

CLEVELAND METROPARKS Plant Community Assessment Program: Quality Control Form



Project Label:

PCAP

Plot No:

3326

Date Sampled:

9-1-15

Lead:

Eugenbach

Comment required if item answer is NO

Parking/Access outside of Park Boundaries:	Y <input checked="" type="radio"/> N <input type="radio"/>	If yes, write details in Comments section below
Field journals completed	<input checked="" type="radio"/> Y <input type="radio"/> N	
Site sketch made on 1:3000 map?	<input checked="" type="radio"/> Y <input type="radio"/> N	
Check cover page	X-axis Bearing of plot recorded	<input checked="" type="radio"/> Y <input type="radio"/> N
	GPS coords. Recorded	<input checked="" type="radio"/> Y <input type="radio"/> N
	North direction recorded	<input checked="" type="radio"/> Y <input type="radio"/> N
	Photographs taken?	<input checked="" type="radio"/> Y <input type="radio"/> N
	Relocated Pins Mapped	<input checked="" type="radio"/> Y <input type="radio"/> N
Plot No., Date agreement on all pages?	<input checked="" type="radio"/> Y <input type="radio"/> N	
Header data completed all pages?	<input checked="" type="radio"/> Y <input type="radio"/> N	
Cover classes recorded in all Intensive modules	<input checked="" type="radio"/> Y <input type="radio"/> N	
Browse Level By Species	<input checked="" type="radio"/> Y <input type="radio"/> N	
Woody stem quality control check	<input checked="" type="radio"/> Y <input type="radio"/> N	Check every line and cross check with the Tree Cover Sheet
Invasive plant quality control check	Y <input type="radio"/> N <input type="radio"/>	N/A
Ash trees mapped	Y <input type="radio"/> N <input type="radio"/>	N/A
Completed Forest Pest/Pathogen Datasheet	<input checked="" type="radio"/> Y <input type="radio"/> N	
Cover by Strata? (confirm cover type)	<input checked="" type="radio"/> Y <input type="radio"/> N	
Soil samples collected with matching plot #.	Y <input type="radio"/> N <input type="radio"/>	N/A
Cross check 2010 information	<input checked="" type="radio"/> Y <input type="radio"/> N	Highlight any changes from 2010 information
Vouchers labeled on datasheet with initials and number	Y <input type="radio"/> N <input type="radio"/>	NONE
Vouchers labeled on collection bag	Y <input type="radio"/> N <input type="radio"/>	
Pink flags removed	<input checked="" type="radio"/> Y <input type="radio"/> N	
Data sheet QA before leaving site?	<input checked="" type="radio"/> Y <input type="radio"/> N	
Common equipment returned to tub.	<input checked="" type="radio"/> Y <input type="radio"/> N	
Data sheets scanned?		Enter date to left
Final data sheets scanned?		Enter date to left
Buffer Widths measured?	Y <input type="radio"/> N <input type="radio"/>	
Web Soil Survey	Y <input type="radio"/> N <input type="radio"/>	
Voucher Location	Refrigerator	Y <input type="radio"/> N <input type="radio"/>
(# vouchers collected)	Press (#)	Enter number to left
None	Drier	Y <input type="radio"/> N <input type="radio"/>
	Identified	Y <input type="radio"/> N <input type="radio"/>
	Mounted	Y <input type="radio"/> N <input type="radio"/>
	Thrown away	Y <input type="radio"/> N <input type="radio"/>

GRTS point verification: Is plot sampleable?

<input checked="" type="checkbox"/> Yes	Original GRTS point is sampleable
<input type="checkbox"/> No	Original GRTS point lands in a non-sampleable area (fill in category below)
	<input type="checkbox"/> Point falls in a water (i.e. river, lake)
	<input type="checkbox"/> Managed mowed area (i.e. golf course, picnic area, right-of-way)
	<input type="checkbox"/> Paved area (i.e. parkinglot, road)
	<input type="checkbox"/> Unsafe to sample (i.e. steep slope)
	<input type="checkbox"/> Other

Additional Comments:

--

Chlorine and Manganese
Page 1 of 2

Black Chern's Spading

Natural Resources Management FORM NR/2010-01a

CLEVELAND METROPARKS Plant Community Assessment Program - Background Data Sheet

Project Label:

PCAP

Project Name:

02EC2015

Plot No.:

3376

Cleveland Metroparks

Page 2 of 2

MODIFIED NATURE RESERVE CLASS*

CODE (on separate form):

COY

Fit=

Conf=

COMMUNITY NAME:

Beech - Red Oak

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)
 ☐ Temporarity 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.)

- A trail runs through Muds 10, 9, 8. Not sure if it is sanctioned or Bootleg
 - Very limited herbaceous layer
 - Very large Beech/Red Oak and Black cherry on the 2nd terrace of Euclid Creek

DISTURBANCES

type*	severity**	hrs ago	% of plot	description
Human	VH	0	5	Trail
Natural				
Fire				
Cut				
Animal	ML	0	100	Brown
Other				

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

Current Land Use: Park

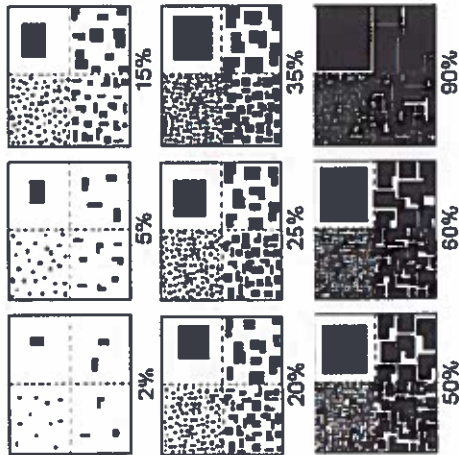
Former Land Use:

15CM PCAP Background Data Sheet Page 2_ver 2.xls last revised 5/29/2012 csh

Natural Resources Management FORM NR/2010-01b

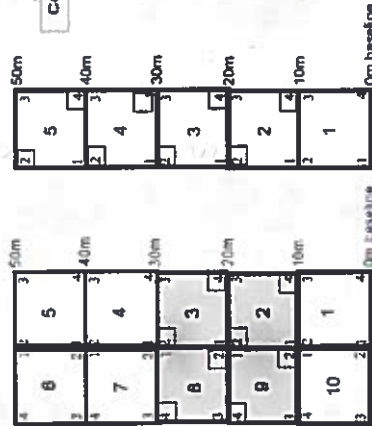
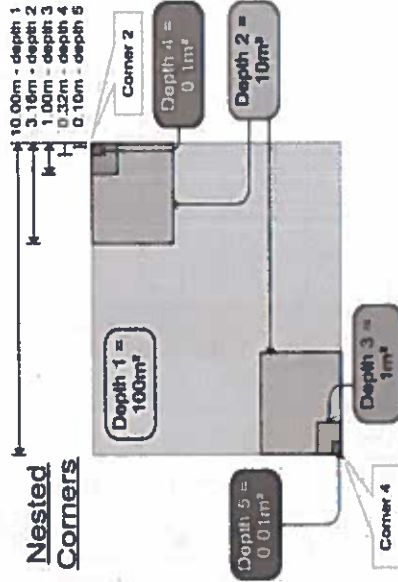
EXAMPLES OF PERCENT OF AREA COVERED

The following graphic can be used for various data elements to convey "coverage" or "density". NOTE: Within any given box, each quadrant contains the same total area covered, just different visual 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	75-85%	0.850
10	85-100%	0.975

Nested Corners



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.

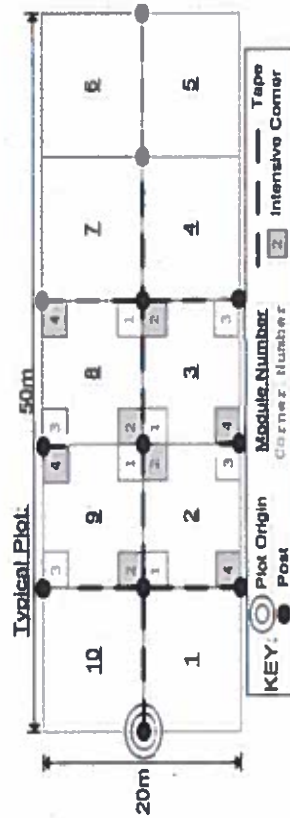
MEDIUM LOW values include evidence of browse at about 10 percent of the stems with no significant impact to plant reproduction evident. In this rating, plants are browsed but preferential species are observed to be reproducing in numbers that appear normal or near-normal in comparison to low browse areas.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



Page 2 of 2

Plot no.: 35+6

Plot configuration: 2x5

Plot area (ha): 0.1



Cleveland Metroparks

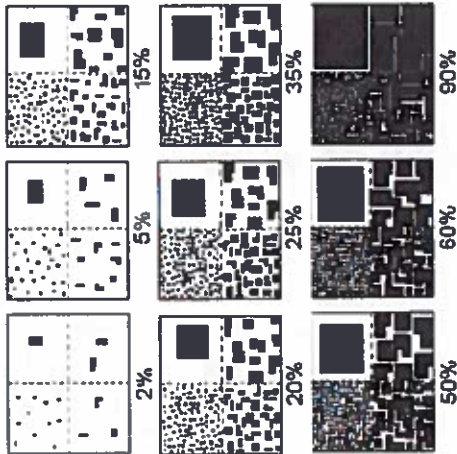
Br = Browse Level. Use cover classes to describe amount of browse per species over entire plot

Strata - Cov. entire plot

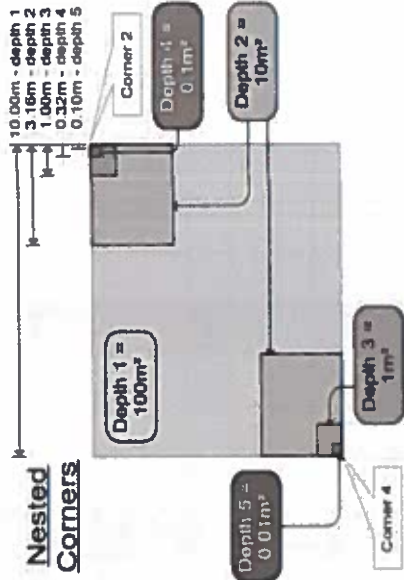
[illegible]

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.

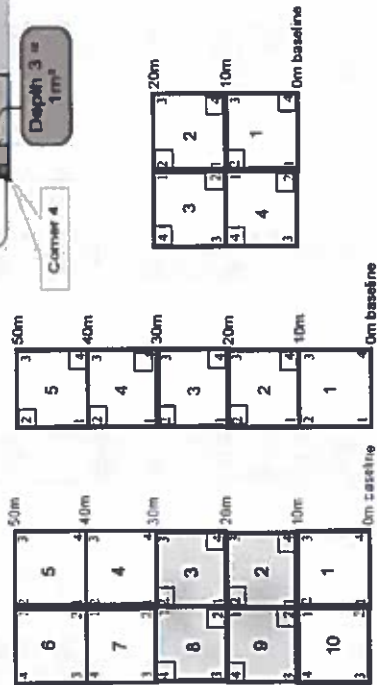
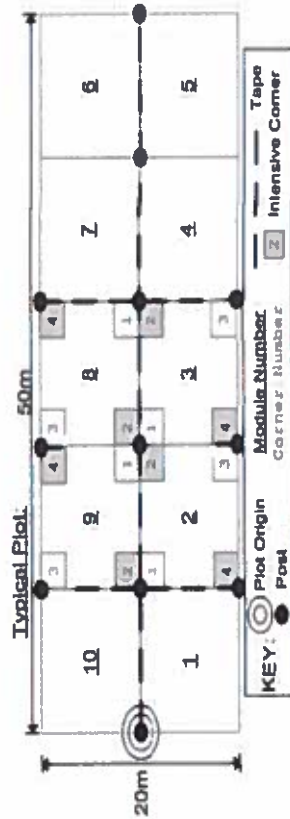
MEDIUM LOW values include evidence of browse at about 10 percent of the stems with no significant impact to plant reproduction evident. In this rating, plants are browsed but preferential species are observed to be reproducing in numbers that appear normal or near-normal in comparison to low browse areas.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



Page 1 of 1

3376

[illegible]

Page of

1

[illegible]

CLEVELAND METROPARKS Plant Community Assessment Program Natural Woody Stem Data Sheet

Project Label: PCAP

Project Name: QEC 2015

Plot No.: 3376

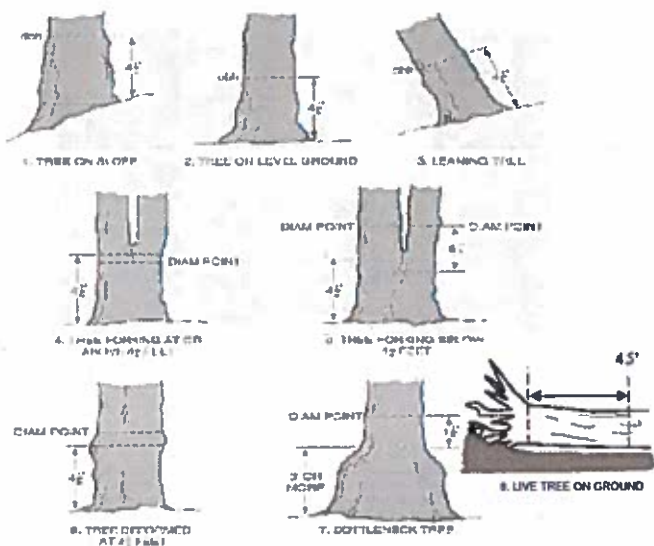
Page: 1 of 2



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	Fagus grandifolia						••	••	••	••	••	••	••	••	••	••	••	54.4	
1	Prunus serotina																		
1	Quercus rubra						••	••	••	••	••	••	••	••	••	••	••	42.0	
1	Standing dead																		
1	Acer sp.																		
2	Fagus grandifolia						••	••	••	••	••	••	••	••	••	••	••	108.4	
2	Quercus rubra						••	••	••	••	••	••	••	••	••	••	••		
2	Acer saccharum																		
2	Tsuga canadensis																		
2	Prunus serotina																		
3	Acer saccharum						••	••	••	••	••	••	••	••	••	••	••	93.5	
3	Quercus rubra																		
3	No Browse																		
4	Standing Dead						••	••	••	••	••	••	••	••	••	••	••		
4	Fagus grandifolia						••	••	••	••	••	••	••	••	••	••	••	100.2	
4	Acer saccharum																		
5	Fagus grandifolia						••	••	••	••	••	••	••	••	••	••	••		
5	Acer saccharum						••	••	••	••	••	••	••	••	••	••	••		
5	Standing Dead																		
5	Acer rubrum																		
5	Quercus rubra																		
5	Prunus serotina																		
6	Fagus grandifolia						••	••	••	••	••	••	••	••	••	••	••		
6	Acer saccharum																		

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



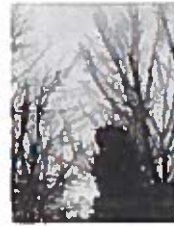
2



3



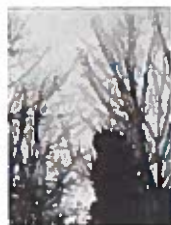
4



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: 02EC2015

Plot No.: 3374

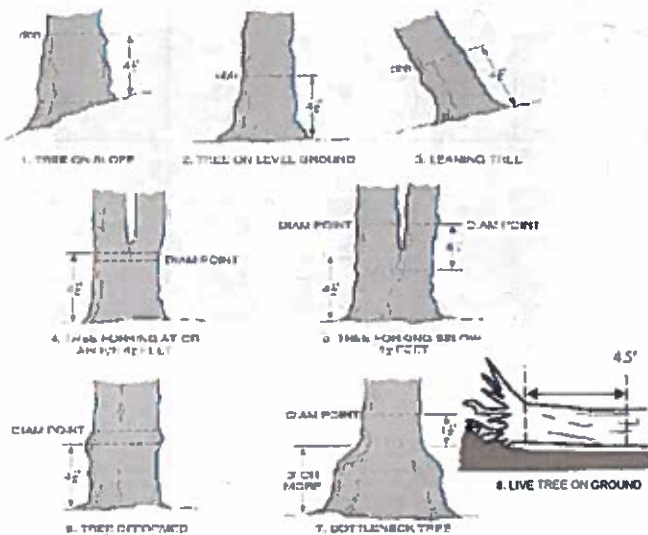
Page: 2 of 2



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										>40 (record each tree)		
							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			
10	Standing Dead			•			•••		••										
7	Acer saccharum			•			•		••										
7	Fagus grandifolia			•			•		••										
7	Standing Dead																		
8	Acer saccharum			•					•										
8	Standing Dead								•										
8	Smilax rotundifolia			•															
8	Fagus grandifolia			•															
8	Prunus serotina			•															
9	Acer saccharum			•															
9	Prunus serotina																		48.1
9	Fagus grandifolia						••	••											
9	Standing Dead			•															
9	Fraxinus sp.																		
10	Fagus grandifolia						•												
10	Prunus serotina																		
10	Acer saccharum						••	••											43.7, 46.6

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



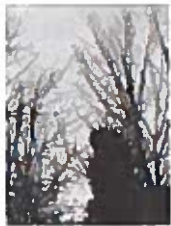
4



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.

Tree ID	Species	P	c	Voucher #	DBH (cm)	Ht (m)	Ash condition	Dead condition	# Exit holes	Epicormic present	Woodpecker holes
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											

Ash Only



*** Change intensive module numbers when necessary

Baseline			
9		8	
2		3	

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 1.25m² x 1.5m
Woodpecker and epicormic marked present (1) or absent (0)

CLEVELAND METROPARKS Plant Community Assessment Program: Invasive Species Survey



Tier 1: Early detection/ Rapid response		Presence				GPS	Presence X: yes
		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	# of Plants 1: 1-10 2: 11-50. 3: 51-100 4: 101-1,000 5: >1,000
		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	# of Plants 1: 1-10 2: 11-50. 3: 51-100 4: 101-1,000 5: >1,000
		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	# of Plants 1: 1-10 2: 11-50. 3: 51-100 4: 101-1,000 5: >1,000
		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						

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



Project Label: PCAP

Project Name: D7EC2015

Plot No.: 3376

Page: 1 of 1

mod #	species	voucher#	# shrub clumps	size class (cm) woody stems > 1m										
				1 0-1	2 1-2.5	3 2.5-4.5	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														
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:

None Beech (Fungus) None Asian Longhorned Beetle
Beech does not look healthy - NO Zebra striping
Herlock (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

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. C7=check when collected

Module #	C7	Corner	Corner

CLASSIFICATION

FTI = excellent, F Fit and Confidence

Hydrogeomorphic class (WETLANDS ONLY)

<input type="checkbox"/> DEPRESSION	Fit=	Conf=
<input type="checkbox"/> INPOUNDMENT <input type="checkbox"/> Beaver <input type="checkbox"/> Human	Fit=	Conf=
<input type="checkbox"/> RIVERINE <input type="checkbox"/> Headwater <input type="checkbox"/> Meandering <input type="checkbox"/> Channel	Fit=	Conf=
<input type="checkbox"/> SLOPE (ground water hydrology or on a physical slope)	Fit=	Conf=
<input type="checkbox"/> FRINGING <input type="checkbox"/> Reservoir <input type="checkbox"/> Natural Lake	Fit=	Conf=
<input type="checkbox"/> COASTAL (specify subclass)	Fit=	Conf=
<input type="checkbox"/> BOG (strongly, moderately, weakly, ombrotrophic)	Fit=	Conf=

OHIO EPA VIBI Plant Community Class (WETLANDS ONLY)

<input type="checkbox"/> FOREST <input type="checkbox"/> swamp forest <input type="checkbox"/> bog forest <input type="checkbox"/> forest swamp	Fit=	Conf=
<input type="checkbox"/> EMERGENT <input type="checkbox"/> marsh <input type="checkbox"/> wet meadow <input type="checkbox"/> open bog	Fit=	Conf=
<input type="checkbox"/> SHRUB <input type="checkbox"/> shrub swamp <input type="checkbox"/> tall sh. bog <input type="checkbox"/> tall sh. fen	Fit=	Conf=

MICROTOPOGRAPHIC FEATURE COUNTS - Intensive modules only

Rank 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 (m) 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
- 1 feature is present in the wetland in very small amounts, or if more common, of low quality
- 2 feature is present in moderate amounts, but not of highest quality, or in small amounts of highest quality
- 3 feature is present in moderate or greater amounts and of highest quality

		C.W.D. - Count for pieces with minimum 1m length					
module	error	no. of tussocks	no. of hummocks (Tip-Up)	no. macro. depressions	c.w.d (2-12 cm)	c.w.d (12-10 cm)	c.w.d >40 cm
		depth 3 1x1m	depth 2 3.1x3.1cm	depth 1 10x10m	depth 1 10x10m	depth 1 10x10m	depth 1 10x10m
1		0	0	0	15	3	0
2		0	0	0	16	1	0
3		0	0	0	10	3	0
4		0	0	0	13	0	0
5		0	0	0	0	0	0
6		0	0	0	0	0	0
7		0	0	0	0	0	0
8		0	0	0	0	0	0
9		0	0	0	0	0	0
10		0	0	0	0	0	0

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

MCNAB INDICES (degrees) + for up - for down

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

Alt aspect	N	NE	E	SE	S	SW	W	NW
+45 degrees								
+90 degrees								
+135 degrees								
+180 degrees								
+225 degrees								
+270 degrees								
+315 degrees								

* Landform Index (position within landscape)

** Terrain Slope Index (slope microtopographic shape)

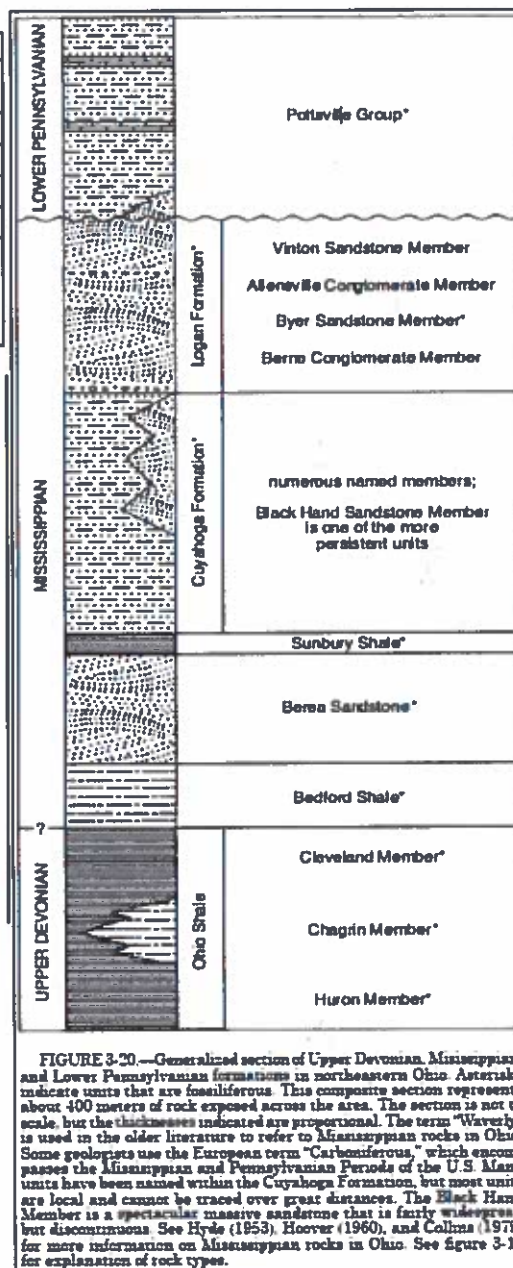
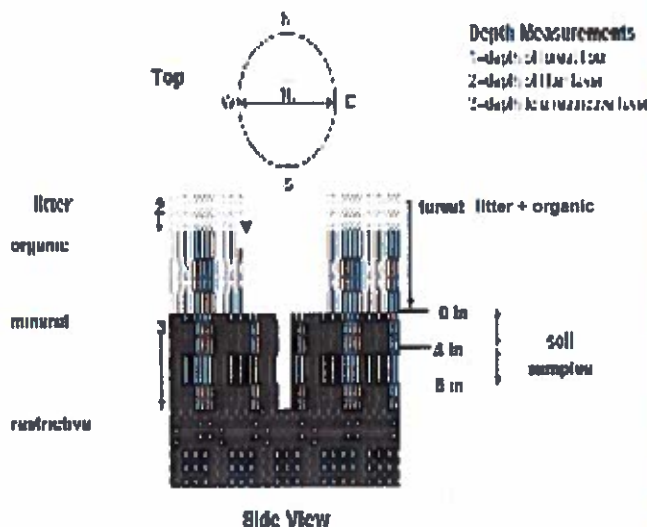
CROWN COVER (DESMONETER) Male 4
 readings per module facing N, S, E, W. Place dot count in corresponding space. (4 dots per grid square)

Module	N	S	E	W
2	3	0	0	1
3	1	2	1	2
8	0	3	1	0
9	0	0	0	0

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.



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
	hydr. cond.***	I S M D

* refer to texture classes on reverse side
 ** e.g. hydrogen sulfide odor, gleying, etc.
 *** Circle one:
 I=indurated S=saturated M=moist D=dry
 Notes: include evidence of earthworms (worms, castings, middens)
 *MOD: 2: castings present. Neutroins dosened.
 *MOD: 3: None present
 *MOD: 8: None present
 *MOD: 9: None present

Soil Collection Module	Station (A, B, C)	A
2.5, 9 cm pushed		
Soil Series/Type		
Soil Series Source	Ohio Soil Survey	
Landform type		
Depth to root layer		
Parent Material		
DRAINAGE*		
<input type="checkbox"/> Excessively dr. <input type="checkbox"/> Well drained <input type="checkbox"/> Somewhat poorly dr. <input type="checkbox"/> Impermeable surface	<input type="checkbox"/> Somewhat excessively <input type="checkbox"/> Moderately well dr. <input type="checkbox"/> Very poorly dr.	

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

1 liter+ organic depth (cm)	2 liter depth (cm)	water depth (cm)	depth sat soil (cm)
2	2.0	0	0
3	1.8	0	0
8	1.8	0	0
9	2.2	0	0

EARTH SURFACE & GROUND COVER		
Underlying Earth Surface*	Ground Cover	Percent
Sum = 100% percent Histosol Mineral Soil Gravel-Cobble Boulder** Bedrock	(Est. < 100%) Coarse Woody Debris*** Fine Woody Debris**** Litter Duff (Ferm + Humus) Bryophyte-Lichen Water Bare Soil Road/Trail Other	8 12 95 0 2 0 10 8

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

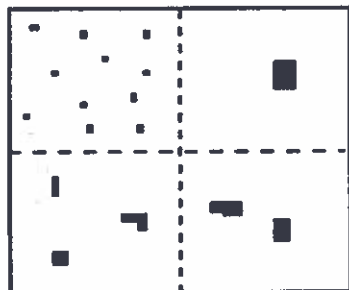
Strata	Height Range (m)	Total Cover (%)
Tree	7.5	93
Shrub	5.5	33
Herb	4.5	13
(Floating)*		
(Aquatic)*		

TRAIL INFORMATION	
record type and cover for each	%Cover
Type	
<input type="checkbox"/> All Purpose <input type="checkbox"/> Bridle <input type="checkbox"/> Hiking sanctioned <input checked="" type="checkbox"/> Hiking unsanctioned <input type="checkbox"/> Gravel <input type="checkbox"/> Deer	8

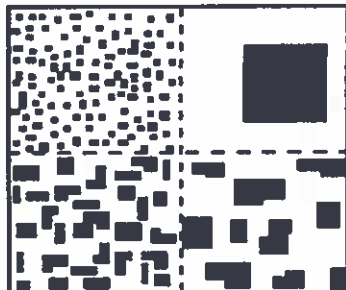
STAND SIZE
<input type="checkbox"/> >600 x plot size <input type="checkbox"/> > 100 x plot size <input type="checkbox"/> 10-100 x plot size <input checked="" type="checkbox"/> 5-10 x plot size <input type="checkbox"/> 1-3 x plot size <input type="checkbox"/> < plot size

PERCENT MOTTLES (USE CLASS CODES):

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



2%



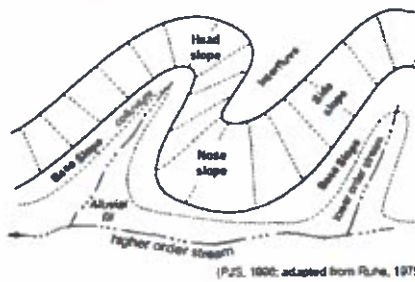
20%

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

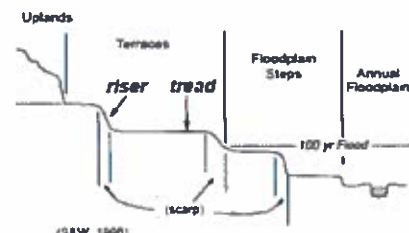
Geomorphic Component - Three-dimensional descriptors of parts of landforms or microfeatures that are best applied to areas. Unique descriptors are available for Hills, Terraces, Mountains, and Flat Plains; e.g., (for Hills) *nose slope* or *NS*.

Hills	Code	NASIS
interfluvial	IF	IF
head slope	HS	HS
nose slope	NS	NS
side slope	SS	SS
base slope	—	BS



(P.J.S. 1990; adapted from Ruess, 1975)

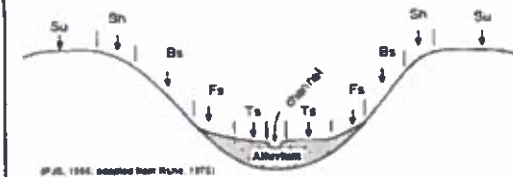
Terraces	Code
riser	RI
tread	TR



(S&W, 1966)

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. 1990; adapted from Ruess, 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/SEMPERMANENTLY 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.

SEMPERMANENTLY 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.