Managing and Monitoring SOD in Wildlands

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Ft. Bragg Grange

Today's Topics

- Monitoring
- Surveys
- Sampling
- Management Alternatives
- BMPs
- Sanitation
- Forest Practice Rules

Monitoring

1. Air
2. Water
3. Soil
4. Vegetation

1) Monitoring by Air

Strengths

- Cover large area in little time
- Specific survey with helicopter
- Mortality detection
- Mapping spread over time

Weaknesses

- Doesn’t spot initial foliar infections
- Doesn’t easily survey understory
- Observations need ground checking

2) Monitor by Water

Strength

Early detection system for drainages

Weakness

Cannot qualify where infection source is in drainage relative to location of bait

3) Monitor by Soil

- Feds
  - APHIS reg's for soil and growing media
- Nurseries

4) Monitor Vegetation

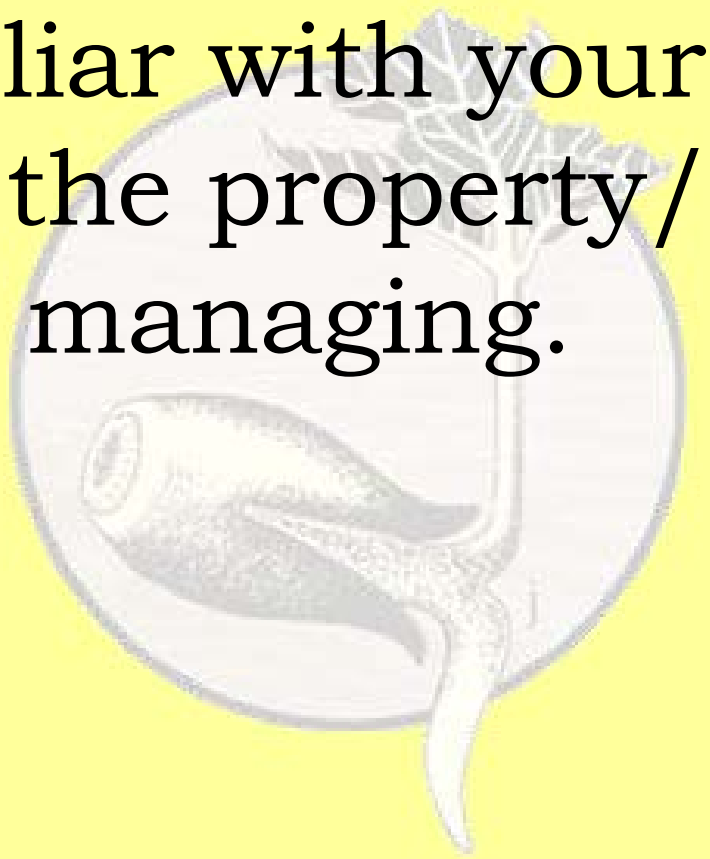
- Random green leaf survey
  - **Previously undetected area**
- Targeted vegetation survey
  - **Use of veg maps or local knowledge**
- Systematic Grid survey
  - **Sample and Delineate**
  - **"Free-From"** survey
- Plot survey
  - **Disease level or change over time**

Serendipitous survey

Survey and Sampling

Some first steps

- Be familiar with your property, or with the property/forest you are managing.



Do I have **SOD** on my property, or within my timber harvest plan area?

- Must know on which plants to look
  - Find host lists at www.suddenoakdeath.org
    - Look under **Diagnosis and Management**
      - Hosts and Associated Plants (February 2012)

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- Learn symptoms on those hosts
  - Look under **Diagnosis and Management**
    - **Symptoms** (first 3 are oak, tanoak, bay. **Learn these**.)
      - » **Symptom Gallery**
        Photos
        Plant Symptom Photos (for other hosts)

Now that I know what symptoms to look for, and on which hosts, how do I survey for incidence of the disease?

- www.suddenoakdeath.org
  - **Diagnosis and Management**
    - **P. ramorum in Wildlands**
      - **Survey Methods (handout)**
        - Delineation grid – stip cruise 20%
        - Characterization Survey (variable %) for % infected, % mortality, ave. age, ave. size, etc.

Detect and Delineate --strip cruise

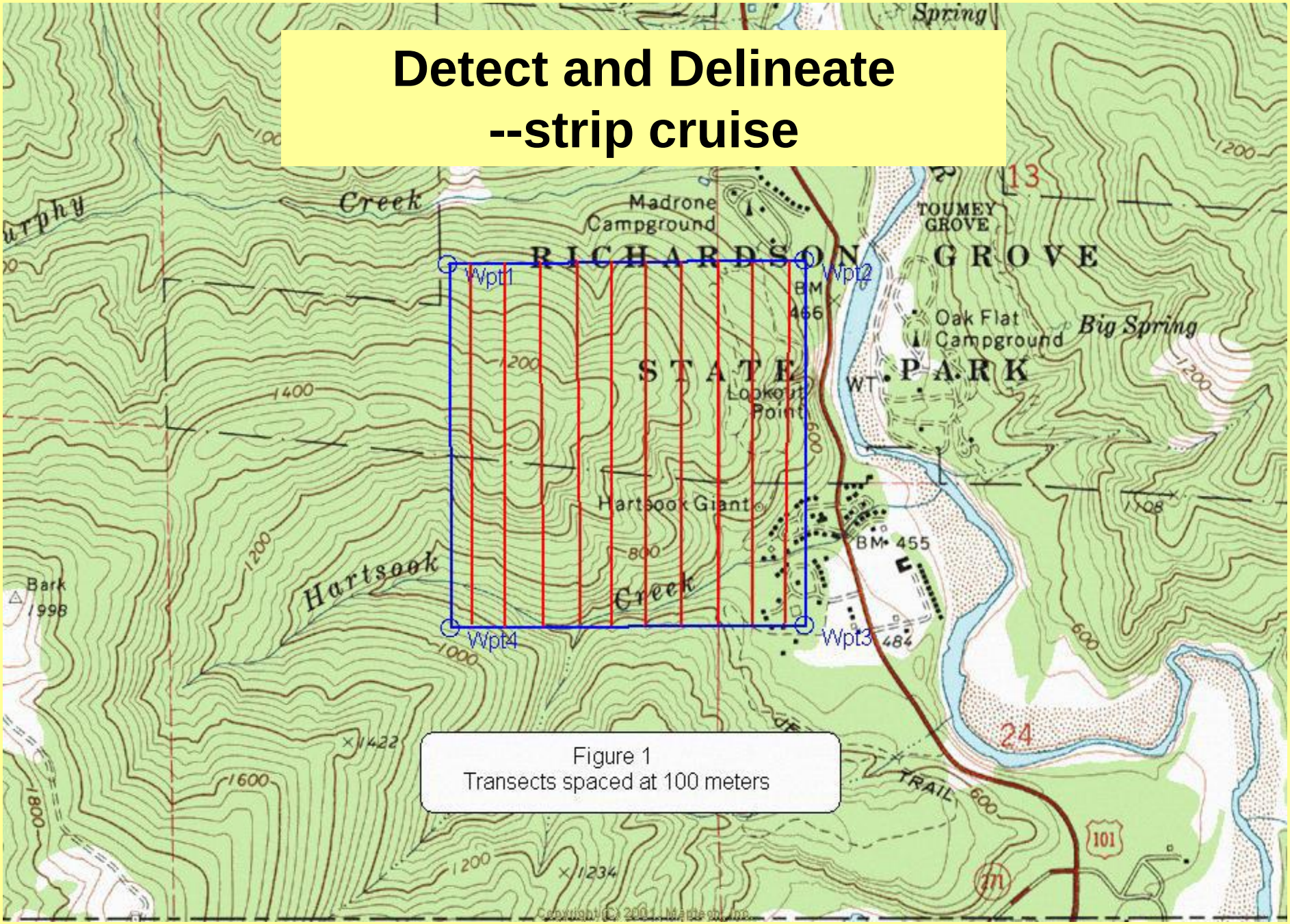


Figure 1
Transects spaced at 100 meters

Characterization

Number of plots= (area X % sample intensity) / plot size

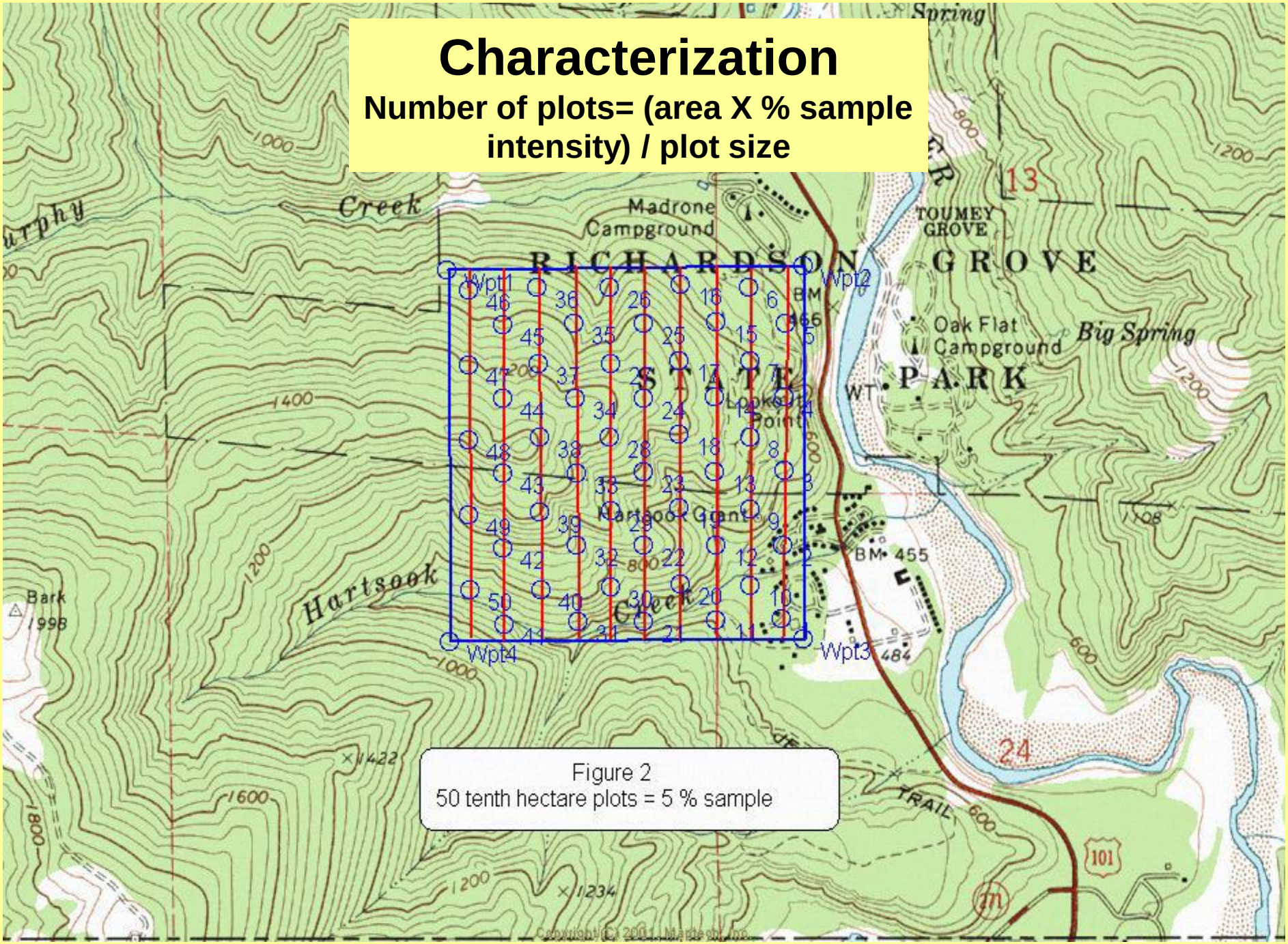


Figure 2
50 tenth hectare plots = 5 % sample

Collecting and Submitting samples

For **foliar** samples:

- Take GPS in UTMs (northing and easting) using NAD 83. Include +/- offset error.
- Set up with lab ahead of submissions to see when they are available to receive.
- Enclose symptomatic leaves attached to shoots in a plastic bag with dry paper towels or newsprint.
- A filled-out PDR would be helpful.
- Use overnight mailing.

For **bleeding stem cankers**:

- Sampling requires in-field use of PARP media/plates.
- Contact local county Agricultural Commissioner's office for assistance, or
- Contact regional CAL FIRE pest specialist.

Where to send Samples

- Within ZOI counties:
  - Send to CDFA lab in Sacramento.
  - Address:

    Plant Health and Pest Prevention Services
    Plant Pest Diagnostics Branch
    3294 Meadowview Road
    Sacramento, CA 95832-1448

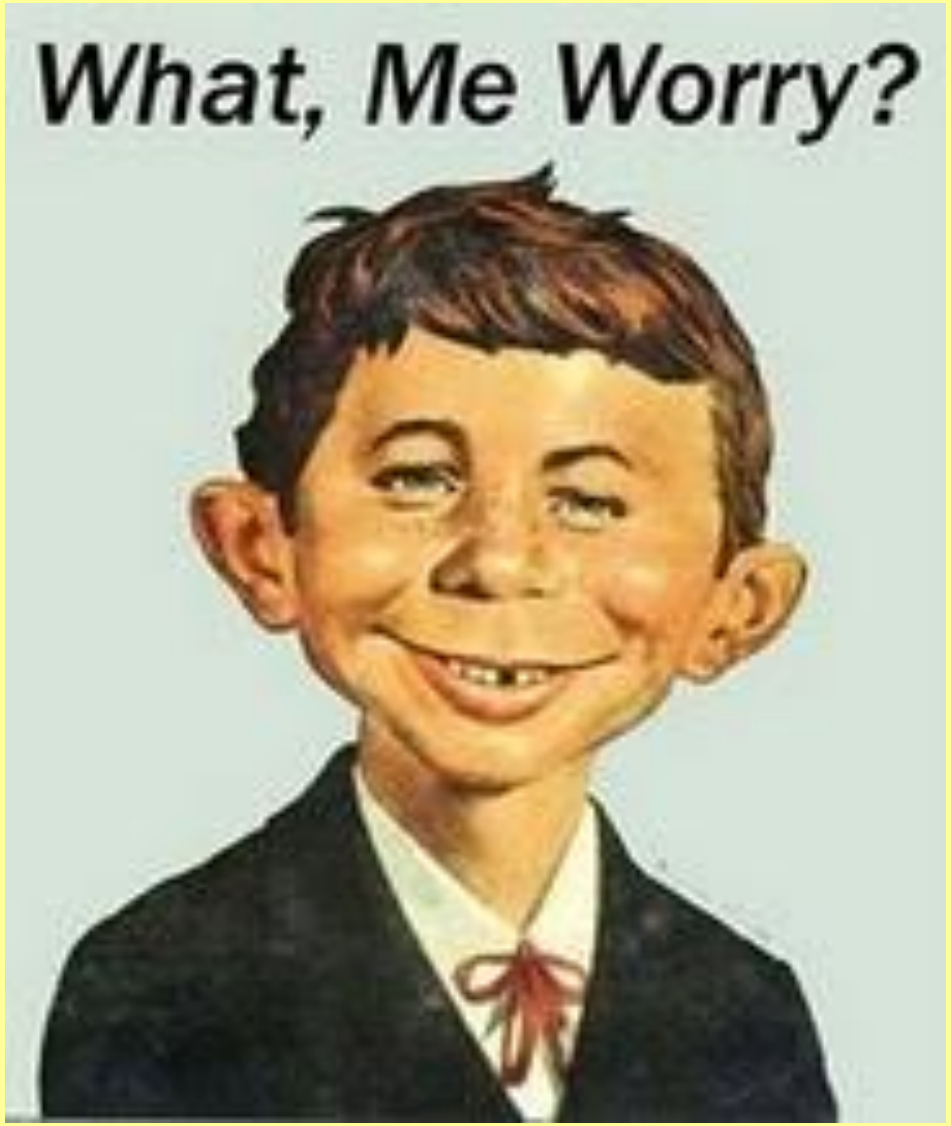
    You may first have to be set up as an e-submitter

Other Certified Labs

- For samples collected outside of the ZOI, or by special arrangement:

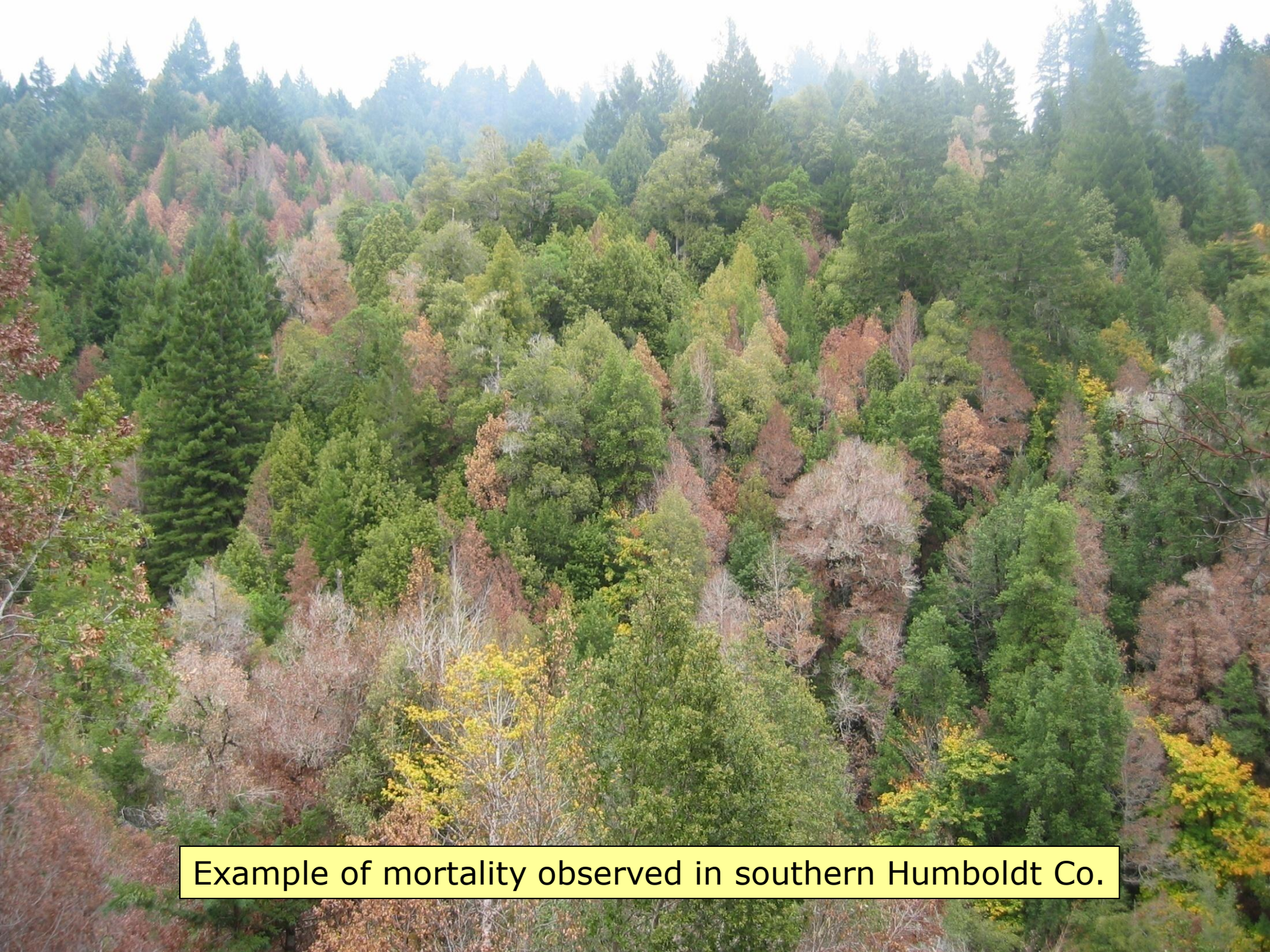
- UC Davis (Rizzo lab)
- UC Berkeley (Garbelotto lab)

Why worry about SOD?

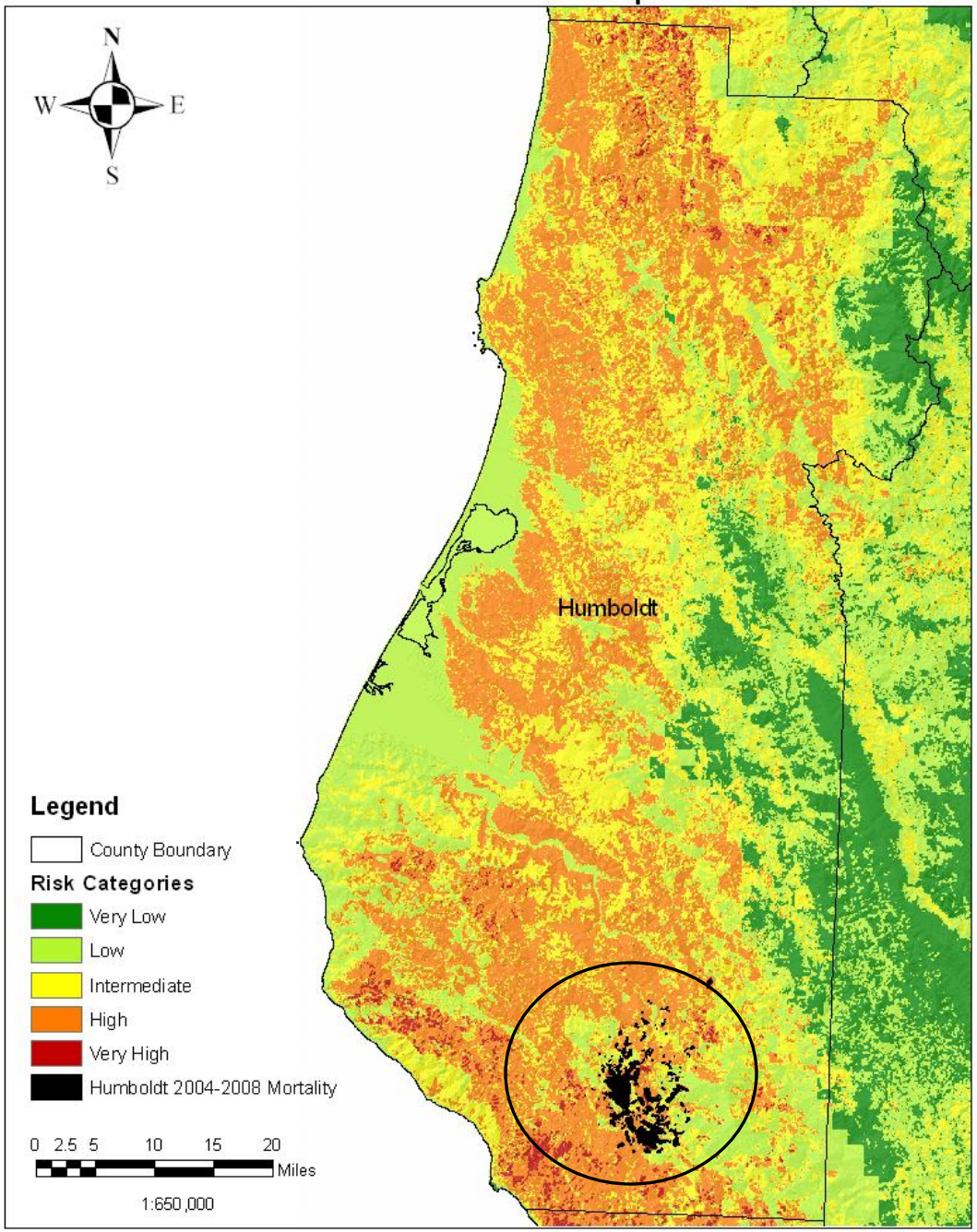


Marin County 1995

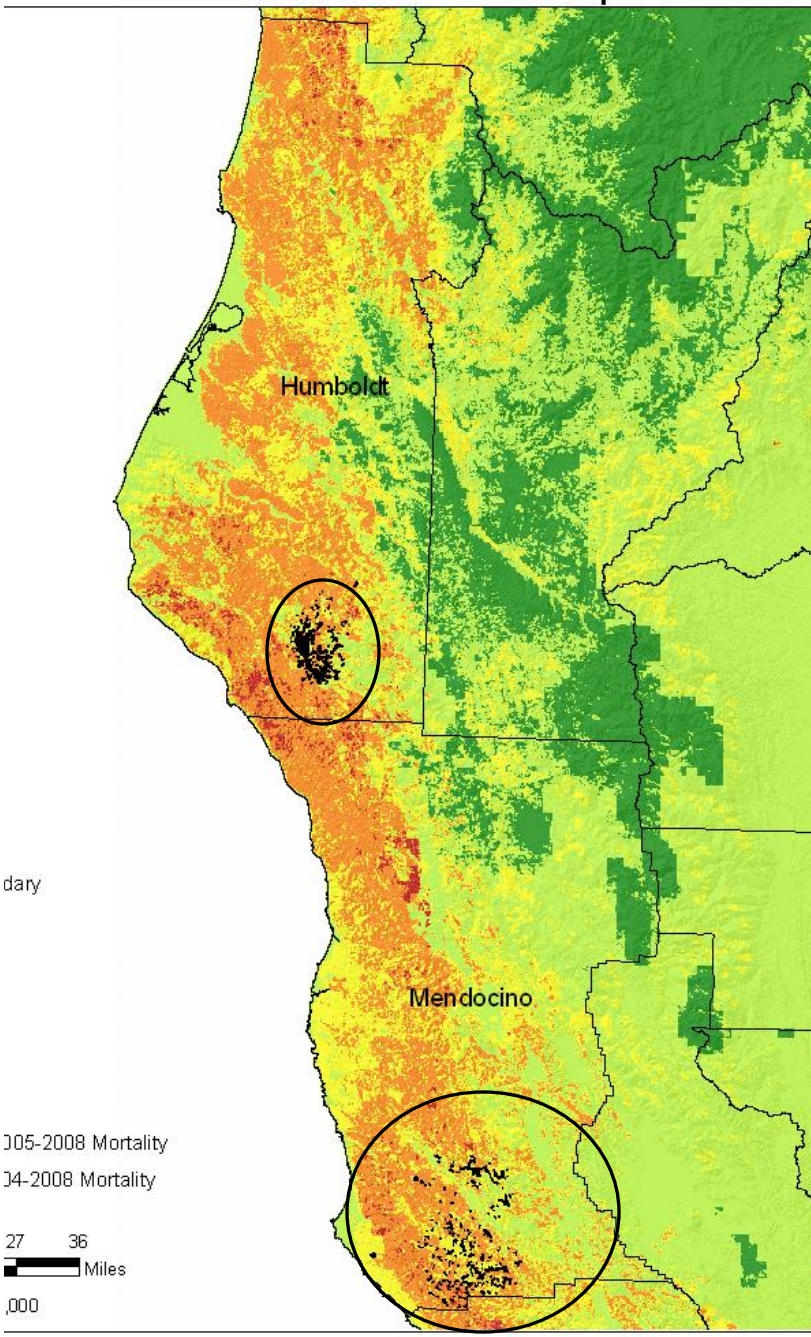
Marin County 2006


Example of mortality observed in southern Humboldt Co.

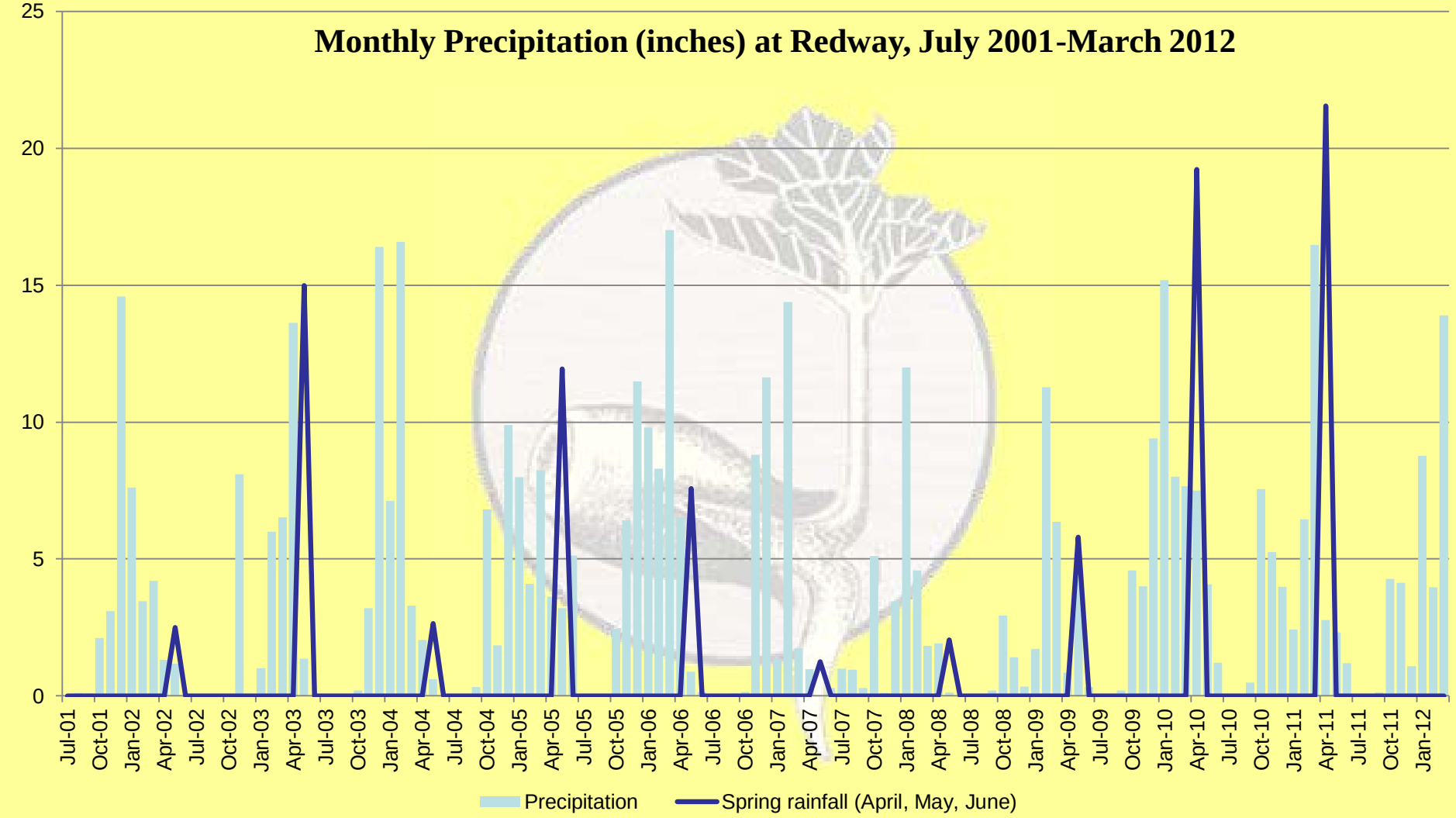
Humboldt Risk Map



Humboldt - Mendocino Risk Map



03, 05, 06, 10 and 11 were highly supportive for pathogen spread; what will happen this year?



Management Alternatives

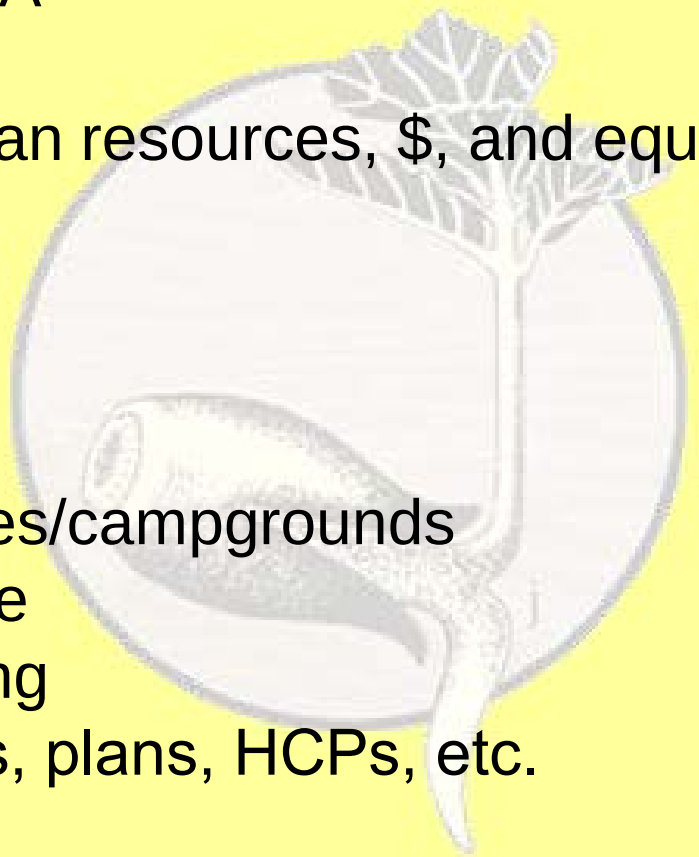
- Isolated spot or in the middle of it all
- Timber management or preservation
- Wildland
- Urban Interface
- Recreation site or campground
- Nursery
- Individual tree protection

Accepted Treatments

- Stand manipulations (host reductions or eliminations)
- Host reduction or elimination zones to reduce tree-to-tree spread
- Change stand structure/cover to promote dryness
- Chemical treatments (Agri-fos, sprout mitigating herbicides)
- Composting, chipping, pile & burn, broadcast burn
- Bay leaves: vacuum/heat for spice, free-from survey or out-of-county gathering and compliance agreement for wreaths
- Genetic resistance is being evaluated for oaks/tanoak
- Top dress exposed soil and trails with chips from Alaska yellow cedar heartwood or non-hosts
- Restoration

Possible Project Constraints

- NSO, MM, other listed or concern spp.
- STA or CC STA
- Burn permits
- Available human resources, $, and equipment
- Time
- Weather
- WLPZ
- Other pests
- Recreation sites/campgrounds
- Urban interface
- Herbicide timing
- Standing doc’s, plans, HCPs, etc.



Management Tools

Tree/ plant removal by:
  - chainsaw
  - herbicides
  - fire
  - girdling
- Reforestation
  - planting
  - promoting seed trees
- Agri-Fos
- Creativity

CA Bay and Tanoak Removal