White Satin Moth in the Lake Tahoe Basin – Part I

OCTOBER, 2018

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History of Satin Moth in the Lake Tahoe Basin

- First detected in Nevada in the mid-1980's.
- Detected in North Canyon of Lake Tahoe Nevada State Park in 2011.
- 2011-2016 the moth spread northward in North Canyon as well as the Spooner Summit area.
- Defoliation did not exceed 50% during this 5 year time frame.

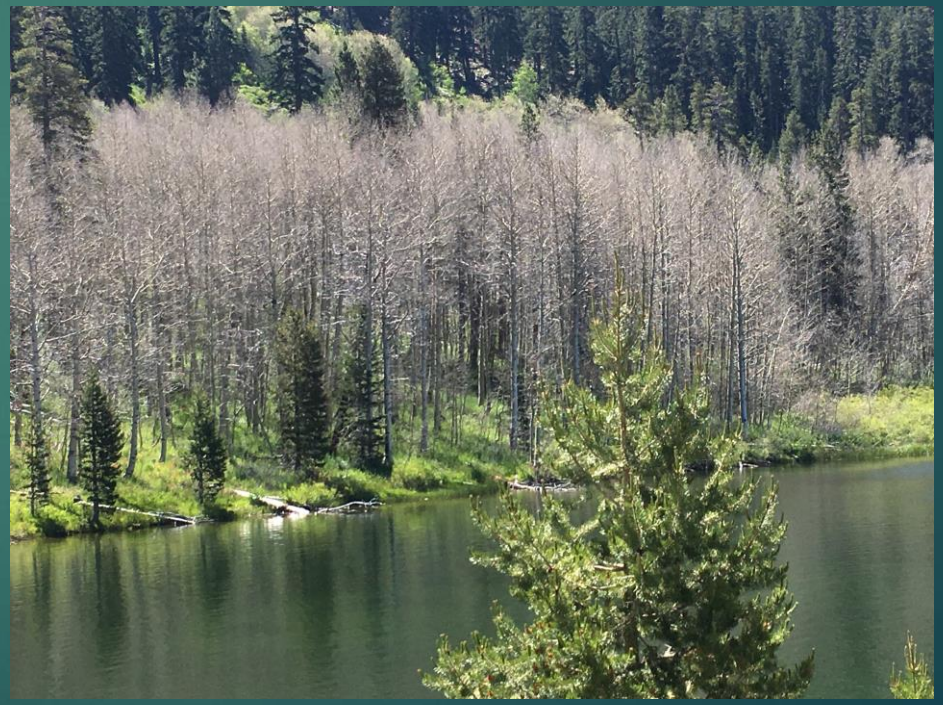
2017 - 2018 Outbreak

- 2017 defoliation was severe: >75% at Marlette Lake, ~226 acres affected.
- 2018 defoliation was severe: nearly 100% at Marlette lake, ~500 acres.
- Some stands refoliated 20% of their canopy – some mortality noted.

Canopy Loss

Below Snow Valley Peak

Marlette Lake



Defoliation Levels

Heavy Caterpillar Feeding

>75% Defoliation

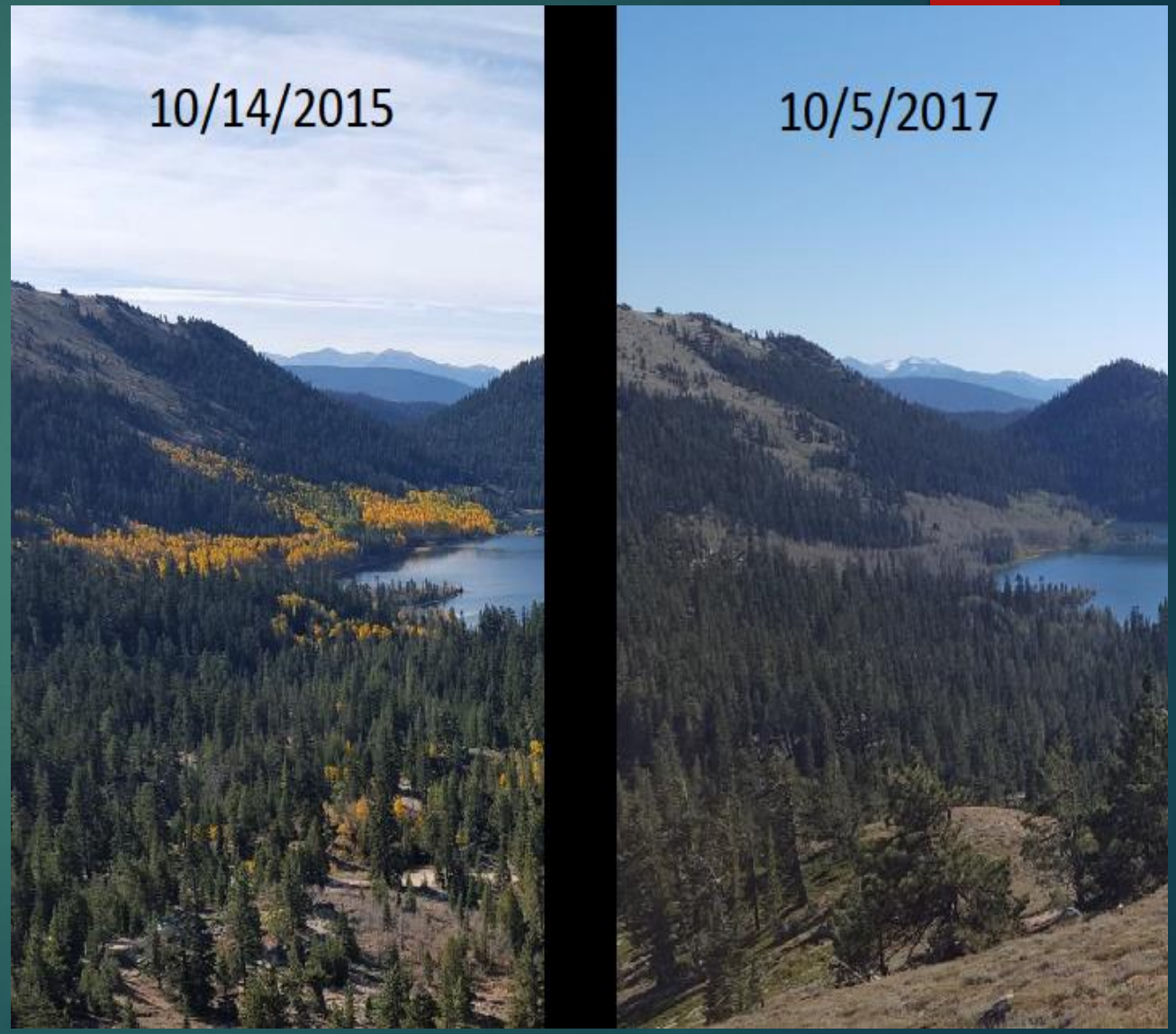
Cottonwood Defoliation

Marlette lake Defoliation Aesthetic Impact

>75% defoliation-No fall leaf color

Identified mortality = 20%

Anticipate continued heavy defoliation



Potential Impacts

- Continued spread of WSM throughout the Lake Tahoe Basin.
- Continued defoliation could create hazard tree risks in high recreation use areas.
- Loss of aspen and hardwood stands.
- NDOW concerned with loss of potential wildlife and bird habitat
- Aesthetic impacts - Loss of fall color which the public enjoys on yearly basis. Less visitation?

2018 Observations

- Spread into Ash & Kings Canyon, Mt. Rose Wilderness (outside the the Lake Tahoe Basin).
- Spread into the Glenbrook area, to South Lake Tahoe.
- Heavy Defoliation and increased tree mortality in Marlette, Hobart Lake areas, and Snow Valley Peak.
- Hard to predict population increase – current indicators show a continued increase for 2019.
- Some possibility of a population crash – NPV virus & natural predators.

Control & Management Options

- *Cultural & Physical Controls* – Pruning, strong spray application of water, sticky bands placed around the bark of trees.

- *Biological Controls* – Natural enemies (birds, parasitic wasps, lacewings, predatory mites and some beetle species) Diversity of native flowering plants (these species can promote and support natural enemies)

- *Biological & Chemical Controls* – *Bacillus thuringiensis* var. *kurstaki* (**Btk**) is a microbial insecticide that can control caterpillar numbers during their feeding times. Chemical insecticides – containing carbaryl or cyfluthrin.

White Satin Moth in the Lake Tahoe Basin – Part II

Spread & Host Defense Chemistry

November 2018
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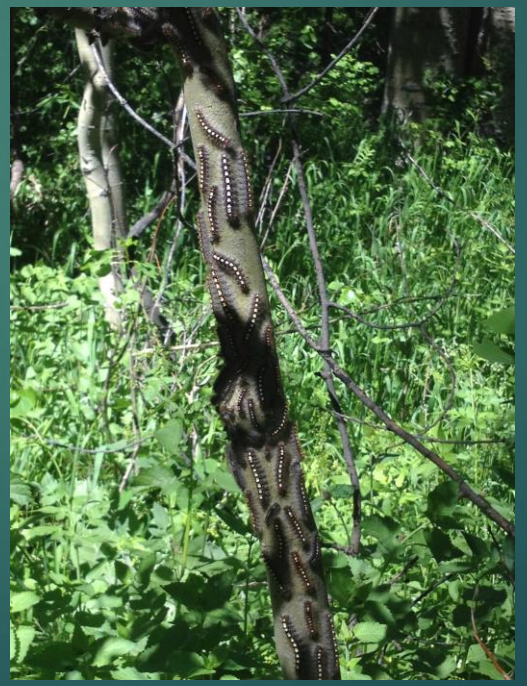
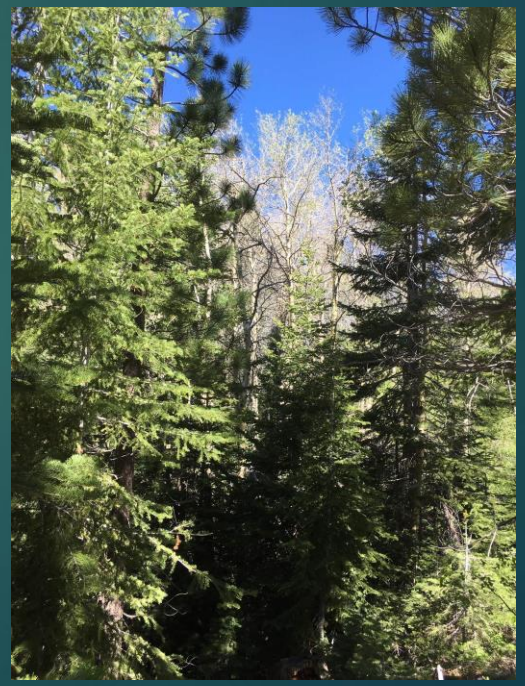
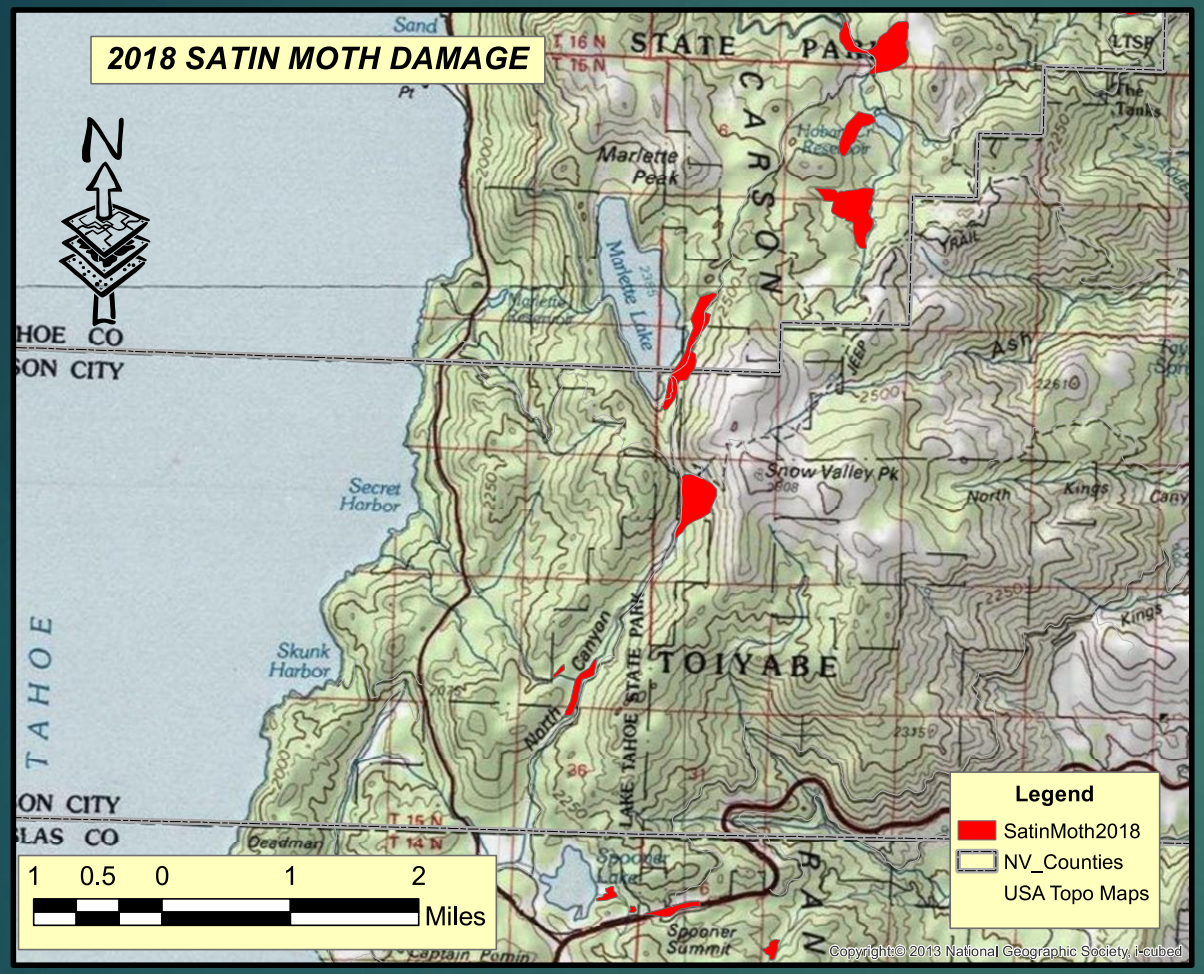
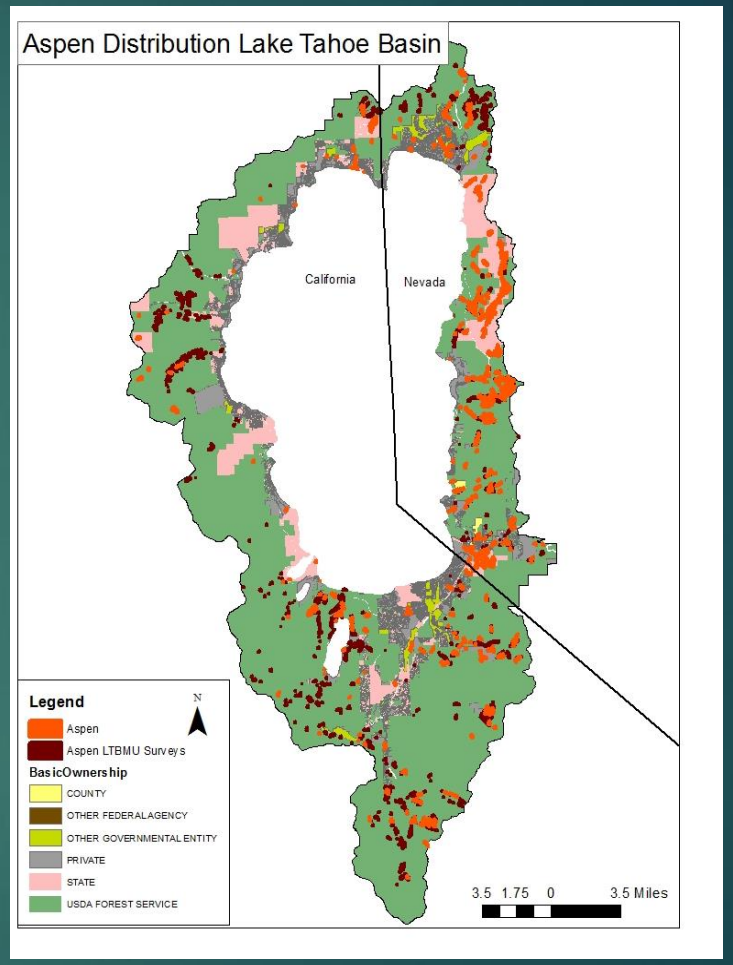




Spread out of ZOI



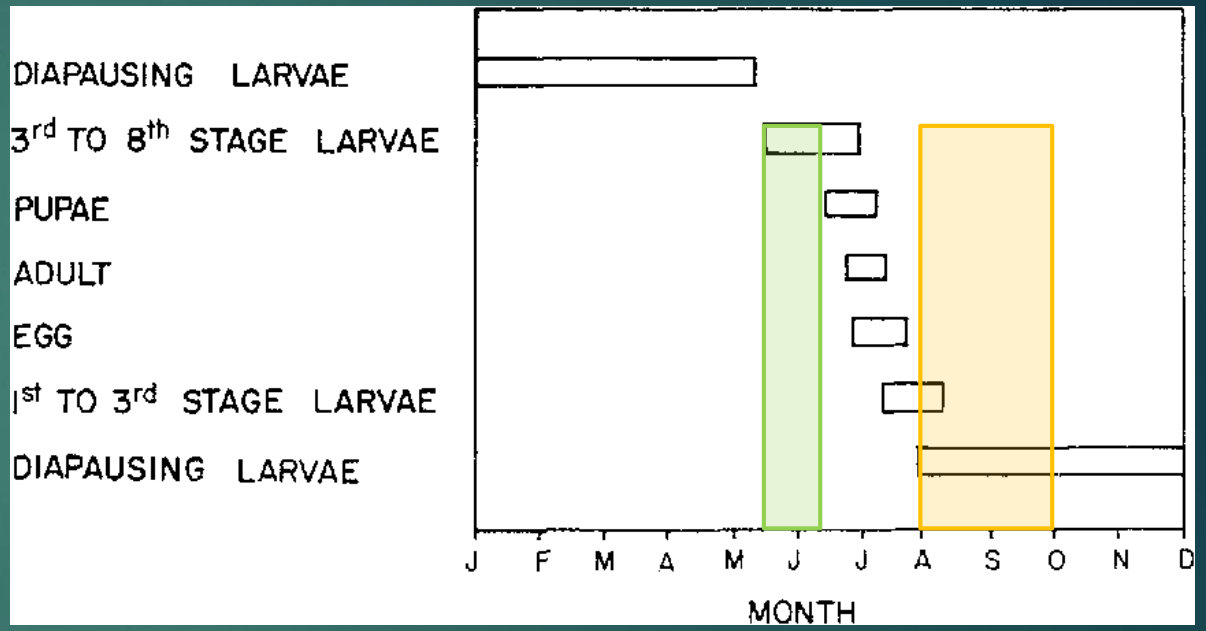


Use “bait free” moth traps for early detection & monitoring

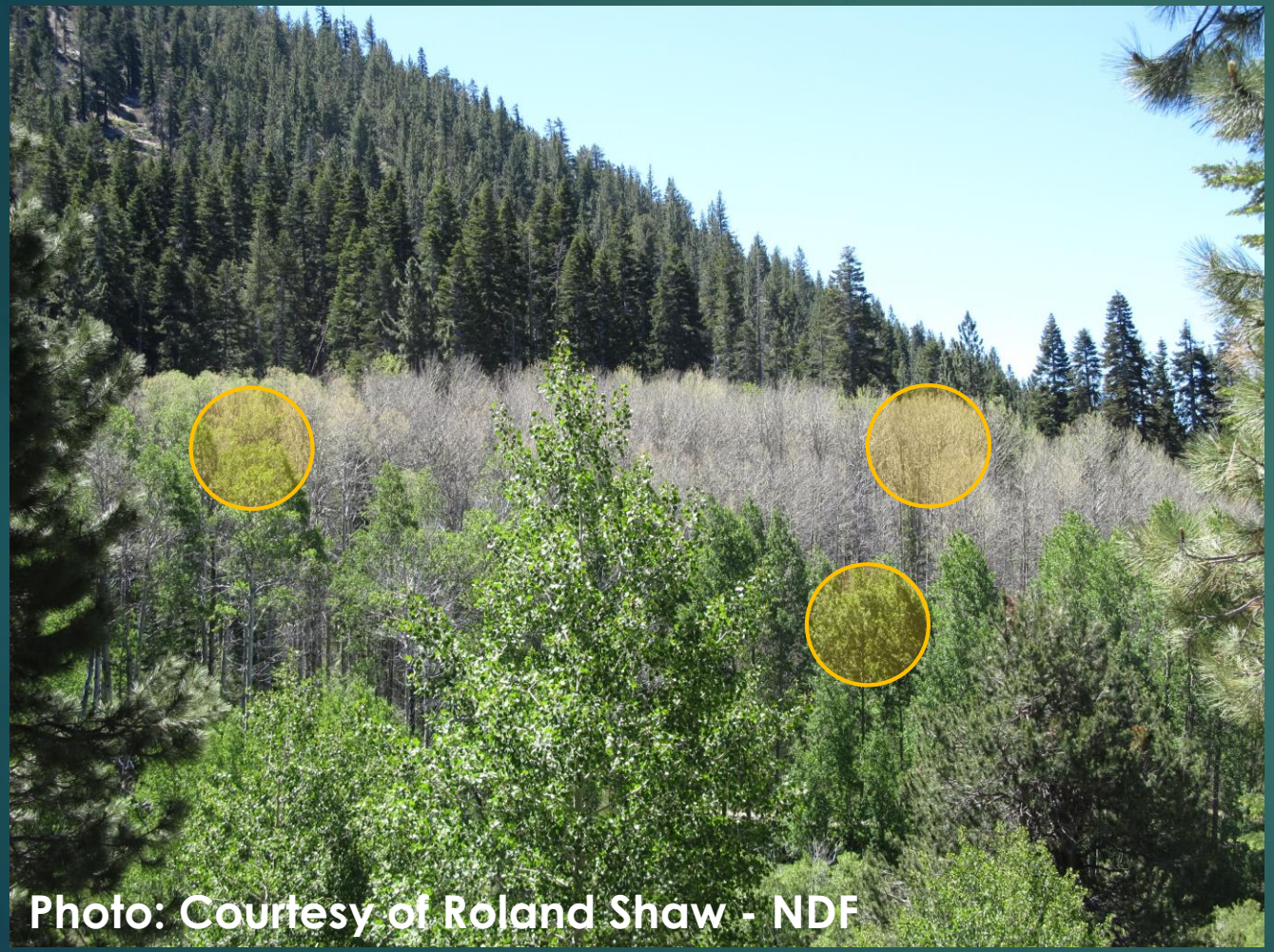
Relationships between defoliation and host chemistry

- Quantify levels of defoliation in aspen stands in the Lake Tahoe Basin

- Seasonally evaluate aspen foliar chemistry in early summer and late summer to fall.



Defoliation & Host Chemistry, cont'd.



Thank you.