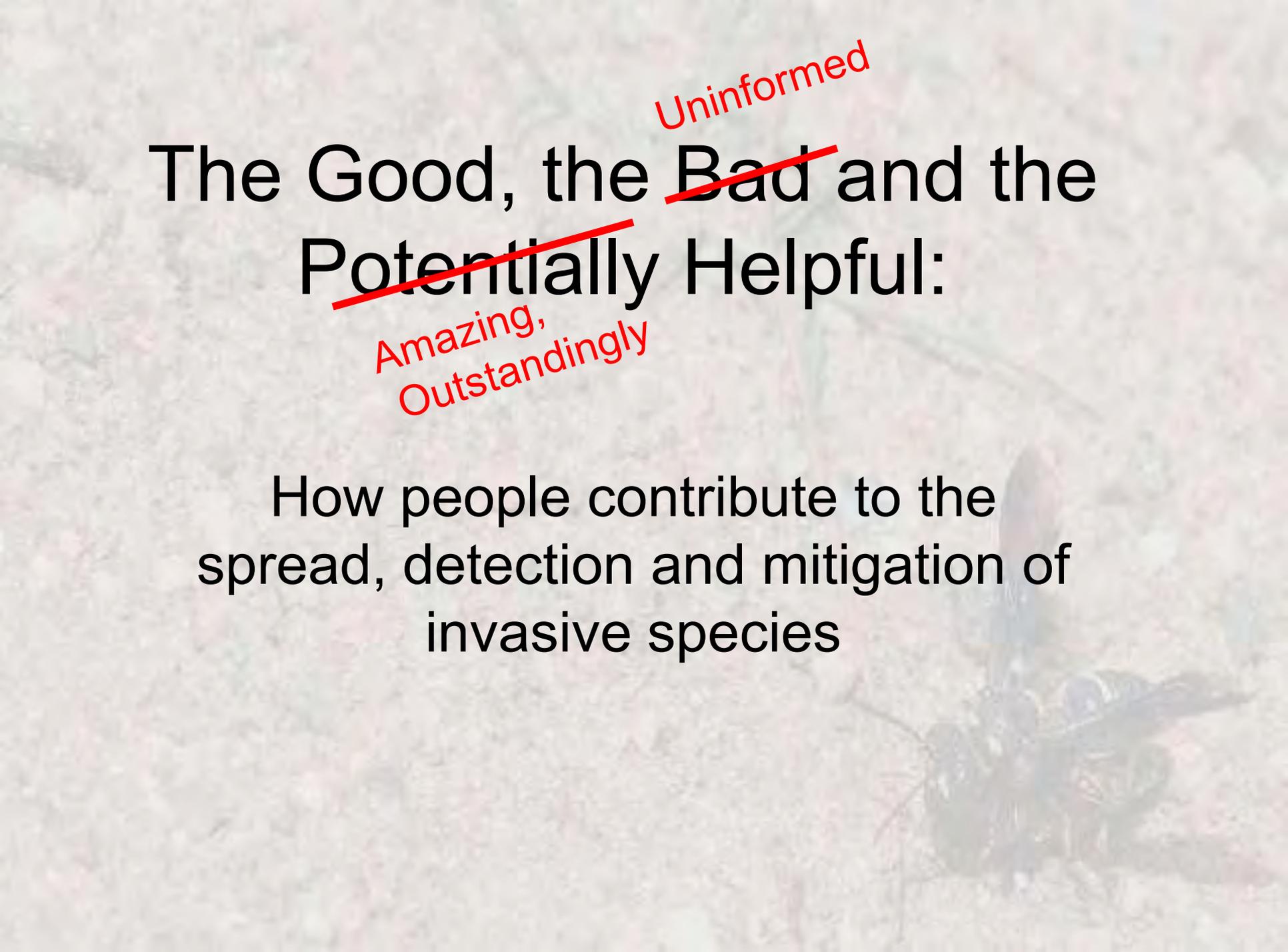


# The Good, the Bad and the Potentially Helpful:

How people contribute to the spread, detection and mitigation of invasive species



# The Good, the ~~Bad~~ and the ~~Potentially~~ Helpful:

*Amazing,  
Outstandingly*

*Uninformed*

How people contribute to the  
spread, detection and mitigation of  
invasive species

# The Bad: people move invasive insects

- On their own, Asian longhorned beetle and emerald ash borer move less than 2 miles per year



MINNESOTA

© Nations Online Project

CANADA  
ONTARIO



# MICHIGAN

## POPULATED PLACES

- 500,000 - 999,999 • Detroit
- 100,000 - 499,999 • Ann Arbor
- 25,000 - 99,999 • Saginaw
- 24,999 and less • Ishpeming
- State capital ★ Lansing
- Urban areas ●

## TRANSPORTATION

- Interstate limited access highway
- Other principal highway
- Railroad
- Ferry

## PHYSICAL FEATURES

- Streams
- Lakes
- Highest elevation in state (feet)  $\pm 1979$
- The lowest elevation in Michigan is 571 feet above sea level (Lake Erie).

IOWA



WISCONSIN

ILLINOIS

INDIANA

OHIO



# Cooperative Emerald Ash Borer Project

EAB locations in Illinois, Indiana, Kentucky, Maryland, Michigan, Minnesota, Missouri, New York, Ohio, Pennsylvania, Virginia, West Virginia and Canada

September 1, 2009

Quebec

Minnesota

Wisconsin

Michigan

Ontario

New York

Pennsylvania

Indiana

Ohio

Maryland

Missouri

Illinois

West Virginia

Virginia

Kentucky

**Map Key**

- EAB records
- EAB infested areas (green, dark green, or brown)
- Forest or park boundaries
- EAB quarantine areas
- State boundaries
- EAB quarantine zones
- EAB quarantine zones
- EAB quarantine zones



0 37.5 75 150 Miles

0 62.5 125 250 Kilometers

**Sources of available data**

- Emerald Ash Borer (EAB) records from Michigan, Indiana, Ohio, Pennsylvania, New York, and Ontario, Canada (2002-2009)
- EAB records from Illinois, Kentucky, Maryland, Missouri, New York, Ohio, Pennsylvania, Virginia, and West Virginia (2002-2009)
- EAB records from Quebec, Canada (2002-2009)
- EAB records from Minnesota (2002-2009)
- EAB records from Wisconsin (2002-2009)
- EAB records from Michigan (2002-2009)
- EAB records from Ontario, Canada (2002-2009)
- EAB records from New York (2002-2009)
- EAB records from Pennsylvania (2002-2009)
- EAB records from Maryland (2002-2009)
- EAB records from Virginia (2002-2009)
- EAB records from West Virginia (2002-2009)
- EAB records from Kentucky (2002-2009)
- EAB records from Missouri (2002-2009)
- EAB records from Illinois (2002-2009)
- EAB records from Minnesota (2002-2009)
- EAB records from Wisconsin (2002-2009)
- EAB records from Quebec, Canada (2002-2009)

# The Bad: people move invasive insects

How do people move insects?



# The Bad: people move invasive insects

How do people move insects?



# Leave Your Firewood At Home

**Buy It Where You Burn It  
Don't Give Bugs a Free Ride!**



## Working with:

- campground owners' associations
- Maine Indian Basketmakers Alliance
- Maple syrup producers associations
- Tourism associations
- State parks
- Media



# The Potentially Helpful

monitoring for emerald ash borer  
with volunteers



# *Cerceris fumipennis*

Family: Crabronidae  
(hunting wasps)



- Native wasp
- Solitary ground-nester  
(in colonies)
- Non-stinging
- Provisions its nest with  
adult buprestids, including  
EAB when present
- Is capable of finding EAB  
at low levels

**BIOSURVEILLANCE**

# Identifying Features



-3 cream/yellow spots  
on face

- Dark smoky wings
- One cream/yellow band on 2nd abdominal segment
- $\frac{1}{2}$  -  $\frac{3}{4}$  inch long



They don't sting

-honest



# Where to find nests

## July-August

- Areas of human disturbance
- Hard-packed sandy soil
- Full sunshine
- Sparse, short vegetation
- Near trees (200 yds)



# What do Nests Look Like?

- perfectly round holes
- diameter of a pencil or hole punch
- holes go straight down (not angled)
- surrounded by a 'volcano' of excavated soil (not all to one side like a dog would dig)
- 2 – 500+ nests in a colony



# How Does Biosurveillance Work?

- Colony must be near ash (~400 m)
- Colony must be large enough (25-30+ nests)
- Collect up to 50 beetles from each site during the month of July (2-8 hours).



# How Do You Find Colonies?

- Use knowledgeable, motivated staff and volunteers:
  - State, university, federal entomologists, forest health professionals, city arborists
  - Retired or amateur entomologists
- Show searchers a colony
- Use Google Earth to find potential sites
  - Baseball fields, school playing fields, sand pits
- Combine the search with regular field work

# After You Find Colonies?

- Recruit local volunteers to ‘adopt’ a colony
  - City arborists, naturalist clubs, master gardeners, Scout groups, etc
  - Call town office
- Train them in biosurveillance when beetles emerge
- These volunteers (now knowledgeable and motivated) may look for new colonies



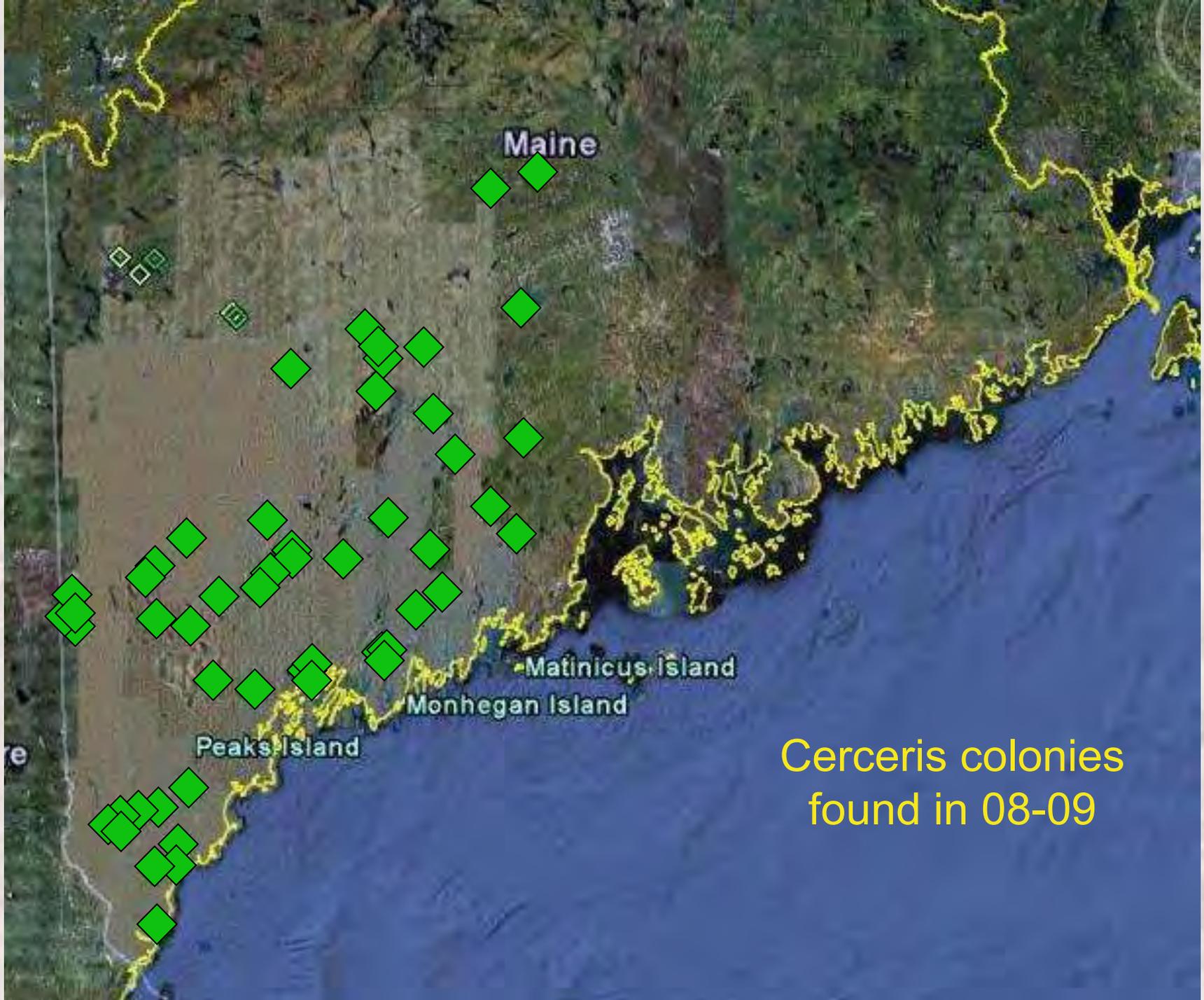
## **Who are the volunteers?**

- city arborists**
- city Parks & Rec. staff**
- Girl Scout troops**
- amateur entomologists**
- families**
- high school science teacher**
- town councilor & town clerk**
- interested individuals**



## **What motivates the volunteers?**

- want to protect the trees**
- it's fun**
- it's rewarding, interesting**
- something I can do with my family, get outdoors**
- really elegant biology**
- it's kind of cool**
- want to do something for my town**
- I can real difference**
- my Dad made me**



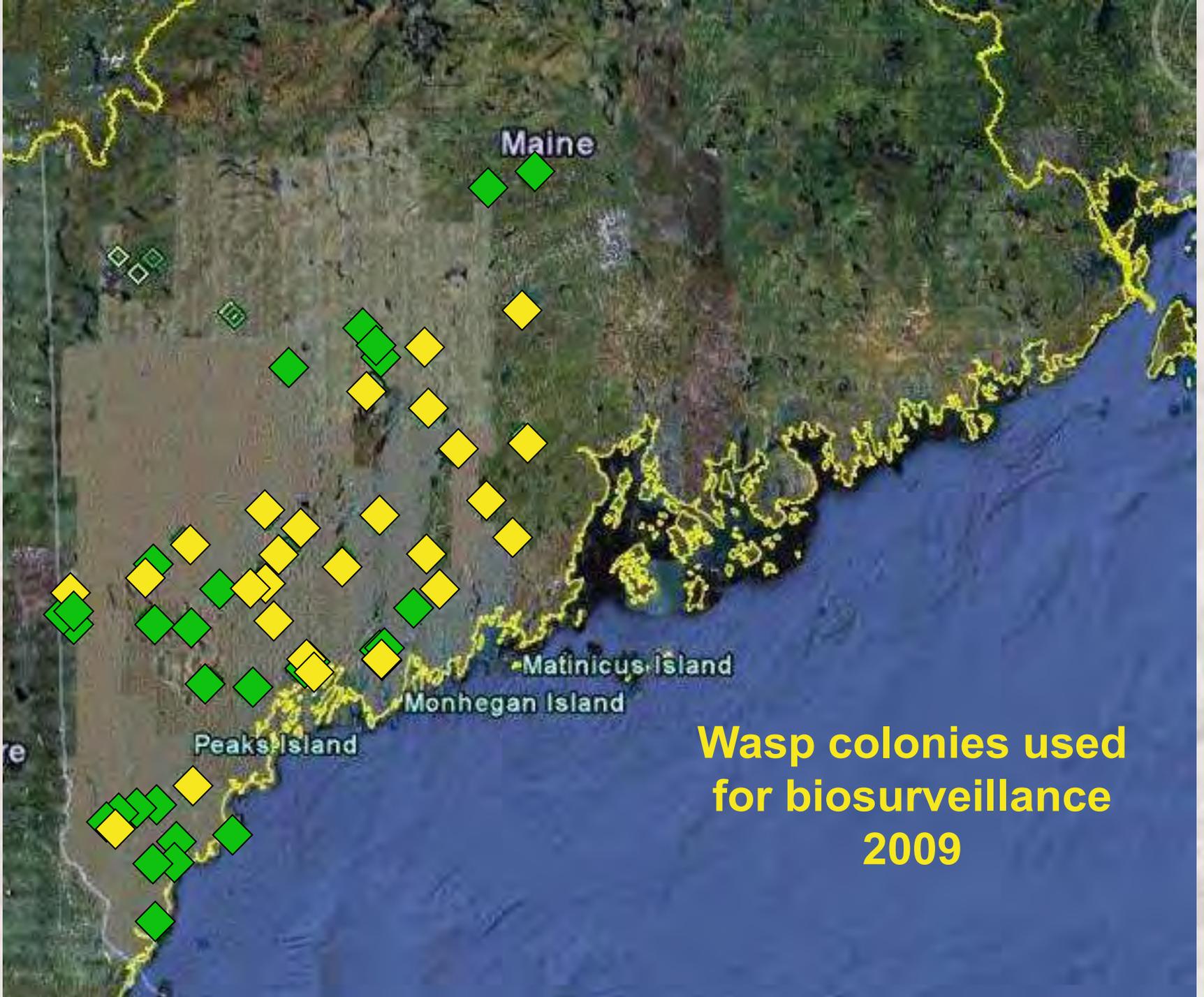
Maine

Matinicus Island

Monhegan Island

Peaks Island

Cerceris colonies  
found in 08-09

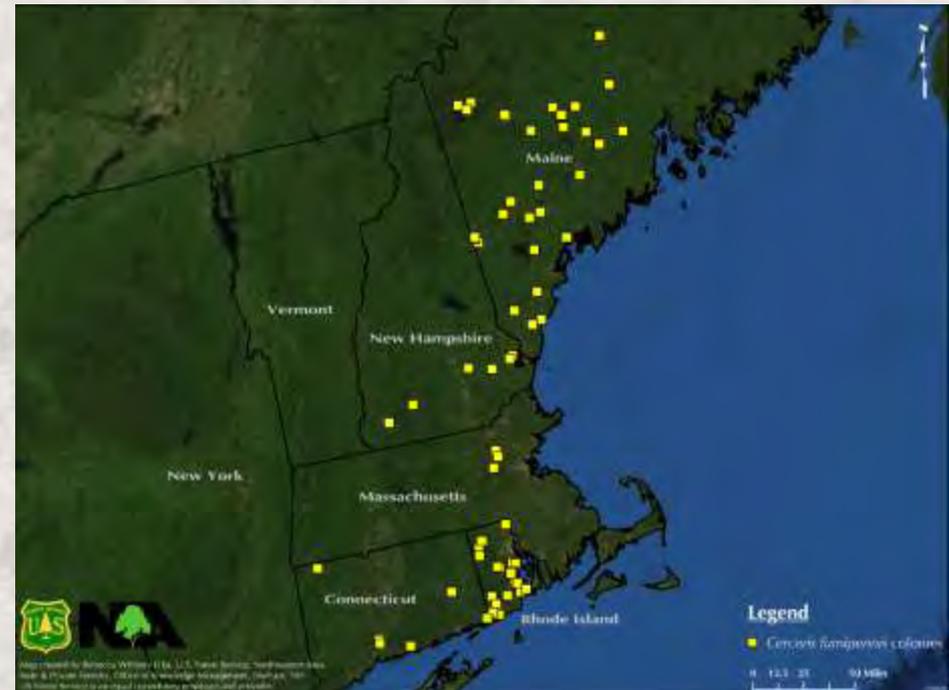


**Wasp colonies used  
for biosurveillance  
2009**

# What's happening beyond Maine?

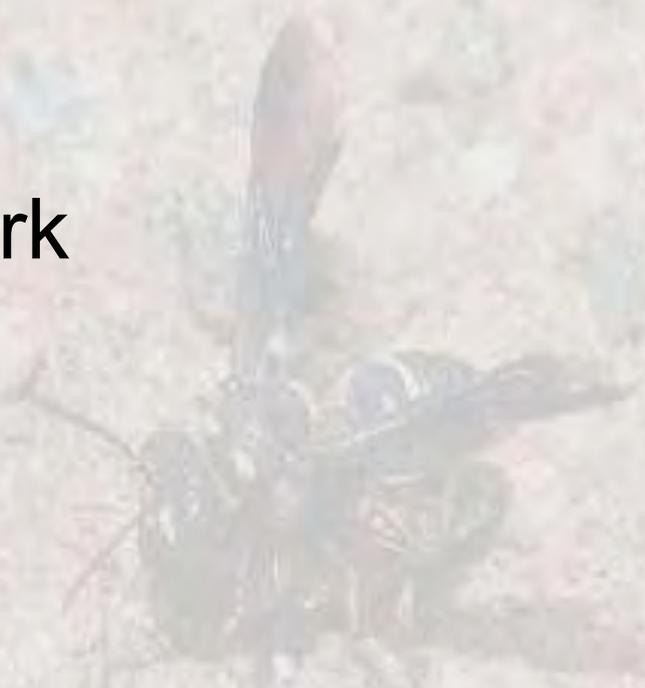
Connecticut:	67
Delaware:	6
Florida:	10
Maine:	66
Maryland:	17
Massachusetts:	6
Michigan:	6
New Hampshire:	7
New York:	12
North Carolina:	17
Rhode Island:	20
Pennsylvania:	7
Vermont:	19
W. Virginia:	6
Wisconsin:	19
Ontario:	23
Quebec:	3
New Brunswick	still looking

Colonies found in New England  
in 2008



# What's in the Future?

- Mobile colonies
- Transplanting colonies
- Lab rearing of wasps
- Basic biology
- Pheromone (kairomone) work



# check our websites

- Ontario
  - [cerceris.info](http://cerceris.info)
- Maine
  - [maine.gov/cerceris](http://maine.gov/cerceris)

[colleen.teerling@maine.gov](mailto:colleen.teerling@maine.gov)