

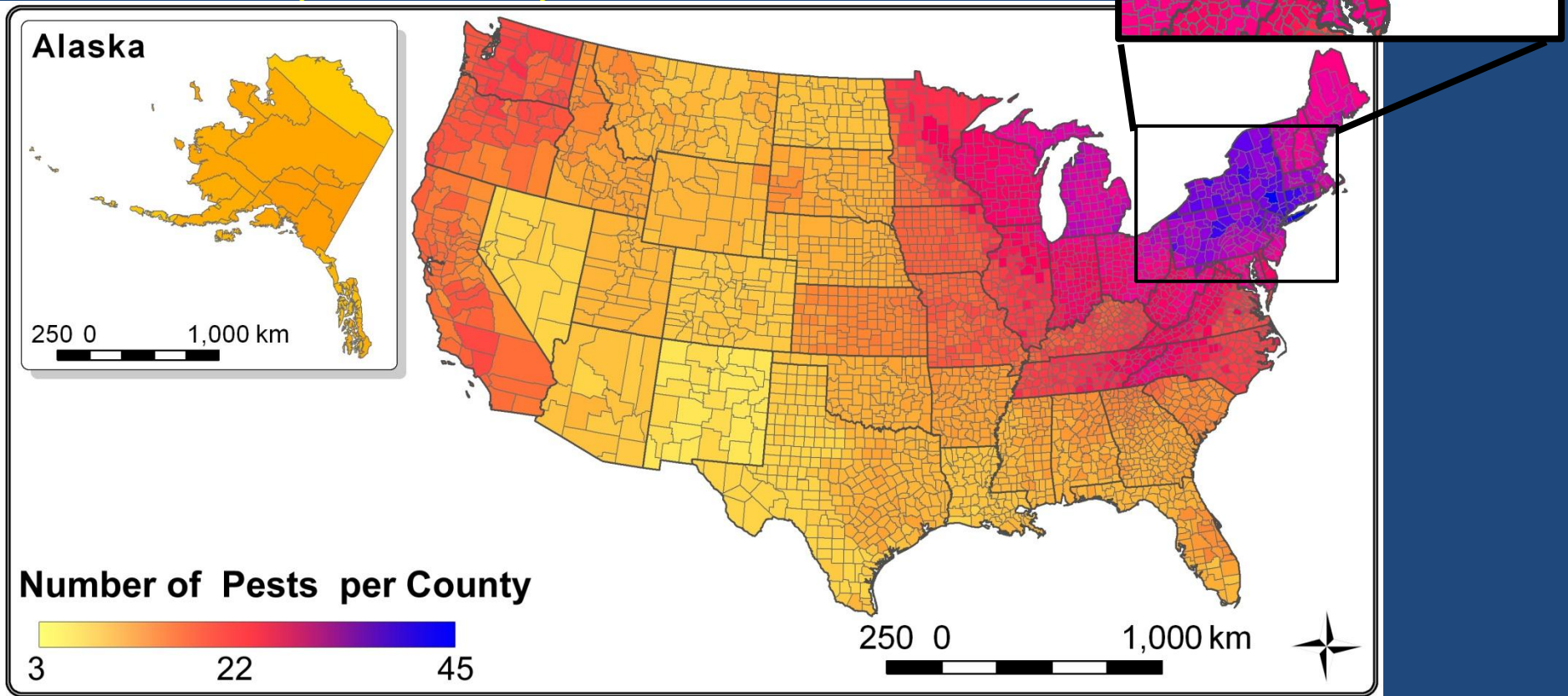
Why Do We Keep Getting New Forest Pests and What Can We Do About It?

*Catskill Environmental Research and Monitoring Conference
October 27, 2016*

Gary Lovett
Cary Institute of Ecosystem Studies

Biological Pollution

*Number of imported forest pests
per county in the U.S.*





A Forest Pest and Pathogen Initiative Science Applied to Policy

Gary Lovett



Kathy Fallon Lambert
Marissa Weiss



*Thanks to our
funders:*



F. M. Kirby Foundation

Comprehensive Synthesis of Forest Pest Issue: Links Science and Policy

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Nonnative forest insects and pathogens in the United States: Impacts and policy options

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Interdisciplinary team of ecologists, entomologists, economists and policy experts

The Washington Post

Invasive insects are ravaging U.S. forests, and it's costing us billions

The New York Times

Imported Forest Pests Cause \$2 Billion in Damage Annually

Newsweek

INVASIVE PESTS ARE EATING TREES LIKE THEY'RE POTATO CHIPS



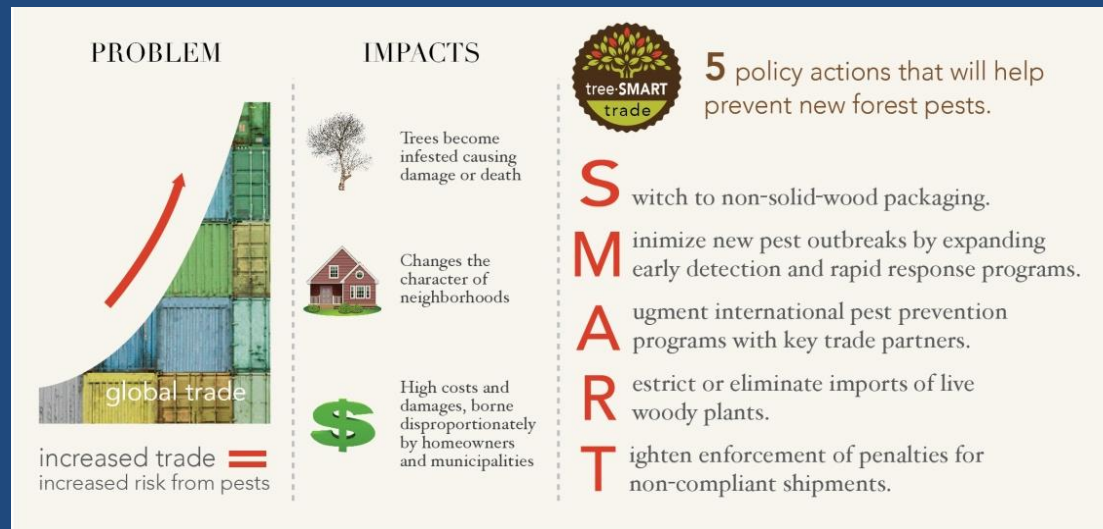
The Boston Globe

Damage from invasive forest pests costs billions a year, study finds

A Forest Pest and Pathogen Initiative

Science Applied to Policy

- Policy brief and policy recommendations



- Engagement with federal agencies and Congress to provide information on the problem and potential policy solutions

www.caryinstitute.org/tree-smart-trade



Bottom Line Messages

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- **Current policies are not providing adequate protection in the face of burgeoning global trade**

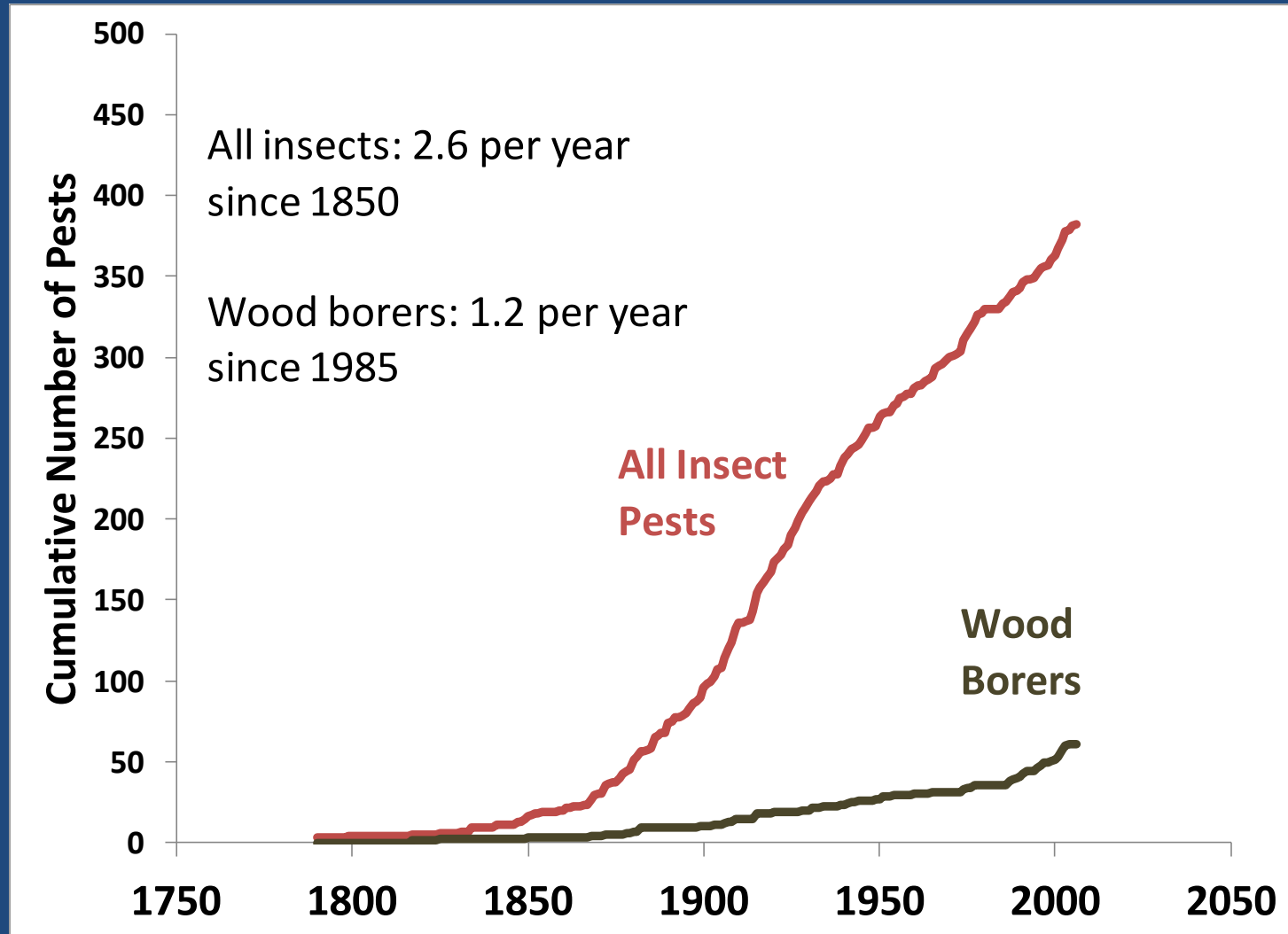


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- Ecological impacts are severe, very long-term, and may be surprising
- Current policies are not providing adequate protection in the face of burgeoning global trade
- **There are many possible policy options for reducing importation and establishment of new pests**

The Problem:

Continued invasion by forest pests



From Lovett et al. *Ecological Applications* 2016; data from Aukema et al. *Bioscience* 2010

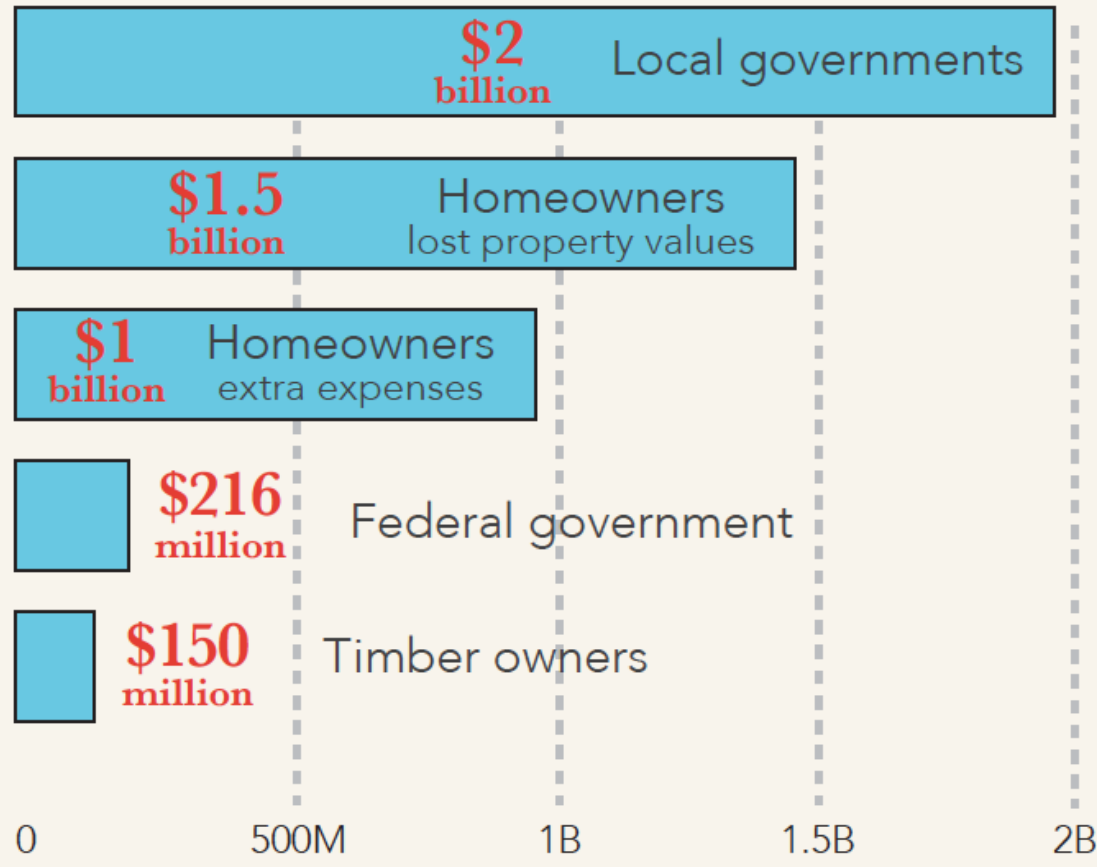
Where are they coming from?

An unintentional by-product of global trade



Economic Impacts

Annual cost of imported insect pests



Data from J. Aukema et al. 2011, PLOS One 6(9): e24587



A neighborhood in Worcester before and after Asian Longhorned Beetle eradication

...and this is an underestimate of true costs of imported pests.

Ecological Impacts

Introduced pests are the only threat that can reduce major canopy species to ecological insignificance in a matter of decades



American chestnut



Chestnut grove in North Carolina, ca. 1910

Impacts of Forest Pests Reverberate Though the Ecosystem



Hemlock Woolly
Adelgid

Death of trees



Decline of old-growth forests,
release of invasive plants



Warming of streams may
impact fish



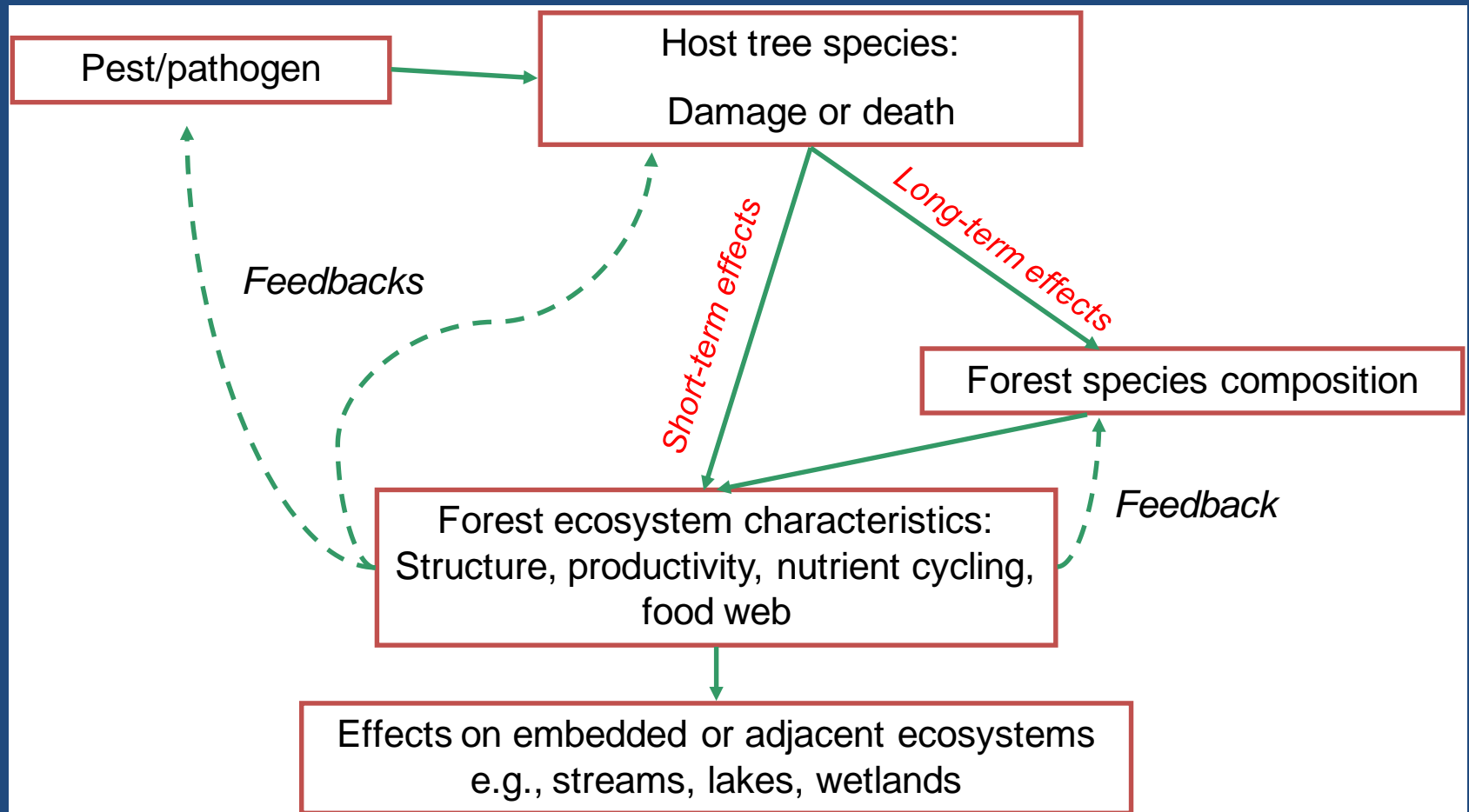
Short- and long-term
changes in carbon storage
and nutrient losses



Decline of some bird
species



Short- and Long-Term Effects

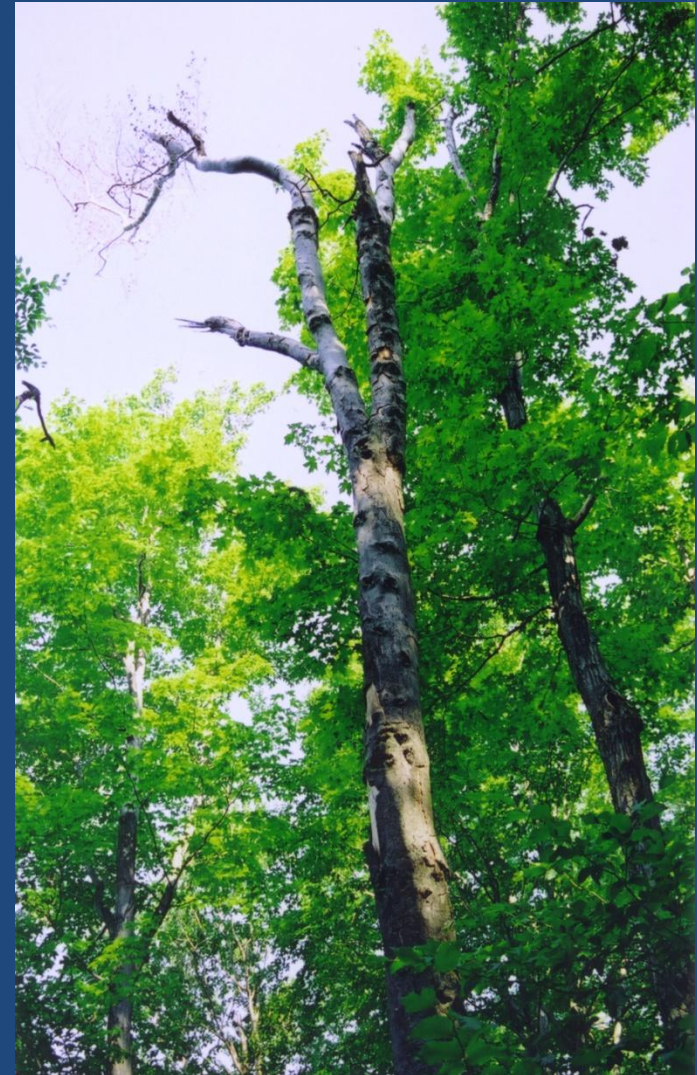


Lovett et al. Bioscience 2006

Impacts on forest productivity and nitrogen leaching to streams and lakes can play out over hundreds of years (*Crowley, Lovett et al. Forest Ecology and Management 2016*).

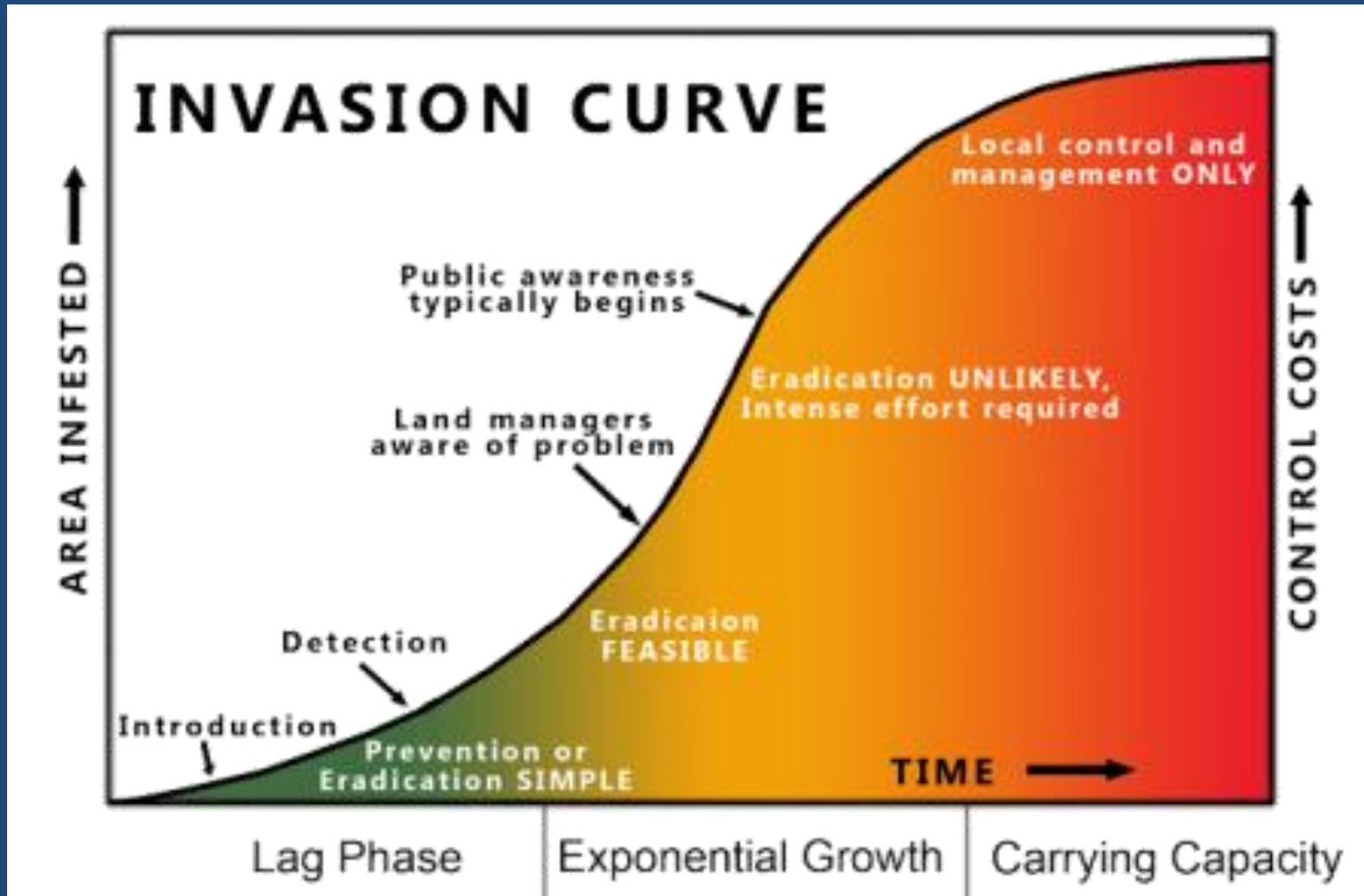
Can This Problem be Solved?

- Eradication of established pests is virtually impossible, but in some cases we can slow their spread and buy some time
- Biological control has potential but is difficult and risky
- Personal actions can be helpful
 - Don't buy non-native plants
 - Don't move firewood
- Federal policies should be strengthened to control the importation and establishment of new forest pests



Policy Priorities

1) Focus on preventing importation and establishment



Policy Priorities

2) Focus on major pathways of introduction

Solid wood packaging material



Live woody plants for landscaping



5 Tree-SMART Trade Policy Actions



Switch to non-solid-wood packaging.

Minimize new pest outbreaks by expanding early detection and rapid response programs.

Augment international pest prevention programs with key trade partners.

Restrict or eliminate imports of live woody plants.

Tighten enforcement of penalties for non-compliant shipments.



Why do we keep getting new forest pests?

- Because federal policies are not providing adequate protection in the face of growing trade volume.

What can we do about it?

- There are many ways the policies can be strengthened; we recommend 5 high-priority actions that we call Tree-SMART Trade.
- Given the risks to Catskill forests, the Catskill community should step up and advocate for stronger prevention measures.

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- M**inimize new pest outbreaks by expanding early detection and rapid response programs.
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More information: www.caryinstitute.org/tree-smart-trade

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