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The Dirt: It's tough to see urban forest with so few trees

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San Francisco is a tough place to be a tree.

"Everything here goes against the trees," said Mike Sullivan, author of the definitive "Trees of San Francisco."

"We have no summer rain; half the city is built on sand; there's wind, salt spray, fog."

Despite all, our trees persist, with the help of nonprofits like Friends of the Urban Forest and the San Francisco Tree Council.

But those groups are racing the clock. Trees are mortal: They age and die like the rest of us, and some are brought down before their time. And there aren't a lot to spare. San Francisco's 669,000 trees cover only about 12 percent of the city, compared with Atlanta's nearly 9.5 million (putting 37 percent of that city under canopy) and Washington, D.C.'s, nearly 2 million (29 percent).

It might not strike some folks as a problem. After all, isn't San Francisco's treescape a human artifact? Before Europeans arrived, most of what is now the city was a shrubby dune field, with scattered pockets of coast live oaks, willows and a few others. Between the 1870s and 1920s, city authorities and private landowners planted a composite forest of tree species from Europe, Asia and Australia. Most California natives don't do well in the city; exceptions like Monterey pine and Monterey cypress are, according to Sullivan, "just not good street trees."

But there are benefits, tangible and otherwise, provided by urban trees. Whether we're willing to go literally out on a limb to protect an imperiled tree, there's a touch of Druid in most of us.

Big, old trees are powerful presences. Folklorist Vance Randolph wrote that people in the Ozarks used to refer to particularly impressive trees as "him": "I aim to be buried under him when I die."

Trees soften the lines of urban architecture and add foliage and flower color to the gray streets.

They also do more pragmatic favors. "The health and ecology of the city is really based on its urban forest," said arborist Jocelyn Cohen, a member of the advisory Urban Forestry Council.

In a recent study, U.S. Forest Service researchers quantified the ecosystem services of San Francisco's trees. In the city alone, they filter 260 tons of pollutants from the air each year, an



annual value of \$1.3 million. Much of this is particulate filtration. Inhaled particles cause or exacerbate lung disorders from asthma to cancer; trees simply catch them on their leaves, where they stay until the next rain or leaf drop. Trees also absorb carbon monoxide, nitrogen dioxide and sulfur dioxide - and produce oxygen.

Trees are key players in fighting global climate change. Not only can well-placed trees reduce residential and industrial energy use; they reduce atmospheric carbon, stockpiling it as new tissue grows. For San Francisco, annual carbon sequestration by trees amounts to 5,200 tons. Altogether, the city's trees currently store 196,000 tons of carbon.

Trees screen ultraviolet radiation, reducing the risk of skin cancer. Urban greenery has even been linked to a reduction in crime rates and in behavioral problems in children. And trees, native or not, offer an oasis for birds - migratory and resident - and other wildlife like mammals and beneficial bugs.

So there's ample reason to preserve and restore the urban forest. The Urban Forestry Ordinance had historically protected street trees against removal or fatal "pruning." But trees on private property weren't covered; owners could top them or take them down with impunity.

"People are very transient in the Bay Area," said Sullivan. "They move into a new house and their view is being blocked by a big tree the prior owner loved." There goes the tree.

A trigger point for tree advocates came three years ago: the felling of a huge, beloved Norfolk Island pine on private land in the Tenderloin, a neighborhood not over-endowed with trees. That spurred arborophiles to work with the Board of Supervisors - first with Chris Daly, then with Jake McGoldrick - to amend the ordinance.

In December 2005, the board approved McGoldrick's measure to expand protection to landmark and significant trees. Significant tree status is automatic for trees within 10 feet of a public right-of-way that exceed at least one of three criteria: foot-wide diameter, 20-foot height or 15-foot-wide canopy.

Declaring a landmark is a more complex process. Candidates can be nominated by their property owners, city agencies or supervisors; certified arborists evaluate them, the Urban Forestry Council reviews them; and the Board of Supervisors has final say.

San Francisco is still losing trees, though - sometimes amid major controversy. Is the landmark process working as intended? Do enough people know about the new provisions of the Urban Forestry Ordinance? When a tree is removed or damaged, is the city going after the right offenders? More on that next week.

Note: Statistics are from a U.S. Department of Agriculture report, "Assessing Urban Forest Effects and Values."

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