HOW TO ENHANCE URBAN CANOPY THROUGH ORDINANCE & COLLABORATION FOR COMPREHENSIVE PLANS

Michael Orange, Principal
ORANGE Environmental, LLC

While it is easy to appreciate the beauty of trees and landscaping, the quantifiable environmental, economic, and health benefits are not as easy to grasp. When the values of trees are weighed against their purchase and maintenance, the benefits outweigh the costs by a margin of about three to one. Comprehensive plans should embed effective green infrastructure goals, policies, and implementation tools into practice in the following ways:

1. **"You don't know what you got 'till it's gone" - Urban Forest Inventory and Goals:**
   a. **Inventories:** Community inventories of public green infrastructure should include at minimum species, location, size, and condition, and ideally, records of major maintenance activities (e.g. treatments for infestations, pests, and diseases). The parks section of your comprehensive plan should include urban forest canopy goals. Fortunately, several excellent tools are now available to estimate canopy cover.[1]
   b. **Plant diversity goals:** Cities should utilize the 5-10-15 guideline to increase species diversity. The rule suggests the urban tree population (and major development sites) include no more than 5% of any one species, 10% of any one genus, or 15% of any family.[2]

2. **Development Review Process:**
   a. **Mother Nature ignores property lines:** A city's control tools must account for both on and off-site impacts. Construction activities and changes to drainage can damage trees and destroy living soils.[3]
   b. **Do it right the first time:** A common misperception is that there is little difference between soil and dirt and between a mature tree and a new tree. As scientist, Peter Wohlleben writes, "There are more life forms in a handful of soil than people on the planet. A mere teaspoon contains many miles of fungal filaments. All of these work the soil, transform it, and make it so valuable for the trees."[4] It is crucial during land altering activities to preserve as much as possible all healthy soils and high-quality trees (i.e. trees that are healthy, large, and properly located). As for new trees, put the right tree in the right place.

3. **Emerald Ash Borer infestation:** Ash trees constitute 20-40% of the public trees in the region's cities, and the Emerald Ash Borer (EAB) infestation will kill every unprotected ash tree. The EAB beetle is the most economically costly forest insect ever to invade the U.S. Some essentials to manage the infestation include:
   a. **Save the best and replace the rest:** Scientific advancements since the start of the infestation show that the preservation of high-quality ash trees and replacement of the other ash trees is the most economically and environmentally sound policy.
   b. **EAB management plan:** Cities *must* prepare EAB plans to address the sheer scale of the work ahead and the average management cost of $800,000 to $1.5 million.[5]

---

[1] Refer to the references at the end of the Model Landscape Ordinance prepared for the GreenStep Cities Program.
[2] The general rule used to be 10-20-30, but it implies the acceptability of suffering the loss of 20% of our urban canopy since both of the commonly planted ash species are highly susceptible to the Emerald Ash Borer infestation.
[3] The Model Landscape Ordinance mentioned above has suggested ordinance language to address these issues.
[4] Wohlleben, Peter, *The Hidden Life of Trees*, p. 86.
[5] Refer to the *Model Emerald Ash Borer Management Plan* (available upon request from this article's author).

c. **Intercity collaboration:** The beetle ignores municipal boundaries.[6] Scientific studies show that a regional or, ideally, a statewide EAB management strategy is more cost-effective and better for the environment than a city-by-city approach. Cities should collaborate with their neighbors to implement consistent, science-based management plans.

A fuller appreciation of the importance of our green infrastructure can lead to urban forests that deliver the substantial benefits that were the long-range hope of those who planted the saplings.

[6] A mated female beetle can fly about a mile a day in search of a host tree.