2016 Forest Insect Impacts in Southcentral Alaska

2017
Alaska Entomological Society Meeting

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February 4, 2017
Fairbanks, Alaska
Spruce beetle
Spruce beetle

Orthosia hibisci

Orthosia hibisci larva (L); alder and willow defoliation (R)
Photos: J. Moan, AKDOF
Spruce beetle

*Orthosia hibisci*

Spruce aphid

*Spruce aphid and aphid-caused damage*

Photo: (L) USFS R10 FHP, (R) J. Moan, AKDOF
2016 – Spruce beetle

Spruce Beetle
Aerially-Mapped Damage
Statewide
2016

Spruce beetle

193,500 acres

Note: Damage polygons have been exaggerated to allow for better visibility
2016 – Spruce beetle

Spruce beetle - Acres of aerially-observed damage 1996-2016

Background photo: J. Moan, AKDOF
2016 – Spruce beetle

Spruce beetle – Acres of aerially-observed damage 2006-2016

*Includes acres mapped as containing both spruce beetle and northern spruce engraver

Background photo: J. Moan, AKDOF
2016 – Generalist hardwood defoliation

Background photo: J. Moan, AKDOF
2016 – Generalist hardwood defoliation

Generalist defoliation initially observed in 2014

- Upper Yentna River valley
- Lake Clark National Park
- Wood-Tikchik State Park
- Holy Cross area
2016 – Generalist hardwood defoliation

**Timeline**

- Generalist defoliation initially observed in 2014
  - Initially presumed to be *Sunira verberata*-caused damage
  - Alder, willow, birch, cottonwood affected
2016 – Generalist hardwood defoliation

Timeline

Aerial Survey

- 2014 - Defoliation event initially observed (~35,000 acres)
- 2015 - Area affected expands (~183,000 acres)
- 2016 - Area affected decreasing (~138,000 acres)
2016 – Generalist hardwood defoliation: *Orthosia hibisci*

**Timeline**

**Ground efforts**

- 2015 & 2016 – Cooperator reports from:
  - Telaquana Lake
  - Lake Clark
  - Near Holy Cross
  - Near Anvik

Photo: J. Moan, AKDOF
2016 – Generalist hardwood defoliation: *Orthosia hibisci*

**Timeline**

**Ground efforts**

- **2016 continued –**
  - **April:** Moth emergence in Bethel – Confirmed as *Orthosia hibisci*
  - **June:** Field collections at Telaquana and Chakachamna lakes – confirmed as *Orthosia hibisci*
  - **November:** Moth specimens (collected in spring) – confirmed as *Orthosia hibisci*

Inset photo: J. Moan, AKDOF
2016 – Generalist hardwood defoliation: Orthosia hibisci

University of Alberta E. H. Strickland Entomological Museum
http://entomology.museums.ualberta.ca/searching_species_details.php?s=5999
2016 – Generalist hardwood defoliation: *Orthosia hibisci*
Confirmed* and Suspected Orthosia hibisci-caused defoliation

- **2016 Defoliation**
- **2015 Defoliation**
- **2014 Defoliation**
- **Cumulative Defoliation 2014-2016**

*Confirmed in parts of Lake Clark National Park and adjacent areas*

Note: Damage polygons have been exaggerated to allow for better visibility.
2016 – Spruce aphid
Elatobium abietinum

Spruce aphids – Homer
Photo: J. Moan, AKDOF
- Native of Europe
- Pest of coastal spruces, primarily Sitka spruce
- Long established in Southeast Alaska
- First report on western Kenai in 2015
Spruce aphid mapped during annual aerial forest health surveys
Map by M. Lamb, USFS R10 FHP
2016 Aerially-Surveyed Spruce Aphid Damage

Note: Damage polygons have been exaggerated to allow for better visibility

J. Moan - AK DOF
Feb 1, 2017
Data: USFS, AKDOF, ESRI
Southcentral Alaska Timeline

Aerial Survey

- Prior to 2015 – Observed periodically in areas of Prince William Sound
- 2015 – Defoliation on south side of Kachemak Bay initially observed (1,200 acres)
- 2016 – Aphid damage observed surrounding Kachemak Bay (17,500 acres)

2016 – Spruce aphid
Elatobium abietinum
2016 – Spruce aphid
Elatobium abietinum

Note: Damage polygons have been exaggerated to allow for better visibility.
Southcentral Alaska Timeline

Ground Efforts

- 2015 – Initial field visits to Homer to confirm aphid presence and identification
  - DNA confirmation - *Elatobium abietinum*
- 2016 – Spruce aphid range investigation

2016 – Spruce aphid
*Elatobium abietinum*
2016 – Spruce aphid
* Elatobium abietinum

Aphid damage observed during ground surveys
Aphid damage observed during aerial survey

* Locations as of 10/13/16; Data from FHP and DOF
Halibut Cove – Spruce aphid damage 2015
Photo: J. Moan, AKDOF

2016 – Spruce aphid
Elatobium abietinum

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Questions?