Spruce Budworm Update

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Spruce Budworm

- One of the most destructive native insects of spruce/fir in N. America
- Balsam fir and white spruce
- Eats young and old needles
- Late spring / early summer
- Mortality after 3rd defoliation

Spruce Budworm

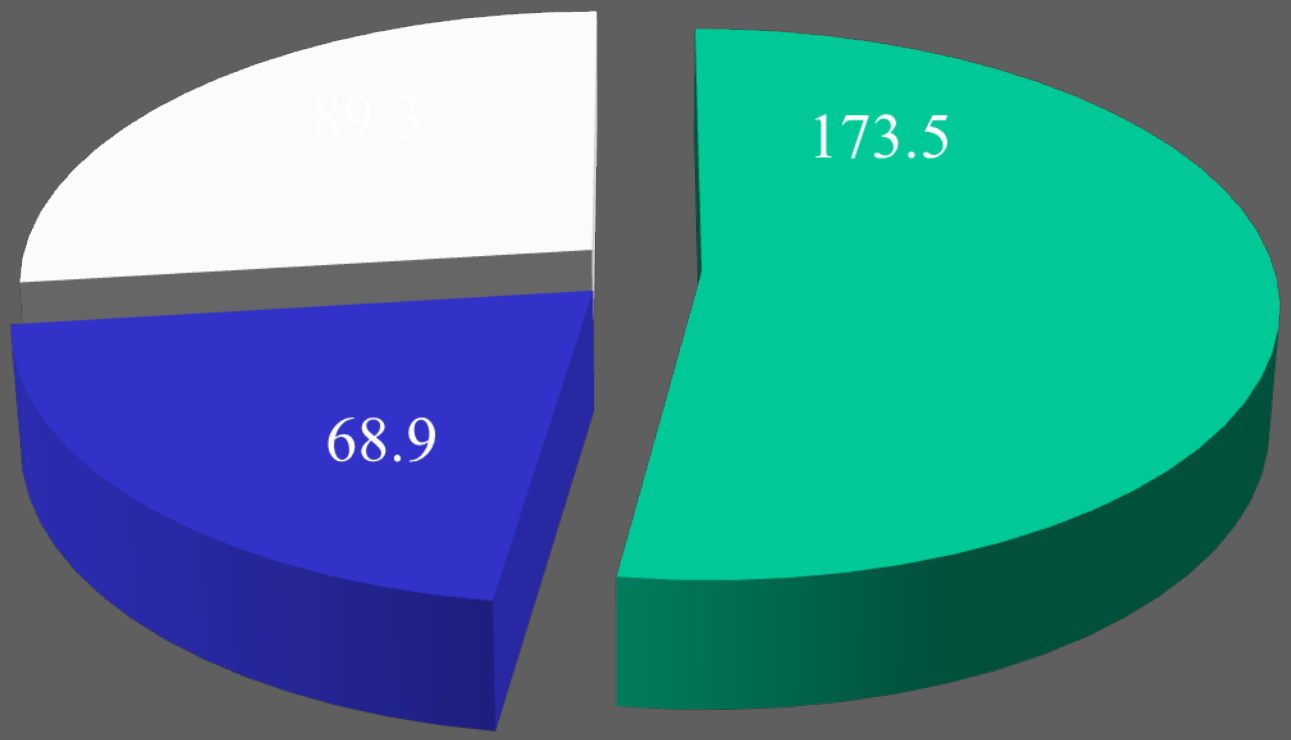
The SBW Cycle

- 30-50 year cycle
- Last outbreak in Michigan:
  - late ‘60’s through early ‘80’s
  - 519,000 acres defoliated
  - 67% of the balsam fir killed
  - 42% of the white spruce killed

The SBW Cycle

- 2014: Beginning of current regional budworm epidemic
- Feeding done by late June
- Evaluate tree condition after rains wash away brown needles

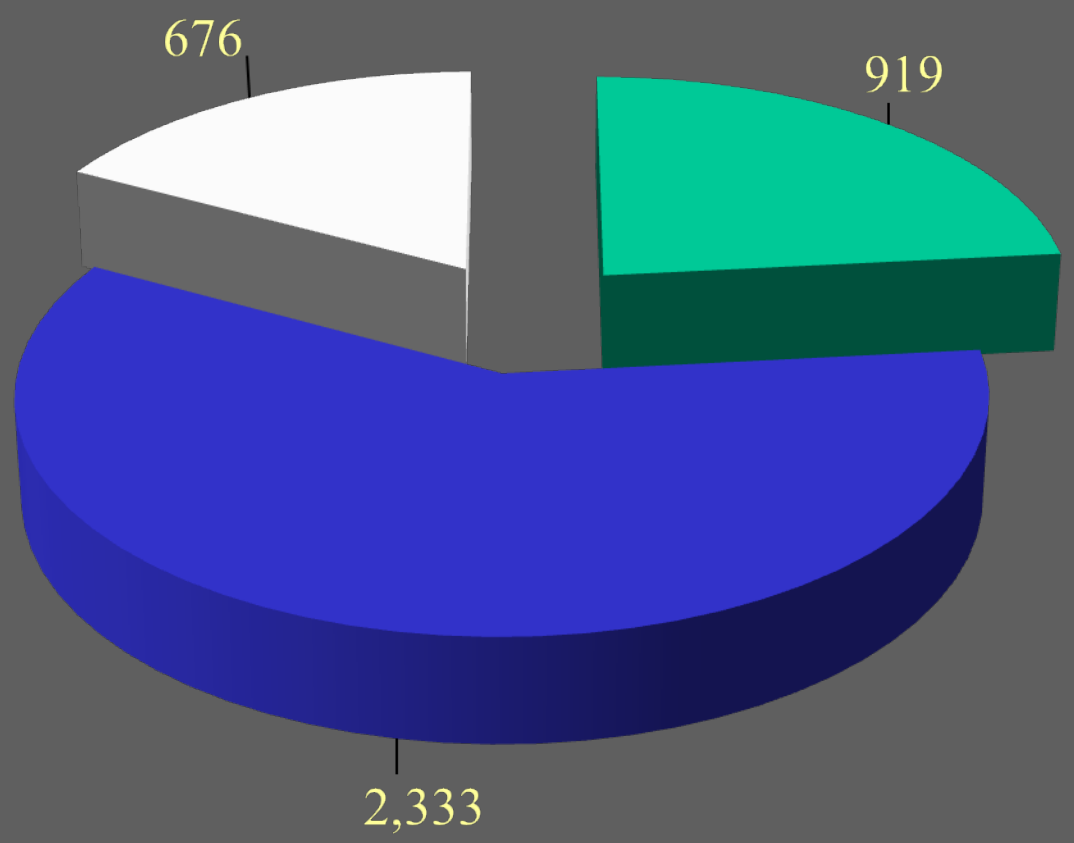
Host Trees in Michigan (millions)



- balsam fir (12)
- white spruce (94)
- black spruce (95)

Based on FIA data

Saw Timber Volume
(in millions of board feet)



- balsam fir
- white spruce
- black spruce

Total volume: 3,252 million board feet

State Forestland with White Spruce/Balsam Fir

- Number of stands: 16,275
- Total acres: 323,494
- Age range: 70-89 years

DNR Response

June

- Press releases and emails

July

- Aerial surveys
- Ground surveys
- DNR inventory analysis

August

- Compile final list of high-risk stands
- 2015 SBW project plans, data, and maps to field units

Managing the State's Spruce-Fir

- Goal: Harvest prior to overmaturity
  - Balsam fir: 50 years
  - Mixed balsam fir and white spruce: 50 years
  - White spruce: 70 years
- Manage for even-aged, well-stocked stands
- Avoid scattered residual overstories of host trees
  - Existing young balsam stands (<15' tall) with a scattered overstory of host trees should have that overstory removed to reduce damage to the understory.

Determining Risk of Mortality

- **Stand condition.** Stands with top kill or mortality.
- **Stand age.** Oldest stands.
- **Stand composition.** Highest component of balsam fir.
- **Stand volume.** Highest volume.
- **Site quality.** Stands on poor sites.

2015 Aerial Survey Results

- Western U.P.: Heavily defoliated
- Central U.P.: Light defoliation
- Eastern U.P.: Locally heavy defoliation
- NW L.P.: Isolated areas of locally heavy defoliation

Note: Several areas of older top kill and mortality caused by old age and drought stress

- Dickinson, SW Menominee, W. Marquette, Iron and Baraga Counties
- Ottawa National Forest

DNR's SBW Strategy - Overview

- Work with Units to identify stands at risk
  - Current forest inventory
  - Spruce budworm aerial & ground surveys
- Impacts will occur gradually over the next decade
  - Focus on stand value and risk to ensure efficient use of limited resources.
  - Continue working with with private, industrial and local government landowners
    - Forest Stewardship
    - MACD
    - Extension