

# **FOREST PEST OUTREACH: WHAT WORKS WITH CAMPERS & LANDOWNERS**

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**National Plant  
Board Meeting**

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# GENERAL FOCUS OF PRESENTATION

- Human Dimensions of Natural Resources
  - Social Scientist / Human Ecologist
- Qualitative Methods
  - Coding / Themes / Quotes
- Quantitative Methods
  - Questionnaire / Survey
  - Likert Scales / Open-Ended Questions
  - Descriptive Statistics
  - Theoretical Implications



# ASIAN LONGHORNED BEETLE – ALB EMERALD ASH BORER – EAB

- Numerous biophysical studies.
- Limited focus on forest pests within human dimensions of natural resources literature!
- MacKenzie & Larson (2010):
  - Ontario's EAB Response
  - Challenging to integrate stakeholders in rapid response programs
  - Major findings:
    - Lack of trust
    - Doubt in scientific-basis of response
    - Concerns about public involvement process
    - Property rights issues



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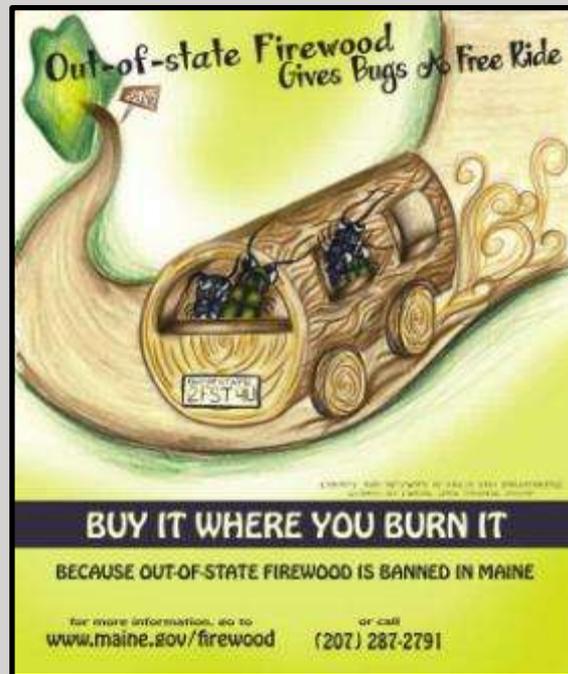


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# PROJECT OBJECTIVES

# MUST CONSIDER HUMAN ELEMENT!

- Investigate New England:
  - Forest Pest Volunteers
  - Campers
  - Landowners



# APPROACH PROBLEM WITH TEAM!

## ■ Maine:

- Ann Gibbs
- Karen Coluzzi
- Dave Struble

## ■ New Hampshire:

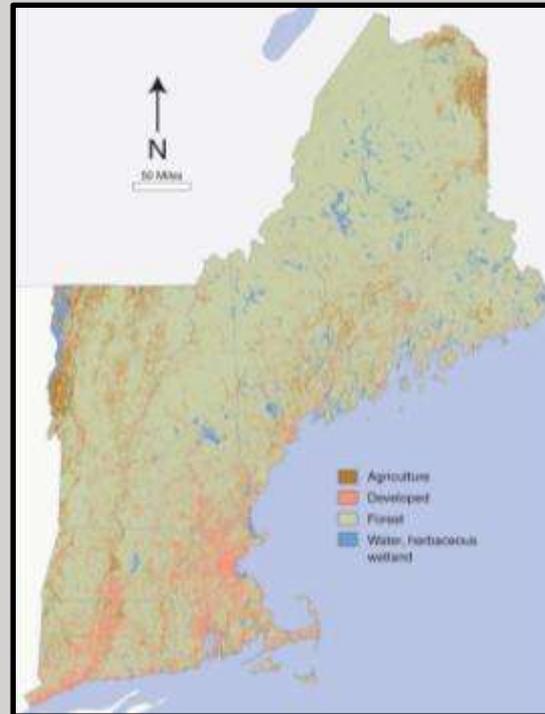
- Piera Siegert

## ■ Vermont:

- Tim Schmalz
- Caitlin Cusack

## ■ Funding Through:

- Maine Department of Agriculture, Conservation & Forestry
- University of Maine – Sustainability Solutions Initiative



Wildlands and Woodlands: A Vision for the New England Landscape. Harvard Forest, dist. by Harvard University Press, Cambridge, Massachusetts.

# FOREST PEST MESSAGES: VOLUNTEERS & PUBLIC PARTICIPATION



INVESTIGATE  
CURRENT  
OUTREACH  
PROGRAMS

# WHY VOLUNTEER INTERVIEWS?

- Early detection is critical.
- Volunteers play essential role.
- Numerous programs – educate and engage community.
  - Forest Pest Outreach Survey Project (FPOSP) of Maine.
  - First Detector Program of Vermont.
  - University of New Hampshire Cooperative Extension Coverts Project & Master Gardener Program.
- Impact & efficacy?

# VOLUNTEER INTERVIEWS

- ~ 50 Participants
- Semi-Structured Interviews
- General Information:
  - Involvement:
    - 1 – 3 Years
    - Beginning of Program
  - Volunteer with Numerous Organizations.
  - Frequency of Volunteer Activities Varied.
    - Season
    - Formal (3 – 4 times per year)
    - Informal (more frequent)

# VOLUNTEER INTERVIEWS – QUESTION CATEGORIES

- Initial motivation for joining forest pest campaigns.
- General perceptions about their role as volunteers.
- Overall volunteer experiences.
- Impressions of training experiences.
- Review of outreach materials.
- Barriers to outreach.
- Perceptions on their effectiveness in educating their local communities.
- Reasons for continued volunteerism.

# VOLUNTEER – INTERVIEW QUESTIONS

- Motivation for Joining Forest Pest Campaigns:
  - Personal importance of issue.
  - Economic importance – personal & community.
  - Love of nature & trees.
  - Valuing & preserving a sense of place.
  - ALB in Worcester, Massachusetts.
  - Compatible with profession.
  - Logical addition to other involvement (land trusts, conservation nonprofits, conservation commissions, etc.).
  - Educators / retired educators.

# VOLUNTEER – INTERVIEW QUESTIONS

- Motivation for Joining Forest Pest Campaigns:

*“...I lived in, up in eastern Mass., and I saw what happened in Worcester...it was a sad situation, everybody in Massachusetts saw that, y’know, they had to cut down almost every tree...once I had seen that, I said’...you have to be informed, and try to keep an eye out...”*

# VOLUNTEER – INTERVIEW QUESTIONS

- **Review of Outreach Materials:**
  - **Credit card sized cards with pictures and information about the insect, including the exit hole.**
    - Small, concise, convenient.
    - Help start conversations.
  - **Tattoos and pencils are great for kids.**
    - Start conversations with parents.
    - Little interest in bumper stickers.
  - **Mixed reviews of different flyers / brochures.**
    - Efficient way to present problem.
    - More information than people want to read.
    - Need more pictures than words.
      - Insects, look-alikes, or damage.
  - **Value models & physical specimens.**

# VOLUNTEER – INTERVIEW QUESTIONS

- Review of Outreach Materials:

*“The mounts are golden because you can show here it is, you know, and people are always thrilled...I mean pieces of wood...its worth a million words. I mean that was what got me hooked in the first place two years ago...you know, I just looked at that, and I said oh my god, I read about it, but that?...you know you show that to people and they say “oh now I get it”.”*

# VOLUNTEER – INTERVIEW QUESTIONS

## ■ Barriers to Outreach

- Time.
  - Volunteers & Participants.
  - Curriculum Restrictions.
  - Spread workload with additional volunteers.
- Lack of interest.
  - Personal connection of participant.
- Technical knowledge required.
- Logistics.
  - Scheduling.
  - Materials.

# VOLUNTEER – INTERVIEW QUESTIONS

## ■ Barriers to Outreach

*“You know if I was retired I would have a lot more time. I think time is a barrier. We’re doing a lot, were doing – you know, there’s a lot on your plate in terms of the whole shooting match – the preparedness plan. I think the key would be to have more volunteers spending time on it. I think the key is probably getting more first detectors out there in all of the communities so that they can be working on various aspects of the communication and so it’s more hands make for less work kind of thing.”*

# CONSIDERATIONS FOR VOLUNTEER PROGRAMS

- Target former educators as volunteers.
- Flexibility is valued. Volunteers like that they can work with audiences or in settings that they feel comfortable.
- Volunteers find the educational aspect of their work to be especially valuable.
- A strong responsive contact person, such as a volunteer coordinator, is valued.
- Pictures and stories of devastation are memorable and effective.

# CONSIDERATIONS FOR VOLUNTEER PROGRAMS

- Provide volunteers with additional information about how to reach different populations and creative outreach strategies.
  - Methods for efficiently spreading the word.
  - Skills **MUST** be developed.
- Share success stories among volunteers in the state or regionally.
  - Success can be defined in different ways, not just early detection of a forest pest.
- These states have some amazing volunteers.
  - Communicate how helpful volunteers are to your program so that they can feel fulfilled by their role.

# FUTURE STEPS – VOLUNTEER PROGRAM

- Internal / external motivations for continued recruitment.
  - More key players.
  - Literature / study factors that influence.
- Investigate volunteers that didn't participate.
  - Received training, but not move forward.
- Barriers
  - Time.
- Investigate participant behavior change.
  - Short / long -term.

# FUTURE STEPS – VOLUNTEER PROGRAM

- Outreach material:
  - High quality.
  - Relatable.
  
- Amazing volunteers – model for other states.
  - Appreciate.
  - Support.
  - Help.
    - Not just material, but how to communicate.
  - Central person to contact.

# CAMPGROUND SURVEY

OBJECTIVE II

# CAMPGROUND SURVEY

## ■ Investigate:

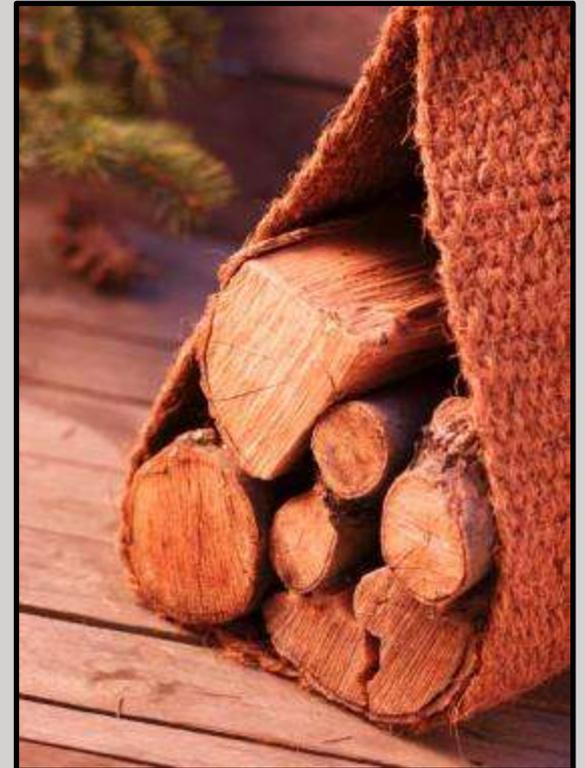
- Firewood Movement Behavior
- Knowledge & Attitudes Toward Invasive Forest Pests
- Efficacy of Different Outreach Materials

## ■ Approach:

- 18 Campgrounds in Maine, NH, & VT
- Private / Public Campgrounds
- ~ 300 Participants
- Standard Onsite Survey Methods

# CAMPGROUND SURVEY

- **Firewood Movement Frequency**
  - 16% of Campers = “Always” Bring Firewood
  - 7% of Campers = “Often” Bring Firewood
  - More Bring Firewood in Public Campgrounds
  - Education – Significant Factor
  - ~ 8 – 10% Between States



# CAMPGROUND SURVEY

## ■ Why Bring Firewood?

- COST!!!
- Quality
- Convenience
  
- “They already had it at home”
- “They knew their wood was safe”
- “They were local”



# CAMPGROUND SURVEY

- Why NOT bring firewood?
  - Forest Pests
  - Space Concerns
  - Convenience
  
- “Knew we weren’t allowed”



# CAMPGROUND SURVEY

- How Influence to Buy at Campground?
  - Cost
    - \$2.00 - \$7.00 / Bundle
  - Didn't have it at home.



# CAMPGROUND SURVEY

- Most campers had heard of forest pests.
  - Yes = 92% (overall)
  - Significantly more in Maine.
- Most campers were NOT able to list insects by name!
  - Were familiar with ALB & EAB when prompted.
  - More familiar with ALB.

# CAMPGROUND SURVEY

- Campers were concerned about forest pests and think that they do matter.
- However, campers do NOT think forest pests have an impact on them or their families.
  - Disconnect!!!
- Messages that would influence:
  - Effect on natural world from losing tree species.
  - Pictures of before and after.
  - Examples of devastation.
  - If wood was available and affordable.

# FUTURE CONSIDERATIONS FOR CAMPGROUND

- Most campers said they do not move wood.
- However, 30% brought wood with them on the camping trip where they participated in survey.
- “Safe” wood???
- ALB more well-known.
- Outreach – practical concerns vs. forest pests!
- Disconnect between general harm and harm to person and family.

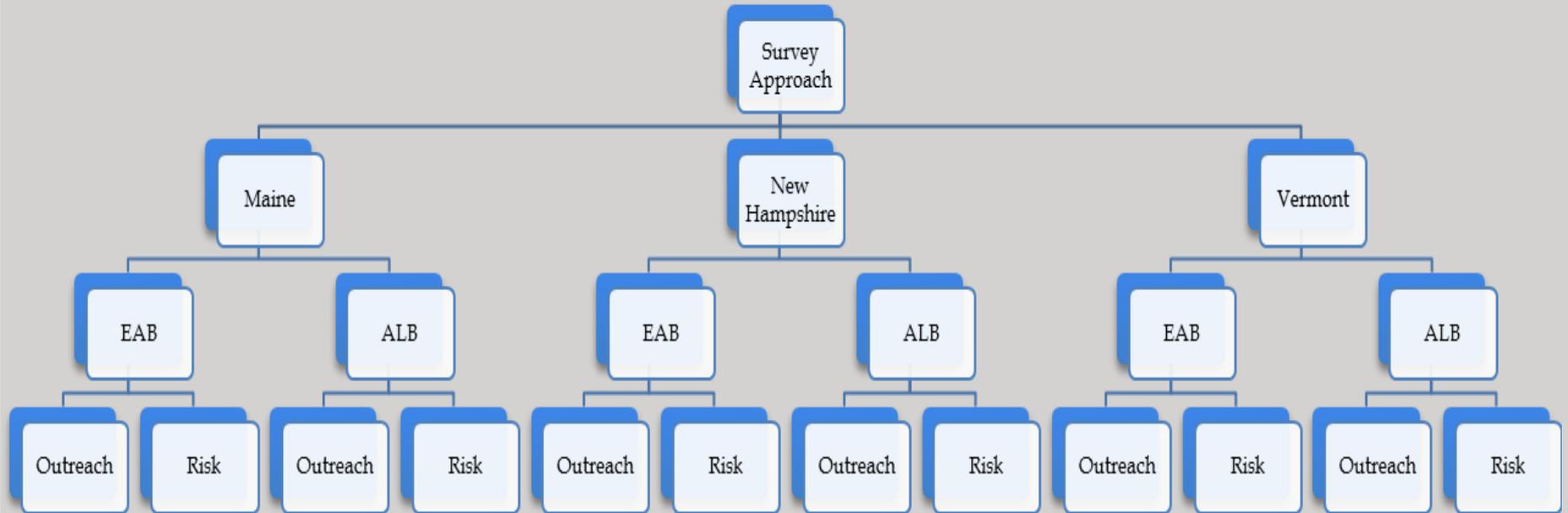
# LANDOWNER SURVEY

OBJECTIVE III

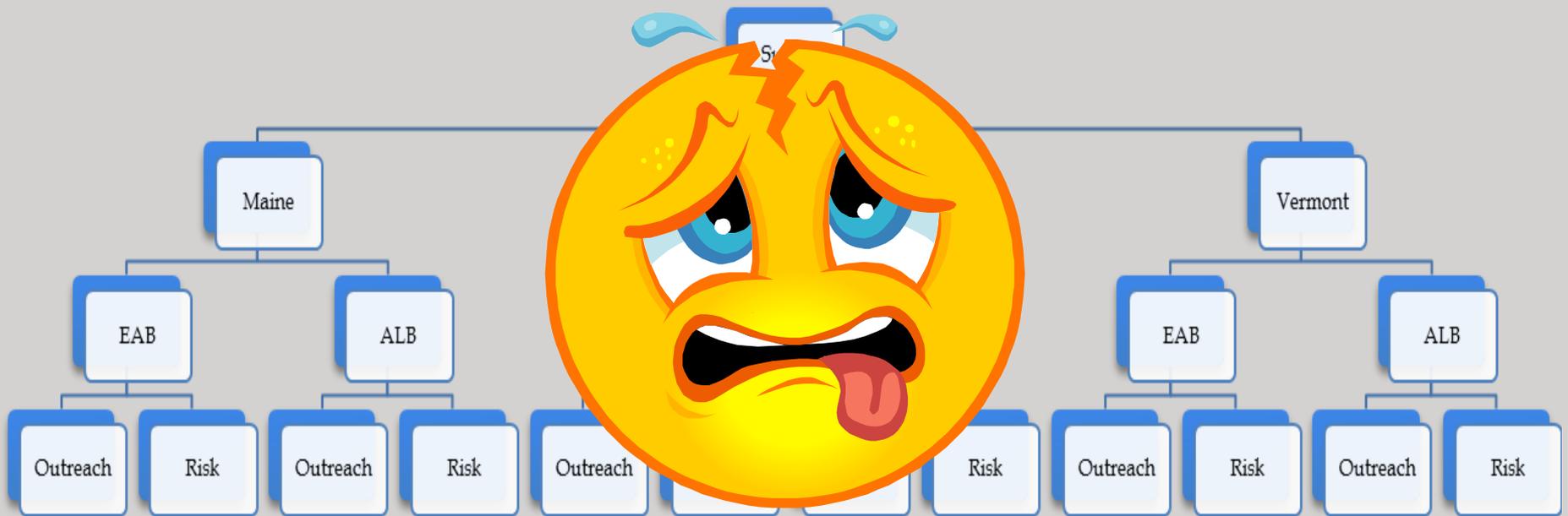
# LANDOWNER SURVEY

- Mailed questionnaire.
- Maine, New Hampshire, & Vermont.
- $\geq 10$  acres.
- **12 Versions:**
  - Three states.
  - Two insects.
  - Two categories:
    - Risk perception / Social acceptability
    - Outreach preferences

# LANDOWNER SURVEY – APPROACH



# LANDOWNER SURVEY – APPROACH



- 4,000 surveys total
- 1,333 per state
- 2,000 per insect
- 2,000 per focus (outreach or risk perception)
- 333 per survey version
- 1,390 returned = 35% response rate

# LANDOWNER SURVEY – APPROACH

- **Your Lands & Forests**
  - When harvest
  - How many acres forested
  - Uses of the land
  - Attitudes toward New England forests
- **Forest Pests (EAB or ALB)**
  - Participant's trust in information sources
  - Knowledge
  - Level of interest about forest pests in general
  - Plans to look for insects
  - Reporting behavior

# LANDOWNER SURVEY – APPROACH

- Learn More
  - One page example of outreach material about either EAB or ALB
  - Followed by questions designed to evaluate the participants' attitudes and plans regarding the insect after reading the material
- About You
  - Standard demographic questions
- Risk Perception
  - Overall condition of land and forests
  - Participant's forest pest knowledge, attitude, concern and risk perception
  - Opinions about community response plans

# DEMOGRAPHICS

- Age: 61.5 years old
- Education: 51.4% college
- Income: 40% have <\$60k
- Ownership size: 47 ha
- Primary residence: 64.2%
- Tenure length: 24 years

# LANDOWNER PERCEPTIONS

## ■ Importance of Owning Property:

### ■ Agree:

- Scenic beauty
- Primary residence

### ■ Disagree:

- Production of non-timber and timber forest products
- Second home

## ■ Landowner Rights:

### ■ Agree:

- Right to exclude others and transfer land to others without restrictions
- Certain obligations – good steward, improve the quality of the land

### ■ Disagree:

- Natural resources on property belong to society which allows the public to restrict land uses that cause resource damage

# LANDOWNER PERCEPTIONS

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## Do you regularly tap your maple trees?

**Survey Response**  
(n = 645)

**Percent Response**

**No**

**85%**

**Yes**

**15%**

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## Do you regularly cut wood for firewood from your land?

**Survey Response**  
(n = 689)

**Percent Response**

**No**

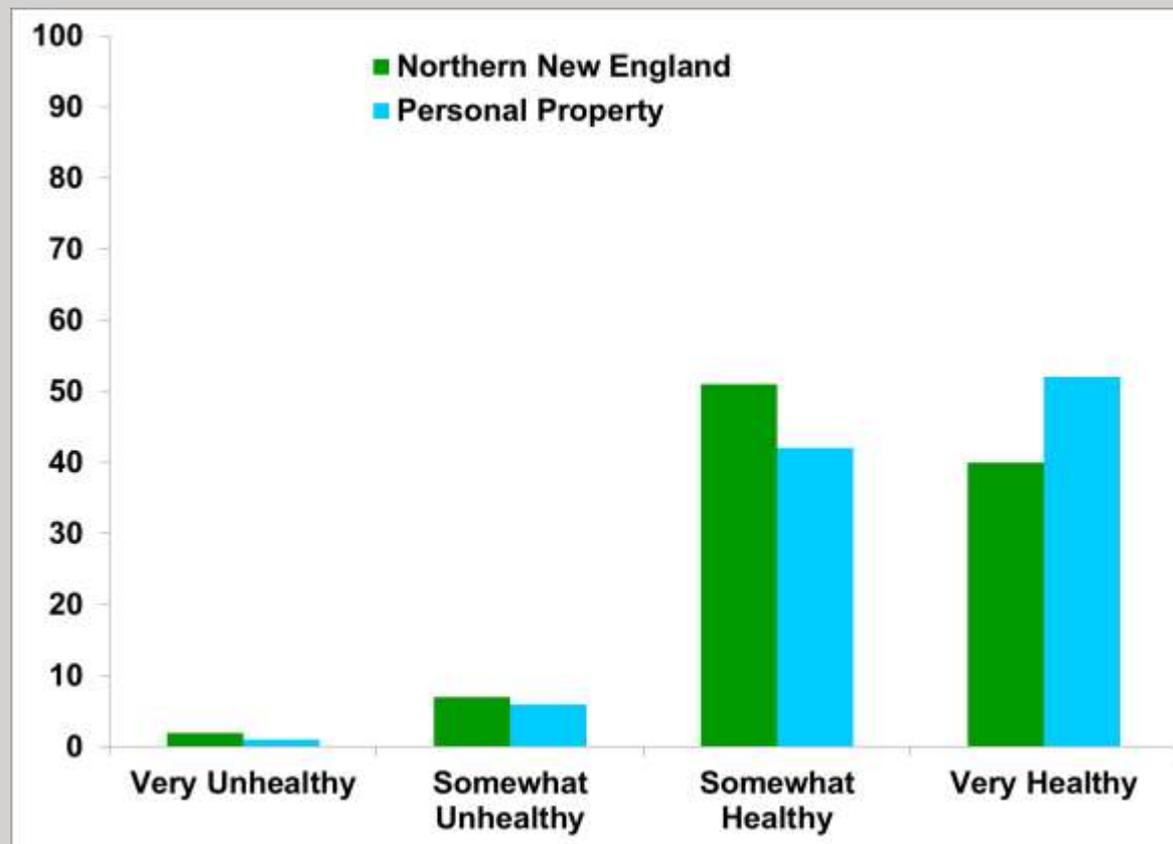
**37%**

**Yes**

**63%**

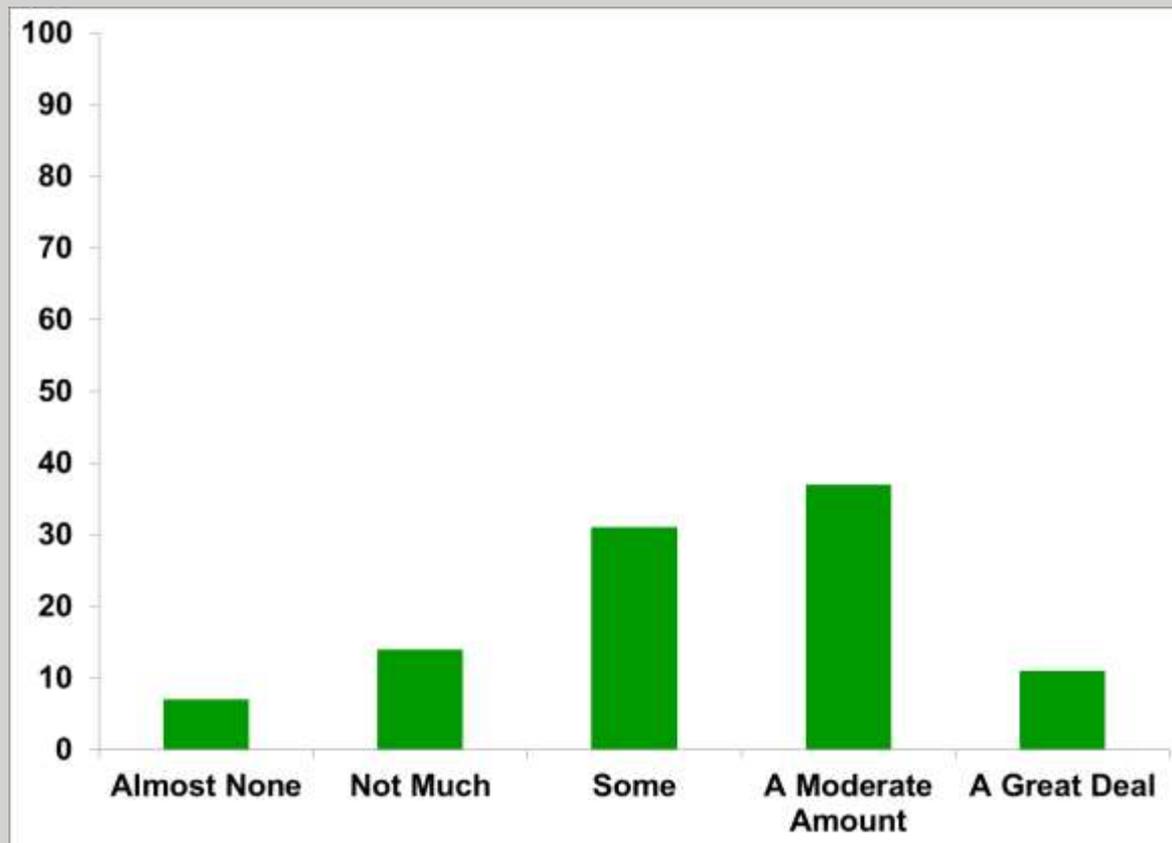
# LANDOWNER PERCEPTIONS – FOREST HEALTH

- In general, how would you rate the overall condition of the woods or forests in your area of the state (on your land)?



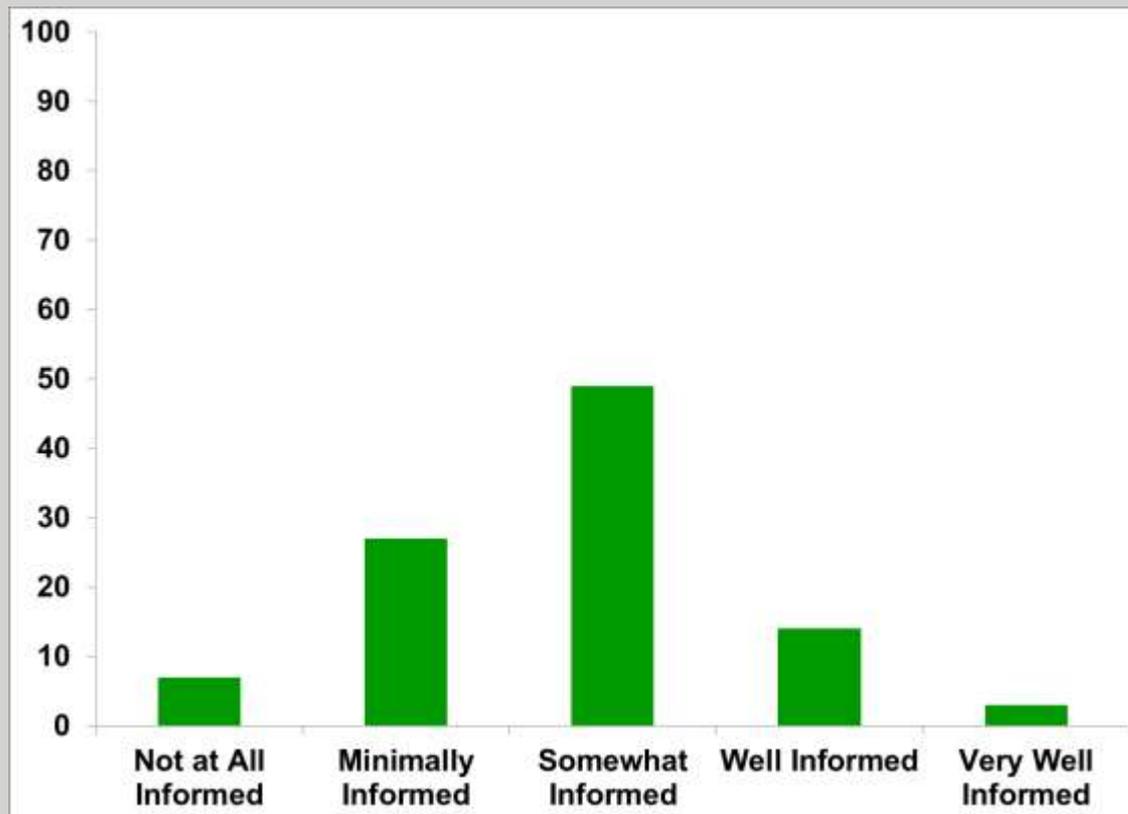
# LANDOWNER PERCEPTIONS – YOUR LAND & FORESTS

- How much attention do you pay to forest issues or problems in New England?



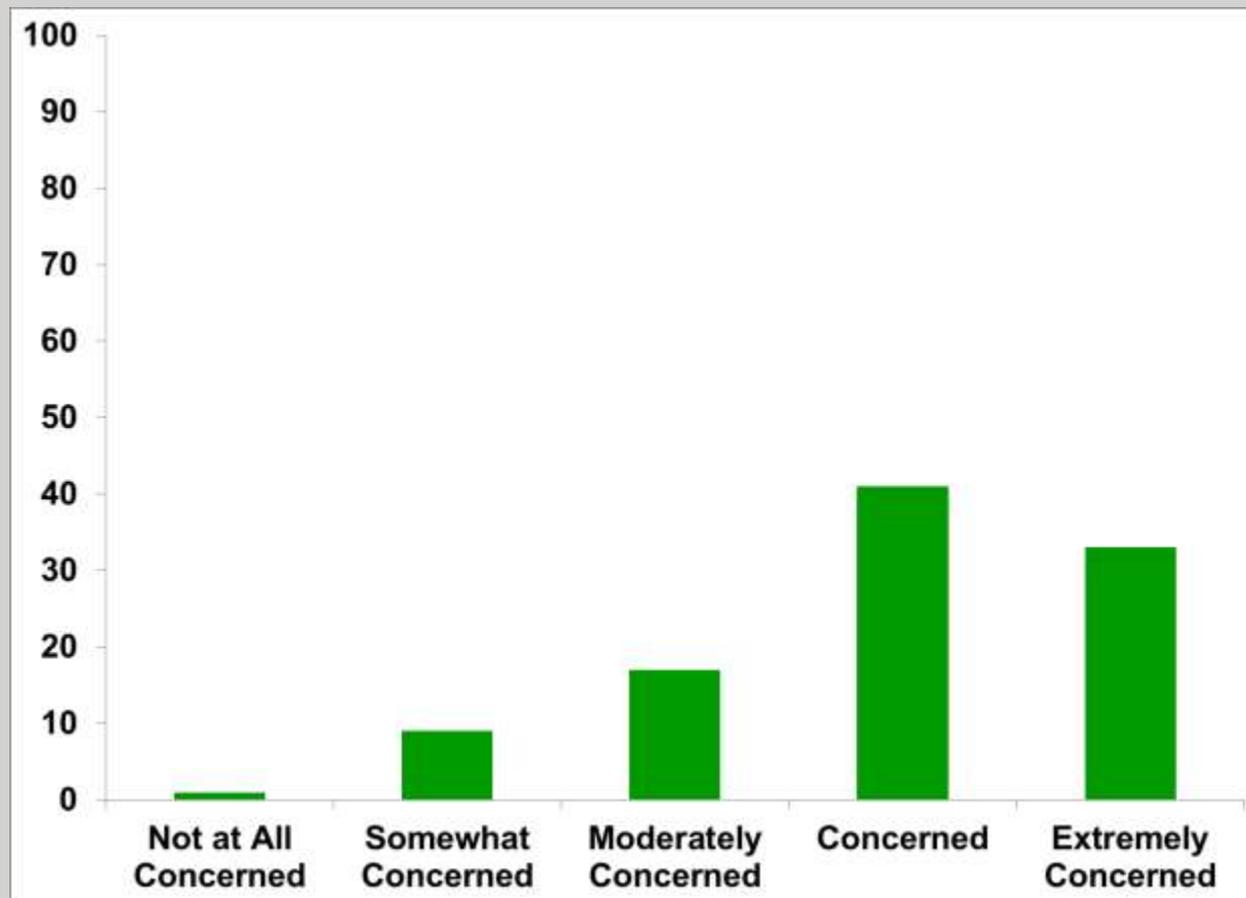
# LANDOWNER PERCEPTIONS – YOUR LAND & FORESTS

- In your opinion, how well informed are you about forest conditions in New England?



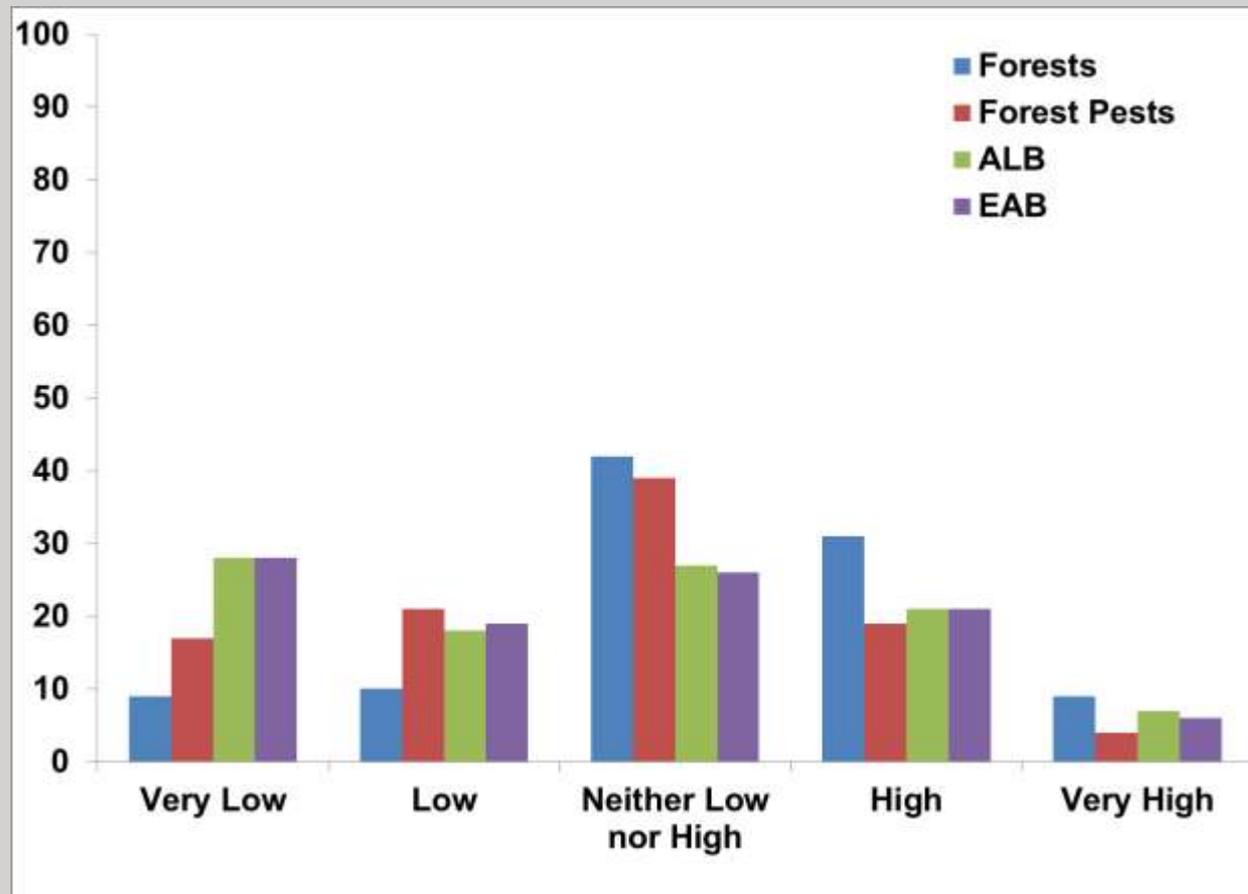
# LANDOWNER PERCEPTIONS – FOREST PESTS

- How concerned are you about invasive forest pests?



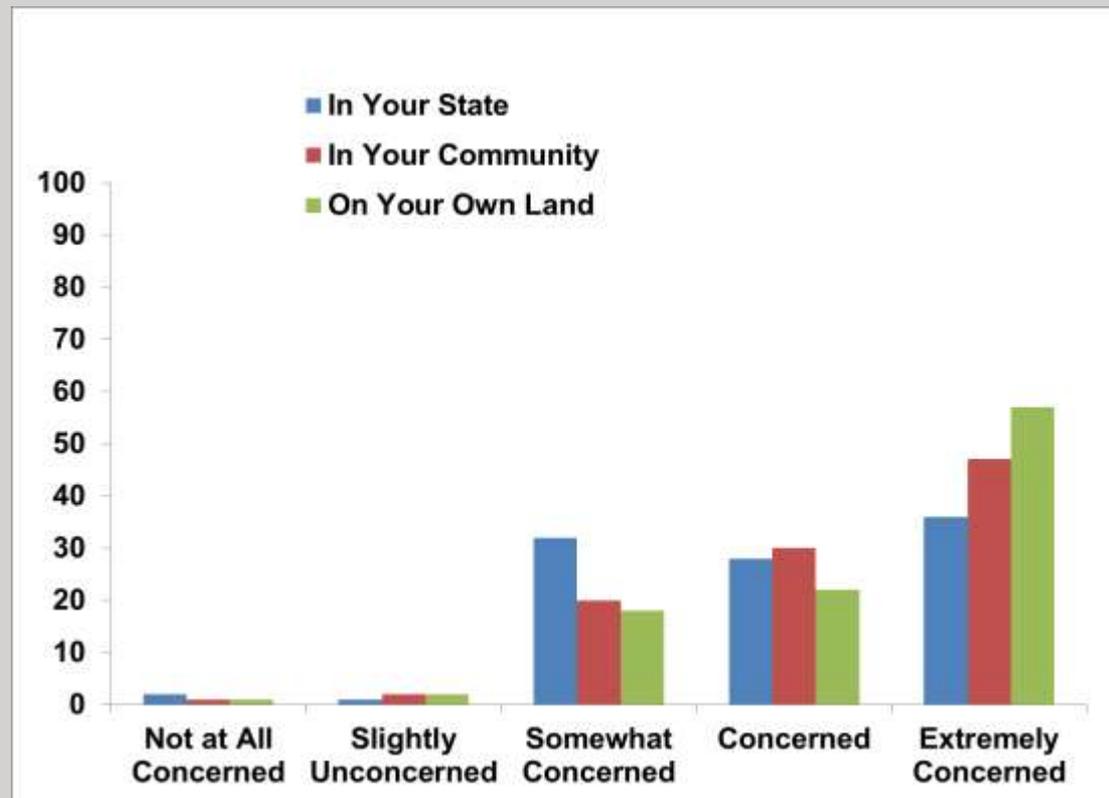
# LANDOWNER PERCEPTIONS – FOREST PESTS

- Please rate your level of knowledge about the following topics.



# LANDOWNER PERCEPTIONS – FOREST PESTS

- Please indicate how concerned you are with each of the following scenarios. Please choose one box for each item.
  - If *emerald ash borer* (similar for ALB) were discovered...



# LANDOWNER PERCEPTIONS

- Interested in Learning:
  - What steps to take if a forest pest is found nearby
  - Where to report possible sightings
  - How to identify insects
- Not Interested in Learning:
  - Teaching or training others about forest pests
- How Receive Outreach Material?
  - Yes = newsletters & websites
  - No = social media & twitter

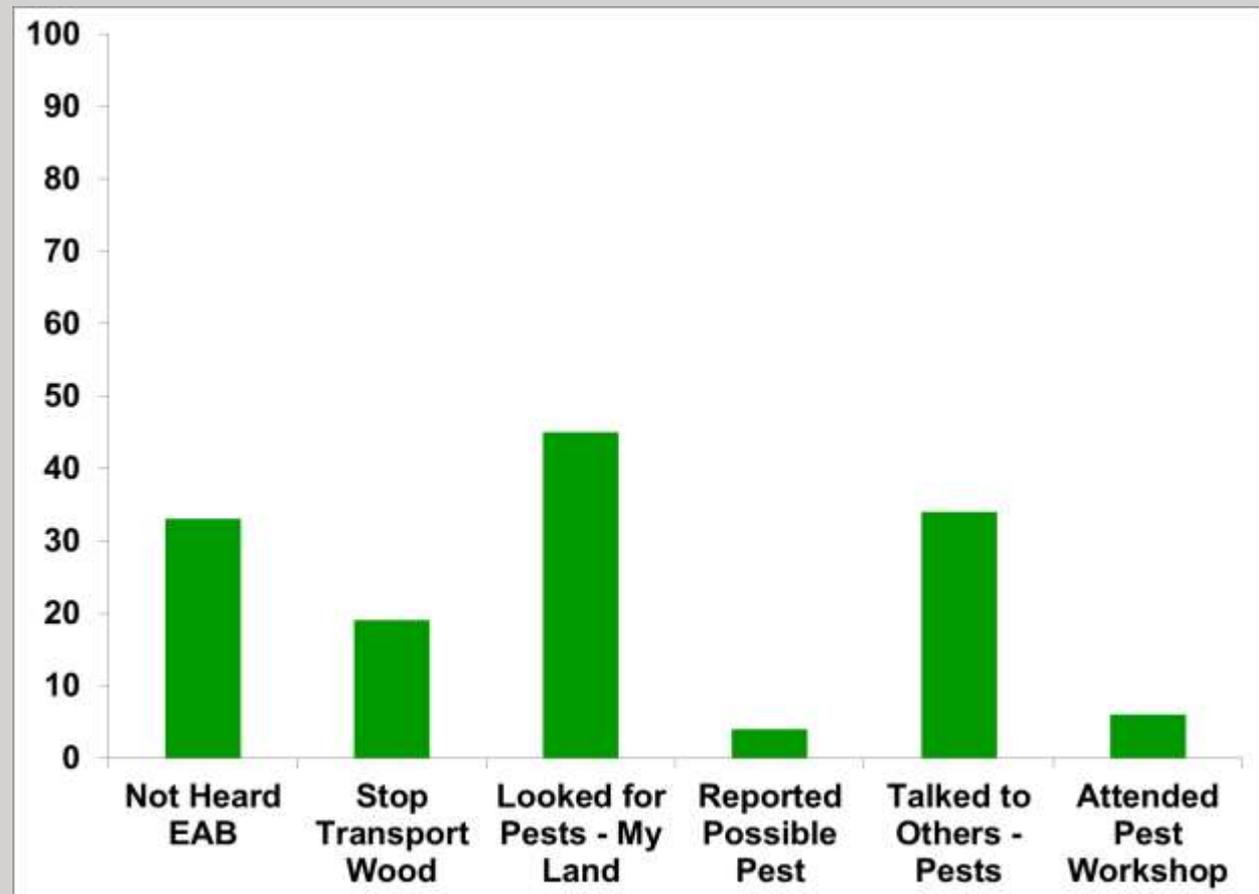
# LANDOWNER PERCEPTIONS – EAB & ALB

## ■ Heard of EAB? Any Behavior Change?

■ Yes = 53%

■ No = 47%

## ■ Same for ALB



# LANDOWNER PERCEPTIONS – EAB & ALB

- Have You Looked for EAB on Your Own Land?
  - Yes = 30%
  - No = 70%
  
- Have You Looked for ALB on Your Own Land?
  - Yes = 31%
  - No = 69%

# LANDOWNER PERCEPTIONS

- Do You Intend to Look for Forest Pest on Your Own Land?
  - Yes = 80%
  - No = 20%
  
- Would You Report an Insect You Suspected to be EAB / ALB?
  - Yes = 93%
  - No = 7%

# LANDOWNER PERCEPTIONS

- Have You Taken Steps to Minimize EAB / ALB?
  - Yes = 5%
  - No = 95%
  
- Do You Intend to Take Steps to Minimize Forest Pests / EAB / ALB?
  - Yes = 47%
  - No = 53%

# LANDOWNER PERCEPTIONS

- **Discovery in Next Five Years:**
  - EAB – Extremely Likely
  - ALB – Likely
  
- **How Severe of a Problem:**
  - EAB – Affect Roadside Trees & Forest Products Industry
  - ALB – Forest Products Industry & Maple Syrup Producers

# LANDOWNER PERCEPTIONS – SOCIAL ACCEPTABILITY

## ■ EAB

### ■ Willing:

- Host a Purple Prism Trap
- Allow Officials to Monitor Predacious Wasps

### ■ Least Likely:

- Participate in Developing a Community Response Plan

## ■ ALB

### ■ Willing:

- Tree Climbers to Survey the Tops of their Trees
- Allow Officials onto Property to Identify Forest Pests

### ■ Neutral:

- Participate in Developing a Community Response Plan
- Allow Harvesters to Cut Trees & Chip Trees – Small for Larvae
- Allow High Risk Removal

# LANDOWNER PERCEPTIONS – SOCIAL ACCEPTABILITY

- **Community Forest Pest Response Plan:**
  - Understand the Objectives of Plan
  - Understand Environmental Consequences
  - Where Actions are Planned
  - Based on Scientific Information
  - Understand How Decisions are Made

# CONSIDERATIONS FOR LANDOWNER SURVEY

## ■ Significant Information:

- Landowner Perceptions...
  - Owning Property
  - Landowner Rights
  - Land-Use
  - Forest Health
  - Knowledge
  - Concern
- What Landowners Wants to Know?
- How Connect with Landowners?
- Willing to Do?

## ■ Information Applied:

- Outreach
- Pest Arrival / Response
- Policy Actions
- Communication for Behavior Change
  - Need correct message
  - Need correct approach
- Generalizability
  - Regions
  - Pests
  - Research Approach

# CONSIDERATIONS FOR LANDOWNER SURVEY

- Provide landowners with information such as detailed list on what they can do!
  - Increase knowledge
  - Disconnect between awareness, knowledge, & action
- Make sure the information is in the format they want and feasible based on the information learned in study.
- Landowners are willing to look, but need reminders that match land-use needs.
  - Need correct prompt.
  - For example, prompts when that fit cutting firewood rather than specific training sessions.

# FUTURE STEPS – LANDOWNER SURVEY

- Apply study information...
  - Pests
  - Regions
  - Generalizable? Need study specific to each issue to determine human dimension?
  - Approach (Applied / Theoretical) to new issue?
- Theoretical component...
  - Theory of Planned Behavior
  - Protection Motivation Theory
  - Health Belief Model
  - Social Acceptability
  - Risk Perception

# QUESTIONS

