



2017 Forest Health DISTRICT OF COLUMBIA highlights

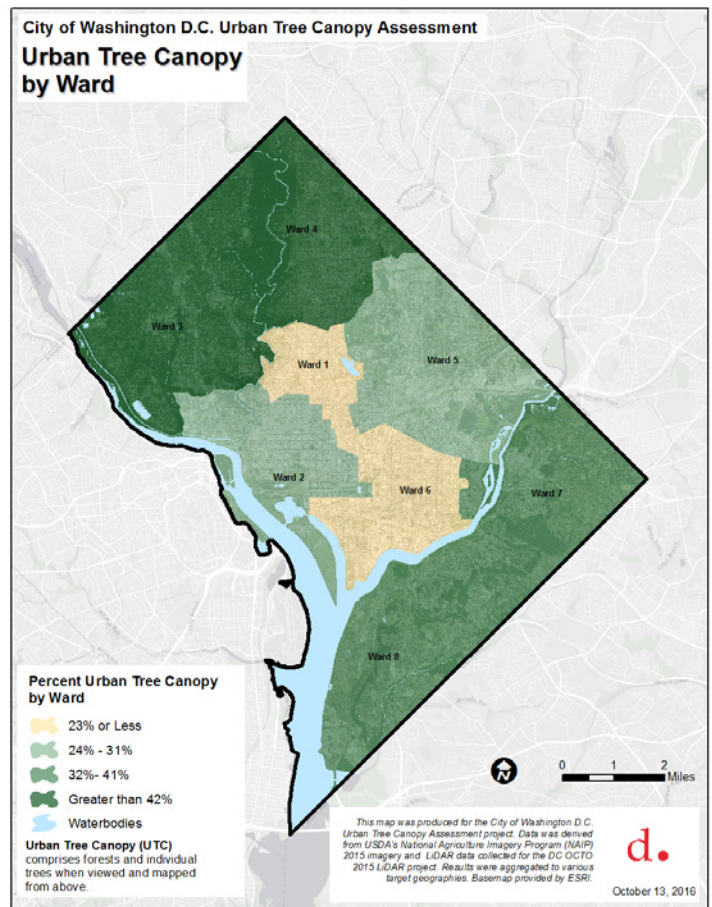
Forest Resource Summary

The District of Columbia occupies a land area of 39,072 acres. The urban forest in Washington, DC, consists of forested areas located on private, Federal, and State land. These areas are managed by private landowners, Federal agencies, and the District of Columbia. Three District agencies manage lands that contain forested areas: Department of Energy and the Environment, Department of General Services, and Department of Transportation. The Urban Forestry Division (UFD) of the District Department of Transportation (DDOT) manages all public street trees as well as trees located in District parks and public schools. UFD also administers the Urban Forest Preservation Act of 2002, which regulates the removal of mature trees from private property. The Urban Forest Preservation Act of 2002 was amended in 2016 to include further protection of large trees with a circumference greater than 100 inches, deemed Heritage trees.

Urban tree canopy (UTC) consists of the leaves and stems covering the surface of the city as viewed from above. As of 2015, the District of Columbia enjoys

an overall UTC of 38.7%. Urban tree canopy varies spatially by ward and neighborhood. For example, Wards 1 and 6 have the lowest UTC at 23 and 21%, respectively. Wards 3 and 4 had the highest UTC at 60 and 49%, respectively.

Urban Tree Canopy by Ward in 2015

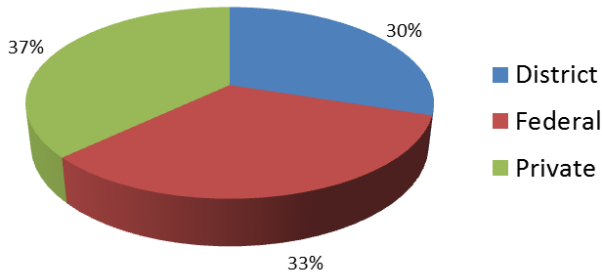


Washington, DC, urban tree canopy by ward in 2015.



Urban Forest Ownership

Urban forest ownership in the District of Columbia

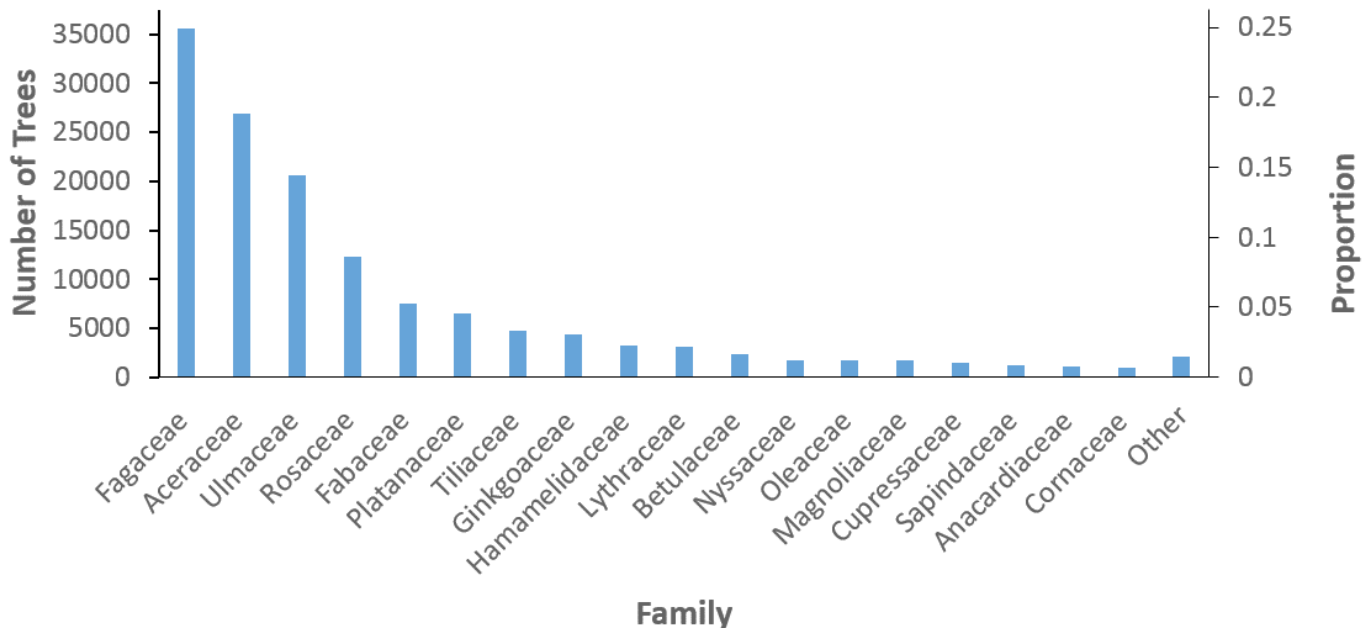


Forest Inventory

Street Tree Diversity by Family

Diversity among street trees is quite high, as shown in the accompanying graphic. The "Other" grouping is comprised of 37 tree families, each constituting less than 0.5% of the total street tree inventory.

Street tree diversity by family, 2017

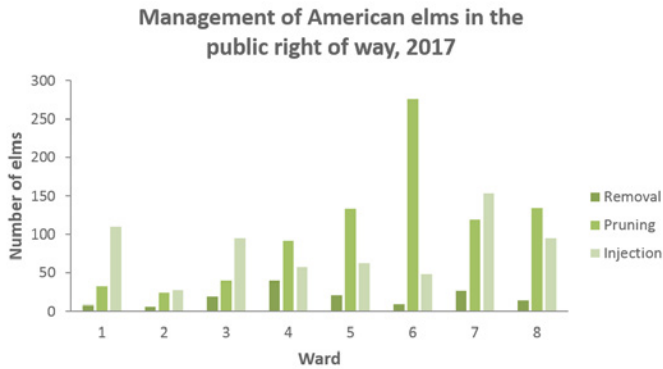


Street tree diversity in the District of Columbia in 2017 by tree family.

Components of Change

Dutch Elm Disease Removals

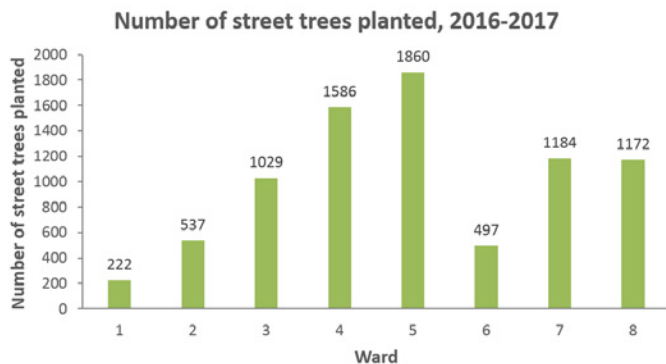
Management of elms in the District consists of fungicide injections, pruning, removals, and incorporation of Dutch elm disease-resistant cultivars (see the Ongoing Efforts section later in this report). Removal of elms with Dutch elm disease is expedited to avoid additional infestations. Pruning estimates do not include pruning scheduled for November and December 2017.



Management of American elms in the public right-of-way in the District of Columbia in 2017.

Planting

Each year, UFD plants several thousand trees in the public right-of-way in support of reaching the 40% urban tree canopy goal by 2032 (District of Columbia 2013). In the 2016-2017 planting season, UFD planted a record high 8,087 street trees throughout the District (see accompanying graph). An additional 116 trees were planted in collaboration with local community partners, including the non-profit organization Casey Trees.



Number of street trees planted by ward in the District of Columbia during the 2016-2017 planting season.



A block planting of tulip poplars (*Liriodendron tulipifera*) along Massachusetts Avenue SE, Ward 7. (Courtesy photo by Urban Forestry Division, DDOT)

Forest Health Issues

Exotic or Novel Pest Introductions

Cryptic Wood Borer Rearing Survey 2014-2016

The early detection of exotic wood-boring insects is challenging due to their cryptic lifestyles, where the majority of their life cycle occurs within host trees. In order to enhance the early detection of cryptic wood borers, UFD partnered with the Earth Conservation Corps (ECC) and U.S. Forest Service Northeastern Area State and Private Forestry to collaborate on a cryptic wood borer rearing survey. Wood samples were collected from across the city and stored for up to 2 years, allowing wood-boring insects to develop and emerge. An advantage of rearing insects from urban wood samples is the detection of wood borers for whom chemical attractants are unknown or unavailable. Wood samples from the bole as well as the mid and upper canopy were collected from declining trees or limb failures and stored in individual rearing tubes at room temperature at the ECC’s Matthew Henson Earth Conservation Center in the District. Rearing tubes were checked monthly and specimens were identified to species by taxonomists from the U.S. Forest Service Northeastern Area State and Private Forestry

facility in Durham, NH. ECC members assisted in insect collection and learned about invasive forest insect pests.



ECC Leader Keisha Alvarenga adds labels to sample vials with rearing tubes in the background. ECC is a non-profit youth development and environmental service organization. (Courtesy photo by Urban Forestry Division, DDOT)

Wood samples collected from street trees in the genera *Acer*, *Fraxinus*, *Platanus*, *Prunus*, *Quercus*, *Ulmus*, and *Zelkova* yielded 36 species of beetles, including eight species of bark and ambrosia beetles (Scolytinae), seven species of Cerambycid beetles, and one Buprestid species (table 1). Five non-native species were identified, the majority of which consisted of bark and ambrosia beetles (Scolytinae).

This sampling method revealed the presence of three Scolytinae species not previously detected by the U.S. Forest Service Early Detection Rapid Response Program conducted across the District in 2016. Two of the species (*Pseudopityophthorus pruinosus* and *P. pubescens*) were collected from *Quercus palustris* and *Q. rubra*, respectively, while *Hylesinus californicus* was collected from the *Fraxinus* sample. All three species are native to North America.



Meet the District's newest Staphylinid beetle, *Eudectus crassicornis*, known to occur in Southern States (LA, FL, and GA). This beetle was collected from a pin oak sample. (U.S. Forest Service photo by Marc DiGirolomo)



This Western ash bark beetle, *Hylesinus californicus*, was collected from an ash sample. (U.S. Forest Service photo by Marc DiGirolomo)

Table1. Collected wood-boring beetles in the Buprestidae, Cerambycidae, and Curculionidae Families.

Beetle Family	Species	Status	Wood samples				
			<i>Acer rubrum</i> **	<i>Fraxinus</i> spp.	<i>Quercus palustris</i> **	<i>Quercus rubra</i>	<i>Ulmus americana</i>
Buprestidae	<i>Chrysobothris sexsignata</i>	Native	-	-	2	-	-
Cerambycidae	<i>Cyrtophorus verrucosus</i>	Native	-	-	1	-	-
Cerambycidae	<i>Elaphidion mucronatum</i>	Native	-	-	1	-	-
Cerambycidae	<i>Euderces picipes</i>	Native	1	-	-	-	-
Cerambycidae	<i>Euderces pini</i>	Native	-	-	1	-	-
Cerambycidae	<i>Neoclytus acuminatus</i>	Native	4	-	-	-	-
Cerambycidae	<i>Neoclytus scutellaris</i>	Native	-	-	1	-	-
Cerambycidae	<i>Styloleptus biustus</i>	Native	1	-	-	-	-
Curculionidae: Scolytinae	<i>Hylesinus californicus</i>	Native*	-	2	-	-	-
Curculionidae: Scolytinae	<i>Cnestus mutilatus</i>	Exotic	17	-	-	-	-
Curculionidae: Scolytinae	<i>Dryoxylon onoharaense</i>	Exotic	-	-	20	-	-
Curculionidae: Scolytinae	<i>Monarthrum mali</i>	Native	8	-	-	-	-
Curculionidae: Scolytinae	<i>Pseudopityophthorus pruinus</i>	Native*	-	-	3	-	-
Curculionidae: Scolytinae	<i>Pseudopityophthorus pubescens</i>	Native*	-	-	-	13	-
Curculionidae: Scolytinae	<i>Scolytus multistriatus</i>	Exotic	-	-	-	-	108
Curculionidae: Scolytinae	<i>Xyleborinus saxeseni</i>	Exotic	-	-	1	-	-

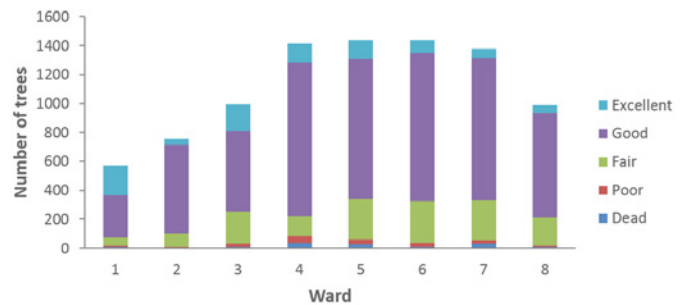
Data reported are total number of beetles for each host tree species collected over 1-2 years. (*Species detected from rearing tubes, but not 2016 EDRR sampling. **Data reported are combined for two samples of the host tree species.)

Ongoing efforts

Dutch Elm Disease

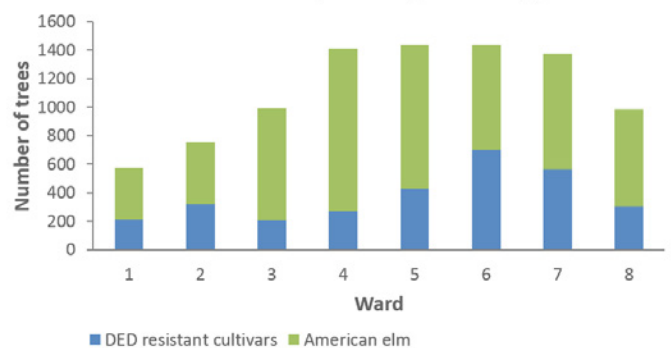
American elms are iconic trees in the District of Columbia. They line many of the state avenues and form a beautiful closed canopy over East Capitol Street approaching the United States Capitol. Unfortunately, American elms in the District are subject to Dutch elm disease (DED). The Urban Forestry Division employs a diverse arsenal to manage DED, including the use of fungicide injections, sanitation pruning, and expedited removal of infested specimens. In addition, new plantings include DED-resistant cultivars.

Condition of American elms in the public right of way, 2017



Condition of American elms in the District of Columbia public right-of-way in 2017.

American elms in the public right of way, 2017



Diversity of American elms in the District of Columbia public right-of-way in 2017.

Emerald Ash Borer

Emerald ash borer (EAB) was first observed in the District in 2013. Fortunately, the street tree inventory consists of very few ash trees—less than 1% of all trees in the public right-of-way. Following the discovery of live emerald ash borers in 2014, UFD began tracking observations of emerald ash borer in street trees and ash trees located on other District-owned properties. To date, emerald ash borer has been observed in all eight District wards. UFD expedites the removal of any District-owned ash trees known to be infested with EAB.

The overall urban forest in the District contains a greater proportion of ash trees compared to the street tree inventory, particularly in riparian areas such as Kenilworth Aquatic Gardens. An i-Tree analysis indicates that the urban forest is comprised of approximately 5,000 ash trees that make up 1.9% of all trees in the District (Nowak and Hoehn 2010).

Additional Pests and Pathogens

There are a variety of additional pests observed on street trees in the District of Columbia. *Scolytus rugulosus* has been observed on numerous species of cherry street trees such as *Prunus x yedoensis* and *P. virginiana*.

Scale insects are often observed on maple and oak street trees. In particular, oak lecanium scale are prevalent on willow oak trees. Both young and mature willow oaks may sustain heavy infestations of oak lecanium scale, often identified by the appearance of sooty mold. Red maples are also susceptible to gloomy scale. Some infestations result in heavy accumulation on limbs, which exhibit a mottled appearance and rough texture.



Signs and symptoms of emerald ash borer infestation in a row of ash trees on Brentwood Parkway NE, Ward 5. (Courtesy photos by Urban Forestry Division, DDOT)

Anthracnose is present in the District and often observed in street trees such as sycamore and London plane trees in the late summer. Bacterial leaf scorch occurs in all eight wards and is most prevalent in street trees such as red oak (*Quercus rubra*), pin oak (*Q. palustris*), American elm (*Ulmus americana*), and sycamore (*Platanus occidentalis*) (Harris and others 2014).

Urban Tree Canopy Map

Hanou, I. 2016. Urban tree canopy assessment, District of Columbia, 2011–2015. Plan-It Geo, LLC, Arvada, CO.

References

District of Columbia. 2013. Sustainable DC Plan. Washington, DC: Office of Planning and Department of Energy & Environment.

Harris, J.L.; Di Bello, P.L.; Lear, M.; Balci, Y. 2014. Bacterial leaf scorch in the District of Columbia: distribution, host range, and presence of *Xylella fastidiosa* among urban trees. Plant Disease. 98: 1611–1618.

Nowak, D.J.; Hoehn, R.E. 2010. i-Tree Ecosystem Analysis, Washington DC. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station.



Forest Health Programs

State forestry agencies work in partnership with the U.S. Forest Service to monitor forest conditions and trends in their State and respond to pest outbreaks to protect the forest resource.

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