



DETECTIVE DENDRO THE DIAGNOSTIC SLEUTH

By James Komen and Thea Komen

The Case of the Beach House Beech

"It's about time we visited the lake together, detective!" Codit said excitedly.

We were driving over the last hill, heading down into the City of Foxtail Lake. The clouds were parting following the late summer rain we had been receiving for the past week. My assistant was eager for the opportunity to see someplace new.

Our assignment was to inspect a European beech tree (*Fagus sylvatica*) and to determine its cause of death. We pulled up to the property, and immediately within view, there the tree stood in front yard of an old, rundown lake house. The tree's entire canopy was dead and brown, with most of the leaves still attached. Behind the house was a clear expanse of beautiful lakefront beach.

Our client, Ben Aldrich, pulled up to the property at roughly the same time. He stepped out of his car, shook his head for a brief second, and then put on a smile for us. He appeared to be trying to greet us calmly, but he looked a bit agitated.

"Thank you for meeting me here, Dendro." He shook my hand. "I've got a big problem with this tree, and I need your help."

"I will do what I can, Mr. Aldrich," I said, doing my best to reassure him. "Tell me about the history of this tree."

"Well, I have a proposal on file with the planning department of the city. I was planning on demolishing this older house and building a new one at the rear of the lot. At first, I was having trouble with this tree because of how it was affecting my construction plans. It's right in the center of the front yard! And that makes equipment access a bit difficult."

Indeed, as Ben had described, the tree was growing in the middle of the front yard. There would be room for construction equipment access if a tree protection fence was erected, but a portion of the dripline would definitely have to be crossed by construction equipment to access the proposed building site behind the house.

Ben continued, "So, I hired a local arborist to prepare a report, but the report was requiring all sorts of additional expenditures for tree protection that I hadn't planned in

my budget! When the city got a copy of the report, they began adding even *more* tree protection requirements for project approval. This tree is one big headache."

"But it's dead!" Codit blurted. My assistant gestured absently before remembering to compose himself. "I mean, the tree doesn't seem like a problem to me."

I bit my tongue. A canopy consisting entirely of dead leaves in the middle of summer indicates the tree had died very recently. But before I could correct Codit, Ben responded.

"Well, that tree suddenly died last month over a very short period." He took us on a short stroll around the tree, pointing to the canopy all the while. "It went from green to brown in about a week. When the city found out the tree died so quickly, they immediately assumed it was because of me. Can you believe that? Not only did they issue a fine for violating the city's tree protection ordinance by killing a protected tree, they also put a five-year moratorium on approval of my project! I'll be ruined if I have to wait that long to start construction!"

Codit, alone, resumed walking a loop around the tree. "The city thinks you killed the tree?"

"That tree may have added to the expense of my project, but I certainly didn't kill it!" Ben turned to me, brow knitted. "Detective Dendro, can you find the reason why this tree died so quickly? I am not guilty of this crime!"

I sighed. "One week is a very short stretch of time. I have a few ideas I would like to test. We'll get to the bottom of this mystery and find the real cause of this tree's demise."

And with that, I began inspecting the tree. A quick death like this could have a few possible causes I knew to check for.

"Hey Ben, was there any digging or trenching near this tree recently?"

"None," he said with confidence. He stood back a few paces to give me and my assistant some room, suddenly worried he may have stepped where he shouldn't have. "I haven't broken ground yet; I'm still trying to get through the city's planning office. I wouldn't want to start on

anything without a permit in hand. I purchased this property through a tax auction last year, and nobody has been here except to clean up the weeds and the leaf drop.”

Codit kneeled to inspect the soil further, while in my mind, I continued down my list of possible causes. What if it was a soil problem? Could something toxic be in the soil? I instructed Codit to poke around with a trowel, but nothing was apparent from the top few inches. I didn't detect any odor of a gas leak, and I didn't see any blue tint to the soil color. But there were many possible soil contaminants that I wouldn't be able to detect from a basic inspection. Maybe I would need to do a lab test on the soil. I held onto that thought and proceeded to help Codit inspect the roots.

The surrounding root zone was covered by a layer of leaf mulch and some weeds that had accumulated since the last time Ben had the property cleaned. There were a few surface roots, but there were no visible root injuries.

Nothing. Nothing. Nothing.

I had to clear my head, so I stepped back toward the street to survey the scene. The whole property sloped downward and to the west, which was toward the lake and away from the street. The beech tree must have provided substantial morning shade to the eastern half of the existing home. Not to mention the aesthetic appeal from the street!

The top edges of some old drainage pipes peeked out from along a driveway at the southern property line. I took a walk along the driveway down to the backyard to see where they terminated. Codit, ever eager, followed. Ben, scratching his jaw, remained in the front yard.

The driveway continued all the way down into the water where it became a boat launch ramp. A man was fishing from the sand near the end of the driveway. As I inspected the drainage outlet at the sand, Codit stood and admired the view. The drain pipe outlet appeared to be functioning normally, with a steady trickle of rainwater ebbing toward the lake.

Never afraid to meet someone new, Codit waved hello to the man. “Gorgeous day to be on the lake! Hey there, I'm Codit. Have you caught anything good today?”

“Max Fischer. Nice to meet you.” He gestured to the cooler at his feet. His long arms and wiry legs seemed to make sense for a man content to wade into shallow waters all day. “I caught a few this morning. I was hoping to get one more and then head back home.”

“Long drive?” Codit asked.

Max smiled. “Nope! I live in that house just up the hill, behind this one here. I've got an easement to access the lake from the driveway, so I try to take advantage of it and go fishing whenever I can.”

“Hey, that's pretty cool. How long have you lived here?” My assistant, no doubt, was fantasizing about owning one of these beautiful homes himself.

“I bought my place a couple years ago,” Max said, nodding as he spoke. “I love how tranquil this community is. But what really sold me was the view. Until I moved



ROMAN HOBLER: WWW.FLICR.COM/PHOTOS/HOBLER

A beech tree (*Fagus sylvatica*), not unlike this one, grows near a lake, also not unlike this one. This tree is healthy, but in Dendro's case, the tree canopy was dead and brown, with most of the leaves still attached. What happened?

here, I had never been able to just wake up and look out the window at a lake like this. It's really something.”

At this, the conversation receded into a natural pause—an odd but somehow elegant silence—and for a moment, the three of us were in agreement.

Then Max's fishing rod began to twitch. “Looks like I've got one!”

Max vigorously reeled in his line. A brief tug of war with the fish ensued. I paused my inspection of the drainage area to watch the excitement. But soon enough, the struggle was over, and the man-versus-nature tussle concluded with a fish hanging from the end of Max Fischer's fishing line. With a broad smile, Max held it up for Codit and me to see. The fish had swallowed the hook, so Ben cut the line and threw the fish into his cooler. He then proceeded to wrap the end of the line in red tape.

Sensing Codit's question, Max pre-empted: “I started wrapping the ends of my lines with red duct tape to make them easier to find on the reel. Call it a superstition, if you will, but I've always had better luck with catching fish when I have a red marker near the hook.”

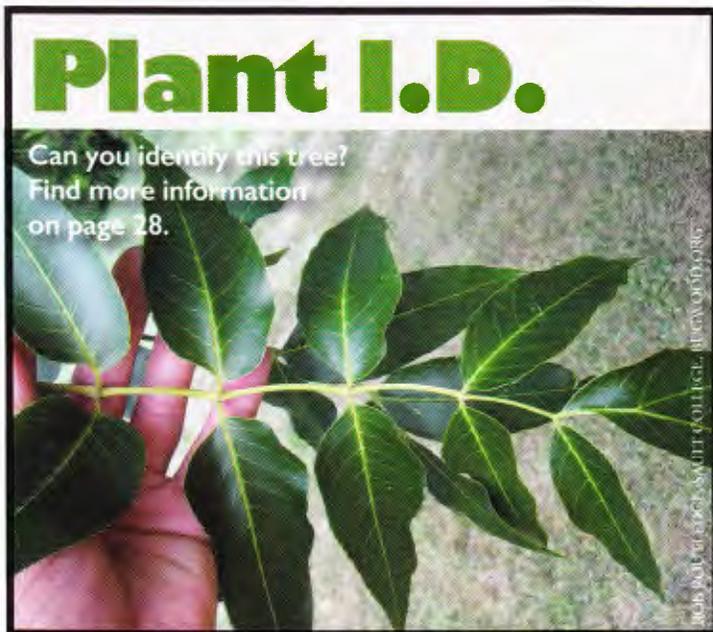
Codit nodded at this folk wisdom.

Max showed off his line. “I have to special order it, you know, but I prefer to spend a little more on this line because it's a little stronger than the cheap stuff. It doesn't break when I hook a larger fish!” He tied a new hook to the end of the line, stowed his gear, and began to walk back up the driveway, carrying his cooler of fish. “Today was a good haul. I hope you enjoy the rest of your day, gentlemen.”

Codit and I trekked the driveway again and returned to the property in question to resume our inspection. After completing another scan of the rear yard, I returned to look at the tree a little more closely.

The leaves were still attached to the stems and had not yet begun the process of abscission. This tree must have died *very* quickly. Perhaps the supply of water to the top of the tree was interrupted somehow?

The bark texture and color appeared normal. There was some lichen growing on the north side of the trunk, similar to all the other nearby trees. But that's when I



Plant I.D.

Can you identify this tree?
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on page 28.

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Detective Dendro (continued)

noticed a small break in the lichen about a foot above the ground, where I saw there had been a minor mechanical injury. Perhaps someone had recently bumped into the tree with something heavy. But a mechanical injury from a blunt object impact would have needed to be more severe to cause the tree to die in only one week. And there was just a small, horizontal crack, just a little wider than a hairline.

I bent down to inspect the crack a little closer. It looked like something fibrous was protruding about a quarter of an inch out of the bark. I pulled out my chisel and carefully peeled back the bark. After a few pieces came off, I realized that the crack was fairly deep. It extended past the cambium layer, down into the xylem tissue. Intrigued, I chiseled further.

“Hey, Ben!” I called. “I think I know what happened to this tree. And I may have found a piece of the murder weapon, too.”

“Murder weapon?” Ben and Codit asked in unison.

What did Detective Dendro find?
Turn to page 56 to find out!

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WHAT'S THE SOLUTION?

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After a few more pieces of the trunk were chiseled back, I pulled out the fibrous material protruding from the bark to reveal a small piece of something thin and clear—attached to some red duct tape. Codit added the clues together in an instant.

“Fishing line!” Codit pulled from his pocket the piece that Max had offered him but a moment ago. He handed the item to me for comparison. Sure enough, it matched the piece from the tree in pattern and gauge.

Ben was adrift. “I don’t understand. What did you find, detective?”

“Your tree was deliberately girdled by fishing line.” I showed him the pieces. “Someone wanted to kill this tree discretely. So fishing line was wrapped around the trunk here, and tension was applied. Beech trees are thin-barked, so the line must have cut through to the water-conducting xylem tissue. Once the xylem tissue was severed all the way around the trunk, there was no way to transport water to the top of the tree, so it died shortly thereafter.”

“And there’s only one person who would have this same fishing line,” Codit added, pausing dramatically. “Max Fischer! He’s the only one who wraps red duct tape around the ends of this unique brand of heavy-duty fishing line!”

My gaze shifted across the street and up the hill “Your neighbor, Max, is the only person with a genuine motive to kill this tree. You may have wanted the tree removed to facilitate your construction project, but he wanted it removed because it blocked his view of the lake.”

Codit picked up my train of thought. “Knowing that you were having trouble with the city’s planning department, Max may have taken the opportunity to leave you with the responsibility of paying the city’s fine for the death of the tree that he also wanted removed. He may have even anticipated the five-year moratorium on construction, allowing him five more years of uninterrupted views of the lake before you began building the new lake house.”

Ben looked at us in shock.

I pointed at the thin horizontal line that continued all the way around the trunk. “Girdling with a fishing line leaves a very small mark on the tree, often making the wound imperceptible to a layperson. Sometimes it results in sap exudation, but any sap that may have drained from the vascular system was likely concealed or washed away by the rain we’ve had all week.”

Ben took a moment to absorb what we were telling him. “Woah.”

“Exactly.”

“I need to inform the city right away. This is a downright despicable thing for my neighbor to have done!”

“I’ll have a report to you tomorrow morning,” I said. “I hope you’re able to get things resolved with the planning department soon.”

Satisfied with the diagnosis, Codit and I walked back to the car. I looked at Codit, waiting for him to deliver his signature one-liner.

He paused, looked back at me, and recognized his opportunity. “Good thing you found that fishing line; it looks like we got Ben off the hook!”

James Komen is a consulting arborist in the greater Los Angeles area and owner of Class One Arboriculture. He specializes in risk assessment and tree appraisal. His wife, Thea Komen, is an arborist trainee with the company as well.



A perfect day for fishing. Or is it?