A Day in the Life: Ted Hartsig

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Lying beneath the largest cities in Texas is the soil “Houston Black,” a vestige of the state’s old Blackland Prairie and the Texas state soil. Found nowhere else in the United States, its rich seams of organic matter help support the growth of cotton, sorghum, and corn across central Texas. But builders and homeowners in Dallas and other cities also disparagingly call it “black gumbo” because of its heavy clay content.

Ted Hartsig had never seen Houston Black when he was asked to consult on the landscaping plans for the George W. Bush Presidential Library in Dallas two years ago, but the Kansas City soil scientist quickly understood how exceptional it was. True, his soil probe filled with clay wherever he sunk it into the construction site—much to the dismay of the landscape architects who accompanied him.

“But it was black with organic matter, and I said to the two people who were with me, ‘Get ready to be bored, but here’s your lesson,’” he jokes. Despite the soil’s fine clay texture, it crumbled in his fingers like a rich, potting soil. Before long, he’d convinced his colleagues to save as much Houston Black as possible for the library’s grounds and vegetation. Even the bulldozer operators took a lesson from Hartsig, who ran after them with pleas not to harm it as they excavated the site.

Teaching clients and colleagues about soil has always been part of Hartsig’s career as a consulting soil scientist; in fact, he considers it an important service to his profession. Too many people view soil as an inert, one-dimensional substance that functions solely to transport water—a misconception Hartsig counters at every turn by describing the rich interplay among the soil’s cycling nutrients, percolating water, and teeming microbes.

Seeing Soils as an Asset
When people grasp the soil’s “living earth” nature, he says, they also recognize how native soils can be an asset at sites such as the Bush Library, rather than something to be stripped off and replaced. And then they begin to see the value of soil scientists, as well.

“As a soil scientist, you have to be able to recognize the nuances of the landscape and the soil that supports it. Then, once you pull it all together, you see things and can solve problems effectively and efficiently,” Hartsig says. “I love doing that. That’s fun.”

He admits his passion for the profession has sometimes ruffled feathers among his engineering and geology colleagues. But recently he has noticed a shift. “In the last four to five years, people have suddenly started to see soils as part of the solution in both urban and rural land management,” he says, “and that soils require more attention.”

Hartsig himself didn’t pay the soil much attention during his undergraduate years at Northern Arizona University in Flagstaff. Instead what captured his interest was biology, chemistry, ecology—and his future wife, Becky. “Then, no pun intended, I kind of fell into soils,” he says. During a trip to visit his wife’s Kansas relatives, a conversation about careers led him to explore the graduate school at Kansas State University in Manhattan. While there, he bumped into soil science professor Steve Thien, who became his master’s degree adviser and the person who instilled in him his passion for soil science.

That passion eventually propelled Hartsig into a Ph.D. program, but then life intervened, he says. He and Becky had started a family, and money and time were tight. So, they moved to Kansas City, where Hartsig began searching for consulting work. His first position, in the mid-1980s, was with a start-up company that used remote sensing to monitor crop health, identify wetlands, and measure field moisture conditions. “It was really ahead of its time,” Hartsig says—a little too far ahead, it turned out. When the company folded three years later, Hartsig was again looking for work.

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Ted Hartsig is a consulting soil scientist with the Kansas City engineering firm, Olsson Associates.
His hunt landed him an interview in 1987 at the Kansas City offices of Ecology and Environment, Inc. (E&E), an environmental consulting firm staffed by geologists and ecologists, but no soil scientists. Asked to explain why E&E needed a soils specialist, Hartsig described how soils touched every issue the company handled, including contaminant fate and transport, urban stormwater runoff, and planning for infrastructure like pipelines and transmission routes. He talked about water movement in the vadose zone and dynamics of soil biology and nutrient cycling. When he finished, “They said ‘I guess we could use that,’” Hartsig laughs. He got the job.

Soils at the Center of Urban Redevelopment

In the years since, Hartsig’s consulting work has included delineating and designing wetlands, restoring native environments, cleaning up Super Fund sites, helping manage carbon sequestration for carbon trading credits, and even developing regulatory code. In his current job at the Kansas City engineering firm, Olsson Associates, however, his time has been increasingly devoted to urban redevelopment. Cities for decades have been tearing down old structures and reclaiming worn out industrial sites, only to add more buildings, concrete, and asphalt. But lately “people of all professions are realizing that in our urban environment we need to re-establish a connection with green space and nature,” Hartsig says, and thus are pushing to create gardens and parks instead.

It can be a daunting proposition. In one of Hartsig’s current projects, city managers want to build an art park and establish vegetation atop a former fly ash dump and its sandy, gritty “soils.” In many other redevelopment sites, the topsoil has been removed, leaving behind sterile, sticky clay with little capacity to absorb water or support plant growth.

In the past, people would “restore” such sites by merely putting in plants (often turfgrasses) and then watering and fertilizing them like crazy to keep them alive, Hartsig says. But managing green space in this way is costly and unsustainable, especially in dry locales like Texas and western Kansas.

What he advocates instead is saving and carefully restoring the existing soil, so that it sustains plants without such intensive management. Clay soils can be amended with compost, for example, to re-establish the right balance in soil chemistry, biology, and physical processes. Gradual transitions between soil layers can be reconstructed to encourage infiltration and retention of water and prevent erosion. Hartsig also recommends sowing native, prairie species whose long roots tap deep reserves of water, break up the soil, and add organic matter.

In short, this emerging approach aims to restore the proper functioning of soil, as opposed to simply laying down a new one and hoping for the best, Hartsig says. And with it quickly gaining popularity, he sees a solid future ahead for professional soil scientists.

Still, the work isn’t finished. “We need a higher profile,” Hartsig says. This means that consultants, government scientists, and academics all need join in teaching people about the contribution consulting soil scientists make to land planning, landscape design, and natural resources management. This isn’t just in the best interest of consultants, he adds; the discipline itself stands to benefit and grow.

“Promoting soil science in our communities and among professionals is integral to maintaining and sustaining soil science as a whole,” he says. “People are beginning to see that.”