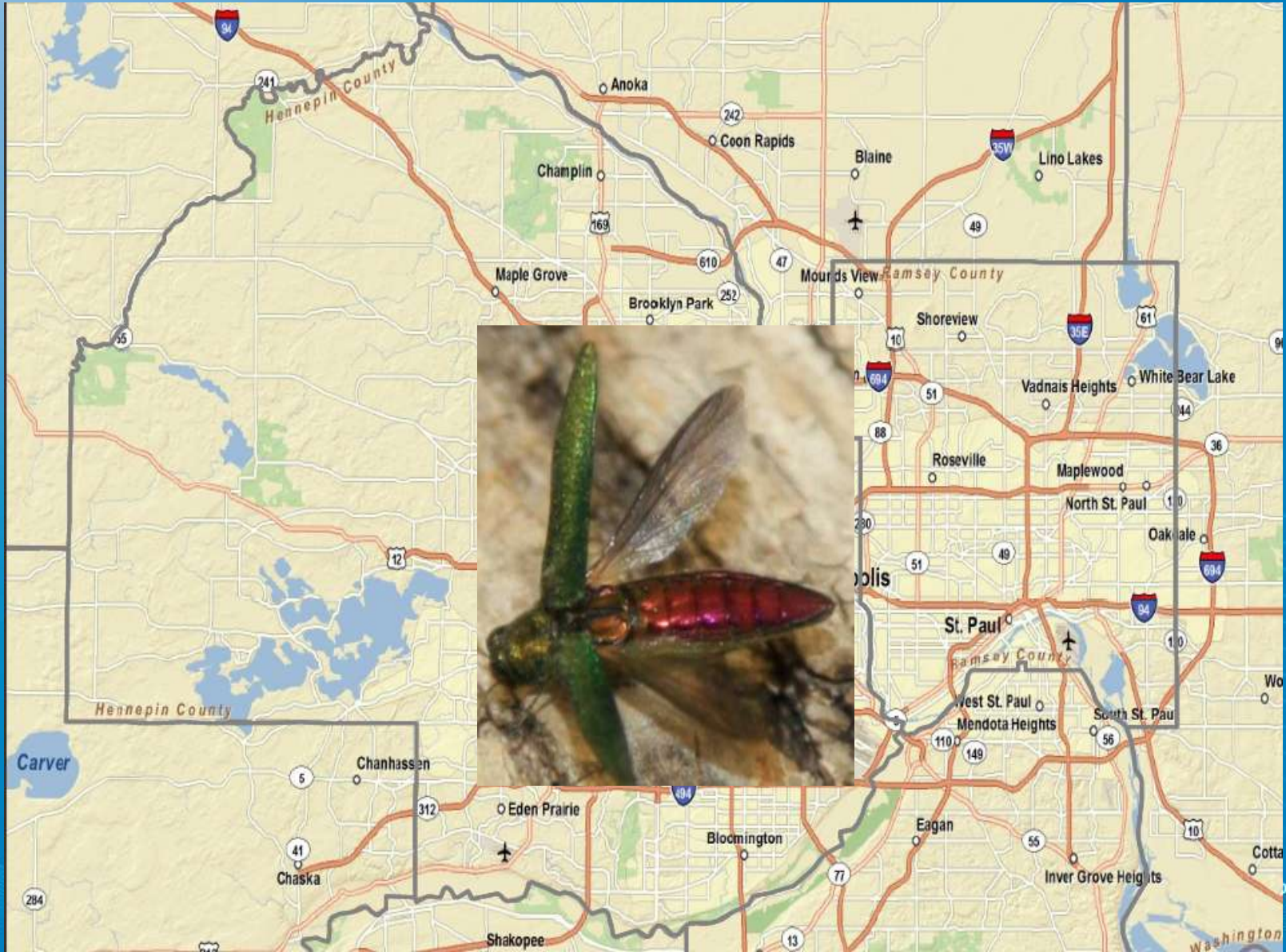


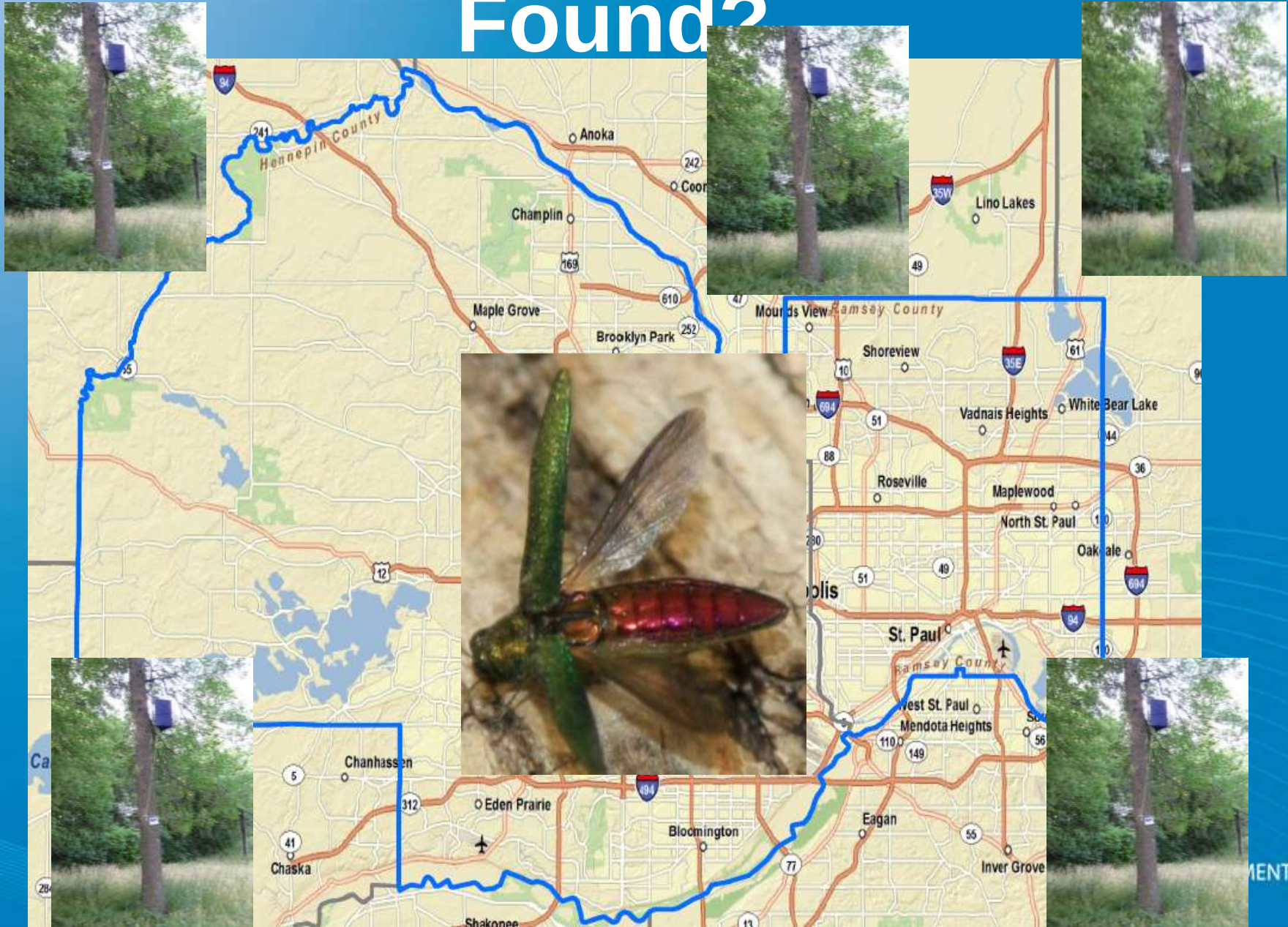


Identification and Removal of Emerald Ash Borer Infested Trees

What Happens After EAB is Found?

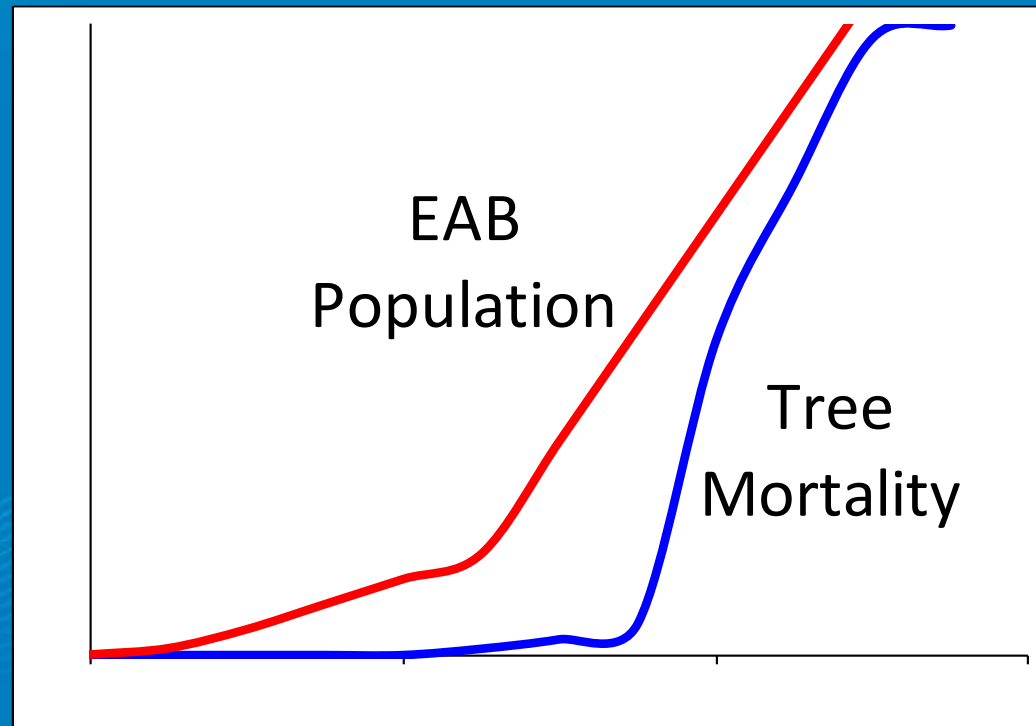


What Happens After EAB is Found?



Why Mitigation?

- Higher numbers of EAB =
 - More rapid tree mortality
 - More rapid spread into new areas
 - More “migrant” EAB
 - More opportunities for human movement



Why Mitigation in Twin Cities?



EAB Mitigation Methods

- **Biological Control**



- **SL.A.M. – SLOW Ash Mortality**
 - Remove infested ash trees before EAB adults can emerge – aka Sanitation

How to Implement Sanitation for EAB?

- How to identify EAB infested trees?

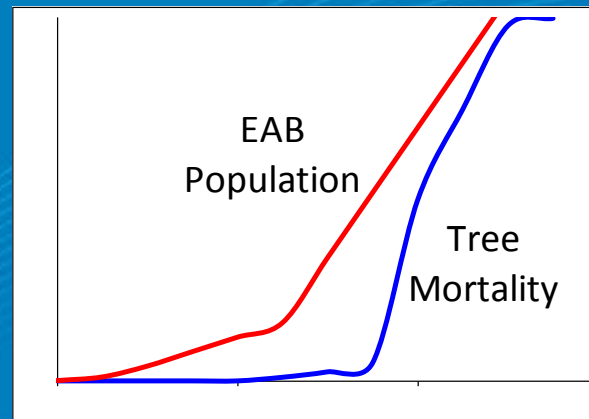


EAB Positive



EAB Negative

- What is impact on EAB population growth?



How to Implement Sanitation for EAB?

- How to identify EAB infested trees?

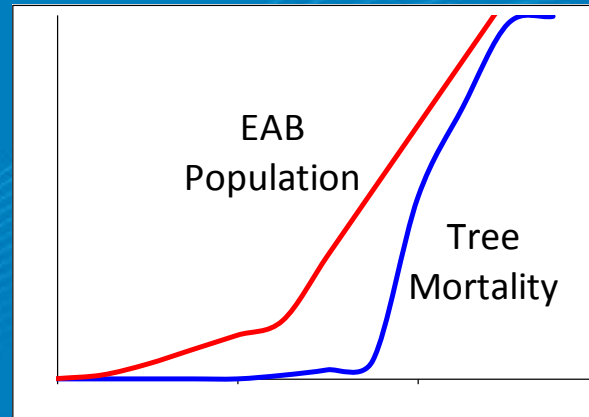


EAB Positive



EAB Negative

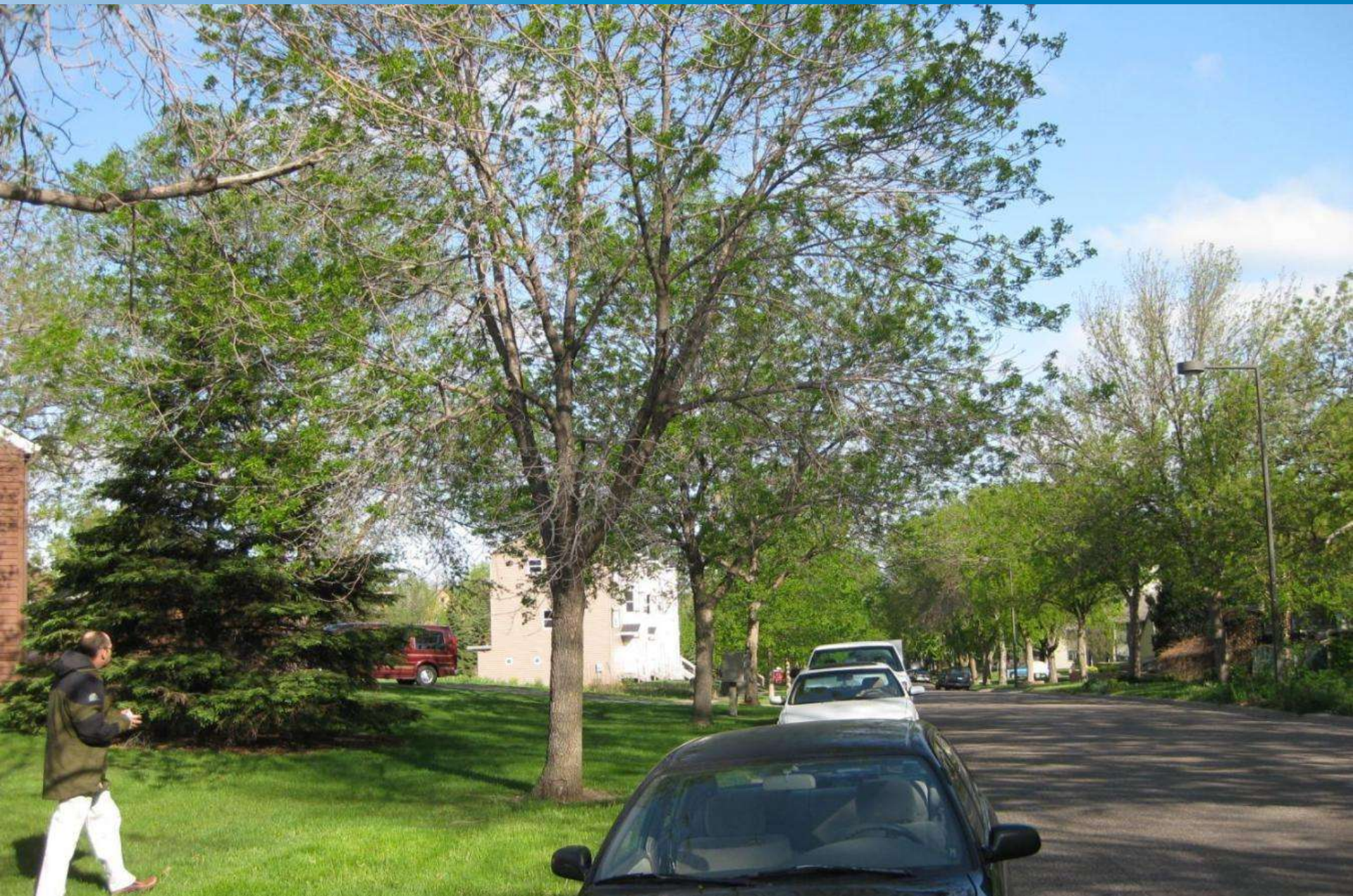
- What is impact on EAB population growth?



How to Identify EAB Infested Trees?



Trees Infested 3 - 4 Years



EAB Positive



EAB Negative



Woodpecking consistently found



Winter 2010 Tree Assessment

1



2



3



4



5



Winter 2010 Tree Assessment

EAB Status - Ramsey/Hennepin
Winter 2010

2010 Winter Tree Assessment

Rating

- 0
- 1
- 2
- 3-4
- 5

Known EAB-Infested Areas



Area of Detail Highlighted in Red

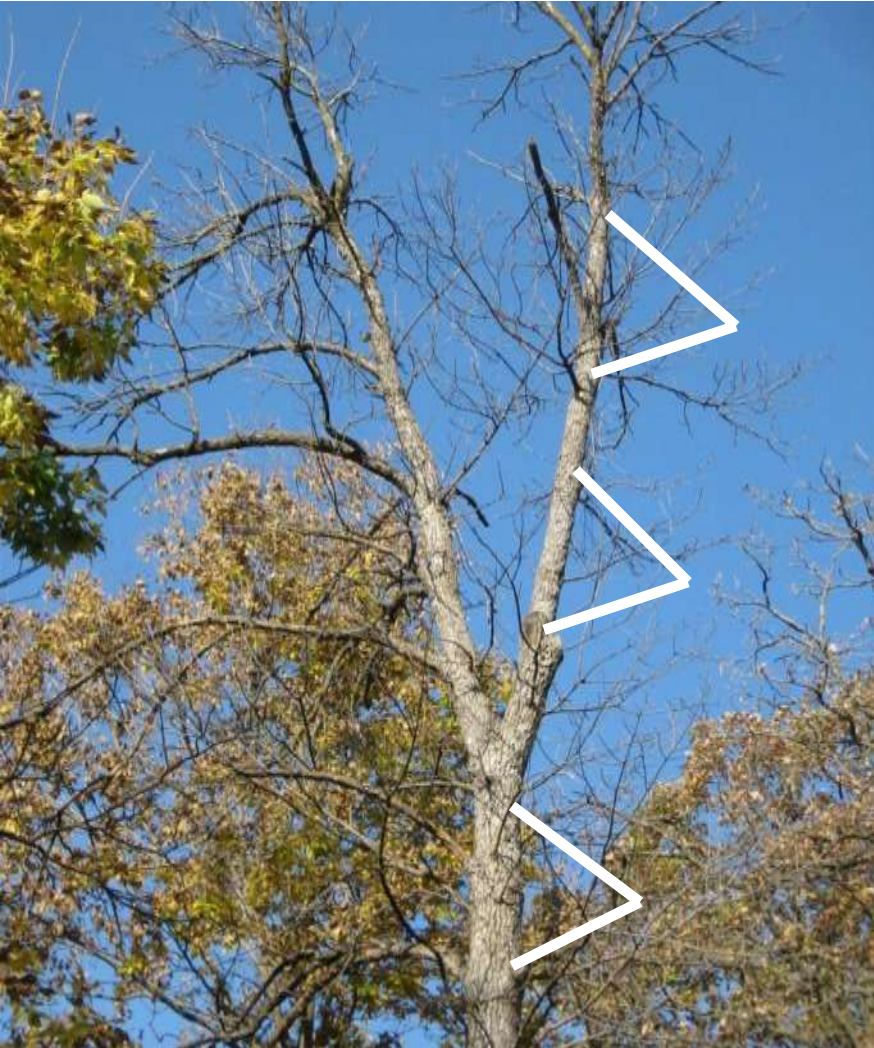


In accordance with the American Disabilities Act, an alternative form of this communication is available upon request

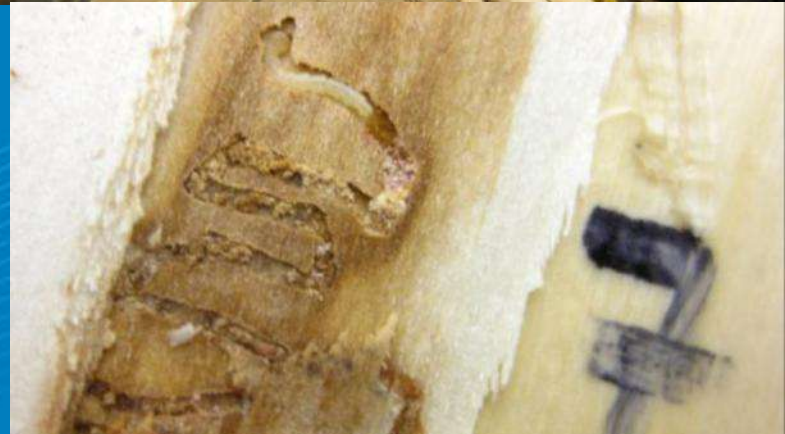
TTY: 1-800-627-3529 Equal Opportunity Employer

Collecting Data

1. Collect samples



2. Remove bark



3. Count larvae

Difference in EAB #'s???

1



2



3



4



5

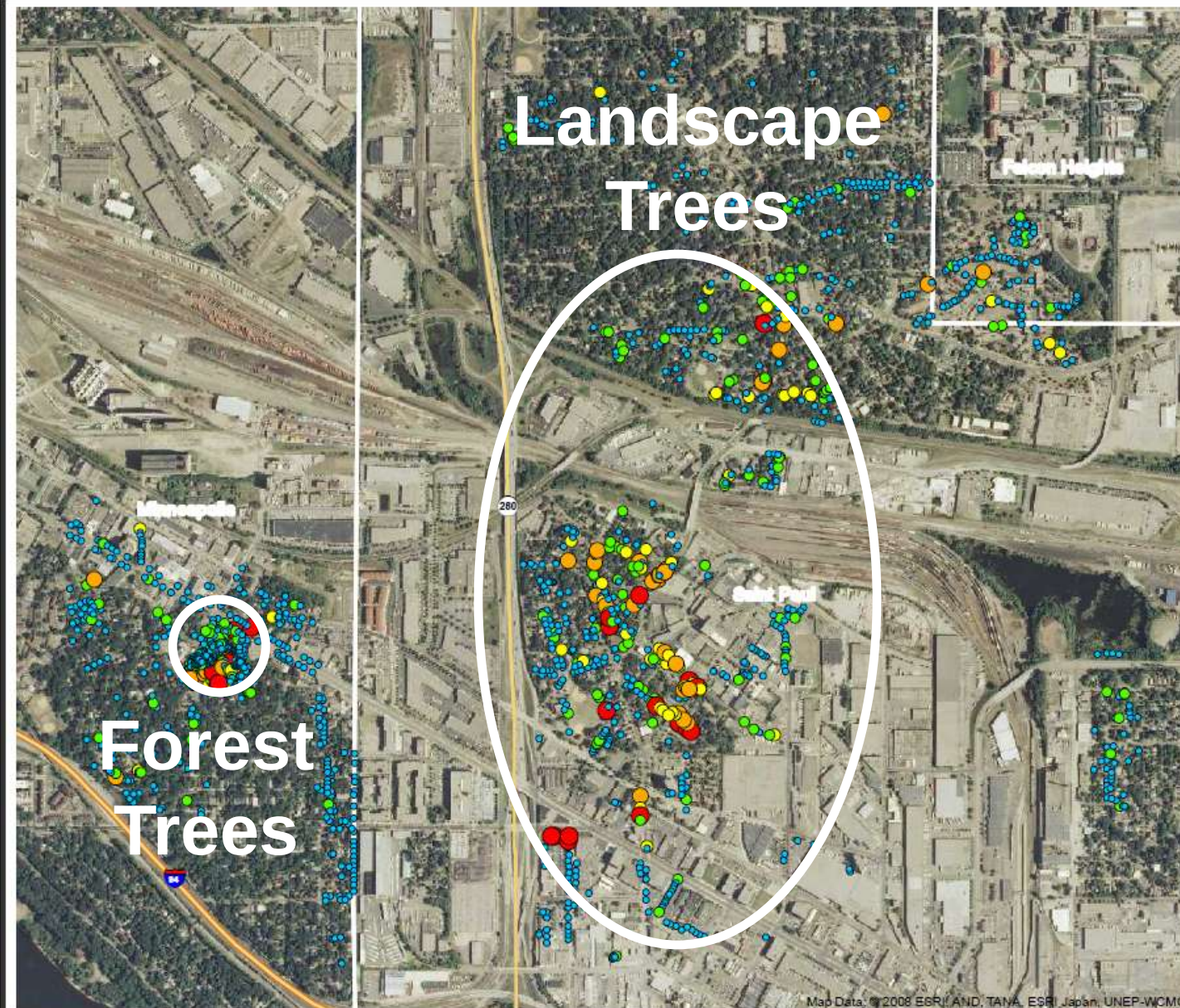


Beetle Broods

- Divide beetle activity in tree into broods
 - Past - Ended in past year = gallery ending in exit hole
 - 2010 - Will end in current year = mature larva that will emerge in current year
 - 2011 - Will end in future year = small larva that will emerge in two summers



Splitting Sites



EAB Status - Ramsey/Hennepin
Winter 2010

2010 Winter Tree Assessment

Rating

- 0
- 1
- 2
- 3-4
- 5



Area of Detail Highlighted in Red



In accordance with the American Disabilities Act, an alternative form of this communication is available upon request

TTY: 1-800-627-3529 Equal Opportunity Employer

Splitting Sites



**Tower Hill Park
Minneapolis**



**Hampden Park Area
St Paul**

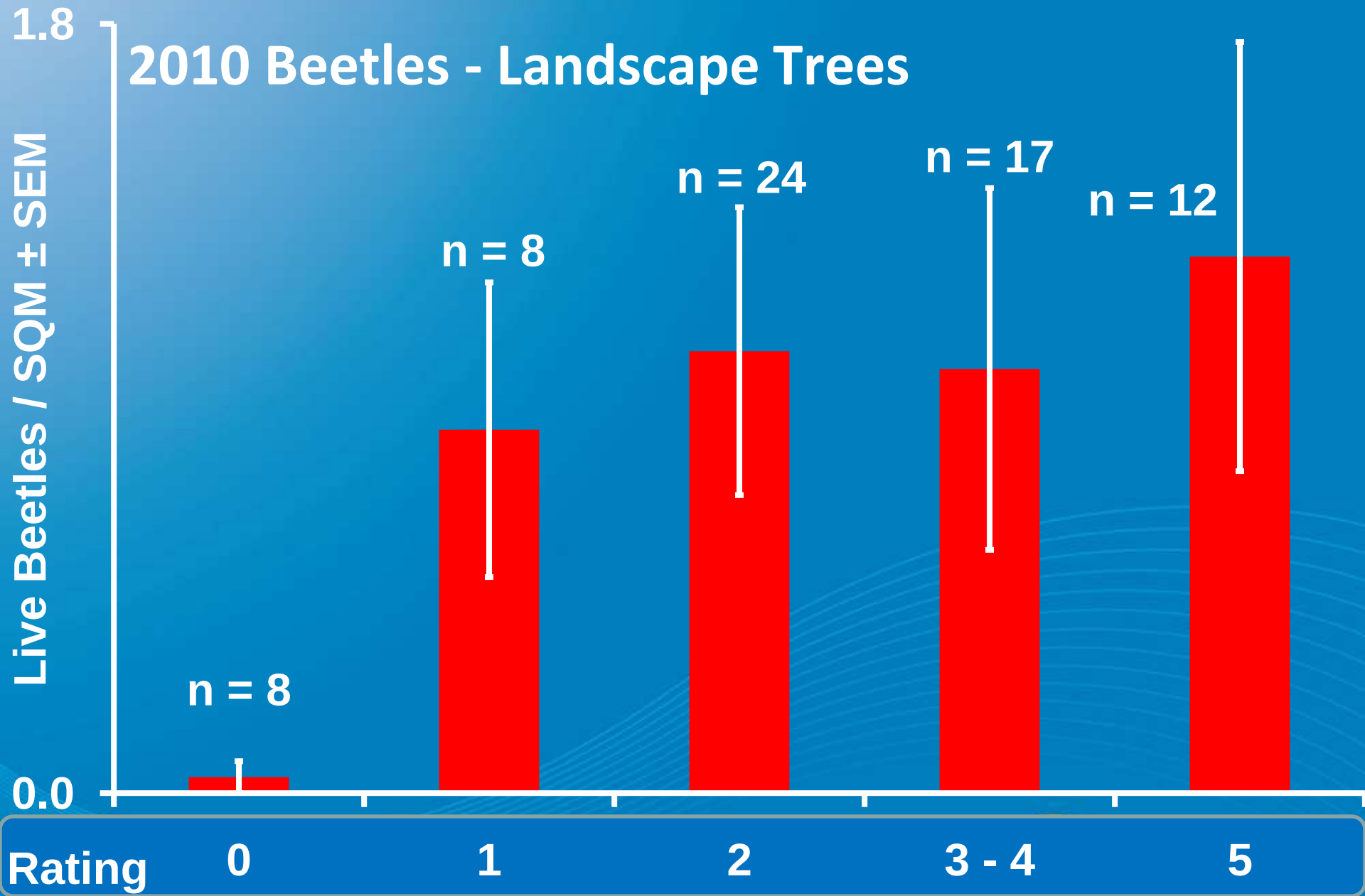
Identifying Beetle Infested Trees

Site Type	Beetle Brood	Woodpecker Rating				
		0	1	2	3 - 4	5
Landscape	Past Beetles					
	2010 Beetles					
	2011 Beetles					
Forest	Past Beetles					
	2010 Beetles					
	2011 Beetles					

Identifying Beetle Infested Trees

Site Type	Beetle Brood	Woodpecker Rating				
		0	1	2	3 - 4	5
Landscape	Past Beetles					
	2010 Beetles					
	2011 Beetles					
Forest	Past Beetles					
	2010 Beetles					
	2011 Beetles					

Identifying Beetle Infested Trees



Identify EAB Infested Trees?

Site Type	Beetle Brood	Woodpecker Rating				
		0	1	2	3 - 4	5
Landscape	2009 Beetles					
	2010 Beetles					
	2011 Beetles					
Forest	2009 Beetles					
	2010 Beetles					
	2011 Beetles					

How to Implement Sanitation for EAB?

- How to identify EAB infested trees?

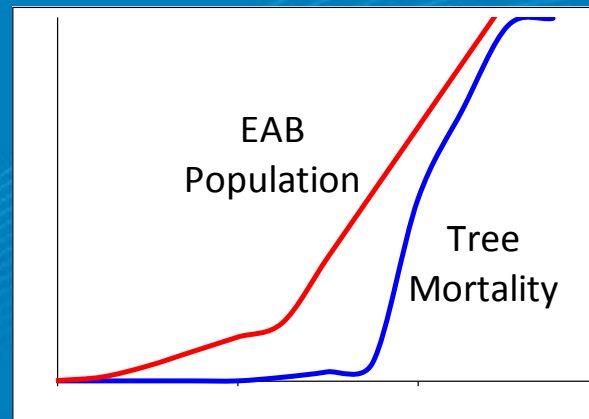


EAB Positive

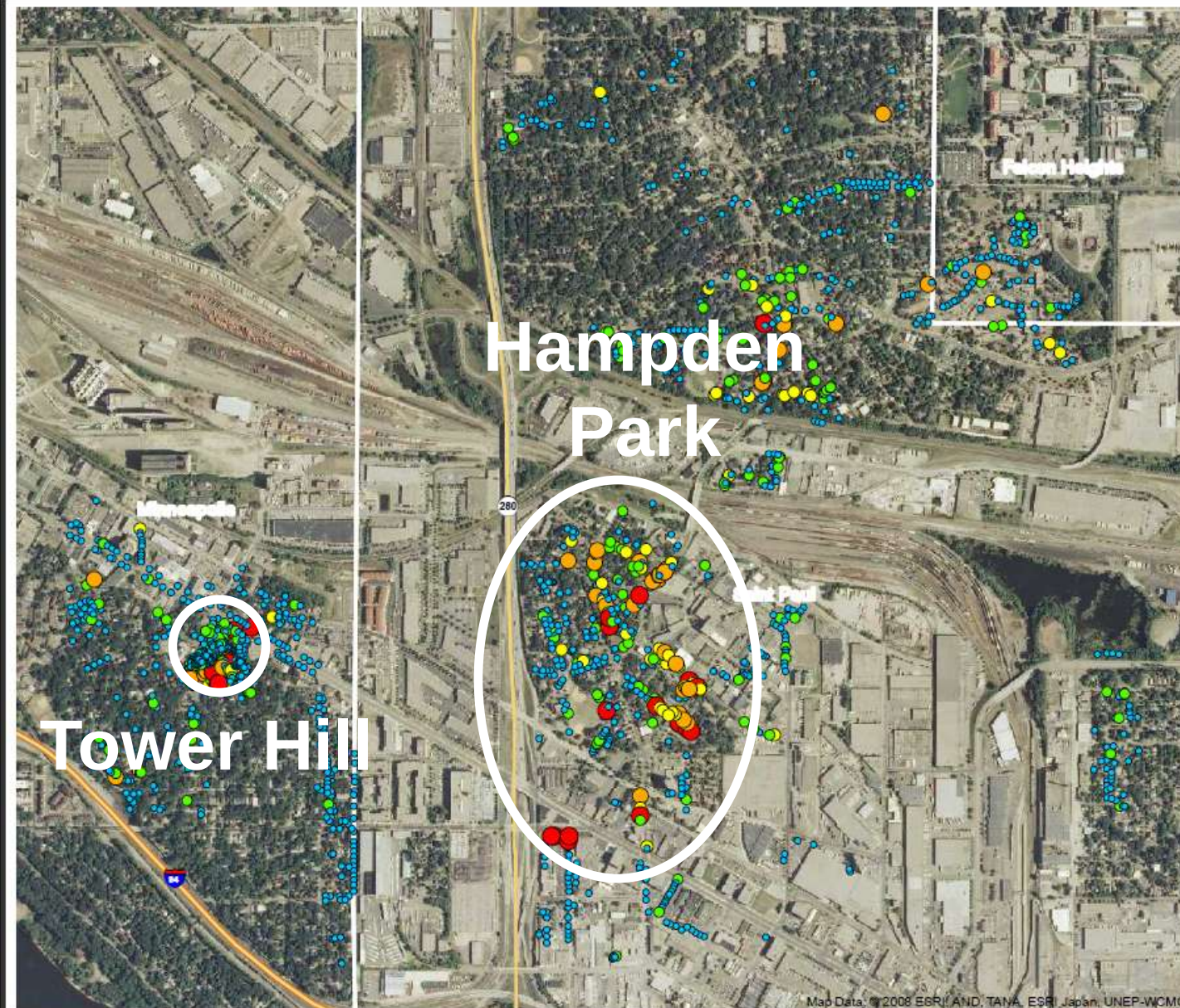


EAB Negative

- What is impact on EAB population growth?



Winter 2010 Tree Assessment



EAB Status - Ramsey/Hennepin
Winter 2010

2010 Winter Tree Assessment

Rating

- 0
- 1
- 2
- 3-4
- 5



Area of Detail Highlighted in Red



In accordance with the American Disabilities Act, an alternative form of this communication is available upon request

TTY: 1-800-627-3529 Equal Opportunity Employer

Impact of Sanitation

Hampden Park Area – St Paul

No Removals

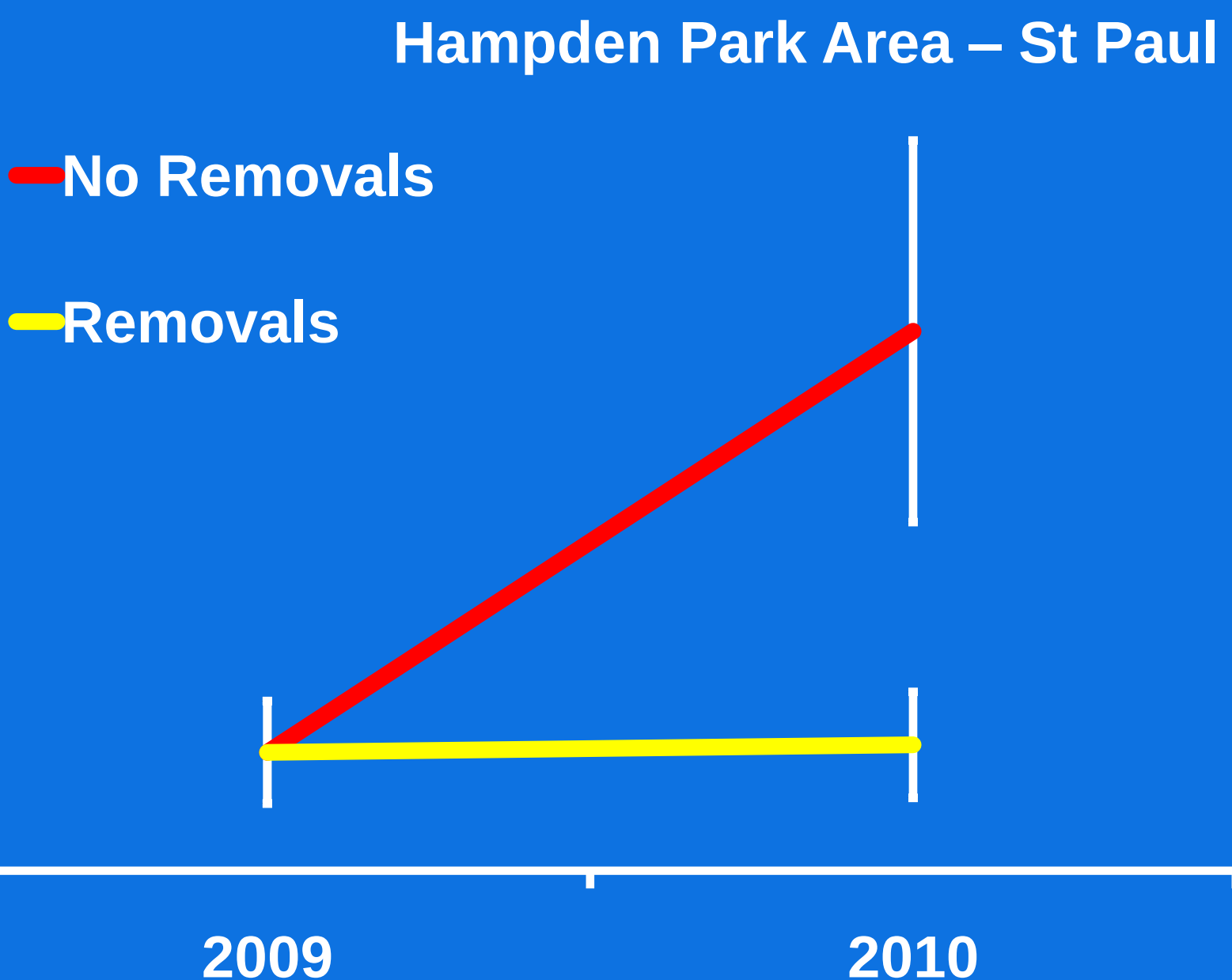
Removals

Estimated # Beetles
± SEM

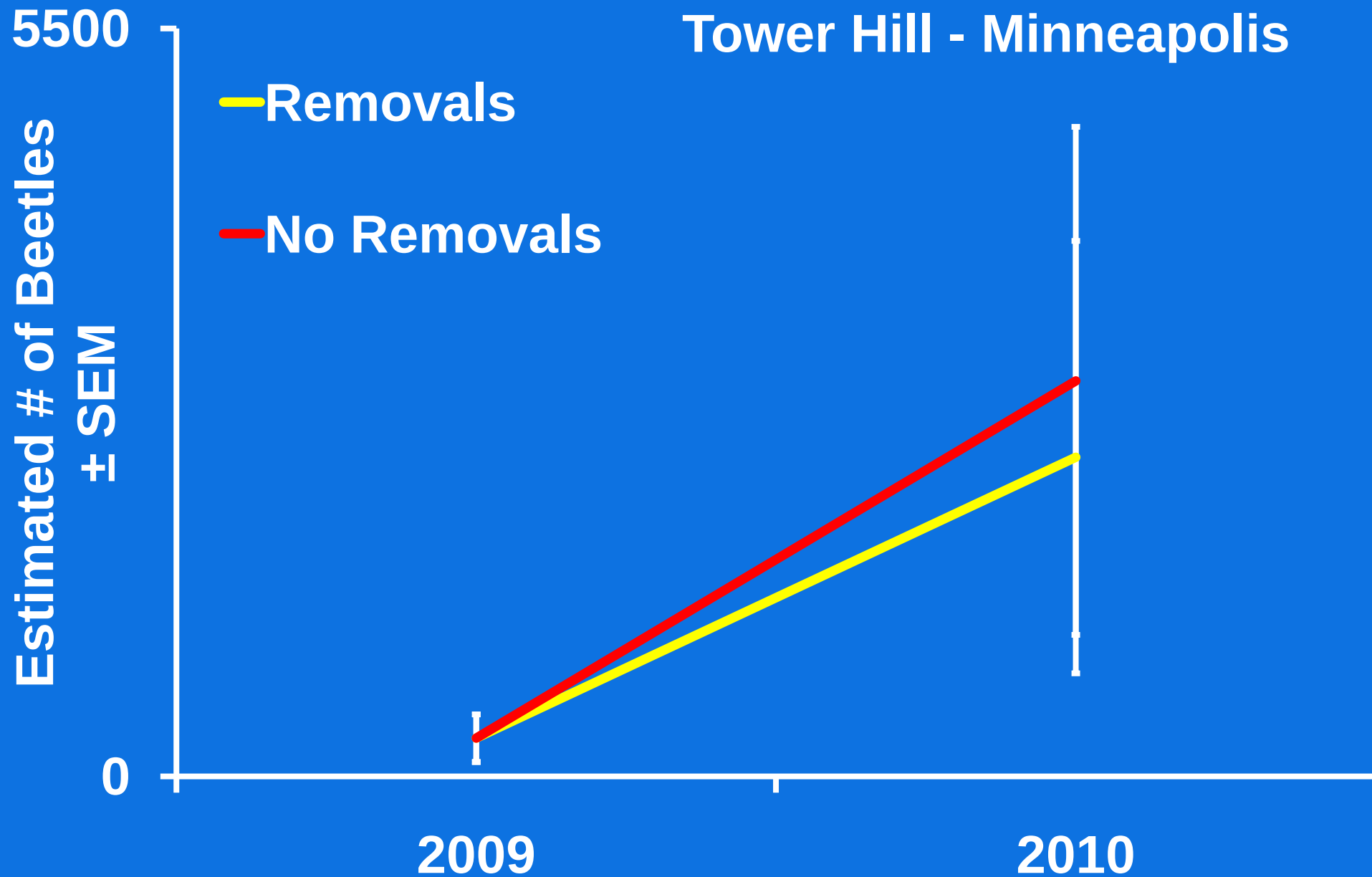
0

2009

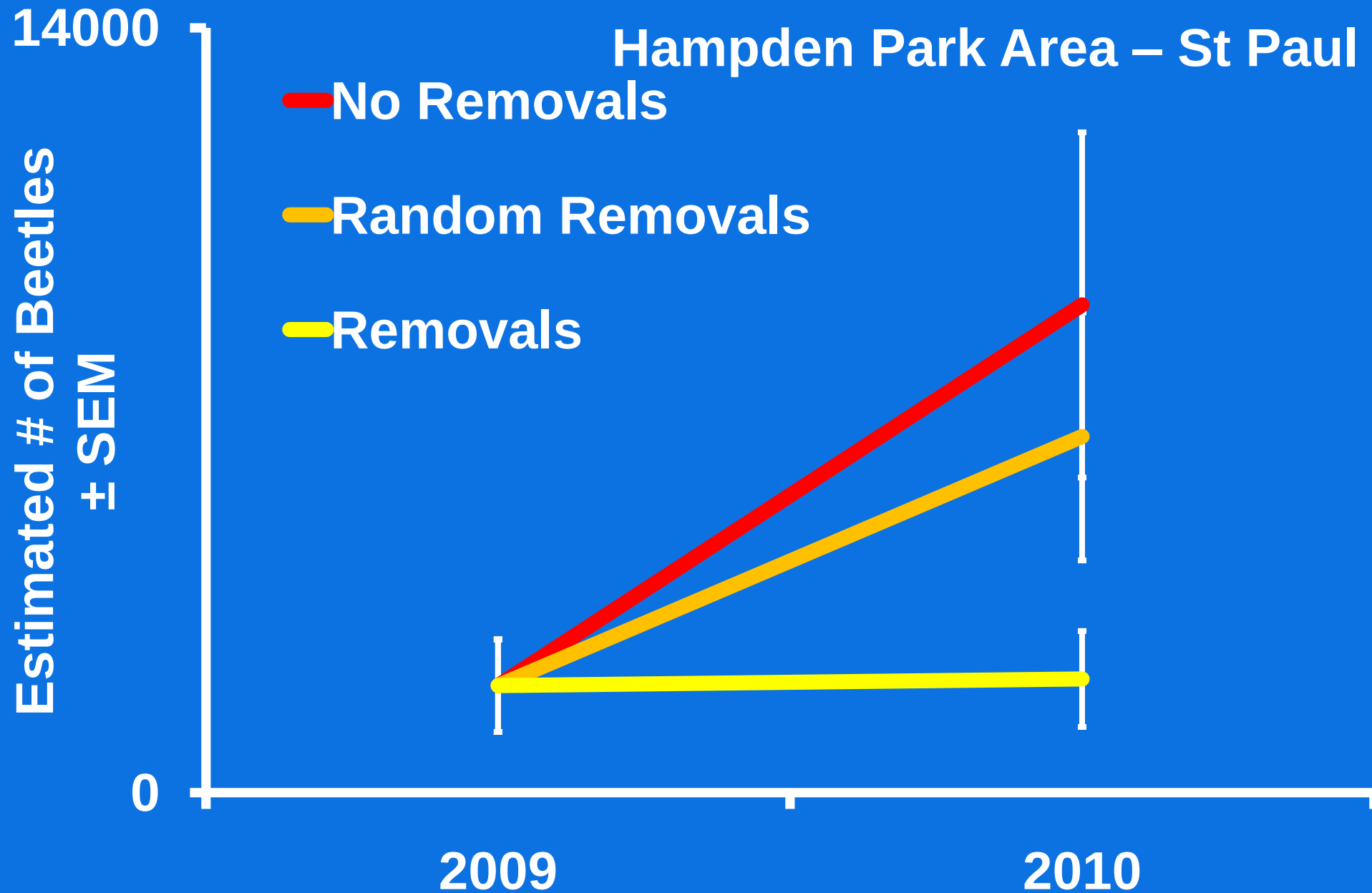
2010



Impact of Sanitation



Impact of Sanitation



Conclusions

- **Can we identify EAB-Infested Trees?**
 - Maybe
- **Does sanitation impact EAB population size?**
 - Depends on our ability to identify infested trees
- **Can we begin to formulate some recommendations for how to implement sanitation?**
 - Yes, with expectation for change

Thank You!

**St Paul Forestry
Minneapolis Park and Rec. Board Forestry
MN Dept. of Ag
USDA APHIS PPQ
USDA Forest Service**