CLEVELAND METROPARKS Plant Community Assessment Program: Quality Control Form

Cleveland Metroparks

Project Label: PCAP **Plot No:** 1065 **Date Sampled:** 7/29/15 7/30/15 **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	NA
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)	Too thick
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
CKM256-285	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:

Found all pins

CLEVELAND METROPARKS Plant Community Assessment Program - Background Data Sheet

Horse Parking Lot

Chagrin River

GENERAL INFORMATION

Project Label: PCAP

Project Name: 02NC2015

Plot Name: Horse Trailer Swamp

Plot No.: 1065

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

Date (mm/dd/yyyy): 7/29/2015

End date (if > 1 day): 7/30/2015

Party	Role**
C. Minney	Plot leader
M. Geitgey	Bot. Asst.
T. Cochran	Woody Tech
E. Knauss	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:** Lake

Quadrangle: Mayfield Heights

Local Place Names: Ox Lane, Chagrin River Rd.

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: 41.57040

Longitude: 81.41969

Coord. Accuracy: ☐ m X ft +- 10.4

GPS File Name: NC1065act

Plot size for cover data: .1 (hectares)

X-axis Bearing of plot: [270] °

Depth: (1-5): 4

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

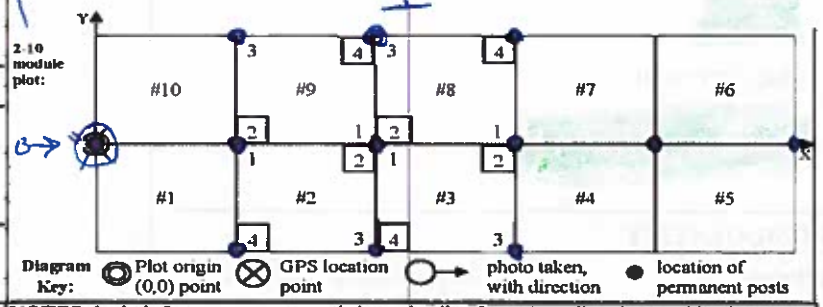
Camera No.: 4

Photo Nos.: C4692

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: 2x5

Location: Park at Horse Trailer Gravel Parking Lot off of Oxbow Lane. Walk NW paralleling Chagrin River Rd. This area is slightly less thick. Hook to your left eventually, plot is ~70m from parking lot. Large Pin Oak near origin.

Rationale: GRTS

Veg Characterization: The canopy is extremely sparse mostly with dying Ash, American Elm and Pinus sylvestris. The shrub layer is very thick with many tall herbs like Agrimonia and Tear-thumb, Rose and Rhamnus. Herb layer is extremely thick and diverse with many graminoids, Impatiens, and Poison Ivy.

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

Project Label: PCAP Project Name: 02 NC 2015 Plot No.: 1065

MODIFIED NATURESERVE CLASS*

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

M05

COMMUNITY NAME:

Ash-Elm Swamp

DISTURBANCES

type*	severity**	yrs ago	% of plot	description
Human	M	40+	10	Pinus slyvestris planted
Natural				
Fire				
Cut				
Animal	MH	0	100	Deer Browse
Other	M	0	50	Trampling of plot

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

HOMOGENEITY

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

Current Land Use: CMP

Former Land Use:

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)

SKF 10-26-15

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

The trees in the plot are mostly dying from the large to the small. The plot is within a canopy gap with some wet aspect surrounded by flat forest. Pinus sylvestris flanks the plot and surrounding area in patches. Rhamnus is very common here. Shrub diversity in general, as well as graminoid diversity is high. The thin canopy allows ample sunshine. Plot is very thick with thorns and undergrowth making movement and orientation difficult.

CLEVELAND METROPARKS Plant Community Assessment Program Species Cover Data Sheet Page 1 of 4

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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

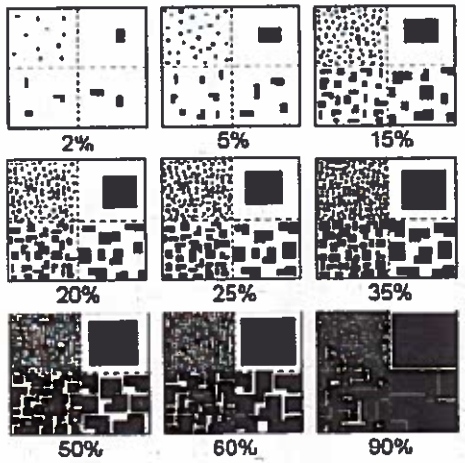
Estimate for each intensive module:

	mod	corner	mod	corner	mod	corner	mod	corner	mod	corner	mod	corner	mod	corner	mod	corner	mod
	2	4	2	2	3	4	3	2	8	4	8	2	9	7	9	2	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	2			
%unveg. litter (bare litter)	1	2			1	2			1	2			1	2			

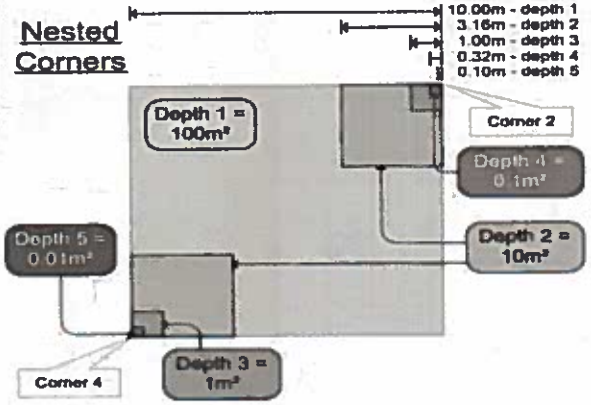
S	H	(F)	(A)	Br	Species	c	Voucher #	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth
7	5			6	RHAMNUS FRANGULA			4	6	2		4	5			3	5			4	8	4				
7	5				Leersia virginica			4	6	4		3	6	3		2	7	2		2	7	4				
7	5			5	Agrimonia parviflora			4	8	4		3	7	4		3	7	4		2	7	4				
	5				Juncus tenuis	X	CKM262	4	3			3	2			1	2			1	2					
	4				Potentilla simplex		ckm	4	2	4		2	3	4		*	3	4		4	4	4				
	8				Poaceae *1 Agrostis stolonifera		CKM256	4	8	4		4	7			3	7	2		2	7	4				
7	4				Polygonum sagittatum	X	CKM257	4	5	2		4	5			2	5	3		2	7	3				
	3				Lycopus sp. uniflorus		CKM693-694	3	1				2	2												
	2				Aster lateriflorus			3	1			3	2	2			2	2			2	3				
	4				Geum canadense			3	3	4		3	3	4		3	3	4		3	4	3				
3	2			6	Viburnum *1 plicatum	X	CKM258	2	2			1	2				2	2								
	7			7	Impatiens capensis			2	3	4		4	3	3		4	3	3		4	6	3				
	2				Aster lanceolatus			2	2							3	2			2	2					
5	3			6	Cornus sp. amomum	X	CKM269	2	4			2	5			1	5			4	2					
	2				Lysimachia ciliata			2	2																	
	3				Fraxinus sp. (seedling)			2	2								3	2			3	3				
2	5			5	Toxicodendron radicans			2	3	2			3	3		2	3	3								
3	5				Glyceria striata			2	2	4		2	2			3	3	3			4	4				
	2				Cinna arundinacea			2	2			2	2	2												
	4				Moss sp.			2	2			4	2			4	4	2			3	2				
	2				Epilobium			2	2				2	2		1	2									
	2				HOLCUS LANATUS			2	2																	
	2				Verbesina alternifolia			2	1																	
	3				Scirpus *1 atrovirens	X	CKM259/271	2	2			2	2			1	2				3	2				
	2				Fragaria virginiana			2	2																	

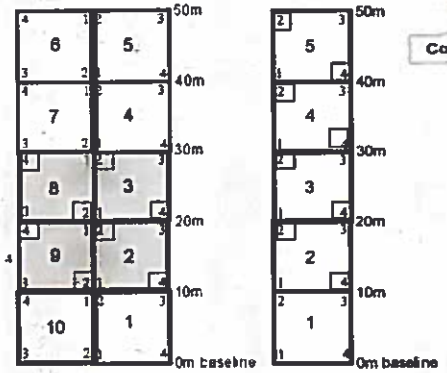
EXAMPLES OF PERCENT OF AREA COVERED

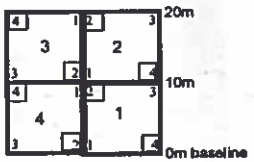
The following graphic can be used for various data elements to convey "Amount" or "Quantity". NOTE: Within any given box, each quadrant contains the same total area covered, just different sized objects.

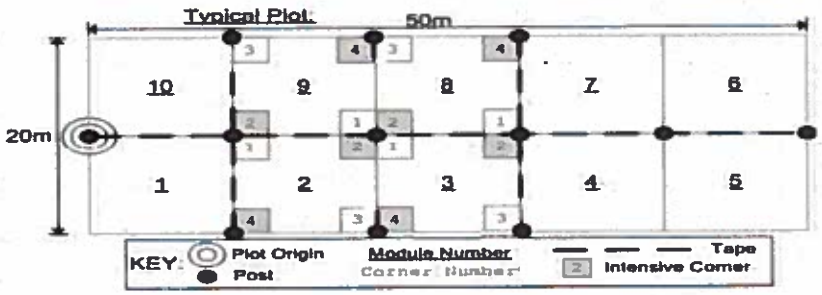


cover class	% cover	midpoint
1	solitary or few	0.0001
2	0-1%	0.005
3	1-2%	0.015
4	2-5%	0.035
5	5-10%	0.075
6	10-25%	0.175
7	25-50%	0.375
8	50-75%	0.625
9	75-95%	0.850
10	95-100%	0.975









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 Page 2 of 4

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Cleveland Metroparks

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	2	4	2	2	3	4	3	2	8	4	8	2	9	4	9	2	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 #	mod depth	mod cov	mod depth	corner cov	mod depth	corner cov	mod depth	corner cov	mod depth	corner cov	mod depth	corner cov	mod depth	corner cov	mod depth	corner cov	mod depth	corner cov	mod depth
5	4			.7	Rubus pensylvanicus			2	2	2		2	3									2	6			
	2				VERONICA OFFICINALIS			2	1																	
	2				LONICERA JAPONICA			2	1																	
	2				Panicum #1 lanuginosum var. implicatum	X	CKM260	2	2																	
3	4			5.	Parthenocissus quinquefolia			2	2									2	3			2	5	2		
6	5			9.	ROSA MULTIFLORA			2	2			3	4	3		2	3	4					4	3		
5	4			6	Pyrus sp.			2	1							4	4	2								
	4				Dryopteris carthusiana		SRE 1215-15	2	2	2		2	2			2	3	4					3	2		
	2				~~Poaceae #2~~ Poa pratensis	X	CKM261	2	2																	
6	4			5	LIGUSTRUM VULGARE			■	3	2		3	6	4		2	7	2				4	4			
	2				Ilex opaca				2	2		1	2													
	3				Juncus effusus	X	CKM264		2	2			2	2												
	2				Carex #1 radiata	X	CKM263		2	2																
	4				Onoclea sensibilis			~	3	2			3	3								2	2			
	3			6	Quercus sp. (seedling)			2	2	2			2	2			2	2					3	2		
3	2				Carex #2 scoparia	X	CKM265		2	2													3	2		
	2				RANUNCULUS ACRIS				2	2																
	2				~~Poaceae #3~~ Anthoxanthum odoratum	X	CKM266	1	2																	
	2			6	VIBURNUM OPULUS var. OPULUS	X	CKM267	1	2																	
5					Acer rubrum			1	4			1	3													
	3				Carex #3 lurida	X	CKM268	1	2																	
					~~Cornus~~	X	~~CKM269~~	1																		
	3				Leersia oryzoides	X	CKM271	1	2																	
	3				Scirpus #2 atrovirens	X	CKM270	1	2																	
4	2			6	Crataegus sp.			1	4			2	2									1	2			

combined SRE 12-15-15

Dicanthelium

scabrous Agrost?

-star sedge

Q. palustris

Ovalton 3-ranked

Anthoxanthum?

Viburnum opulus?

large peri

oryzoides

taller - green stem

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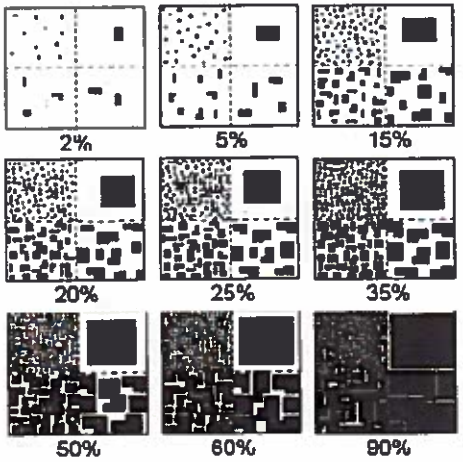

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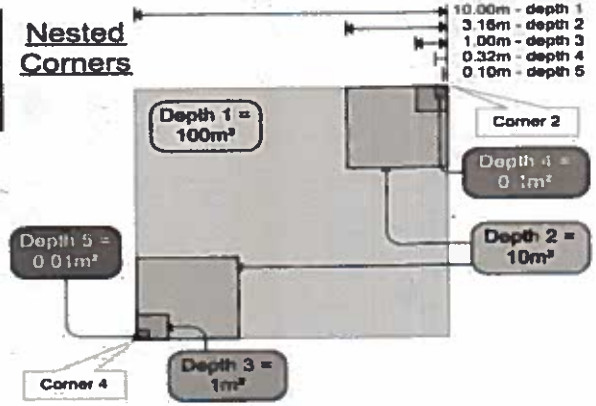
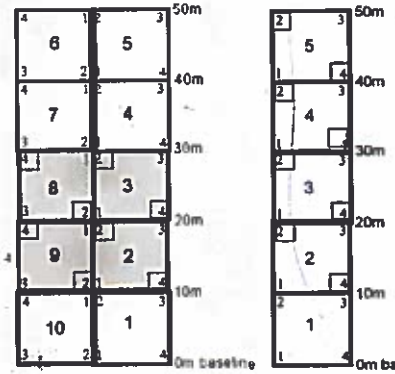
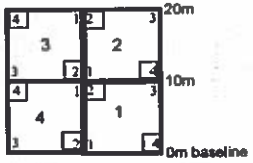
7	25-50%	0.375
8	50-75%	0.625
9	75-95%	0.850
10	95-100%	0.975

Nested Corners







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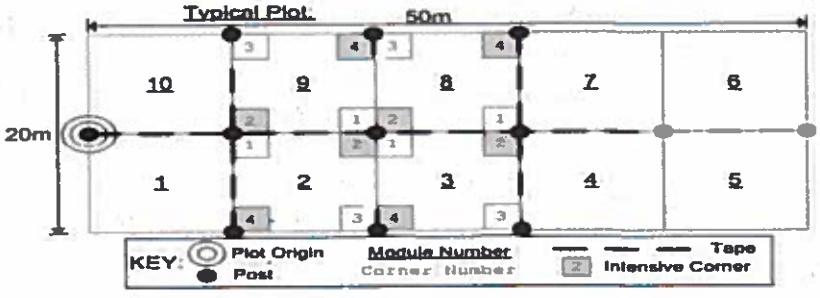

CLEVELAND METROPARKS Plant Community Assessment Program Species Cover Data Sheet Page 3 of 4

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	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 #	mod depth	mod cov	corner depth	corner cov	mod depth	mod cov	mod depth	corner cov	mod depth	mod cov	mod depth	corner cov	mod depth	corner depth	corner cov	mod depth	corner depth	corner cov	mod depth
	1				Arisaema triphyllum var. triphyllum			1	1																		
	2				Circaea lutetiana			1	1				2	2													
2-3	3				Polygonum virginianum			1	2			2	3	2		2	2										
	2				Acer sp. (seedling)			1	1																		
4-4	4			9	Rosa #1 setigera ckm		CKM281	1	2			1	2			3	4	2			3	2					
	2				PRUNELLA VULGARIS VAR VULGARIS			1	2																		
	3				Solidago rugosa crinita			1	2				3	2							1	2					
3-2	2				Carex #4 crinita var ckm	X	CKM274	1	2							2	3	3									
	2				~~Equisetum~~ arvense ckm		CKM272	1	2			3	2														
2	2				Vitis labrusca ckm		CKM273	1	2			1	3														
	2			8	Viburnum #3 dentatum	X	CKM275	1	2														1	2			
	2				Oxalis stricta							2	2			1	2										
2				10	Fagus grandifolia							2	2														
5-2				6	Quercus palustris							2	2			2	3				1	4					
6-4				6	Fraxinus pennsylvanica			1	2				5	4		3	5	2			4	4					
	4				LYSIMACHIA NUMMULARIA								2	4		4	2				4	3					
5					Ulmus americana								6	4			4	2									
	2			10	Liriodendron tulipifera								2	3													
	2				Carex #5 tribuloides ckm	X	CKM276						2	2													
	2				Polygonum #2 sp	X	CKM277						2	2			2	2									
	2				Lindera benzoin								2	2													
	2			7	Solidago canadensis							1	2														
	2				Poa alsodes											3	3										
3-3					Rumex obtusifolius ckm	X	CKM2708									2	3				2	3					
5	3				Panicum #2 clandestinum ckm	X	CKM279									1	5				1	4					

3-5 lfs retrose prickle native

long, nodding tall

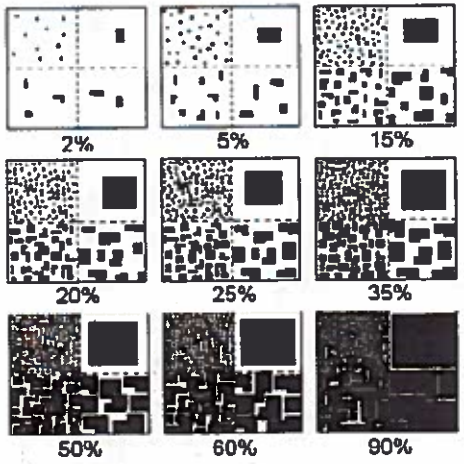
don't Tag

may be same as #2 peppery taste

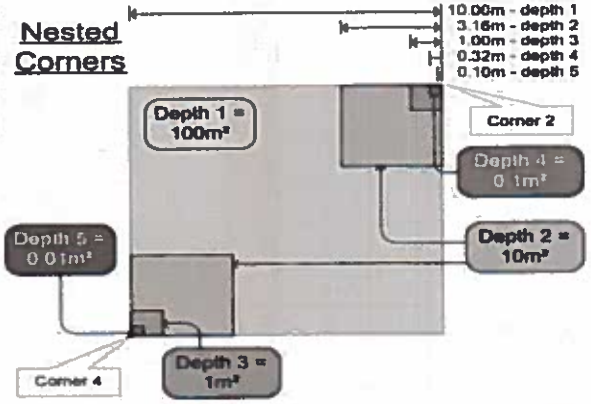
True Panicum

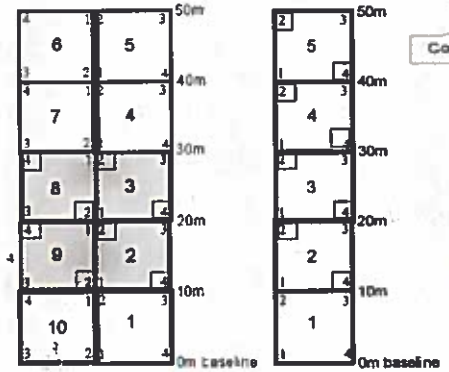
EXAMPLES OF PERCENT OF AREA COVERED

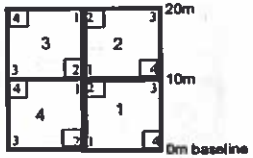
The following graphic can be used for various data elements to convey "Amount" or "Quantity". *NOTE:* Within any given box, each quadrant contains the same total area covered, just different sized objects.



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.

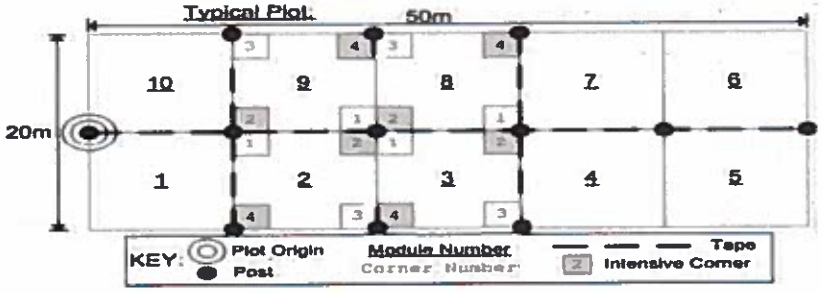
MEDIUM LOW values include evidence of browse at about 10 percent of the stems with no significant impact to plant reproduction evident. In this rating, plants are browsed but preferential species are observed to be reproducing in numbers that appear normal or near-normal in comparison to low browse areas. 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: OZNL 2015 | Plot no.: 1065

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	2	3	4	3	2	8	4	8	2	9	4	9	2	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				

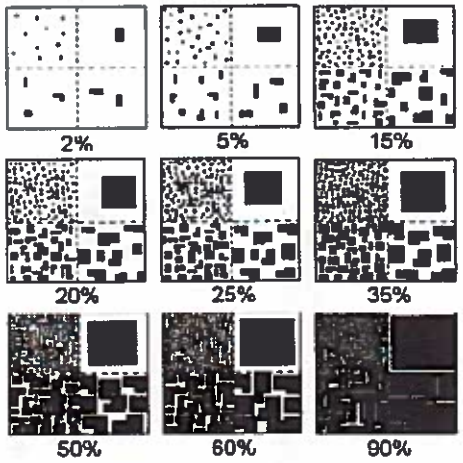
S	H	(F)	(A)	Br	Species	c	Voucher #	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth	cov	depth
3	3				Carex *6 vulpinoidea var. vulpinoidea	X	CKM280									2	4								
	1				Eupatorium perfoliatum		c4695-696													1	3				
2	2				Solidago *1 graminifolia var. nuttallii	X	CKM282													1	2				
3					Prunus serotina		Fuirena graminifolia																		3
	1				Ulmus sp. (seedling)																				1
2					Agrimonia *2 gryposepala	X	CKM283																		2
	1				Unk. Woody #1 Picea sp.	X	c4297 CKM284																		1
1					CELASTRUS ORBICULATOS																				2
2					Carya cordiformis																				2
2					Solidago gigantea																				2
	2				Verbena urticifolia																				2
2	2				Hypericum punctatum	X	CKM285																		2
	2			8	Carpinus caroliniana																				2
3				5	Betula populifolia																				3

Oraltrum stipitatum Bonset grass-like

Spruce

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.



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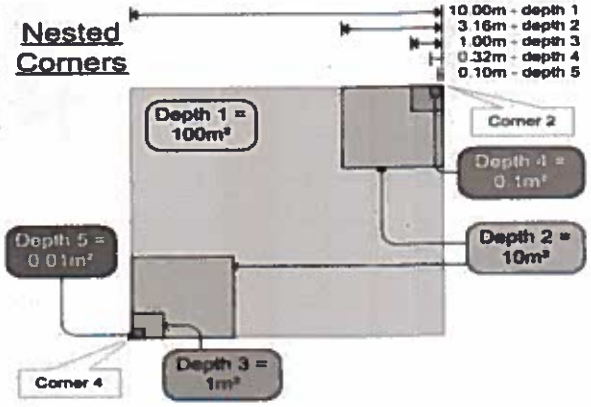
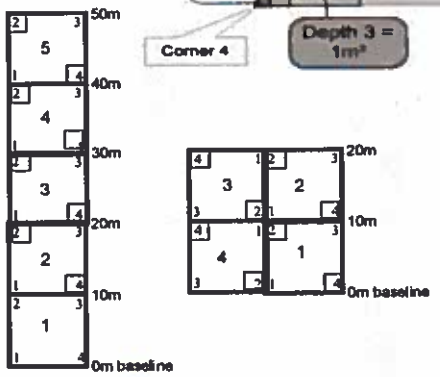
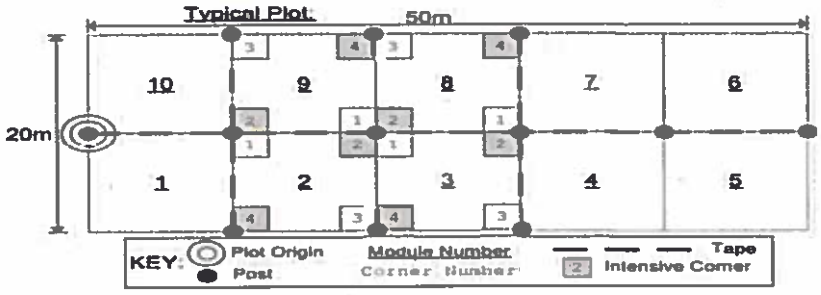
5	5-10%	0.075
6	10-25%	0.175
7	25-50%	0.375
8	50-75%	0.625
9	75-95%	0.850
10	95-100%	0.975







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

Project Label: PCAP Project name: DZNC2015 Plot no.: 1065

% 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 #					
5		Fraxinus pennsylvanica			X		X		X
6		PINUS SYLVESTRIS			X			X	X
6		Ulmus americana			1	X	X	X	X
4		Toxicodendron radicans					X	X	
5		Quercus palustris							X
5		Acer rubrum							X
2		Liriodendron tulipifera							X
2		Nyssa sylvatica							X

Epigamic plants

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 #					

07/29/2015

CLEVELAND METROPARKS Plant Community Assessment Program Natural Woody Stem Data Sheet

Project Label: PCAP Project Name: 02NC 2015 Plot No.: 1065 Page: 1 of 10

Cleveland Metroparks

Explain subsample (additional room on back):

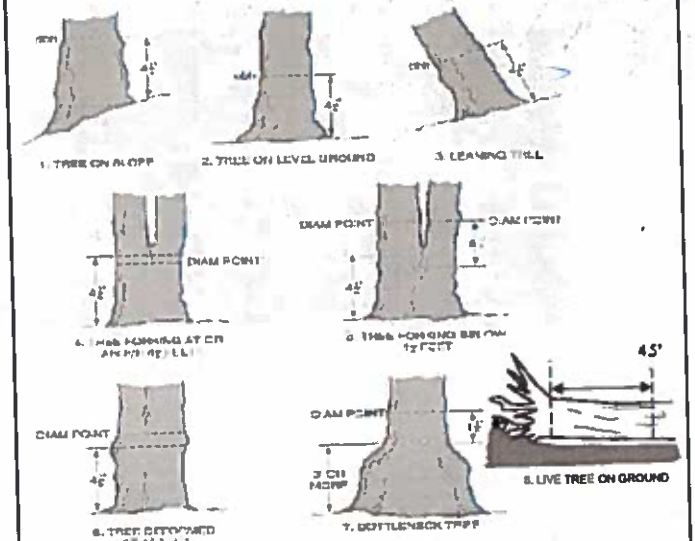
2010 I'd as Ulmus rubra

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	Pyrus sp.			1					•								
1	Rhamnus frangula			5		::	XXX										
1	STANDING DEAD						X:	::	--	•						•	
1	Ligustrum vulgare					:.					•						
1	Acer rubrum									•	••						
1	Toxicodendron radicans			1			••										
1	Parthenocissus quinquefolia			2			•										
1	Prunus serotina									•							
4	Viburnum #3		CKM275					••									
1	Quercus palustris			2						•						•	
1	Ulmus americana										•						
1	Fraxinus pensylvanica			2					•		•						
1	Pinus sylvestris														•		
1	Betula pensylvanicus			1													
1	~~Cornus~~ Cornus sp			1													
1	Rosa multiflora			3													
1	Quercus sp.			1													
2	Pinus sylvestris												•				
2	STANDING DEAD					••	••	••	•	••	•	•		•			43.5
2	Acer rubrum									•							
2	Fraxinus pennsylvanica							•	•	••							
2	RHAMNUS FRANGULA		pluebum	5		X:	X:										
2	Viburnum #		CKM255			•											
2	Ligustrum vulgare					:.											

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

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

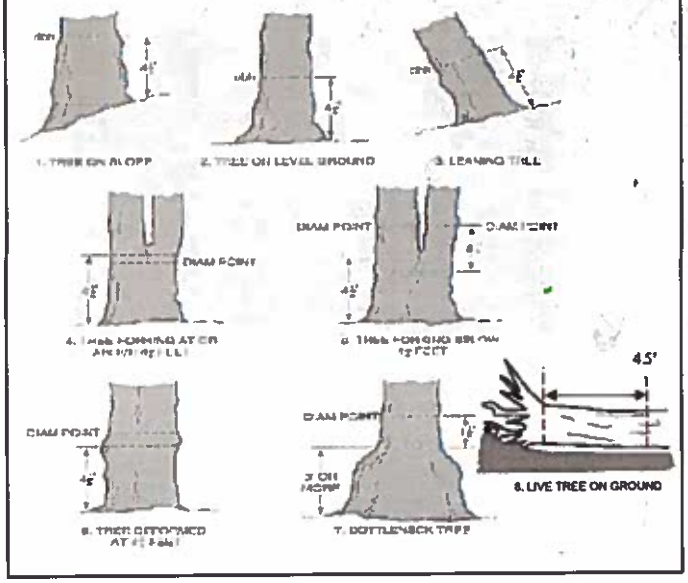
Project Label: PCAP Project Name: 02NC2015 Plot No.: 1065 Page: 2 of 6

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)
2	Rosa multiflora			1		3											
2	Pyrus sp.						1										
2	Cornus sp.			2			1	3	1								
2	Fraxinus sp.			1													
2	Rubus pensylvanicus			2													
2	Quercus sp.			3													
2	Liriodendron tulipifera			1													
2	Vitis sp-labrusca		CKM273				1										
2	Viburnum #3 dentatum			1													
3	Rubus pensylvanicus			5		2											
3	RHAMNUS FRANGULA			3		1	2		1								
3	STANDING DEAD					1		2	1	1							
3	Fraxinus pennsylvanica			3			1	3	1	1	1						
3	Ulmus americana									2		2					
3	LIGUSTRUM VULGARE			2		2											
3	Rosa #1 setigera		CKM 288	2		2											
3	Rosa multiflora			8		1											
3	Crataegus sp.			1				2	1								
3	Cornus sp.			1				1	2								
3	Vitis sp-labrusca						2										
3	Quercus sp			2													
4	Fraxinus pennsylvanica			1				1	2								
4	LIGUSTRUM VULGARE			1		1											
4	Toxicodendron radicans						1										

2010 IDd as Ulmus rubra

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.
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A B C D E

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

10/30/2015

CLEVELAND METROPARKS Plant Community Assessment Program Natural Woody Stem Data Sheet

Project Label: PCAP Project Name: 02NC2015 Plot No.: 1065 Page: 3 of 6 Cleveland Metroparks

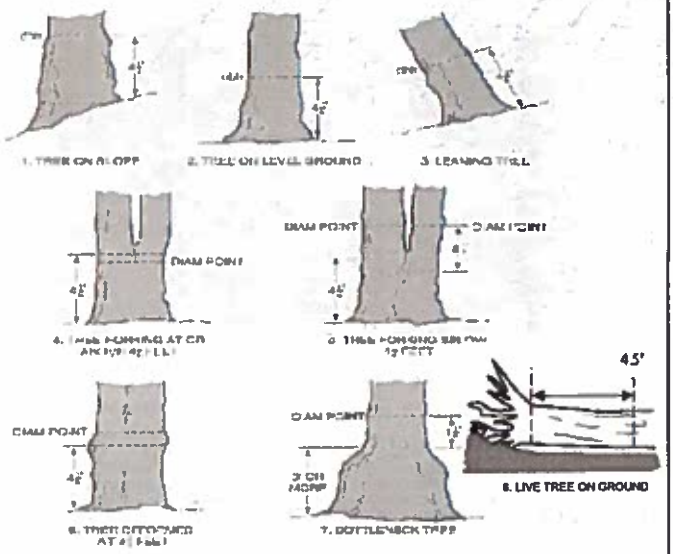
Explain subsample (additional room on back):

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)
4	ROSA MULTIFLORA			10		⊠											
4	Acer rubrum									•		•					
4	RHAMNUS FRANGULA			1		•	••										
4	STANDING DEAD					•				•		•	•				
4	Fagus grandifolia						•	•									
4	Quercus sp.			1			•										
4	Ulmus americana										•						
5	LIGUSTRUM VULGARE			4		⊠::	⊠										
5	Pyrus sp.							•									
5	RHAMNUS FRANGULA			5		⊠:		•	•								
5	Fraxinus pennsylvanica			2			•	••		•							
5	ROSA MULTIFLORA			4		::											
5	STANDING DEAD							••		•	••		•				
5	Toxicodendron radicans						•										
5	Rosa #1 Setigera		SRE 17-15-K	5		⊠											
5	Viburnum #1 plicatum			2	X	•											
5	Crataegus Sp.						•										
5	Acer rubrum									X		•					
6	RHAMNUS FRANGULA			5		⊠:		•									
6	Ulmus americana									•	••						
6	Rubus pensylvanicus			2		::											
6	LIGUSTRUM VULGARE			3		⊠											
6	Cornus Sp.			1		•	•	•	•								
6	STANDING DEAD					::	•	•			•	•	•				

large standing dead not previously talked about in 2010 (Ulmus americana)

not acquainted in 2010

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.

07/30/2015

CLEVELAND METROPARKS Plant Community Assessment Program Natural Woody Stem Data Sheet

Project Label: PCAP Project Name: 02NC 2015 Plot No.: 1065 Page: 4 of 6

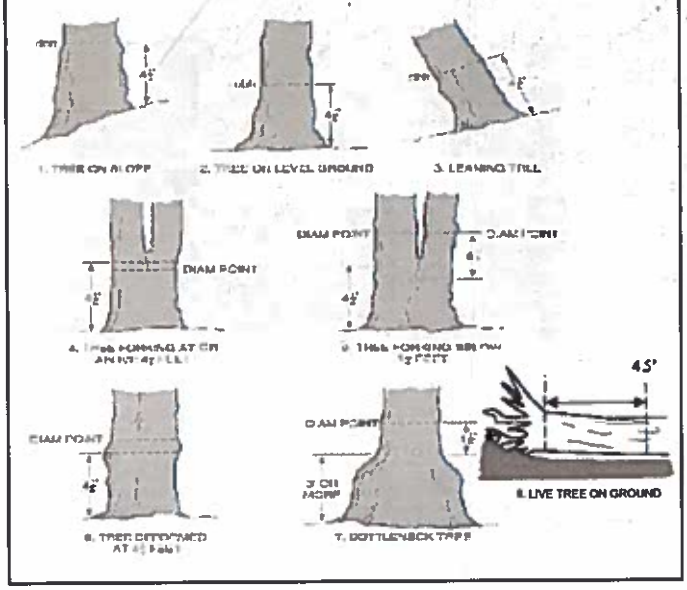
Cleveland Metroparks

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)
6	ROSA MULTIFLORA			8													
6	Fraxinus pensylvanica			3													
6	Acer rubrum																
6	Quercus palustris			1													
6	Rosa #1 Setigera			8													
6	Cornus			1													
6	Toxicodendron radicans																
6	Pyrus sp.																
6	Carpinus Caroliniana			1													
7	STANDING DEAD																
7	ROSA #1 Setigera			3													
7	Bulbus pensylvanicus			2													
7	RHAMNUS FRANGULA			3													
7	ROSA MULTIFLORA			10													
7	Ulmus americana																
7	Acer rubrum																
7	LIGUSTRUM VULGARE			2													
7	Fraxinus pensylvanica			3													
7	Quercus palustris																
7	Pyrus sp.																
7	CELASTRUS ORBICULATUS																
8	LIGUSTRUM VULGARE			3													
8	Ulmus americana																
8	STANDING DEAD																

2010 Dead Ulmus rubra

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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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.

07/30/2015

CLEVELAND METROPARKS Plant Community Assessment Program Natural Woody Stem Data Sheet

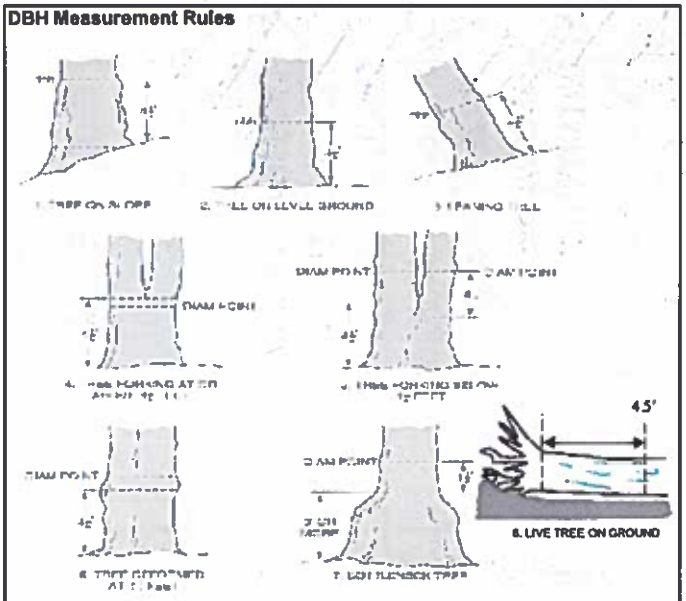
Project Label: PCAP Project Name: 01 NC 2015 Plot No.: 1065 Page: 5 of 6

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	Pyrus sp.					0	2		1								
8	RHAMNUS FRANGULA			4		3											
8	ROSA MULTIFLORA			11		1											
8	Quercus palustris						2										
8	Fraxinus pennsylvanica			5			1	1	2								
8	Rosa #1 setigera			2		1											
8	Quercus sp.			3													
8	Viburnum #1 plicatum		SEE 12-15-15	1				2									
8	Rubus pensylvanicus			3		2											
8	Acer rubrum												1				
8	Cornus sp.							2									
8	Parthenocissus quinquefolia			3													
8	~~Rosa~~ Liriodendron tulipifera			1													
9	STANDING DEAD					1		2	1	1		1	1				
9	RHAMNUS FRANGULA			13		27											
9	LIGUSTRUM VULGARE					3											
9	Parthenocissus quinquefolia						1	1									
9	ROSA MULTIFLORA			5		3											
9	Pinus sylvestris													1			
9	Quercus palustris			1			1	1	1								
9	Toxicodendron radicans			1			1	1									
9	Fraxinus pennsylvanica			2				2									
9	Viburnum #3 dentatum			2				1									
9	Rosa #1 setigera			10		1											

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.

07/30/2015

CLEVELAND METROPARKS Plant Community Assessment Program Natural Woody Stem Data Sheet

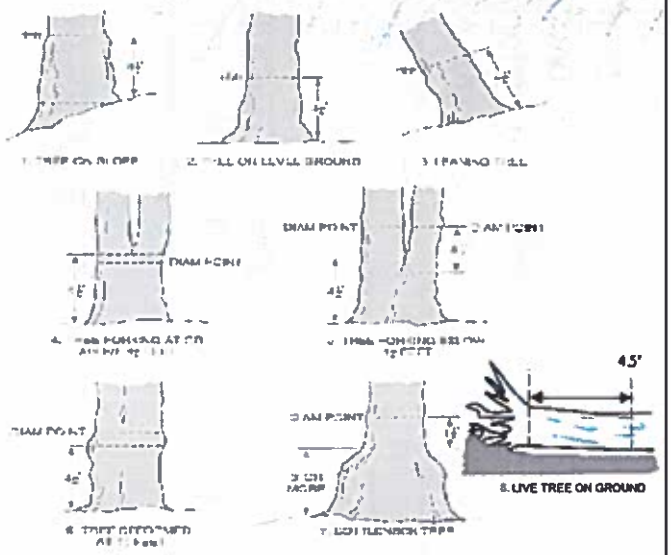
Project Label: PCAP Project Name: MLNC2015 Plot No.: 1065 Page: 6 of 6

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	Rubus pensylvanicus			1													
10	RHAMNUS FRANGULA			4		⊠⊠		•									
10	STANDING DEAD					::	:	•	••	•			••		•	•	
10	Parthenocissus quinquefolia			1			::		•								
10	Pinus sylvestris													•		••	
10	Fraxinus pennsylvanica			5				•:	•:								
10	Toxicodendron radicans						•	o	•								
10	Quercus sp.			2													
10	Prunus serotina								•								
10	Cornus sp.			5				•	•								
10	LIGUSTRUM VULGARE			2		:											
10	Viburnum #3 dentatum			1													
10	Betula populifolia			2						•							
10	Carpinus caroliniana			1													
~~10~~	~~Quercus sp.~~																
10	Viburnum opulus var. opulus			3													
10	Rosa multiflora			4													

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

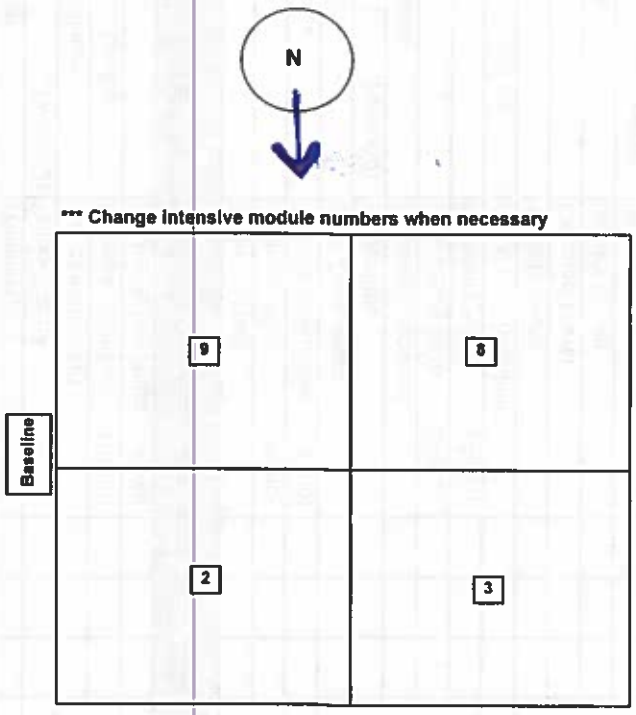
ASH CANOPY BREAKUP CONDITION (for dead trees):
(if an ash receives a score of 5 (dead) under canopy condition it must also receive a breakup condition rank as described below)

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

Project Label: PCAP Project Name: 02NC2015 Plot No.: 1065 Date: 07/29/2015

Module	Tree ID.	Species	Dead	c	Voucher #	DBH (cm)	Ht @ DBH	ASH Only: Ash condition	ASH Only: *Dead condition	ASH Only: # Exit holes	ASH Only: Epicormic present	ASH Only: Woodpecker holes
	1	NONE PRESENT										
	2											
	3											
	4											
	5											
	6											
	7											
	8											
	9											
	10											
	11											
	12											
	13											
	14											
	15											
	16											
	17											
	18											
	19											
	20											
	21											
	22											
	23											
	24											
	25											



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					
olygonum cuspidatum	Japanese Knotweed					
angula alnus	Glossy Buckthorn (shrub)					
sa multiflora	Multiflora Rose (shrub)					
ha angustifolia, T. x.glauca	Cattails (wetland)					
um arvense	Canada thistle					
cus fullonum	Common Teasel					
ris matronalis	Dame's Rocket					
inor (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

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

07/29/201-

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

Cleveland Metroparks

Project Label: PCAP Project Name: 02NC2015 Plot No.: 1065 Page: 1 of

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	None Present													
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) NONE PRESENT Asian Longhorned Beetle

_____ Hemlock (HWA) NONE PRESENT 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

07/29/2015

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

Project Label: PCAP Project Name: 02NC2015 Plot No.: 1065

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

(FIT = 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	2	0	2	1
3		0	0	0	6	1	0	2	1
8		0	0	0	6	0	0	2	1
9		0	0	0	8	1	0	2	1

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

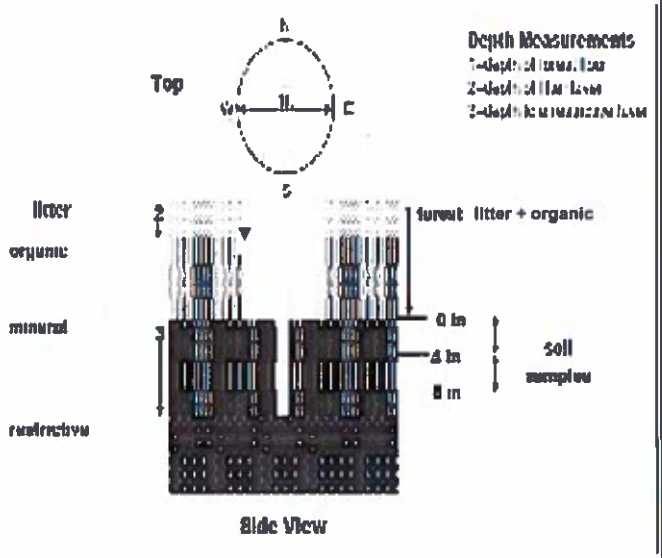
CROWN COVER (DENSIOMETER) Make 4 readings per module facing N, S, E, W. Place dot count in corresponding space. (4 dots per grid square)

Module	N	S	E	W
2	36	75	23	74
3	29	100	66	25
8	11	35	40	43
9	57	12	24	19

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.



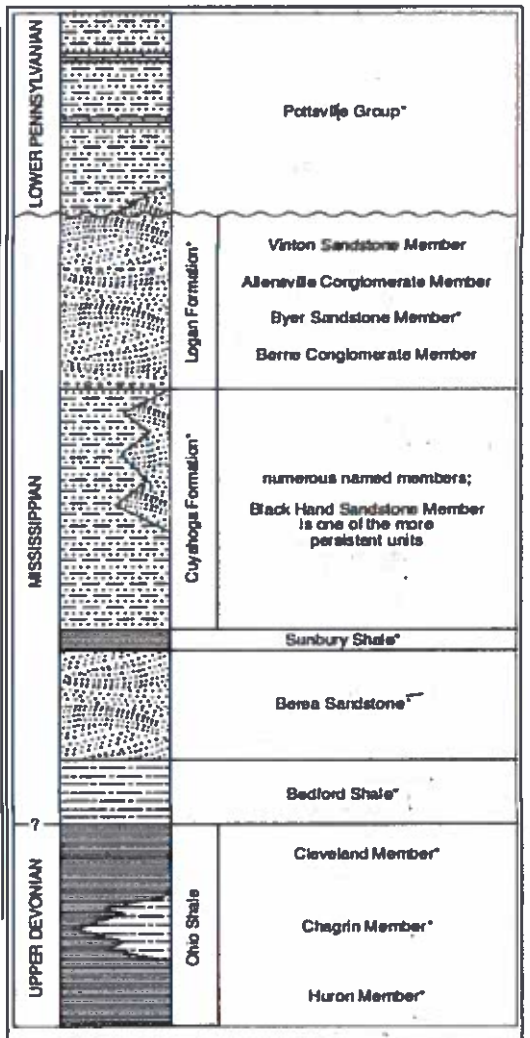


FIGURE 3-20.—Generalized section of Upper Devonian, Mississippian, and Lower Pennsylvanian formations in northeastern Ohio. Asterisks indicate units that are fossiliferous. This composite section represents about 400 meters of rock exposed across the area. The section is not to scale, but the thicknesses 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.

07/24/2015

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

Cleveland Metroparks

Project label: PCAP Project Name: 02NC2015 Plot No.: 1065

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

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)

MOD2: Castings present. No worms observed.
MOD3: Castings present + No worms observed.
MOD8: Worms, castings and middens observed
MOD9: castings present. No worms observed.

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 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	1.2	1.2	0	0
3	1.3	1.3	0	0
8	1.3	1.3	0	0
9	1.1	1.1	0	0

EARTH SURFACE & GROUND COVER

Underlying Earth Surface*	percent	Ground Cover (Each ≤ 100%)	percent
(Sum = 100%)			
Histosol	—	Coarse Woody Debris***	9%
Mineral Soil	100%	Fine Woody Debris****	7%
Gravel-Cobble*	—	Litter	1%
Boulder**	—	Duff (Fern + Humus)	0%
Bedrock	—	Bryophyte- Lichen	3%
* Gravel-Cobble = 1/16-10"		Water	0%
**Boulder = > 10 in		Bare Soil	1%
*** >5 cm in diameter		Road/Trail	5%
**** <5 cm in diameter		Other	—

TRAIL INFORMATION:

record type and cover for each

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

COVER BY STRATA %

estimate using midpoints of 5,ex:3, 8, 13

Strata	Height Range (m)	Total Cover (%)
Tree	5 -	23%
Shrub	0.5 - 5	68%
Herb	0 - 0.5	93%
(Floating)*	-	—
(Aquatic)*	-	—

* rooted and floating or slightly emersed

** submersed, most plant mass below surface

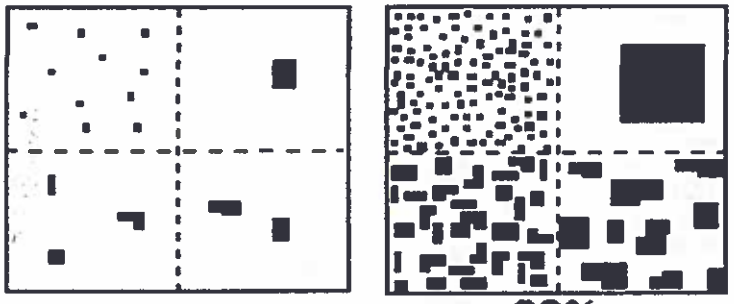
SEE BACK OF PAGE FOR "TYPICAL"STRATA DESCRIPTIONS. STRATA CAN VARY BY COVER TYPE.

STAND SIZE

- ☐ >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

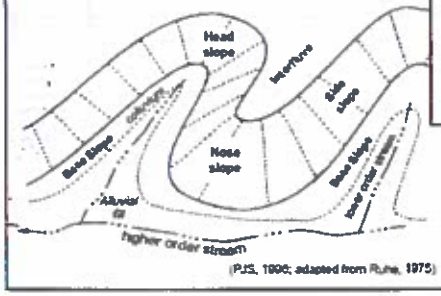


SOIL TEXTURE: Record the code for the soil texture of the 5 cm and 20 cm layers. To estimate texture, collect a soil sample from the appropriate layer and moisten it with water to the consistency of modeling clay/wet newspaper; the sample should be wet enough that all of the particles are saturated but 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.

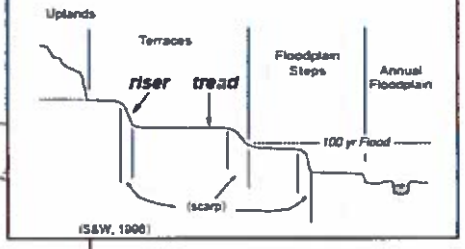
0= Organic
1= Loamy
2= Clayey
3= Sandy
4= Coarse Sand
9= Not measured - make plot note

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

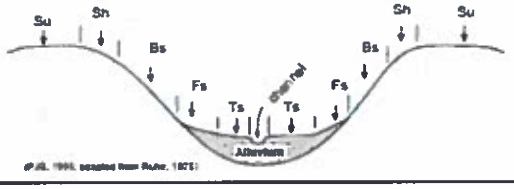


Terraces	Code
riser	RI
tread	TR



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



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.