



The Green Alder Sawfly in Southeast Alaska

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Forest Health Protection

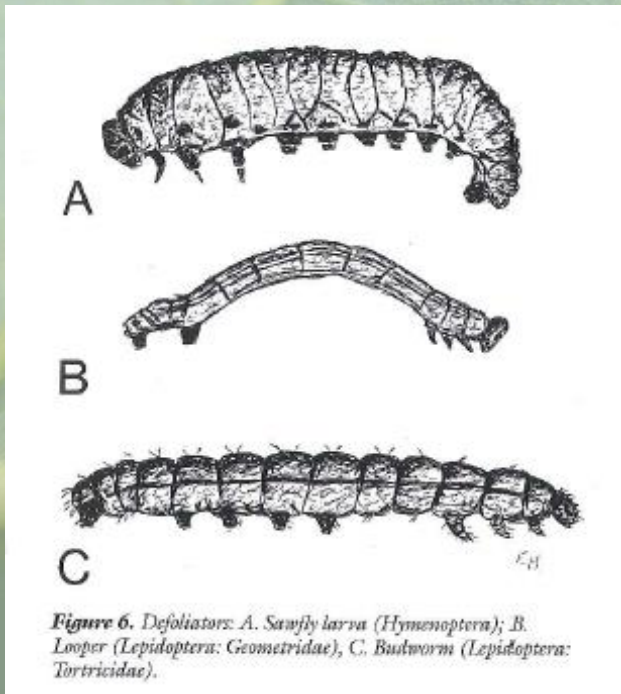


GAS in Southeast Alaska

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What is a sawfly?

- Hymenoptera → Symphyta → Tenthredinoidea
- Named for their sawlike ovipositor



Common Sawflies (Tenthredinidae, Diprionidae)

- Hardwood and conifer feeders
- Leaf feeders
 - External
 - Miners
- Diverse appearance
- *Arge*, *Cimbex*, *Neodiprion*, *Phylocolpa*, *Pikonema*, *Pristophora*, *Susana*, *Trichiocampus*



Green Alder Sawfly

- *Monsoma pulveratum* (Retzius)
- Native to Europe, North Africa and the Near East
- Preferred host is European black alder (*Alnus glutinosa*).



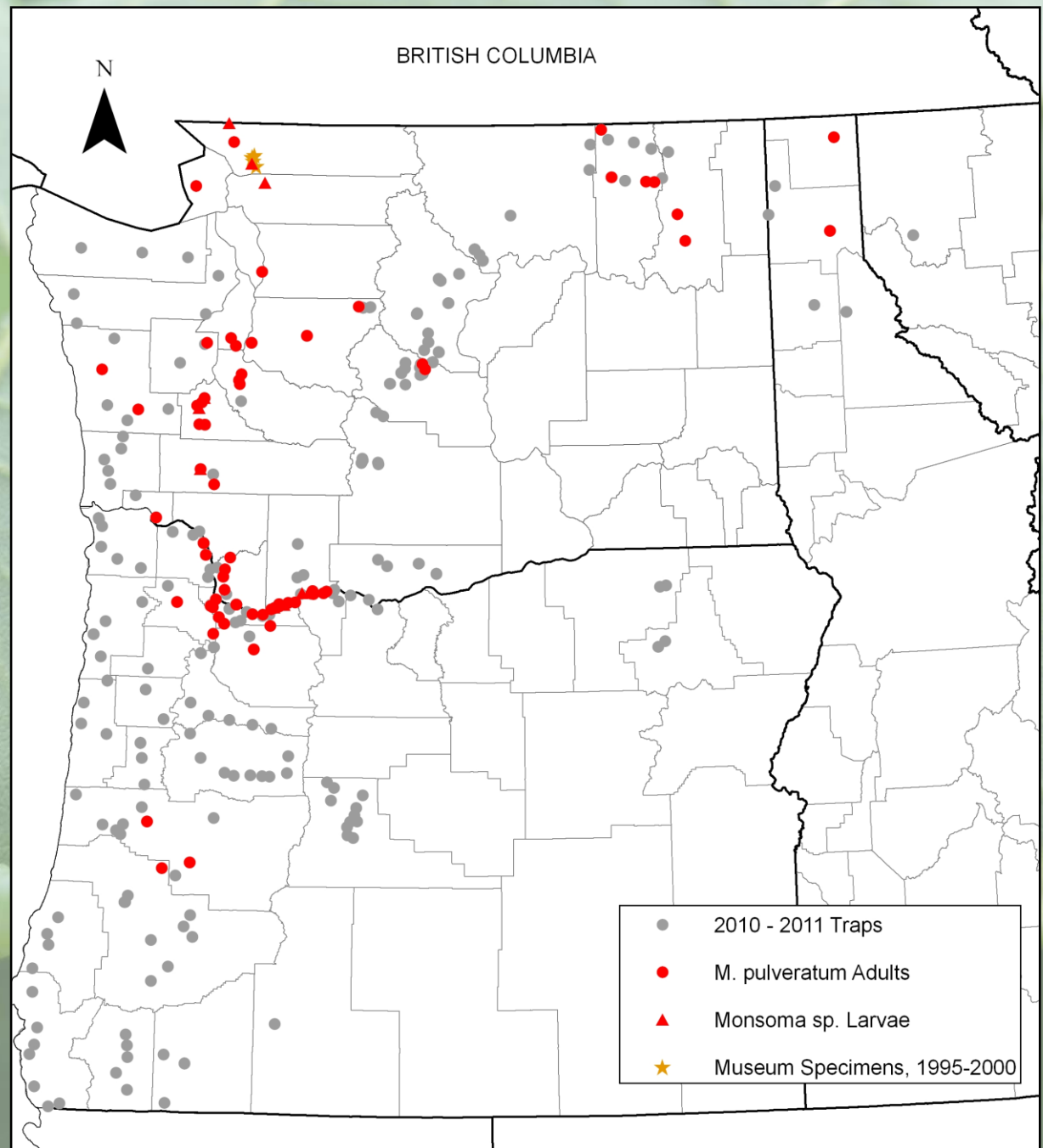
Discovery of GAS in Alaska

- GAS was first collected in Southcentral Alaska in 2007 during an assessment of riparian thin-leaf alder defoliation
- Collection records show it was in Palmer in 2004
- Since positive identification GAS was found actively feeding in Anchorage, Kenai, Seward, Mat-Su valley, and Fairbanks.
- 2010 sawfly was discovered in Washington

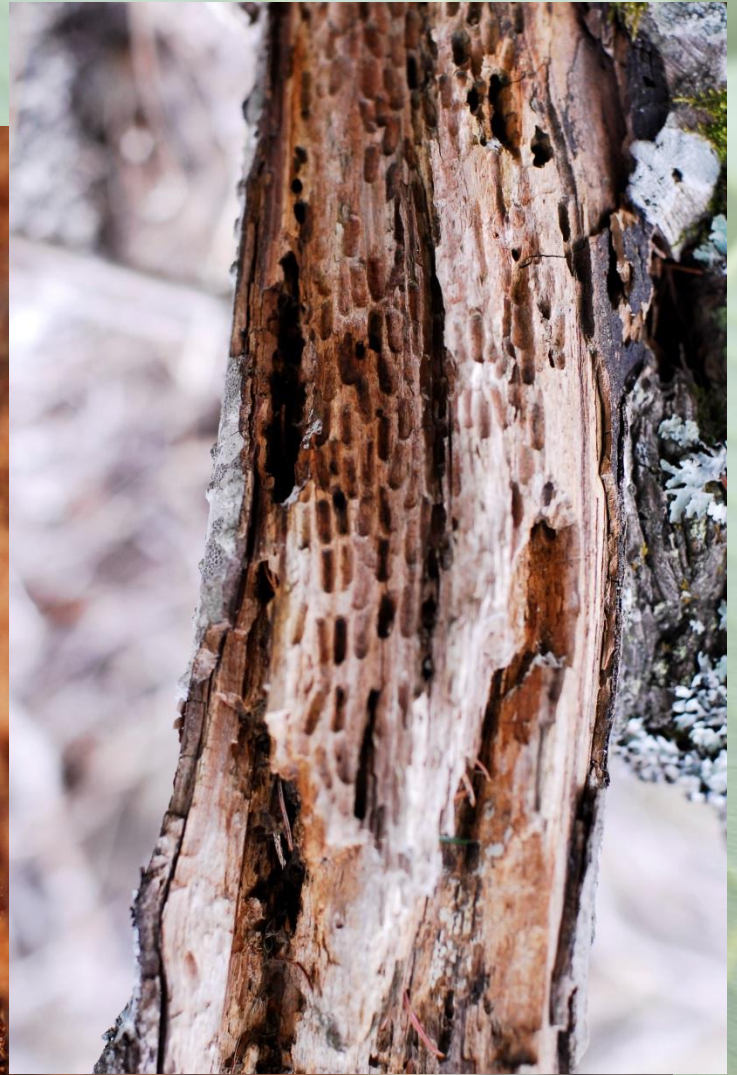
Green Alder Sawfly Trapping sites

2010 + 2011

Map produced by
Chris Looney
(WSDA)







Discovery of GAS in Southeast Alaska

- Bob Gorman, CES agent in Sitka, contacted FHP in Juneau after getting calls about a “large green caterpillar” feeding on red alder
- Specimens were sent and identified as GAS
- GAS was found actively feeding on red alder in multiple locations throughout Sitka
- GAS was then found in Juneau and Ketchikan





Striped Alder Sawfly



Striped Alder Sawfly



Leaf Miners

- Multiple species, multiple orders
 - Lepidoptera, Hymenoptera
- Defoliation is at its worst in warm and dry climates
- Larvae bore between epidermal leaf tissues, reducing photosynthetic area
- *Heterarthrus vagans*, exotic leaf mining sawfly has been found on red alder in B.C.
- Another exotic, amber marked birch leafminer found in Haines and Skagway



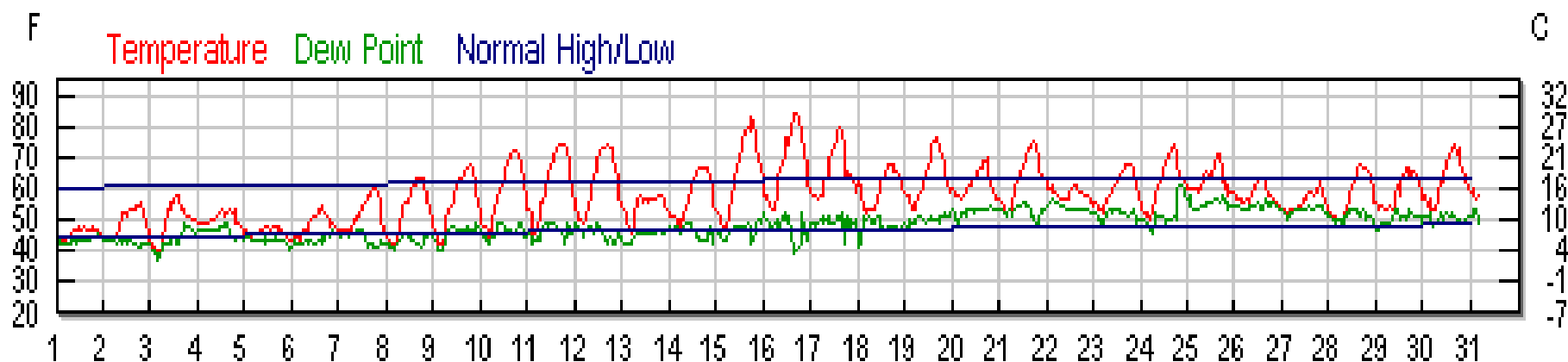
Leaf Rollers

- *Epinotia solandriana*
- Larvae emerge in mid-May and begin feeding in buds then later in leaf rolls
- Leaf roll provides shelter for feeding and protection from predators
- Pupate in the soil, adults emerge in August
- Heavy amount of leaf roller activity found throughout the state



High temps + Low Precip

- June 2013



Precipitation: Actual month total **2.98** Normal month total **3.24**

>130,000 acres of alder defoliation mapped in 2013 ADS

Impact of GAS

- Alder plays a vital role in aquatic habitats
- 70% of the available nitrogen in forests may have its origin in alder
- The presence of alder could protect or even improve the productivity of aquatic organisms
- There are currently three major sawfly defoliators of alder
- In addition widespread mortality of alder in Southcentral and Interior Alaska attributed to canker fungi.

Elderberry Sawfly



Elderberry Sawfly



Elderberry Sawfly

- Initially found on Wrangell and Etolin Islands, then Juneau
- The sawflies were feeding voraciously on elderberry while leaving the alder untouched
- Feeding trials showed the larvae would not feed on alder
- Feeding trials with GAS showed the larvae would not feed on elderberry



Crisp October days beckon a colorful hello

Posted: Friday, October 02, 2009

By Mary Willson

An early October day of high overcast, with filtered sunshine and temperatures in the low forties was a perfect day for a walk. I ambled out to the beach at the mouth of Eagle River.



Abby Lowell / Juneau Empire

The forest at the start of the trail was pretty quiet, with just the occasional chickadee and golden-crowned kinglet to be heard. But the devil's club leaves made the understory seem to glow with golden light. The river was low, with no water in the pools where we had earlier seen a bear capturing chum salmon. Trapped by the receding water, the fish were easy prey. The bear was high-grading, taking a bite or two from each fish and leaving the carcass to go catch another one.

In the alder grove between forest and meadow, numerous graceful strands of lichen added a bright hue. This is a species of *Usnea*, known as Methuselah's beard. *Usnea* lichens produce usnic acid, which is used medicinally for its antibiotic properties, although some people are apparently allergic to it. *Usneas* are very sensitive to air pollution, so they disappear around pulp mills and factories.

I noticed that the elderberry bushes bore leaves that were riddled with holes. In another part of Juneau, these perforations have been caused by the larvae of a sawfly (a distant relative of bees and wasps, named for the 'saw' by which the females open a gap in a plant in order to lay an egg there). The sawfly has been tentatively identified as the green alder sawfly - now on a previously unknown host. Entomologists will try to rear the larvae or capture adults beneath the bushes next spring. So we should know next summer if this sawfly really has a new host or if, possibly, it is a different species.

Bears had been digging in the big meadow behind the beach, presumably for chocolate lily roots. A flock of Canada geese grazed peacefully, always with a couple of sentinel birds on lookout. Off to the side of this flock was a dark, animate object, too far from the flock to be another goose but clearly nibbling

"I noticed that the elderberry bushes bore leaves that were riddled with holes. In another part of Juneau, these perforations have been caused by the larvae of a sawfly (a distant relative of bees and wasps, named for the 'saw' by which the females open a gap in a plant in order to lay an egg there). The sawfly has been tentatively identified as the green alder sawfly - now on a previously unknown host. Entomologists will try to rear the larvae or capture adults beneath the bushes next spring. So we should know next summer if this sawfly really has a new host or if, possibly, it is a different species."

