

**DRAFT Minutes of the Regular Meeting of the Board of Directors**

**Thursday, February 20, 2025**

**4:00 – 6:00 pm**

**Location: 80 Stone Pine Road, Suite 100, Half Moon Bay, CA 94019 and via Zoom**

Directors: Barbara Kossy, Adrienne Etherton, Michelle Weil, Steve Stielstra (Absent: Troy Guy)

Associate Directors: Denise Phillips, Zahra Kassam (virtual) (Absent: Helen Wolter)

RCD staff: Kellyx Nelson, Timothy Federal, Eliza Milio, Clarissa Maciel, Barb Kipreos, Kati McHugh, Carolyn Kriso (virtual)

NRCS staff: Jim Howard

Guests (all virtual): Kirk Lenington (Midpeninsula Regional Open Space District), Cassandra Matter (SMC Supervisor Ray Mueller's Office), Liz Chapman (La Honda Fire Brigade)

**1. Call to Order**

Kossy called the meeting at 4:03 p.m.

**2. Approval of Agenda**

Item 6.2 (2024 Year in Review presentation) was tabled to March.

**ACTION:** Weil motioned to approve agenda as amended, Stielstra seconded. Motion passed unanimously.

**3. Introductions of Guests and Staff**

All in attendance introduced themselves.

**4. Public Comment**

There was no public comment.

**5. Consent Agenda**

The Board of Directors approves:

**5.1. January 2025 Draft Regular Meeting Minutes**

- Amended to add Phillips as present.

**5.2. [Resolution 2025-2: Authorizing Execution of State Coastal Conservancy Grant](#)**

[Agreement for Fuel Reduction Along Critical Evacuation Routes in San Mateo County](#)

**5.3. [Resolution 2025-3: Authorizing Execution of State Coastal Conservancy Grant](#)**

[Agreement for the Pedro Point Headlands Wildfire Resiliency Program](#)

The Board of Directors receives into record:

- 5.4. January 30, 2025 Coastside Buzz article, "[\*Coastside Local Food Hub is Ready for Action! Empowering Local Farmers to Build a Resilient and Equitable Food System.\*](#)"
- 5.5. January 2025 CalPoly San Luis Obispo study commissioned by Monterey County Farm Bureau, "[\*Two Decades of Change: Evolving Costs of Regulatory Compliance in the Produce Industry.\*](#)"
- 5.6. February 14, 2025 U.S. Department of Agriculture memo, "[\*Secretary Rollins Takes Bold Action to Stop Wasteful Spending and Optimize USDA to Better Serve American Agriculture.\*](#)"
- 5.7. February 14, 2025 Agri-Pulse article, "[\*Mass Firings strike USDA across agencies, including field staff.\*](#)"

**ACTION:** Etherton motioned to approve the consent agenda with amended Minutes, Stielstra seconded. Motion passed unanimously.

## **6. Regular Agenda**

### **6.1. Presentation about new threats posed by Sudden Oak Death (SOD) and Invasive Shothole Borer (ISHB) beetles by Kirk Lenington from Midpeninsula Regional Open Space District (Midpen)**

- Lenington presented the attached PowerPoint presentation.
- SOD Blitzes organized by UC Berkeley through the Galvano Lab were an important monitoring tool for outbreak spread and led to the detection of the NA2 lineage in the 2024 sampling results analysis. Research has shown:
  - NA2 to operate at a higher temperature range (70-80°) compared to the other lineages, which was shown to spread in the temperature range between 60° to 80°.
  - Efforts have shown that statewide infection rates doubled between 2023 (2.7%) and 2024 (5.7%).
- The 2025 SOD Blitz was planned to occur later than in prior years and was expected to happen the first week of June 2025.
  - Midpen had actively participated in the event for years by surveying trees within district preserves and at key sites across the Peninsula.
- While most infections were the NA1 lineage, five NA2 outbreaks had been detected in the Bay Area, with the largest incidence of SOD NA2 variant detected around Filoli Gardens, and another detection around Burlingame Hills. In the East Bay, NA2 had also been detected near Tilden Park and John Muir National Monument (Martinez). [See Slide 6 for a map of detected locations.]

- Kossy inquired if the occurrence of NA2 was due to warmer weather. Lennington was unclear on whether weather was a contributing factor responsible for these outbreaks because the discovery was so recent, but there is concern that warmer temperatures would cause more infection from the variant due to. Scientists went back and re-analyzed samples taken from prior years' blitz efforts to retroactively determine how long the NA2 variant was occurring in the detection zones.
- Nelson asked if there was a correlation between higher rates of NA2 detections and more heavily surveyed areas. Kirk directed attention to the map of SOD Blitz Survey test results [slide 6] and indicated that there are large gaps of unsampled areas. Nelson indicated that based on the map, there were areas where NA2 may be present but had not been visually inspected for and/or sampled for testing. Kirk agreed with this interpretation and indicated that the 2025 SOD Blitz results were greatly anticipated by many interested parties to better understand the impact of the NA2 lineage.
- Actionable steps to manage the spread of SOD included:
  - Increased adherence with Midpen Phytosanitation Guidelines and its included practices:
    - decontamination of boots and equipment between sites that would reduce human spread of the pathogen into and across wildland areas
    - reduced movement of plants, green waste, and soil
  - Midpen has also experimented with the strategic removal of infected bay laurel trees, a host species, especially where they existed in proximity to iconic oak trees that were actively being protected.
  - Increased monitoring of outbreaks, including:
    - Delineated zones of infection
    - Increased outreach and participation in SOD Blitz 2025 and the sampled data which would be compared to prior years to determine the rate of spread
- Phillips inquired if other types of impacted trees, such as madrones, served as hosts like bay laurel, or if they were killed by the disease. Lennington was not certain of the answer but believed madrones sometimes succumbed to the disease; he did not believe it was common.
- He was most concerned about the impact on forest health by the bay laurel, tanoak, and Quercus oak species, with the tanoak and Quercus oaks which were most likely to be fatally impacted.
- Federal added that madrones were particularly impacted when they were already damaged or diseased by another pathogen but generally was most concerned about the three tree types mentioned by Lennington.

- Howard commented that according to his field observations, tanoaks were also noted to have been sick or died in the Santa Cruz Mountains, but he was unaware of the reason why. Lennington agreed that there were many other diseases and reasons that take out trees, including ISHB.
- Kossy was concerned about infestation at Filoli. She was aware of tree removals there and inquired about any known management strategies at the site. She had been on a bird-watching trip and the guide had pointed out some trees infected by SOD, though she had not seen any sanitation measures taken [see slide 8]. This was concerning to Lennington as the NA2 had been detected at that location.
- Steilstra asked about research and statistics of the rate at which trees were affected or resistant to SOD. Lennington was not aware of any studies on the distribution of infection within any given forest plot. Prior collection in partnership with Forest Service included the collection of tanoak acorns, wherein scientists had grown out tanoak seedlings in controlled garden plots to determine if resistant strains might be identified. The research had happened several years prior, though Lennington had not been made aware of the research results. This led him to believe that they had not identified any resistance via the research project.
- The Invasive Shot Hole Borer (ISHB) beetles have been demonstrated to carry with them a fungal pathogen, Fusarium wilt, into trees within riparian corridors. The pathogen has caused dieback of a large variety of riparian trees [see slide 12]. ISHB was initially detected in LA County in 2003 and identified in 2012 as an agricultural pest of avocado trees in Los Angeles. Since then, ISHB continued to spread north.
- Locally, ISHB was identified in 2023 within a riparian corridor in San Jose.
- A third species of Ambrosia beetle was detected in Santa Cruz County at Henry Cowell State Park and has impacted riparian forests there. They have responded by planning a treatment and removal of box elder trees in the infected area.
- ISHB detection efforts at the Department of Food and Agriculture were limited due to the genetic analysis required to screen samples. Midpen has reached out to State and County level Agricultural Commissioners to seek assistance in monitoring the spread due to their concerns about the impact on riparian areas.
- Since the ISHB has not targeted significant agricultural crops, it had not been identified as an agricultural pest, which reduced monitoring funding availability. Nelson mentioned that the RCD had invited a representative from the San Mateo County Agricultural Commissioner's Office to attend the meeting. Though they were not in attendance, she wanted to better understand the markers that would provide potential access to funding opportunities tied to agricultural production.
- Nelson added that the RCD had reached out to the Ag Commissioners' office to attend the meeting, though they were not in attendance. Her aim was to better clarify pathways toward resource allocation, and the ties to agricultural production that would be necessary to receive those resources.

- She recognized that Matter, a representative of Supervisor Muller's office, was in attendance via Zoom, and suggested that this information might be valuable to the Supervisor and invited their office to connect with the RCD to discuss further. Lennington confirmed that Midpen had not been in contact with his office.
- Kossy inquired about the impact on avocado crops, and Lennington answered that since it was not a significant crop in Northern California, this did not open a pathway for resources. Kossy wondered if the research taken on in Southern California might be applied to local monitoring efforts.
- Federal added that San Mateo County Parks was also monitoring for the presence of ISHB.
- Nelson commented that the known solution for ISHB and Fusarium wilt was to remove trees, many of which existed in riparian areas. She acknowledged clear-cutting riparian forests was difficult to accept as the best solution available.
- Kirk commented that the CDFA had asked (though not ordered) Midpen to place a hold on any riparian plantings because of the concern that amplifier species would inadvertently be planted and would create an increased risk for significant new infections.
- Howard added that the hold may have also exacerbated wildfire risk due to the dead and dying material within these riparian zones.
- Nelson commented that this created further adverse incentive to have implemented fuel load reduction and forest design projects in riparian areas, because there was a perception that permits were harder to acquire in those zones.
- Stielstra asked about the origin of the ISHB and whether they were detrimental to their native environment. Lennington explained that the beetles were from Southeast Asia. Federal expanded on this by saying they were well controlled in the region due to natural predators, but without those predators in North America, their populations were able to become uncontrolled, which led to the destructive impacts.

## **6.2. 2024 Year in Review presentation by Kellyx Nelson, Executive Director**

- This item was postponed to the end of the agenda in case items 6.3 and 6.4 needed more time. After those items, it was decided to postpone this presentation to March.

## **6.3. USDA NRCS (Natural Resources Conservation Service) report**

- Howard reported:
  - The last several weeks have been unlike any time period he has experienced in over 30 years at the federal government.
  - Information often coming from news outlets

- Around 200,000 to 220,000 federal employees are on a probation level, which occurs following a promotion or taking a new job regardless of length of total time in service.
- Notices of immediate termination come from the Office of Personnel via email, not cc'd to their agency's management staff, has led to waves of anxiety and chaos because management wasn't aware who had been terminated and who was left.
- The "Fork in the Road" buyout emails were not trusted by many
- Employees encouraged to report disguised DEI positions and funding
- Agency management given 30 days (as of the week of February 10-14) to come up with a Reduction in Force (RIF) plan
- Clinton Administration RIF aimed to reduce the federal workforce by 8-10% but followed a process wherein workers were typically offered other open positions.
- Agencies must provide their RIF lists to the Office of Personnel Management approximately when applications for available funding are due to the Budget Appropriations, March 14, 2025, and it is unclear if the government will be funded at that time.
- Farm Bill Programs are a large part of this funding bid by the NRCS.
- Funding decisions are made about a week after the March 14 deadline. If the Government doesn't get funded, these programs are "dead in the water."
- Inflation Reduction Act (IRA) funds have also been put on hold and no additional funds are anticipated for that funding pool.
- Existing customers under contracts funded by IRA are not being paid.
- Howard has emailed customers that NRCS is in a "holding pattern" and is awaiting further information on the obligated contracts from Congress.
- Includes work that has already been started under cost-share agreements and some customers who have finished projects are waiting for response on if their expenses will be reimbursed.
- Inflation Reduction Act (IRA) funds earmarked for Climate Smart Practices include Farm Bill program funding for things like carbon sequestration and reduced greenhouse gas emissions.
  - Amount of funding was significant, required NRCS to ramp up efforts to utilize it, with a peak in funding anticipated in 2025.
  - IRA made up around half of total funds.
  - California total was \$190 million in 2025, about \$90 million higher than the historical average.
  - Anticipating that these funds are no longer available. Any applications submitted for conservation contract will compete for reduced funds still available.
  - Customer (farmer) inquiries are primarily focused on understanding what is happening and Howard is unable to provide answers.
- Discussion among Howard, directors, and RCD staff included:
  - what happens when employees are terminated

- whether employees would be paid for work already done (Howard believed that they would)
- federal employees in other agencies who accepted the buyout offer, were subsequently terminated, and did not receive the buyout terms
- how farmers are reacting to the information and how the speed at which changes are occurring make it hard to tell
- how this impacts financial planning and budgets for farms and how this impacts the ways that farmers use their land.
- Howard reported:
  - estimated \$150 to \$190 million in a single year of funding for farmers to make improvements such as installation of irrigation systems, to replace diesel pumps with more efficient electric pumps, and to put down more advanced or more aggressive cover crops in fields that are up to 300 acres—all of which require the farmers to assume large risks and costs (\$40,000-\$50,000) without reimbursement.
  - some multi-year contracts are up to \$450,000 and on a performance schedule to implement the improvements.
  - Dave Lea of Cabrillo Farms is an example of a conservation-minded farmer that works closely with the NRCS. Howard described Lea as a great multi-generational farmer that Howard regularly brought VIPs to for site tours. Howard went on to quote Lea, who would consistently remark to the tour guests that, “The first thing that goes when times get tough are the conservation practices.”
  - Howard’s tenure at NRCS has been over 20 years, the agency was already understaffed for the expected workload. Human Resources department is overwhelmed and more of a bottleneck than before.
- Discussion included:
  - what is/ isn’t known about an overall percentage for RIF plan; that the Administration does not revealing a plan until it is in place; widespread worry about who would survive the cuts and what the future would be;
  - reduction in leases and federal office space while they also requiring workers cease tele-working and return to the office;
  - about farmers that have not received promised funding and are unable to pay bills for the work they did; farmer stress, particularly for those who had made major capital outlays to do their contracted projects;
  - implications for relationships between agencies and customers; the perception after the 2008 State funding freeze that the RCD was unstable, despite our status as a government agency and an extensive length of service— some never again worked with the RCD
  - how the current situation affects future credibility and productive relationships with everyone required to do get conservation work done
  - the value of NRCS partnerships that make the work very cost-effective and help reduce the risk of smaller regional offices being eliminated

- our local partnership office is unusual because the RCD pays the rent- has minimized impact on the RCD during federal government shutdowns;
- whether California is being targeted for cutbacks (Howard didn't think so)
- farmers facing many operational concerns right now, including potential impacts to labor force with immigration policy, potential increased costs due to tariffs, and reductions in cost-sharing programs and grants.
- higher rates of suicide reported for farmers who are in debt and/or are unable to farm
- Consent Agenda Item 5.5, a CalPoly SLO study commissioned to investigate the impact of regulatory compliance costs to the produce industry, itemized the impact of these costs on profit margins

#### **6.4. Executive Director's report focused on recent federal executive orders**

- Approximately \$4-6 million potentially at risk due to federal funding freeze
- May affect State funding that depends on matched or leveraged federal funds
- Some state or local funding programs have federal funds as their source
- As federal funding sources are reduced or unstable, there is increased pressure on State and local funds, and increased competition for funds.
- Fewer federal employees are available to help navigate these concerns and provide clear answers during a time of greater uncertainty.
- Federal partners are experiencing uncertainty and low morale, some disappearing, e.g. NRCS engineers in San Benito, Santa Clara, and Napa Counties, who were laid off with no notice via email.
- Partner agency employees have received termination letters from Washington, D.C. without their supervisors or leadership being apprised.
- Loss of emails and institutional information for remaining staff to help navigate the next steps.
- Federal employees report uncertainty about the "Fork in the Road" buyout without adequate information but including threats of layoff if the employees do not accept the offer. In some cases, employees took the buyout offer but were laid off anyway.
- Requirements to report to duty stations without notice, without the time to plan for child or elder care responsibilities. Some commutes exceed 4 hours per day.
- Offered our office as a duty station by entering into MOUs with federal agencies as we have with NRCS and US Fish & Wildlife Service. Partner agencies were unclear on whether they could accept this arrangement and have declined it due to the potential consequences.
- Chill effects associated with DEI rollbacks- a number of organizations report having scrubbed their websites and eliminated, scaled back or altered their DEI efforts out of fear of being targeted; some have said they have to report us for our DEI work



- Federal Executive Orders difficult to track due to the sheer volume, lack of clarity or specifics, contradictions, revisions and modifications, reversals to revisions, and legal challenges- language that is uncharacteristically vitriolic when compared against her 30+ years experience working with government agencies.
  - Extensive time spent trying to understand what they mean for the RCD.
  - Attorneys offered inconsistent legal interpretations and opinions on risks .
  - Constant changes to basic facts, legal interpretations, and strategies.
  - Costs associated with tracking the changes and responding appropriately, and fewer places to bill for that time.
- Reports from NACD that districts in red states are reeling as much as blue states.
- Partner agency leadership receives conflicting information every day- widespread lack of clarity on what will happen, and a prevailing sense of fear.
- NACD was in communication with the new administration's transition team, but there were no results to report yet.
- Republican elected officials, preferably from outside California, preferably from red states, are the most more valuable advocates in highly partisan environment
- We have been advised that if contracts cannot be cancelled outright, the administration will look for reasons to say we are non-compliant and cancel the contracts based on that premise- would go on our "permanent record." Affects our culture of growth mindset and mistakes being acceptable learning experiences.
- Discussions with legal counsel to understand implications of the False Claims Act, also known as the "Lincoln Law," which "holds liable anyone who knowingly submits false claims to the government and allows the government to pursue fraud, recovering three times the damages plus an inflation-adjusted penalty." This Act also incentivizes private citizens to act as whistleblowers and receive a portion of the recovered funds.
- Participation in weekly state-wide RCD District Manager calls uncovered inconsistencies in the cancellation of funding from the same funder sources. District Managers were not clear on the reason for these inconsistencies but hesitated to elevate these concerns so as to not risk the remaining funding and remain supportive to one another.
- "Employees Only" stickers at the base of all office doors help establish office lobby area as a public space and individual offices to be private spaces.
- Discussion included:
  - Primary federal partners or funders- the NRCS, other parts of the USDA, the National Marine Fisheries Service, NOAA Restoration and NOAA Science Centers, the U.S. Fish and Wildlife Service, Bureau of Land Management, U.S. Geological Survey, U.S. Forest Service, National Park Service; Army Corps are permitters and regulate RCD projects, but we do not partner with them.

- GGNRA (San Vicente Creek and Rancho Corral de Tierra, as well as some projects in Pacifica) reported losing 6 or 7 of its 12-15 person Natural Resource team.
- RCD has planned for fiscal uncertainty since 2008 by maintaining an operating reserve, diversified revenues, and negotiation of indirect costs.
- Nelson is moving forward with the most secure partnerships and projects, ensuring staff is cared for, and maintaining the RCD's core tenets of being relevant, excellent, and visible; continue doing high quality of work based on community needs with funding that provides the right fit; optimistic that the RCD will persevere with the support of partnerships
- Planning for upcoming construction season
- County support
- Question about updates on effects of Los Angeles wildfires since the January Board meeting, particularly as it related to State Forest health and resources. Nelson noted three outcomes:
  - increased support for Fuel Load Reduction work,
  - increased competition for resources, and allocation of those resources to elsewhere, and
  - holds on environmental regulations put in place by Gov. Newsom to allow for rebuilding
- Discussion about how the Board members could best support
  - Howard offered that the circumstances could provide an opportunity for RCDs to become a more valuable resource to fill-in voids for natural resources management left by rescinded federal support. He commented on the San Mateo RCD as a leader in resiliency and operational capacity.
  - Nelson clarified that some RCDs in California will become unstaffed, which Howard acknowledged will make it more difficult to maintain the progress this RCD has made in the last decade to advance the efforts of many other RCDs across the state.
- Discussion about County support and observation that Matter had left the meeting; recommendation that Nelson follow up with Supervisor Mueller's office about what was discussed

## **6.2. 2024 Year in Review presentation by Kellyx Nelson, Executive Director**

- Postponed to the following Board meeting, scheduled for March 20, 2025.

## **6.3. Directors' connections and reports**

- Barbara Kossy reported on President's Day demonstration in Pacifica, donating her electric car to Ayudano Latinos a Soñar (ALAS) for medical transportation for farmworkers, feeling honored and happy to have actively engaged with volunteer

work that built community by being on RCD board, encouraged others to be engaged.

- Denise Phillips is helping to offer a Master Food Preserver course on salmon canning with the local UC Extension, and gave a shout out to RCD's Amy Kaeser, who would speak on local salmon creek restoration as a part of the class.
- Adrienne Etherton
  - "Keep calm and carry on" is an important mantra in climate and sustainability work; important to stay focused on that work and participation with the RCD Board.
  - City of Brisbane public pool electrification project she had worked on for around six years that was on the evening's City Council agenda; anticipated their approval to move forward to the construction contract stage.
  - Found a dead barn owl outside of her home and submitted a report for West Nile virus tracking project.
- Michelle Weil
  - Discussed impact of threat of tariffs and federal job cuts on her work involving a new medical device for children
- Zahra Kassam
  - Appreciated Nelson's leadership and calm approach to the current circumstances.
  - Discussed work moving forward with RCD staff on Hypericum removal project, and that she endeavored to stay calm in order to best continue this work.
- Steve Stielstra
  - Reported on his research regarding financial holding opportunities since Finance Committee's last update to the Board a few months prior.
  - He described the opportunities through Tri-County Bank (TCB), which he found were not good options, symptomatic of Tri-County Bank's status as a smaller banking institution compared to Wells Fargo, Bank of America, or Citi.
    - SWEEP accounts- money market account structure where total investments were "swept" into multiple accounts that held no more than the FDIC-insured limit per account, interest rates of 3.25%, maintained a working balance in a TCB checking account, and used an algorithm to select funds from the associated investment accounts and "sweep" those funds into the checking account, which would maintain the working balance.

- California CLASS is an investment vehicle approved by the State of California and utilized by over 140 special districts and 40-60 cities for their financial asset management.
  - Oversight was conducted by a Board of Trustees, consisting of public agency finance officials who were members of the Joint Powers of Authority Board of Trustees.
  - Same-day availability of funds, contributions by wire, AAA-rated investment vehicle tools, portfolio securities market, no redemption notices, no account or transaction fees, and a dedicated portal which allowed participating organizations to actively manage their money.
  - A Joint Powers Authority (JPA) which created a pooled investment account for all participating entities.
  - Earning approximately 4.24% interest
- Recommended California CLASS account as the best investment vehicle because of the investment safety, the state approval, and the active management structure.
- Discussion included active fund management, the risk of liquid asset futures which made the SWEEP account appear to be less risky, that the SWEEP account was FDIC-insured, that the CLASS accounts have AAA ratings of the investments and bigger economic opportunities.
- Stielstra's calculations are that each month that the RCD held off on moving funds resulted in approximately \$8,000 in opportunity cost.
- Discussion that Finance Committee could proceed without full Board decision and will report back.
- Weil utilized the calculator on the California CLASS website to approximate the monthly returns on investment by the RCD to be around \$14,000 per month, and her opinion was that RCD funds should be utilized more proactively to achieve more with it. In the six months since the Finance Committee began their research, the lost opportunity cost was around \$100,000. She mentioned the option to split the investment funds between SWEEP and California CLASS accounts to minimize risk, and how much extra work this would entail to set up. Both account types would allow the RCD to maintain a fixed working balance in a checking account.
- Phillips was curious what the guidelines were for the fund investments, and that she anticipated this was something one of the participating RCDs had already considered and looked into.
- Stielstra offered that the portfolios were highly scrutinized and did not include stocks, but did include securities and bonds as well as treasuries.
- Kossy added that bonds were comparatively secure compared to stocks, and were considered a more conservative investment option. She clarified that Stielstra has simply offered this information as a Finance Committee

report, and that the Committee had the authority to conduct these decisions in partnership with the RCD's Executive Director. She asked if Stielstra was comfortable with the account structure, and he confirmed that he was. Kossy then asked if Weil was also comfortable with it, and she mentioned having some questions. Kossy encouraged the Finance Committee to continue their good work and conveyed her appreciation that they take action on this needed change to how the RCD managed its money.

**7. Adjourn Meeting**

- Meeting adjourned by Kossy at 6:13 p.m. The next Board meeting will be held on March 20, 2025.

DRAFT



- **Sudden Oak Death NA2 Outbreak**
- **Fusarium Wilt and Invasive Shot Hole Borer Complex**

Kirk Lenington, Natural Resources Manager

February 20, 2025

Russian Ridge, Judith Zimmermann

**PRESERVE**



**PROTECT**



**RESTORE**



**EDUCATE**



**ENJOY**

# Agenda



- **New Sudden Oak Death Outbreak**
- **Monitoring for Invasive Shot Hole Borer**

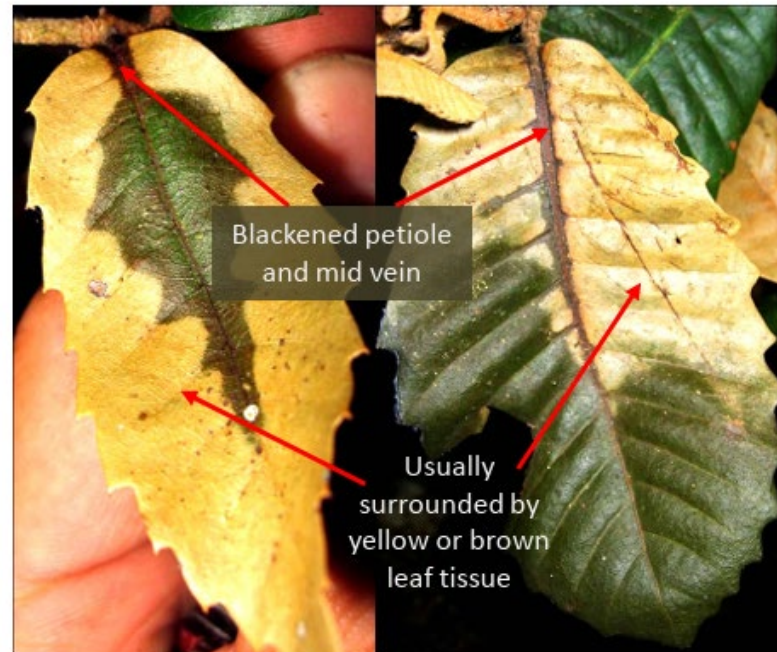


# What is Sudden Oak Death (SOD)?



- **Plant disease** that has caused one of the worst tree epidemics in the world
- Caused by an oomycete: ***Phytophthora ramorum***
- Kills **coast live, black, Shreve,** and **canyon live oaks** as well as **tanoaks**

*SOD Symptoms on Tanoak Leaves*



*Oak Stem Infection*



*Photo credits: UC Berkeley Forest Pathology and Mycology Lab*



# How does SOD spread?

Sudden Oak Death Symptoms on California Bay Laurel

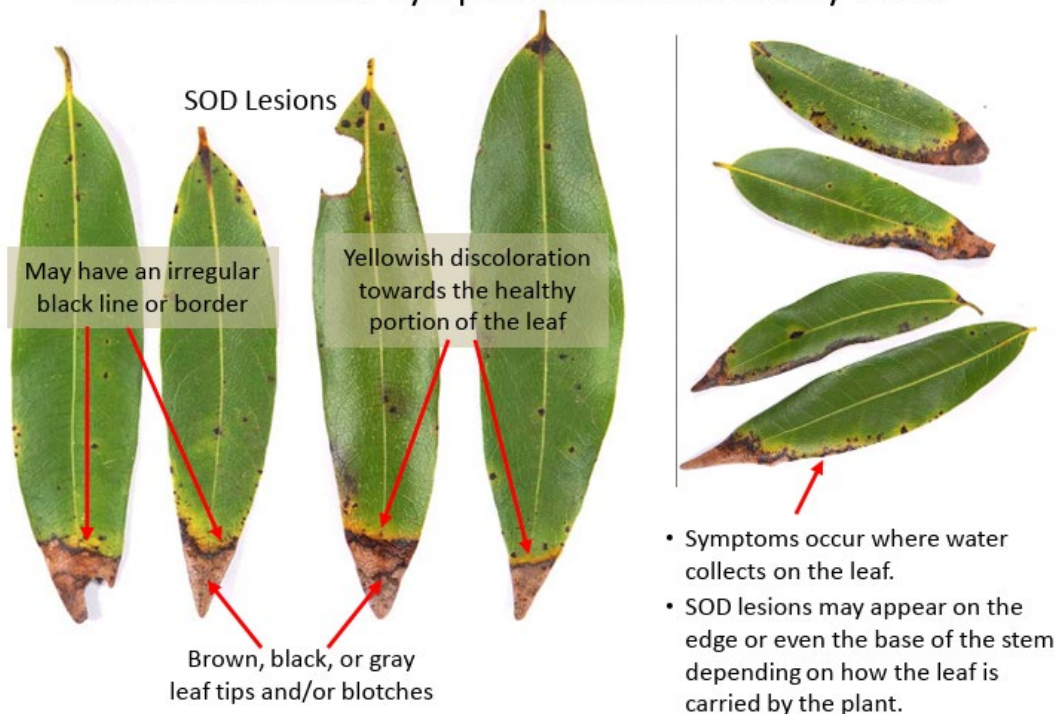


Photo credits: UC Berkeley Forest Pathology and Mycology Lab

- Dispersed **aerially** and through **moisture**, especially in the **spring**
- Vectored by **infected plants** and by **moving infected plant materials** and **soil**
- Transferred from **shoes** and **tires** carrying spores



# New SOD Outbreak

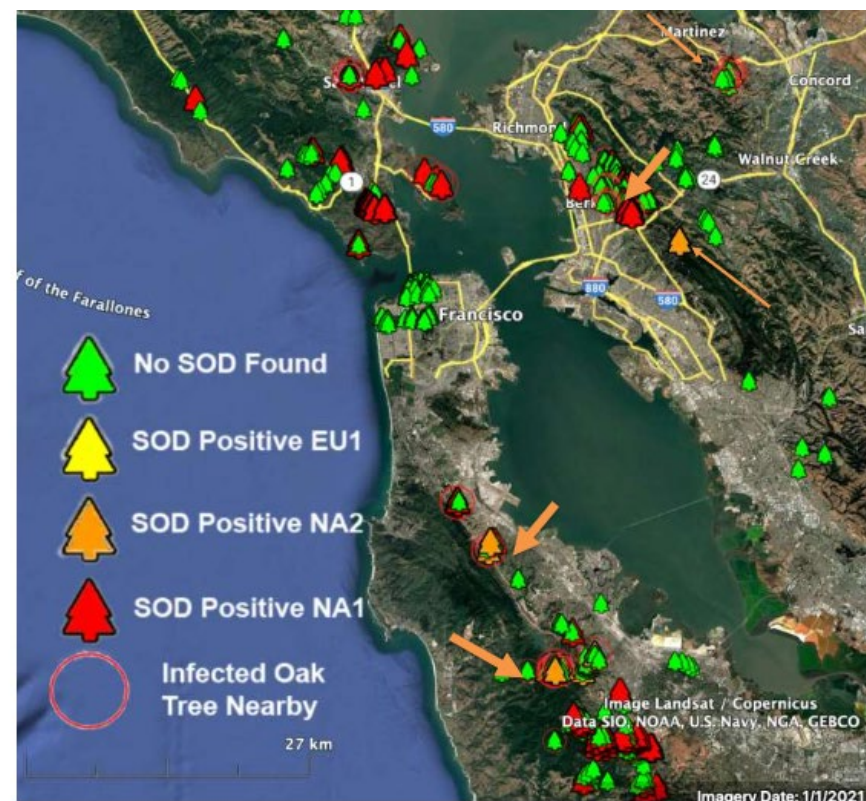
- *Phytophthora ramorum* lineages in North America:
  - 1. NA1**
    - Widespread driver of oak and tanoak mortality since the 1990s
  - 2. EU1**
    - Detected in 2020, but limited in scope and impact
  - 3. NA2**
    - Newly detected as of 2024
    - **More virulent and aggressive, particularly in warmer conditions**

# Discovery



- SOD Blitz Survey Effort

- ~24,000 trees surveyed across 28 blitzes
- Statewide **NA1** infection levels are **increasing**, with especially high incidence in **Sonoma, Marin, and Santa Cruz Mountain region**
- 5 **NA2** outbreaks detected in the Bay Area



Source: Dr. Matteo Garbelotto, UC Berkeley



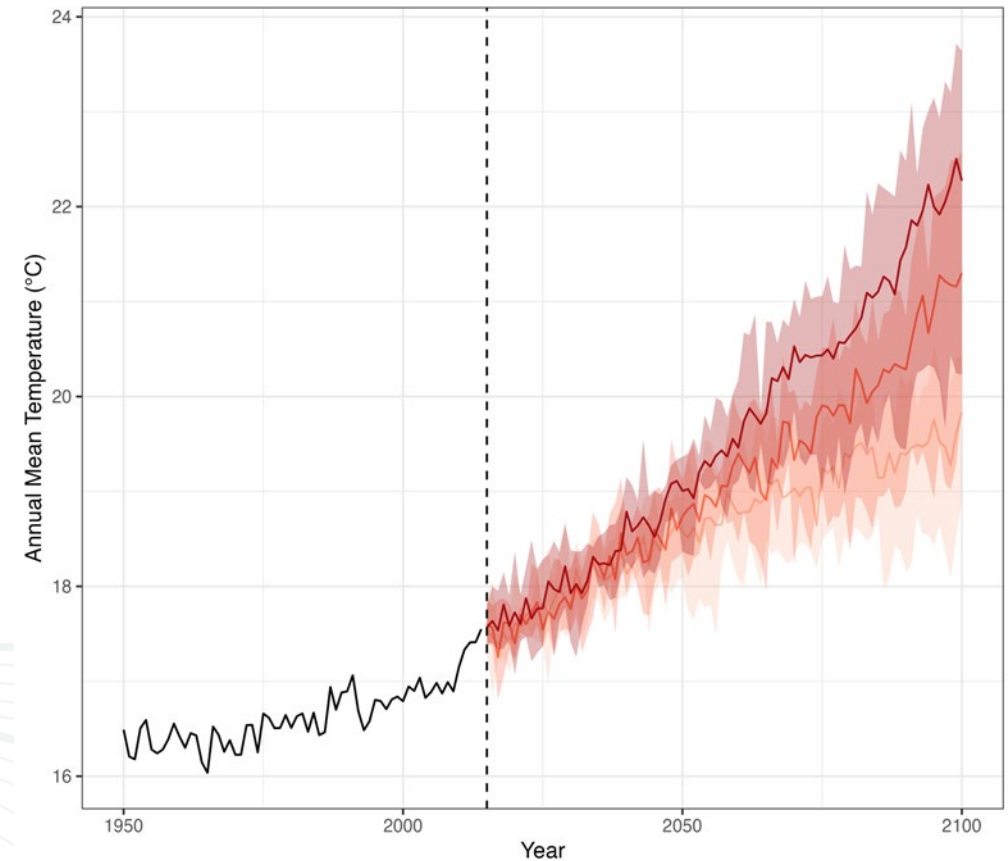
# Why Now?



- **Two Theories:**

1. **Introduced recently on infected plants**
2. **Introduced in the past, but is emerging now because of climate change**

↳ **Especially concerning if this is the case!**



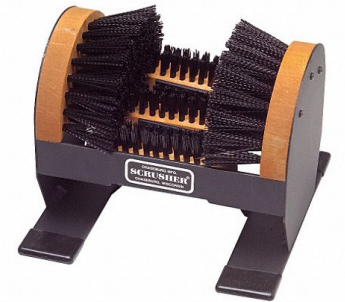
Sources: S. Camponuri et al., in prep.  
Pierce, D.W., D.R. Cayan, and B.L. Thrasher, 2014: Statistical downscaling using Localized Constructed Analogs (LOCA).

# What can we do about this?



- **Manage the Spread**

- Follow **Midpen Phytosanitation Guidelines**
  - **Decontaminate boots** and **equipment** between sites
  - **Limit movement** of plants, green waste, and soil
- **Strategically remove infected bay laurel trees**



- **Monitor Outbreaks**

- Delineate **zones of infection**
- **SOD Blitz 2025** this spring **critical** for tracking spread

# Implications & Next Steps



- **Important to Manage Spread of NA2**
  - **Limit movement** of plants, green waste, and soil from areas infested by NA2 into areas where only NA1 exists
  - **Remove NA2-infected bay laurels**
- **Further Testing & Surveying Needed**
  - UC Berkeley **retesting** all positive SOD samples within 1 km of current outbreaks
  - **SOD Blitz 2025** this spring critical for tracking spread



Source: Dr. Matteo Garbelotto, UC Berkeley



# Fusarium Wilt and ISHB



Three Non-native Ambrosia Beetle Species:

*Euwallacea polyphagea*

*Euwallacea kuroshio*

*Euwallacea interjectus*

Referred to collectively as “ISHB” or “Invasive Shot Hole Borer” are inoculating trees in California with pathogenic fungi:

*Fusarium spp.*

commonly referred to as “Fusarium Wilt”



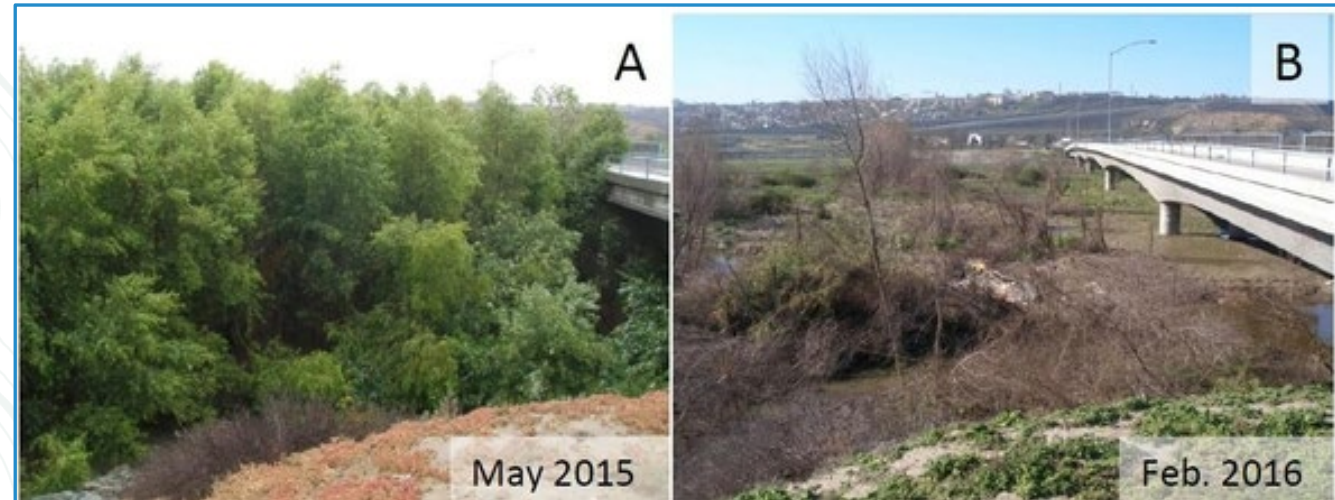


# Fusarium Wilt and ISHB: Damage



Santa Clara Co. Coyote Creek infestation 2024.

Dead Amplifier Box Elder in foreground.  
Alive amplifier tree in background.  
Riparian corridor to right. Trees were removed. Riparian corridor not surveyed.



Credit: J. Boland and K. Uyeda

Riparian Forest canopy loss and mortality in Tijuana River Valley, San Diego Co. due to ISHB/Fusarium.

180k estimated trees killed in 1 year. Many Willows were able to regenerate within 2 years. Other species do not survive.



# Fusarium Wilt and ISHB: Detection



## Abbreviated Host List

Susceptible to ISHB-FD (may cause tree death)

1. *Acer buergerianum* - Trident maple
2. *Acer macrophyllum* - Big leaf maple\*
3. *Acer negundo* - Box elder\*
4. *Parkinsonia aculeata* - Palo verde
5. *Platanus racemosa* - California sycamore\*
6. *Platanus x hispanica* - London plane
7. *Populus fremontii* - Fremont cottonwood\*
8. *Populus nigra* - Black poplar\*
9. *Populus trichocarpa* - Black cottonwood\*
10. *Quercus lobata* - Valley oak\*
11. *Quercus robur* - English oak
12. *Ricinus communis* - Castorbean
13. *Salix gooddingii* - Black willow\*
14. *Salix laevigata* - Red willow\*
15. *Salix lasiolepis* - Arroyo willow\*

Long list of additional hosts that are susceptible to dieback and structural damage but not mortality.

\*indicates CA Native

## Symptoms and Sign



Staining



Gumming



White Powdery Exudate



Frass



# Fusarium Wilt and ISHB: Monitoring





# Fusarium Wilt and ISHB: Response



Restoration site success:  
Adjust plant pallets to  
exclude hosts as much as  
possible.



Worker Safety: ISHB  
tend to colonize in  
tree crotches  
compromising  
structural integrity.  
Can present risks to  
tree workers and  
others.



Manage hazard trees to  
prevent injuries and damage  
to vehicles and  
infrastructure.



# Questions?

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