It Starts with Bark and Ends with Beetle: Other Forest Pest Issues in the Southeast

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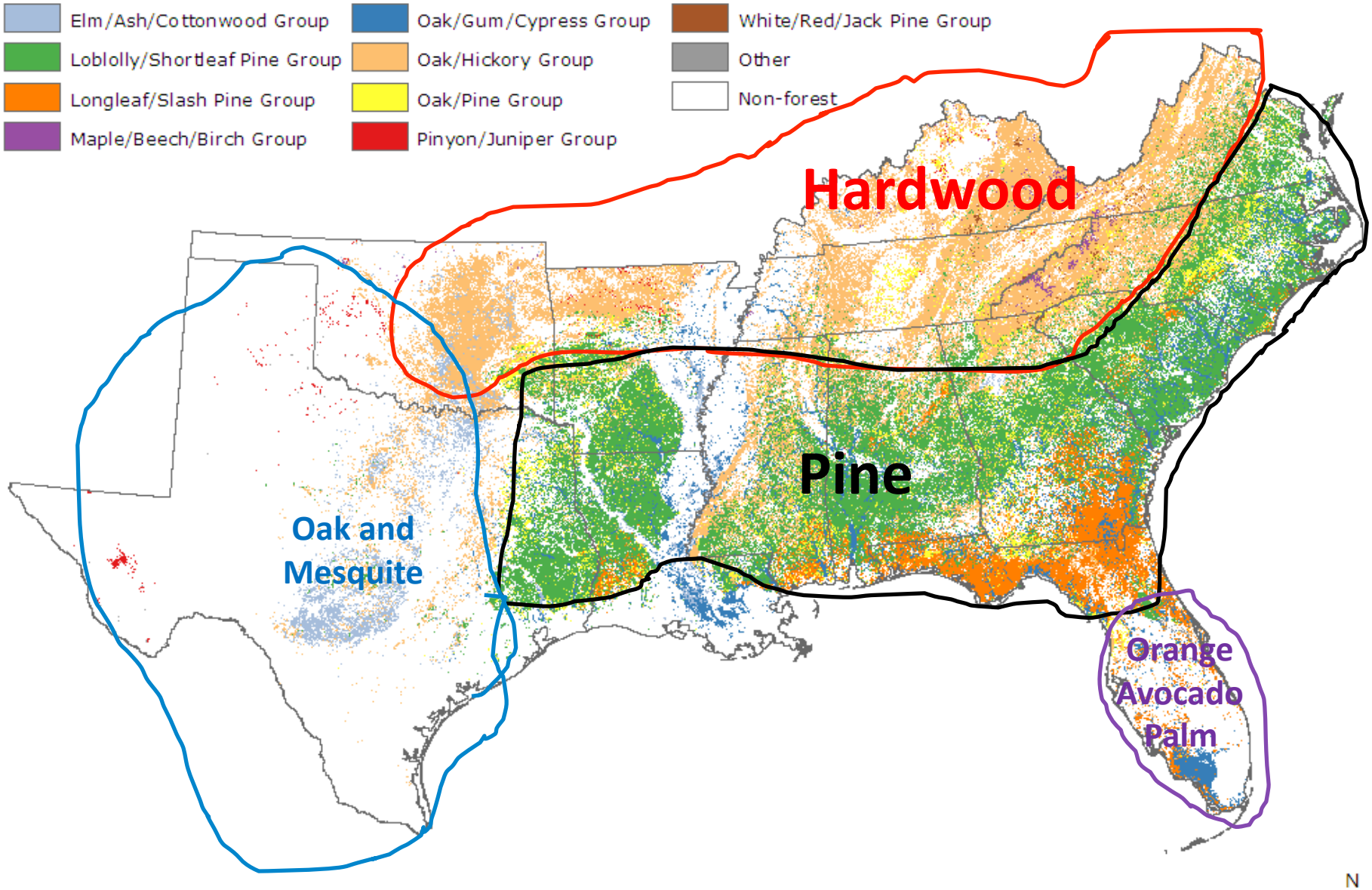
FOREST HEALTH
SOUTHERN REGIONAL EXTENSION FORESTRY

Warnell School of Forestry & Natural Resources
UNIVERSITY OF GEORGIA

Major Tree Communities of Southern Forests

WORLD RESOURCES INSTITUTE



Sources: Forest types (USDA Forest Service FIA and RSAC, 2008), administrative boundaries (ESRI Data and Maps 9.3.1, ESRI, 2008), color symbols (ColorBrewer.org, 2009).

0 50 100 200 300 400 Miles

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Major forest health issues in the Southeast in 2016-2017

http://www.pelicanlakemn.org/education.html

Major forest health issues in the Southeast in 2016-2017

Native Bark Beetles

Ips calligraphus

Ips pini

Ips grandicollis

Ips avulsus

Dendroctonus terebrans

Dendroctonus valens

Dendroctonus frontalis

Southern Pine Beetle

Ips calligraphus

Ips pini

Ips grandicollis

Ips avulsus

Dendroctonus terebrans

Dendroctonus valens

Dendroctonus frontalis

Southern Pine Beetle
(*Dendroctonus frontalis*)

Native to North & Central America

Southern pine beetle biology

Adult attacks tree

Mass attack/Pitch tubes

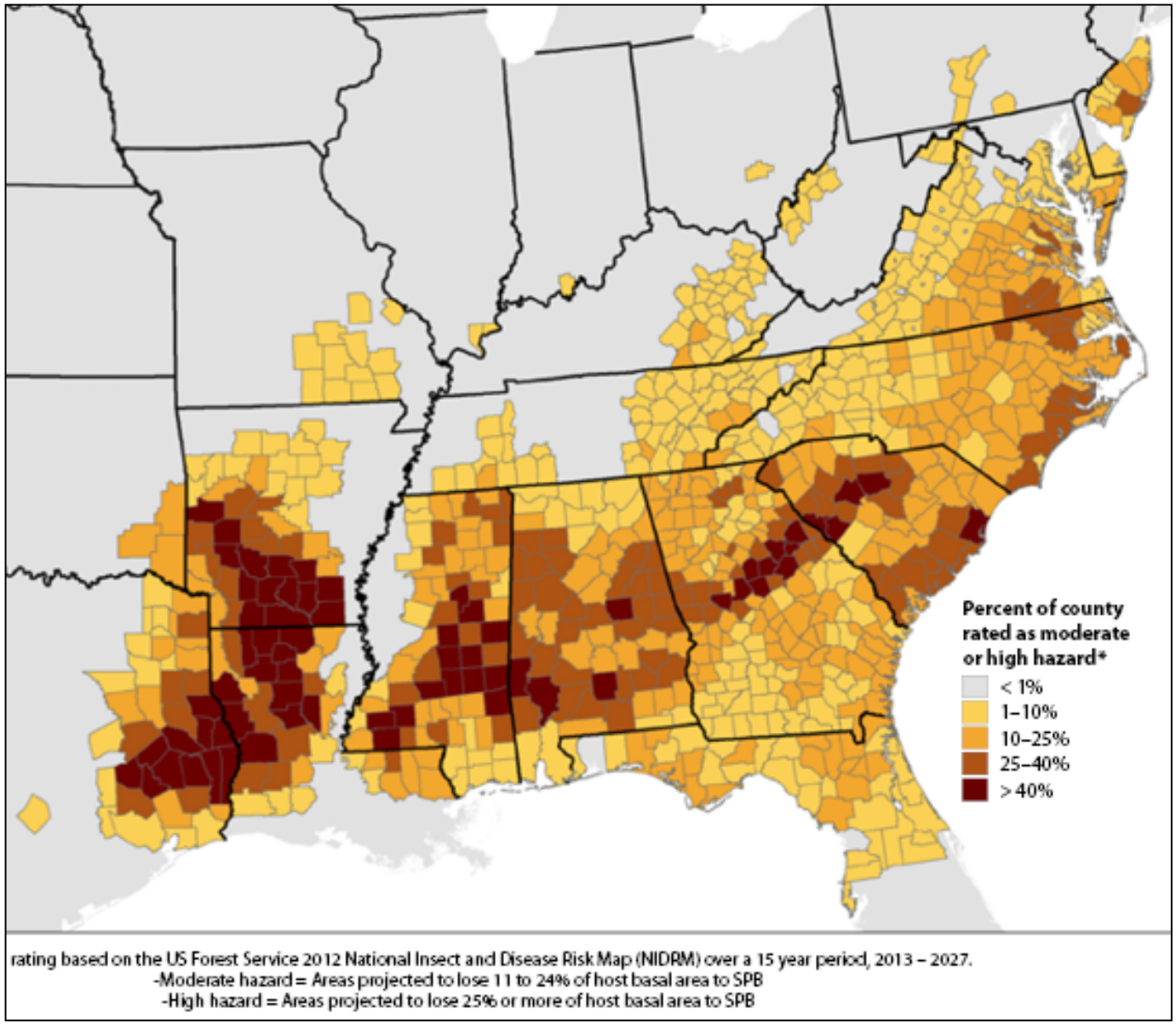
Larvae feed on phloem

Blue stain fungi

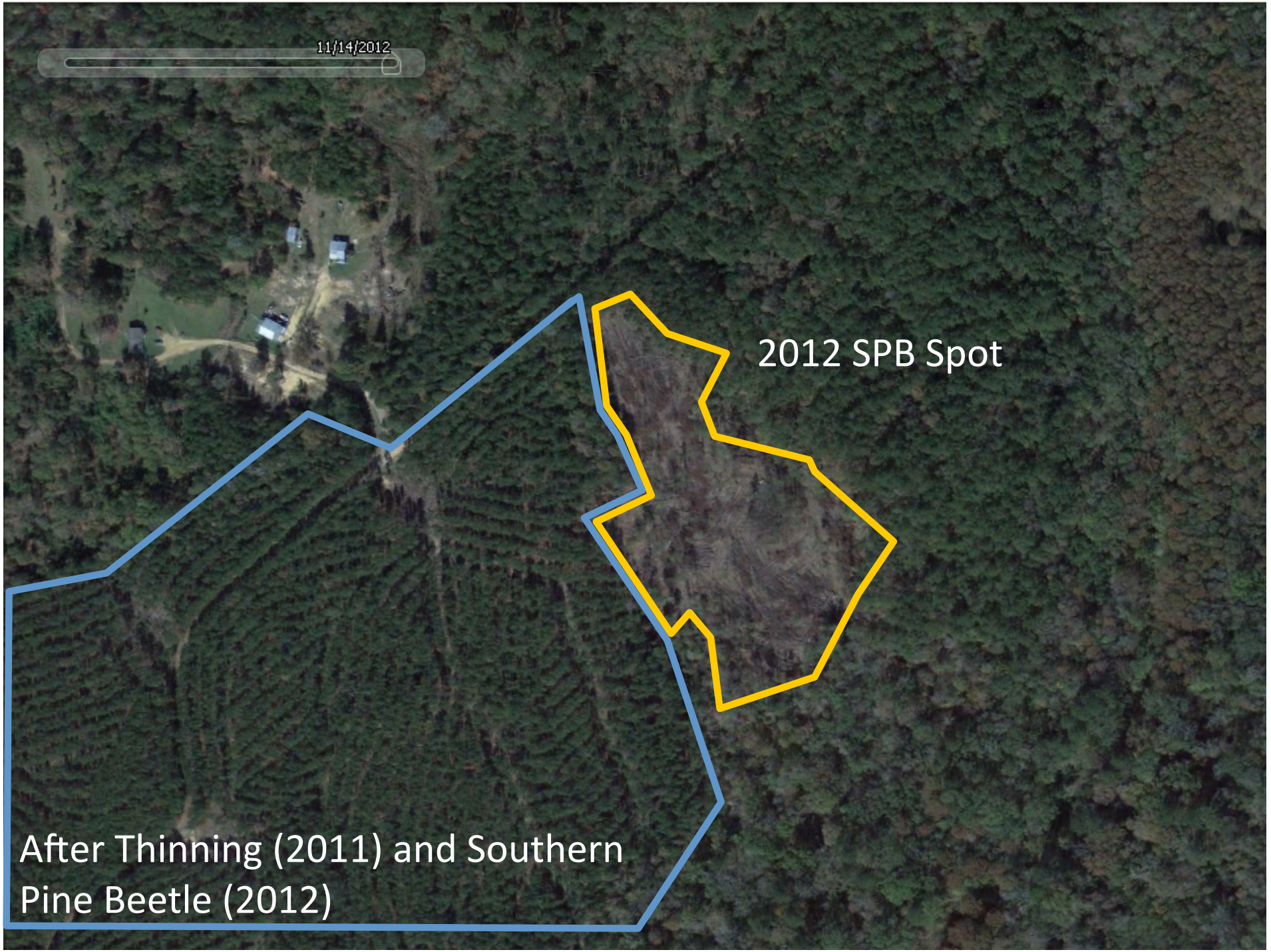
Tiny circular exit holes

S-shaped galleries

Southern pine beetle risk map



rating based on the US Forest Service 2012 National Insect and Disease Risk Map (NIDRM) over a 15 year period, 2013 – 2027.
-Moderate hazard = Areas projected to lose 11 to 24% of host basal area to SPB
-High hazard = Areas projected to lose 25% or more of host basal area to SPB


11/14/2012
2012 SPB Spot
After Thinning (2011) and Southern Pine Beetle (2012)

Ips Bark Beetles

Ips calligraphus

Ips pini

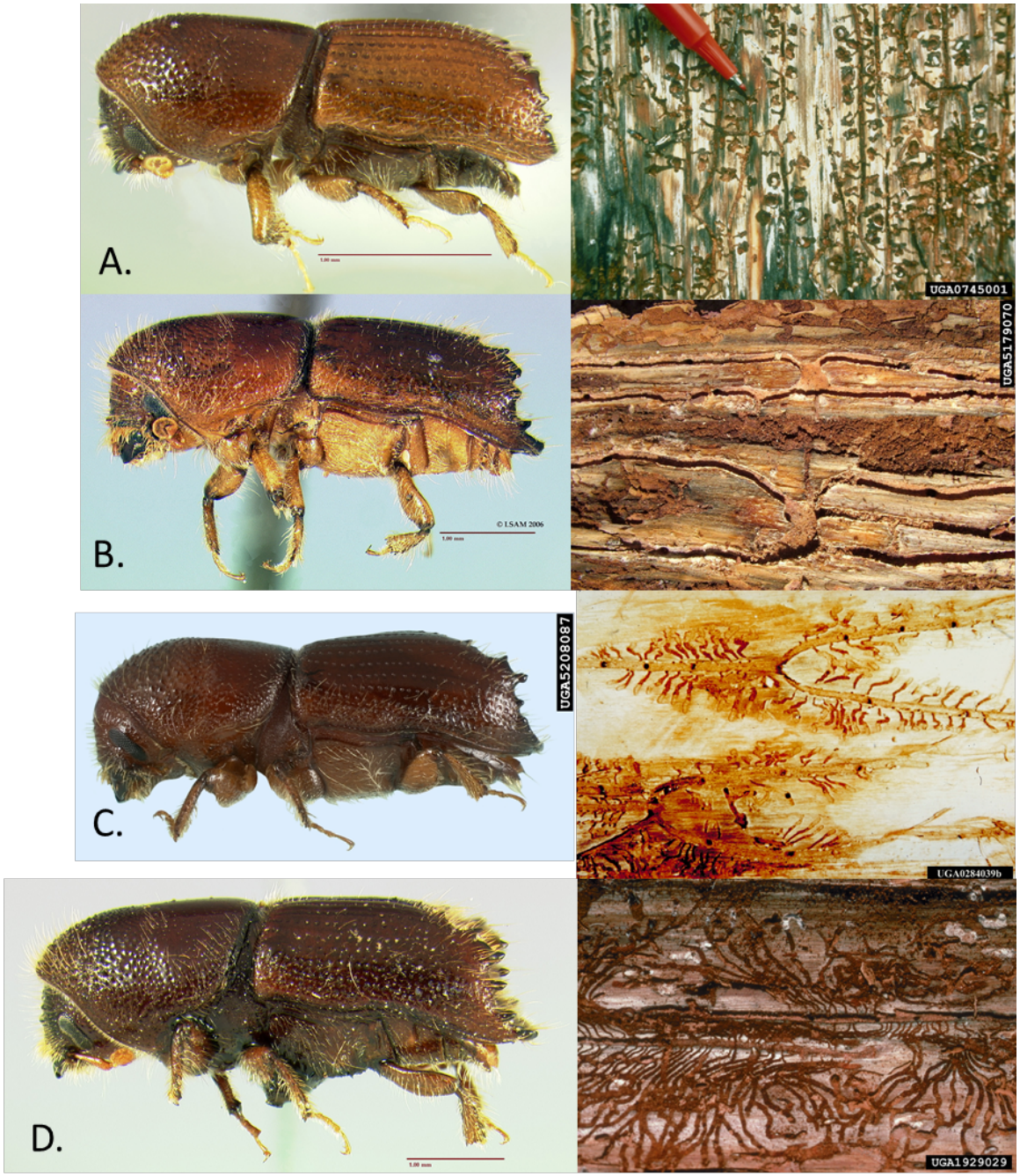
Ips grandicollis

Ips avulsus

Dendroctonus terebrans

Dendroctonus valens

Dendroctonus frontalis



Ips Bark Beetles

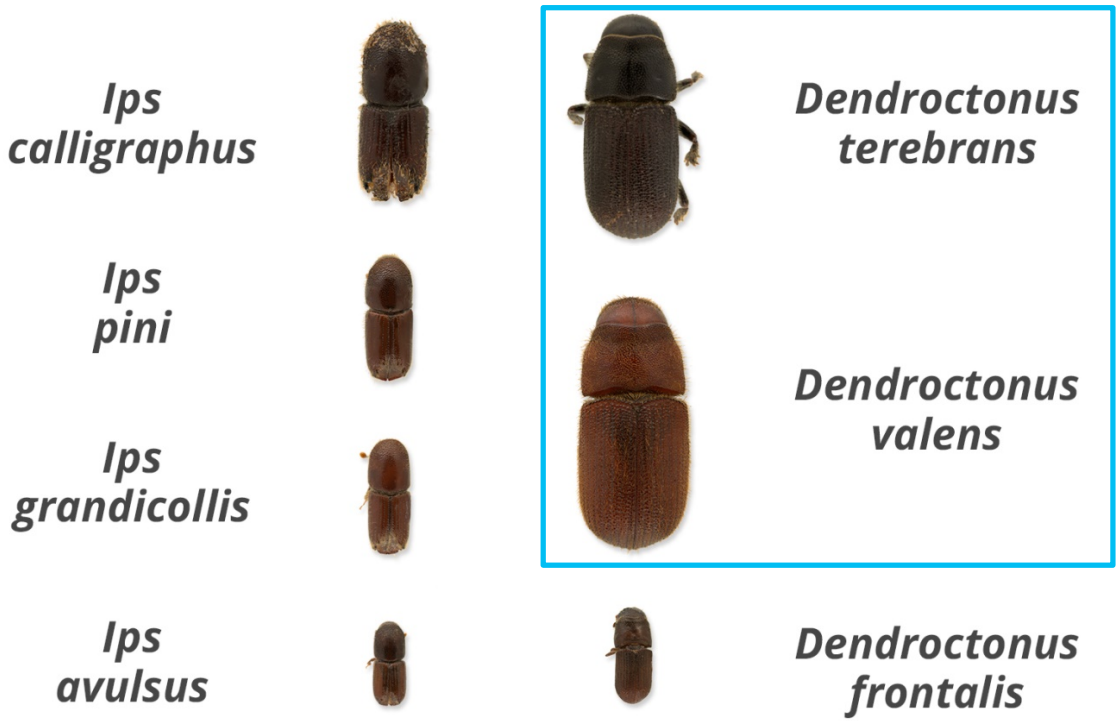
- Common in SE US
- Generally attack weakened or stressed trees
- Male starts gallery, calls female using odors (pheromones)
- Can cause mortality during droughts

Ips Bark Beetles

Ips Outbreak Characteristics

- Often associated with drought
- Sporadic mortality throughout the stand
- Small clusters of attacked trees
- Short-lived
  - Due to heavy natural pressures against the population

Turpentine Beetles



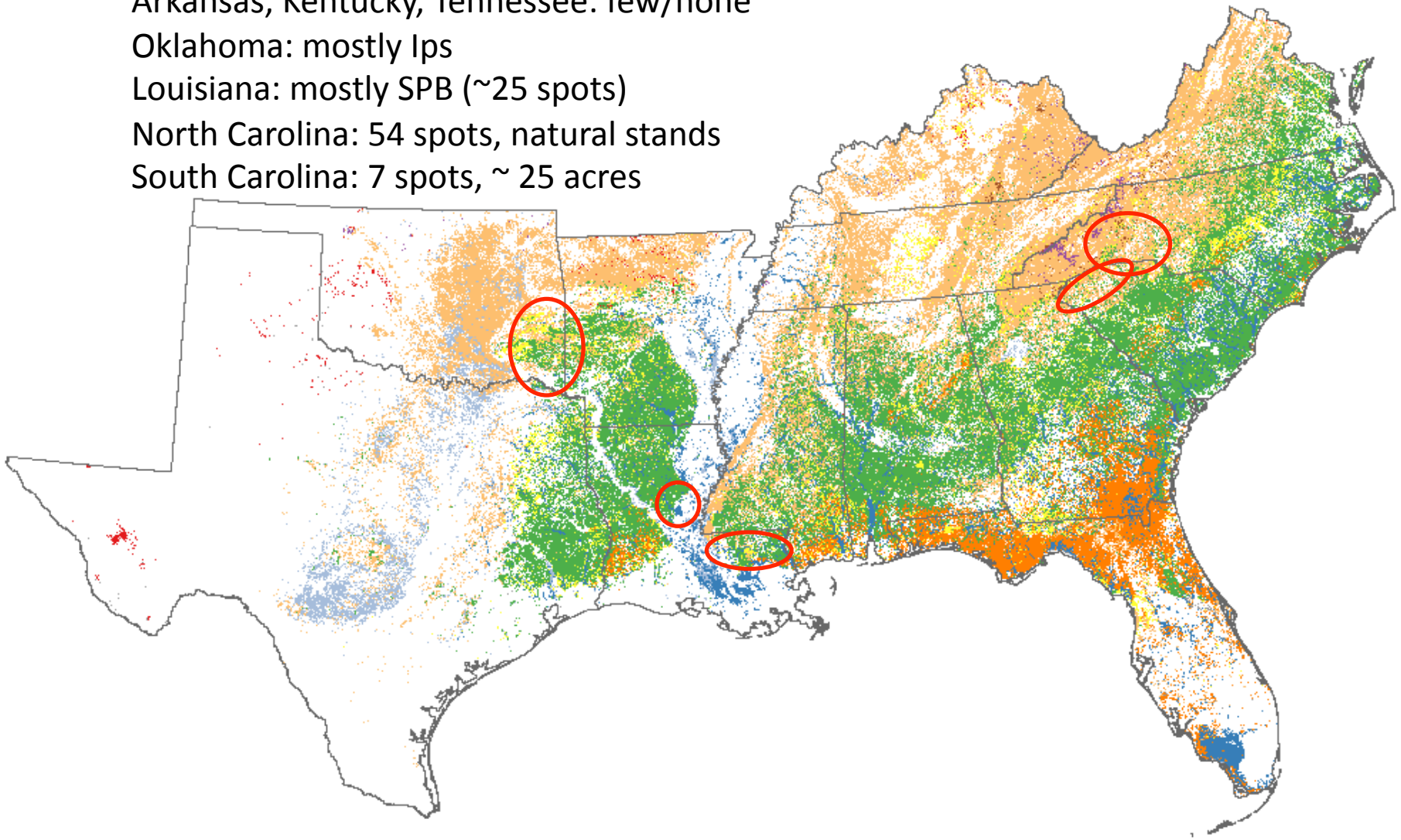
Black Turpentine Beetle
(*Dendroctonus terebrans*)

RTB: *D. valens*

- Attack weakened or stressed trees
- Can cause mortality during droughts

Native bark beetle issues

Arkansas, Kentucky, Tennessee: few/none
Oklahoma: mostly Ips
Louisiana: mostly SPB (~25 spots)
North Carolina: 54 spots, natural stands
South Carolina: 7 spots, ~ 25 acres



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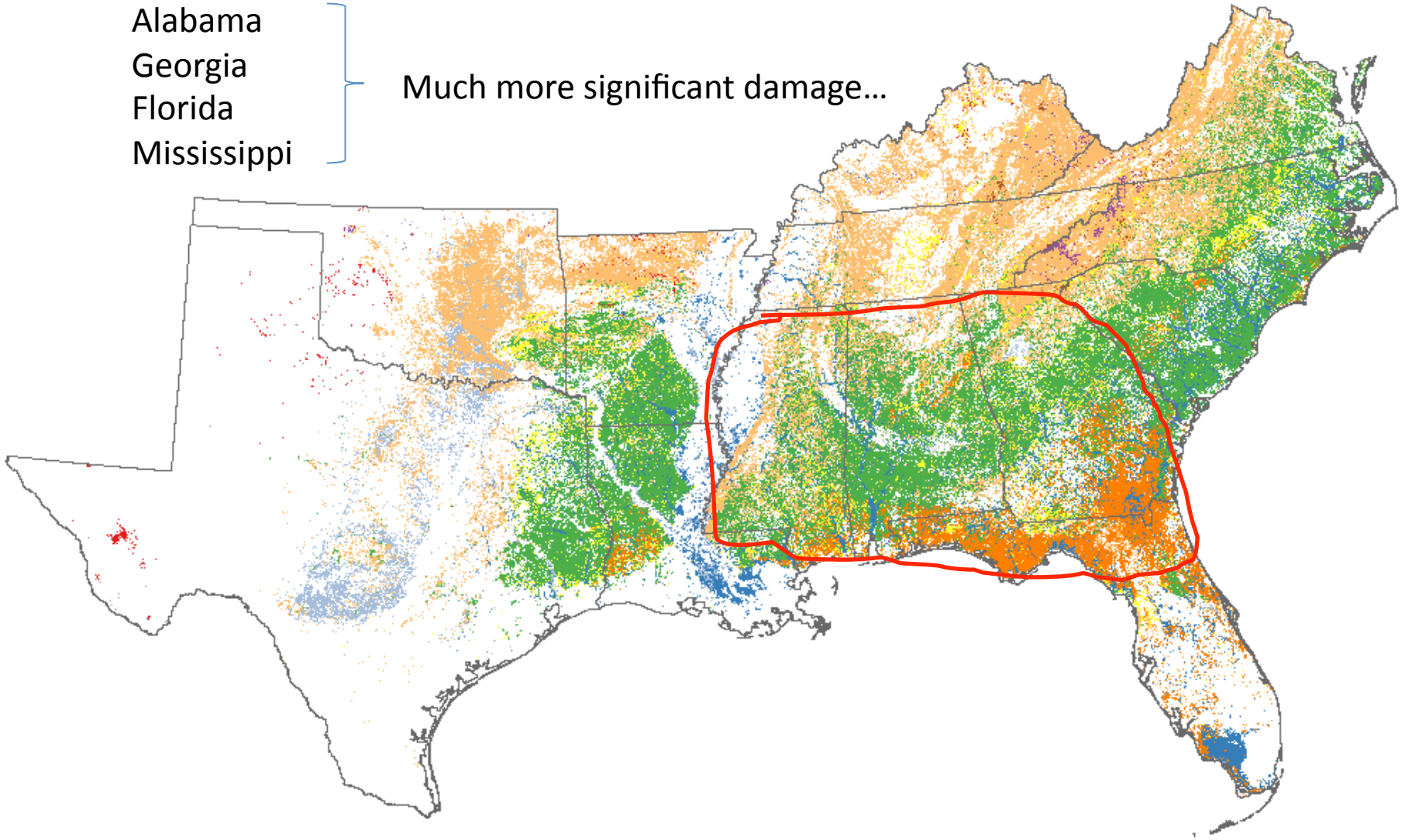
0 50 100 200 300 400
Miles

N

Native bark beetle issues

Alabama
Georgia
Florida
Mississippi

Much more significant damage…



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Miles

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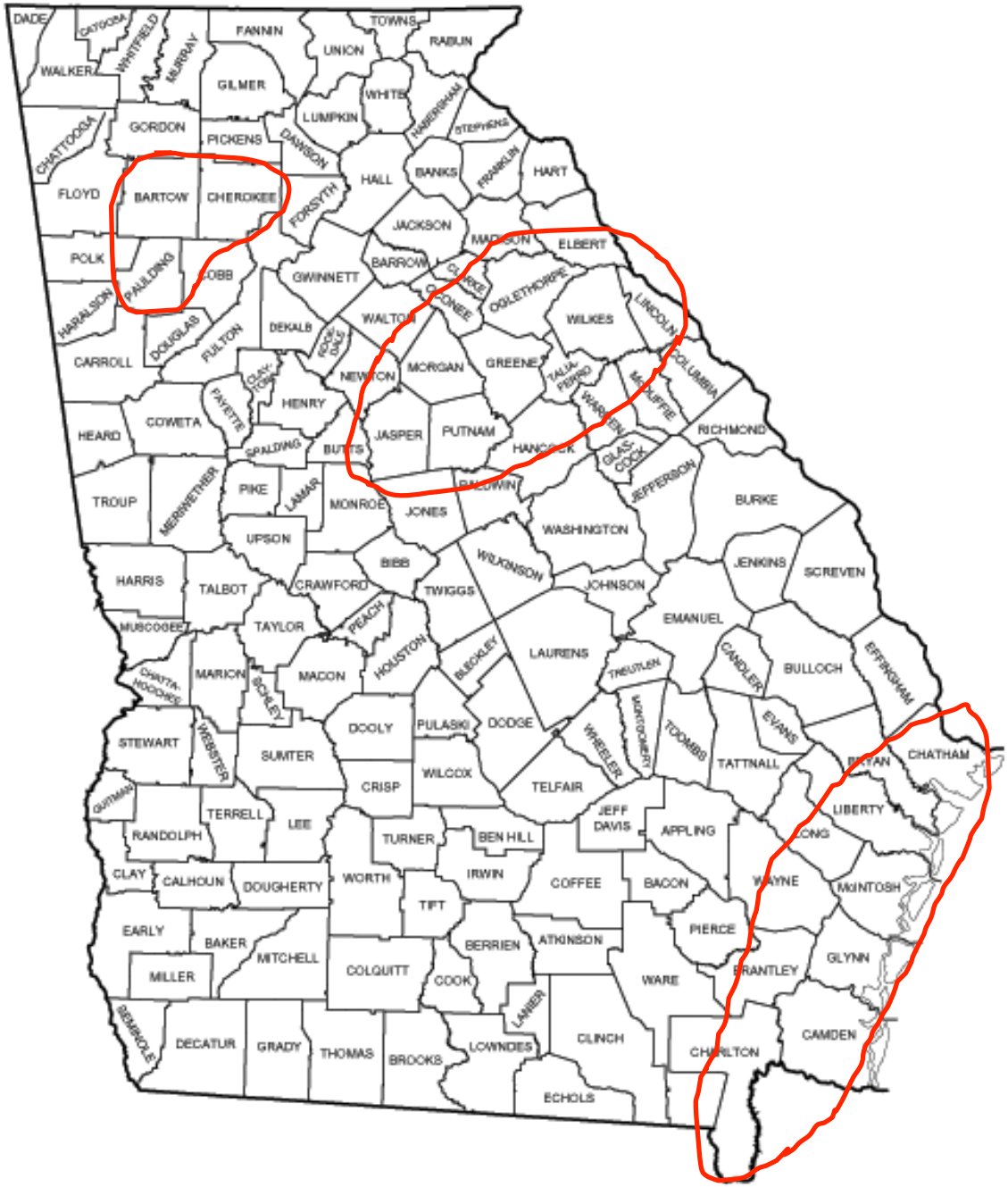
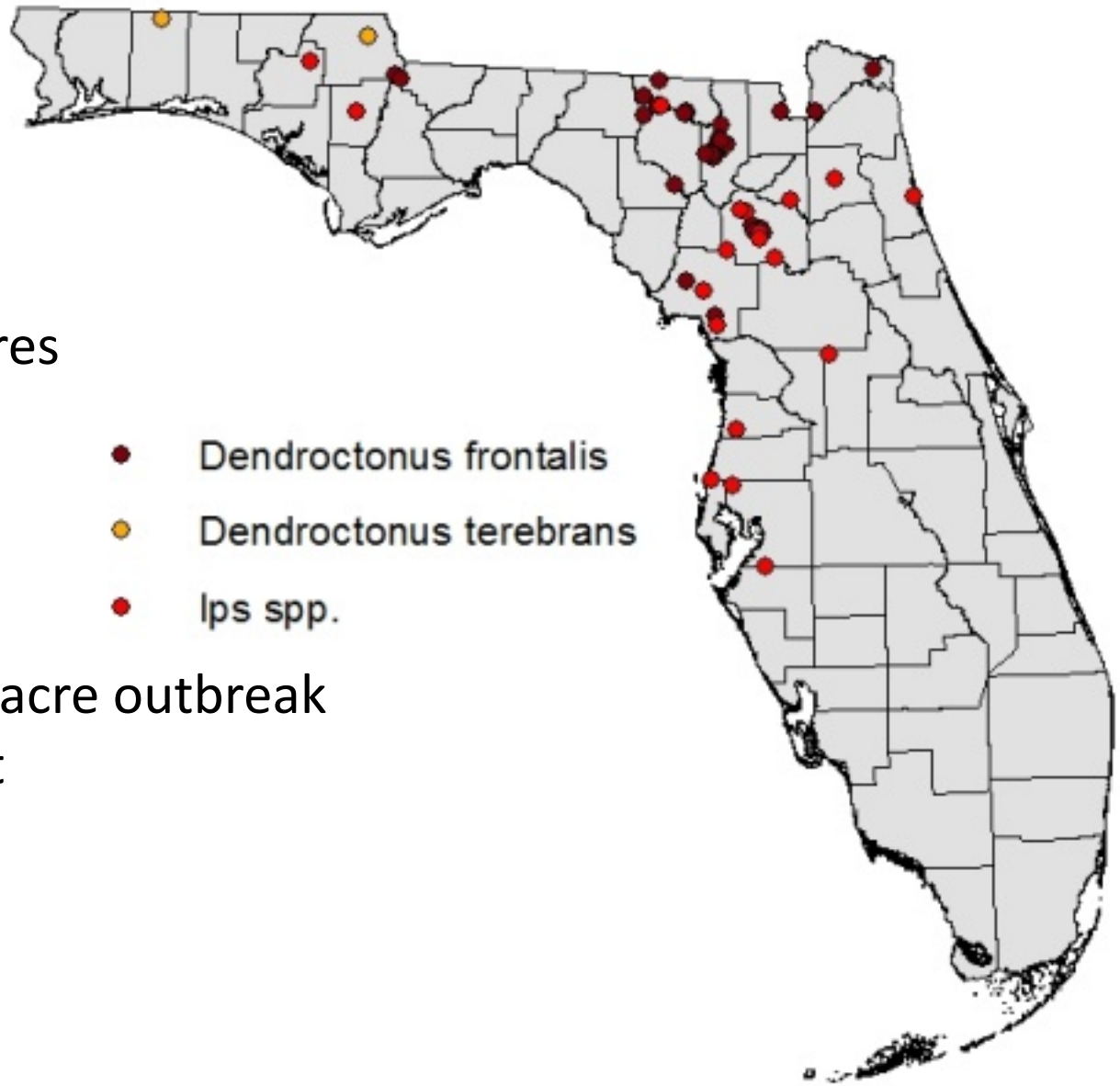


Georgia

- 2016-2017 Ips
  - >200 Ips spots
    - 5-60 acres
  - >3,700 Ips spots
    - <0.25 acre
- 2017 SPB
  - 237 spots, 325 acres
  - Mostly NW GA
- 2016 SPB

Florida



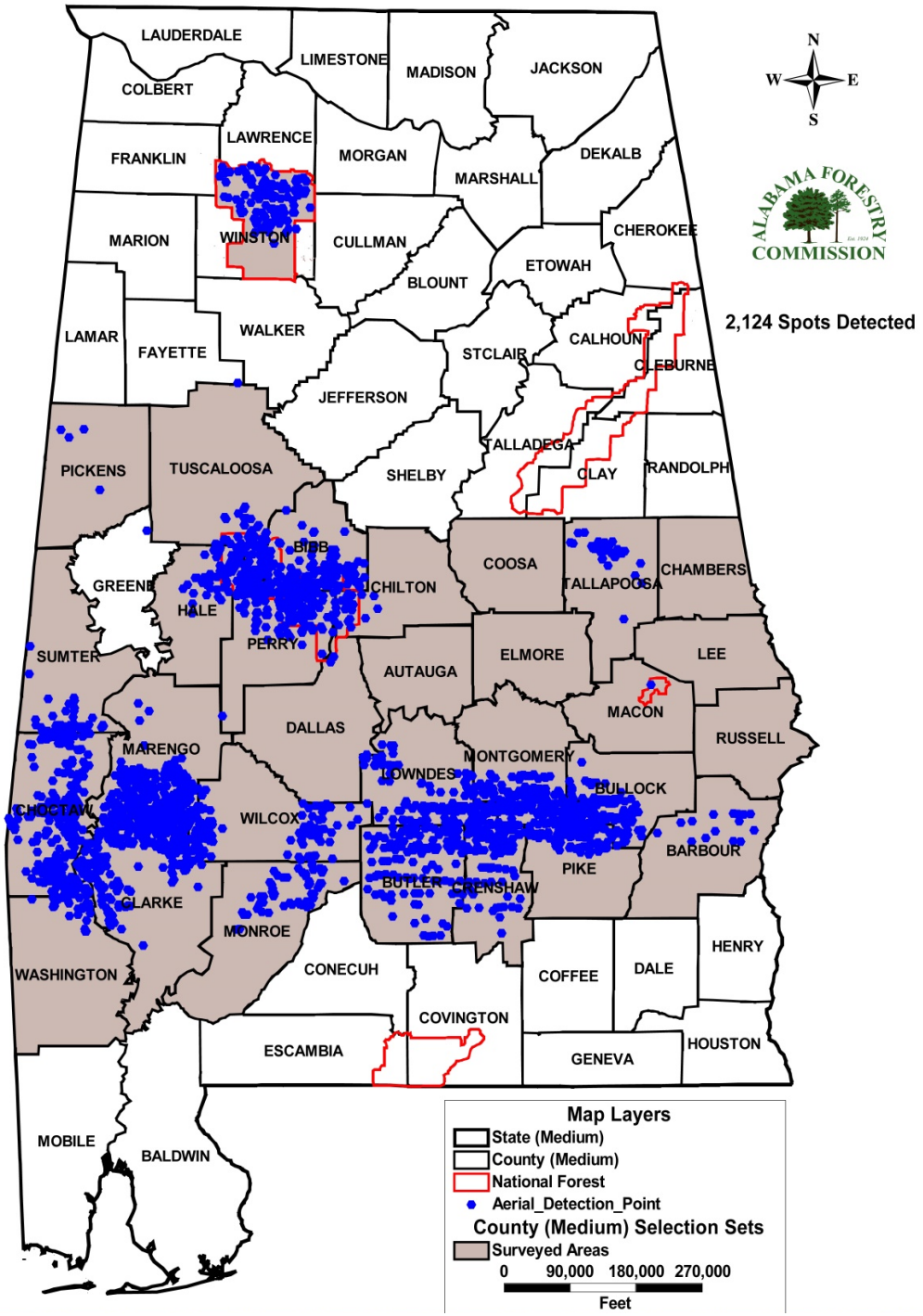
SPB: 60 spots, 611 acres
Feb. 10 – Sept. 28

Ips and BTB:
Jan 4 – Oct. 26
*Includes severe 420 acre outbreak that required clearcut

Alabama

Severe drought in 2016
Ips damage in spring
SPB damage in summer
Sporadic BTB damage

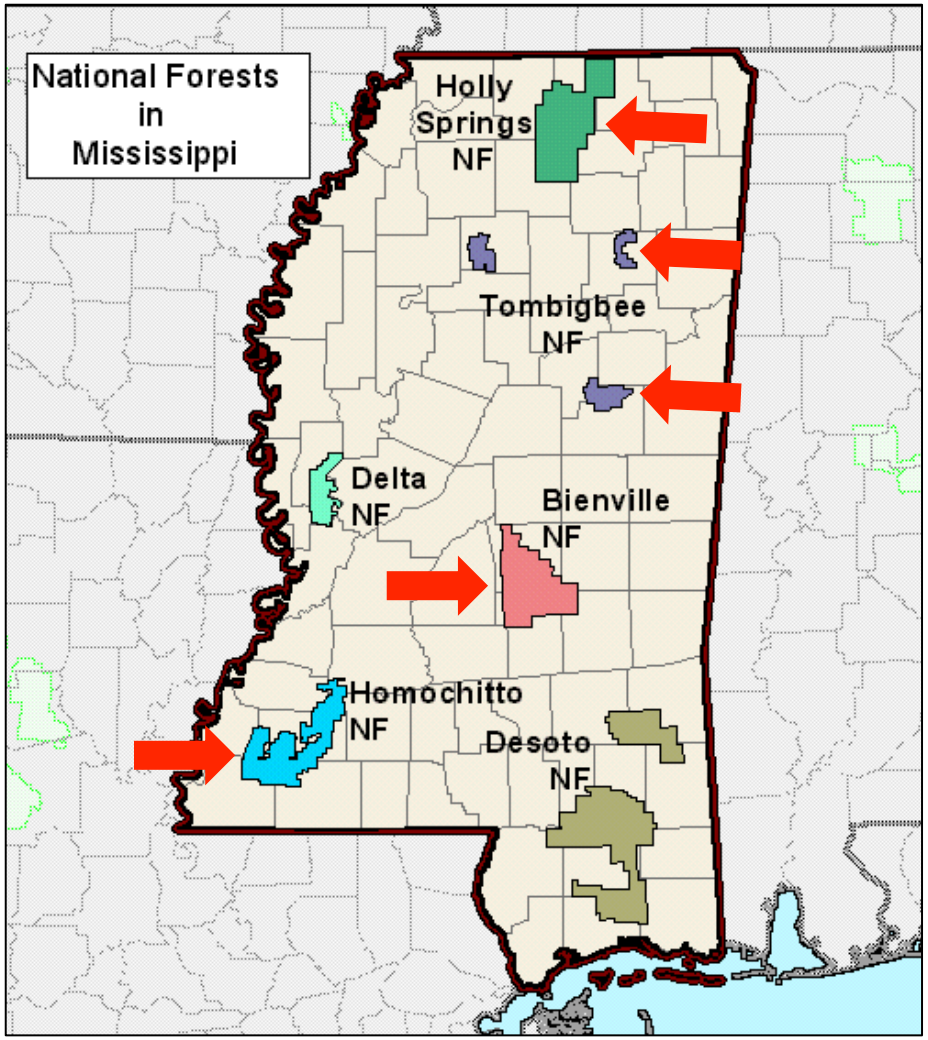
>200,000 pines impacted
Est. value of $1.7 million



Mississippi

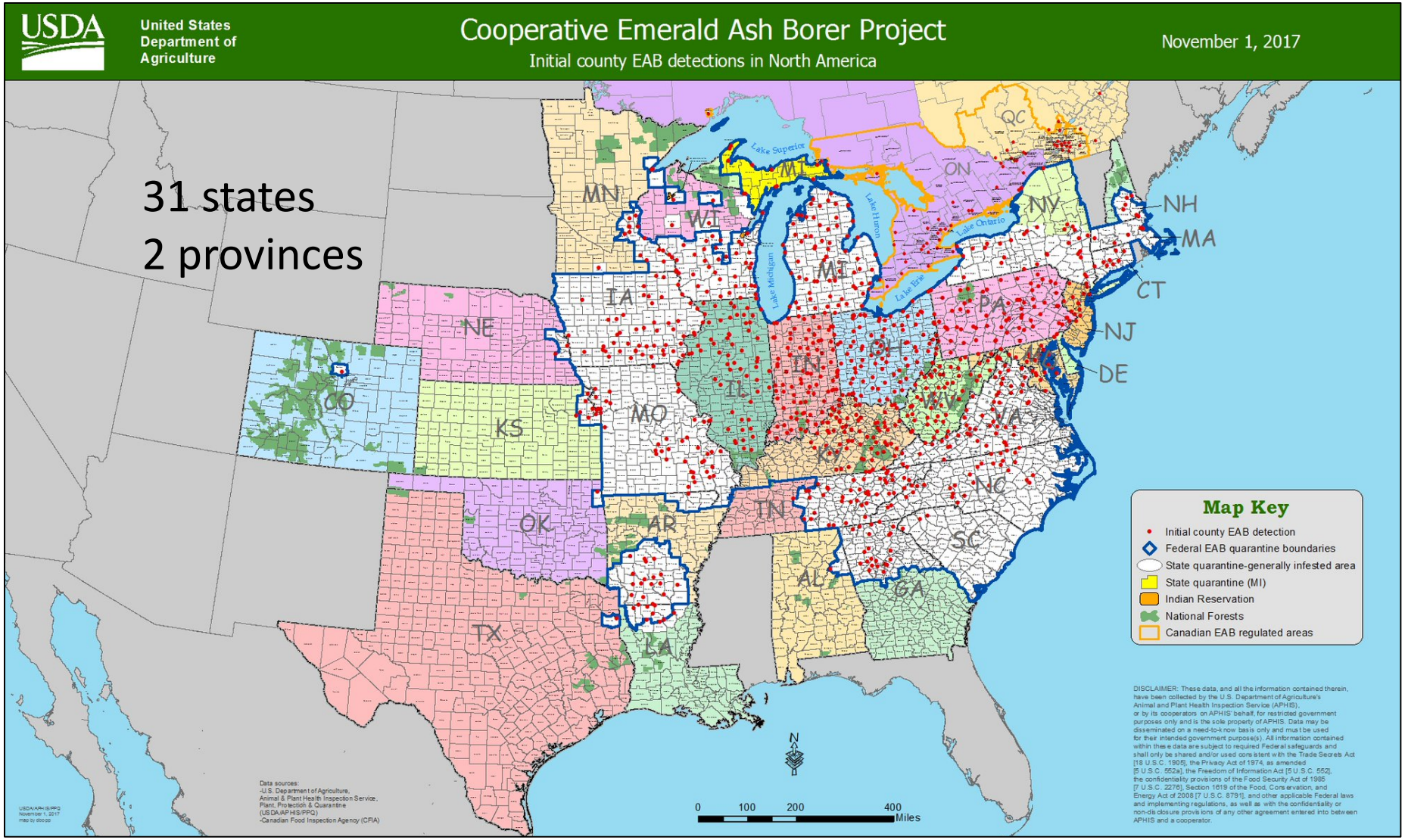
- 2017 SPB outbreak
- Mostly on NF land
- >4,100 spots
- ~5,500 acres

- Impact of warmer winter…

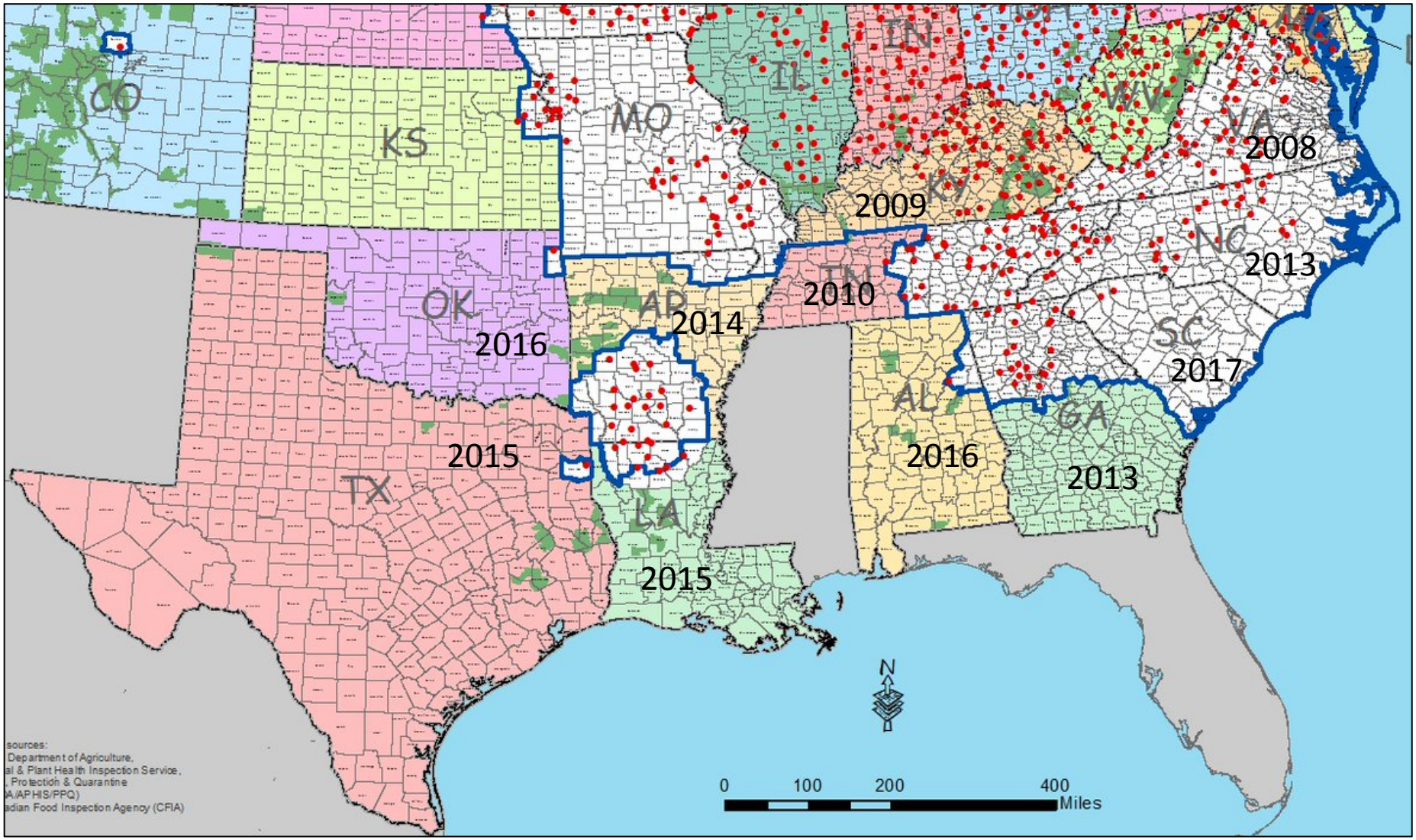


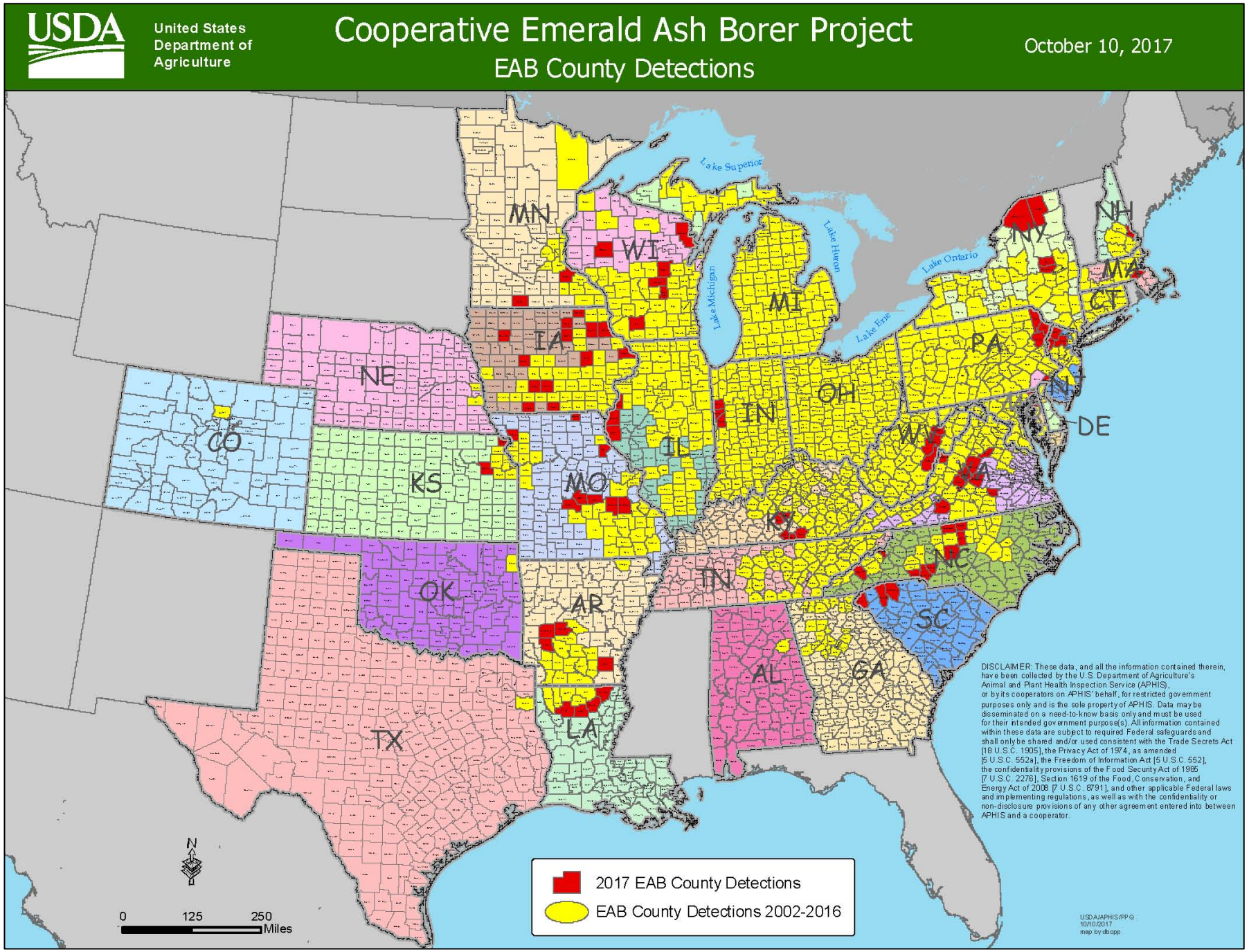
Major forest health issues in the Southeast in 2016-2017

Emerald ash borer



Emerald ash borer in the Southeast




USDA
United States Department of Agriculture
Cooperative Emerald Ash Borer Project
EAB County Detections
October 10, 2017
Lake Superior
Lake Michigan
Lake Huron
Lake Erie
Lake Ontario
MN
WI
MI
IA
NE
CO
KS
MO
IL
IN
OH
KY
WV
PA
NY
NH
MA
CT
NJ
DE
MD
VA
NC
SC
GA
AL
TN
MS
LA
AR
OK
TX
N
0
125
250
Miles
2017 EAB County Detections
EAB County Detections 2002-2016
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USDA/APHIS/PPQ
10/10/2017
map by dbopp

EAB damage in Kentucky

Abe Nielsen, KY Division of Forestry

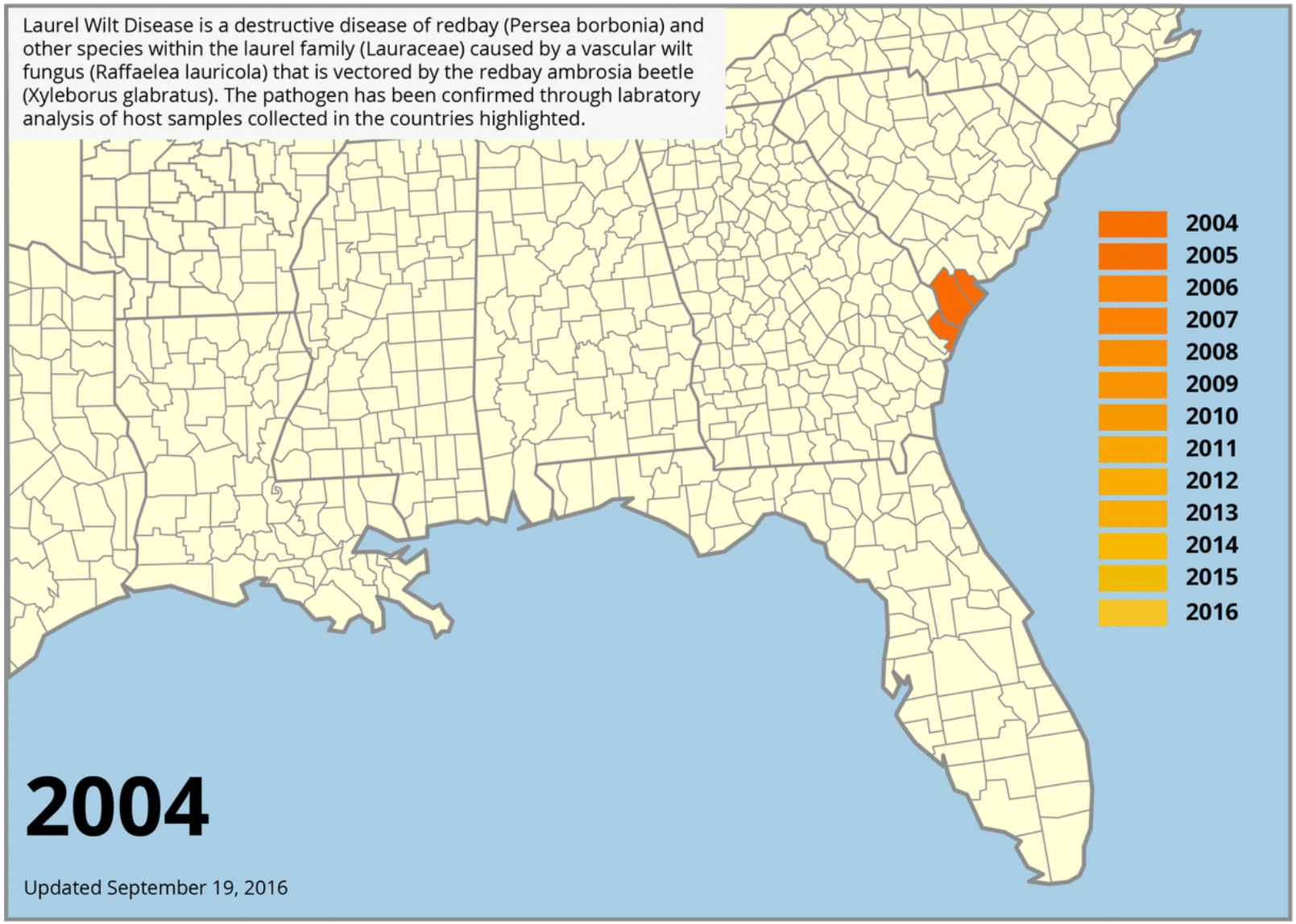
Major forest health issues in the Southeast in 2016-2017

Laurel wilt *(Raffaelea lauricola)*

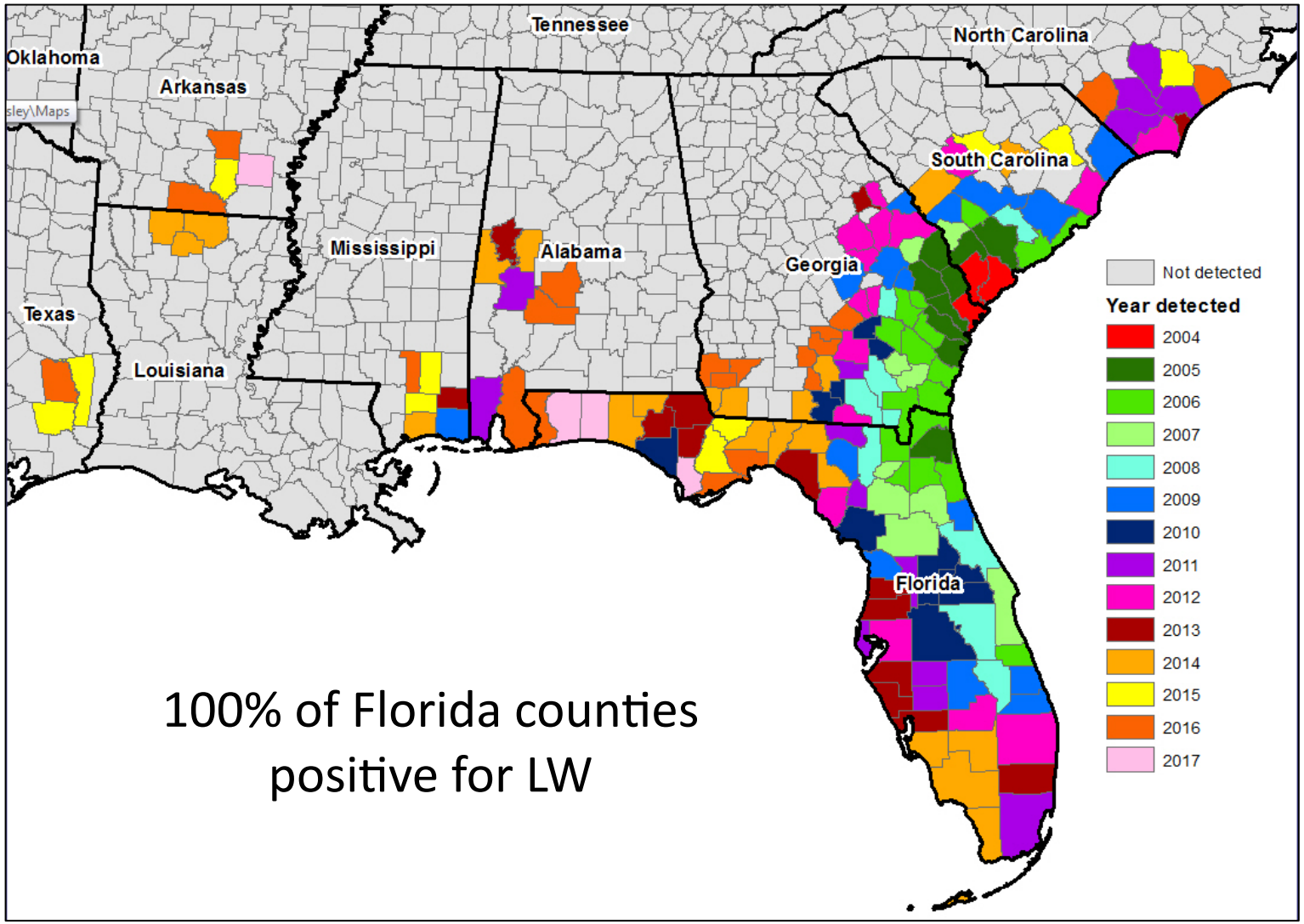
Redbay ambrosia beetle *(Xyleborus glabratus)*

Both Native to Asia

Laurel wilt spread



Laurel wilt distribution



Major forest health issues in the Southeast in 2016-2017

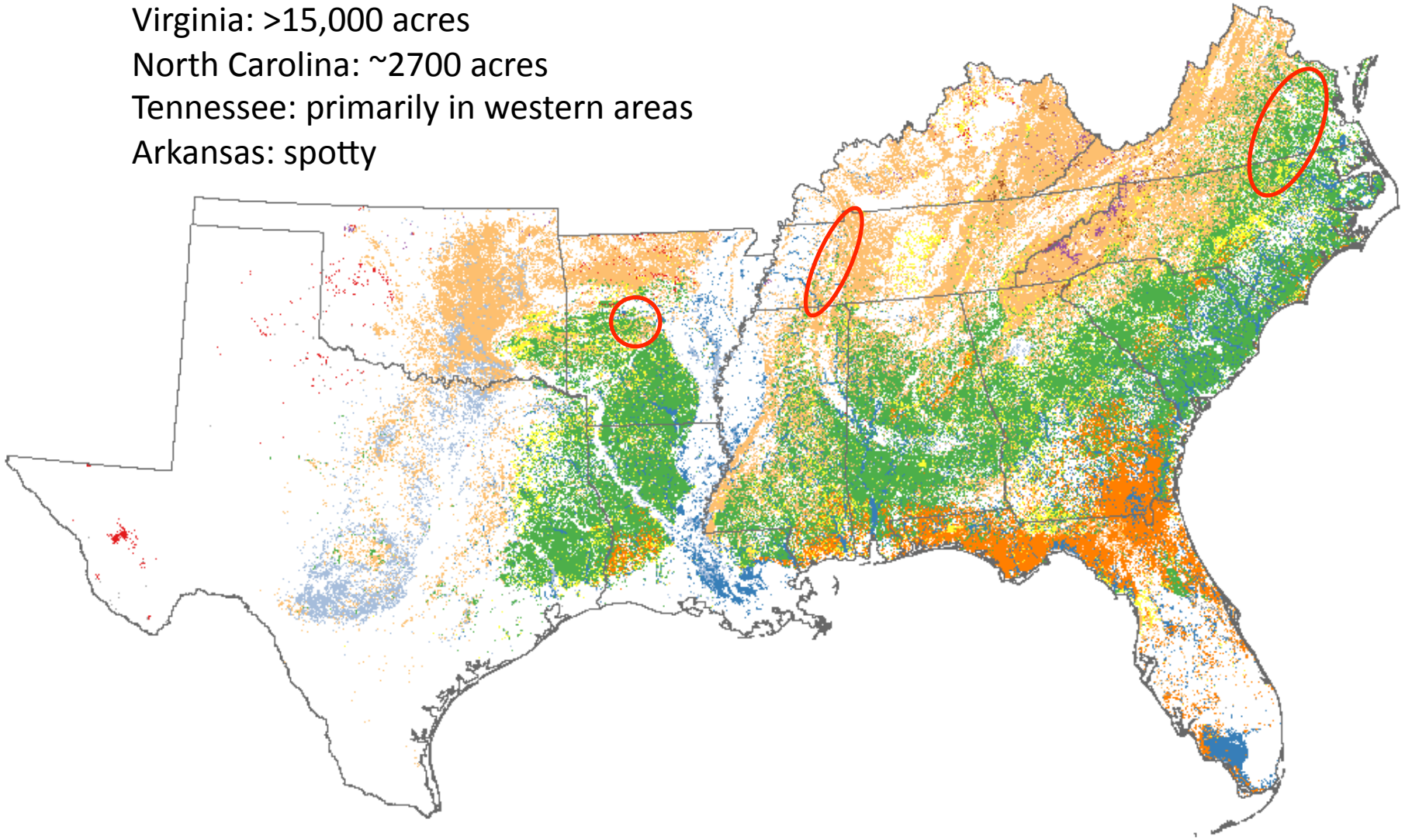
http://www.pelicanlakemn.org/education.html

Variable oak leaf caterpillar

- Native to North America
- Occasional outbreaks
- Tree mortality = rare
- Natural enemies usually control populations

Variable oak leaf caterpillar outbreaks

Virginia: >15,000 acres
North Carolina: ~2700 acres
Tennessee: primarily in western areas
Arkansas: spotty



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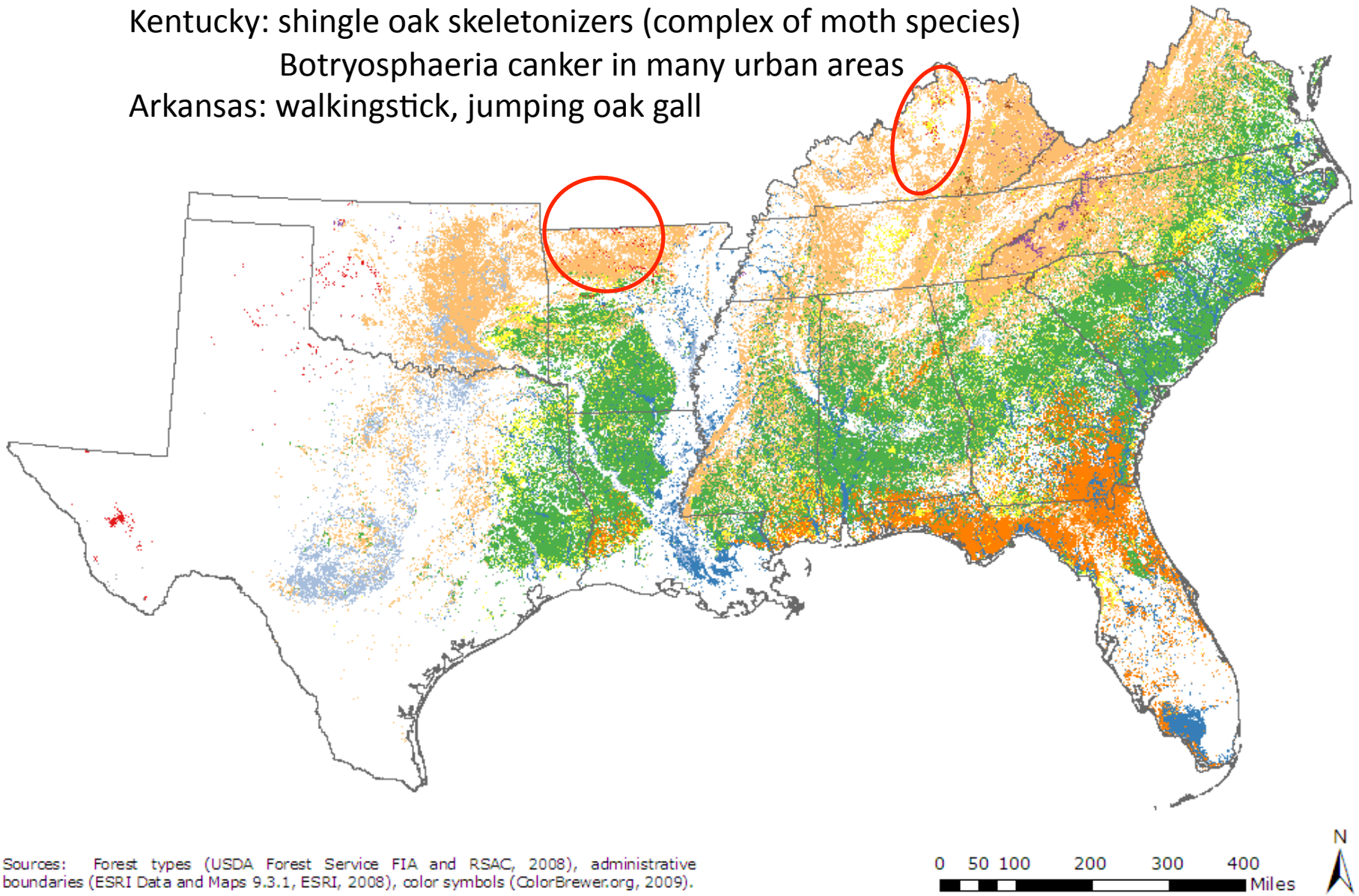
0 50 100 200 300 400
Miles

N

Variable oak leaf caterpillar outbreak VA, 2017

Other issues

Kentucky: shingle oak skeletonizers (complex of moth species)
Botryosphaeria canker in many urban areas
Arkansas: walkingstick, jumping oak gall



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Miles

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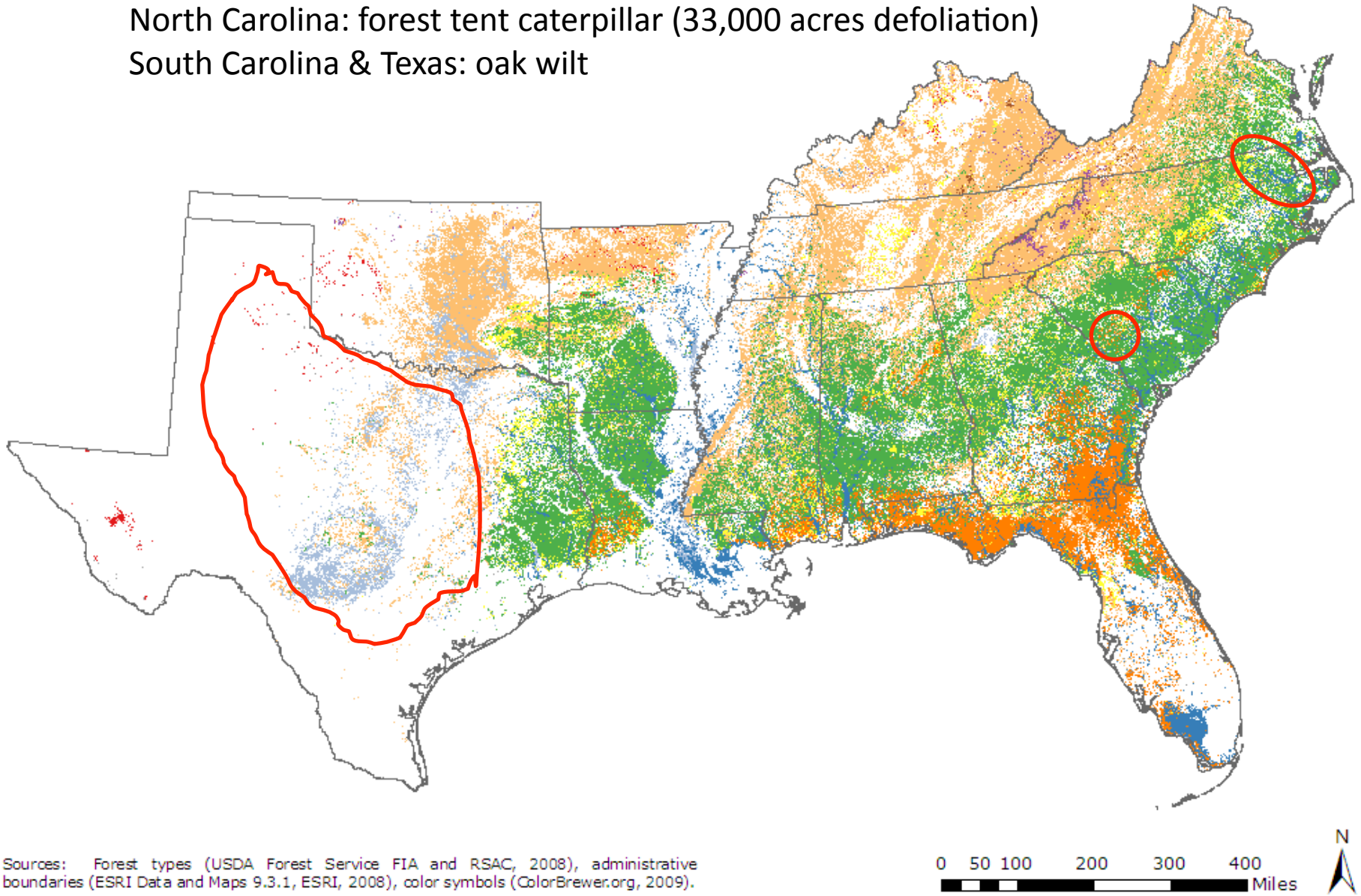
Oak skeletonizers, central KY

Walkingstick defoliation, Ozark Mts.

Other issues

North Carolina: forest tent caterpillar (33,000 acres defoliation)
South Carolina & Texas: oak wilt



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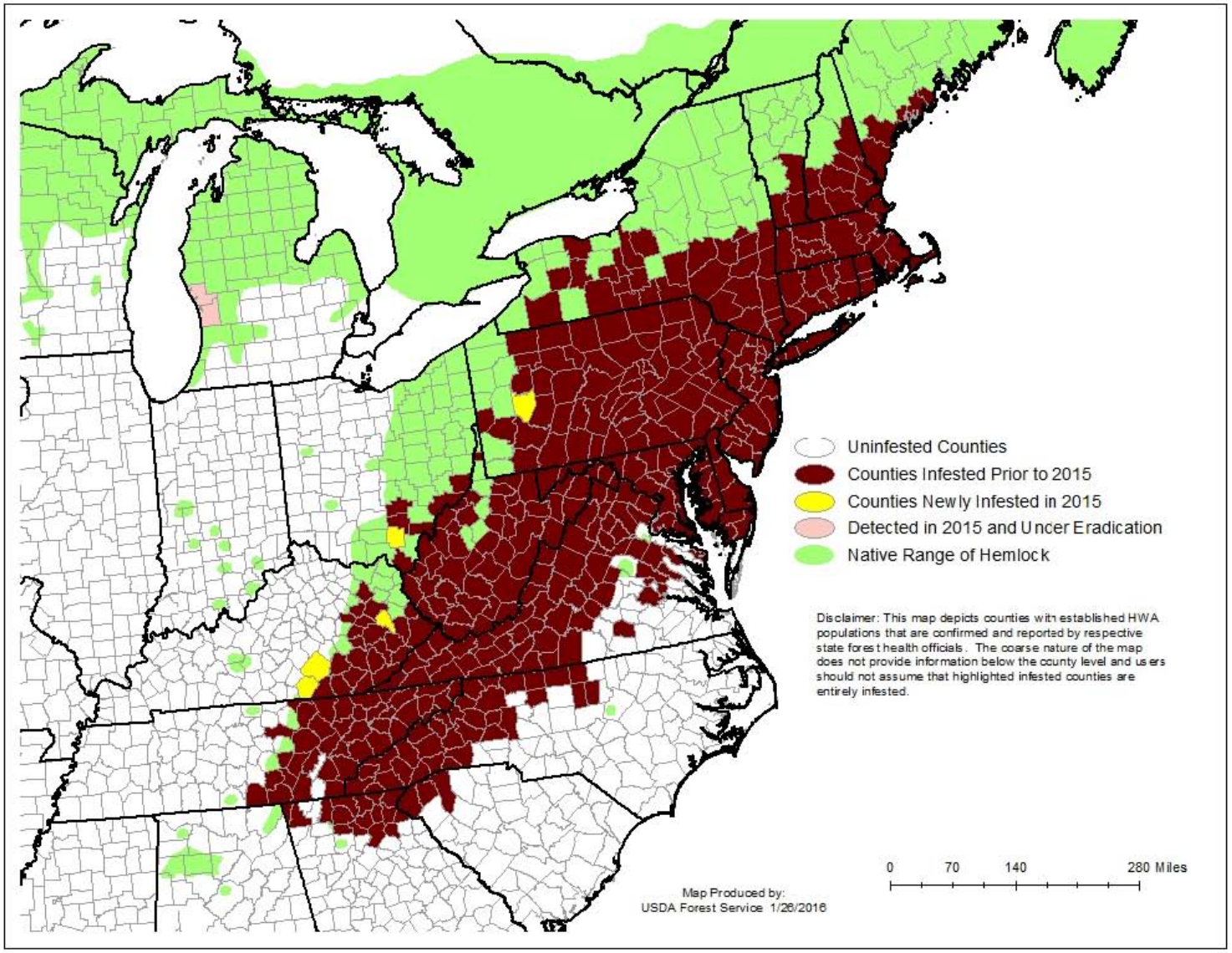
Hemlock woolly adelgid



Odds ‘n ends

- Invasive plants are a problem EVERYWHERE
  - E.g. especially after ash dies (KY)
- Lagging impacts of drought
  - E.g. oak mortality in OK, lots of hypoxylon
- Impacts from salt water encroachment
  - E.g. from hurricanes in SC
- Continual monitoring for ALB, TCD, EAB, LW...


ANY
QUESTIONS
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