

Why Trees Matter

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# Ecosystem Services: Benefits of trees left standing vs. cut for profit

**Check your tree values with the Tree Benefit Calculator: [treebenefits.com](http://treebenefits.com)**

- Enter species, diameter, zip code: calculates stormwater and carbon absorbed, energy saved, property value added, etc.

The Morton Arboretum

This tree will give us \$ 235  
worth of benefits this year!

Tree Species COMMON HACKBERRY DBH 17  
(diameter at breast height - 4.5 feet)

Stormwater runoff reduction 2417 gal

Carbon reduction 564 lbs

Electrical energy savings 137 kwh

Property value increase \$ 111 /YR

Help your trees live a long life.  
Larger trees provide more benefits.

National Tree Benefits Calculator  
[www.treebenefits.com/calculator](http://www.treebenefits.com/calculator)

839

DAVEY  
YOUR LOCAL COMMUNITY

Celebrate trees. Learn more:  
[MortonArb.org/HugATree](http://MortonArb.org/HugATree)

Scan here to learn more about trees.







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# Trees: The lungs of the world

- ? **Give us oxygen:** Photosynthesis in cyanobacteria created oxygen in Earth's atmosphere 2.5 billion years ago, enabled evolution of oxygen-breathing life forms (aka humans)
- ? **Clean the air we breathe.** Remove carbon dioxide, sulfur dioxide, nitrous oxides and other pollutants. Large trees capture the most pollution (more leaves).
- ? **Prevent air pollution related deaths:** an average of one life every year in 10 US cities studied. In New York City, for example, trees saved an average of 8 lives/year.
- ? **Reduce childhood asthma rates.**
- ? **"For every breath you take, thank a tree." – Tree scientist Diana Beresford-Kroeger**



**Big Trees Matter.**  
A big tree removes  
60 to 70 times more  
pollution than a  
small tree.





# Trees absorb and store carbon: one solution to climate change

## How could trees save the planet?

We could increase the world's forest cover by

**0.9**  
billion  
hectares

without affecting existing cities or agriculture

This tree cover would take up an area equivalent to the US

Restoration of forests could store

**205**  
billion tonnes of carbon

This would capture about **2/3**

of the man-made carbon emissions

#TreePotential

CROWTHER LAB



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# Evanston Climate Action and Resilience Plan (CARP)

## Goals:

- ❑ **Plant more trees:** public and private. Net 500 by 2025.
- ❑ **Adopt a tree preservation ordinance:** No ordinance yet to protect trees on private property.



# Trees keep us cooler.

"No other category of hazardous weather event in the United States has **caused more fatalities over the last few decades than extreme heat.**"

- 2020 study Virginia and  
- Oregon researchers

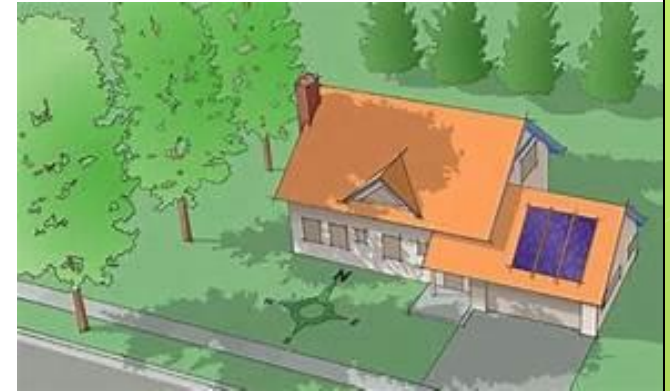
- ❑ A big shade tree can lower surrounding temperature by 10 - 15°F.
- ❑ Shaded surfaces can be more than 40° cooler.
- ❑ Reduce “heat island effect.”
- ❑ In dozens of cities, low-income neighborhoods are **hotter** = environmental justice issue





# Trees pay us back: \$

- ❓ **Save energy. Cools in summer, blocks wind in winter.** Trees can save us up to 30% on electricity bills.
- ❓ **Increase our homes' value.** Sell for 10+ % more. On average, each large front yard tree adds 1% to sales price. Large trees can add 10%.
- ❓ **Are good for business.** Shoppers will travel farther. Willingness to spend 12% more.
- ❓ A single large tree produces benefits worth **\$3,000+ over 40-year lifespan.** Chicago: 157 million trees provide services worth \$195 million/year (capture air pollution, store carbon, reduce energy costs).





# Trees absorb stormwater and prevent flooding

- **Help handle storm runoff and reduce flooding.**
  - **Roots** soak up and filter water.
  - **Leaves** collect water, evaporates.
  - **Less flooding and less stormwater needing treatment.**

Mature tree intercepts 2,500 gallons of rainfall per year.

- **U.S. Forest Service**



# Trees build community



**Leafy Neighborhoods =**  
More use of neighborhood common spaces, greater sense of safety, healthier patterns of children's play, fewer property crimes, and fewer violent crimes.





# Trees improve health and safety

- ❑ **Help us relax.** Reduce blood pressure, help hospital patients recover, increase worker productivity, reduce children's stress.
- ❑ **Streets quieter.**
- ❑ **Make cities safer.**
  - ❑ **Fewer violent crimes.**
  - ❑ **Less domestic violence.**
  - ❑ **Adolescents less aggressive.**
  - ❑ **Apartment complexes:** 52% fewer crimes.
  - ❑ **Drivers less frustrated,** drive more slowly.



# Trees prevent erosion

- ❑ Root systems reduce erosion by holding soil in place.
- ❑ Stabilize slopes and embankments.
- ❑ Prevent landslides.





# Trees feed and shelter wildlife

Nuts, seeds, fruits, insects, caterpillars! 500 species need oaks





# Trees feed us, too!

- Native US: Maple syrup, black walnut, pecan, chestnut (mostly extinct), hickory nut, acorn, persimmon, pawpaw, wild plum, mulberry, serviceberry, crabapple.
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- Introduced or tropical: Apple, pear, peach, plum, fig, citrus, avocado, coffee, almond, chocolate, mango, etc.



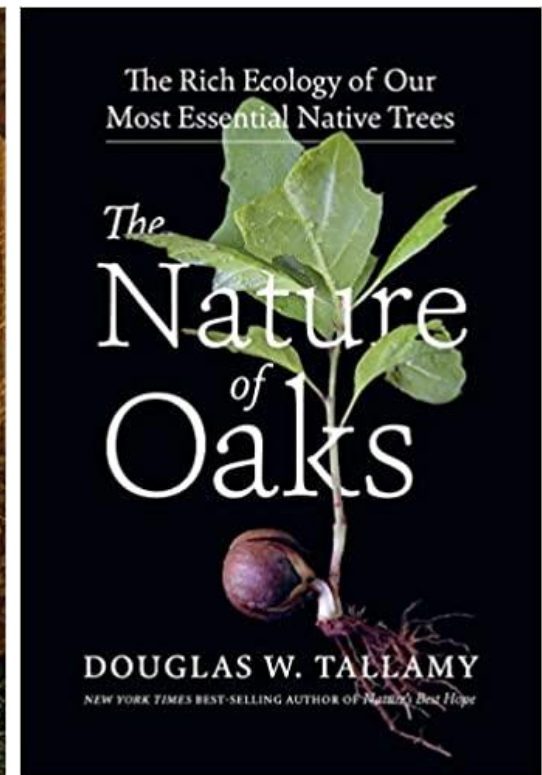
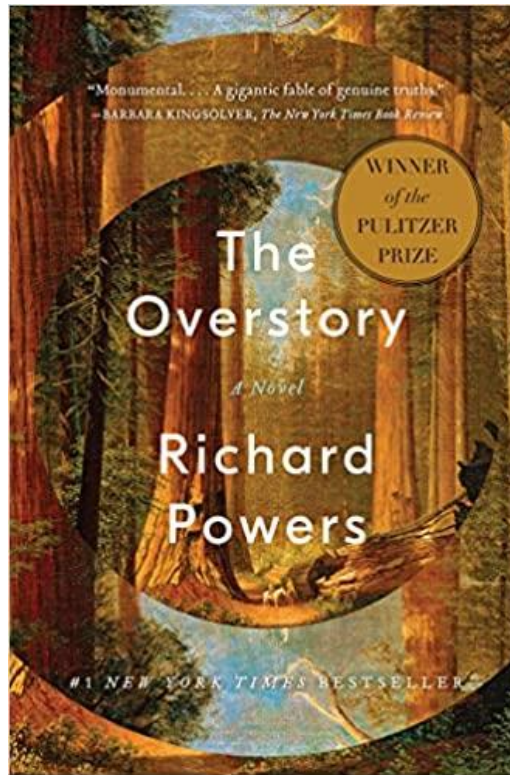
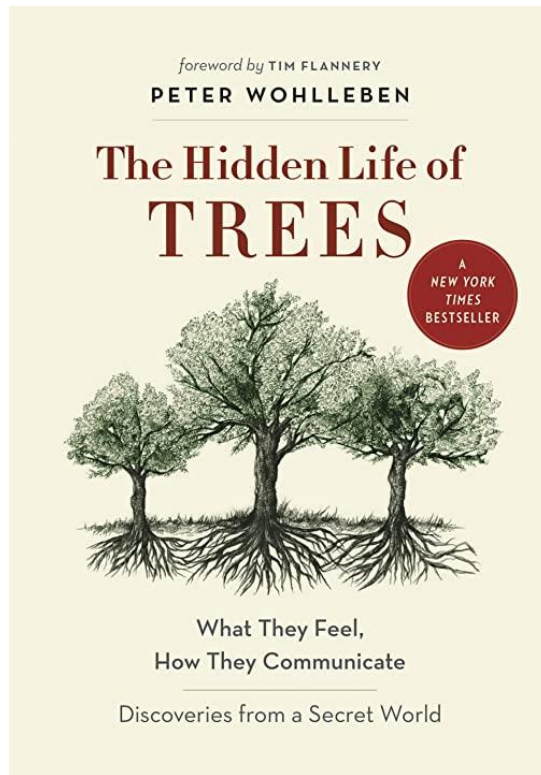


# Trees give us beauty and privacy



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### [Suzanne Simard: How trees talk to each other | TED Talk](#)

**New York Times, December 2, 2020: The Social Life of Forests: Trees appear to communicate and cooperate through subterranean networks of fungi. What are they sharing with one another?**





# How to Help



- ❑ Volunteer to help plant and care for trees in Evanston natural areas and at schools
- ❑ Advocate for tree-friendly City policies and action: tree preservation ordinance
- ❑ Donate to the Fund for Evanston Trees or to the Channel Habitat Fund
- ❑ If you have the space, plant an oak tree in your yard!

Contact:

[Habitat@NaturalHabitatEvanston.Org](mailto:Habitat@NaturalHabitatEvanston.Org)

Visit our webpage at  
[NaturalHabitatEvanston.Org](http://NaturalHabitatEvanston.Org)



# Sources

## Social Justice

- Study: VA and OR researchers: <https://www.mdpi.com/2225-1154/8/1/12/htm?fbclid=IwARo8TRFmzCj4cGRWQyRFOl3Fo4HeHj2O6lCjaG12A2VjVcsdlpT6FoGFiKk>
- NPR: Dozens of cities, low-income neighborhoods hotter. <https://twitter.com/NPR/status/1169075374879383552>
- Evanston Eplan (2016-21) <https://www.cityofevanston.org/home/showdocument?id=3074>

## Value of Trees

It's not just the number of trees, it's how long they live," by Wendy Pollock, Evanston RoundTable.

<https://www.mortonarb.org/trees-plants/benefits-trees>

- "Trees Pay Us Back," US Forest Service
- "Benefits of Trees and Urban Forests: A Research List," Alliance for Community Trees
- i-Tree calculator, US Forest Service
- "The Role of Our Urban Forest in the Chicago Metropolitan Region's Future," Chicago Metropolitan Agency for Planning
- "Modeled PM2.5 Removal by Trees in Ten U.S. Cities and Associated Health Effects," US Forest Service
- Chicago Metropolitan Area Regional Tree Census, The Morton Arboretum and US Forest Service





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## Big Trees

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<http://content.time.com/time/magazine/article/0,9171,1635842,00.html>
- ❑ <https://www.theguardian.com/environment/2014/jan/15/trees-grow-more-older-carbon>
- ❑ <https://environment-review.yale.edu/carbon-capture-tree-size-matters-o>

