



# Emerging Oak pathology Issues of the Southwest

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R5 and R3 pathologists

## OUR PATHOGEN LIST

- ***Ganoderma***- coast live, Emory
- ***Armillaria***- black, blue, canyon, coast
- *Laetiporus gilbertsonii*- black
- *Phoradendron villosum*- black, blue canyon
- *P. coryae* white et al.
- *Fomitiporia fissurata*- coast
- ***Biscogniauxia mediterranea***- blue, Emory, silverleaf and Gambel
- ***Biscogniauxia sp.*** (undescribed species)- Emory, silverleaf
- *Hericium erinaceus*- coast
- *Inonotus andersonii*- Most oaks particularly Emory, silverleaf, and Gambel
- ***Inonotus munzii***- Most oaks?
- *Articularia quercina* - Gambel
- *Tubakia sp.*- island
- *Phellinus gilvus*- coast live
- *Omphalotus olivascens*- coast live
- *Rahnella Victoriana*- AOD blue oak
- Unknow cankers

## *Ganoderma cf. brownii*

- Found on coast live oak on tribal lands, campgrounds, Tucson AZ (top)
- Other hosts are bay laurel and white alder (bottom)
- From Angeles NF north
- Part of *G. applanatum* complex





## *Ganoderma sp.*

- Found on coast live oak on tribal lands, campgrounds, Cleveland NF
- ITS and Tef- 1  $\alpha$  is unique



## *Armillaria mellea*

- Found on black, blue, canyon, coast live oak, and Siberian elm.
- Siberian elm (right) was a different genet, 250m away from infected black oak.
- Uncertain of pathogenicity and genetics
- Acute stressor, drought, then atmospheric rivers made them pop





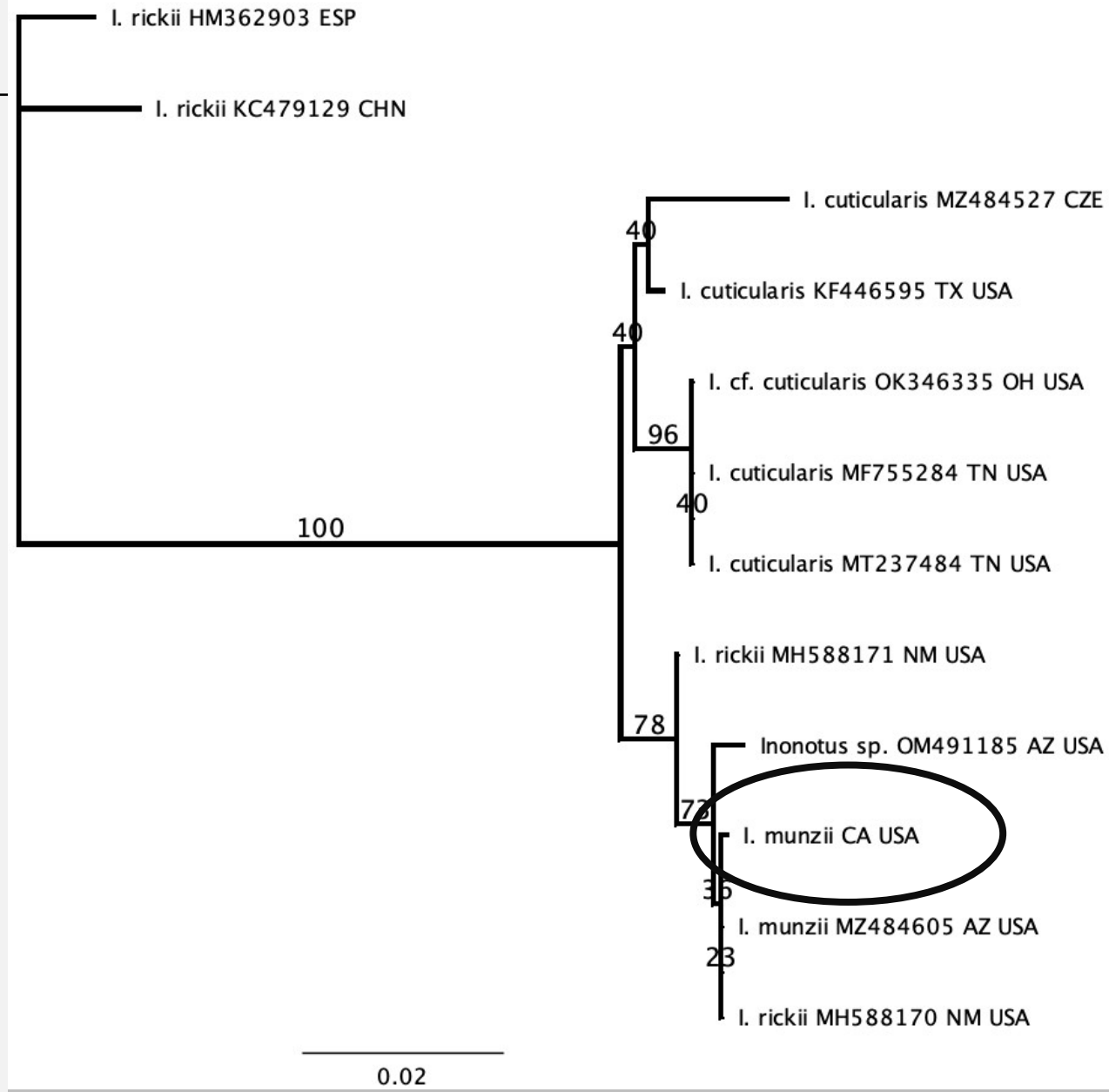
## *Inonotus munzii*

- Listed as an aggressive pathogen of Angiosperms
- Found on *Quercus* sp. in Mexico
- Found on box elder (CA), cottonwood (AZ) and pecan (NM)



*Inonotus munzii*  
(cont)

- Common name for *Inonotus*-----  
"I don't know this"
- First *I. munzii* sequence in GenBank in 2022.
- Other *Inonotus* spp.





## *Biscogniauxia* spp.

- *Biscogniauxia mediterranea* and currently undescribed *Biscogniauxia* species first observed in 2018.
- Causing high levels of mortality in all size classes of both Emory and silver leaf oaks.





## *Biscogniauxia* spp. (cont)

- First report of *B. mediterranea* causing disease on Emory oak published in 2021.
- Currently unable to differentiate species morphologically
- Work needed to describe new species and complete first reports on both Emory and silver leaf oaks





## *Unknown cankers*

- Cankers/drought interactions
- Widespread tree form Gambel oak dieback mortality observed in AZ 2023
- Likely drought driven with secondary insects and pathogens
- Need for simple sequence ID facility to verify identification of causal agents





# CONCLUSIONS

- Cross border, regional collaborations
- Need shared DNA sequence lab support

