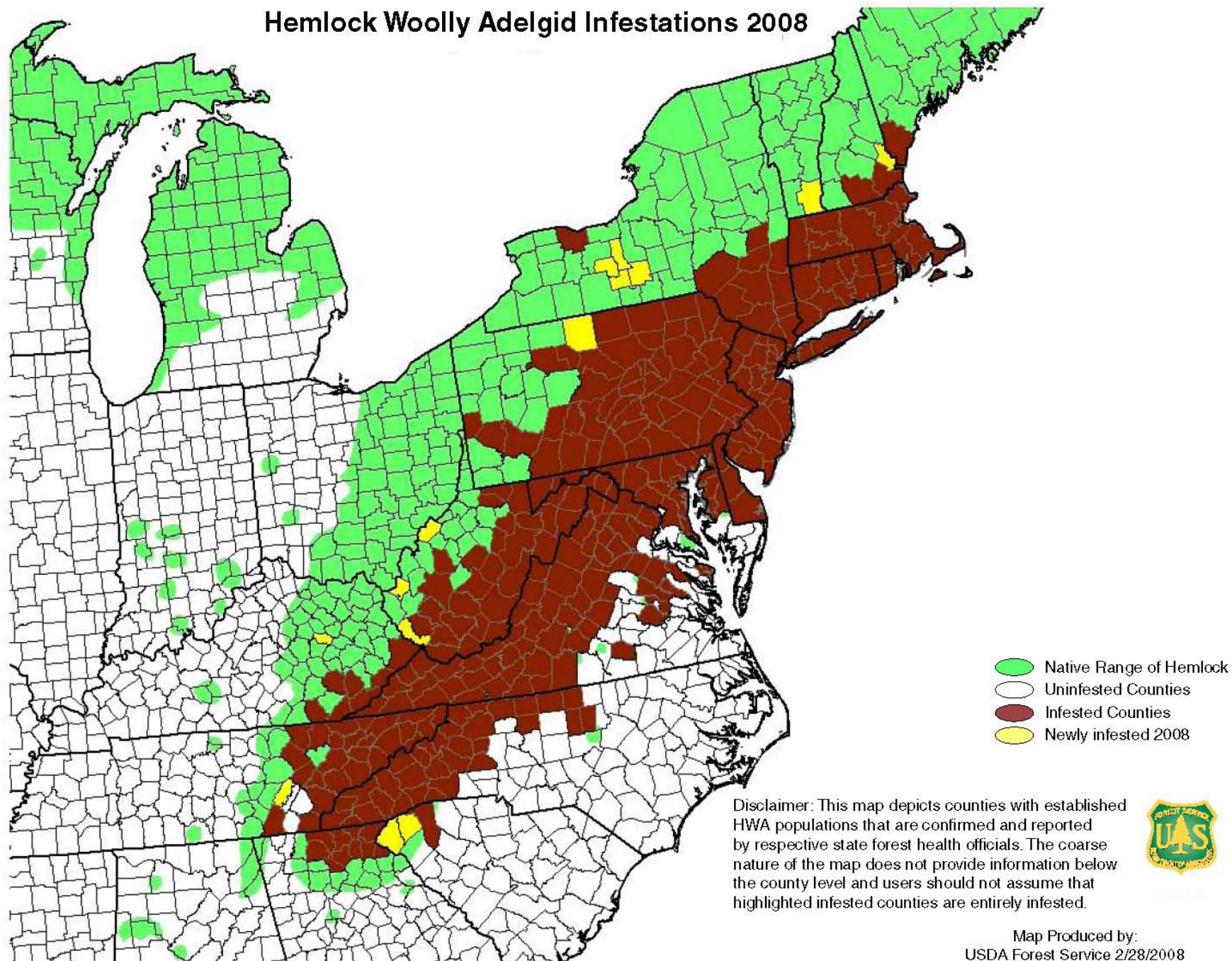


Hemlock
Woolly Adelgid
– Regulated
Non-Federally
Quarantined
Pest



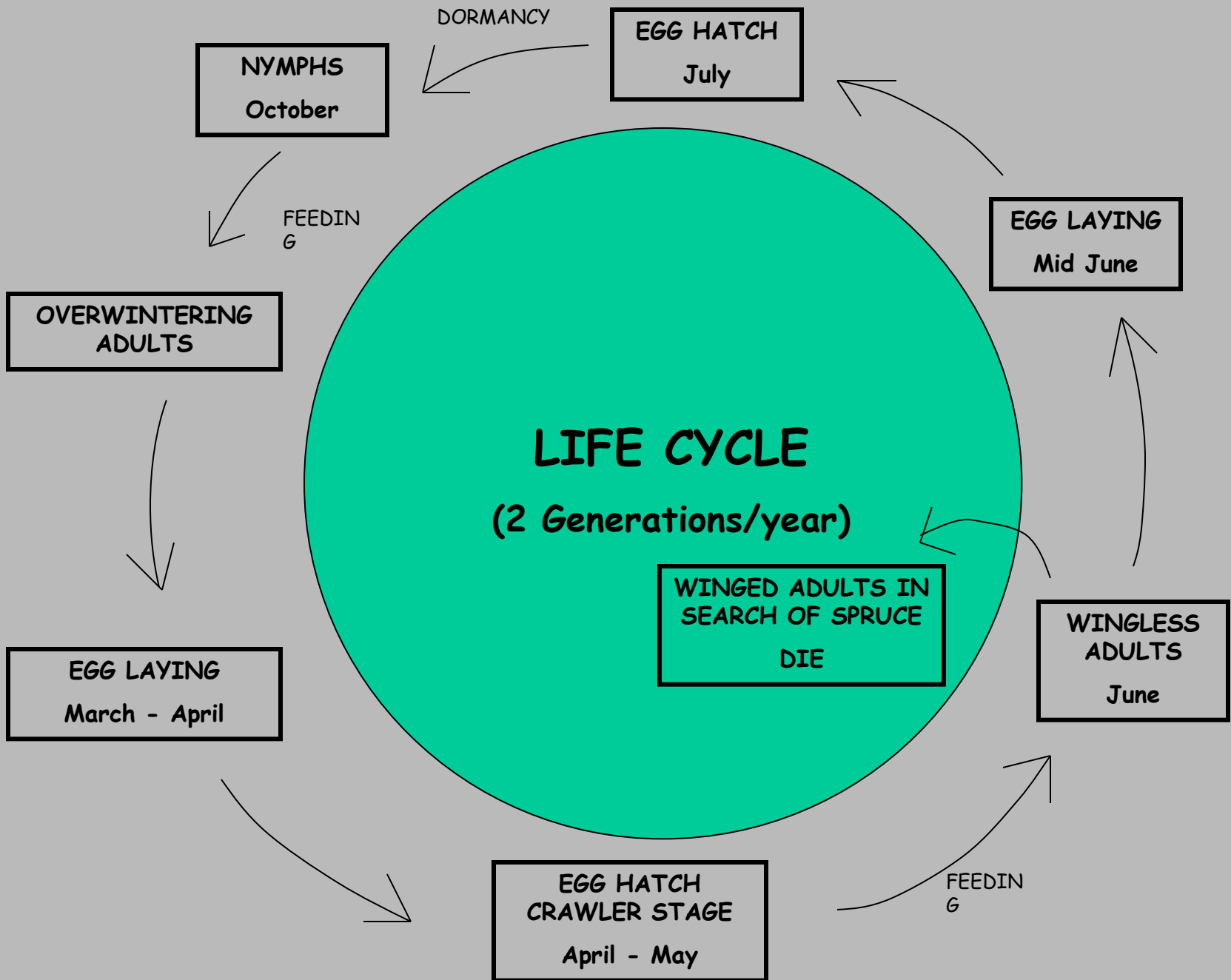
Hemlock Woolly Adelgid Infestations 2008



Disclaimer: This map depicts counties with established HWA populations that are confirmed and reported by respective state forest health officials. The coarse nature of the map does not provide information below the county level and users should not assume that highlighted infested counties are entirely infested.



Map Produced by:
USDA Forest Service 2/28/2008



Close up of HWA cottony masses



Close up of live HWA eggs





Photo by Kathleen Shields, USFS

TREE INJURY AND SYMPTOMS

- ⌘ consumes sap from twigs, not needles
- ⌘ needles turn grayish green, lack of bud set or new growth
- ⌘ premature needle drop, loss of tree vigor, secondary attack by scale and mites
- ⌘ death in 1 - 4 years



DISPERSAL



⊕ wind

⊕ birds

⊕ mammals

⊕ commerce



HISTORY

HWA ORIGINATED FROM JAPAN AND CHINA

- ① First discovered in 1920's in western states
...no serious effects to western Hemlock
- ① Found in eastern states in 1950's
- ① Maine, Vermont, New Hampshire, Ohio, Wisconsin & Michigan have state quarantines
- ① Michigan quarantine established in 2002

Areas Under Quarantine: "The List"

USDA Publication - List of Counties and States with Known
Hemlock Woolly Adelgid Infestations

EASTERN STATES

Connecticut	Delaware	Maryland
Massachusetts	New Jersey	New York
Pennsylvania	Rhode Island	Virginia
West Virginia		

WESTERN STATES

Alaska	California	Oregon	Washington
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Regulated Articles:

- Seedlings, nursery stock
- Logs
- Lumber with bark
- Landscape bark, mulch

Restrictions:

Quarantined areas:

No shipments permitted

"...unless treated using a method approved
by the Director."

...NONE AT THIS TIME

Restrictions:

Non-Quarantined Areas

MUST HAVE a state phytosanitary
Certificate
or Certificate of Quarantine Compliance
(CQC)

- A. Originated from a non-quarantined area
- B. Have not been held in an area under quarantine
- C. Have not been exposed to regulated Articles from quarantined areas

Unhealthy tree that
alerted Landscaper
to call MDA



Shipping invoices
showed over 2000
hemlocks arriving
from West Virginia,
Maryland, Illinois,
North Carolina



**Landscaper agreed to remove
infested trees**



**31 infested landscape and native
hemlocks were removed**





**Trunk and branches cut up
for disposal**





Hemlock landscape trees replaced with White Pine





- Chemical treatments of surrounding hemlocks at the five infested sites (190 trees)



What's next?

- Continued invoice trace back inspection of hemlock shipments
- Large scale survey and monitoring of hemlock population in Harbor Springs area
- Review of Michigan HWA quarantine and shipping restrictions from infested states
- Enforcement actions upon the infested shipments

