



Emerging Trunk Disorders: It's not always Phytophthora

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Many strange trunk disorders last year

- Increase in unknown trunk disorders
- Often thought to be Phytophthora foot rot
- Phytophthora not detectable in many cases
- 3 main types have been observed

Bark Splitting

- Vertical splits
- Usually restricted to rootstock
- Sometimes oozing can be observed
- Appears around 4-5 years, occasionally seen on older trees
- No *Phytophthora* in lesion or link to soil propagules



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Bark Splitting

- Rootstock variability
 - Not a known problem
- Growth cracks?
- Unknown pathology?
- Early sign of other disorders?
- Opens the trunk up to opportunistic pathogens

Bark dieback and adventitious roots

- First came to me as a grower suspected *Phytophthora* sample that didn't look quite right
- Some root sloughing, but healthier than expected from trunk damage
- Bark alive and healthy below soil line
- Necrosis stopped at graft union



Bark dieback and adventitious roots

- Often noticed on stunted or thin trees in a grove
- Adventitious roots visible on rootstock trunk
- Bark darkening visible below roots at early stages
- Bark necrosis (death) and fungal colonization in late stages



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Bark dieback and adventitious roots

- Herbicide damage?
 - 2,4-D like root growth, but not consistently used across groves
- Wraps too tight?
 - Can block air flow and suffocate trunk, graft union widest part
 - Easily slid up and down on most trees
 - Have since seen problem on tree with inverted pot wrap with plenty of air movement
- Unknown cause?
 - Fungus appears to be secondary

Kretzchmaria duesta

- Formerly *Ustulina* root rot
- Often observed as sudden canopy collapse (days to week)
- Fungal stroma can be visible on trunk
- Black staining lines in the wood of the trunk
- Soft spongy wood of roots and crown.



Kretzschmaria destructa

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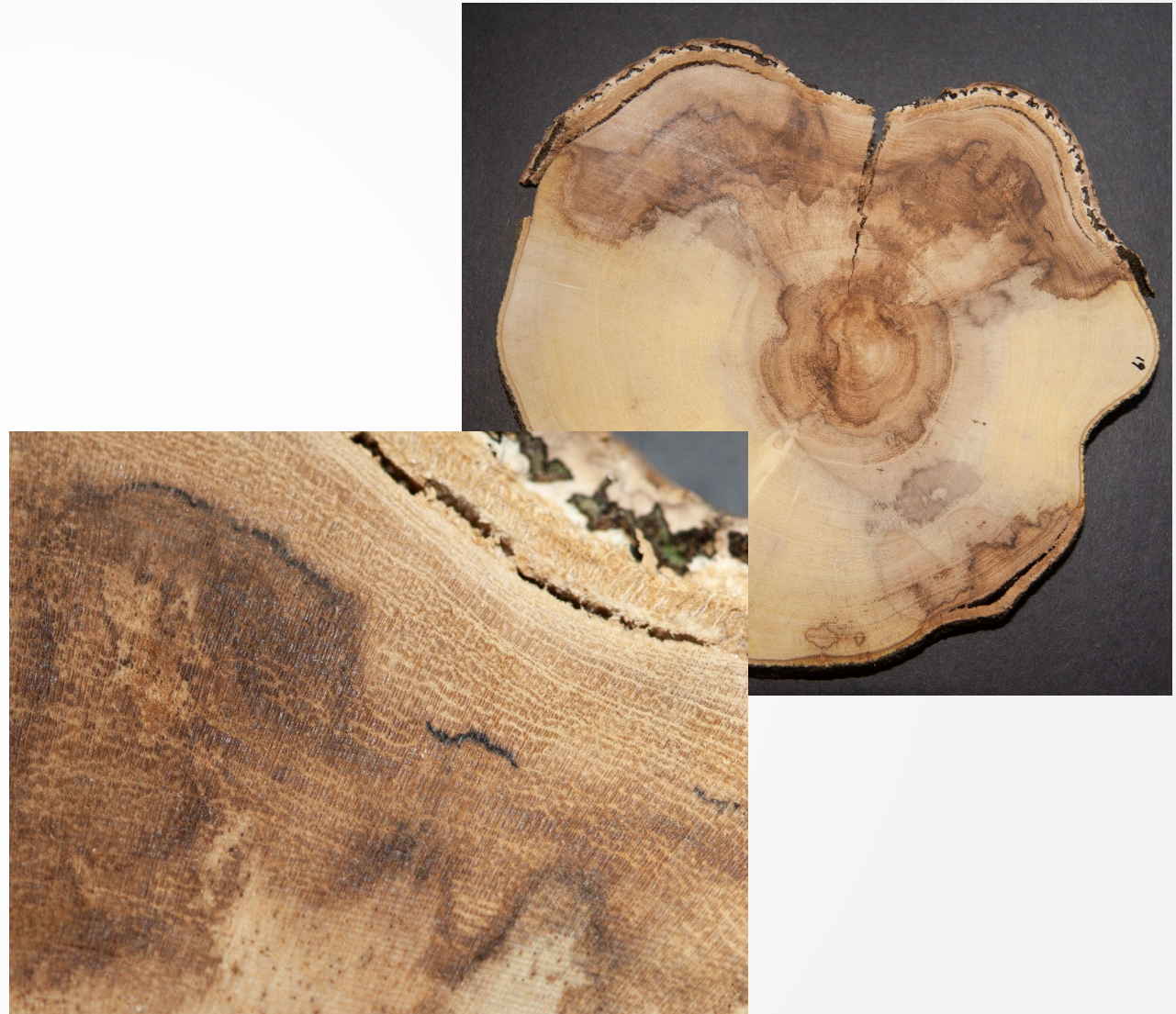
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Kretzschmaria – What is known

- Sporadic disease
- Infects many tree species
- Infects weakened or stressed trees
- Most common on landscape trees
 - Oaks are a common host

Kretzchmaria management

- Can survive in dead roots
 - Remove as many roots as possible
 - Trunk clipping may allow spread through the grove
- Spreads through root grafts
 - Consider removing neighboring trees, if older trees with likely root grafts
- No recommended chemical treatments

Kretzchmaria management

- Swingle and Sour Orange are known to be susceptible
 - Other rootstocks unknown
- Stressed trees are more susceptible
 - HLB?
 - Pushing trees too hard, opening up growth cracks?
 - Past weather event?

Trunk disorders

- Many reports have been received
 - By researchers, extension agents, and agchem industry
 - Extent and similarity not known
 - Need more information
- Have you seen trunk disorders in your groves?
- Please pause and answer the questionnaire



What caused the year of the weird trunk disorder?

- Pushing trees harder than before with fertilizer and irrigation
- Many new rootstocks are being planted
 - Some may be susceptible to “rare” diseases
- Past weather event?
- HLB stress on the trees?
- Combination of above?

Phytophthora is still a problem

- Not all trunk disorders are caused by Phytophthora
- Phytophthora foot and root rot is still a problem
- Phytophthora is treatable
- Rule out Phytophthora before taking other actions
 - Have your soil sampled
 - If you see trunk lesions, contact your extension agent