

WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE & CONSUMER PROTECTION

update on exotic pest surveys in

wisconsin

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Ag Lime Conference
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exotic pest surveys

exotic pests results in a \$41 billion loss to American agriculture annually

early detection is critical

greater chance of eradication when pests are detected early

more management options

survey information can be used to make eradication, control, and quarantine decisions

early pest detection **SAVES MONEY** and resources





sirex woodwasp



potato nematodes



emerald ash borer



fruit tree tortrix moth



small hive beetle



wood-boring beetles

sirex noctilio woodwasp

background and general information

MOST common species intercepted at U.S. ports of entry in SWPM

Native to Europe, Asia and North Africa

Kills living pines, prefers Scotch pine (*Pinus sylvestris* Linnaeus)

Introduced into New Zealand, Australia, Argentina, Brazil, Chile, Uruguay, South Africa, and United States

Has caused up to 80% tree mortality

Detected in New York in 2004, Pennsylvania, and Ontario, Canada





Females locate stressed trees and deposit eggs, a symbiotic fungus (*Amylostereum areolatum*), and a toxic mucus

Fungus and mucus act together to kill the tree

One generation per year; adults active from June through September

Sirex noctilio Survey 2006



Wisconsin Department of Agriculture, Trade and Consumer Protection

sirex noctilio survey 2006
conducted from June through mid-October

63 total sites

10 counties

10 traps at Port of Milwaukee

10 traps at Port of Green Bay

Scotch pine plantings

Christmas tree farms

315 samples screened

Sirex was not detected in 2006

Division of agricultural resource management • bureau of plant industry



exotic wood-boring and bark beetles



TOP 10 HIGH RISK TARGET PESTS

Anoplophora chinensis

Anoplophora glabripennis

Anoplophora malasiaca

Callidiellum rufipenne

Chlorophorus annularis

Hesperophanes campestris

Hylurgops palliatus

Hylurgops ligniperda

Ips typographus

Monochamus alternatus



wood-boring beetles

2006 detection and trapping efforts

SITE SELECTION

High risk points are locations with a history of PPQ EANs documenting violations or the presence of wood boring or bark beetles in SWPM (info. provided from USDA APHIS PPQ database)

Emergency Action Notification (EAN): PPQ FORM 523 issued to inform an industry that, due to plant or animal health concerns, cargo cannot come into U.S. without a prescribed action on their part

USDA APHIS PPQ FORM 523 (Rev. 10/01)

EMERGENCY ACTION NOTIFICATION

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999. SIGNATURE AND TITLE

1000. DATE

1001. TIME

1002. LOCATION

1003. DESCRIPTION OF VIOLATION

1004. ACTION REQUIRED

1005. SIGNATURE AND TITLE

1006. DATE

1007. TIME

1008. LOCATION

1009. DESCRIPTION OF VIOLATION

1010. ACTION REQUIRED

1011. SIGNATURE AND TITLE

1012. DATE

1013. TIME

1014. LOCATION

1015. DESCRIPTION OF VIOLATION

1016. ACTION REQUIRED

1017. SIGNATURE AND TITLE

1018. DATE

1019. TIME

1020. LOCATION

1021. DESCRIPTION OF VIOLATION

1022. ACTION REQUIRED

1023. SIGNATURE AND TITLE

1024. DATE

1025. TIME

1026. LOCATION

1027. DESCRIPTION OF VIOLATION

1028. ACTION REQUIRED

1029. SIGNATURE AND TITLE

1030. DATE

1031. TIME

1032. LOCATION

1033. DESCRIPTION OF VIOLATION

1034. ACTION REQUIRED

1035. SIGNATURE AND TITLE

1036. DATE

1037. TIME

1038. LOCATION

1039. DESCRIPTION OF VIOLATION

1040. ACTION REQUIRED

1041. SIGNATURE AND TITLE

1042. DATE

1043. TIME

1044. LOCATION

1045. DESCRIPTION OF VIOLATION

1046. ACTION REQUIRED

1047. SIGNATURE AND TITLE

1048. DATE

1049. TIME

1050. LOCATION

1051. DESCRIPTION OF VIOLATION

1052. ACTION REQUIRED

1053. SIGNATURE AND TITLE

1054. DATE

1055. TIME

1056. LOCATION

1057. DESCRIPTION OF VIOLATION

1058. ACTION REQUIRED

1059. SIGNATURE AND TITLE

1060. DATE

1061. TIME

1062. LOCATION

1063. DESCRIPTION OF VIOLATION



wood-boring beetles

2006 detection and trapping

efforts

Telephone interviews - 36 companies were issued EANs

Site visits - 7 businesses visited by DATCP staff in 2006 / 8 visits by USDA APHIS

Warehouse trapping - Lindgren funnel traps placed at 4 high-risk sites

No exotic wood-boring or bark beetles were detected in 2006





small hive beetle

Aethina tumida Murray

Native to Africa, detected in Florida in 1998, now widespread in U.S.

Lives and breeds in honeybee colonies, stored comb, and in beekeeping equipment - can reproduce in certain fruits

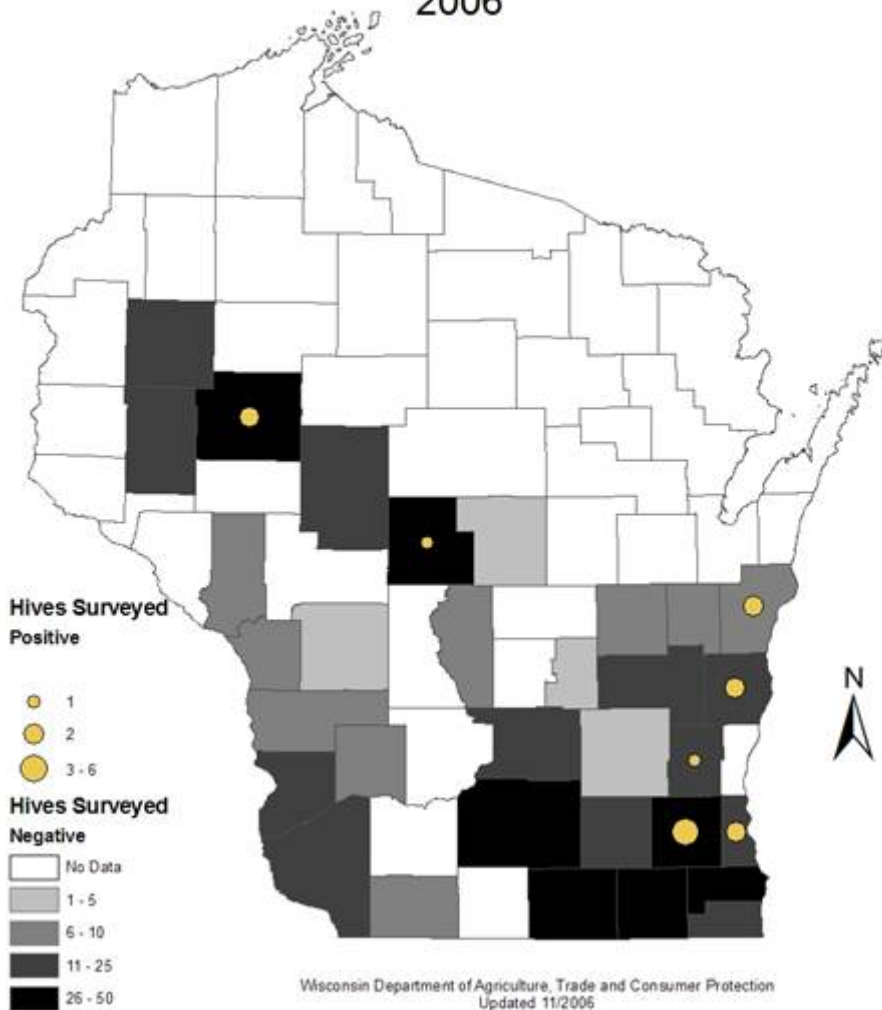
Multiplies rapidly, eats pollen and brood, destroys combs, and hives

Spread by movement of package bees, colonies, honeycomb, beeswax, used beekeeping equipment, soil, and fruit

First found in WI in 1999 and is reintroduced each season - NOT established



Wisconsin Small Hive Beetle Survey 2006



small hive beetle survey and detection

efforts

May 8 through October 31, 2006

543 hives were opened and visually inspected for SHB

SHB found in 16 hives in 7 counties:

Chippewa - 2
Manitowoc - 2
Milwaukee - 2
Sheboygan - 2
Waukesha - 6
Washington - 1
Wood - 1



fruit tree tortrix moth

exotic pest insect in apple
orchards

Native to Europe and Asia

Present in Canada since 1937

One of the most damaging fruit defoliators
in Europe

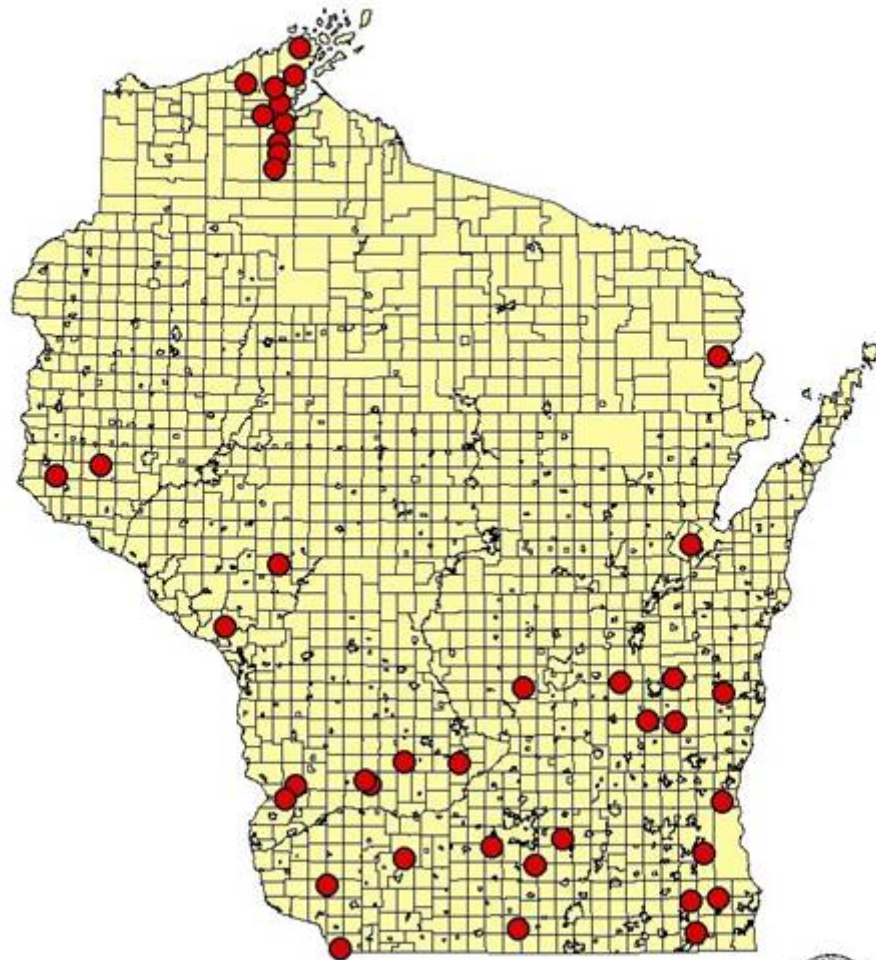
Detected in WA State in 2000

Many hosts, including apple, pear, plum,
cherry, apricot, currant, raspberry, rose,
etc.

Risk of importing FTT on nursery stock



DATCP's 2006 Fruit Tree Tortrix Moth Survey



Wisconsin Department of Agriculture, Trade & Consumer Protection
Plant Pest Survey & Control Section



fruit tree tortrix moth
2006 survey and detection

ports

40 orchards

20 counties

Pheromone traps baited with lures
specific to FTT

Mid-May to September 1

Three suspects trapped

Awaiting determination of one
Racine Co. moth - Archips sp.

agricultural resource management • bureau of plant industry

fruit tree tortrix moth

2006 survey and detection results



Suspect FTT: Archips sp.



exotic fruit moths



apple ermine moth



cherry bark tortrix



dark fruit tree tortrix



apple tortrix

soybean viruses

survey and detection results

Objective: To detect soybean rust and other soybean viruses

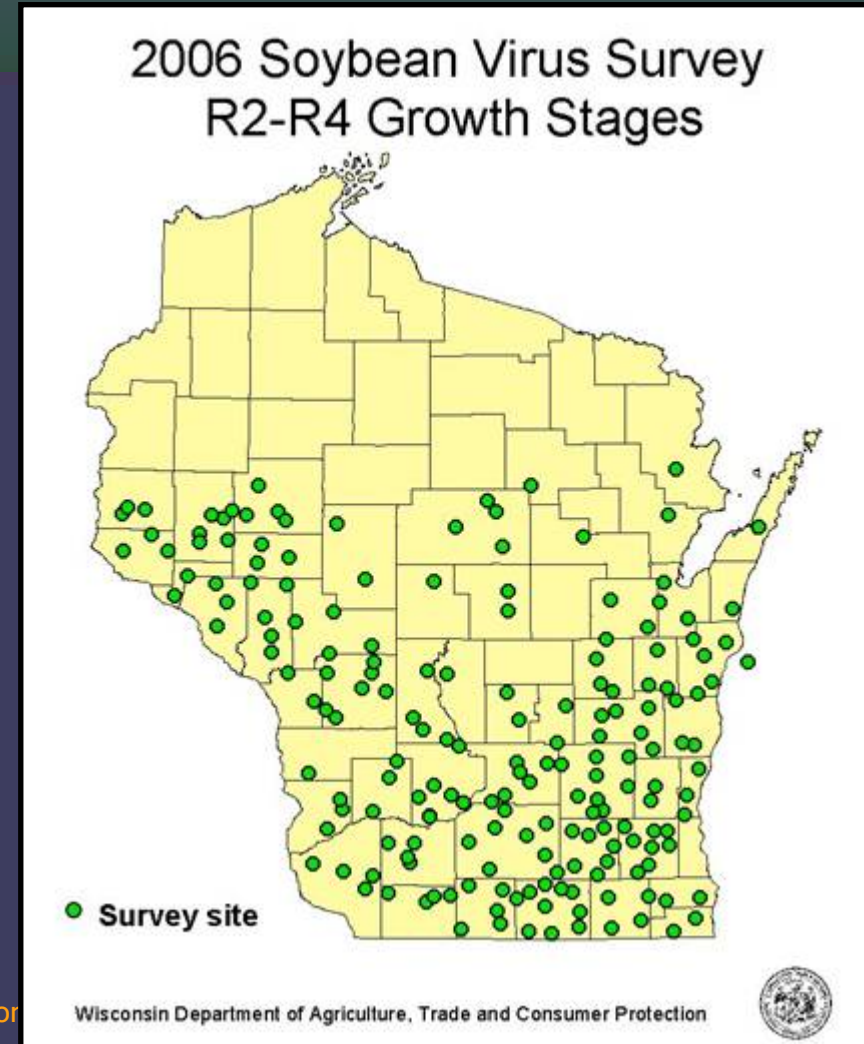
188 soybean fields surveyed in 2006

40 trifoliates collected at each site were tested by ELISA (AGDIA reagents)

ALL negative for BPMV, TSV (tobacco streak virus) and Potyviruses

6 fields positive for SbDV

Soybean dwarf virus with RT-PCR (Reverse Transcription Polymerase Chain Reaction)



soybean cyst nematode

Cumulative data from an annual soil survey of soybean fields document the prevalence of Soybean cyst nematode (*Heterodera glycines*) throughout Wisconsin since 1981



exotic potato nematodes

Soil samples collected from potato fields

TARGET SPECIES:

Golden nematode, *Globodera rostochiensis*

Pale cyst nematode, *Globodera pallida*

Columbia root-knot nematode, *Meloidogyne chitwoodi*

False Columbia root-knot nematode, *Meloidogyne fallax*

Test methods = classic nematology and PCR



exotic potato nematodes

95 samples collected so far in 2006 (ongoing)

16 potato growing counties surveyed, including:

Adams, Barron, Brown, Dunn, Iowa, Langlade,
Marathon, Marinette, Oconto, Oneida, Outagamie,
Portage, Sauk, Waupaca, Waushara, and Wood

As of 11-13-06, all samples have tested
NEGATIVE



potato cyst nematode

Detected Idaho during summer of 2006—currently five fields positive in ID

Temporarily disrupted export markets

USDA-APHIS has proposed a nationwide survey of potato fields-- Wisconsin will participate

Focus on seed production areas

Will require grower and shipper cooperation



emerald ash borer update

Recognized as cause of tree mortality in 2002 in Detroit area.

Probably entered in solid wood packaging associated with auto parts.

Has killed upwards of 15 million ash trees in Michigan, Indiana and Ohio.

Threatens all of Wisconsin's 717+ million ash trees



Cooperative Emerald Ash Borer Project

EAB locations
in Illinois, Indiana, Michigan, Maryland,
Ohio and southwest Ontario, Canada

November 6, 2006



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Sources of available data:
Michigan Department of Agriculture
Michigan Department of Agriculture
Database 2006-11-01, National A.C. Census Online
Michigan Department of Agriculture database
Michigan Tech University School
of Forest Resources & Environmental Sciences
Indiana Department of Natural Resources
Ohio Department of Agriculture survey data
Indiana EAD sources: Approximate EAD locations from
EAD survey data, 2006-2007
CFA map: EAD Forest Site Inventory, Central and
Western (map), dated September 1, 2005 & CFA map
"Forest and River Survey Results as of October 10, 2006"
A.D. 2006-11-01, National A.C. Census Online

emerald ash borer update

ILLINOIS - Kane Co., Cook Co. Wilmette, Evanston, Winnetka, NW Univ.

INDIANA - New finds in White Co. in Sept. and Porter Co. in Oct. (10 Cos.)

MICHIGAN - 59 of 68 Cos. positive, 95 outliers

MARYLAND - 2002 Nursery intro. not erad.

OHIO - Recent EAB finds in Hardin, Logan, Mercer Cos. (258,000 trees erad., \$16mil.)

CANADA - Middlesex Co., 30,000 Quar. Orders



emerald ash borer update

destructive sampling plans & detection trees

Visual surveys carried out by DATCP, DNR, and USFS since 2003 are not effective at early detection

New, more effective (but costly and labor-intensive) approach:

- “Destructive sampling” - cut and peel trees to look for larvae beneath the bark
- “Detection trees” - trees girdled by removing bark in fall/winter will attract beetles next summer

WisDOT has approved tree removal and girdling in 30 counties

Destructive sampling underway—1,268 trees GPS'd and marked to date

emerald ash borer update

survey and detection tree sampling

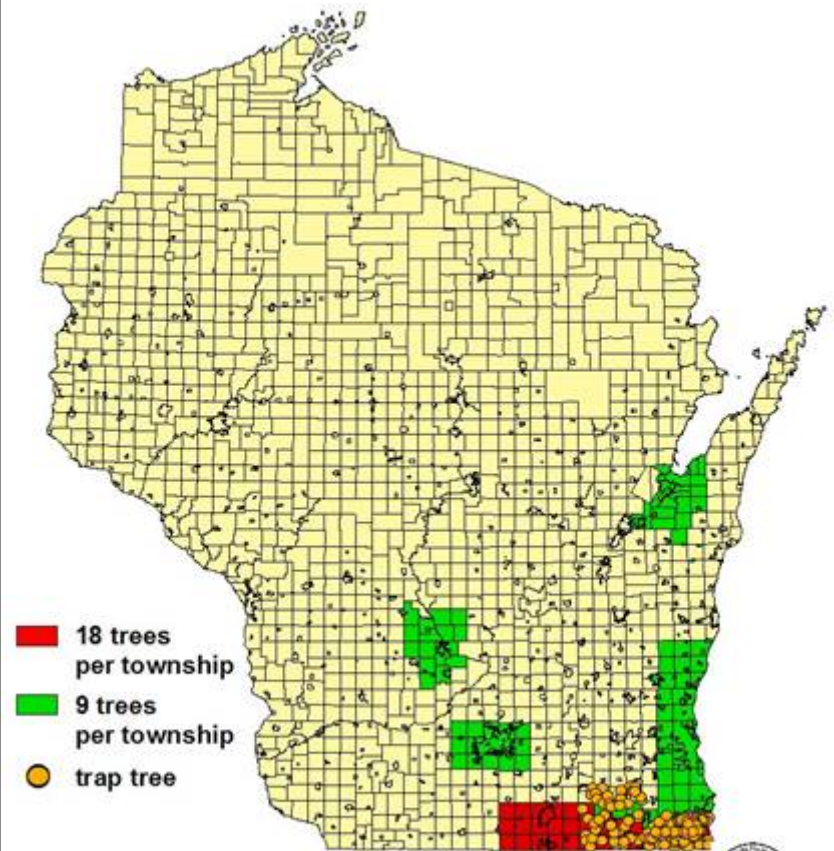
Survey plans for 2006-2007

Goal of 1,420 sample trees
and 4,480 detection trees

Target density of 18 trees per
township or 9 trees per
township

Focus on public trees in state
and county R/Ws

Emerald Ash Borer Destructive Sampling 2006



Wisconsin Department of Agriculture, Trade and Consumer Protection



emerald ash borer update

techniques for preparing detection

trees



cut into bark



peel back bark



peel back bark

emerald ash borer update

2006 survey and detection tree techniques

Peel bark carefully to
find larvae

Work is costly and labor-
intensive

Raises concerns with the
public

Not a good tool, but it's the
best available



emerald ash borer update

hotline calls and mills/firewood dealer survey

PUBLIC RESPONSE

- approx. 720 calls received
- 190 information packets
- 73 site visits

VISUAL SURVEYS

- approx. 200 mill and firewood contacts
- 47 site surveys to date

Emerald Ash Borer HOTLINE
1-800-462-2803



what can you do?

grower and crop consultant role in pest detection

Be aware of anomalies in your crops

- unusual disease symptoms
- unfamiliar insects causing damage

Report suspicions

- County Extension agents
- UW Specialists and Plant Disease Diagnostics Clinic
- DNR Foresters
- DATCP Pest Survey staff

1-800-462-2803



Photo: Carl Mydans, Farm Security Administration, June 1936