Forest Health in Arlington County

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Topics

• How to measure forest health
• Natural and urban forests
• Threats
• Current data
  • Canopy
  • Inventory
  • Extrapolations
  • Wildlife
• Future data
  • iTree Eco
• Summary
• What are we doing?
• What can you do?
• Questions
How do you measure forest health?

• Quantity
  – Amount of trees
  – Tree canopy cover

• Quality
  – Diversity and structure
  – Health/Disease
  – Invasive Species
  – Age distribution
  – Soil condition
Comparing the health of natural and urban forests

• Natural:
  – Community
  – Interconnectedness

• Urban
  – Individual trees
  – Risk/benefit
  – Resistance to stress
Threats to our urban forest

- Storms
- Invasive plants
- Deer pressure
- Pests and disease
- Climate change
- Poor practice
- Development
Current data

• Tree canopy:
  – 2008 Study, Virginia Tech
  – 2011 Study, Vermont

• Tree inventory
  – 2003 inventory
  – Champion trees

• Extrapolation from Casey trees

• Wildlife supported by our urban forest
Tree Canopy

At 40% tree canopy, we currently meet the American Forests recommended goal.

the layer of leaves, branches, and stems of trees that cover the ground when viewed from above.
Tree Canopy – Contiguous forests
Who owns our tree canopy?
The majority of tree canopy is on private land, but we do manage some natural lands in parks.

Total natural land: 349 Acres (2% of the County)
Arlington County: 240 Acres
NVRPA: 109 Acres
Natural Resource Conservation Areas: 129 Acres
Tree Canopy – Urban areas

Mixed ownership
Crystal City: 10.3%
Pentagon City: 18.5%
R-B Corridor: 22.2%
Columbia Pike: 34.6%

American Forests recommends 15% targets for central business districts, and 25% for urban residential.
Tree Canopy – Too much data

<table>
<thead>
<tr>
<th>Owner</th>
<th>Area (Acres)</th>
<th>%</th>
<th>Planting Space (Acre)</th>
<th>Planting Space %</th>
<th>2008 UTC</th>
<th>UTC %</th>
<th>Open Planting Space (Acre)</th>
<th>Open Planting Space %</th>
<th>% of County</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>5538</td>
<td>37.7</td>
<td>2724</td>
<td>49.2%</td>
<td>2035</td>
<td>36.7%</td>
<td>1147</td>
<td>20.7%</td>
<td>7.8%</td>
<td></td>
</tr>
<tr>
<td>County</td>
<td>1561</td>
<td>10.6</td>
<td>1187</td>
<td>76.0%</td>
<td>773</td>
<td>49.5%</td>
<td>454</td>
<td>29.1%</td>
<td>3.1%</td>
<td></td>
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<tr>
<td>NVRPA</td>
<td>138</td>
<td>0.9</td>
<td>124</td>
<td>90.0%</td>
<td>106</td>
<td>76.8%</td>
<td>20</td>
<td>14.5%</td>
<td>0.1%</td>
<td></td>
</tr>
<tr>
<td>State</td>
<td>11</td>
<td>0.1</td>
<td>4</td>
<td>32.7%</td>
<td>1</td>
<td>12.6%</td>
<td>3</td>
<td>27.3%</td>
<td>0.0%</td>
<td>Not statistically significant</td>
</tr>
<tr>
<td>Right-of-Way</td>
<td>3180</td>
<td>21.6</td>
<td>870</td>
<td>27.4%</td>
<td>802</td>
<td>25.2%</td>
<td>467</td>
<td>14.7%</td>
<td>3.2%</td>
<td>UTC overhangs roads</td>
</tr>
<tr>
<td>National Parks</td>
<td>648</td>
<td>4.4</td>
<td>539</td>
<td>83.2%</td>
<td>353</td>
<td>54.4%</td>
<td>203</td>
<td>31.3%</td>
<td>1.4%</td>
<td>Arlington Cemetery</td>
</tr>
<tr>
<td>Private</td>
<td>9170</td>
<td>62.3</td>
<td>5892</td>
<td>64.3%</td>
<td>4314</td>
<td>47.0%</td>
<td>2215</td>
<td>24.2%</td>
<td>15.1%</td>
<td>UTC overhangs buildings</td>
</tr>
<tr>
<td>Total</td>
<td>14708</td>
<td>100</td>
<td>8616</td>
<td>59%</td>
<td>6349</td>
<td>43%</td>
<td>3362</td>
<td>23%</td>
<td>66%</td>
<td>Maximum UTC: 9711</td>
</tr>
</tbody>
</table>

Most of the open planting space is on private land. Our maximum tree canopy could be 66%, unless we take out roads and buildings.
Between the 2008 and 2011 studies, Arlington County went from 43% tree canopy to 40%.

These studies typically have less than 1% error.
2003 Street tree inventory

- ~19,000 street trees
- Partially updated in 2008 and 2012
- Labor-intensive

Species Composition
Champion tree inventory

- 105 Champion trees (County and state)
  - 12 State champions, 44 listed co-champions

Public link to map can be found on [http://gis.arlingtonva.us/gallery/index.html](http://gis.arlingtonva.us/gallery/index.html)
Current Data: Extrapolation from other studies

- Casey Trees iTree Eco study, Washington, DC
  - iTree Eco measures the structural and environmental value of trees in a community through random sampling.
  - Results of DC Stats adapted to the size of Arlington
    - Approximately 1 Million trees
    - $1.6 Billion Structural value

- Economic contribution of street trees
  - iTree Streets, with assumptions on tree locations
  - 19,000 Street trees have $998,000 annual value in environmental services, such as energy reduction and carbon storage
Our urban forest provides food and shelter for almost 200 birds species, 12 amphibians, 16 reptiles, 26 types of mammal, 28 dragonflies, and 39 species of butterfly.
In summary: Some thoughts on our forest health

• **Quantity:**
  – At 40%, still at the target for our type of community
  – Percentage is declining overall, though improving in urban areas
  – More value should be given to preserving trees and forest

• **Quality:**
  – We see improving conditions for urban trees
  – Need more information on species and age makeup
  – Invasives and excessive deer browse are affecting our canopy negatively. Impact studies may be needed
  – Soil compaction and climate change may cause longterm decline
  – Continue to monitor for disease and use Integrated Pest Management
  – Need improvement in connectivity between forests
What are we already doing?

- Increased soil volumes for street trees and onsite trees
- Going above and beyond requirements for tree canopy on county and APS projects
- Invasive plant control (193 Acres under treatment, of 458 acres planned to be treated)
- Restoration projects throughout the county
- Maximizing street trees on private projects, along with ensuring onsite tree canopy
- Credit for preserving trees
- Administrative Regulation 4.3
Future studies and work

• Planned: 2016 iTREE Eco study

• Potential other studies:
  – Impact of development
  – Deer browse surveys
  – Soil Profile rebuilding research
  – Tree Canopy update (last one was in 2011)
  – Mortality studies on planted trees

• Urban Forest Masterplan rewrite
What can you do where you live?

• Maintain and protect your mature trees
• Plant a diversity of new native trees, where appropriate
• Remove non-native invasive vines
• Limit lawn area, where appropriate
• Cut back on fertilization
• Reduce compaction
• Advocate
Resources

- Arlington Forest health (Canopy study information): http://environment.arlingtonva.us/trees/how-arlington-rates-trees/
- Arlington county recommended trees: http://environment.arlingtonva.us/trees/plant-trees/recommended-trees/
- Ordinance on tree preservation: http://topics.arlingtonva.us/building/chesapeake-bay-preservation-ordinance/
- Native plants in Northern Virginia: http://www.plantnovanatives.org/
Questions?

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Natural Arlington Blog:
http://environment.arlingtonva.us/category/natural-arlington/

Arlington Forestry Facebook page:
Search “Arlington Forestry” on Facebook.
https://www.facebook.com/groups/271134212980703/