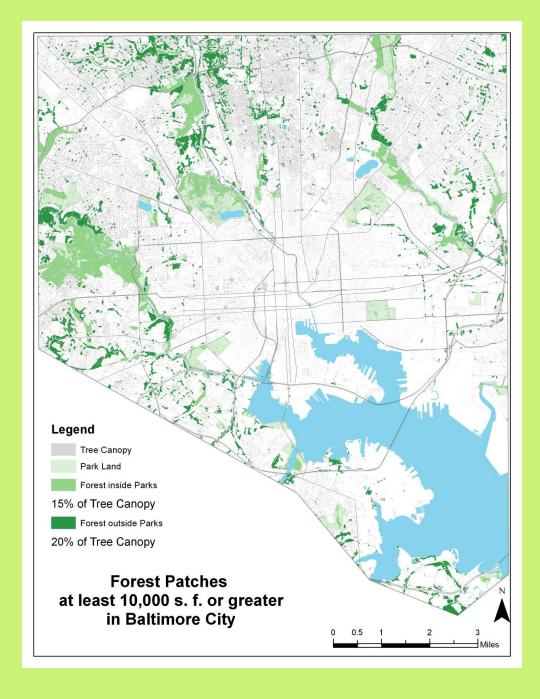


2,154 acres of forest patch outside parks (20% of city's tree canopy)

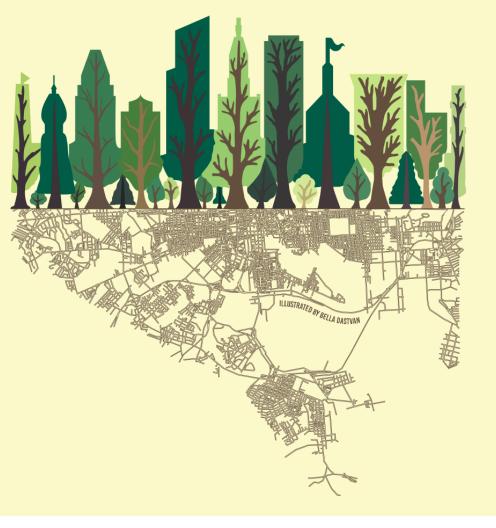




- >1,000 forest patches
- 100 on- the-ground surveys
- 88 quick surveys
- 45 in depth forest health protocol



## ASSESSING URBAN FOREST PATCH HEALTH: A PROTOCOL









### **Forest Health Assessments**





Fairwood Forest 2016

### Fairwood Forest



Understory Abundance Hickory (*Carya* sp.) saplings Flowering dogwood (*Cornus florida*)

#### Vegetation

17% native 79% non-native 4% were unknown species and could not be identified past genus **Location:** White Ave & Belair Rd (Northeast Baltimore)

Size: Approximately 3.8 acres Points Sampled: 12

Trees sampled: 124 Species identified: 23

Special tree fact: High amounts of native

tree biodiversity

Fun Species: Swallowtail Butterfly (*Papilio* sp.) photographed at the park

#### **Dominant Tree Species**

Canopy dominated by White Oak (Quercus alba) Tulip Poplar (Liriodendron tulipifera)

#### Groundcover

Dominated by English Ivy (Hedera helix) Indicator species: Poison Ivy (Toxicodendron radicans) abundance indicates high fertility soils1 36% leaf litter 59% vegetation 5% bare ground

Soil profile: Silty clay with areas of higher loam and clay content.

Organic Matter: approximately 7.1% on a scale from less than 3.5% to greater than 13.50%.

Bulk Density: 1.2 g/cm<sup>3</sup>. This is within the ideal range of less than 1.1-1.4 g/cm<sup>3</sup>) 2

### **Invasive Warning**

\* 79% of your groundcover is non-native; this is of concern. Kudzu, a highly aggressive invasive species, was also sighted in your forest.

**English Ivy** ( $Hedera\ helix$ ) - Aggressive vine that overtakes trees and ground space. Adds excessive weight and reduces photosynthesis of trees 4

Japanese Honeysuckle (Lonicera japonica) - Aggressive vine that crowds out native species 5

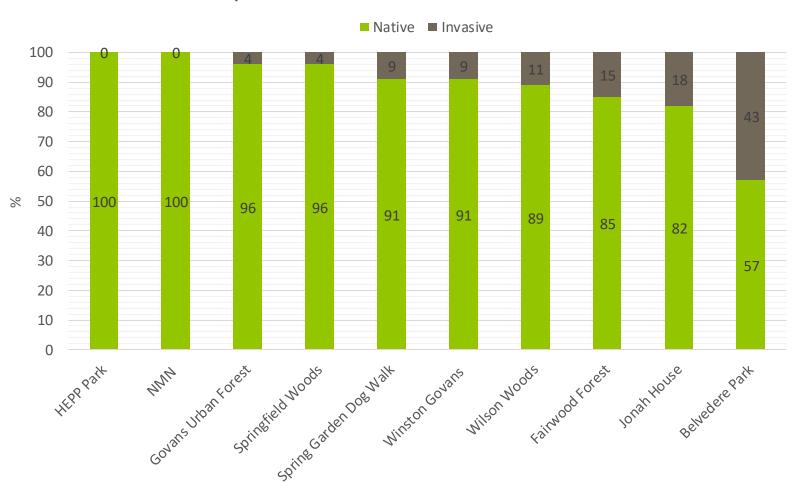








## 2016 Stewarded Patches Proportion of Native and Invasive Trees











baltimore greenspace

Stillmeadow Summer 2017

### **Canopy Invasion**



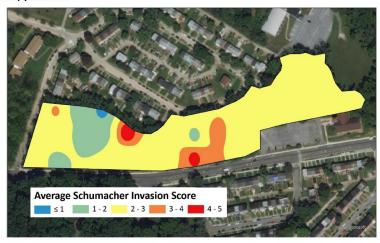
This map shows the distribution of canopy invasion by vines at Stillmeadow Forest in 2017.

4



Stillmeadow Summer 2022

### **Canopy Invasion**

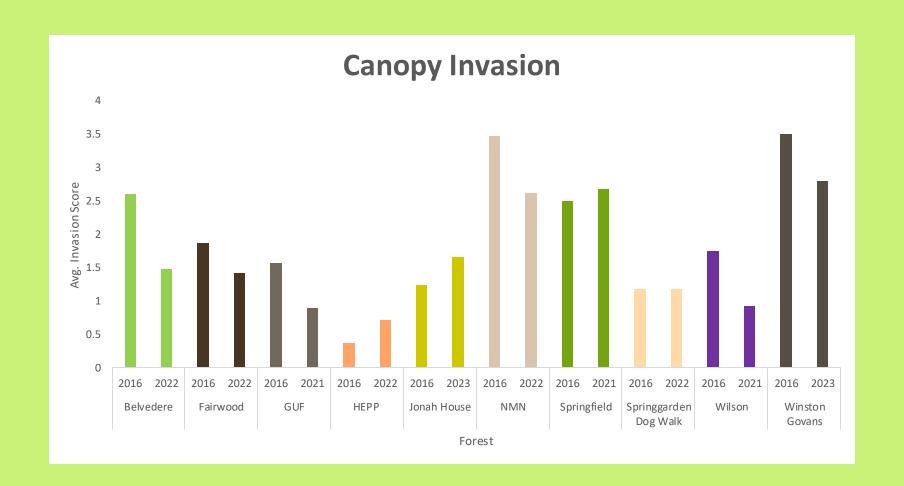


This map shows the distribution of canopy invasion by vines at Stillmeadow Forest in 2022.

4

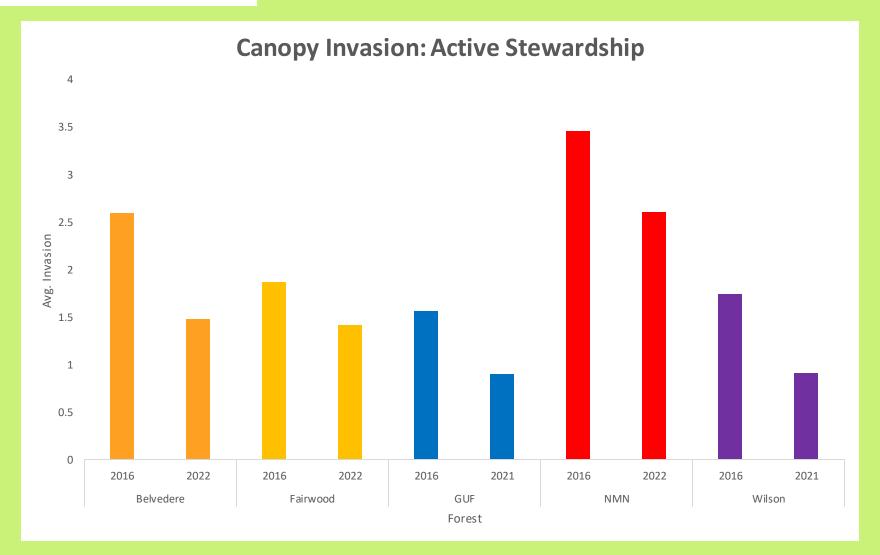
## **Canopy Invasion**





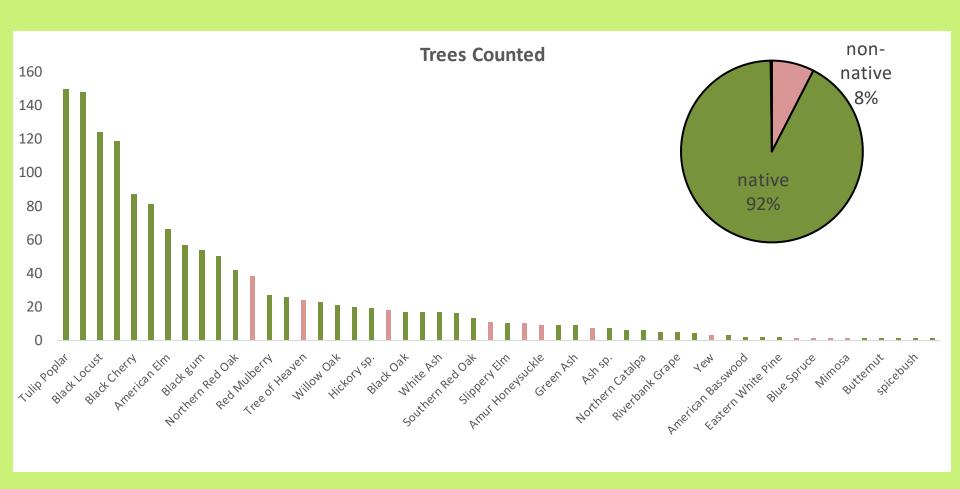
## **Canopy Invasion**





**Canopy Invasion** 





**Canopy Composition: 16 Forests in 2021-23** 







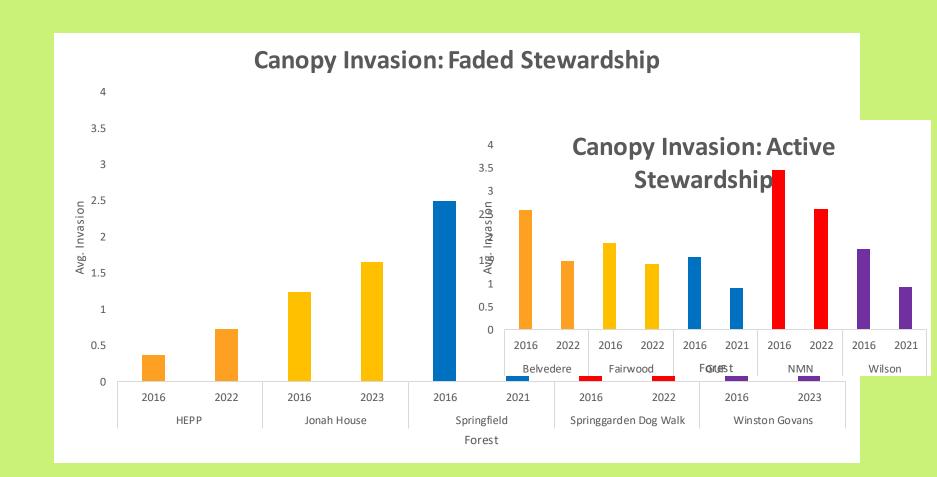
### **Ground Invasion: Stillmeadow**





**Ground Invasion: Fairwood Forest** 





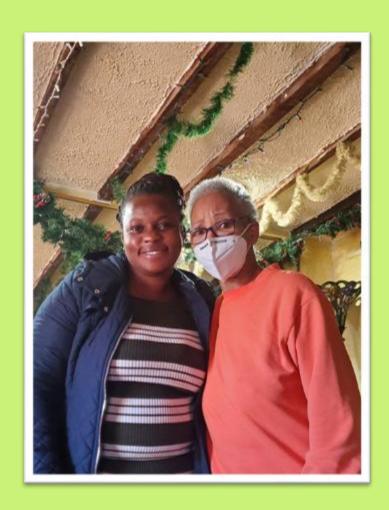






**Caution: Drop in stewardship: HEPP** 







**Sharing with Community** 





## Chinese Yam (Dioscorea polystachya)



**Identification**: Leaves are pointed, heart-shaped often indented on the sides, opposite or alternate. Are slender vine that spirals counter-clockwise. The junction of the petiole and leaf blade often has a distinctive red-purple color. A small aerial tuber called a tubercle, is usually produced in each leaf axil. Tubercles present from June to September, resemble tiny potatoes.

**Hazard:** A climbing vine that rapidly invades undisturbed habitats, reduces biodiversity, and damages the branches of large trees and shrubs. It can form pure stands in upland disturbed habitats (cemeteries, home sites, and roadsides) and riparian corridors. This species is primarily a threat to woody plant establishment and the late summer-autumn herbaceous graminoids and forbs.

**Removal:** Using a digging tool, remove the entire plant, including all roots and tubercles (if present). Juvenile plants can be hand pulled depending on soil conditions and root development. Any portions of the root system not removed will potentially resprout.



### **Chinese Yam**





a. Variable leaf shapes

b. Bulbils







c. Climbing mature trees

d. Forest Invasion

e. Flower

**Sharing with Community: Guides** 



### **Sharing with Community: Guides**



## Jewelweed (Impatiens capensis)



Introduction: An annual plant in the balsam family (Balsaminaceae) native to northern and eastern North America.

**Description**: Jewelweed is an herbaceous plant that grows 3-5 feet tall and blooms from late spring to early fall. The flowers are orange (sometimes blood orange or rarely yellow).

Other Common Names: Orange balsam, Orange jewelweed, Spotted jewelweed, and Spotted touch-me-not.

#### What Animal Eats Jewelweed?

Caterpillars of many types of moths and white-tailed deer feed on its leaves. Its seeds are consumed by a number of species of birds including northern cardinals and eastern towhee, as well as native mammals including white-footed mice.

Fun Facts: Typically grows near poison ivy, and it is the antidote for the itchy rash which occurs from poison ivy. The parts that grow above the ground are used to make medicine. Care must be taken not to confuse jewelweed with other similar plants

Habitat: Jewelweed grows in moist soils in semi shaded areas. It can often be found next to streams, springs, or creeks in forests

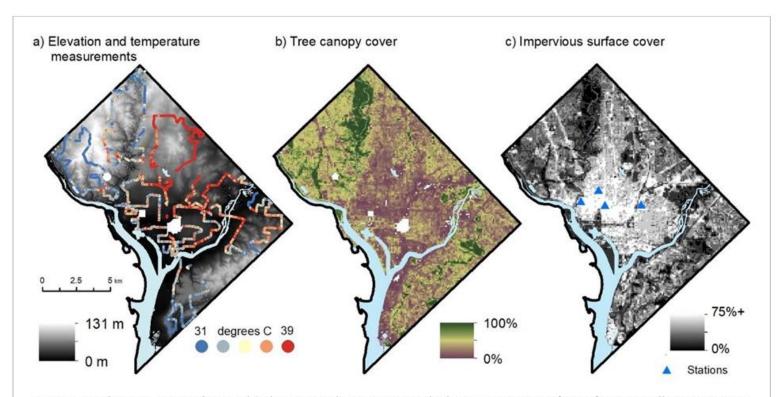




# Forests Patches and Temperature

Environ. Res. Lett. 16 (2021) 084028

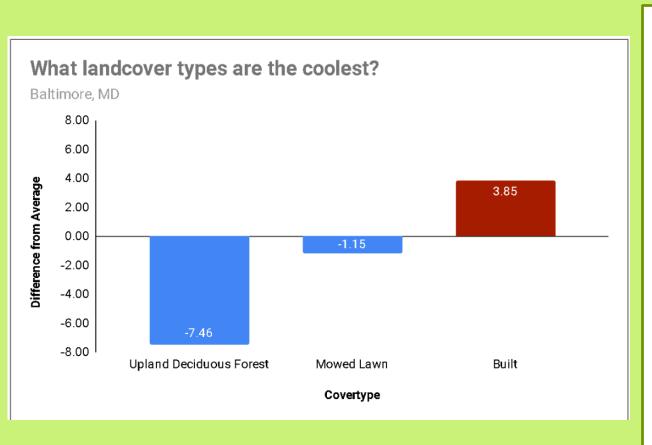
M Alonzo et al



**Figure 1.** Washington, DC study area: (a) elevation with car routes overlaid. Temperatures are from afternoon collection ranging between 31 °C and 39 °C. Missing data (white patches) are in restricted zones (e.g. US Capitol). (b) Tree canopy cover percent in 100 m pixels. (c) Impervious surface cover percent in 100 m pixels This panel also shows the location of our four reference weather stations.



### **Forests Patches in Baltimore**







**Healthy Forest** 



Degraded Forest



94.08 °F

100.95 °F

**Springfield Woods Max Temps** 

### ORDINANCE 20 • 40 1 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 6 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 8 9 required land that triggers a review to conform with the amount of required land for grading 10 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 11 12 that all grading and building permits, and sediment, and erosion control, subdivision, or 13 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 14 Landscape Manual mitigation fees and modifying the amount of violation fines; adding a 15 16 definition for "critical root zone" to the Code and modifying the definition of "specimen



### Thank you!













