Alaska Region FHP

Interior and Southcentral Flightlines 2018

Southeast Flightlines 2018

15% Coverage
Alaska Region FHP

Monitoring

• Aerial survey
• Trapping
• Target Surveys
• Campground & Road surveys
Alaska Region FHP

Trapping
• EDRR (3 traps/site)
Alaska Region FHP

Trapping

- EDRR (3 traps/site)
- LTER (5 traps/site)

Fairbanks
Alaska Region FHP

Trapping
- EDRR (3 traps/site)
- LTER (5 traps/site)
- Spruce Beetle (1 trap/site)
Alaska Region FHP

Trapping
- EDRR (3 traps/site)
- LTER (5 traps/site)
- Spruce Beetle (1 trap/site)
- Spruce Budworm (2 traps/site)

Fairbanks
2018
• 68,000 insects identified
  -47,000 *Trypodendron*

*Odontosphindus clavicornis* (Coleoptera: Sphinidae)
ID: Dana Brennan
Confirmed: Derek Sikes
Funnel Trap: *Trypodendron* Lure
Location: 63.9664, -149.1226
Collection Date: 26 June, 2018
Alaska Region FHP

Campground & Road Surveys

Interior Alaska Campground & Road Survey
3 Year Cycle

Fairbanks

All State and Federal Campgrounds
Along Marked Roadways
- Year 1
- Year 2
- Year 3

Coldfoot

Chena Hot Springs

Cantwell

Delta Junction

Glenallen

McCarthy

Eagle

Nabesna

Tok

Paxon

Circle

Coldfoot

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Eagle

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Tok

Paxon

Circle
Alaska Region FHP

Survey 123 Data points 2018

Fairbanks

Agent and host

Damage agent category

"None" is only relevant for timed-meander and campground surveys

- Disease
- Insect
- Noninfectious
- None
Alaska FHP (Aspen Leaf Miner)

- 230,000 acres in 2018
- Outbreak began in 2002
Alaska Region FHP (Aspen Leaf Miner)

1.2 million acres

Survey 123 Data points 2018

Aspen Leaf Miner (Phyllocnistis populiella) 2018

Fairbanks
Alaska Region FHP (Aspen Leaf Miner)

1.2 million acres
Alaska Region FHP (Spruce Budworm)

Spruce Budworm (*Choristoneura fumiferana*)
Trap Captures
2018

Target Surveys
Budworm trapping
Alaska Region FHP (Spruce Budworm)

Spruce Budworm (*Choristoneura fumiferana*) Trap Captures 2018

Spruce Budworm (*Choristoneura orae*) Trap Captures 2018

Budworm count:
- 1
- 10
- 50
- 100
- 500
- 1,000

Maps showing distribution and trap captures of Spruce Budworm in Alaska Region FHP.
Alaska FHP (Large Aspen Tortrix)

Large Aspen Tortrix (Choristoneura conflictana) Mapped Defoliation 2015 - 2018

- 2018: 1,960 acres
- 2017: 226 acres
- 2016: 930 acres
- 2015: 20,000 acres

Large Aspen Tortrix

Spruce budworm
Alaska FHP (Large Aspen Tortrix)

1,960 acres

Large Aspen Tortrix

18,000 acres aspen defoliation

Aspen Running Canker
Sawflies (Hymenoptera: Tenthredinidae)

3 species in Alaska

- Amber-marked birch leafminer (*Profenusa thomsoni*)
- Late birch leaf edgemininer (*Heterarthurus nemoratus*)
- Birch leafminer (*Fenusa pumila*)

*Digweed et al. 2009*
Alaska FHP (Birch Mining Sawflies)

100,000 acres in 2018
Alaska FHP (Birch Mining Sawflies)

Ovipositing females prefer sun leaves

South Facing

North Facing
Alaska Region FHP (Birch Leaf Miners)

Late Birch Leaf Edgemin (Heterarthrus nemoratus)
Damage in Southcentral Alaska 2018

Invasive Birch Mining Sawflies 2018

Believed to predominately be *H. nemoratus*
Based on ground observations
Alaska FHP (Spruce Beetle)

- 590,000 acres in 2018
- 910,000 acres in the last 3 years
Interior spruce beetle

Interior Alaska
• 660 K acres in 40 years

Southcentral Alaska
• 900 K in last 3 years
Theories why spruce beetles behave differently in the Interior compared to Southcentral.
Interior spruce beetle

Too Dry
• Interior: High latitudinal desert
• Trees are adapted to dry conditions
• Dry conditions do not necessarily indicated drought stress
• Drought (beyond normal conditions) = beetle outbreak?
• Increase precipitation = beetle outbreak?
Alaska FHP (Interior Bark Beetles)

![Graph showing beetle count over time with two lines: one for spruce beetle and another for northern spruce engraver.]

- Spruce beetle
- Northern spruce engraver

Beetle count

- 0
- 500
- 1000
- 1500
- 2000
- 2500
- 3000


Photograph on the right shows a person in a forested area.
Alaska FHP (Northern Spruce Engraver)

Northern Spruce Engraver
(*Ips perturbatus*)
Mapped Damage
2015-2018

- 2018: 1,635 acres
- 2017: 6,012 acres
- 2016: 14,400 acres
- 2015: 9,300 acres

Map showing damage distribution from 2015 to 2018 in various locations across Alaska, including Fairbanks, Delta Junction, Coldfoot, Galena, McGrath, Cantwell, Tok, Sleetmute, and Anchorage.

Image of the Northern Spruce Engraver beetle (1, 2, 3, 4).

Image of damage caused by the Northern Spruce Engraver.
Alaska FHP (Neodiprion tsugae)

37,000 acres in 2018
Alaska FHP (Willow Leafblotch Miner)

36,000 acres in 2018

Willow Leafblotch Miner
(*Micrurapteryx salicifoliella*)

2018

[Map showing distribution of Willow Leafblotch Miner in Alaska]
Alaska FHP (Willow Leafblotch Miner)

36,000 acres in 2018
Alaska FHP (Willow Leafblotch Miner)
36,000 acres in 2018

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**RESEARCH ARTICLE**

Leaf herbivory by insects during summer reduces overwinter browsing by moose

Brian P. Allman, Knut Kielland and Diane Wagner

**Abstract**

**Background:** Damage to plants by herbivores potentially affects the quality and quantity of the plant tissue available to other herbivore taxa that utilize the same host plants at a later time. This study addresses the indirect effects of insect herbivores on mammalian browsers, a particularly poorly-understood class of interactions. Working in the Alaskan boreal forest, we investigated the indirect effects of insect damage to *Salix interior* leaves during the growing season on the consumption of browse by moose during winter, and on quantity and quality of browse production.

**Results:** Treatment with insecticide reduced leaf mining damage by the willow leaf blotch miner, *Microtaphysa salicifolii*, and increased both the biomass and proportion of the total production of woody tissue browsed by moose. *Salix interior* plants with experimentally-reduced insect damage produced significantly more stem biomass than
Birch leaf roller
*Caloptilia* spp.

Frequency: Consistent
Intensity: Down
Speckled green fruit worm (*Orthosia hibisci*)
Battered sallow moth (*Sunira verberata*)

Damage for both low in 2018
Alaska FHP

Spruce Aphid
*Elatobium abietinum*

Recorded 126 acres
Alaska FHP (Currently in outbreak in Alaska)
Thank You