SUDDEN OAK DEATH AND THE COAST LIVE OAKS OF GARBER PARK

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by Ava Haddock

Garber Park is a terrible place to watch the sunset. It's dark, damp, and steep enough that before there were steps, visitors held onto tree trunks and scrabbled up the vertical face. But nobody there minds any of that.

Entering Garber Park, light disappears as it passes through the overstory. Submerged in green and filtered shade, young ferns unfurl to peek at the buckeyes' white flowers and the salamanders crawling through the wet leaves.

Above, there are giants, creaking and stretching in every direction. They're gnarled and twisted and grand, immense in a way that only old, old things can be. Covered in a beard of greenish blue lichen, they're cracked with deep furrows and mountainous ridges. Look

closely and see stories of dry years and good years, of generations of animals that grew up in their bark.

These are the California Coast Live Oaks, the trees that gave Oakland its name. Fire resistant, drought resistant, sometimes up to 250 years old– *Quercus agrifolia* is one of the iconic trees that have defined the local ecosystem, food systems, and culture for hundreds of years.

Garber Park is in the Oakland Hills, next to the Berkeley city border and right behind the towering Claremont Country Club. This land is a leftover scrap, previously privately owned by a renowned Bay Area judge. In 1920, the heirs of Judge John Garber granted Garber Park and its oaks permanent protection from development. As the land around became houses, cow

pastures, and busy streets, Garber Park was left to its own devices. But to be undeveloped doesn't mean to be ignored.

Garber Park has a long history with the community around it. In 1931, Boy Scouts built a community fireplace in the heart of Garber Park. In 2009, a group of neighbors and volunteers began dedicating their Saturdays to installing trails and restoring native vegetation in Garber Park. Since 2020, their work has been appreciated by unprecedented numbers of people due to an uptick in neighbors and community members spending time in the park during the COVID-19 pandemic.

"I think the pandemic provided a pause for a lot of people, " said Ruby Soto, a long-time volunteer with

Garber Park who has seen the new visitors in the past year. “ I’ve talked to people that said, ‘Yeah, I used to spend two hours commuting every day. And now I use that to go outside and get out’... Their whole world has expanded.”

In an urban environment, spaces like Garber Park—unruly, overflowing green spaces—feel natural and wild to the untrained eye. But Garber Park is inextricably connected to the human world.

With people comes laughter and wonder and volunteers, but also erosion and trash and invasive species. In its canyons are the last pieces of plywood from when people would throw whatever they didn’t want over the bordering fence. At the entrance to Garber Park sits an old car. Invasive English

vines, Cape Ivy, and French Broom threaten to overtake the entire cliffside. An exotic water mold, *Phytophthora ramorum,* ravages through the oaks.

This pathogen is commonly known as Sudden Oak Death, and since the early nineties, it has quietly killed millions of oaks. Some of these were in Garber Park. In some parts of Garber Park, the sky peeks through unnatural gaps in the branches. At the right times of day, the sun spotlights the skeletons of dead and diseased trees.

Dr. Matteo Garbelotto is an adjunct professor at UC Berkeley and a researcher of exotic forest pathogens. He co-discovered the agent responsible for Sudden Oak Death and has spent much of the past twenty years educating the public, doing

research on its transmission, and building a network of resources and tools to help fight the Sudden Oak Death pandemic. Garbelotto described Garber Park as “a good example of how we have created an environment that was susceptible to the Sudden Oak Death.”

Sudden Oak Death is a disease with unknown origins. There are theories trying to nail down its arrival in Santa Cruz nurseries in 1995 or large plant shipments in Big Sur. Really, though, people began moving further than before and brought along with them goods, languages, plants, and diseases.

In California, the environmental horticulture industry is worth over ten billion dollars annually. The industry ships and sells nonnative plants—from the

gingkos on the side of the road by the park to the roses in the park—all over the state. With nonnative plants come nonnative diseases.

When it rains, the pathogen *Phytophthora ramorum* spreads through the dirt and drips off of leaves, until it reaches a bay laurel. From a bay laurel, the pathogen finally arrives in its terminal hosts, red oaks. Sudden Oak Death festers in red oaks such as the California Black Oak and the Coast Live Oaks. It can linger for five or six years before the tree abruptly loses its leaves in the course of a few weeks. Then a canker erupts, black and red and orange and violent, and then giants die.

In Garber Park, every sample they've ever sent in to be tested for Sudden Oak Death has come back positive. "It is one thing to look at

photographs of the pathogen and its effects on living forests, but it is quite another to recognize the characteristic bleed of an infected tree right in front of you," a Garber Park Stewards blog post states in 2012, only a few years after the Stewards began revitalizing the park. "Perhaps counterintuitively, the pathogen slowly and methodically kills an oak tree by girdling the main stem... even [Matteo Garbelotto's research lab] does not suggest a strategy for "saving" a forest under attack."

There aren't any cures for Sudden Oak Death. When a tree is infected, there's nothing to do but wait. For Coast Live Oaks, about 50% of infected trees die.

Before they recognized Sudden Oak Death, Garber Park had other problems. As

open land, left to its own devices in the middle of the city, Garber Park back then was described as “just this overgrown thing, … completely full of ivy.” It had been “neglected and fallen into disrepair.” Fire suppression also contributed to the unchecked growth of the brush and the invasive species.

In late 2008, a group of determined community members attended a city councilmember’s meeting to talk to whoever was in charge of the forgotten scrap of land near their homes. The councilmember “didn’t even know about Garber,” but agreed that someone needed to take responsibility. At that meeting, Shelagh Brodersen, an Oakland resident, became the volunteer coordinator for

Garber Park Stewards and signed up the group to take responsibility for the park.

The group began work in early 2009 on their first project: pulling ivy in one section of the park. Pulling ivy is tough; it knots and slips and swallows sneakers trying not to slide down cliff faces. But, Brodersen grins. “Three of us showed up, and we just got this small patch cleared. We were so proud of ourselves and that’s how it started,” Brodersen recalls. Every other Saturday morning since then, they’ve pulled patch after patch, raised money to cut down eucalyptus trees, held community workshops, started compost piles, maintained a blog, and just kept showing up.

The Garber Park work day archives recount dozens of weekly triumphs. “Almost

everything that we planted over the past year and a half is thriving and reproducing," the blog author writes on Earth Day in 2013. For Creek to Bay Day 2015, the archive simply begins, "A beautiful day. A great turn-out of volunteers. And a flawless execution."

More than a decade later, people are still as enthusiastic. On community volunteer days, there are undergrads, some neighbors, some newbies and some people that have been coming for years — all fighting the good fight against invasive ivies or toxic eucalyptus leaves. Hikers stop to ask about the nests in the trees or just to say thank you to the volunteers. The volunteers tell each other the story of how they'd gotten involved — via this person, or that job — and why they stayed. The

dedication of the volunteers is impossible not to unsee once the stories are told—there's the part of the main trail that was built by a man whose mother loved the park but couldn't get down its steep face. There's Bob's Canyon, named for Brodersen's husband, the man who led the fearless charge against the thickets of invasive blackberries.

Under the eye of the Garber Park Stewards, the oaks of Garber Park have gotten a second chance. The question that remains is whether they'll make it through Sudden Oak Death.

Garbelotto described the transmission of Sudden Oak Death to every coast live oak in East Bay as "inevitable" without proper management.

Proper management is possible, but it requires an engaged community.

The first step in protecting a Coast Live Oak is assessing the transmission levels nearby. Matteo Garbelotto and his research lab have created an app, SOD Map Mobile, that uses a tree's location to assess the community transmission, and the risk that the tree has of catching the disease. The second step is searching the land for signs of trouble. To do this, you look first not at the oaks, but at the bay laurels.

Bay laurels are one successful vector of Sudden Oak Death in California. Oaks don't pass the disease to one another, but bay laurels give oaks the disease. Bay laurels can infect the oak trunk via droplets splashed from infected leaves or water that runs off the

foliage and drips onto the trunk of the oaks. The wind can also blow droplets from the bay laurels onto the oaks. “Ninety percent of oaks that are infected have a bay laurel within 30 feet,” summarized Garbelotto.

Normally, bay laurels are “very easily killed by fire,” as observed by a 1969 UC Berkeley study on plant succession. But, as Garbelotto put it, “because of fire exclusion, there’s way too many of them.” In the past, California bay laurels were riparian trees, usually found in low, wet land. But now they’re three to four times more prevalent in the East Bay than they would be naturally.

So one oak-centric solution to protect the oaks from Sudden Oak Death is clearing out all the bay laurels within 10-30 ft

of an oak tree. This is simpler than spraying fungicides, but bay laurels grow quickly. To remove them requires long term and engaged maintenance.

Garbelotto designed a community oriented solution to Sudden Oak Death. On the Sudden Oak Death website, there is a map of infected trees in the area, and a link to an app that can be used to assess an areas' risk. Every year, there is an SODBlitz event, where local groups utilize the free Sudden Oak Death testing service offered by UC Berkeley to test many areas at the same time. "Twenty-four local SOD blitzes, in 16 Counties, were held from Del Norte south to San Luis Obispo County. Nearly 500 volunteers participated, with 15,000 leaves from 2,067 trees analyzed by the University of

California Berkeley, Forest Pathology and Mycology Laboratory," recounted the December 2021 California Oak Mortality Task Report.

"It's not an issue of manpower here. It's an issue of becoming a little cavalier, or it's normal," concluded Garbelotto. This is part of the reason that the Garber Park Stewards are so unusual.

"I was really impressed by the fact that there's an organization that takes care of it, and they've been extremely, extremely active. Which is not the same for every other green space that we have," Garbelotto explained. In the Bay Area, there are many communities of people that are trying to do similar work—whether that be other volunteer-run stewardships or the Golden State Land Conservancy.

There are even oak-focused movements, such as Re-Oak Silicon Valley, Tim Vendalinksis' one-man crusade to plant more oaks in Oakland, or the oak planting program run through UC Berkeley's College of Environmental Design. Sudden Oak Death is already in Garber Park, but with enough commitment, it is possible to prevent it from traveling to more parks, more counties, or more states.

Many acorn gathering tribes—the Hoopa, the Pomo, the Miwok, the Yurak—have raised the alarm and been very proactive in the fight against Sudden Oak Death because the disease also infects tanoaks, a genus of oak that produces the acorns that many Indigenous tribes rely on for food and materials. They've worked extensively with the UC Berkeley and UC

Davis forest pathology labs, prayed, and educated themselves and other tribes about how to recognize and stop the spread of SOD during traditions such as acorn gathering. As one Kashia Pomo elder said at the beginning of the epidemic, “We take care of our orchards...This is the teaching we grew up with.”

The estimates for how many tanoaks have died from Sudden Oak Death are in the tens of millions.

Walking through the parts of Garber Park where Sudden Oak Death has caused mortalities, the Stewards go a bit silent. When asked about their plan for the disease, Brodersen explained, “Well, you can’t really do anything in Garber. We got the permission to try to take down any of the bay trees that