5/1/2022

FOREST CONSERVATION IN BALTIMORE COUNTY: CHALLENGES AND OPPORTUNITIES

Appendices

A-K

BALTIMORE COUNTY
COMMISSION ON ENVIRONMENTAL QUALITY

A. 1/26/22 Agenda of CEQ Symposium on Forest Conservation Challenges and Opportunities, Part I

B. 1/26/22 T. Krispin, Forest Conservation Act in Baltimore County, slides

C. 1/26/22 T. Krispin, Forest Conservation Act in Baltimore County, written text

D. 1/26/22 D. Outen, Forest Conservation Act - The Need for Extended Reforestation Maintenance

E. 1/26/22 A. Hairston-Strang, Restoring Forests: FCA and Beyond

F. 2/16/22 Agenda of CEQ Symposium on Forest Conservation Challenges and Opportunities, Part II

G. 2/16/22 D. Callihan, Other Counties' Forest Conservation Practices

H. 2/16/22 K. Lauter, Baltimore City's Approach to Forest Conservation

I. 2/16/22 B. Seipp and E. Williams, Two Aspects of the Development Business Community's Experience

J. Detailed information on Howard County's Forest Conservation program, by D. Callihan 2022

K. Current plans by Baltimore County DEPS to address maintenance issues as related to the Forest Conservation Act, to be initiated in the 2022-23 budget

Appendix A

1/26/22 Agenda of CEQ Symposium on Forest Conservation Challenges and Opportunities, Part I

A G E N D A

Baltimore County Advisory Commission on Environmental Quality (CEQ)
January 26, 2022 7 PM
Online Meeting on Webex
CEQ meeting dates, membership information, and reports are available at www.baltimorecountymd.gov/Agencies/ceq/index.html
Our thanks to Brian Lindley of EPS for coordinating Webex meetings during the pandemic.
7 pm Welcome- Dr. Brian Fath, Chair
Everyone mute please.
7:05 Forest Conservation Challenges and Opportunities, A Two-Part Virtual Symposium; Part I. In response to County Council resolution No. 135-21, passed unanimously 11/1/21.
Dr. Brian Fath, Moderator
7:10 Tom Krispin - The Forest Conservation Act in Baltimore County.
As the supervisor for the enforcement section within the Environmental Impact Review Section, Mr. Krispin is one of the people in charge of enforcing all regulations under the forest conservation act. He joined DEPS in 2006 with degrees in Forestry and in Geography and Environmental Planning.
7:25 Don Outen - Forest Conservation Act – The Need for Extended Reforestation Maintenance.
Mr. Outen was Baltimore County DEPS' Natural Resource Manager 1987-2017. For 15 of those years, he worked to implement the County's Forest Sustainability Program. In 2015, he received the Lifetime achievement Award for Forest Management and Preservation from the Alliance for the Chesapeake Bay.
7:40 Dr. Anne Hairston-Strang - Restoring Forests: FCA and Beyond.
Dr. Hairston-Strang is Acting MD State Forester and Director of the MD Forest Service. With degrees in Forest Hydrology, Forest Soils, and Forest Management, she has worked for the Forest Service since 1997 and since 2015 as Associate Director for Statewide Programs.
8:00 Panel Discussion - Dr. Brian Fath, Moderator
Speakers and invited Discussants may access the microphone. Others are welcome to use the Chat function, which Dr. Joan Plisko will monitor.
8:25 Conclusion of Part I of Symposium.
8:25 CEQ Business
a. Welcome new Planning liaison Bill Skibinski - Dr. Carol Newill
b. Correct and approve minutes of 12/1/21 meeting - Dr. Andy Miller

c. New: Citizen request of CEQ re proposed Go Ape company's zipline and ropes course using trees in forest of Oregon Ridge County Park - Dr. Carol Newill
8:40 Adjourn
Part 2 of Symposium will be 2/16/22 at 7 pm.
Remaining 2022 meetings: 2/16 (instead of 2/23), 3/23, 4/27, 5/25, 9/28, 10/26, 11/30.

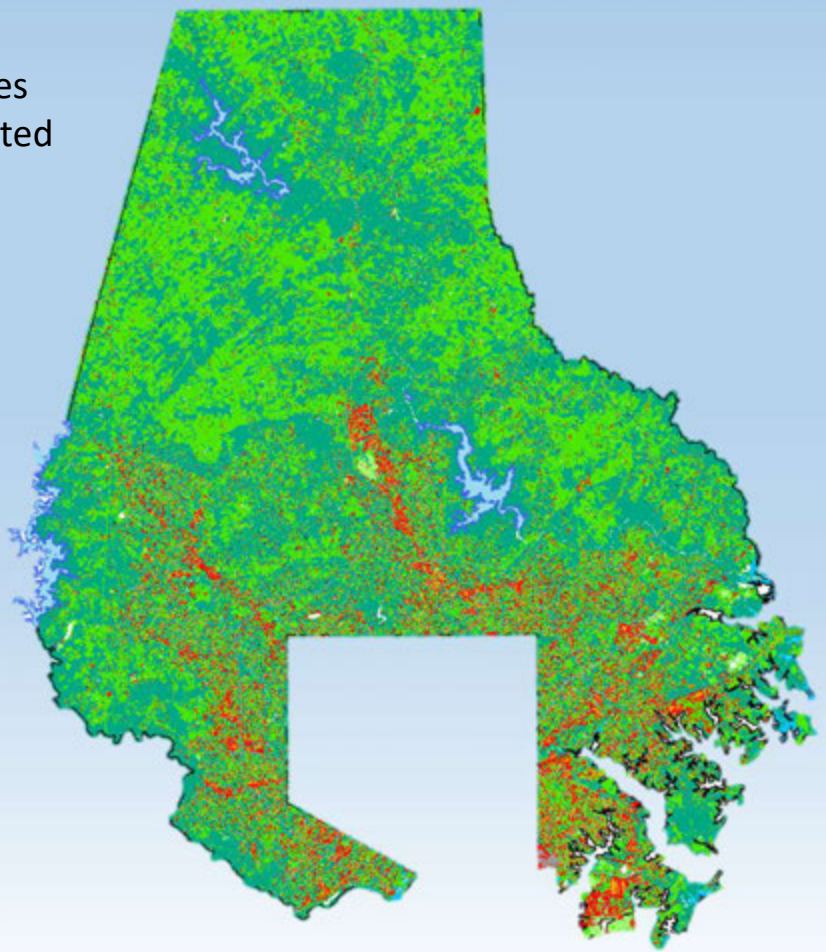
The Forest Conservation Act in

Presented by: Thomas Krispin, Supervisor of Enforcement & Inspections, Environmental Impact Review Section
Department of Environmental Protection and Sustainability
BS Forestry ’00
MA Geography & Environmental Planning ‘14

The Forest Conservation Act: A Brief History

- Adopted in 1991 by the State of Maryland to minimize the loss of forest
- Enacted in 1993 by Baltimore County
- The intent of the Act is to safeguard the environmental quality of the county's forest resources in order to provide air and water quality protection. Additional protections include aesthetic benefits, habitat protection, forest cover and contiguous forest protection

Baltimore County Land Area
608 square miles / 389,120 acres
2014: Approximately 42% forested



What is forest?

- Areas that:
  - Have at least 100 live trees per acre with at least 50% of those trees having a 2-inch or greater diameter at 4.5 feet above the ground and larger;
  - Have mature trees that provide a contiguous canopy over unimproved land; and
  - That have been cut but not cleared
    - Timber harvests, clear cuts as silvicultural practice = forest
    - Cutting trees and removing stumps =/= forest

What triggers compliance with the Act?

Development project: the grading or construction activities occurring on a specific tract that is 40,000 square feet or greater. Includes redevelopment, unless the redevelopment project is located on an impervious tract or a tract which is not forested.

My development must comply. Now what?

- Hire a consultant (Registered forester, Landscape Architect, or a Qualified Professional) to work through the forest conservation process
- Consists of a Forest Stand Delineation, Forest Conservation Worksheet, Forest Conservation Plan

Forest Stand Delineation

- Use the FSD worksheets to figure out what is on site
  - Forest resources – classify each forest stand
  - Identify specimen trees
  - Wetlands
  - Streams
  - Invasive species
  - Built environment

Forest Stand Delineation

BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
AND RESOURCE MANAGEMENT

FOREST STAND DELINEATION - DOMINANT PLANT SPECIES

Project Name: _____ Date: _____

Location: _____ Investigator(s): _____

Stand: _____ Type: _____ Acreage: _____

Slope: _____ Aspect: _____

Reviewed by: _____ Date: _____

Botanical Names of: Dominant Tree Species	Most Common dbh (in.)	dbh Range	Average Height (ft.)	* Approximate % of Each Dominant Species in Canopy	in Understory
1.					
2.					
3.					
4.					
5.					
6.					

Common regeneration species: _____

**Common Shrubs and Vines	Average Height (ft.)	Approx. % Cover	Herbaceous Species	Approx. % Cover
1.			1.	
2.			2.	
3.			3.	
4.			4.	
5.			5.	
6.			6.	
7.			7.	
8.			8.	

Rare, threatened or endangered plant species listed by the +MNHP and/or found:

List specimen-sized trees: (75% of champion size or ≥30" dbh; except Tulliptree)

Species	dbh (in.)	Condition

* Dominant tree species - each column reading down should equal 100%
** Shrubs - include young plants that are taxonomically considered tree species but are less than six feet tall.
% Cover for vines - indicate % distribution between the canopy and understory.
+ Maryland Natural Heritage Program of the Department of Natural Resources
DATASHT.1A/TXTPHC

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EXOTIC PLANT SPECIES MOST LIKELY TO BE FOUND IN FOREST COMMUNITIES

Indicate the occurrence of any of the following species using one symbol from both (a) and (b):

(a) O = occasional
C = common
A = abundant

(b) S = scattered throughout
L = localized

	SPECIES	IF OCCURRENCE IS A AND L, RECORD LOCATION IN STAND:
____	Acer platanoides (Norway Maple)	
____	Ailanthus altissima (Tree of Heaven)	
____	Alliaria officinalis (Garlic Mustard)	
____	Ampelopsis brevipedunculata (Porcelain Berry)	
____	Berberis thunbergii (Japanese Barberry)	
____	Celastrus orbiculatus (Oriental Bittersweet)	
____	Euonymus alatus (Winged Euonymous)	
____	Euonymus fortunei (Climbing Euonymous)	
____	Glecoma hederacea (Ground Ivy)	
____	Hedera helix (English Ivy)	
____	Hemerocallis fulva (Common Daylily)	
____	Lonicera japonica (Japanese Honeysuckle)	
____	Lonicera tatarica (Tatarian Honeysuckle)	
____	Pachysandra terminalis (Japanese Pachysandra)	
____	Paulownia tomentosa (Empress Tree)	
____	Pueraria lobata (Kudzu)	
____	Polygonum perfoliatum (Asian Tearthumb)	
____	Rosa multiflora (Multiflora Rose)	
____	Rubus phoenicolasius (Wineberry)	
____	Vinca minor (Periwinkle)	
____	Wisteria floribunda (Wisteria)	
____	Wisteria sinensis (Chinese Wisteria)	

Others:

____	_____	_____
____	_____	_____
____	_____	_____
____	_____	_____

Estimate total % cover by all exotic species in:

Canopy _____ Shrub Layer _____
Understory _____ Ground Cover _____

JA ASHT.1B/TXTPHC

D-2

Forest Stand Delineation

BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
AND RESOURCE MANAGEMENT

FOREST STAND DELINEATION - FOREST STRUCTURE

Project Name: _____ Date: _____

Location: _____

Stand: _____ Type: _____

Acreage: _____ Slope: _____ Aspect: _____

% Canopy Closure: (>80%_____) (50% to 80%_____) (30% to 49 %_____) (≤30% ___)
% Shrub Cover: _____ Shrub height range: ___ . . . ___ feet to _____ feet
% Ground Cover (May to October): _____
Number of woody vegetation layers: (<3_____) (3 ____) (4 ____) (≥ 5_____)
Litter Depth (inches) to mineral soil (exclusive of fresh leaf fall): _____
Downed woody debris: (≥6" dia.) _____ rare _____ common _____ abundant
Tally standing snags (≥20" dbh): _____

Stand Narrative:

1) Condition of canopy trees: _____

2) Evidence of significant disease or insect infestation in the stand: _____

3) Patterns of disruption within the stand: _____

4) Evidence of management: _____

5) Recommendations for improving the structural diversity of the stand: _____

DATASHT.2A/TXTPHC

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FOREST STRUCTURE ANALYSIS

For each of the following parameters, circle the value that best describes the structural conditions in the stand. Add the numerical score for each parameter to get a total value for the stand.

	From April through October A score of:	From November through March, omit #5 & #6 A score of:
22 to 33	<--------indicates priority forest structure-------->	15 to 27
14 to 21	<--------indicates good forest structure---------->	8 to 15
0 to 13	<--------indicates poor forest structure---------->	0 to 7

1. Percent Canopy Closure (2)

≥ 80%	6
≥ 50 < 80	4
≥ 30 < 50	2
< 30	0

2. Size Class of Dominant Trees (1)

> 20" dbh	6
12 - < 20	4
6 - < 12	2
< 6	0

3. Number of Native Tree Species (≥ 6" dbh) (1)

> 6	6
4 - 6	4
2 - 3	2
1	0

4. Number of Woody Vegetation Layers (2)

≥ 5	6
4	4
3	2
< 3	0

5. Number of Native Shrub Species (1) (April through October)

> 6	3
4 - 6	2
2 - 3	1
1	0

6. Number of Common Native Herbaceous Species (1) (April through October)

> 12	3
8 - 12	2
3 - 7	1
> 1	0

7. Average Litter Depth* (in.) (2)

> 6	3
4 - 6	2
1 - 3	1
< 1	0

Total Value = _____

(1) From Data Sheet 1A
(2) From Data Sheet 2A

* exclusive of fresh leaf fall in the autumn

HABITAT POTENTIAL FOR FOREST INTERIOR BIRD (FIB) SPECIES

If the forested area is ≥ 25 acres, or if the forested area and any adjacent forest combined is ≥ 25 acres, indicate Breeding Bird Atlas Survey documentation for FIB species within the nearest six-th block of the appropriate USGS topographical quadrangle: _____

DATASHT.2B/TXTPHC

D-4

Priorities for Retention of Existing Forest

- Forest stands with high structural diversity
- Contiguous forest of 100 acres or more
- Forest corridors of 300 feet or more
- Forest buffers (forested areas adjacent to streams and wetlands)
- Champion and Specimen trees on site
- Rare, Threatened, and Endangered species habitat
- Slopes over 25%
- Hydric and highly erodible soils

Forest Stand Delineation

- The information gathered goes on a site plan

Forest Conservation Worksheet

- Calculates Reforestation and Afforestation requirements
- Can cut forest down to the break even point
- Must plant forest up to the break even point

BALTIMORE COUNTY FOREST CONSERVATION WORKSHEET

BASIC SITE DATA	ACRES
GROSS SITE AREA	6.0
AREA WITHIN 100 YEAR FLOODPLAIN	2.0
AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL	0
AREA IN OVERHEAD TRANSMISSION LINE EASEMENTS	0
NET TRACT AREA	4.0
LAND USE CATEGORY	DR 1

INFORMATION FOR CALCULATIONS		
A. NET TRACT AREA		4.0
B. FOREST CONSERVATION THRESHOLD	(25%xA)	1.0
C. AFFORESTATION THRESHOLD	(20%xA)	0.8
D. EXISTING FOREST ON NET TRACT AREA		0.6
E. EXISTING FOREST ABOVE FOREST CONSERVATION THRESHOLD		0
F. BREAK-EVEN POINT ((E x 0.2)+B) (THE AMOUNT OF FOREST TO BE RETAINED FOR NO MITIGATION)		NA
G. FOREST TO BE CLEARED		0.4
H. FOREST TO BE RETAINED		0.2

APPLICABILITY OF AFFORESTATION AND REFORESTATION TO SITE

IF EXISTING FOREST AREAS ARE BELOW THE AFFORESTATION THRESHOLD AND CLEARING OF FOREST AREAS IS PROPOSED, BOTH AFFORESTATION AND REFORESTATION ARE REQUIRED.

AFFORESTATION CALCULATIONS		
A. NET TRACT AREA		4.0
C. AFFORESTATION THRESHOLD	(20%XA)	0.8
D. EXISTING FOREST ON NET TRACT AREA		0.6
G. FOREST TO BE CLEARED		0.4
H. FOREST TO BE RETAINED		0.2

CLEARING

AFFORESTATION FOR UNFORESTED AREAS BELOW AFFORESTATION THRESHOLD	(C - D) =	0.2
REFORESTATION FOR CLEARING BELOW AFFORESTATION THRESHOLD	(G x 2) =	0.8
TOTAL PLANTING REQUIRED		1.0

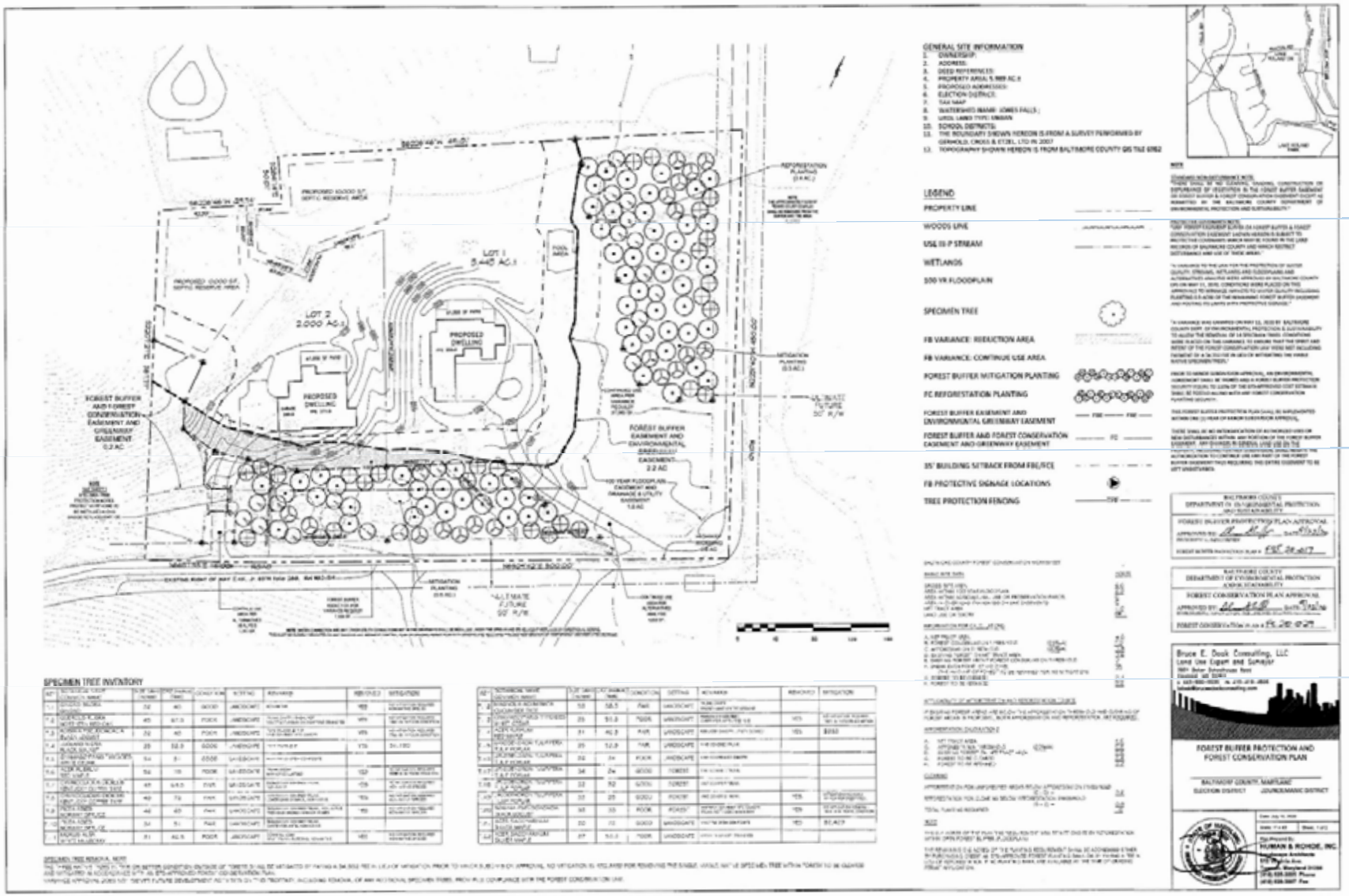
NOTE

THE 0.4 ACRES OF THE PLANTING REQUIREMENT WILL BE MET ONSITE BY REFORESTATION WITHIN OPEN FOREST BUFFER (FLOODPLAIN)

THE REMAINING 0.6 ACRES OF THE PLANTING REQUIREMENT SHALL BE ADDRESSED EITHER BY PURCHASING CREDIT AN EPS-APPROVED FOREST PLANTING BANK OR BY PAYING A FEE IN LIEU OF REFORESTATION IF NO PLANTING BANK ARE AVAILABLE AT THE TIME OF GRADING PERMIT APPLICATION.

Forest Conservation Plan

- Put the data from the FSD and FCW on a plan
- Forest Conservation Plan must have standard notes on plan (preconstruction activities, planting requirements, securities)
- Show areas for retention and planting - any to be saved/planted will be Forest Conservation Easements – the area must be at least 10,000 square feet, at least 35 feet wide, and 35 feet from any primary structure
- The easement is protected by a Declaration of Protective Covenants, Conditions, and Restrictions that are recorded in the land records of Baltimore County and run with the land in perpetuity



GENERAL SITE INFORMATION

1. OWNER(S):
2. ADDRESS:
3. DEED REFERENCES:
4. PROPERTY AREA: 5.989 AC.±
5. PROPOSED ADDRESSES:
6. ELECTION DISTRICT:
7. TAX MAP:
8. WATERSHED (NAME: JONES FALLS)
9. SOILS (SOILS TYPE: UNKNOWN
10. SCHOOL DISTRICTS:
11. THE BOUNDARY SHOWN HEREON IS FROM A SURVEY PERFORMED BY GERWALD, CROSS & ETZEL, LTD IN 2007
12. TOPOGRAPHY SHOWN HEREON IS FROM BALTIMORE COUNTY GIS TILE 6762

LEGEND

PROPERTY LINE

WOODS LINE

USE III-P STREAM

WETLANDS

100 YR FLOODPLAIN

SPECIMEN TREE

FB VARIANCE: REDUCTION AREA

FB VARIANCE: CONTINUE USE AREA

FOREST BUFFER MITIGATION PLANTING

FC REFORESTATION PLANTING

FOREST BUFFER EASEMENT AND ENVIRONMENTAL GREENWAY EASEMENT

FOREST BUFFER AND FOREST CONSERVATION EASEMENT AND GREENWAY EASEMENT

35' BUILDING SETBACK FROM FB/FCE

FB PROTECTIVE SIGNAGE LOCATIONS

TREE PROTECTION FENCING

NOTE

FOREST BUFFER PROTECTION PLAN APPROVAL

BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SUSTAINABILITY

FOREST CONSERVATION PLAN APPROVAL

Bruce E. Doak Consulting, LLC
Land Use Expert and Surveyor

FOREST BUFFER PROTECTION AND FOREST CONSERVATION PLAN

BALTIMORE COUNTY, MARYLAND
ELECTION DISTRICT — 2ND/HEBRON DISTRICT

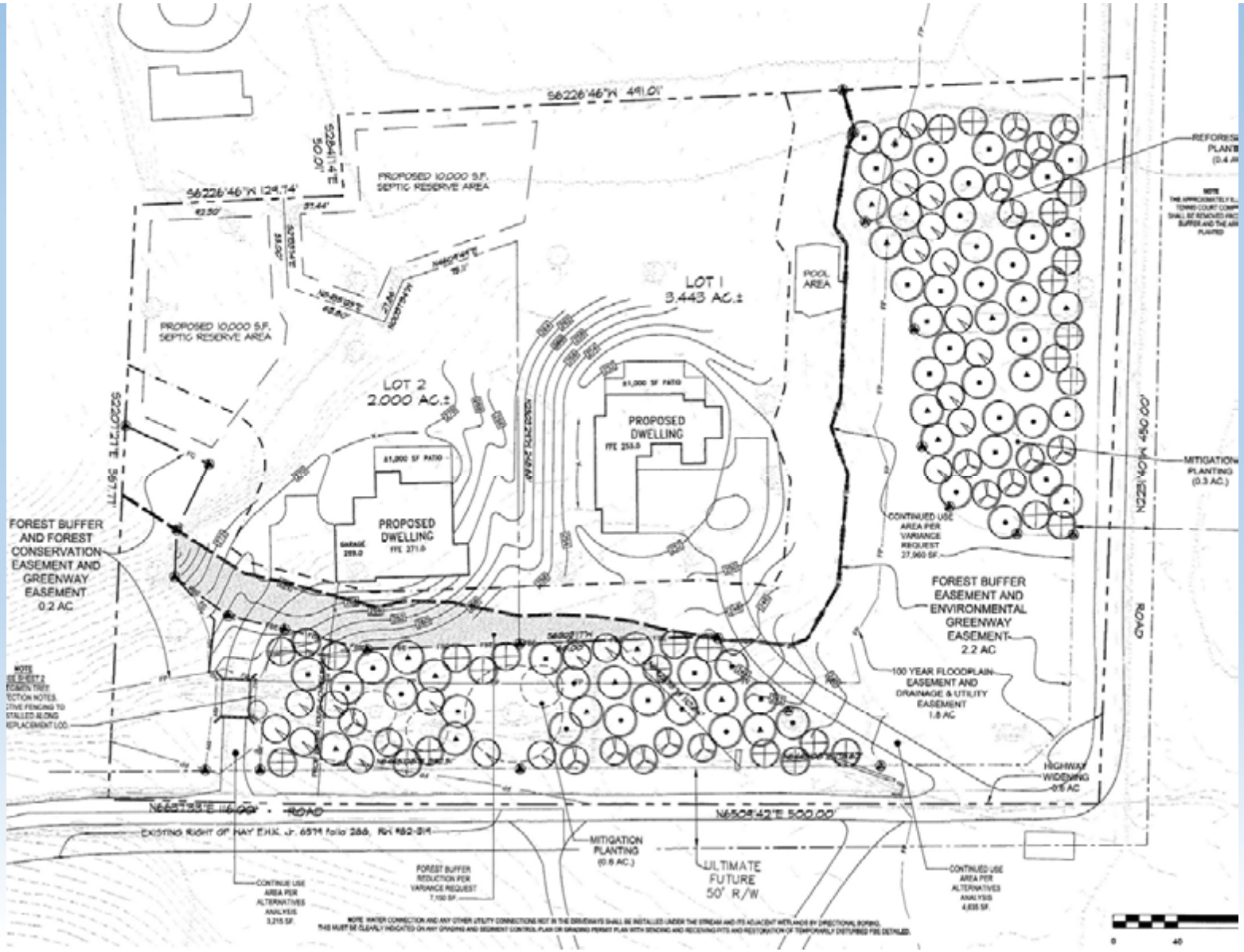
HUMAN & HOWOE, INC.

SPECIMEN TREE INVENTORY

NO.	BOTANICAL NAME / COMMON NAME	DIA. OF SPECIMEN TREE (inches)	HEIGHT (feet)	CONDITION RATING	SETTING	REMARKS	REMOVED	MITIGATION
1		32	80	GOOD	UNDISTURBED		YES	
2		45	67.5	POOR	UNDISTURBED		YES	
3		32	80	POOR	UNDISTURBED		YES	
4		20	52.5	GOOD	UNDISTURBED		YES	31-100
5		34	0	DEAD	UNDISTURBED			
6		36	70	POOR	UNDISTURBED		YES	
7		47	69.5	FAIR	UNDISTURBED		YES	
8		40	72	FAIR	UNDISTURBED		YES	
9		40	67	FAIR	UNDISTURBED		YES	
10		34	51	FAIR	UNDISTURBED			
11		31	62.5	POOR	UNDISTURBED		YES	

NO.	BOTANICAL NAME / COMMON NAME	DIA. OF SPECIMEN TREE (inches)	HEIGHT (feet)	CONDITION RATING	SETTING	REMARKS	REMOVED	MITIGATION
12		18	58.5	FAIR	UNDISTURBED			
13		25	50.0	POOR	UNDISTURBED		YES	
14		31	46.5	POOR	UNDISTURBED		YES	$930
15		35	52.5	FAIR	UNDISTURBED			
16		32	24	POOR	UNDISTURBED			
17		34	24	GOOD	FOREST			
18		33	50	GOOD	FOREST			
19		33	25	GOOD	FOREST		YES	
20		40	55	POOR	FOREST		YES	
21		30	70	GOOD	UNDISTURBED		YES	$2,407
22		27	50.0	POOR	UNDISTURBED			

SPECIMEN TREE REMOVAL NOTE


S6226'46"W 491.01'
PROPOSED 10,000 S.F. SEPTIC RESERVE AREA
S6226'46"W 129.74'
S20°11'14"E 50.01'
PROPOSED 10,000 S.F. SEPTIC RESERVE AREA
LOT 1 3.443 AC.±
POOL AREA
LOT 2 2.000 AC.±
S20°11'14"E 367.77'
PROPOSED DWELLING FFE 253.0
PROPOSED DWELLING FFE 271.0
GARAGE 289.0
FOREST BUFFER AND FOREST CONSERVATION EASEMENT AND GREENWAY EASEMENT 0.2 AC
CONTINUED USE AREA PER VARIANCE REQUEST 27,960 SF
FOREST BUFFER EASEMENT AND ENVIRONMENTAL GREENWAY EASEMENT 2.2 AC
100 YEAR FLOODPLAIN EASEMENT AND DRAINAGE & UTILITY EASEMENT 1.8 AC
HIGHWAY WIDENING 0.6 AC
MITIGATION PLANTING (0.3 AC.)
ROAD
N65°08'42"E 500.00'
EXISTING RIGHT OF WAY E.H.K. Jr. 6519 folio 288, Rel #82-814
MITIGATION PLANTING (0.6 AC.)
ULTIMATE FUTURE 50' R/W
CONTINUE USE AREA PER ALTERNATIVES ANALYSIS 3,215 SF.
FOREST BUFFER REDUCTION PER VARIANCE REQUEST 7,150 SF.
CONTINUED USE AREA PER ALTERNATIVES ANALYSIS 4,838 SF.
0
40

Definitions

Afforestation: Establishment of a forest on an area on which forest cover has been absent for a long period of time or planting of open areas which are not presently in forest cover.

Reforestation: "Reforestation" or "reforested" means the creation of a biological community dominated by trees and other woody plants containing at least 100 trees per acre with at least 50% of those trees having the potential of attaining a 2 inch or greater diameter measured at 4.5 feet above the ground, within 7 years.

Planting – where, when

- Where
  - Onsite first
  - Offsite at another property if EPS approves
  - Payment into a private forest conservation planting bank
  - Fee in lieu (55 cents per square foot – money is used by EPS to plant trees)
- When
  - In general planting occurs after construction activities are complete to avoid damage to tree stock. Depending on the situation trees can be planted before or during construction (two house development vs. 400 house development)
  - Planting should occur in the fall or spring to ensure higher survivability

Planting – with what?

- Trees should be Maryland native, minimum of 5 different species, 1/3 pioneer, 2/3 mid to late successional. 60% canopy dominant, 40% understory
- Pioneer = Black locust, tulip poplar, black willow, pin oak, black cherry
- Mid-late = American Beech, American sycamore, white oak, slippery elm, red maple
- Site stocking:

Trees Per Acre	Sizes	Equivalent Tree Units	Individual Spacing
100	2" caliper	7 units/plant	20' x 20'
200	1" caliper	3.5 "	15' x 15'
350	hardwood whips/potted stock	2 "	11' x 11'
700	seedlings	1 "	8' x 8'

- Deer protection
- In reality the success of each planting is site and species specific. The correct tree in the correct place will thrive with proper protection and maintenance.

Planting – securities

- Before any permits for work on the site are approved (grading permits to start the development), securities for grading, stormwater, and tree planting are required
- Planting securities are least 25 cents per square foot of planting area or 110% of the itemized cost for planting
- 3 year developer maintenance agreement
  - Year 0 – site planted and initial inspection completed
  - Year 1 through 3 – applicant must submit a report to the county that includes information regarding the number, health, size, form, and vigor of the trees; control of insects, disease, and competing vegetation; watering; mechanical injury; and the name of the company responsible for tree care.
  - If the site meets or exceeds 75% survival, then in:
    - Year 1, 25% of the security is eligible for release,
    - Year 2, 25% of the security is eligible for release,
    - Year 3, 50% of the security is eligible for release.
  - If at any point county isn't happy with survival we will deny security release and require replanting up to at least 75% survival. Larger stock or alternate species can be required. It is incumbent upon the applicant to contact the county.

Private planting maintenance period

- In Baltimore County, after the 3 year inspection period is complete and securities are returned, no further maintenance is currently required
- No maintenance requirement Statewide by any party after the completion of the maintenance term

Exemptions to the Act

- Units of land under 40,000 square feet (forested or not)
- Clearing under 20,000 square feet of forest on a parcel of land 40,000 square feet or greater
- Forestry and agricultural operations
- Land outside of the URDL under a valid Forest Conservation and Management Agreement, Forest Management Plan, Forest Stewardship Resource Conservation Plan (not subject to a grading or building permit and is subject to a DOI)
- Utility projects (linear in nature)
- Mining operations under a valid State permit
- Land in the Chesapeake Bay Critical Area
- Developments approved before 1993,
- including County Review Group plans

Planting Plan examples

Peige Property Bank
Initial planting

Planting Plan examples

Peige Property Bank
Year one

Planting Plan examples

Peige Property Bank
Year 2
Survival approximately 90%

Planting Plan examples

Kahl Property
Initial planting
Larger stock used

Planting Plan examples

Kahl Property
3 years later

Planting Plan examples

Kahl Property
6 years later

Planting Plan examples

Miller Lane Planting Bank

Planting Plan examples

Miller Lane Planting Bank

Planting Plan examples

Miller Lane Planting Bank

Planting Plan examples

Farber Planting Bank

Summary of projects 1993 – 2020

- Over 1,900 projects reviewed
- Almost 30,000 acres of net tract area
- Over 9,200 acres of forest conservation easements (30% of net tract)
- Approximately 4,400 acres of clearing (14% of net tract)
- 197 projects required over 400 acres of reforestation and over 340 acres of afforestation
- Forest Conservation mitigation banks:
- 20 planting banks with over 380 acres of planting
- 19 banks with retention acres, totaling over 570 acres of retained and protected forest

Appendix C

1/26/22 T. Krispin, Forest Conservation Act in Baltimore County, written text

The Forest Conservation Act in Baltimore County

Presented by: Thomas Krispin, Supervisor of Enforcement in the Environmental Impact Review (EIR) Section of the Department of Environmental Protection and Sustainability
Work history: DEPS for the last 15 years reviewing Forest Conservation Plans, inspecting Forest Conservation Easements and planting plans, and enforcing the Forest Conservation Act (FCA) Countywide. Before my employment at the County, I worked in the private sector creating forest conservation plans as a consultant. Prior to that, I worked for the Department of Natural Resources as a contract forester preparing Conservation Reserve Enhancement Program plans for farmers in the Prettyboy and Liberty watersheds.
Education: Bachelor of Science in forestry from Virginia Tech and Masters of geography and environmental planning from Towson University.

The Forest Conservation Act was adopted in 1991 by the State of Maryland to minimize the loss of forest across the state. The FCA was enacted in 1993 by Baltimore County and the intent was to protect forests which in turn protect air and water quality. It should be noted that this was not designated as a no net loss of forest law. The definition of forest includes areas that have at least 100 live trees per acre with at least 50% of those trees having a 2-inch or greater diameter at four and a half feet above the ground; also areas with mature trees that provide a contiguous canopy cover over unimproved land. This does not equal tall trees over lawn or parklike settings. The definition of forest also includes areas that have been cut but not cleared. This means that timber harvests based on established silvicultural practices such as clear cuts, selection cuts, shelterwood cuts, and others that leaves stumps in the ground to stump sprout are still considered forest. If the landowner cuts trees and remove stumps the area is no longer defined as forest. If this is done without proper authorization it then as a violation of the Forest Conservation Act. Depending on the situation, compliance with the Forest Conservation Act must be achieved through payment of a fee of up to $1.20 per square foot, replanting of the clear area, completion of a declaration of intent, or completing the full FCA process. A development activity (a grading or construction activity that occurs on a tract that is 40,000 square feet or greater) triggers compliance with the FCA. A development project includes redevelopment unless the redevelopment project is located on an impervious tract or impervious surfaces. If a development must comply, the landowner has to hire a registered forester, a landscape architect, or a qualified professional as determined by the State Department of Natural Resources to conduct the required fieldwork and assess the site. If the development must comply with the FCA then the consultant must gather information to generate a forest stand delineation, forest conservation worksheet and a forest conservation plan (FCP).

The forest stand delineation process uses field sheets from the forest conservation manual to investigate forest resources and classify the stand. Consultants investigate what species are in the forest layers in the canopy, understory, shrub, and herbaceous layers and identify the forest structure. Elements of this process include observing if there is a closed canopy, current tree health, the presence of disease, disturbance to the forest, and prior management. Specimen trees (all trees that measure 30” or greater in diameter at breast height, known as DBH), wetlands, streams, invasive species, and any structures on site require identification. All of this information is compiled into a numbering system to classify the forest stands and determine the priority for retention of forest on site. Contiguous forest, large forested corridors, steep slopes, and the presence of rare, threatened, and endangered species are some of the factors influencing the priority for retention. The information from the field worksheets is transferred to a

plan to describe the site in a graphical format. The forest conservation worksheet is used to figure out the amount of forest retention and planting requirements. The net tract area and land use category determines the forest conservation and afforestation thresholds, and once calculated the amount of planting (**if required**) is determined. The simple definition of afforestation is the addition of trees to an area where there had not been any in the past or not for a long time. With reforestation, areas are planted typically next to adjacent forest or within proximity to live trees. All of the previous data from the forest stand delineation and forest conservation worksheet is transferred to the forest conservation plan and shows what forest is being kept what is being planted and the protections for both, which in Baltimore County are Forest Conservation Easements (FCEs). These easements are recorded in the land records of Baltimore County and run with the land in perpetuity. If the forest conservation calculations determine that planting is required then the where and when of planting must be determined. Planting on site is the first priority, then off site at another property if it is approved by our department, then payment into a private forest conservation planting bank, and the final option is a fee in lieu of $0.55 per square foot. This was recently updated in 2018 from $0.40 to $0.55 - the money is used by the county to plant trees. Planting by the developer in general is going to occur after construction activities are complete to avoid damaged tree stock. Depending on the situation and the size of the subdivision, trees can be planted before or during construction. Planting should occur in the late fall or early spring to ensure higher survivability.

The details of the planting plan are important; the correct species and size will be different depending on the site conditions for each planting area. The planting area will be proposed on the FCP by the consultant and approved by EIR as part of the review process. The area to be planted is typically adjacent to existing forest, wetlands, and or streams but must be within the recorded FCE. As stated in the Baltimore County Forest Conservation Manual – trees should be Maryland native, a minimum of five difference species with a ratio of 1/3 pioneer to 2/3 mid to late successional, but these guidelines should be modified based on each specific site. The density of trees planted on site is based off the following table:

Trees Per Acre	**Sizes**	**Equivalent Tree Units**	**Individual Spacing**
100	2” caliper	7 units/plant	20’ x 20’*
200	1” caliper	3.5 “	15’x15’
350	hardwood whips/potted stock	2 “	11’x11’
700	seedlings	1 “	8’x8’

*Note that spacing above 20’x20’ will not meet the minimum 100 stems per acre definition of forest.

Deer protection will vary from site to site and should consist of 5-foot tree tubes or deer exclusion fencing. The maintenance of shelters, watering of tree stock, and replacement of dead trees is very important to the long-term survival of the planting. Staff of EIR have reviewed, approved, and inspected hundreds of planting plans and can require changes to species or stocking, and can extend the maintenance period of individual planting sites if necessary. Securities are required before any development work can start. Planting securities are $0.25 per square foot or 110% of the itemized cost for planting. A three-year maintenance agreement begins when the trees are planted, and an initial inspection is conducted by the County - no security is returned at this time. In years one through three the applicant

is required to submit a report to the county that includes information regarding the number, health, size, and form of the trees. Maintenance practices must also be listed in addition to the survival rate. If the site meets or exceeds 75% survival then in year one 25% of the security is eligible for release, in year two assuming the same thing 25% is eligible for release and then in the final year 50% is eligible for release. EIR changed this in 1998 from 50% released in the first year, 40% in the second year, and 10% in the third year because the original percentages were not incentivizing developers to complete the maintenance. It is easy to forget or walk away from a 10% security and then the County is stuck with a site that does not meet the 75% survival rate and the remaining money is not sufficient to plant the site up to the minimum survival rate. If at any point the County is not satisfied with survival, they can deny security release in any of these periods and require planting up to at least 75%. The only time the required planting is higher than 75% is if the initial planting doesn't meet survival rates it must be planted up to 100%. Larger stock or alternate species can be required if site survival is low. It is incumbent upon the applicant to contact the County for review, if they do not the actual planting maintenance period can go on longer than three years. People who want their security back cannot call us after five years and get their money back with no effort on their end. Sometimes nothing has grown in the designated planting area and a field is still a field, other times there is no room to plant because volunteers have taken over this site. In the latter case EIR has to evaluate the situation to determine the best outcome. If not planted or the developer walks away the County can keep the security and plant the site with money.

The maintenance period is three years in Baltimore County and there is no further maintenance required after this point, assuming a final third year security release. Other jurisdictions range from two to five years, the state minimum is two, Prince Georges County is four, and Montgomery County is five. There is no maintenance requirement statewide by any party after the completion of the maintenance term.

Land under 40,000 square feet in size is exempt from the FCA. If it will be subdivided and resources are on site, they are protected through the County buffer regulations. In some cases, clearing forest is allowed with a Declaration of Intent. These notarized documents state that the owner will keep the property in specific use for a period of five years, specifically a single-family residence, agricultural use, or forestry operations. Other exempt activities include linear projects, mining operations, and anything occurring in the Chesapeake Bay Critical Area.

Forest Conservation Planting Banks

Developers can buy into an approved forest conservation planting bank. The bank owner will propose to plant an open property, typically a farm field, and then sell credits per square foot to developers that cannot plant on their own site. This department reviews the size and location of the proposed planting, with areas adjacent to wetlands, stream systems, and contiguous forest as priorities for planting bank approval. As with developments, the bank operator must submit a final FCP for approval as well as planting plan inspection requests for the three-year maintenance period. Planting areas are placed under long term protection in a FCE. In the past, this department allowed existing forests to be retained and sold for retention credit but that is not currently allowed.

There have been no long-term studies or comprehensive reviews of the success or failure of forest conservation bank plantings in Baltimore County, therefore the actual percentage of long-term survival per site is not currently known. Some sites have survived better than other sites, and while photos may show a portion of a site, they provide anecdotal information at best and do not tell the whole story. To say that “some” or “many” sites have “failed” and therefore the maintenance period should be extended is duplicitous as no comprehensive long-term survival studies have been completed. The costs for ensuring

plan survival beyond three years may be significant. EPS will be conducting a comprehensive evaluation of planting plans in the near future to find out what these survival percentages are County-wide. It is important to note that EIR has learned a lot over the 30 years of implementing the FCA and has improved upon the process year after year.

Summary 1993-2020:

Over 1,900 projects reviewed
Almost 30,000 acres of net tract area
Over 9,200 acres of forest conservation easements (30% of net tract)
Approximately 4,400 acres of clearing (14% of net tract)
197 projects required over 400 acres of reforestation and over 340 acres of afforestation **on site**
Forest Conservation mitigation banks:
20 planting banks with over 380 acres of planting
19 banks with retention acres, totaling over 570 acres of retained and protected forest

– Forest Conservation Act – The Need for Extended Reforestation Maintenance

Comments for Consideration of the Baltimore County Advisory Commission on Environmental Quality

By Donald C. Outen

January 26, 2022

Forest Conservation Act - Introduction

- The Forest Conservation Act of 1991 was first of its kind in U.S.
- A State mandate, with a statute and regulations (a model ordinance); implementation consists of a local ordinance and technical manual.
- Not designed as a no-net loss measure.
- Followed another State regulatory program: Chesapeake Bay Critical Area Act of 1984 (regulations 1986, local implementation 1988).
- Contemporary with local “stream buffer” regulations: Regulations for the Protection of Water Quality, Streams, Wetlands, and Floodplains (1989 Executive Order, 1991 passage, 1993 implementation).
- FCA provisions considered as “minimums.”

FCA – Baltimore County Implementation

- County Administration (Hayden) hostile towards FCA, following highly unpopular Critical Area law.
- During County Council work session, County AO said that the only reason for FCA bill was that "the State is making us do this" and that "we're not going to burden homebuilders with this law."

	DEPRM proposed	DNR Model ordinance	Council enacted
Maintenance Period:	8 years	2 years	3 years
Fee-in-lieu:	$0.80/sq.ft.	$0.10/sq.ft.	$0.30/sq.ft.

- $0.80 = $34,848/acre or $11,616/acre/year
- $0.10 = $4,356/acre or $1,452/acre/year
- $0.30 = $13,068/acre or $4,356/acre/year

Costs need to cover trees, deer shelters, fertilizers/herbicides and all labor and equipment for planting, monitoring, and maintenance.

FCA Reforestation Process

- When reforestation is required, developers have several options:
  1. Reforest on-site.
  2. Reforest off-site, at individual sites.
  3. Reforest off-site, by buying into an approved mitigation bank.
  4. Pay a fee-in-lieu of mitigation to the County.
- For developer projects, including mitigation banks, DEPS signs off after 3 years that the project has adequate survival (generally 90%).
- For in-house fee-in-lieu projects, DEPS generally provided “extended” maintenance of projects, as needed, to assure survival.
- Extended maintenance needs generally decrease with time.

Why Extended Maintenance is Needed

- Reforestation involves growing natural resource assets that face competition for nutrients, sunlight, and water from other vegetation.
- Without maintenance, young tree saplings become over-grown especially by competition from vines (bittersweet, honeysuckle, grape, tear-thumb, etc.).
- Browsing by deer and buck-rub of tree trunks also damage/kill young trees.
- Climbing vines strangle tree trunks and cover tree crowns, pulling them down and/or blocking sunlight needed for growth.
- Research by USDA Forest Service has documented significant increase in the presence of invasives in forest ecosystems in the U.S.
- Even with improved planting practices, suppression of competing vegetation is needed for more than 3 years.

Fee-in-lieu Projects Survived with Extended Maintenance

County Home Park in 2013 (initial reforestation in 1998)

Oregon Ridge Park, Cuba Rd. in 2013 (initial reforestation in 1998)

Fox Hall Farm in 2013 (initial planting in 2001)

Beaverdam Rd. in 2013 (initial planting in 2000)

Developer Reforestation Examples

Low survival at reforestation sites in 2013, years after the required 3-year maintenance period (Beaverbrook on Ridge Rd., Jones Property on Pot Spring Rd.)

FCA Mitigation Bank Project

32 ac. Miller Lane site in 2013, planted in 2007-2008

Virtually no trees from the initial planting cycle survived after the required 3 year maintenance period.

FCA Mitigation Bank Project

31 acre Farber Property in 2013 (south of Irvine Nature Center), planted 2003-2004

Very low survival

The Survival Challenge

- The time and money spent for reforestation is wasted if projects do not survive.
- 3 years is clearly not sufficient to assure long-term survival in the face of competition from vines, deer, etc.
- More intensive maintenance is needed for the first 3-5 years.
- After the initial period, sites should be monitored 1-2 times a year to determine maintenance needs.
- Extended maintenance, for a total of 8-10 years as needed, might be provided through on-call contractors (maintenance might not be needed every year).

Donald C. Outen – Brief Bio

- American Institute of Certified Planners (AICP), Charter Member (1979-2020)
- Planner IV, MD Dept. of Planning, Comprehensive Planning Division (1973-1980)
- Instructor, Towson University Dept. of Geography & Environmental Planning (1982-1986)
- Deputy Director, Harford County Dept. of Planning and Zoning (1986-1987)
- Forest Landowner Participant, MD DNR Forest Conservation & Management Agreement and Woodland Assessment Program (1978-present)
- Natural Resource Manager, Baltimore County DEPRM/DEPS (1987-2017)
- Core Group Member, National Sustainable Forests Roundtable (2006-2016)
- Member, Governor's Sustainable Forestry Council (2010-2017)
- Chesapeake Forest Champion and Life-time Achievement Award, Alliance for the Chesapeake Bay and USDA Forest Service (2015)
- Member, Board of Directors, Harry R. Hughes Center for Agro-Ecology (2018-2020)

Restoring Forests: Forest Conservation Act and Beyond

ANNE HAIRSTON-STRANG, PH.D.

MARYLAND DEPARTMENT OF NATURAL RESOURCES FOREST SERVICE

JANUARY 26, 2022

Executive Summary

The Governor's Task Force on Trees & Forests in Maryland

November 1990

RECOMMENDATION NUMBER 7

➡ Adopt a statewide tree and forest conservation, protection and reforestation law that provides for local implementation.

A state law should be established that requires the preservation of the forest land base and the conservation of the forest resources and specifies ways that local jurisdictions can satisfy that mandate. In response, local jurisdictions should adopt strong tree and forest protection ordinances, incorporating strict site design review and after-development inspections to protect trees, forests and the functions of ecosystems during development.

Forest Conservation Act of 1991

Natural Resources Article 5-1601 - 1613, Forest Conservation Act, with multiple amendments since the original law

Code of Maryland Regulations, Title 08. Subtitle 19 Forest Conservation, enacted in 1992

Implemented through locally adopted laws and regulations, can exceed but not fall below state standards. Every jurisdiction is different.

State projects are reviewed by DNR

Every jurisdiction has its own process and standards for tree planting and survival. The law allows for a range of tree planting stock sizes and densities, from seedlings to containerized and larger ball and burlap tree planting stock.

Tree Planting Programs

Healthy Forests/Healthy Waters and Lawn to Woodland

Backyard Buffers

Marylanders Plant Trees Coupons

TreeMendous trees for public land

Gift of Trees

Watershed Grant funding

Coming Soon: 5 Million Trees!

Additional to existing goals

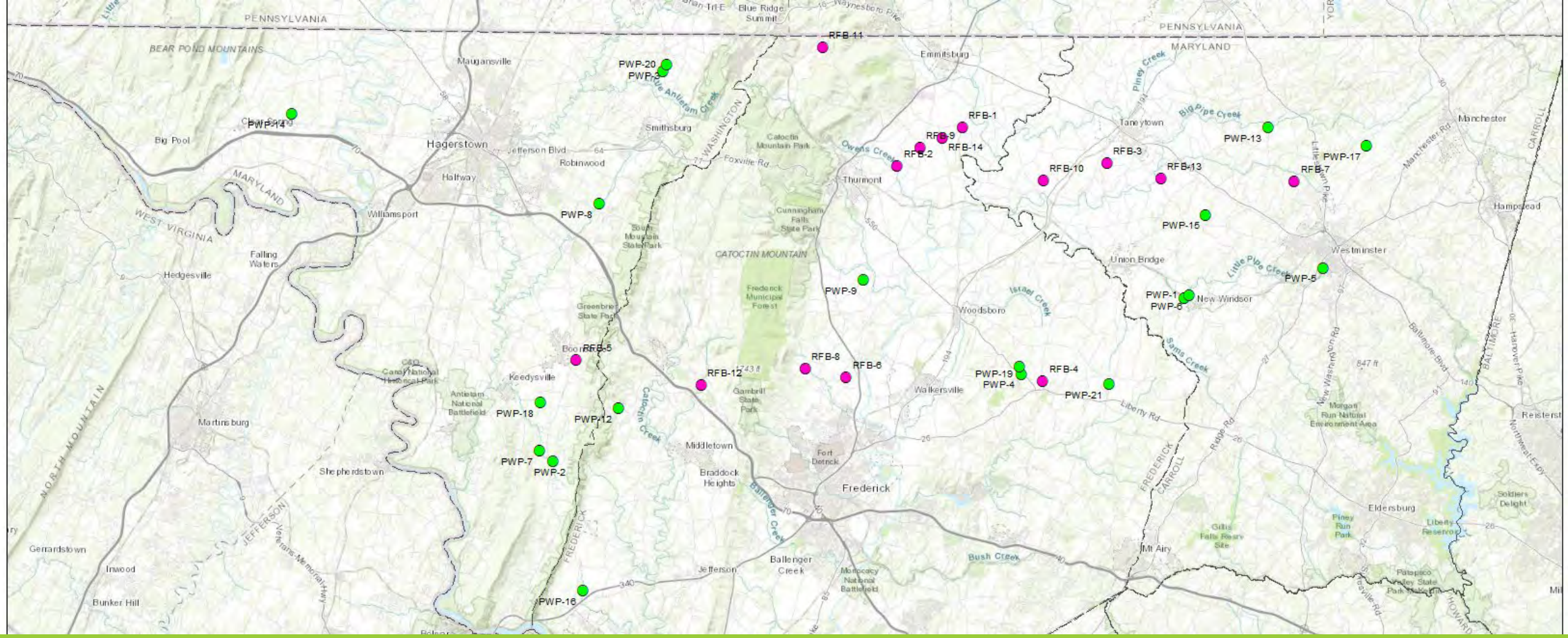
Conservation Reserve Enhancement Program- buffers and wetlands

Woodland Incentive Program- 3+ acres

NRCS Environmental Quality Incentive Program

Conservation- Program Open Space

- Stateside
- Rural Legacy
- MD Ag Land Preservation Foundation



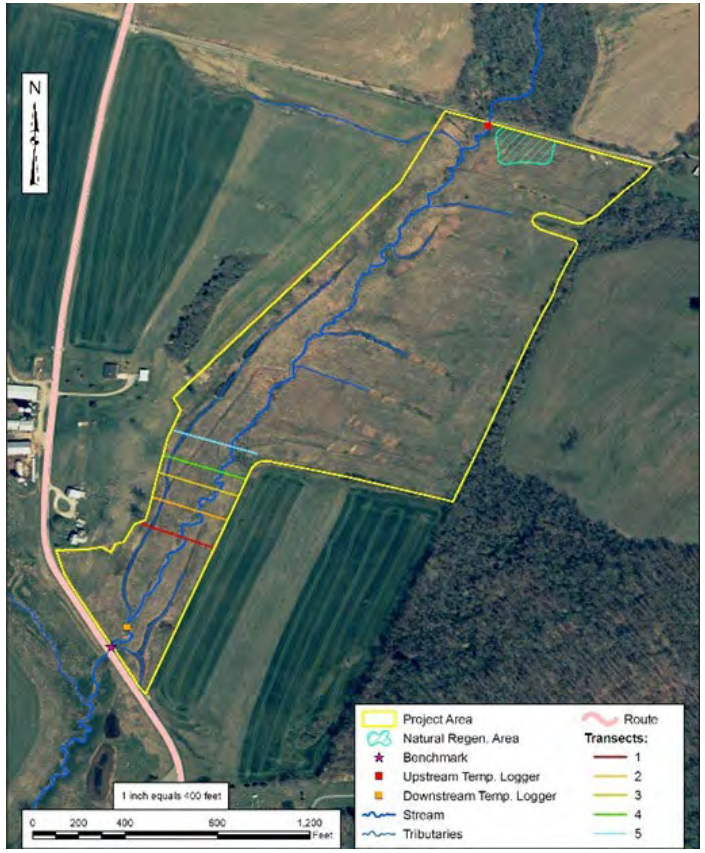
Forest Buffer Survival and Function Monitoring

1999/2000- 14 Long-term Riparian Forest Buffer sites

2000/2002- 20 Potomac Watershed Partnership (w/VA and DU)

Streams at time of planting

Buffer Planting Plan and Young Planting



Before and After 15 Years

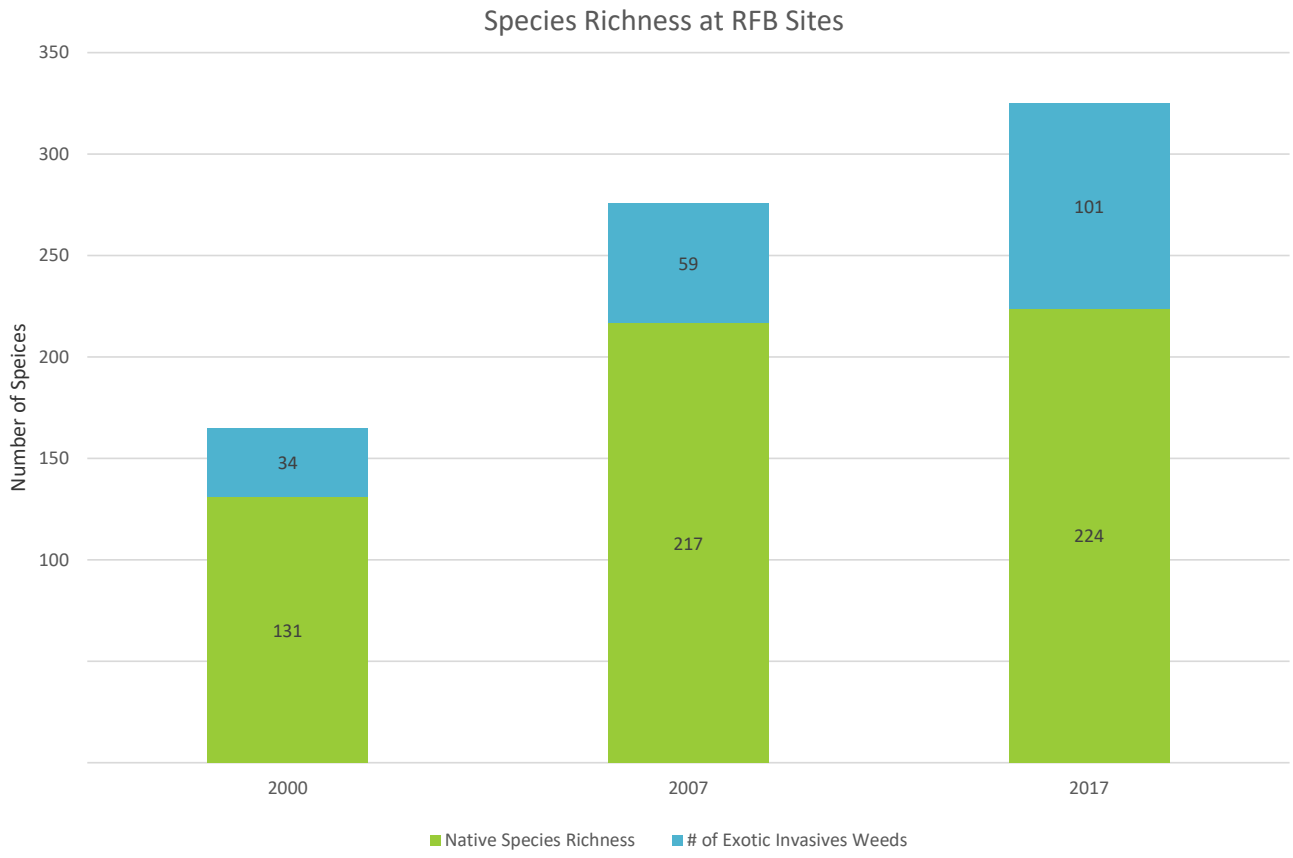
Species Richness, 9 RFB sites

Good News

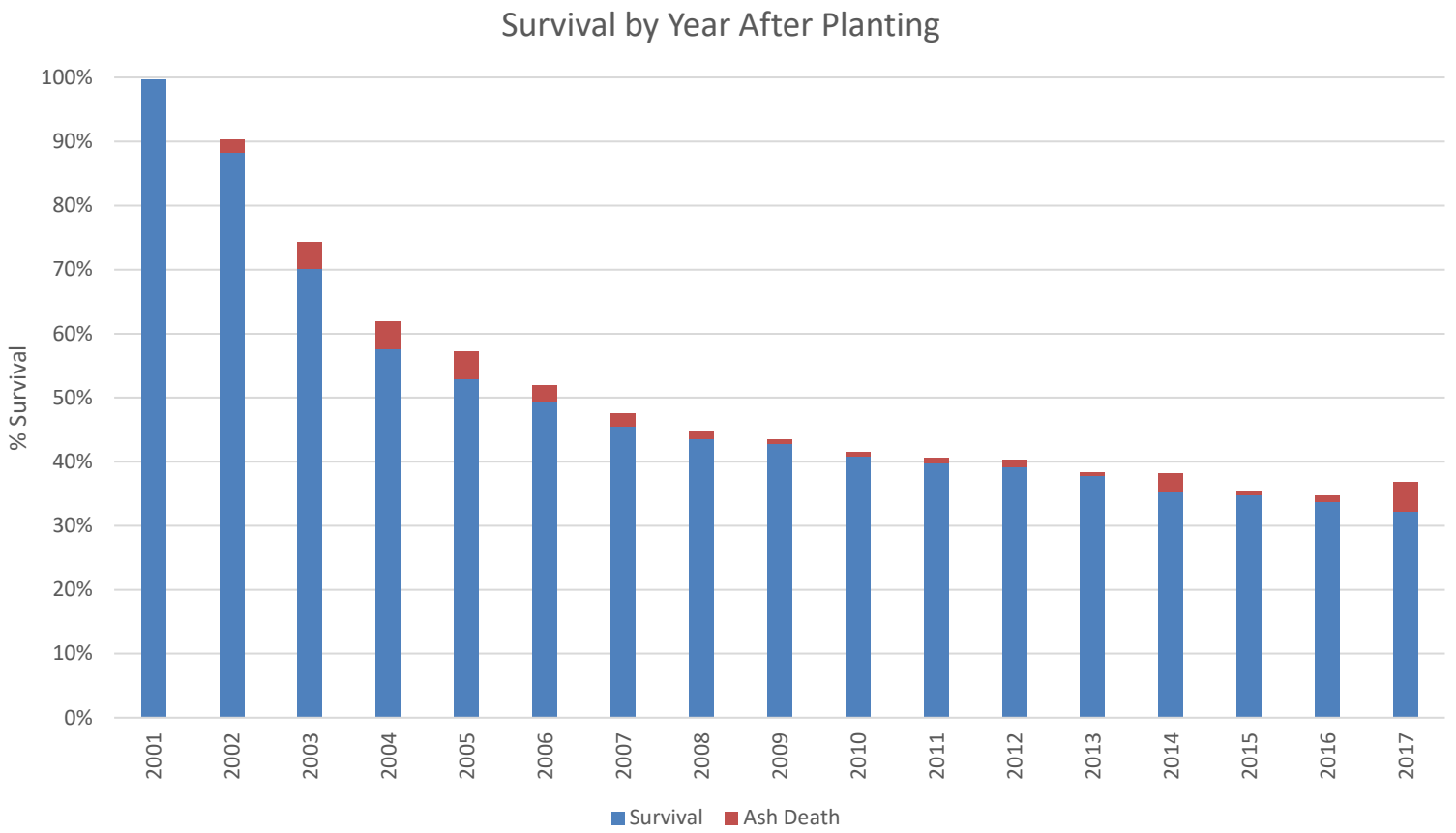
- Native species richness doubled
- Native species are dominant
- Natural regeneration present and helped increase diversity

Bad News

- Invasive species richness tripled
- Sun-loving species declining but shade-tolerant increasing



Vegetation- Planted Seedling Survival-19 PWP sites

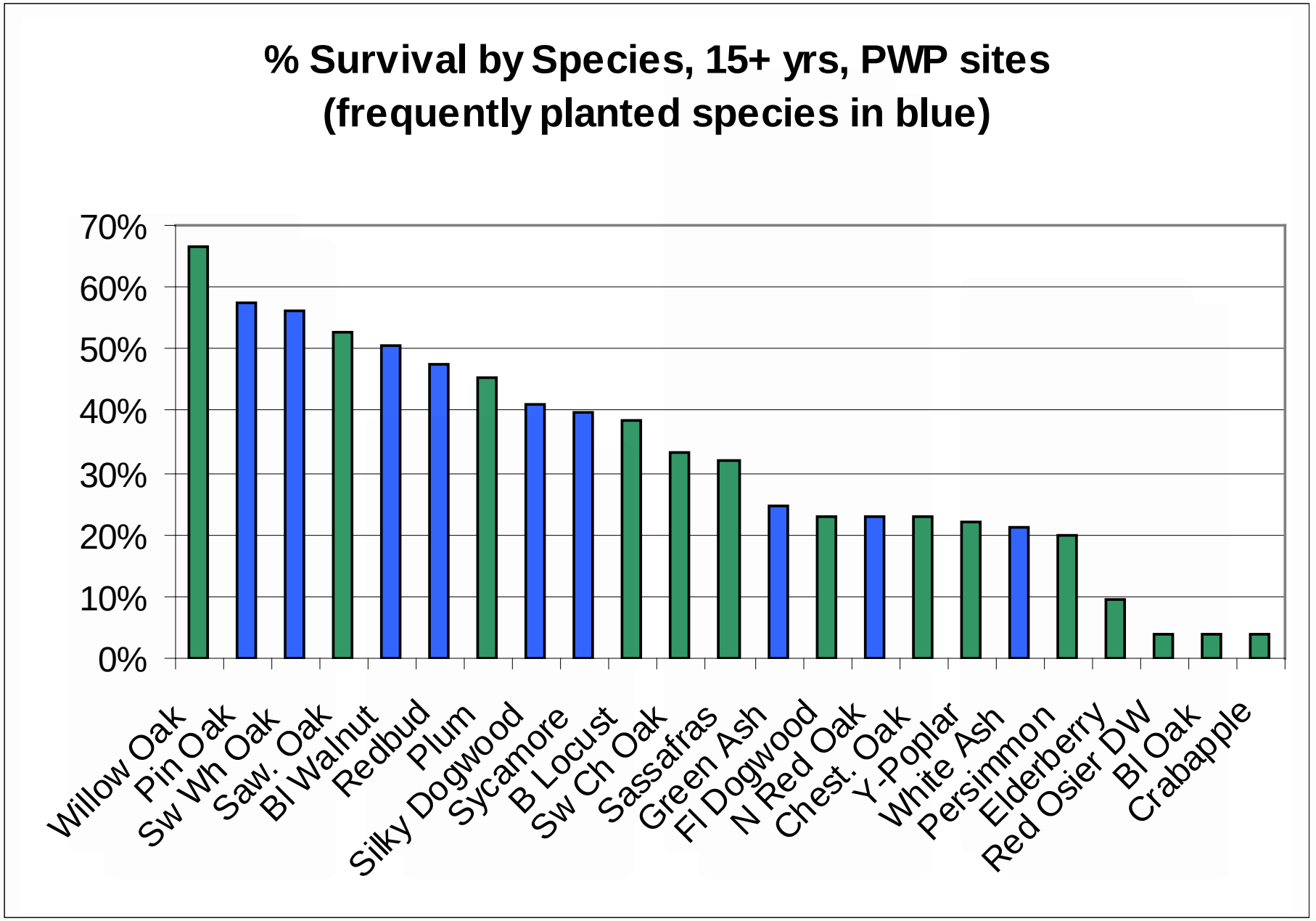


First five years had highest rate of mortality for planted seedlings

Ash mortality was added in orange to identify effect of emerald ash borer

Ash mortality is increasing, but usually not affecting a majority of the buffer, given other natural regeneration

Stocking goal- 200 trees/acre


% Survival by Species, 15+ yrs, PWP sites
(frequently planted species in blue)
70%
60%
50%
40%
30%
20%
10%
0%
Willow Oak
Pin Oak
Sw Wh Oak
Saw. Oak
Bl Walnut
Redbud
Plum
Silky Dogwood
Sycamore
B Locust
Sw Ch Oak
Sassafras
Green Ash
Fl Dogwood
N Red Oak
Chest. Oak
Y-Poplar
White Ash
Persimmon
Elderberry
Red Osier DW
Bl Oak
Crabapple

Climate and Changing Conditions

Weather Variability

- Wet 2017/2018, Dry fall 2019

Adaptation through Micro-climate

- Consider aspect, moisture of precise site

Invasive species - expanding

Species Predictions

- Resources on ForestAdaptation.org
- Example: Climate Vulnerability of Urban Trees in DC
- https://forestadaptation.org/sites/default/files/2021-07/WashingtonDC_TreeSpeciesVulnerability.pdf

Appendix F

A G E N D A
Baltimore County Advisory Commission on Environmental Quality (CEQ)
February 16, 2022 7 PM
Online Meeting on Webex

CEQ meeting dates, membership information, and reports are available at
www.baltimorecountymd.gov/Agencies/ceq/index.html

Our thanks to Brian Lindley of EPS for coordinating Webex meetings during the pandemic.

7 pm **Welcome**- Dr. Brian Fath, Chair
Everyone mute please.

7:05 **Forest Conservation Challenges and Opportunities, A Two-Part Virtual Symposium; Part II**. In response to County Council resolution No. 135-21, passed unanimously 11/1/21.
Dr. Brian Fath, Moderator

7:10 Dr. Don Callihan, Member of Baltimore County Green Alliance Steering Committee, and VP of Gunpowder Valley Conservancy. Clinical microbiologist and retired lab diagnostics scientist. Active in conservation and environmental education.

7:25 Katie Lauter, Baltimore Green Space re Balt City
Executive Director of Green Space. Member of the Forest Conservancy District Board for Baltimore City. Degrees in Environmental Education and Education and Peace Studies.

7:40 Two aspects of the development business community's experience with Forest Conservation across the state of Maryland.
Scott McGill founded Ecotone, Inc, in 1998, and has extensive experience as a contractor in forest conservation projects, as well as in environmental assessment and restoration with a focus on wetland and stream restoration. He studied Natural Resource Management - Plant and Wildlife Biology at UMBC.
Eric McWilliams, Registered Landscape Architect, is Project Manager at Bohler Engineering. He has worked as a Project Manager in this field since 2001. He studied Agricultural Business and Management at Penn State.

8:00 **Panel Discussion - Dr. Brian Fath, Moderator**
Speakers and invited Discussants may access the microphone. Others are welcome to use the Chat function, which Lynda Eisenberg will monitor.

8:25 **Conclusion of Part I of Symposium**.

8:25 **CEQ Business**

a. Correct and approve minutes of 1/26/22 meeting.
b. **Citizen request of CEQ** re Go Ape company's zipline and ropes course using trees in forest of Oregon Ridge County Park, brief progress report and date of Go Ape virtual presentation - Dr. Carol Newill

8:40 **Adjourn**

Remaining 2022 meetings: 3/23, 4/27, 5/25, 9/28, 10/26, 11/30.

Baltimore County Forest Conservation CEQ Proposal
Don Callihan
March 13, 2022

Based on review of the Howard County Forest Conservation Manual and contents and documents on the Howard County websites. Planning & Zoning | Howard County (howardcountymd.gov) and Forests & Habitat - Live Green Howard County.

Telephone interviews with Brenda Luber, Land Development Division, Dept of Planning and Zoning and Scott Bowen, Howard County Rec & Parks

	Howard County Forest Conservation Act

Baltimore County Forest Conservation CEQ Proposal
Don Callihan
March 13, 2022

General Information	The Howard County Forest Conservation Act works to protect and maintain forest vegetation and forest areas in Howard County by requiring certain development projects to have an approved Forest Conservation Plan as a condition of approval for the development. These requirements are pursuant to the requirements of the Maryland Forest Conservation Act of 1991. Environmental Planning | Howard County (howardcountymd.gov) **Forest Conservation Manual Update** On February 3, 2021 the County Council adopted CR12-2021, an update to the Howard County Forest Conservation Manual (HoCoFCM). This update of the Manual complies with recent major updates to the County Forest Conservation Act, reflects current policies and procedures for implementing the Act, and provides guidance for better protection of forest resources and more successful forest plantings. The Department of Planning and Zoning testimony on CR12-2021 provides a summary of key changes to the Manual. **Pre-Construction: Regulatory Requirements** The Howard County Forest Conservation Regulations are pursuant to the requirements of the Maryland Forest Conservation Act of 1991, which requires units of local government to adopt a local Forest Conservation Program that meets the requirements of the Natural Resources Article, Section 5-1601 through 5-1613 of the Annotated Code of Maryland. The Howard County Forest Conservation Manual implements the Howard County Forest Conservation Act. **Post-Construction: Inspections and Enforcement** The Natural Resources Division of the Howard County Department of Recreation & Parks performs all inspections and enforcement of post-development forest conservation easements in Howard County. Inspections are conducted to verify forest conservation easements are in compliance with project-specific requirements during the development phase and enforce restrictions on certain types of activities and land use within easements after development is complete. For further information, please visit the Department of Recreation and Parks Enforcement Web Page. **General Mitigation Plan** The Howard County General Mitigation Plan identifies appropriate and potentially available areas for forest conservation mitigation projects. **Forest Conservation Accounting Procedures** The Forest Conservation Accounting Procedures detail how in-lieu fees are tracked and spent by the County.

Baltimore County Forest Conservation CEQ Proposal
Don Callihan
March 13, 2022

Responsible Agency	• Regulatory responsibility: Land Development Division, Dept of Planning and Zoning. Brenda Luber, bluber@howardcountymd.gov 410-313-4343 o Please contact Brenda Luber for information regarding the submittal and review process for forest conservation and landscaping plans or to schedule an inspection of a forest conservation or landscaping project. • Inspection: Howard County Recreation & Parks – Scott Bowen sbowen@howardcounty.gov 410-313-3723 Program Administration Responsibilities *Department of Planning and Zoning* • Administers Program. • Coordinates inspections of forest retention and planting areas for compliance with the approved Forest Conservation Plan and authorizes release of financial guarantees. "In addition to its plan review responsibilities, the *Department of Planning and Zoning* will also manage the other aspects of the Howard County Forest Conservation Program. Chief among these are data management to document how much forest is lost, retained or created by developments subject to the Program, and submission of all information needed for the required annual report and two-year review of local programs by DNR. In addition, the Department is responsible for managing the forest conservation fund, including processing defaults, collecting all fines and fee-in-lieu of payments, and expending the fund for afforestation or reforestation planting, or for the purchase of forest retention easements." *Department of Public Works* • Performs inspection for enforcement of the approved limit of disturbance in conjunction with sediment and erosion control inspections. *Department of Recreation and Parks* • Evaluates on site reforestation/afforestation for open space land proposed to be dedicated to the County. • Reviews plans for off-site planting on public property. • Advises developers about site preparation, particularly invasive species control, and management of planted areas to ensure survival. • **Conducts site inspections to monitor compliance with the approved Forest Conservation Plan.** • Maintains a geographic information system database of all Forest Conservation Easements. • Designs and implements forest conservation plantings for defaulted projects. *Office of Community Sustainability* • Evaluates variance requests in coordination with the Department of Planning and Zoning and Department of Recreation and Parks.

Baltimore County Forest Conservation CEQ Proposal
Don Callihan
March 13, 2022

Inspection Authority	**Department of Planning and Zoning** • Administers Program. • Coordinates inspections of forest retention and planting areas for compliance with the approved Forest Conservation Plan and authorizes release of financial guarantees. https://www.howardcountymd.gov/planning-zoning/environmental-planning "On February 3, 2021, the County Council adopted CR12-2021, an update to the Howard County Forest Conservation Manual. This update of the Manual complies with recent major updates to the County Forest Conservation Act, reflects current policies and procedures for implementing the Act, and provides guidance for better protection of forest resources and more successful forest plantings. The Department of Planning and Zoning testimony on CR12-2021 provides a summary of key changes to the Manual."
	"4.0 INTRODUCTION This Chapter sets forth the technical requirements and recommended practices for implementing an approved Forest Conservation Plan. There are three phases for implementing an approved plan: 1. **Construction period**. This period begins with execution of the Forest Conservation Agreement and recordation of the plat and extends until completion of all site changes and improvements required by the approved Forest Conservation Plan. Inspection and approval of forest conservation plantings and installations by the Department of Planning and Zoning or its designee initiates the start of the post-construction period. [Note: Clock starts when construction is completed.] 2. **Post-construction period**. This period is a minimum of three full growing seasons, during which monitoring and forest management practices guarantee minimum survival rates or replacement of forest resources retained or created as part of the approved Forest Conservation Plan. This phase may be extended if necessary and ends with the release of the Forest Conservation Agreement and surety. 3. **Long-term management**. This phase is the full assumption by the owners of the obligation to protect and manage Forest Conservation Easement areas, and to refrain from any activities not permitted by the recorded Deed of Forest Conservation Easement. *During the first two phases, the developer has ultimate responsibility for the integrity of all Forest Conservation Easement areas.* This responsibility will usually be compounded by the occupation and use of the completed project during the three growing season minimum post-construction period. Therefore, *the developer also has responsibility for educating the new owners or tenants about the Forest Conservation Easement area restrictions that come with the property*."

Baltimore County Forest Conservation CEQ Proposal
Don Callihan
March 13, 2022

Years of "maintenance" recommended or required	"The post-construction period is a **minimum three growing season period** but may be longer when specific conditions warrant. During this period, monitoring and forest management practices guarantee minimum survival rates or replacement of forest resources retained or created as part of the approved Forest Conservation Plan. This period ends with the release of the Forest Conservation Agreement and surety. Chapter 4 provides more information about construction and post-construction period protection program techniques and practices." HoCoFCM, 3.8.3 Natural Regeneration "Because of the difficulties in assessing long-term survival rates and size criteria, the post-construction guarantee periods may be required to exceed the three-growing season minimum specified for other techniques." HoCoFCM, p. 49. "3.10.2 Post-Construction Protection Program A post-construction protection and management program is required to give the forest resources saved or planted as part of the development proposal a high probability of achieving the survival rates required for release of surety, as well as long-term survival. The post-construction protection program must specify and/or show the following on the plans or in the written notes: 1. Permanent protective devices required by the approved Forest Conservation Plan. 2. Permitted and prohibited activities. 3. Post-construction sequence, including: • Notification of nearby residents and business occupants about the proper use and protection of the Forest Conservation Easement areas. • Timing for installing and maintaining permanent protective devices to prevent unwarranted intrusions and activities. • Removal of all temporary structures after construction. • Monitoring by the applicant or the applicant's agent for continued compliance with the forest conservation requirements, including thinning, watering, fertilizing or other required measures to ensure survival and growth. • Removal and replacement of dead reforestation or afforestation plantings to meet growing season survival requirements."

Baltimore County Forest Conservation CEQ Proposal
Don Callihan
March 13, 2022

Tasks included in the maintenance	"4.4 MAINTENANCE AND MONITORING OF PLANTED AREAS Maintenance and monitoring for reforestation and afforestation sites are essential to ensure healthy new forests and to achieve the required survival rates. This section provides guidelines for assessing water, nutrients, invasive exotic plants, pests, and other needs when developing a maintenance and monitoring program. This information should be incorporated into the construction period and post-construction period protection programs that are part of the approved FCP. 4.4.1 Watering 4.4.2 Fertilizing 4.4.3 Controlling Competing Vegetation 4.4.4 Protection from Pests, Diseases and Mechanical Injury"
Who performs maintenance	*"During the first two phases, the developer has ultimate responsibility for the integrity of all Forest Conservation Easement areas.* This responsibility will usually be compounded by the occupation and use of the completed project during the three growing season minimum post-construction period."
Planting site inspection frequency	The site is inspected at least annually by a single employee of Howard County Recreation & Parks until the developer is released from bond. **4.5.1 Inspection** Routine monitoring of forest retention and planted areas should occur a minimum of three times throughout the year to pinpoint any problems, monitor survival rates and specify remedial actions.
Data collected at inspection	The Natural Resources Division of the Howard County Department of Recreation & Parks performs all inspections and enforcement of post-development forest conservation easements in Howard County. Inspections are conducted to verify forest conservation easements are in compliance with project-specific requirements during the development phase and enforce restrictions on certain types of activities and land use within easements after development is complete. For further information, please visit the Department of Recreation and Parks Enforcement Web Page.
Who reviews inspection report	The Land Development Division, Dept of Planning and Zoning reviews reports, including the final report, as part of the process of releasing the indemnity bond.

Baltimore County Forest Conservation CEQ Proposal
Don Callihan
March 13, 2022

Definition of tree health and tree death	3.9. Reforestation and Afforestation Planting. 3.9.3 Plant Material Size, Density, and Arrangement "The three growing season survival rate for afforestation and reforestation areas shall be a minimum of 100 trees per acre or at least 75% of the total number of trees planted per acre under the approved plan, whichever is greater." HoCoFCM, p. 53, 56. 4.5.1 Inspection. "Routine monitoring of forest retention and planted areas should occur a minimum of three times throughout the year to pinpoint any problems, monitor survival rates and specify remedial actions needed to correct existing problems. … The developer and their designee should conduct an inspection at the beginning of the second and third growing season to evaluate survival rates with reference to the survival required at the end of each growing season period. This is an opportunity to avoid the penalty for violating survival rate standards. This inspection should estimate survival potential based on the following: • Vigor and threat of competing vegetation, including invasive exotic species • Structure • Growth rate • Crown development • Trunk health." HoCoFCM, p. 77-78.

Baltimore County Forest Conservation CEQ Proposal
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Requirements for dead tree replacement (where and how soon),	4.5.3 Replacement of Plant Material **"If, after one growing season, the possibility exists that the original planting will not meet survival standards, the applicant should establish reinforcement plantings**. Invasive exotic species will not count towards the survival tally and should be removed, but non-native species may count if approved for landscaping by DPZ. **If plant mortality** of reforestation or afforestation **exceeds 10% of planted material at the end of the first growing season, replacement planting should be done to bring the total number of trees to 90% of the original total**. Such material should be installed by the beginning of the second growing season. **If at the end of the second growing season, the survival rate drops below 75%, such material as needed to guarantee a 75% survival rate should be installed. If at the end of the third growing season, the survival rate drops below 75%, such material as needed to guarantee a 75% survival rate at the time the surety is scheduled for release should be installed. If extensive replanting is needed to meet the 75% survival rate at the end of the third growing season, the maintenance period will be extended. If the survival rate is between 50% and 35%, then the maintenance period will be extended another season after the survival rate is brought back up to 75% by replanting. If the survival rate is 35% or lower, then the maintenance period will be extended another two seasons after the survival rate is brought back up to 75% by replanting.**" HoCoFCM, p. 79. Appendix H-3: Forest Inspection Survival Count Procedures. "Given that the final inspection requires a 75 percent survival count, replanting at the end of the second growing season should exceed the minimum needed to account for potential plant mortality during the subsequent growing season." HoCoFCM, p. 173.
Date of previous code and most recent code revision	SUBTITLE 12. - FOREST CONSERVATION | Code of Ordinances | Howard County, MD | Municode Library "The main intentions of the Howard County Forest Conservation Act are summarized below: • When developing a site, keep intact as much of the existing forest resources as possible (retention). • Protect rare, threatened, and endangered trees, trees that are part of an historic site or associated with an historic structure, and specimen trees. • If forest must be cleared, replant native forests (reforestation). • On sites where no or very limited forest resources now exist, plant new native forest stands to create the minimum level of forest cover specified (afforestation). • Protect all retained and newly planted forest with a Forest Conservation Easement."

Baltimore County Forest Conservation CEQ Proposal
Don Callihan
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Has County Code been changed over the years in response to particular challenges to tree survival program been?	"The Howard County Forest Conservation Act was first passed in 1992 and became effective on January 1, 1993. The Act was repealed and replaced in December 2019 and the new Act became effective on February 5, 2020." A further revision is planned for 2022. Changes reflect experiences over the years, according to Scott Bowen

Baltimore County Forest Conservation CEQ Proposal
Don Callihan
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Drivers of reforestation/afforestation success (choice of tree planting sites and species)	Chapter 3. Forest Conservation Plan. 3.0 Introduction "A Forest Conservation Plan (FCP) is required for all activities subject to the Forest Conservation Program and demonstrates compliance with Program requirements. The purpose of the FCP is to provide planning and construction documents that show how Program goals will be achieved during the grading, subdivision or site development process. **The plan is prepared in response to the findings of the Forest Stand Delineation** (FSD) described in Chapter 2 and uses those findings to make decisions about a suitable site design that will retain and protect existing forests, particularly forests in the priority retention areas described in detail later in this Chapter. While the primary goal of the Forest Conservation Program is that disturbance of existing forest resources be minimized, the Program recognizes that some clearing may be necessary to implement the land uses permitted by the zoning ordinance. **The FCP also includes plans for forest planting, when such planting is necessitated by forest clearing or the absence of forest, and documents how forest retention and planting areas will be protected during and after construction**." HoCoFCM, p. 19. 5.7.1 Site Development Plan "A site development plan is required for a new or expanded nonresidential development (commercial, industrial, institutional or public facility), and for certain residential development, and may be used to provide the design for a forest mitigation bank. A site development plan submission for a nonresidential development and for a forest mitigation bank must include a Forest Stand Delineation (FSD) and a Forest Conservation Plan (FCP). A residential development will also need an FSD and FCP, unless the project met forest conservation obligations at the subdivision stage. Figure 5-D provides more detail on the process for a site development plan." HoCoFCM, p. 88. 2.2.4 Forest Stand Analysis Tables Data collected by the field investigation shall be tabulated and summarized for each forest stand. Figure 2-C is an example using the required format. A blank form is provided in Appendix C. The information detailed on the forms shall describe: □ Type of community/stand: type of community/stand in accordance with the classification system discussed above. □ Area: the acreage of the community or stand, measured at a minimum to the nearest 1/10 acre. □ Soil information: soil types and typical forest cover for the soil type. The typical cover is the type of plant community likely to be present if the area has been undisturbed. It is cited in the most recent edition of the Soil Survey of Howard County, Maryland. □ Existing vegetation: dominant tree species, including canopy and understory species,

with approximate percentage, noting in particular if any are invasive exotic species.
 Stand characteristics: size range, successional stage and typical condition of dominant tree species.
 Forest areas in sensitive environments: area of forests, measured at a minimum to the nearest 1/10 acre in Green Infrastructure Network, critical habitats, floodplain, wetland and wetland buffer, stream buffer, and steep slopes.

Appendix D: Plant Lists
D-1: Forest Associations List, p. 131-132.
Forest associations of Howard County are based on: The natural forests of Maryland: an explanation of the vegetation map of Maryland (with 1:250,000 map) by G. S. Brush, C. Lenk and J. Smith, 1980, Ecological Monographs 50:77-92. Figure D-2 shows the Howard County portion of that map. The map identifies five forest associations in the County:

- Tulip Poplar Association, located in upland areas throughout the eastern three-quarters of the County.
- Chestnut Oak Association, located in upland areas of the western one-quarter of the County and along a small band in the vicinity of the County's Planned Service Area.
- Chestnut Oak—Post Oak—Blackjack Oak Association, located in the northeastern corner of the County.
- Sycamore—Green Ash—Box Elder—Silver Maple Association, located along major stream valleys in the Piedmont province, primarily west of I-95.
- River Birch—Sycamore Association, located along major stream valleys in the Coastal Plain province, primarily east of I-95.

The forest associations are distinguished by the presence of common or characteristic species.

D-3: Native Plant List, p. 134-135.
Example:

SPECIES	**COMMON NAME**	**TYPE**	**MOISTURE**	**SUNLIGHT**
Acer negundo	Boxelder	small tree	M	S
Acer rubrum	Red Maple	large tree	W/M	S/PS

baltimore greenspace

Forest Conservation: Analysis & Alliances

Conserving as Community

By Katie Lautar,
Executive Director

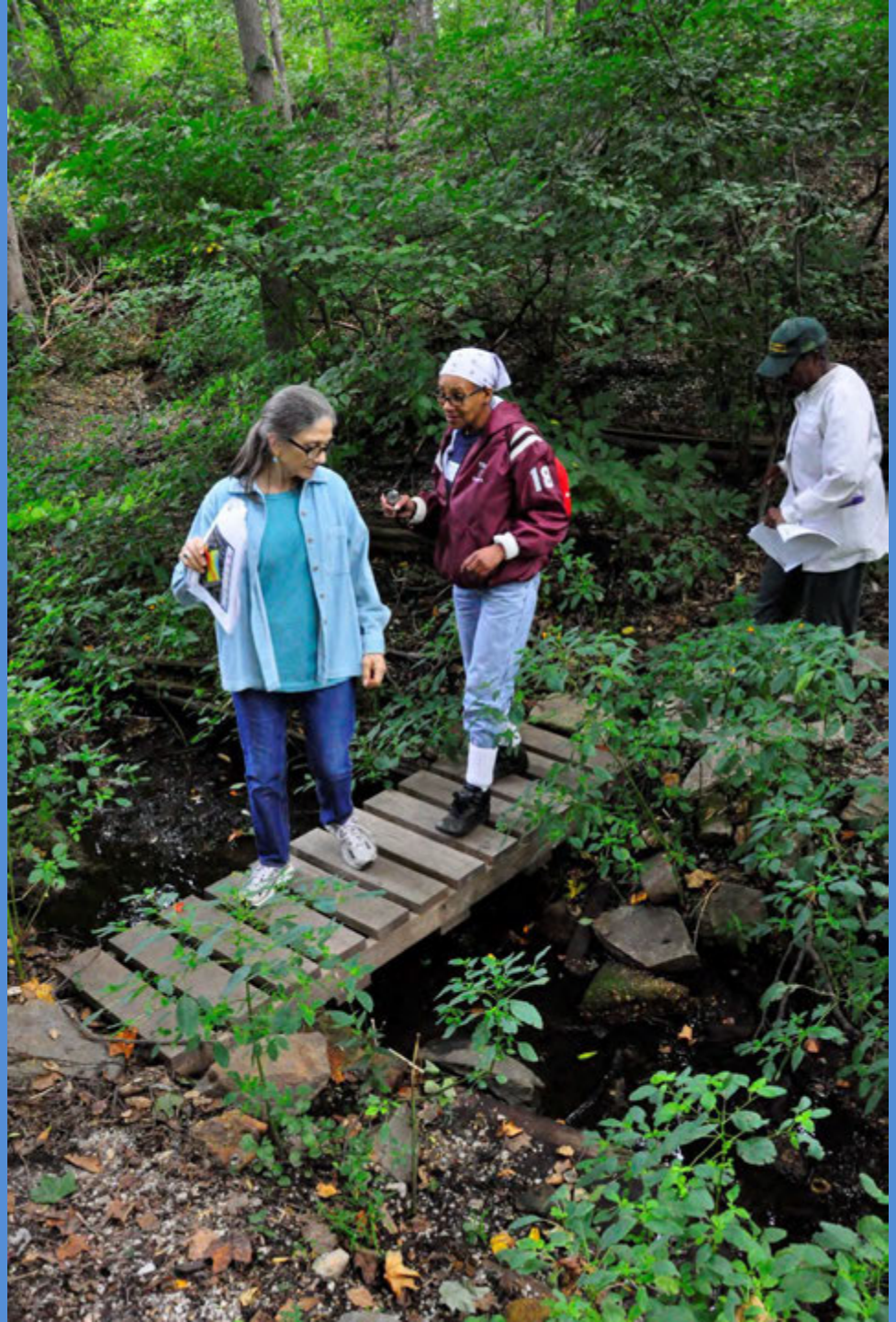
Our work is always built with a strong network of partners.

Our forest work is always in collaboration with community forest stewards, community associations, city government, scientists and nonprofit partnerships.

Some of our longest standing partners in this work (10 yrs together) are Dr. Matthew Baker at UMBC, Charlie Davis of the Maryland Natural History Society

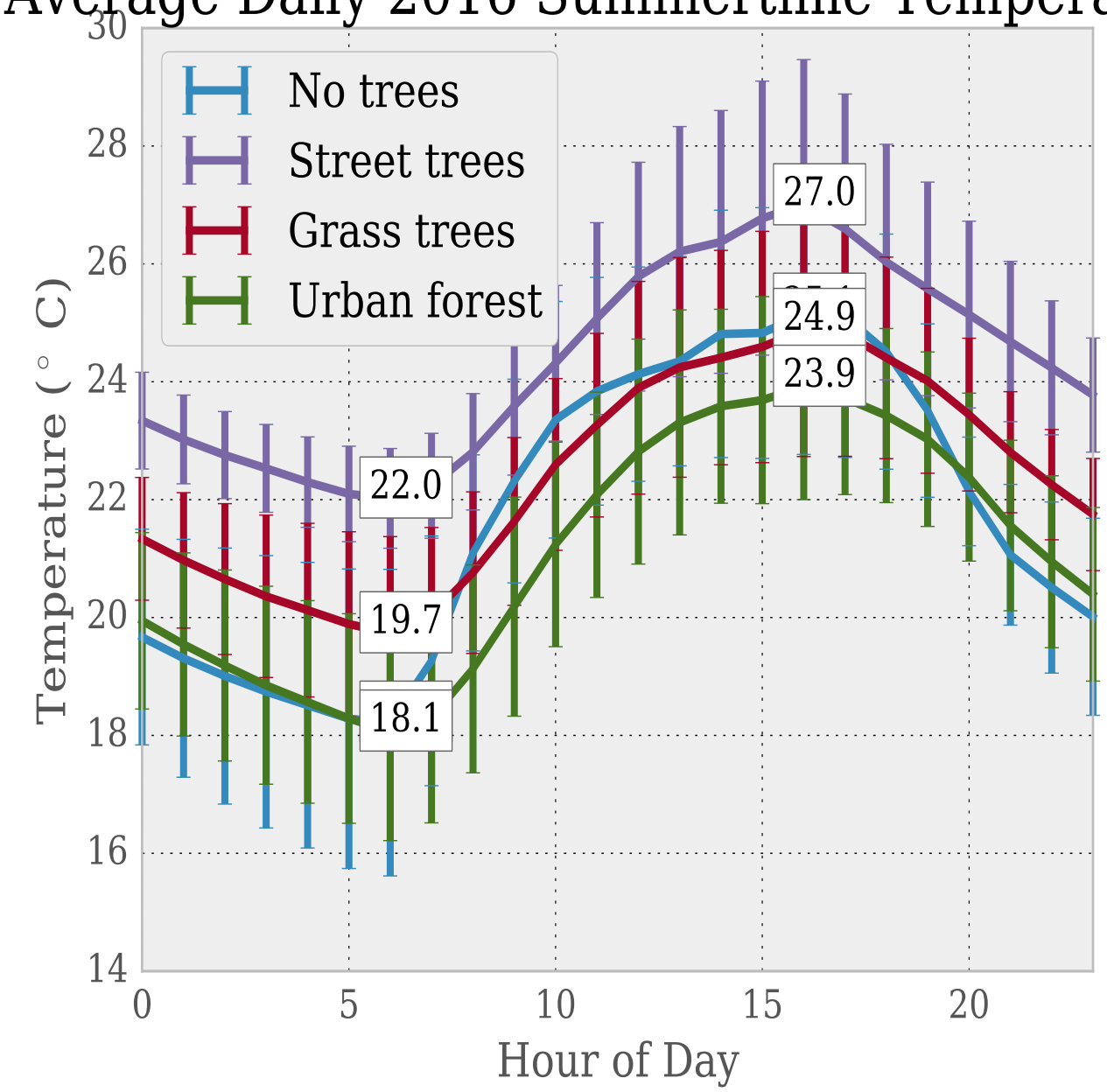
As well as:
Ian Yesilonis, Dr. Nancy Sonti, Dexter Lock, and Morgan Grove their other friends at the USDA Forest Service.

How did an urban land trust get pulled into the world of forest conservation?




50 m
100 ft
4408
St Georges Ave
St Georges Ave
4400
Craddock Ave
Craddock Ave
914
E 43rd St
4400
Kenilworth Ave
1000
E 43rd St
4400
The Alameda
4401
The Alameda
4300
E Cold Spring Ln
Traffic
Map


What if we thought about forests in urban areas the way we think about endangered species?
We've lost so many we can't afford to lose more.
Legend
Tree Canopy
Park Land
Forest inside Parks
15% of Tree Canopy
Forest outside Parks
20% of Tree Canopy
Forest Patches
at least 10,000 s. f. or greater
in Baltimore City
N

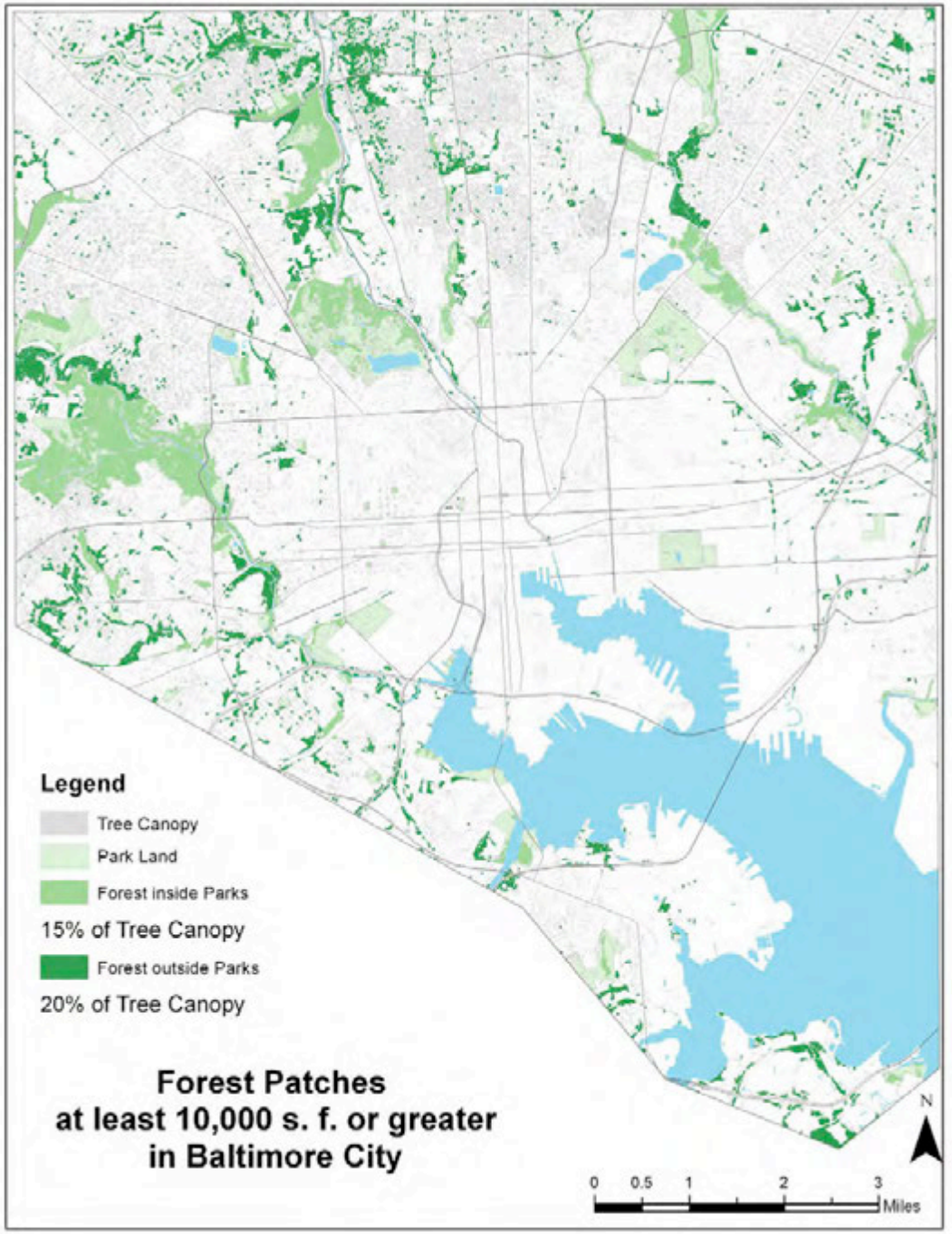

Average Daily 2016 Summertime Temperature
No trees
Street trees
Grass trees
Urban forest
27.0
24.9
23.9
22.0
19.7
18.1
Temperature (° C)
Hour of Day
30
28
26
24
22
20
18
16
14
0
5
10
15
20

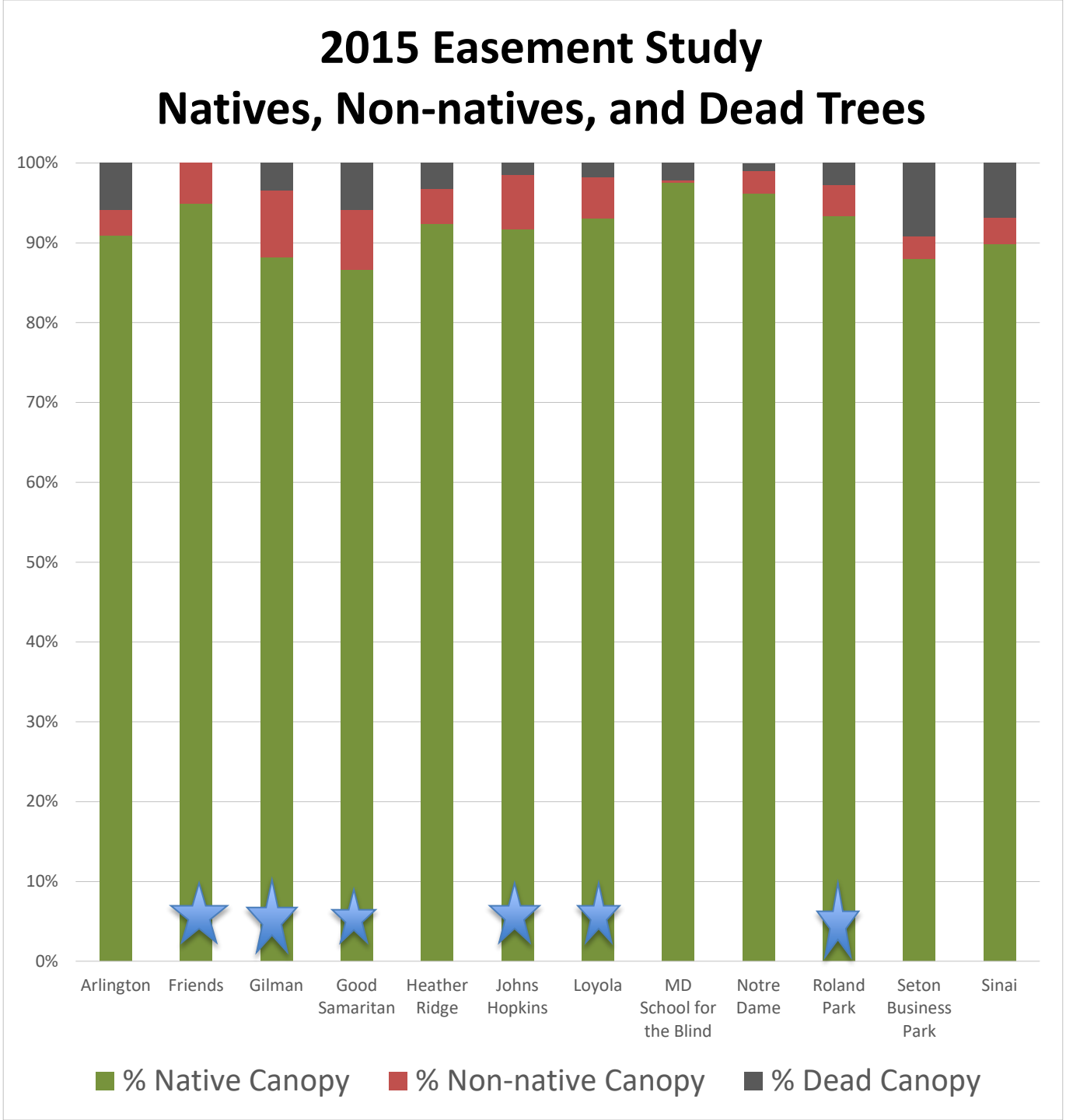
How do you know the protection possibilities without analysis?
Location, Condition, Ownership

>1,000 forest patches

Over 20% in forests outside of parks

Around 15,000 sf or MORE




2015 Easement Study
Natives, Non-natives, and Dead Trees
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Arlington
Friends
Gilman
Good Samaritan
Heather Ridge
Johns Hopkins
Loyola
MD School for the Blind
Notre Dame
Roland Park
Seton Business Park
Sinai
% Native Canopy
% Non-native Canopy
% Dead Canopy

Who holds the power over the forest that provides for your public health benefits?

Ownership Analysis

- federal
- state
- city
- Private

UMBC

AN HONORS UNIVERSITY

This work done by Michelle Katoski undergraduate research technician at UMBC

supported by Dr Mathew Baker and other professors in the Geography Department as well as the USDA Forest Service

BALTIMORE COUNTY FOREST PATCHES

- 682 square miles of forest
- 43% canopy- This is good b-more is 28%
- 18,911 individual patches
- 7.1 acre average size

- 30.8% of your canopy is forest patches
- 20.8% of Baltimore County patches are on privately held land
- 10% on publicly held parks owned by city county and state

20.8% is VULNERABLE TO DEVELOPMENT

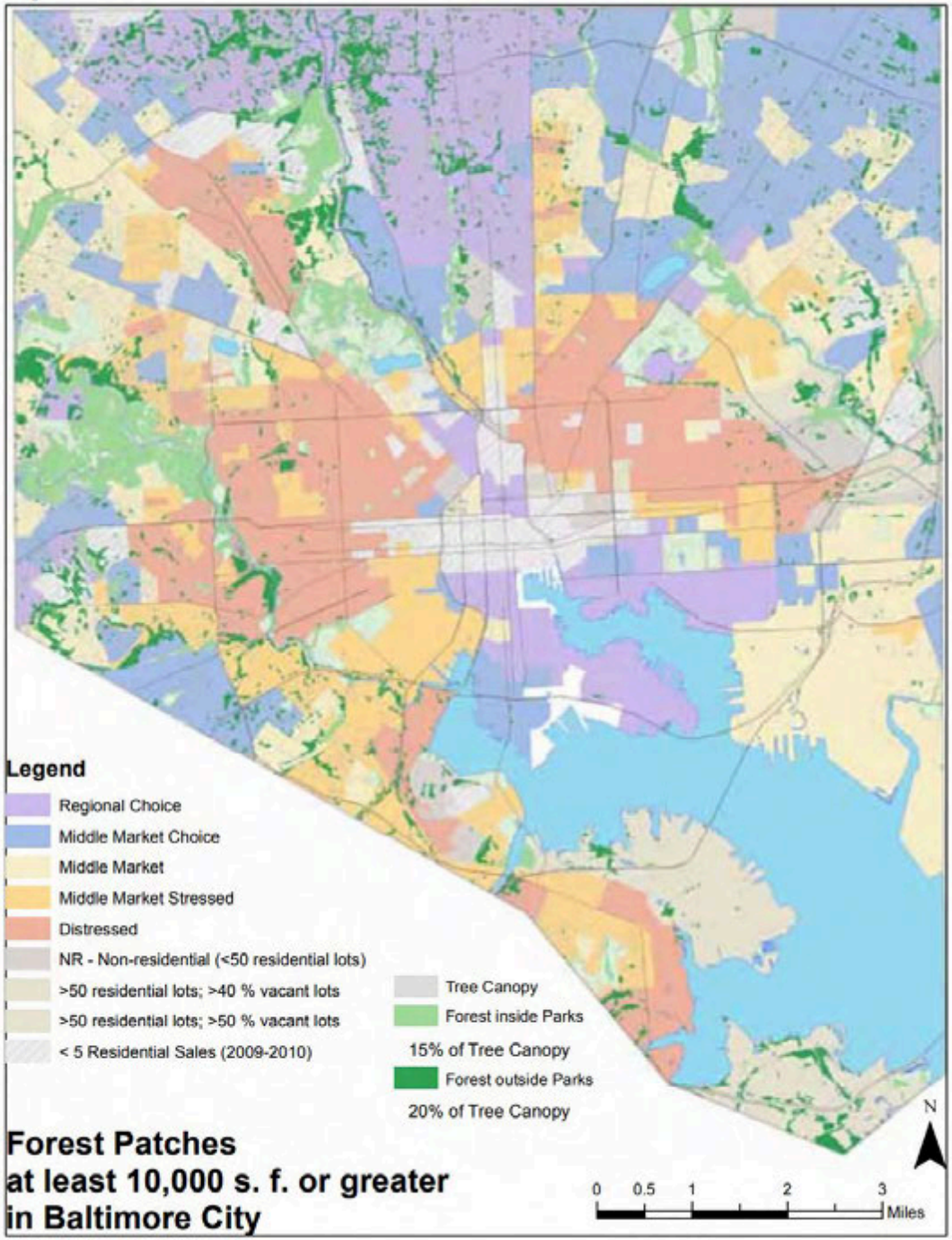
Policy Analysis

https://baltimoregreenspace.org/wp-content/uploads/2014/08/ForestPatchesWeb.pdf

BALTIMORE'S FOREST PATCHES: EMERALD ASSETS FOR ECOSYSTEM SERVICES

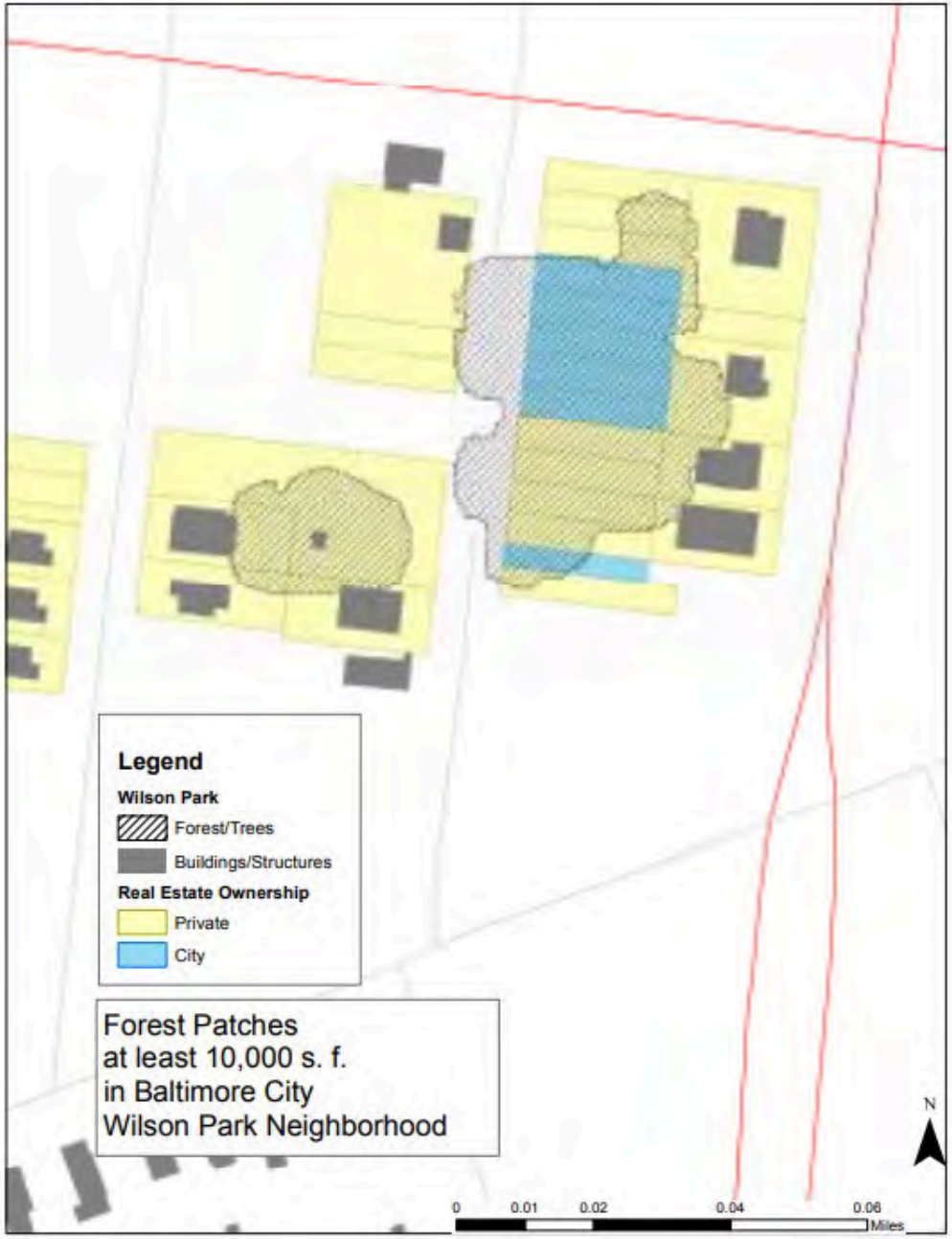
Miriam Avins
Baltimore Green Space
June 2013

Map 7



Forest Patches
at least 10,000 s. f. or greater
in Baltimore City

Map 6


Legend
Wilson Park
Forest/Trees
Buildings/Structures
Real Estate Ownership
Private
City
Forest Patches
at least 10,000 s. f.
in Baltimore City
Wilson Park Neighborhood
N
0
0.01
0.02
0.04
0.06
Miles

What are your forest conservation regulation triggers, where are your policy loopholes?


Like Minded Friends
Dreaming together

Baltimore City Forestry Board

The Inventory of Tree Ordinances… What did we look at?

Baltimore Office of Sustainability

People • Planet • Prosperity

Who do you need on your team or advising your team?

baltimore greenspace

BLUE WATER BALTIMORE

BALTIMORE TREE TRUST 2008

Baltimore City Forestry Board

TreeBaltimore

BALTIMORE CITY DPW DEPARTMENT OF PUBLIC WORKS

Baltimore Office of Sustainability

People • Planet • Prosperity

What regulations exist that might be improved in small ways with big impacts or get you to a win win with your government partners?

Baltimore Office of Sustainability

People • Planet • Prosperity

baltimore greenspace

BLUE WATER BALTIMORE

BALTIMORE TREE TRUST 2008

Baltimore City Forestry Board

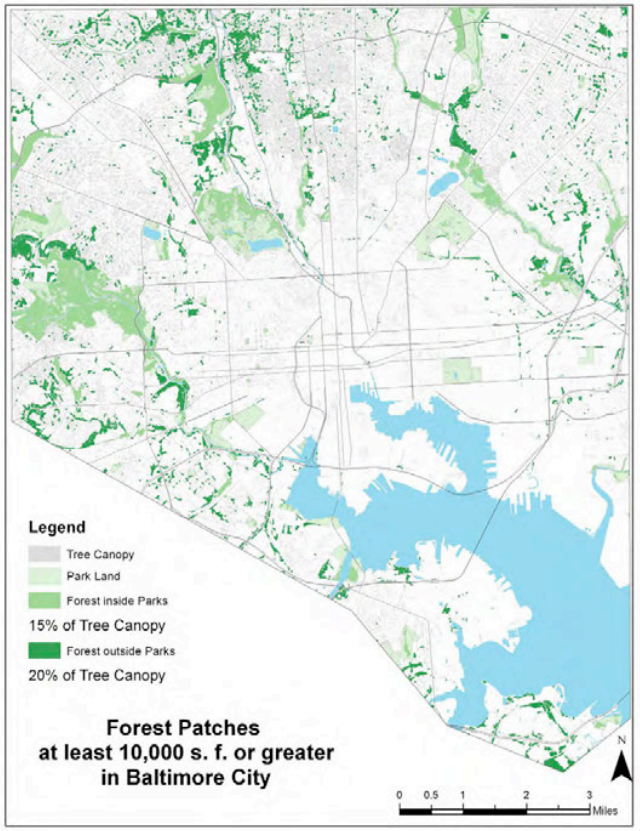
CITY OF BALTIMORE
ORDINANCE 20 • 401
Council Bill 20-0546

Introduced by: The Council President, Councilmembers Bullock, Dorsey, Clarke, Burnett, Sneed, Henry, Cohen
At the request of: The Administration (Department of Planning)
Introduced and read first time: June 22, 2020
Assigned to: Judiciary Committee
Committee Report: Favorable with amendments
Council action: Adopted
Read second time: August 17, 2020

AN ORDINANCE CONCERNING

Natural Resources – Forest and Tree Conservation

FOR the purpose of amending the Forest and Tree Conservation provisions of Article 7 of the Baltimore City Code to comply with new State requirements, to coordinate with other City environmental requirements, and to align the Code with existing policy; correcting certain references; allowing for mitigation to be provided through forest mitigation banks located within the City; updating the requirements for mitigation fee usage; aligning the allowed uses of forest conservation funds with the definitions allowed by the State; ~~adding annual reporting and biennial review requirements, as required by the State;~~ reducing the amount of required land that triggers a review to conform with the amount of required land for grading or building permits; requiring that a Forest Stand Delineation be an element of other reviews, including Site Plan Review, subdivision, grading, and erosion and sediment control; requiring that all grading and building permits, and sediment, and erosion control, subdivision, or development plan approvals be conditioned on approval of and compliance with an approved Forest Conservation Plan; modifying mitigation fees to conform with Critical Area and Landscape Manual mitigation fees and modifying the amount of violation fines; adding a definition for "critical root zone" to the Code and modifying the definition of "specimen



LOWERED OUR FOREST CONSERVATION TRIGGER FROM 20,000 SF TO 5,000 SF

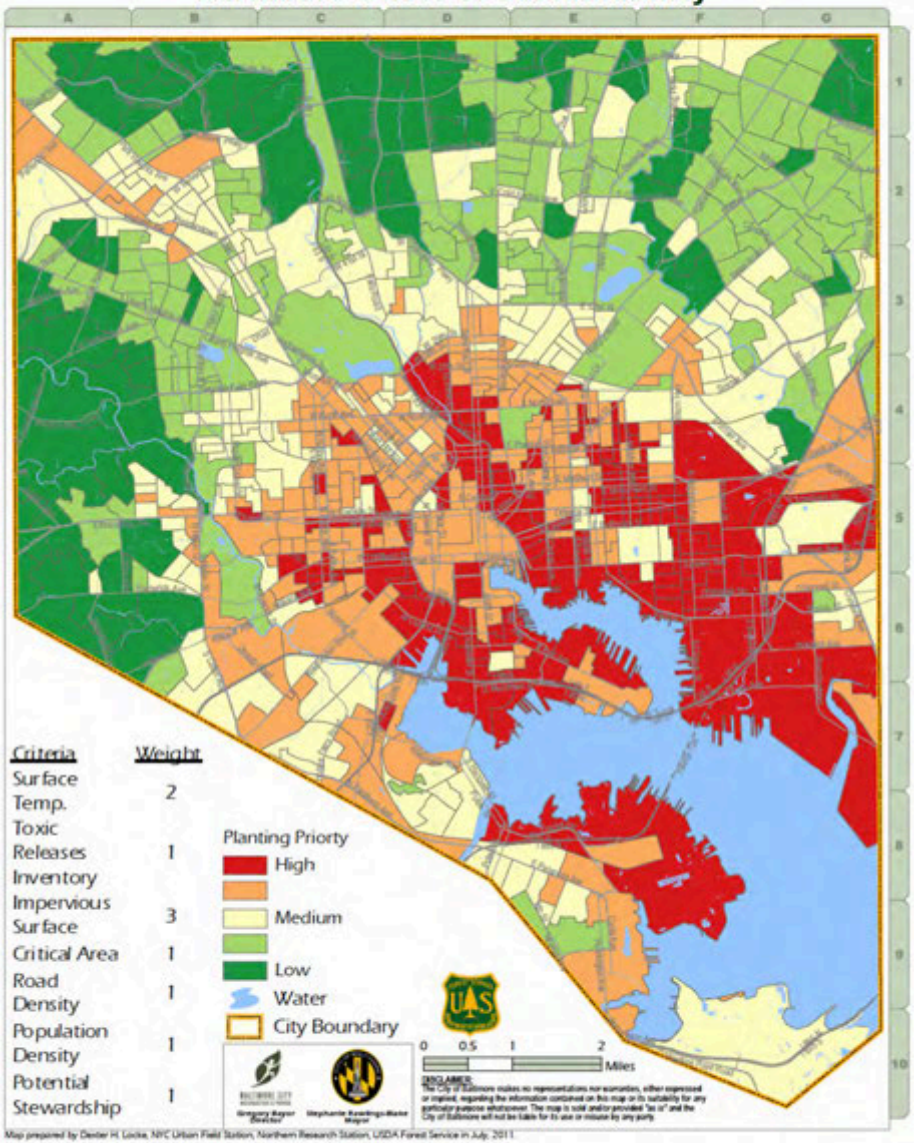
ADJUSTED MITIGATION FEES FROM $400 PER TREE $600 PER TREE (or $60,000 per acre) and adjust fines to twice the amount of the updated mitigation fee rate ($120,000 per acre). THIS HAD NOT BEEN UPDATED FOR MANY YEARS.

ALLOWED FOR CREATION OF FOREST MITIGATION BANKS

CLEANED UP SOME GENERAL INCONSISTENCIES AND UNNECESSARY LANGUAGE WITH INPUT FROM CITY LEGAL

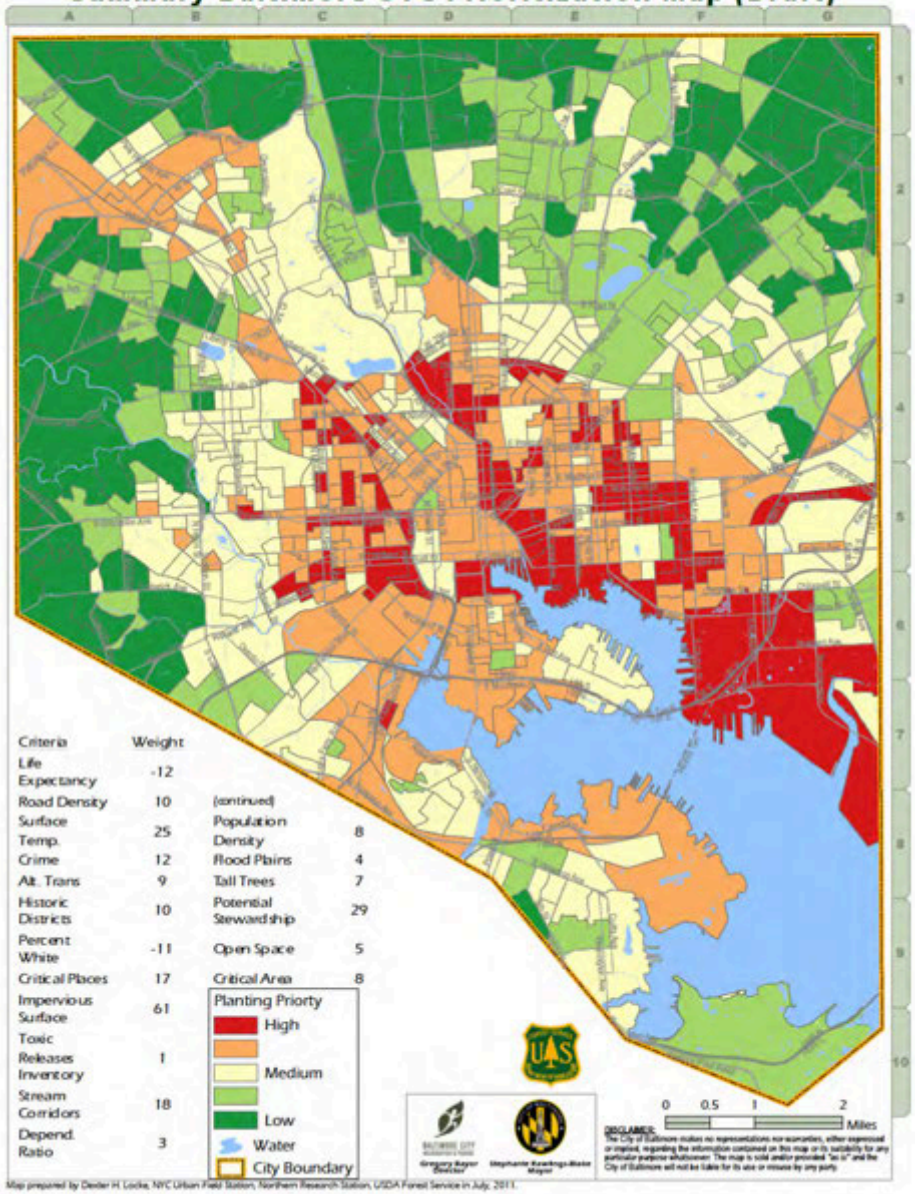
Summary Map

Planting Priority Designed by Abby Cocke, Baltimore Office of Sustainability



Map prepared by Dexter H. Locke, NYC Urban Field Station, Northern Research Station, USDA Forest Service in July, 2011.

Summary Baltimore UTC Prioritization Map (Draft)



Map prepared by Dexter H. Locke, NYC Urban Field Station, Northern Research Station, USDA Forest Service in July, 2011.

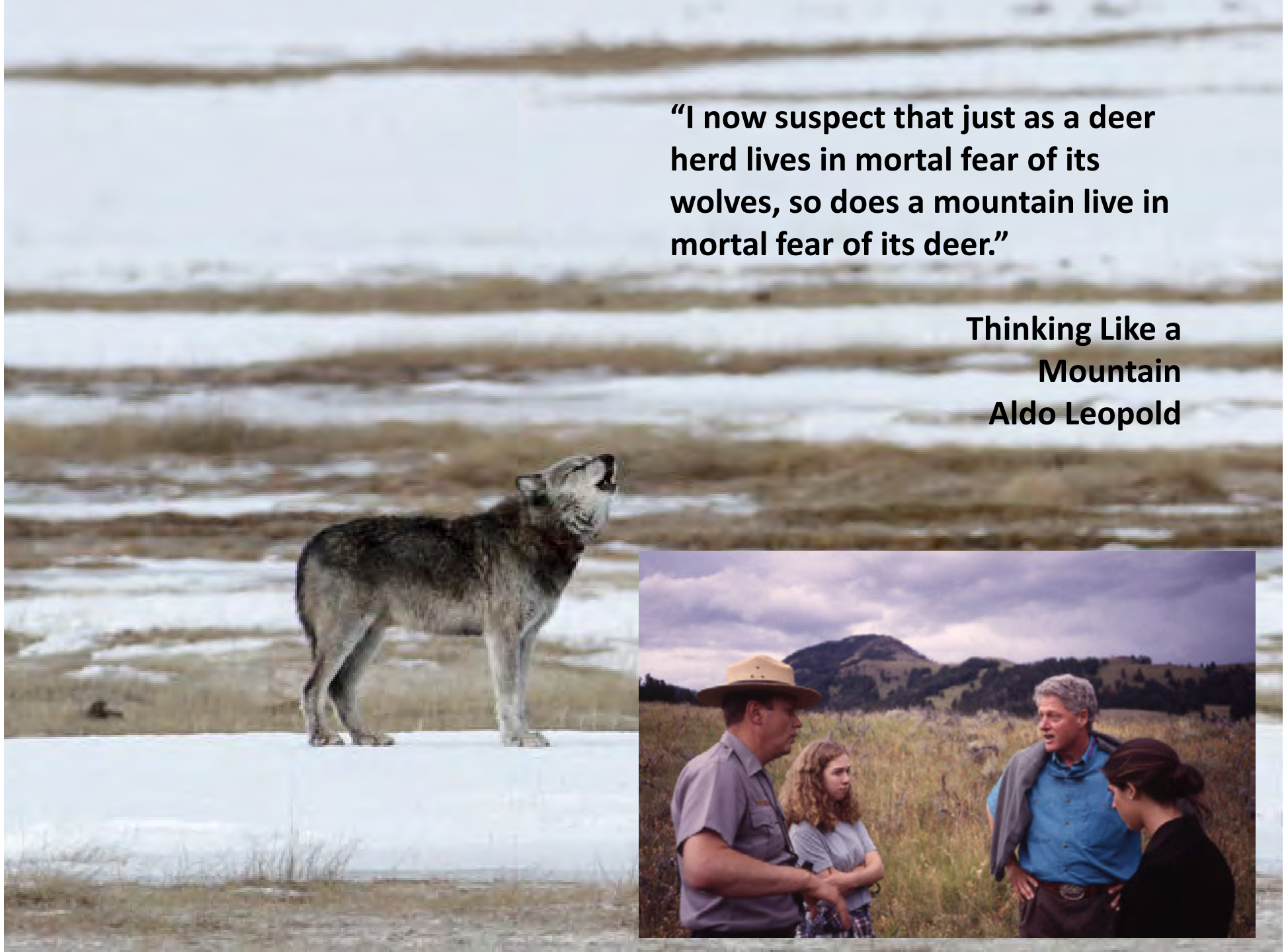
This work continues to be in honor of the memory of forest Stewards Mabel Smith and Butch Berry who both passed away recently.

Their legacy stands in the community literally and figuratively in the form of the forests they protected.


Thank you!
katherine@baltimoregreenspace.org
443-608-0353

Ecotone

Think Like a Mountain ™

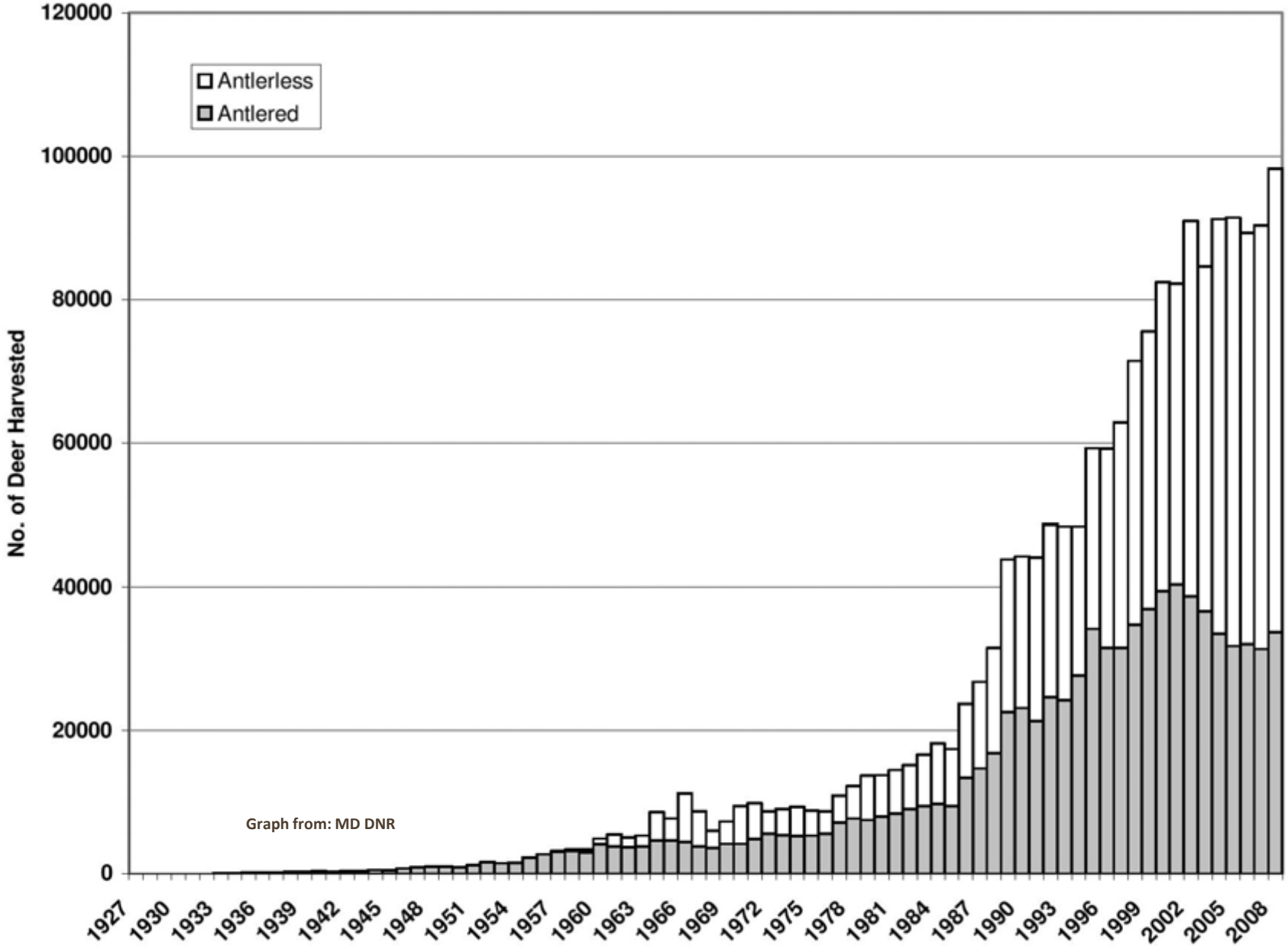


“I now suspect that just as a deer herd lives in mortal fear of its wolves, so does a mountain live in mortal fear of its deer.”

Thinking Like a Mountain
Aldo Leopold

Restoration of wolves to Yellowstone has changed ungulate grazing, benefiting riparian veg, other species.

Source: Ripple and Breshta 2004



Graph from: MD DNR

Figure 6. Maryland white-tailed deer harvest, 1931 – 2008.

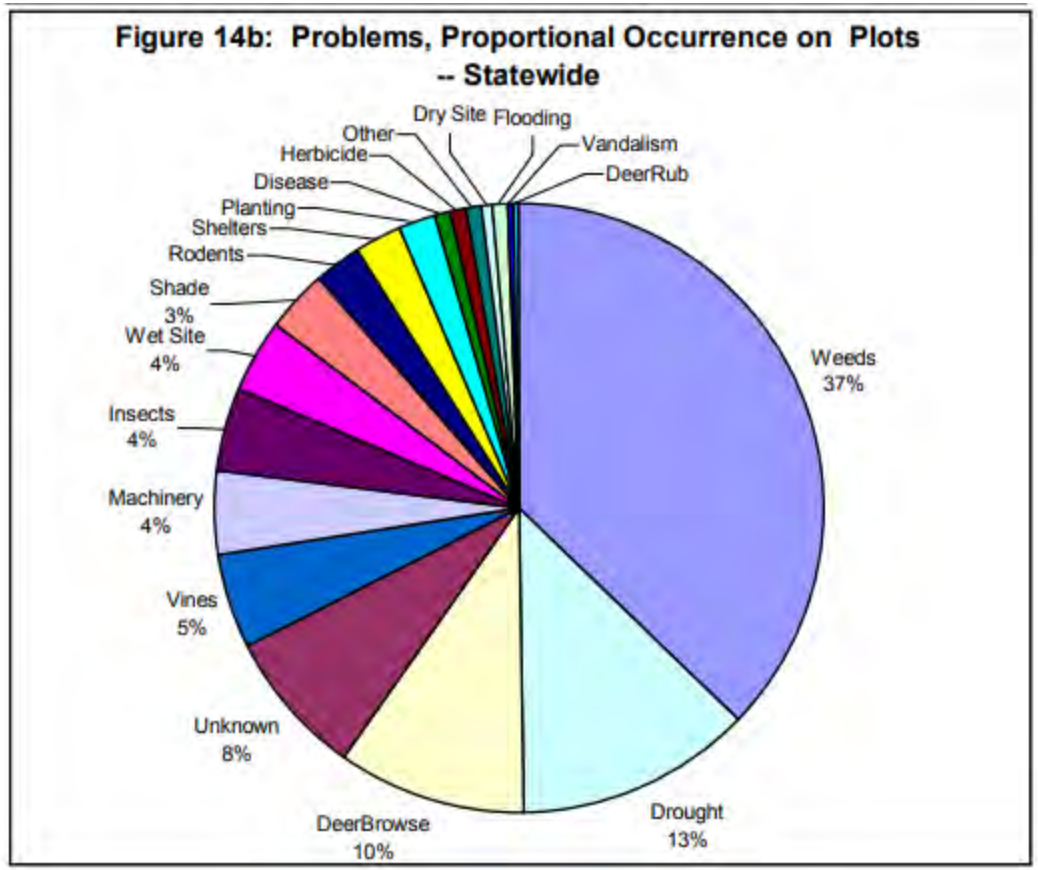
Maryland Reported Antlered and Antlerless Deer Harvest for the 2021-2022 and 2020-2021 Hunting Seasons									
	Antlered			*Antlerless*			*Total*		
County	2021-22	2020-21	% Change	2021-22	2020-21	% Change	2021-22	2020-21	% Change
Allegany	1,837	1,921	-4.4	1,177	1,379	-14.6	3,014	3,300	-8.7
Anne Arundel	755	642	17.6	1,082	1,277	-15.3	1,837	1,919	-4.3
Baltimore	1,680	1,781	-5.7	2,821	3,575	-21.1	4,501	5,356	-16.0

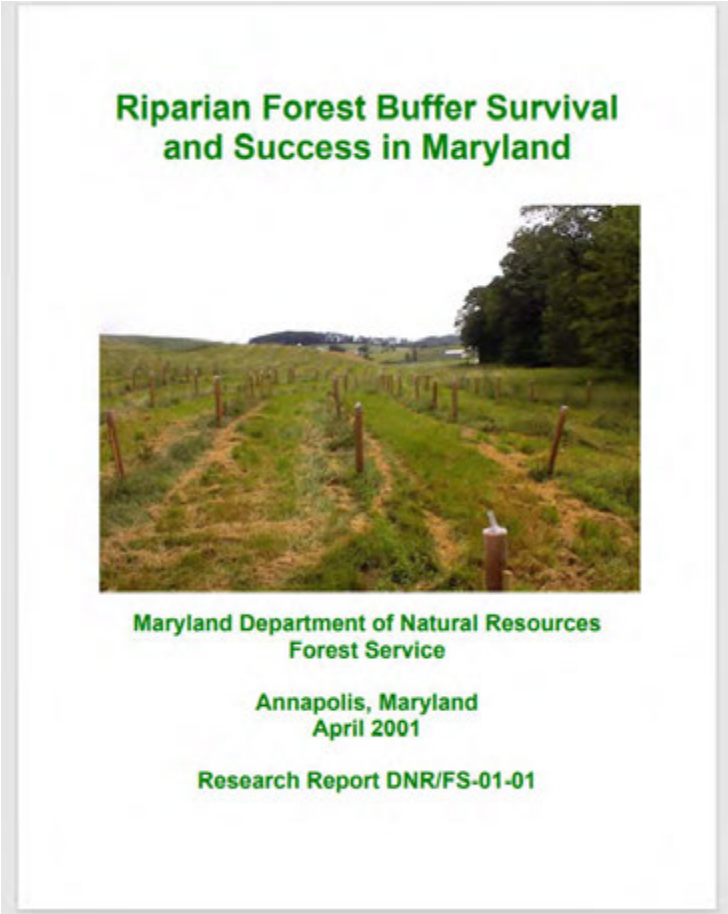
DNR reported that deer hunters harvested 70,845 deer from Sept. 10, 2021 through Feb. 3, 2022.

The harvest was 13% lower than the 2020-2021 total of 81,729 deer.

Riparian Forest Buffer Survival and Success in Maryland:

Maryland Forest Service Research Report DNR/FS-01-01





Study Conclusions

Weed Competition

- Weeds or vines were the most significant problem, found on half the plots. The inverse relationship between vegetative competition and survival points out that one of the most obvious ways to improve survival is to control competition

Planting Design

- Tree shelters were found to distinctly improve survival. Sites where shelters seemed to play an especially important role were urban/community sites and where damage from deer or other herbivores was common.

Natural Regeneration

- Natural regeneration made an important contribution to meeting these stocking levels on many sites and made up 36% of the total stocking. Data from the pilot phase of this study indicates that crown closure should occur within 10 years on the 82% of sites with stocking over 200 per acre.

Survival

- The overall stocking level is more important in determining success, survival in the range of 60 - 67% for planted trees on a typical site may be considered a fairly good indicator of success.

Sheltered trees with cover crop (Brent Harding, MD DNR)

Strip spray in cover crop (Brent Harding, MD DNR)

Baltimore County Forest Conservation CEQ Proposal
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March 13, 2022

Based on review of the Howard County Forest Conservation Manual and contents and documents on the Howard County websites. Planning & Zoning | Howard County (howardcountymd.gov) and Forests & Habitat - Live Green Howard County.

Telephone interviews with Brenda Luber, Land Development Division, Dept of Planning and Zoning and Scott Bowen, Howard County Rec & Parks

	Howard County Forest Conservation Act

Baltimore County Forest Conservation CEQ Proposal
Don Callihan
March 13, 2022

General Information	The Howard County Forest Conservation Act works to protect and maintain forest vegetation and forest areas in Howard County by requiring certain development projects to have an approved Forest Conservation Plan as a condition of approval for the development. These requirements are pursuant to the requirements of the Maryland Forest Conservation Act of 1991. Environmental Planning | Howard County (howardcountymd.gov) **Forest Conservation Manual Update** On February 3, 2021 the County Council adopted CR12-2021, an update to the Howard County Forest Conservation Manual (HoCoFCM). This update of the Manual complies with recent major updates to the County Forest Conservation Act, reflects current policies and procedures for implementing the Act, and provides guidance for better protection of forest resources and more successful forest plantings. The Department of Planning and Zoning testimony on CR12-2021 provides a summary of key changes to the Manual. **Pre-Construction: Regulatory Requirements** The Howard County Forest Conservation Regulations are pursuant to the requirements of the Maryland Forest Conservation Act of 1991, which requires units of local government to adopt a local Forest Conservation Program that meets the requirements of the Natural Resources Article, Section 5-1601 through 5-1613 of the Annotated Code of Maryland. The Howard County Forest Conservation Manual implements the Howard County Forest Conservation Act. **Post-Construction: Inspections and Enforcement** The Natural Resources Division of the Howard County Department of Recreation & Parks performs all inspections and enforcement of post-development forest conservation easements in Howard County. Inspections are conducted to verify forest conservation easements are in compliance with project-specific requirements during the development phase and enforce restrictions on certain types of activities and land use within easements after development is complete. For further information, please visit the Department of Recreation and Parks Enforcement Web Page. **General Mitigation Plan** The Howard County General Mitigation Plan identifies appropriate and potentially available areas for forest conservation mitigation projects. **Forest Conservation Accounting Procedures** The Forest Conservation Accounting Procedures detail how in-lieu fees are tracked and spent by the County.

Baltimore County Forest Conservation CEQ Proposal
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Responsible Agency	• Regulatory responsibility: Land Development Division, Dept of Planning and Zoning. Brenda Luber, bluber@howardcountymd.gov 410-313-4343 o Please contact Brenda Luber for information regarding the submittal and review process for forest conservation and landscaping plans or to schedule an inspection of a forest conservation or landscaping project. • Inspection: Howard County Recreation & Parks – Scott Bowen sbowen@howardcounty.gov 410-313-3723 Program Administration Responsibilities *Department of Planning and Zoning* • Administers Program. • Coordinates inspections of forest retention and planting areas for compliance with the approved Forest Conservation Plan and authorizes release of financial guarantees. "In addition to its plan review responsibilities, the *Department of Planning and Zoning* will also manage the other aspects of the Howard County Forest Conservation Program. Chief among these are data management to document how much forest is lost, retained or created by developments subject to the Program, and submission of all information needed for the required annual report and two-year review of local programs by DNR. In addition, the Department is responsible for managing the forest conservation fund, including processing defaults, collecting all fines and fee-in-lieu of payments, and expending the fund for afforestation or reforestation planting, or for the purchase of forest retention easements." *Department of Public Works* • Performs inspection for enforcement of the approved limit of disturbance in conjunction with sediment and erosion control inspections. *Department of Recreation and Parks* • Evaluates on site reforestation/afforestation for open space land proposed to be dedicated to the County. • Reviews plans for off-site planting on public property. • Advises developers about site preparation, particularly invasive species control, and management of planted areas to ensure survival. • **Conducts site inspections to monitor compliance with the approved Forest Conservation Plan.** • Maintains a geographic information system database of all Forest Conservation Easements. • Designs and implements forest conservation plantings for defaulted projects. *Office of Community Sustainability* • Evaluates variance requests in coordination with the Department of Planning and Zoning and Department of Recreation and Parks.

Baltimore County Forest Conservation CEQ Proposal
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Inspection Authority	**Department of Planning and Zoning** • Administers Program. • Coordinates inspections of forest retention and planting areas for compliance with the approved Forest Conservation Plan and authorizes release of financial guarantees. https://www.howardcountymd.gov/planning-zoning/environmental-planning "On February 3, 2021, the County Council adopted CR12-2021, an update to the Howard County Forest Conservation Manual. This update of the Manual complies with recent major updates to the County Forest Conservation Act, reflects current policies and procedures for implementing the Act, and provides guidance for better protection of forest resources and more successful forest plantings. The Department of Planning and Zoning testimony on CR12-2021 provides a summary of key changes to the Manual."
	"4.0 INTRODUCTION This Chapter sets forth the technical requirements and recommended practices for implementing an approved Forest Conservation Plan. There are three phases for implementing an approved plan: 1. **Construction period**. This period begins with execution of the Forest Conservation Agreement and recordation of the plat and extends until completion of all site changes and improvements required by the approved Forest Conservation Plan. Inspection and approval of forest conservation plantings and installations by the Department of Planning and Zoning or its designee initiates the start of the post-construction period. [Note: Clock starts when construction is completed.] 2. **Post-construction period**. This period is a minimum of three full growing seasons, during which monitoring and forest management practices guarantee minimum survival rates or replacement of forest resources retained or created as part of the approved Forest Conservation Plan. This phase may be extended if necessary and ends with the release of the Forest Conservation Agreement and surety. 3. **Long-term management**. This phase is the full assumption by the owners of the obligation to protect and manage Forest Conservation Easement areas, and to refrain from any activities not permitted by the recorded Deed of Forest Conservation Easement. *During the first two phases, the developer has ultimate responsibility for the integrity of all Forest Conservation Easement areas.* This responsibility will usually be compounded by the occupation and use of the completed project during the three growing season minimum post-construction period. Therefore, *the developer also has responsibility for educating the new owners or tenants about the Forest Conservation Easement area restrictions that come with the property*."

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Years of "maintenance" recommended or required	"The post-construction period is a **minimum three growing season period** but may be longer when specific conditions warrant. During this period, monitoring and forest management practices guarantee minimum survival rates or replacement of forest resources retained or created as part of the approved Forest Conservation Plan. This period ends with the release of the Forest Conservation Agreement and surety. Chapter 4 provides more information about construction and post-construction period protection program techniques and practices." HoCoFCM, 3.8.3 Natural Regeneration "Because of the difficulties in assessing long-term survival rates and size criteria, the post-construction guarantee periods may be required to exceed the three-growing season minimum specified for other techniques." HoCoFCM, p. 49. "3.10.2 Post-Construction Protection Program A post-construction protection and management program is required to give the forest resources saved or planted as part of the development proposal a high probability of achieving the survival rates required for release of surety, as well as long-term survival. The post-construction protection program must specify and/or show the following on the plans or in the written notes: 1. Permanent protective devices required by the approved Forest Conservation Plan. 2. Permitted and prohibited activities. 3. Post-construction sequence, including: • Notification of nearby residents and business occupants about the proper use and protection of the Forest Conservation Easement areas. • Timing for installing and maintaining permanent protective devices to prevent unwarranted intrusions and activities. • Removal of all temporary structures after construction. • Monitoring by the applicant or the applicant's agent for continued compliance with the forest conservation requirements, including thinning, watering, fertilizing or other required measures to ensure survival and growth. • Removal and replacement of dead reforestation or afforestation plantings to meet growing season survival requirements."

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Tasks included in the maintenance	"4.4 MAINTENANCE AND MONITORING OF PLANTED AREAS Maintenance and monitoring for reforestation and afforestation sites are essential to ensure healthy new forests and to achieve the required survival rates. This section provides guidelines for assessing water, nutrients, invasive exotic plants, pests, and other needs when developing a maintenance and monitoring program. This information should be incorporated into the construction period and post-construction period protection programs that are part of the approved FCP. 4.4.1 Watering 4.4.2 Fertilizing 4.4.3 Controlling Competing Vegetation 4.4.4 Protection from Pests, Diseases and Mechanical Injury"
Who performs maintenance	*"During the first two phases, the developer has ultimate responsibility for the integrity of all Forest Conservation Easement areas.* This responsibility will usually be compounded by the occupation and use of the completed project during the three growing season minimum post-construction period."
Planting site inspection frequency	The site is inspected at least annually by a single employee of Howard County Recreation & Parks until the developer is released from bond. **4.5.1 Inspection** Routine monitoring of forest retention and planted areas should occur a minimum of three times throughout the year to pinpoint any problems, monitor survival rates and specify remedial actions.
Data collected at inspection	The Natural Resources Division of the Howard County Department of Recreation & Parks performs all inspections and enforcement of post-development forest conservation easements in Howard County. Inspections are conducted to verify forest conservation easements are in compliance with project-specific requirements during the development phase and enforce restrictions on certain types of activities and land use within easements after development is complete. For further information, please visit the Department of Recreation and Parks Enforcement Web Page.
Who reviews inspection report	The Land Development Division, Dept of Planning and Zoning reviews reports, including the final report, as part of the process of releasing the indemnity bond.

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Definition of tree health and tree death	3.9. Reforestation and Afforestation Planting. 3.9.3 Plant Material Size, Density, and Arrangement "The three growing season survival rate for afforestation and reforestation areas shall be a minimum of 100 trees per acre or at least 75% of the total number of trees planted per acre under the approved plan, whichever is greater." HoCoFCM, p. 53, 56. 4.5.1 Inspection. "Routine monitoring of forest retention and planted areas should occur a minimum of three times throughout the year to pinpoint any problems, monitor survival rates and specify remedial actions needed to correct existing problems. … The developer and their designee should conduct an inspection at the beginning of the second and third growing season to evaluate survival rates with reference to the survival required at the end of each growing season period. This is an opportunity to avoid the penalty for violating survival rate standards. This inspection should estimate survival potential based on the following: • Vigor and threat of competing vegetation, including invasive exotic species • Structure • Growth rate • Crown development • Trunk health." HoCoFCM, p. 77-78.

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Requirements for dead tree replacement (where and how soon),	4.5.3 Replacement of Plant Material **"If, after one growing season, the possibility exists that the original planting will not meet survival standards, the applicant should establish reinforcement plantings**. Invasive exotic species will not count towards the survival tally and should be removed, but non-native species may count if approved for landscaping by DPZ. **If plant mortality** of reforestation or afforestation **exceeds 10% of planted material at the end of the first growing season, replacement planting should be done to bring the total number of trees to 90% of the original total**. Such material should be installed by the beginning of the second growing season. **If at the end of the second growing season, the survival rate drops below 75%, such material as needed to guarantee a 75% survival rate should be installed. If at the end of the third growing season, the survival rate drops below 75%, such material as needed to guarantee a 75% survival rate at the time the surety is scheduled for release should be installed. If extensive replanting is needed to meet the 75% survival rate at the end of the third growing season, the maintenance period will be extended. If the survival rate is between 50% and 35%, then the maintenance period will be extended another season after the survival rate is brought back up to 75% by replanting. If the survival rate is 35% or lower, then the maintenance period will be extended another two seasons after the survival rate is brought back up to 75% by replanting.**" HoCoFCM, p. 79. Appendix H-3: Forest Inspection Survival Count Procedures. "Given that the final inspection requires a 75 percent survival count, replanting at the end of the second growing season should exceed the minimum needed to account for potential plant mortality during the subsequent growing season." HoCoFCM, p. 173.
Date of previous code and most recent code revision	SUBTITLE 12. - FOREST CONSERVATION | Code of Ordinances | Howard County, MD | Municode Library "The main intentions of the Howard County Forest Conservation Act are summarized below: • When developing a site, keep intact as much of the existing forest resources as possible (retention). • Protect rare, threatened, and endangered trees, trees that are part of an historic site or associated with an historic structure, and specimen trees. • If forest must be cleared, replant native forests (reforestation). • On sites where no or very limited forest resources now exist, plant new native forest stands to create the minimum level of forest cover specified (afforestation). • Protect all retained and newly planted forest with a Forest Conservation Easement."

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Has County Code been changed over the years in response to particular challenges to tree survival program been?	"The Howard County Forest Conservation Act was first passed in 1992 and became effective on January 1, 1993. The Act was repealed and replaced in December 2019 and the new Act became effective on February 5, 2020." A further revision is planned for 2022. Changes reflect experiences over the years, according to Scott Bowen

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Drivers of reforestation/afforestation success (choice of tree planting sites and species)	Chapter 3. Forest Conservation Plan. 3.0 Introduction "A Forest Conservation Plan (FCP) is required for all activities subject to the Forest Conservation Program and demonstrates compliance with Program requirements. The purpose of the FCP is to provide planning and construction documents that show how Program goals will be achieved during the grading, subdivision or site development process. **The plan is prepared in response to the findings of the Forest Stand Delineation** (FSD) described in Chapter 2 and uses those findings to make decisions about a suitable site design that will retain and protect existing forests, particularly forests in the priority retention areas described in detail later in this Chapter. While the primary goal of the Forest Conservation Program is that disturbance of existing forest resources be minimized, the Program recognizes that some clearing may be necessary to implement the land uses permitted by the zoning ordinance. **The FCP also includes plans for forest planting, when such planting is necessitated by forest clearing or the absence of forest, and documents how forest retention and planting areas will be protected during and after construction**." HoCoFCM, p. 19. 5.7.1 Site Development Plan "A site development plan is required for a new or expanded nonresidential development (commercial, industrial, institutional or public facility), and for certain residential development, and may be used to provide the design for a forest mitigation bank. A site development plan submission for a nonresidential development and for a forest mitigation bank must include a Forest Stand Delineation (FSD) and a Forest Conservation Plan (FCP). A residential development will also need an FSD and FCP, unless the project met forest conservation obligations at the subdivision stage. Figure 5-D provides more detail on the process for a site development plan." HoCoFCM, p. 88. 2.2.4 Forest Stand Analysis Tables Data collected by the field investigation shall be tabulated and summarized for each forest stand. Figure 2-C is an example using the required format. A blank form is provided in Appendix C. The information detailed on the forms shall describe: □ Type of community/stand: type of community/stand in accordance with the classification system discussed above. □ Area: the acreage of the community or stand, measured at a minimum to the nearest 1/10 acre. □ Soil information: soil types and typical forest cover for the soil type. The typical cover is the type of plant community likely to be present if the area has been undisturbed. It is cited in the most recent edition of the Soil Survey of Howard County, Maryland. □ Existing vegetation: dominant tree species, including canopy and understory species,

with approximate percentage, noting in particular if any are invasive exotic species.
 Stand characteristics: size range, successional stage and typical condition of dominant tree species.
 Forest areas in sensitive environments: area of forests, measured at a minimum to the nearest 1/10 acre in Green Infrastructure Network, critical habitats, floodplain, wetland and wetland buffer, stream buffer, and steep slopes.

Appendix D: Plant Lists
D-1: Forest Associations List, p. 131-132.
Forest associations of Howard County are based on: The natural forests of Maryland: an explanation of the vegetation map of Maryland (with 1:250,000 map) by G. S. Brush, C. Lenk and J. Smith, 1980, Ecological Monographs 50:77-92. Figure D-2 shows the Howard County portion of that map. The map identifies five forest associations in the County:

- Tulip Poplar Association, located in upland areas throughout the eastern three-quarters of the County.
- Chestnut Oak Association, located in upland areas of the western one-quarter of the County and along a small band in the vicinity of the County's Planned Service Area.
- Chestnut Oak—Post Oak—Blackjack Oak Association, located in the northeastern corner of the County.
- Sycamore—Green Ash—Box Elder—Silver Maple Association, located along major stream valleys in the Piedmont province, primarily west of I-95.
- River Birch—Sycamore Association, located along major stream valleys in the Coastal Plain province, primarily east of I-95.

The forest associations are distinguished by the presence of common or characteristic species.

D-3: Native Plant List, p. 134-135.
Example:

SPECIES	**COMMON NAME**	**TYPE**	**MOISTURE**	**SUNLIGHT**
Acer negundo	Boxelder	small tree	M	S
Acer rubrum	Red Maple	large tree	W/M	S/PS

Appendix K

Current plans by DEPS to address maintenance issues as related to the Forest Conservation Act, to be initiated in the 2022-23 budget year:

In response to current concerns about the survival and healthy growth of tree plantings, leaders in DEPS have proposed several changes and requested funding in the 2022-23 budget year. These changes address maintenance issues. They were shared with the CEQ after the symposium presentations were concluded and confirmed in April 2022.

1. Create new staff positions, dedicated exclusively to the maintenance of all tree plantings. If approved in the budget, the hiring process will begin in July 2022. Goals of the additional new hires are specific to better compliance with the spirit of the forest conservation law as it relates to maintenance of existing and future forest conservation easements.

2. Update the Forest Conservation Manual. Last fully updated in 1993, the Manual is not only the guide for following the forest conservation regulations but also provides guidelines on how to plant in forest conservation designated areas. The goal is to begin the update in 2022 and complete it in 2023.

3. Hire a contractor to inspect all the forest conservation planting sites over a 2-year period, so that maintenance concerns can be identified and addressed. Capital funding of $250,000 each year has been requested.

4. Utilize the existing 10-year contract, which addresses maintenance of Watershed Implementation Plan plantings that are under the MS4 permit, to perform maintenance work on projects related to forest conservation. Projects related to forest conservation will be started in 2022 under the existing maintenance contract using forest conservation funds.

5. Modify the organization of existing programs at DEPS between the Forest Management section and the Environmental Impact Review (EIR) section. Currently there is overlap between the sections.

Background information on organization of responsibilities within DEPS:
- Forest Management is in charge of reforestation and spends the fee-in-lieu money that is collected under the Forest Conservation Act, planting in compliance with the state Forest Conservation Laws. and carrying out forest assessments, forest sustainability and forest management of County lands.

- Environmental Impact Review (EIR) enforces plans and permits for conformance to Forest Conservation Laws, including planting banks, and submits the annual forest conservation report to the State.
See: https://www.baltimorecountymd.gov/departments/environment/