

The Dirt: Mapping the urban forest

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Inspiration often strikes in unusual places. For Amber Bieg, a volunteer with Friends of the Urban Forest, a nonprofit that promotes the greening of San Francisco, it hit as she was planting street trees in five years ago.

"It occurred to me how great it would be to enter all the information about the trees I had just planted into a database so it could be shared," she recalls.

Bieg, who has a background in geographic information systems and cartography as well as urban forestry, took on the task. She's been working with FUF and Santa Cruz-based Online Mapping Solutions to create an interactive map of San Francisco's trees. It's the first project of its kind, although a less ambitious counterpart is planned for New York City's Greenwich Village. But the date the map will be up and running is in question because Bieg's efforts were sidelined in December when state bond funds were frozen. Bieg and FUF Program Director Doug Wildman hope it can be reactivated soon and are applying for a U.S. Forest Service grant.

Among other things, the map will allow FUF and the city's Bureau of Urban Forestry to share information about the city's trees, which have been growing in number at a rate of 5,000 a year. "It will provide an opportunity to manage trees better," explains Wildman. "We can say, 'That species isn't very healthy as a whole. Why should we continue to plant it?'"

Carla Short of the Bureau of Urban Forestry agrees: "We can quickly see where trees are needed to ensure coverage throughout the city. Also, with instant access to tree planting dates and care history, (the city) can easily plan maintenance schedules. We can map the shortest routes for maintenance crews - directing them to the correct trees in minimal time."

A prototype of the Tree Map is available on FUF's Web site, fuf.net.

"It's really just a proof of concept," says Bieg, and it works better with Internet Explorer than with other browsers. But it's at least a preview of the tool's potential value. Users will be able to display all the street trees near a specific address, or in a particular neighborhood. If you've always wondered what that odd-looking specimen down the block was, you'll be able to click on its graphic representation and get its species or cultivar. Or you can search for a species list to see where all the city's southern magnolias or



Monterey cypresses are planted. The map will also show local soil types.

Bieg says the final version will be much more user friendly, like a Google or Yahoo map, and more dynamic and interactive. It will be something for the whole community to use. In addition to park and street trees, the map may also highlight trees with landmark status. Suggestions on the care of each tree species will be included. Homeowners will be able to add the trees they've planted themselves to the database, even post photographs and personal stories.

"The biggest challenge with that would be entering species information," Bieg says. "I'm developing a tool for species identification." Having struggled through our share of botanical keys, we wish her luck.

Another likely feature would show users just how valuable their street or backyard trees are. "It will give residents a lot more information and interests in the benefits of trees," says Wildman. Trees perform all kinds of ecosystem services: filtering pollutants from the air, trapping atmospheric carbon, slowing wind speeds, providing shade and wildlife habitat. They can also enhance property values.

The U.S. Department of Agriculture has an application called STRATUM (Street Tree Resource Analysis Tool for Urban Forest Managers) that may be built into the map. STRATUM computes benefits like reduced energy costs, improved air quality and reduced runoff, and compares that with the cost of planting and maintenance.

Another alternative is the Tree Benefit Calculator already developed by two commercial tree firms, Casey Trees and Davey Tree. Enter your ZIP code, your tree's species and its "diameter at breast height" (about 4 1/2 feet from the ground), and you can learn the dollar value of its annual services: savings on electricity and natural gas, storm water catchment and carbon sequestration. (In theory, at least: We got some odd results when we tried it out.)

Short says the mapping system will give citizens "an interactive tool to find a tree and learn about its species, history and future. This interaction will go a long way in engaging the public in our efforts and demonstrating the benefits the urban forest brings."

Wildman would like to see the Tree Map become a layer of San Francisco's EcoMap, under development by the city. EcoMap will use California Department of Motor Vehicles, PG&E and other databases to display energy consumption by neighborhood. Tree data would give a more nuanced picture of San Franciscans' carbon footprint.

The final version will be available to other cities and agencies as a free download.

Let's hope Bieg gets the funds to finish the job.

Resources

San Francisco Tree Map: www.sftreemap.org

Friends of the Urban Forest: fuf.net

National Tree Benefit Calculator: treebenefits.com/calculator

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<http://sfgate.com/cgi-bin/article.cgi?f=/c/a/2009/05/31/HOAN17IF2P.DTL>

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