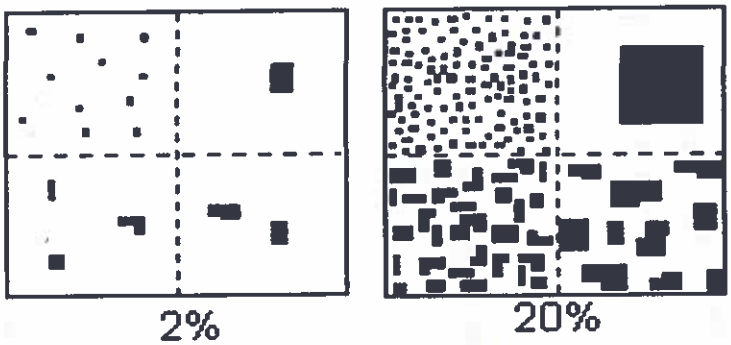
Type	%Cover
☐ All Purpose	
X Bridle	5
☐ Hiking sanctioned	
☐ Bootleg unsanctioned	
☐ Gravel	
X Deer	3

STAND SIZE

- X >600 x plot size
- ☐ > 100 x plot size
- ☐ 10-100 x plot size
- ☐ 3-10 x plot size
- ☐ 1-3 x plot size
- ☐ < plot size

PERCENT MOTTLES (USE CLASS CODES):

Class	Code		Criteria: % of Surface Area Covered
	Conv.	NASIS	
Few	f	#	< 2
Common	c	#	2 to < 20
Many	m	#	≥ 20

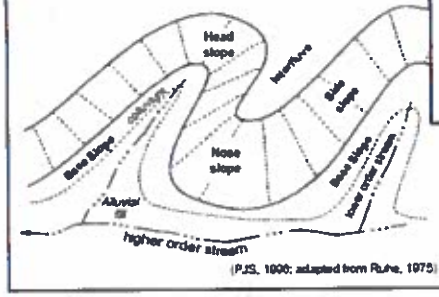


SOIL TEXTURE: Record the code for the soil texture of the 5 cm and 20 cm layers. To estimate texture, collect a soil sample from the appropriate layer and moisten it with water to the consistency of modeling clay/wet newspaper; the sample should be wet enough that all of the particles are saturated but excess water does not freely flow from the sample when squeezed. Attempt to roll the sample into a ball. If the soil will not stay in a ball and has a grainy texture, the texture is either sandy or coarse sandy. If the soil does form a ball, squeeze the sample between your fingers and attempt to form a self-supporting ribbon. Samples which form both a ball and a ribbon should be coded as clayey; samples which form a ball but not a ribbon should be coded as loamy.

0= Organic
1= Loamy
2= Clayey
3= Sandy
4= Coarse Sand
9= Not measured - make plot note

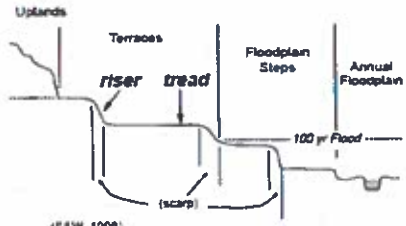
Geomorphic Component - Three-dimensional descriptors of parts of landforms or microfeatures that are best applied to areas. Unique descriptors are available for Hills, Terraces, Mountains, and Flat Plains; e.g., (for Hills) *nose slope* or *NS*.

Hills	Code	
	PDP	NASIS
interfluve	IF	IF
head slope	HS	HS
nose slope	NS	NS
side slope	SS	SS
base slope	---	BS



(P.J.S. 1999; adapted from Ruhe, 1975)

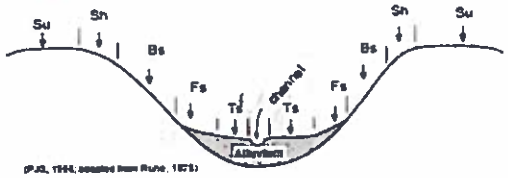
Terraces	Code
riser	RI
tread	TR



(SAW, 1996)

Hillslope - Profile Position (Hillslope Position in PDP) - Two-dimensional descriptors of parts of line segments (i.e., slope position) along a transect that runs up and down the slope; e.g., *backslope* or *BS*. This is best applied to transects or points, not areas.

Position	Code
summit	SU
shoulder	SH
backslope	BS
footslope	FS
toeslope	TS



(P.J.S., 1996; adapted from Ruhe, 1975)

HYDROLOGIC REGIME Modified from Grossman et al 1998. (Frequency and duration of flooding.)

UPLAND: Not a wetland. Very rarely flooded.

INTERMITTENTLY/SEASONALLY SATURATED: Dry at least once per year. Surface water is seldom present, but substrate is saturated to surface for extended periods during the growing season.

PERMANENTLY/SEMIPERMANENTLY SATURATED: Dry less than once per year. Surface water is seldom present, but substrate is saturated to surface for extended periods during the growing season. Equivalent to Cowardin's Saturated modifier.

OCCASIONALLY FLOODED: Surface water can be present for brief periods during growing season, but not in most years. Often characterizes flood-plain upper terraces.

TEMPORARILY FLOODED: *Surface water present for brief periods during growing season*, but water table usually lies well below soil surface. Often characterizes flood-plain levees and lower terraces. Equivalent to Cowardin's Temporary modifier.

INTERMITTENTLY FLOODED : Substrate is usually exposed, but surface water can be present for variable periods without detectable seasonal periodicity. Inundation is not predictable to a given season and is dependent upon highly localized rain storms. This modifier was developed for use in the arid West for water regimes of Playa lakes, intermittent streams, and dry washes but can be used in other parts of the U.S. where appropriate. This modifier can be applied to both wetland and non-wetland situations. Equivalent to Cowardin's Intermittently Flooded modifier.

SEMIPERMANENTLY FLOODED (exposed <1/year): Surface water persists throughout the growing season in most years. Land surface is normally saturated when water level drops below soil surface. Includes Cowardin's Intermittently Exposed and Semipermanently Flooded modifiers.

PERMANENTLY FLOODED: Water covers the land surface at all times of the year in all years. Equivalent to Cowardin's "permanently flooded".

UNKNOWN: The hydrologic regime cannot be determined from the available information.