

# Emerging Invasive Forest Pest in Utah: Balsam Woolly Adelgid (BWA)

First Detector Workshop

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Liz Rideout

M.S. Ecology Student, Utah State University



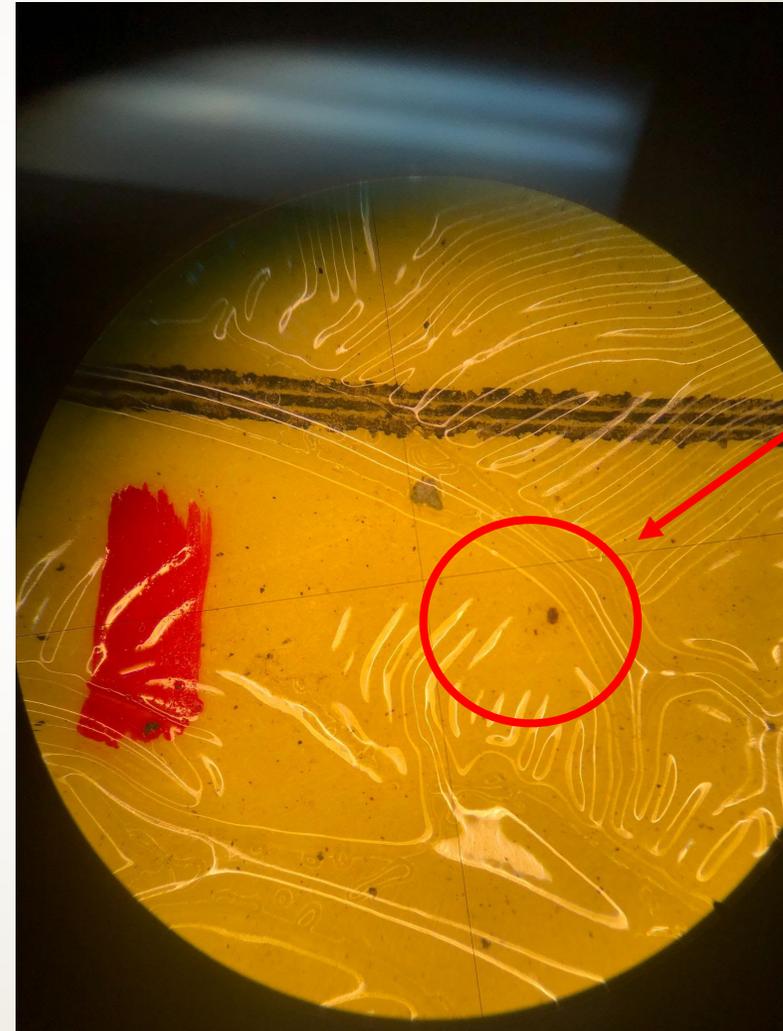
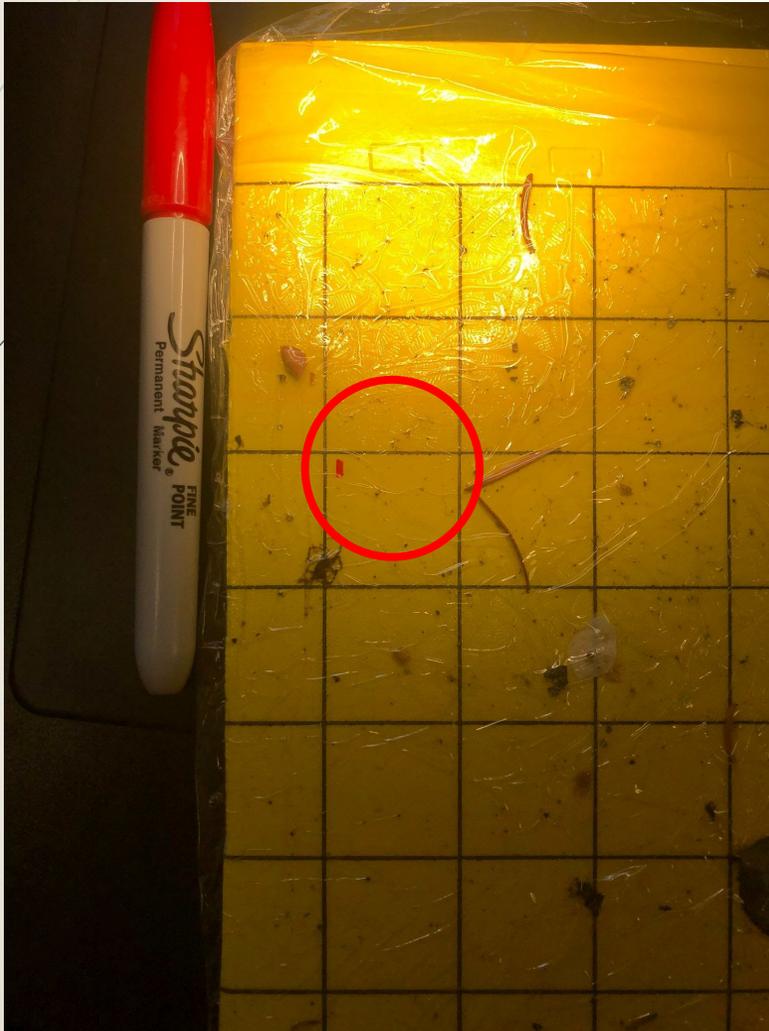
# So, what do they *do*?

- Feed on true firs (*Abies*)
  - Subalpine fir, >6,500 ft elevation
- "Sap"-sucking
- Produce white, woolly protective coating
- Motile stage: "crawler"



How small?

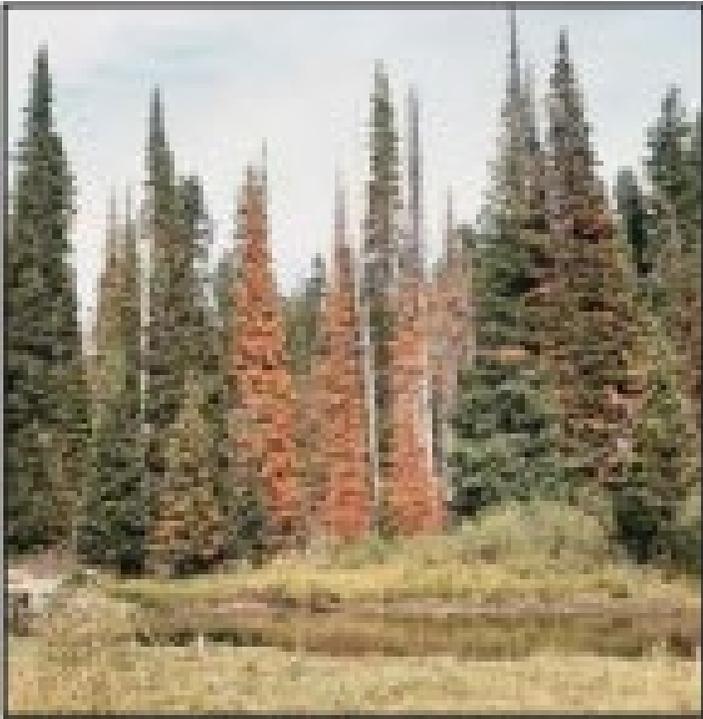
Adults < 1 mm in length



Crawler  
(~0.4 mm)

# Why do we care?

Subalpine fir stand in central Oregon



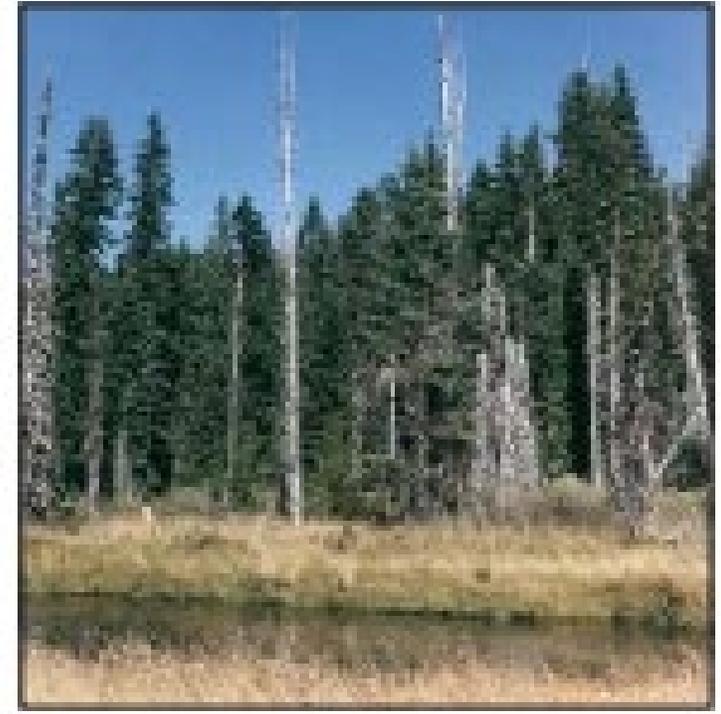
1965

First wave of BWA



1968

Almost all subalpine  
fir killed



1998

Spruce-dominated stand

# Why do we care?



Image: Powder Mountain Ski Resort

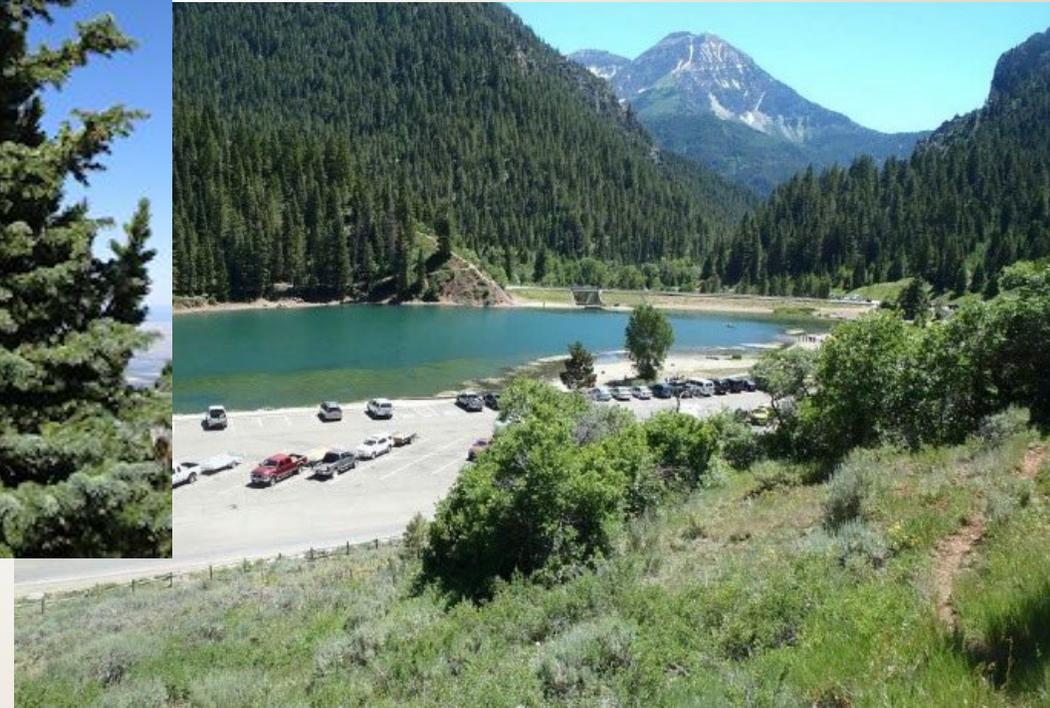
Impacts on ski resorts and other outdoor recreation



Loss of species diversity  
Image: Engelmann spruce & spruce beetle

Impacts on watershed quality

Image: Tibble Fork Dam



# Damage to Trees

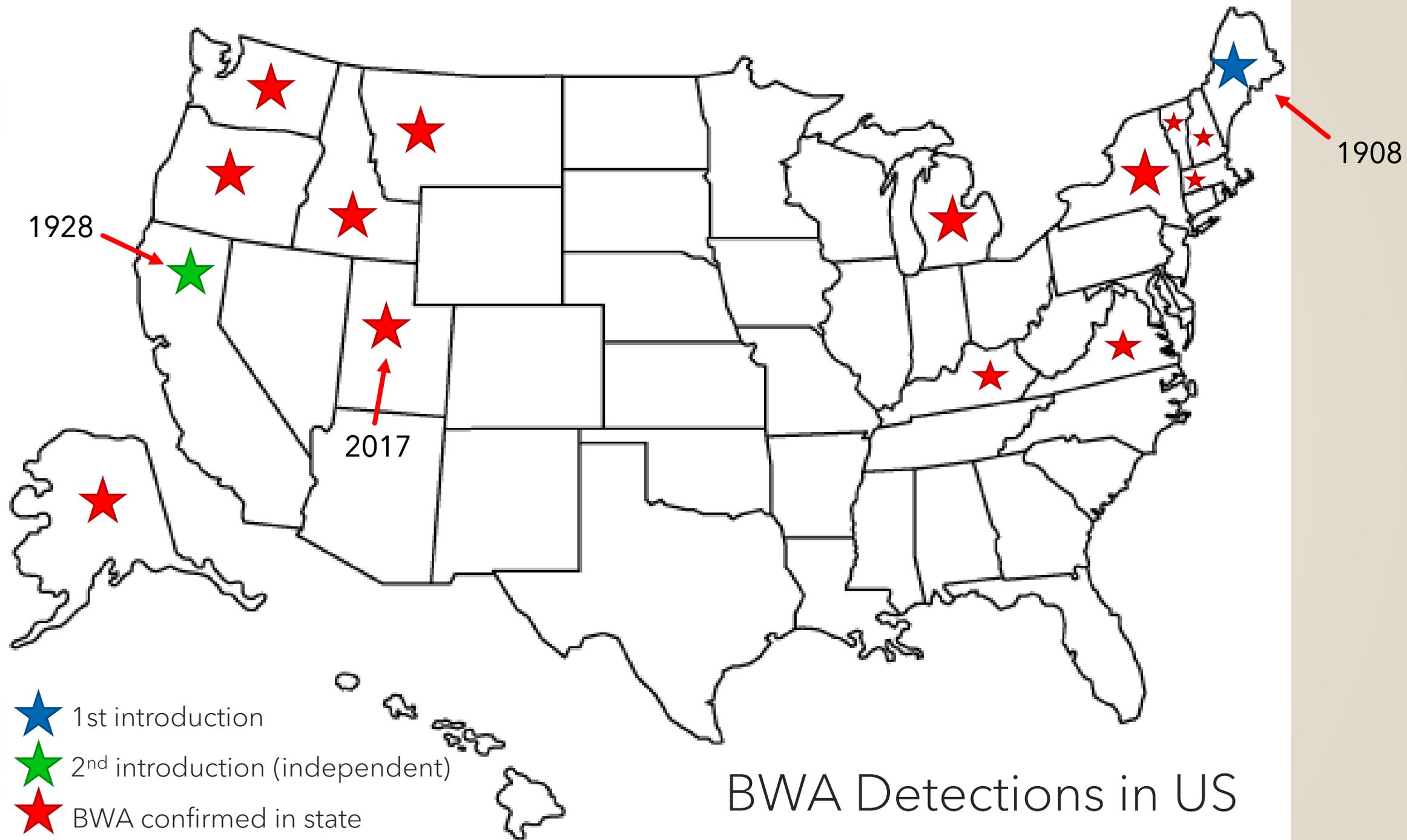


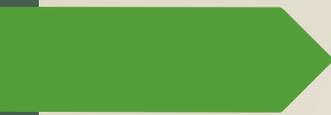
Impacts on species of conservation concern (i.e., Fraser fir)

Damage to Christmas tree farms



Dieback of subalpine fir-majority stands





## Range of Subalpine Fir

**B**

★ BWA confirmed in state

# Signs of Infestation



Woolly masses on tree  
bole and limbs



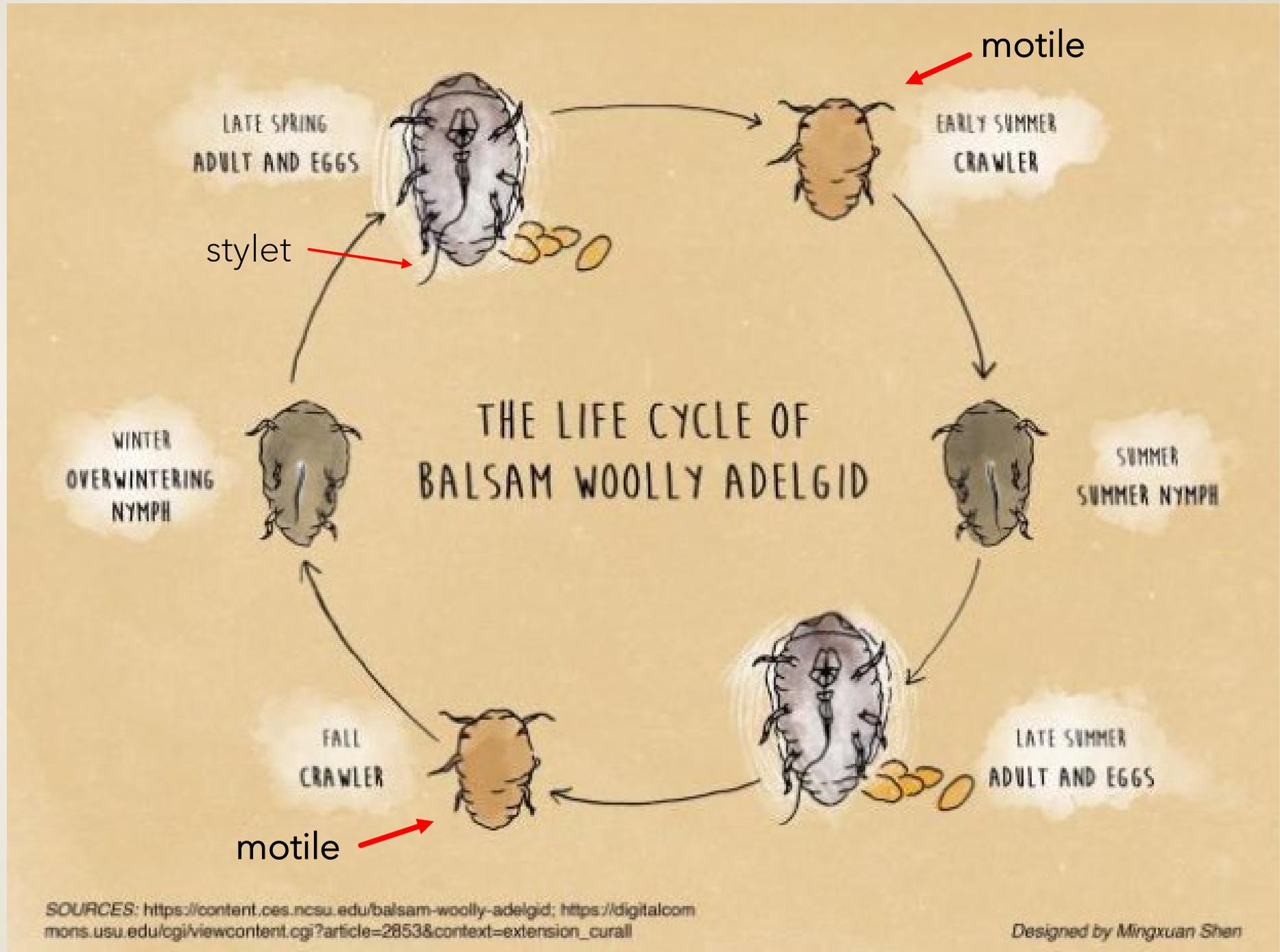
Gouting (swollen  
branches)



Branch flagging and loss of  
"apical dominance"



- 2 generations (typically)
- Reproduce asexually



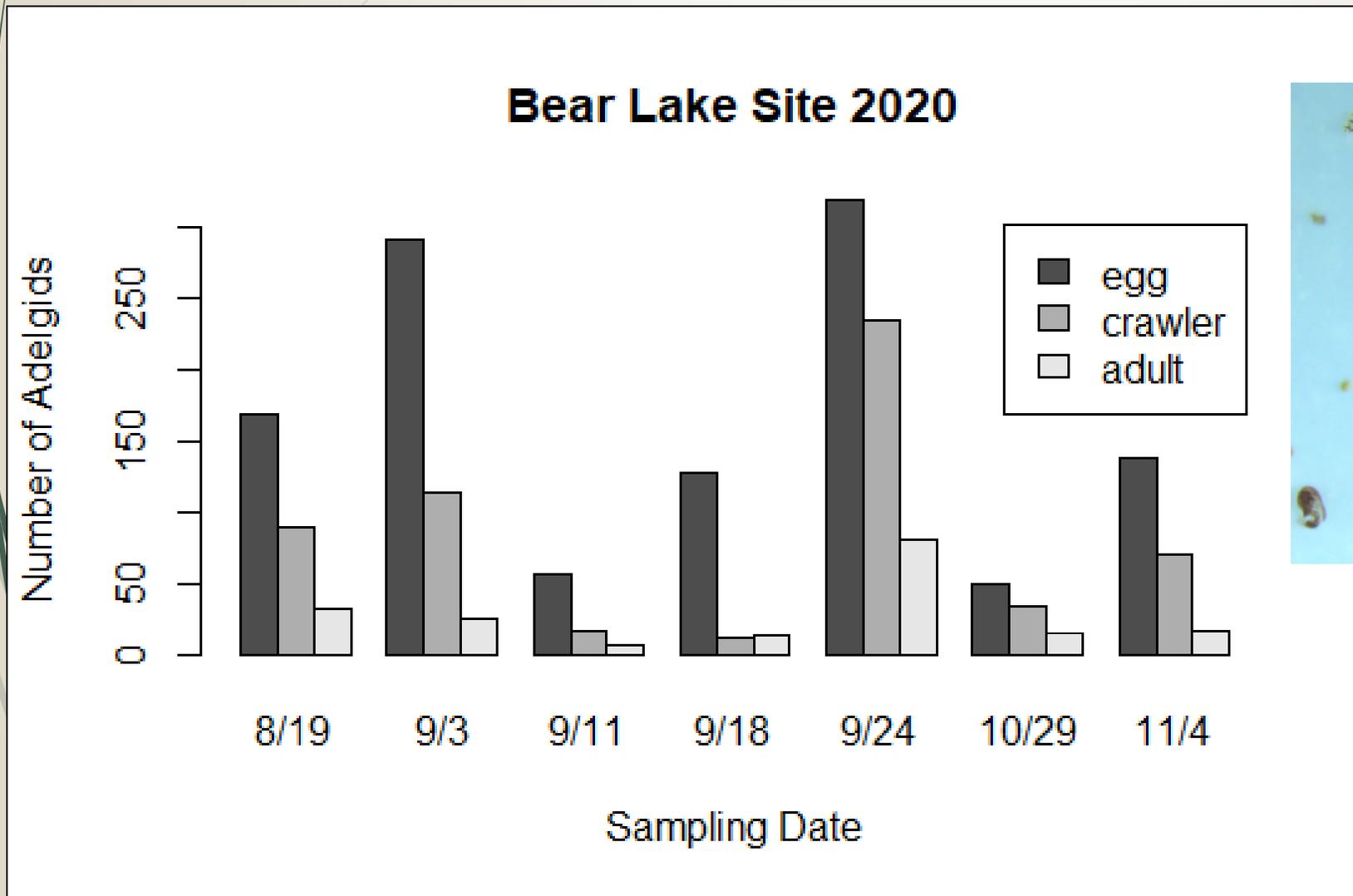
# 1. Model BWA phenology in Utah



- 5 sites in northern Utah
- 1in x 1in bark samples



# Building Phenology Model



- Phenology data
- Climate data

## 2. Create Hazard Rating System



- Site elevation, slope
- DBH
- Species composition
- Infestation ratings

# As a Master Gardener, what can you do?



- Remove host tree
  - Cut in winter
  - Dry thoroughly
- Spray for suppression
  - Limited data
  - Timing
  - Permethrin



# Many thanks...

Send pictures and exact location!

For questions or you think you've found BWA, contact me:

[liz.rideout@usu.edu](mailto:liz.rideout@usu.edu)

(802) 893-7902

or

Lori Spears

[lori.spears@usu.edu](mailto:lori.spears@usu.edu)

(801) 668-4056

