“Cultivated” Pathogens in “Wild” Trees: North Coast Observations

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With essential contributions from:

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- “Ag oomycetes”
  - *Phytophthora*
  - *Pythium sensu lato*
- “Ag fungi”
  - *Ilyonectria*
  - *Cadophora*
  - *Diatrype*
  - *Eutypa lata*
  - *Fusarium* spp.
- “Ag bacteria”
  - *Lelliottia amnigena*

Phytophthora

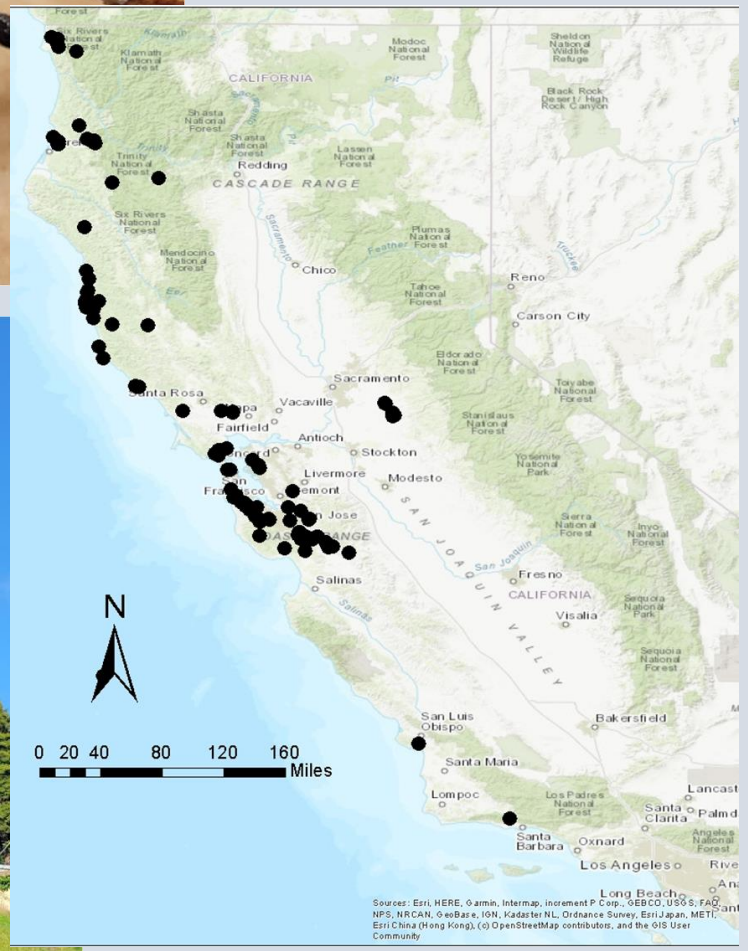
Species: ***P. cinnamomi****, P. cambivora, P. pseudocryptogea, P. pseudosyringae,* ***P. cactorum, P. cryptogea, P. citrophthora/colocasiae***

Trees: Coast redwood, bishop pine, shore pine, Monterey pine, tanoak, chinquapin, Douglas-fir, bigleaf maple, California bay laurel, manzanita spp., planted exotic conifers and hardwoods

Ag: You name it

Note: Many other ag-related *Phytophthora* species have been isolated in coastal California wildlands; these are only the ones I have found

With thanks to Ted Swiecki and Elizabeth Bernhardt, Phytosphere Research



Pythium sensu lato: Pythium, Elongisporangium, Globisporangium

Species: *Pythium coloratum, Pythium sylvaticum, Elongisporangium undulatum, E. anandrum, E. dimorphum, Globisporangium attrantheridium, G. dissoticum,* various others

Trees: many tree and shrub species, including most of the ones on the preceding slide

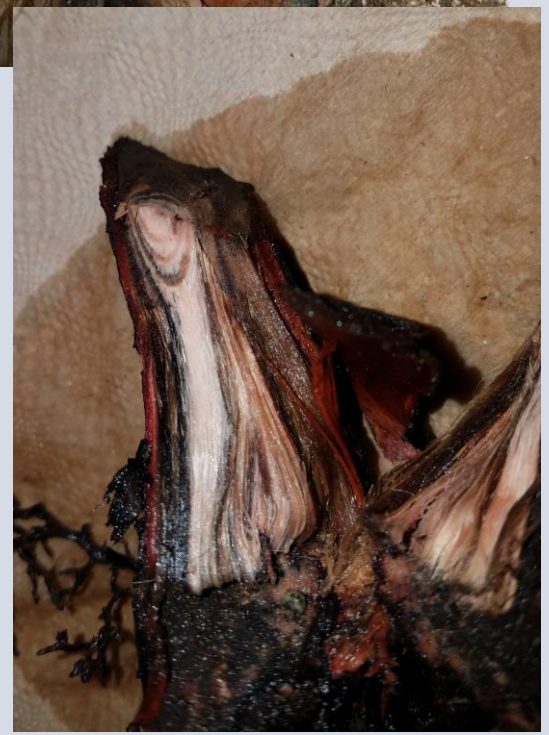
Ag: Turf, many herbaceous species and vegetable crops

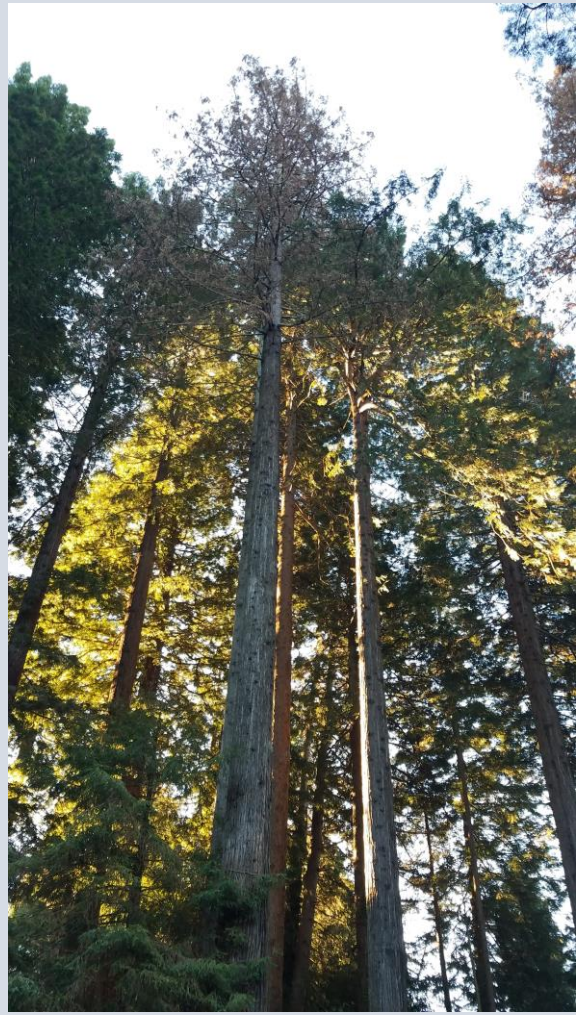
Ilyonectria

Species: *I. capensis, I. robusta, I. europaea, I. destructans, I. lusitanica*

Trees: Coast redwood, Monterey cypress, pygmy cypress, shore pine, exotic planted conifers

Ag: Ginseng, loquat, apple, avocado, conifer seedlings





Cadophora and *Diatrype*

Shrub: coyotebrush

Ag: Grapevines, apple, kiwifruit

Eutypa lata

Trees: tanoak

Ag: Grapevines

This genus has dozens of known woody hosts around the world, including others in the Fagaceae family

Pictured symptoms from *Diplodia corticola; E. lata* symptoms on tanoak were identical

Macrophomina phaseolina

Shrub: kinnickinick/bearberry

Ag: dozens of agriculturally important crops, e.g., corn, potato, soybean

Many other bot canker pathogens affect both agricultural crops and forest trees/shrubs, e.g., *Neofusicoccum* spp., *Diplodia* spp., *Botryosphaeria dothidea*

Fusarium sp.

Species: *Fusarium oxysporum, F. avenaceum, F. tricinctum,* others*;* many are complexes

Trees: Coast redwood, ponderosa pine, Monterey pine, shore pine, Douglas-fir, California bay, tanoak

Ag: dozens of crop plants

Like *Pythium s.l.,* these are difficult to understand because they commonly play secondary/saprophytic roles

Lelliottia amnigena

Tree: planted red maple—maybe Norway maple as well?

Ag: Potato

Enterobacteriaceae—same family as bacteria consistently involved in acute oak decline

May be a beneficial endophyte in some crops