Oak Wilt…
A 'New' Threat to New England?

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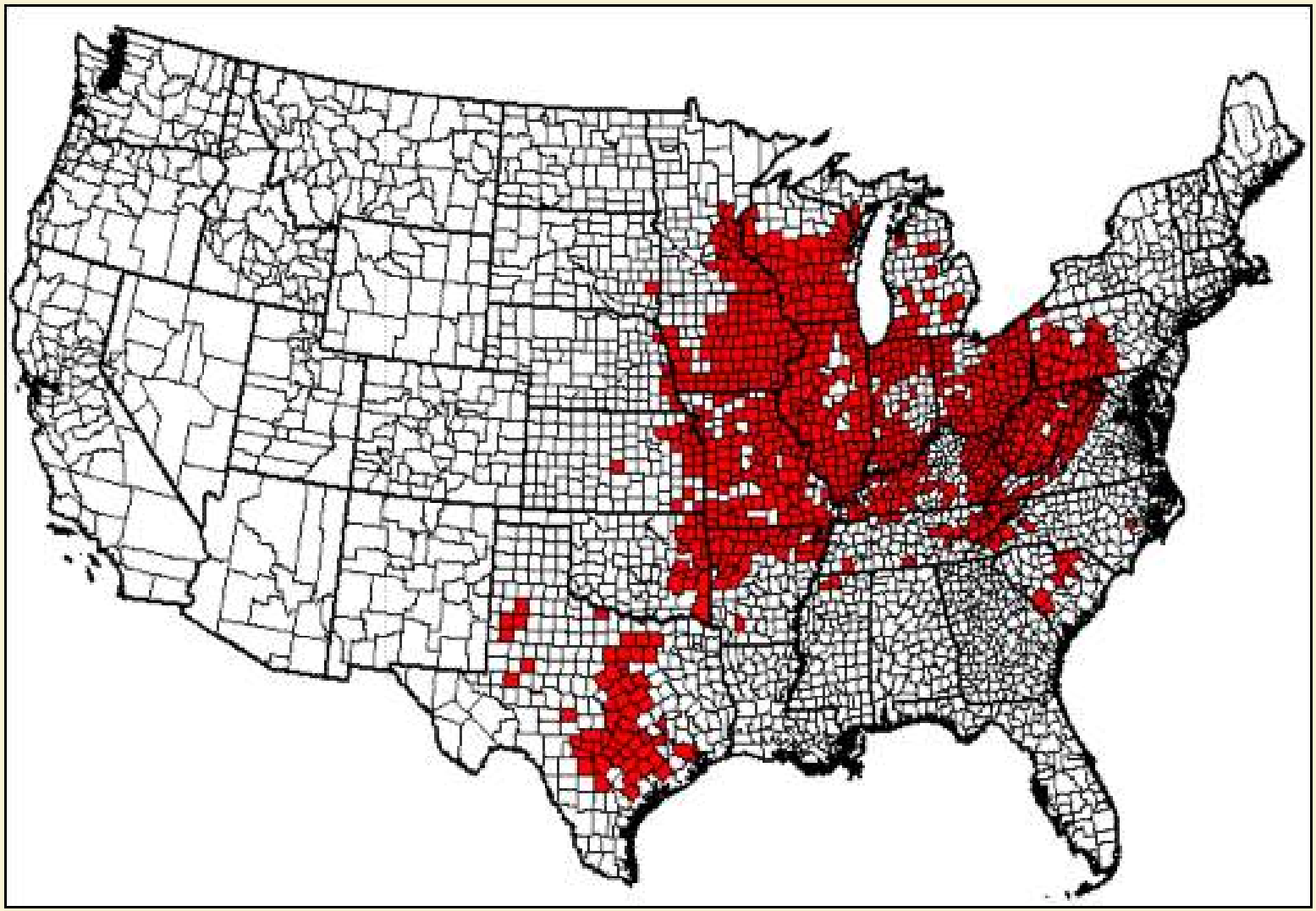
Oak Wilt
Ceratocystis fagacearum

- First identified in Wisconsin in 1944
- By 1998 was in 22 states, concentrated around the upper mid-west

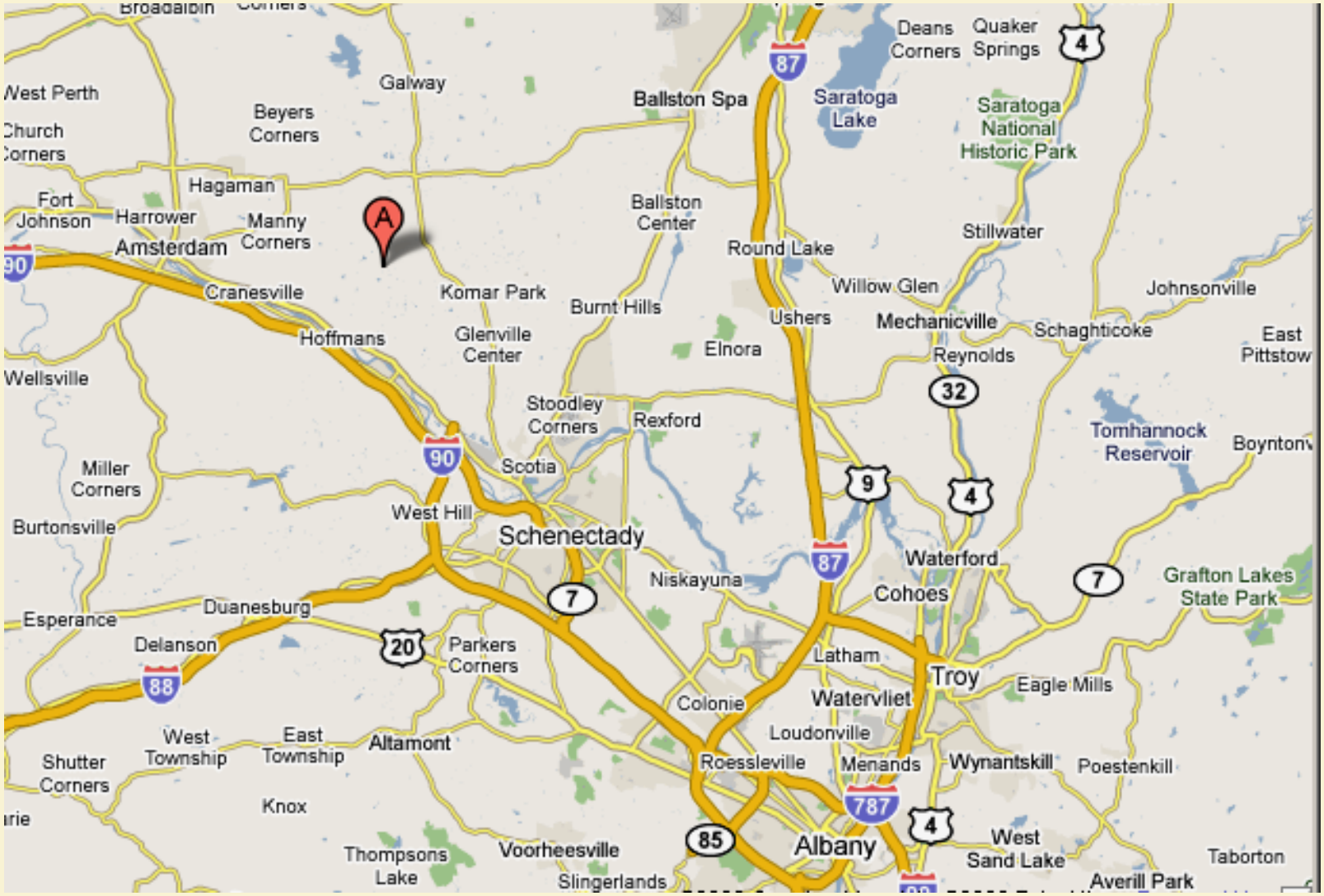
Distribution of Oak wilt - 1998



Oak Wilt
Ceratocystis fagacearum

- First identified in Wisconsin in 1944
- By 1998 in 22 states, concentrated around the upper mid-west
- Confirmed in September 2008 in Glenville, NY (Schenectady Co.)
  - Cornell Plant Disease Diagnostic Clinic
  - Molecular confirmation by Tom Harrington, Iowa State
  - Appears five properties affected

Where's Glenville, NY?



Oak species in the Northeast commonly killed by *C. fagacearum*

Black oak	***Q. velutina***
Pin oak	***Q. ellipsoidalis***
Northern red oak	***Q. rubra***
Burr oak*	***Q. macrocarpa***
White oak*	***Q. alba***

Red oak group

Late June-early July

‘off-green’ color

Wilting top of crown-down

Rapid progression, defoliation within weeks

Leaves brown from tip to base

Brown streaking in outer growth ring

White oak group

Late June-early July

‘off-green’ color

Wilting top of crown-down

Slow progression, one branch at a time

Leaves brown from tip to base

Occasionally only 1/2 leaf

Brown streaking in outer growth ring

Symptoms & signs

Wilted tree

M. Bohne photo

Dead trees

M. Bohne photo

Dead tree

M. Bohne photo

Leaf symptoms

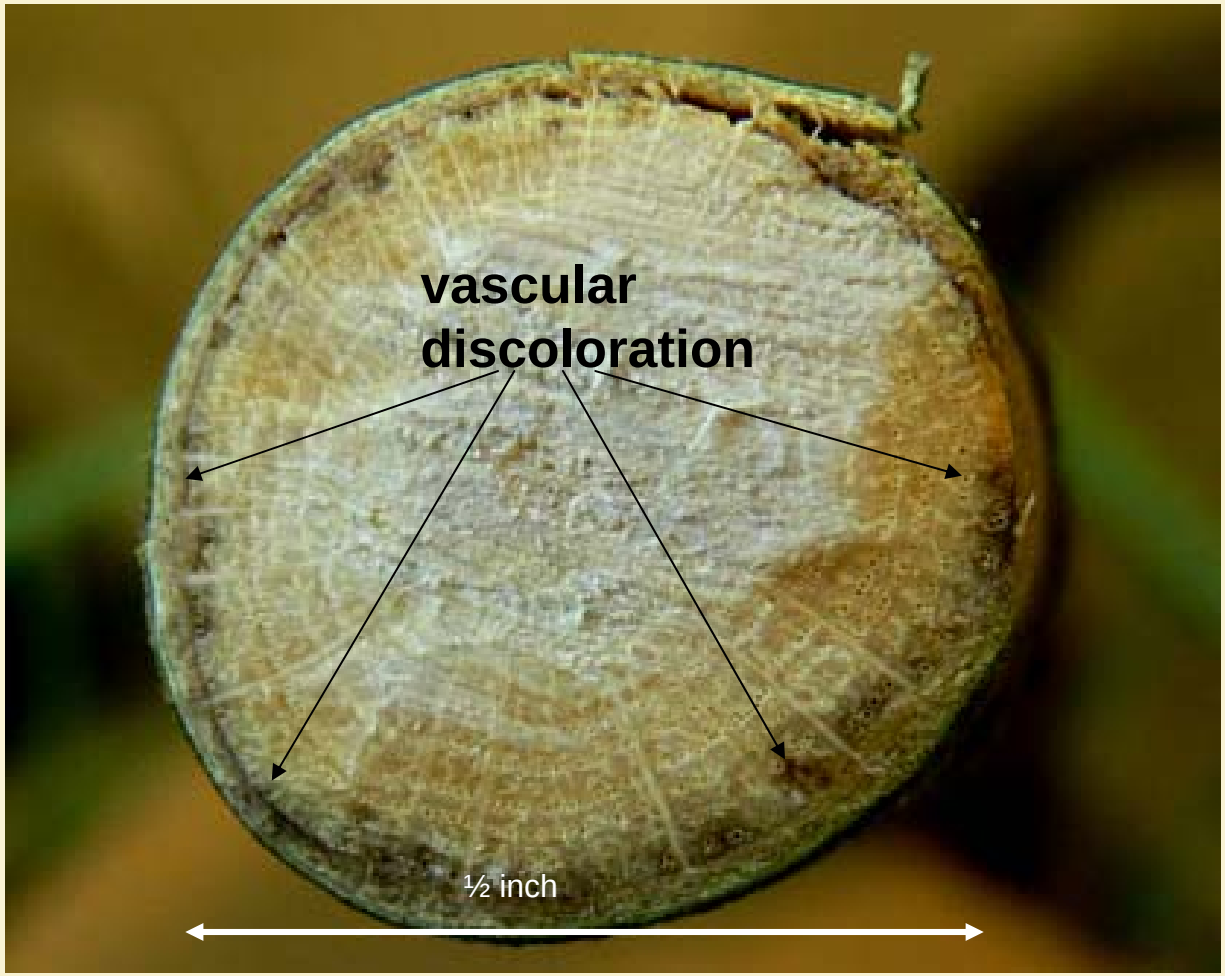
M. Bohne photo

Bark splits due to pressure of fungal pad beneath bark

Mycelial mat (& spores)

M. Bohne photo

Black discoloration in sapwood



Cornell Univ. photo

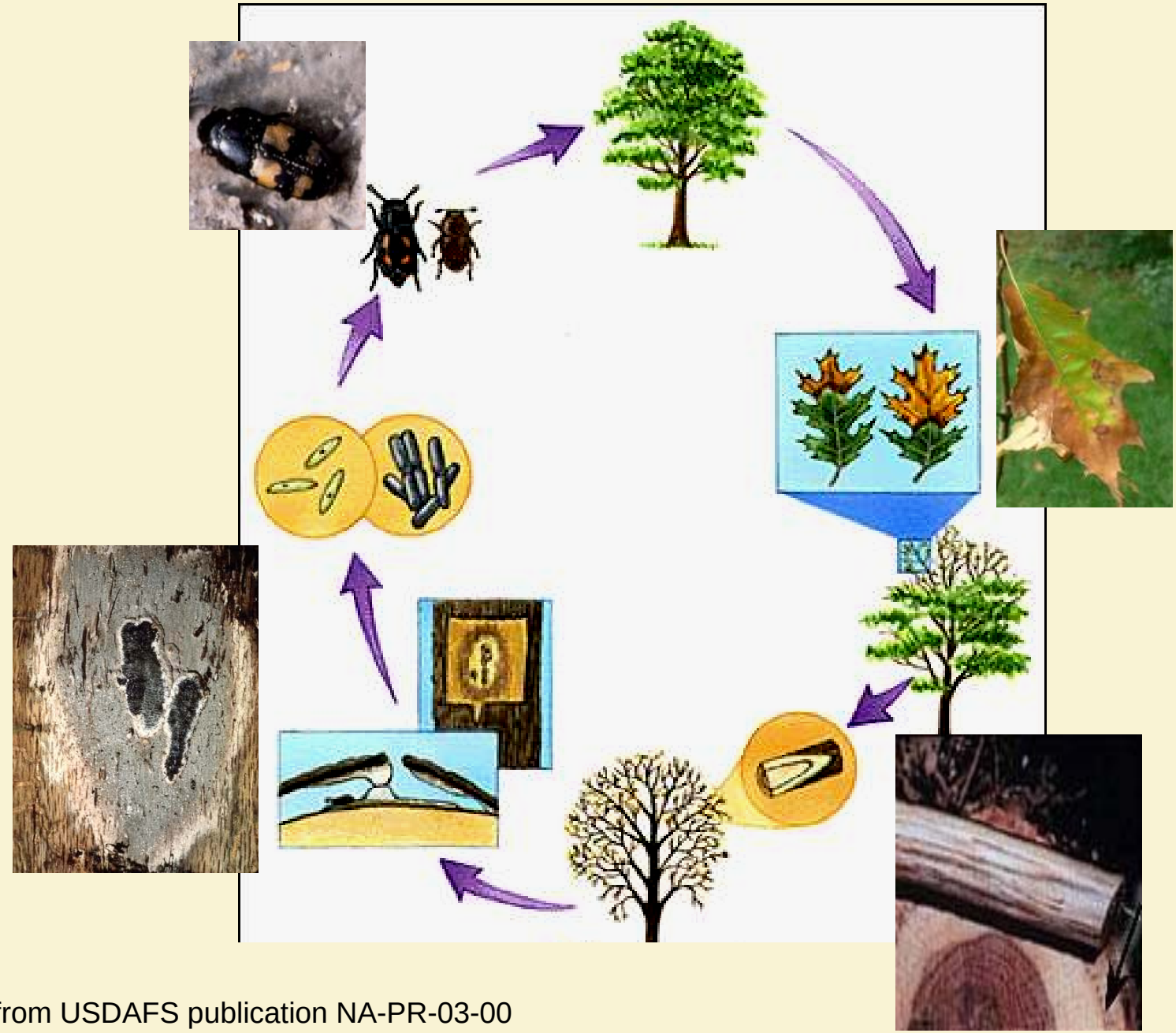


Figure from USDAFS publication NA-PR-03-00

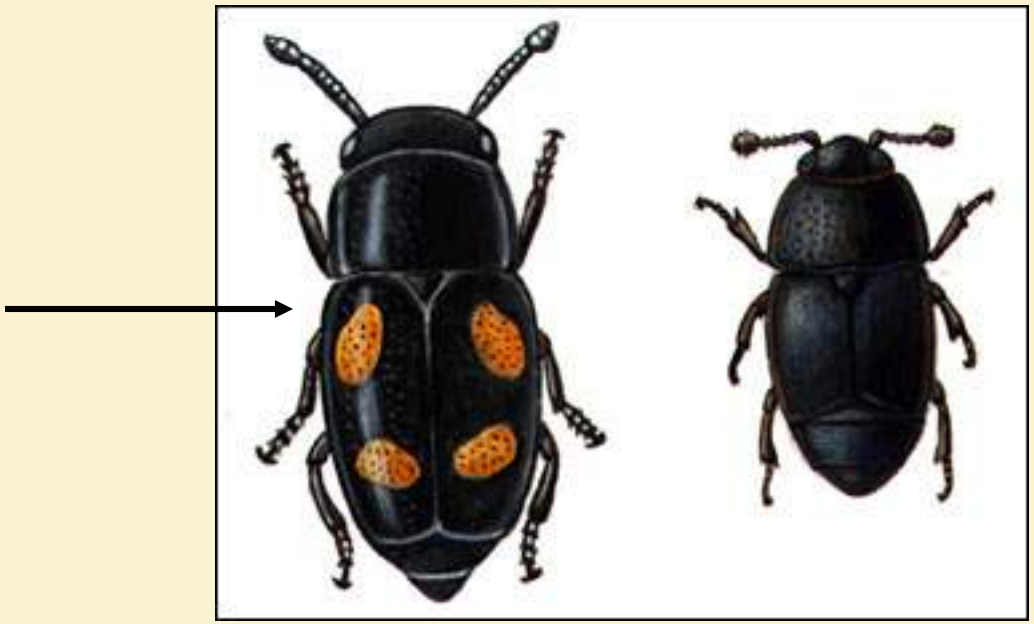
Cracking bark

Fungus mats

Cornell Univ. photos

Nitidulid beetles - ‘overland’ spread

Carpophilus, Coleopterus & Euperea - vectors



Glischrochilus (common picnic beetle)

Glischrochilus (common picnic beetle)

Mycelial mats

Root grafts

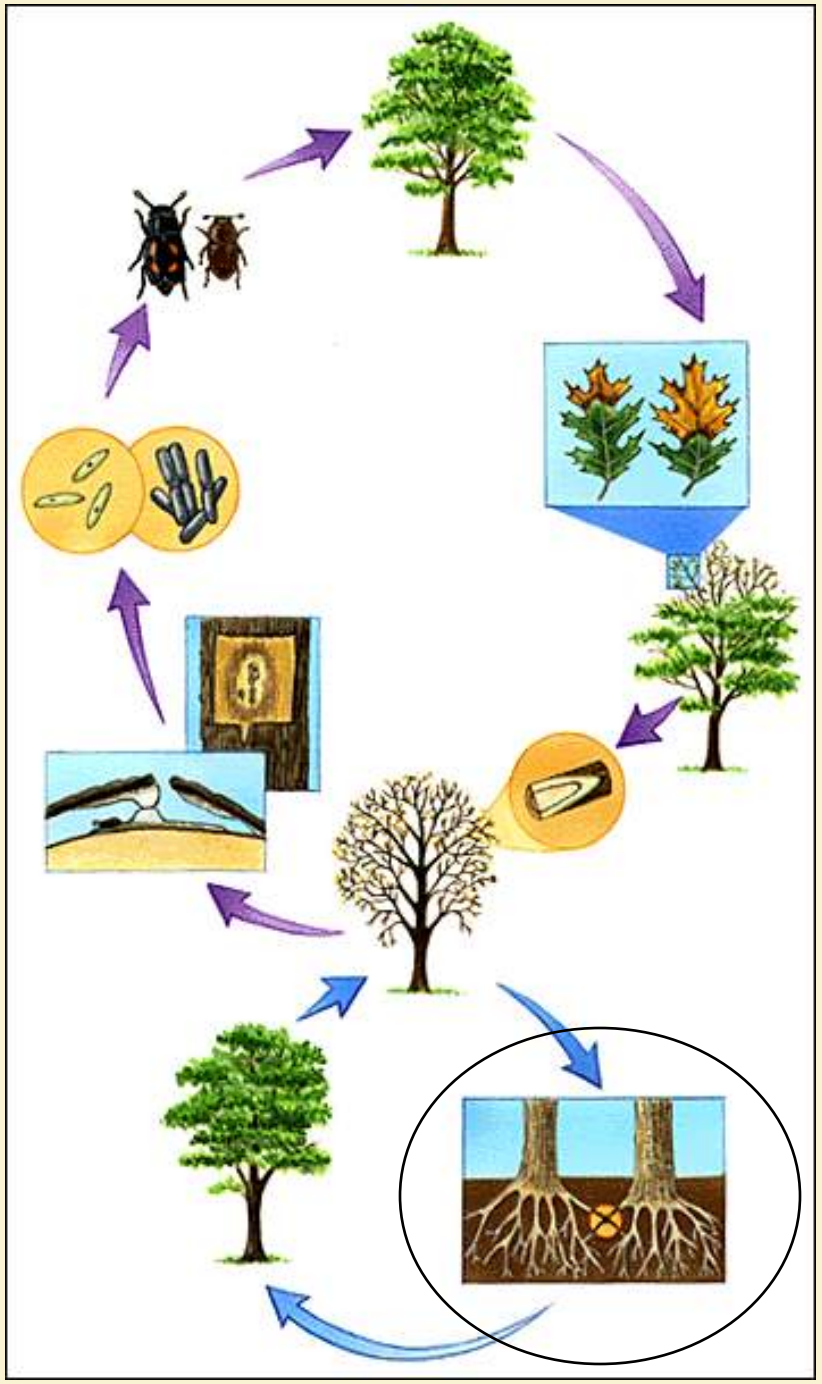


Figure from USDAFS publication NA-PR-03-00

Management strategies (infected sites)

- **Avoid wounding trees during periods of high susceptibility**

  April - Early July

  Paint wounds if they occur at this time

Management strategies (infected sites)

- **Avoid wounding trees during periods of high susceptibility**
- **Control existing infections**
  - **Remove infected trees**
    - Debark, split & dry prior to following spring
  - **Disrupt root grafts**
    - Trenching
      - Vibratory plow (5 ft blade)

Vibratory Plow

Management strategies (infected sites)

- **Avoid wounding trees during periods of high susceptibility**
- **Control existing infections**
  - **Remove infected trees**
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  - **Disrupt root grafts**
    - Trenching
      - Vibratory plow (5 ft blade)
- **Chemical treatment of valuable trees**
  - Only for non-symptomatic, high-value trees
    - Propiconazole (Alamo®), by licensed applicator
    - Every 2-3 years

Sampling for diagnostic testing

- Select partially-wilted branches
- Avoid tips of branches
- Collect symptomatic leaves off branches, package separately

No sampling after annual leaf fall begins

Black discoloration in sapwood

Sampling for diagnostic testing

- Cut branches to 6”-8”
- Place branch samples
  in zip-loc bag
- Bole samples may be
  taken from bark ‘window’

Sampling for diagnostic testing

- cool samples and bring
  or ship to lab
  (ship in styrofoam cooler
  with ice packs)

- sample temps should
  never exceed 85-90^{0}F

http://www.youtube.com/watch?v=XVUZsvyZfVE

Where to send samples

- **UNH Plant Diagnostic Lab**
  - http://extension.unh.edu/Agric/AGPDTS/PlantH.htm
- **Cornell Plant Disease Diagnostic Clinic**
  - http://plantclinic.cornell.edu/Default.htm

Questions?

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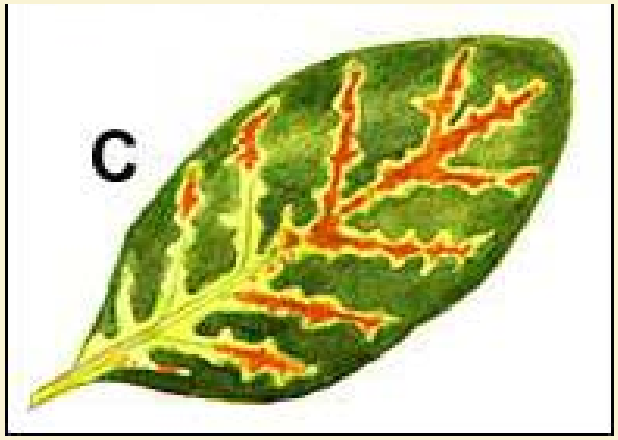
progression of leaf symptoms differs for each oak group

Red oak group

white oak group



Live oak group