Invasive Species

THREATS AND OPPORTUNITIES FOR ACTION

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Mission:
To protect the Adirondacks from the negative impacts of non-native invasive species

Goals:
1. Prevent new introductions
2. Rapidly detect and eradicate new infestations
3. Manage existing priority infestations to mitigate impacts

Activities:
Coordination, Prevention, Education & Outreach, Survey & Mapping, Control & Management, Monitoring, Research, Planning, Policies, Funding

Partnerships:
3 staff, 1 seasonal Rapid Response Team
4 principal partners (+4 new ones)
30+ cooperating organizations
100s of volunteers

Funding:
Environmental Protection Fund (5 yrs)
2013-2017
WHAT’S THE DIFFERENCE?

**Native Species**
Species indigenous to a region at the time of European settlement

**Non-native Species** *(Exotic, Introduced, Alien)*
Accidental or purposeful introduction of a species outside of its historic range

**Invasive Species** *(Noxious)*
Non-native species that causes measurable harm to the environment, economy, or society

**Nuisance Species** *(Weed)*
Species that interferes with human activities
THE GLOBAL TRANSPORTATION SYSTEM
FOREST PEST ABUNDANCE BY COUNTY

Number of Pests per County

3  22  45

Liebhold et al. 2013
LOSS OF BIODIVERSITY
LOSS OF RECREATIONAL OPPORTUNITIES
COSTS & IMPACTS

RISK OF DISEASE OR INJURY
$137-146 BILLION COST OF INVASIVE SPECIES IN THE UNITED STATES EACH YEAR

Pimentel et al. 2005
THE ADIRONDACK REGION REMAINS RELATIVELY UNINVADED
PRESENT & APPROACHING THREATS

PLANTS

ANIMALS
HEMLOCK WOOLLY ADELGID
HEMLOCK WOOLLY ADELGID
NATIVE RANGE

Adapted from Havill et al. 2016
New York State
Eastern Hemlock (Tsuga canadensis) Distribution

0% - 5% 6% - 15% 16% - 30% 31% - 60% 61% - 100%

Dataset: Eastern Hemlock (Tsuga canadensis)
Wilson, Barry T. and Andrew J. Lister (in review).
A phenology-based nearest-neighbor imputation approach to large area mapping of forest characteristics using field sampled data. Submitted to Remote Sensing of Environment.
EASTERN HEMLOCK IS A FOUNDATION SPECIES

A SPECIES WITH A DISPROPORTIONALLY STRONG ROLE IN STRUCTURING A COMMUNITY
NORTHERN HEMLOCK FOREST

YEAR-ROUND: CLOSED CANOPY

NORTHEASTERN DECIDUOUS FOREST

GROWING SEASON: CLOSED CANOPY
FALL/WINTER: OPEN CANOPY

Adapted from Jenkins et al. 1999
INCREASED SUSCEPTIBILITY TO INVASIVE PLANTS

(Ellison et al. 2015)
INCREASED WATER FLOW

(Kim et al. 2017)
CHANGE IN WATER TEMPERATURE

(Webster et al. 2012; Roberts et al 2009; Siderhurst et al. 2010; Ford et al. 2012)
IMPACTS TO COLD WATER FISH AND INVERTEBRATES

(Ross et al. 2003; Synder et al. 2002)
REDUCED AVIAN DIVERSITY

(Tingley et al. 2002)
LOSS OF WINTER DEER SHELTER

(Euler & Thurston, 1980)
WHAT IS BEING DONE?
CITIZEN SCIENCE!
Biocontrol Research

*Laricobius nigrinus*

*Leucopis argenticollis*
Project Goals:

1. Map existing range of eastern hemlock in the Adirondack Park and Tug Hill Region

2. Forecast the susceptibility of mapped hemlock to potential HWA infestation based on climate models for 2035

NASA DEVELOP project team (left to right): Rachel Soobitsky, Ariel Walcutt, Sara Lubkin, Madeline Ruid, Sean McCartney. Photo provided by Sean McCartney
Data Sources

Landsat 8

AVIRIS
Hemlock Distribution Map

- 5,885 stands
- 4.6 – 760 acres
- 64,251 acres total

6% study area is hemlock dominated
What Can You Do?
Take Preventative Actions
Learn More: Attend an APIIPP Training!
Report Your Findings

iMap Invasives Mobile
Sharing information for strategic management
Important Messages

• Invasive species come in all shapes and sizes

• Invasive species can negatively impact the ecological and economic value of the watershed

• Prevention is the highest priority

• Early detection and rapid response are critical to reduce potential impacts

• Its not too late!
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Aquatic Invasive Plant Identification & Survey Training
June 19th – Bolton Landing
June 22nd – Paul Smiths
June 27th – Blue Mountain Lake

Aquatic Animal Identification & Survey Training
August 8th – Piseco Lake

QUESTIONS?

Terrestrial Invasive Plant Identification & Management Training
July 18th – Northville
July 19th - Malone

Terrestrial Invasive Plant Identification & Survey Training
July 11th - Willsboro

Aquatic Invasive Plant Identification & Survey Training
June 19th – Bolton Landing
June 22nd – Paul Smiths
June 27th – Blue Mountain Lake