

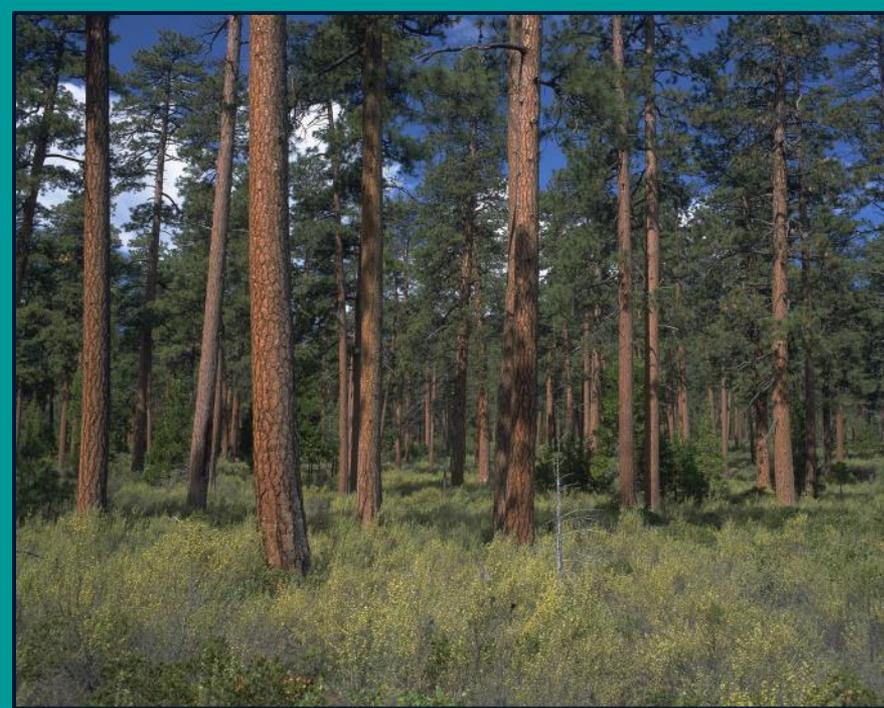
Forest Health Concerns in Arizona

Arizona State Forestry Division
Office of the State Forester - Phoenix, Arizona



What is “Forest Health”?

- Many different answers to this question!
- For today, it is the biotic and abiotic (living and non-living) influences on forests and their affect on management objectives (Edmonds et al. 2005).



BARK BEETLES

Two Major Bark Beetle Types in Arizona

Ips sp

- “Engraver beetles”
- 11 species in AZ, mostly in pines
- Order – Coleoptera
- Elevation – 4200 ft – 9000 ft



Dendroctonus sp

- “Dendroctonus beetles”
- 8 species in AZ, mostly in pines
- Order – Coleoptera
- Elevation – 5,500 ft – 10,000+ ft





Pocket of Ponderosa Pine Mortality



Single Dying Pine or Dead Top

Pitch tube-Infestation initiated by male beetle

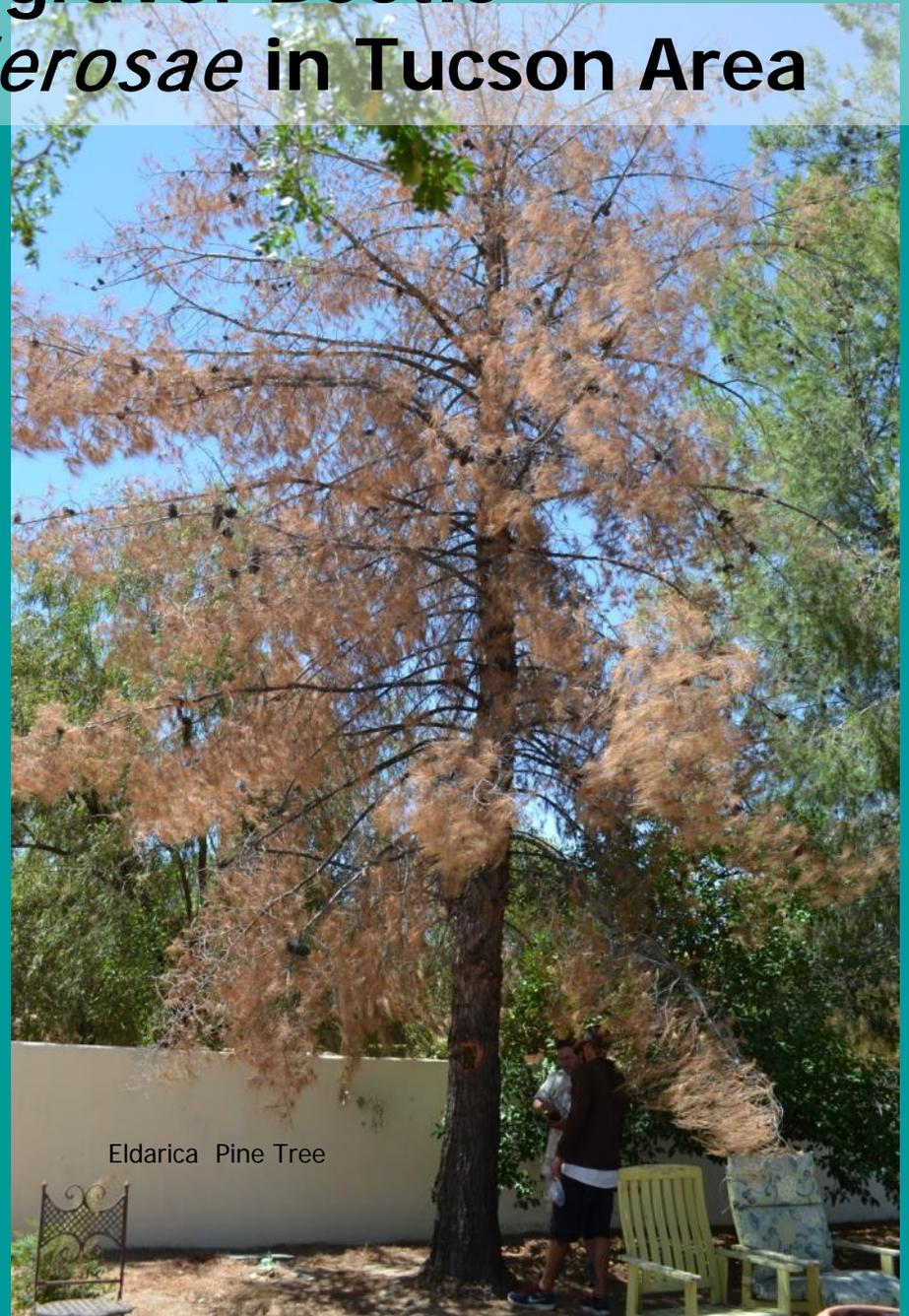


Six-spined Engraver Beetle

Ips calligraphus ponderosae in Tucson Area



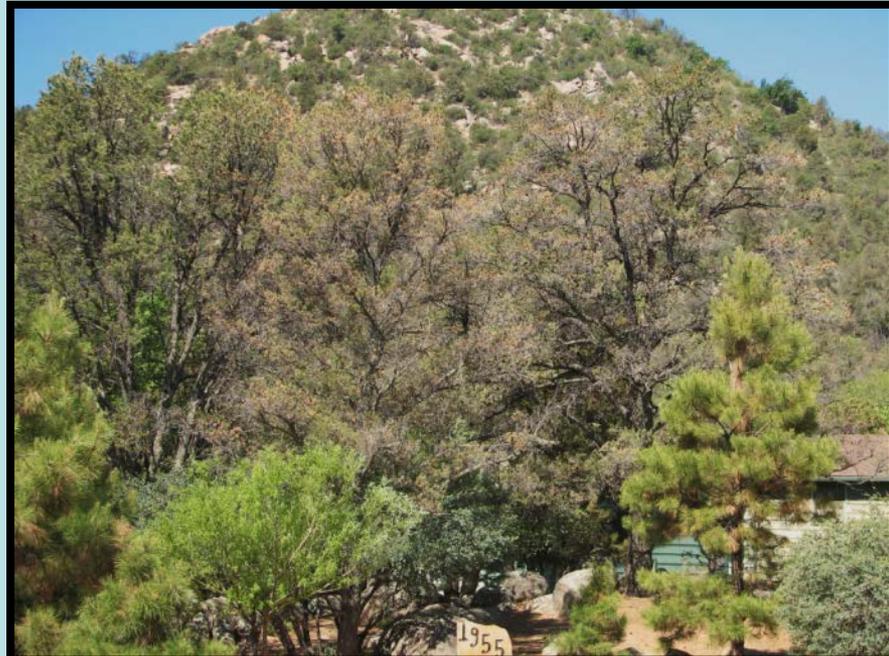
Aleppo Pine Tree



Eldarica Pine Tree

PINYON NEEDLE SCALE

Chronic Pinyon Needle Scale Infestation in Prescott-Thousands of Acres

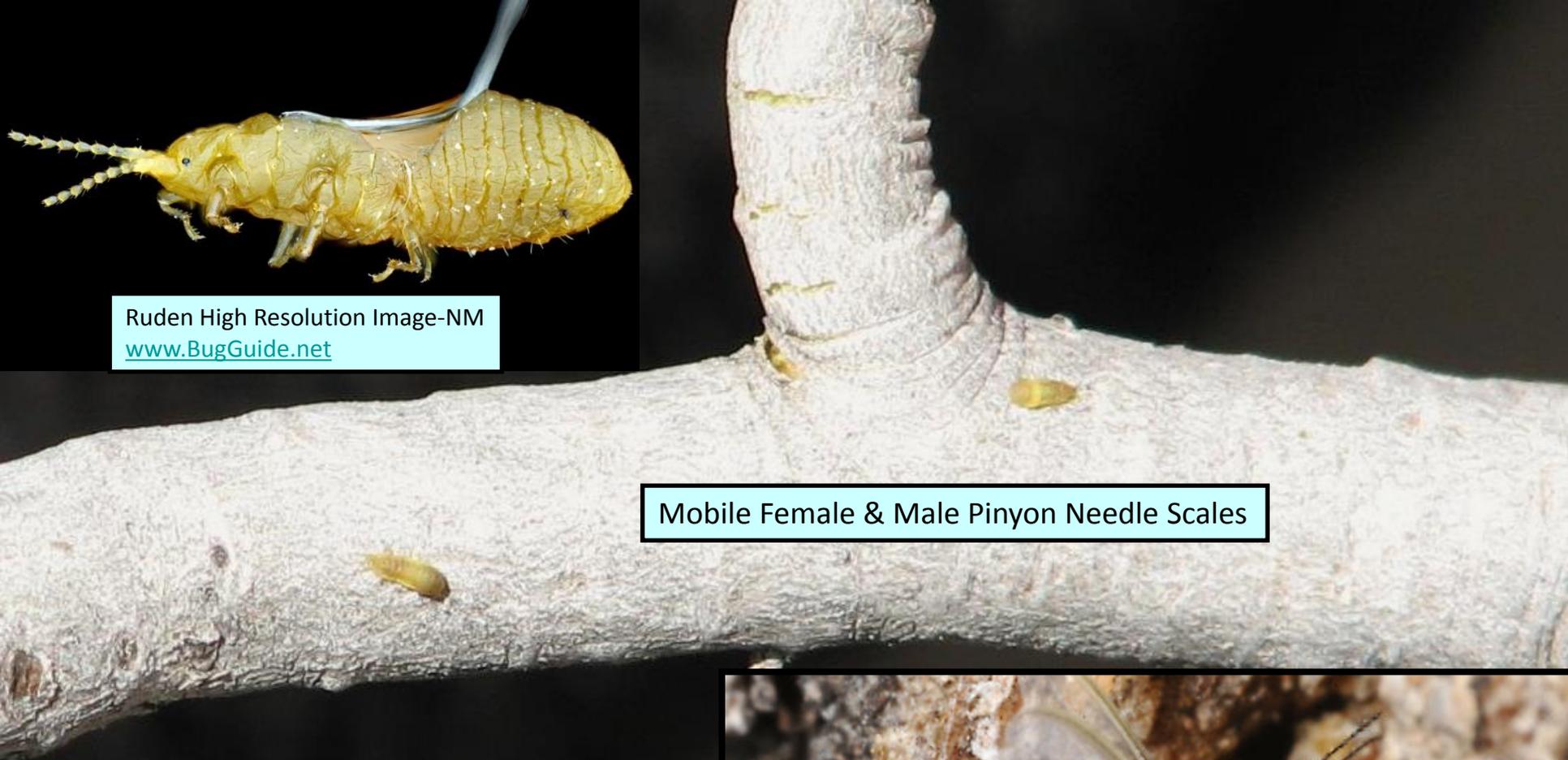


Emerging mobile female pinyon needle scales in February





Ruden High Resolution Image-NM
www.BugGuide.net



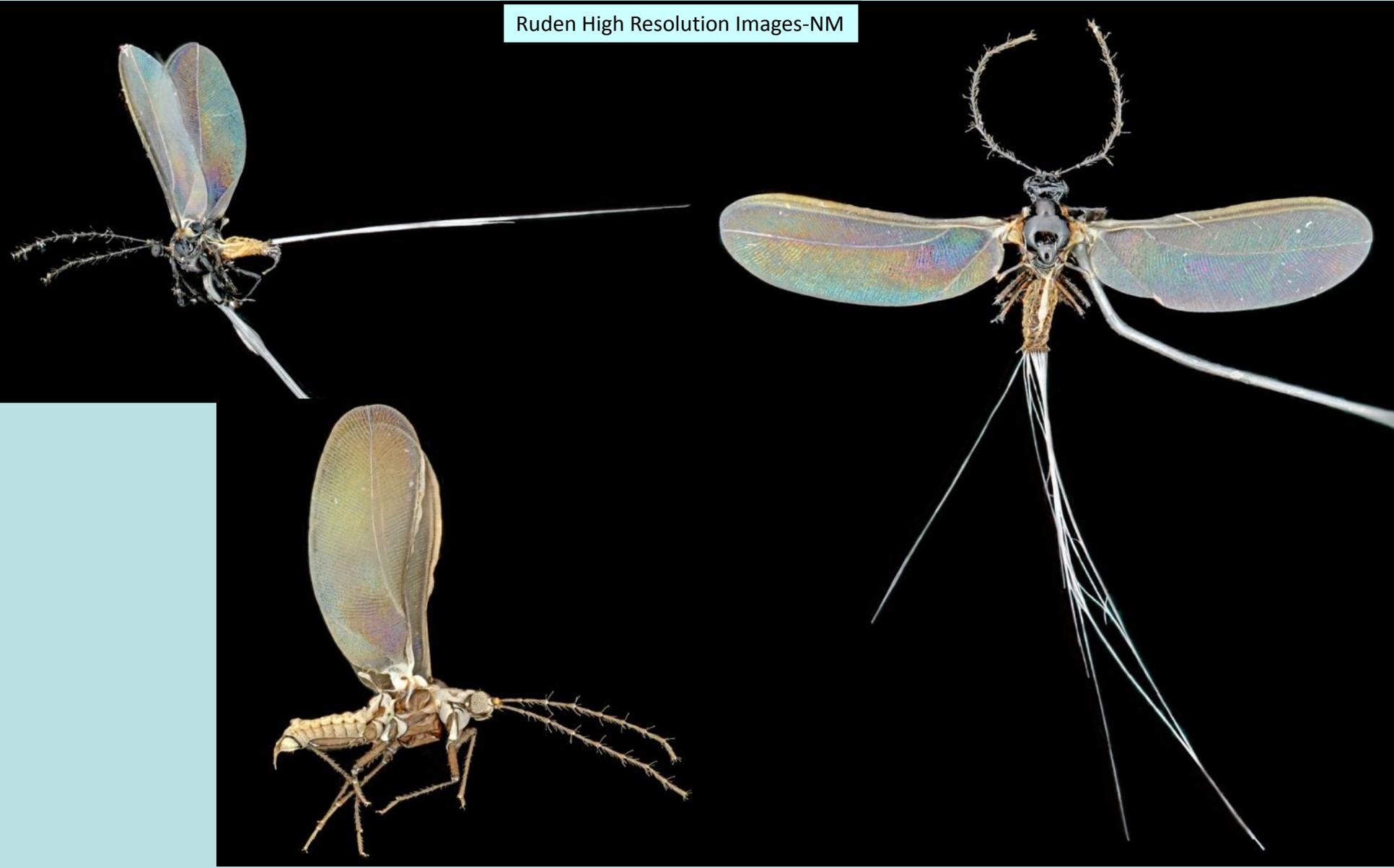
Mobile Female & Male Pinyon Needle Scales



Ruden High Resolution Image-NM

Winged Male Pinyon Needle Scales

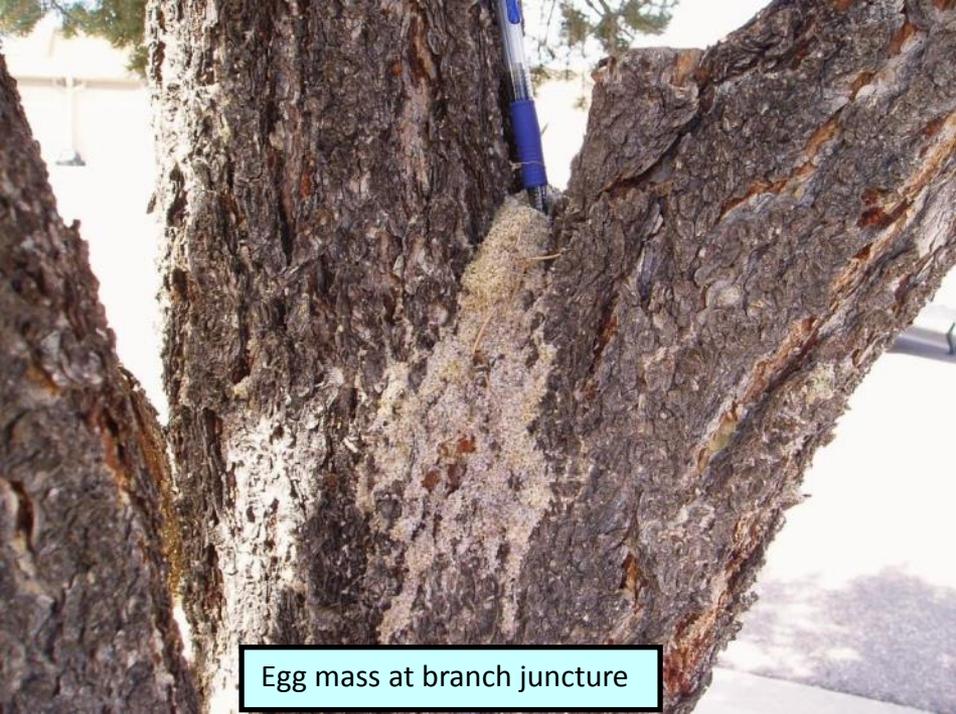
Ruden High Resolution Images-NM





Egg masses at base of tree and trunk

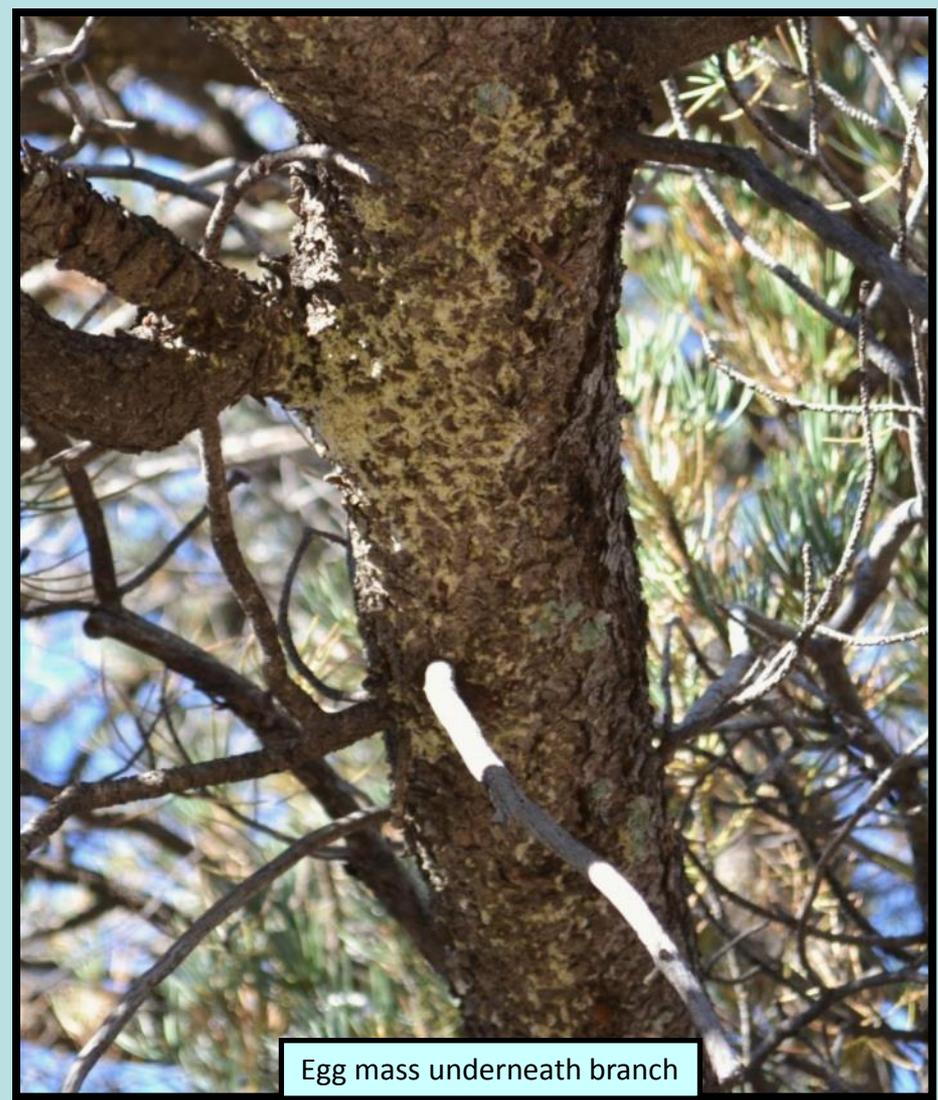




Egg mass at branch juncture



Egg mass on tree trunk



Egg mass underneath branch

Un-hatched egg mass with embedded dead females and protective white flocculence



APHIDS

- Most activity on trees in fall or spring, though can be active in other periods.
- Affect broad leaved trees and conifers.
- Can make a mess on your car or sidewalk.





FALL WEBWORM



- Found on a wide variety of broad-leaved tree species.
- Occur up to about 8,000 feet (recent).
- Wind helps drive spread.
- Eggs laid in late June and July.
- Webbing and caterpillars easily visible by August.

- Feed on leaves, but rarely cause more than unsightly webbing.
- Often mistaken for tent caterpillars which occur in early part of year.





MISTLETOE



Dwarf-Mistletoe

- Generally found on conifers such as pine, spruce, fir and Douglas-fir.
- Spread through “explosive dehiscence.”
- Can cause mortality in severely infected areas, but trees often live long periods with minor infections.
- Bark beetles can more easily kill infected trees.



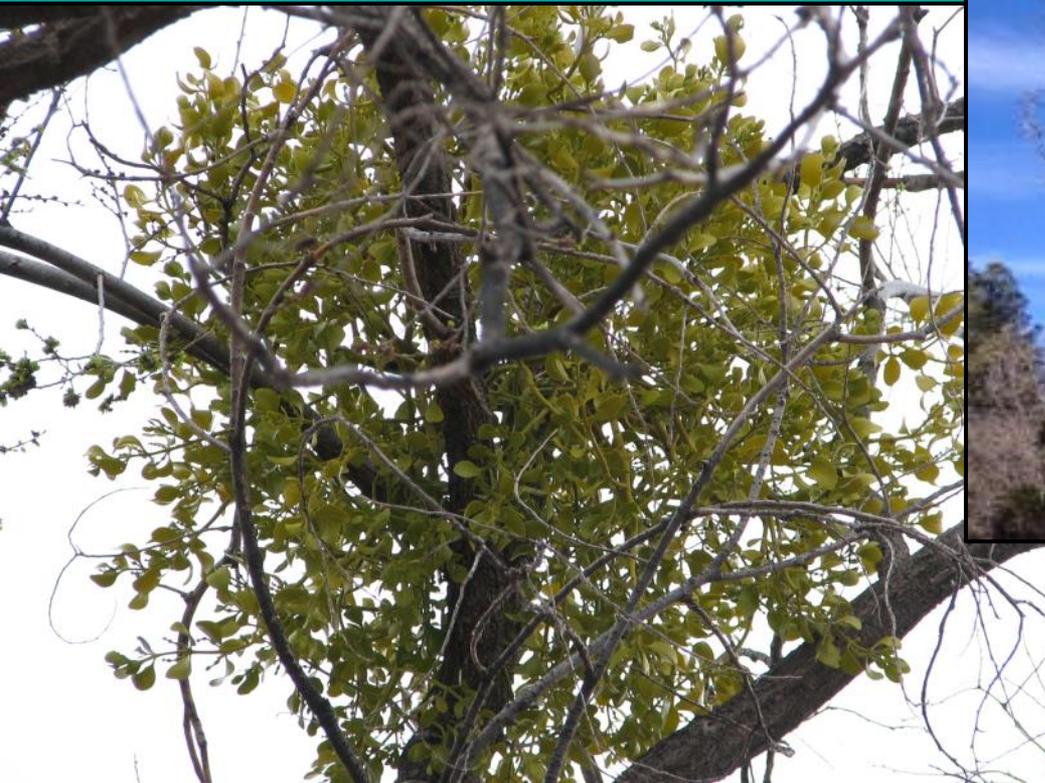
True Mistletoe

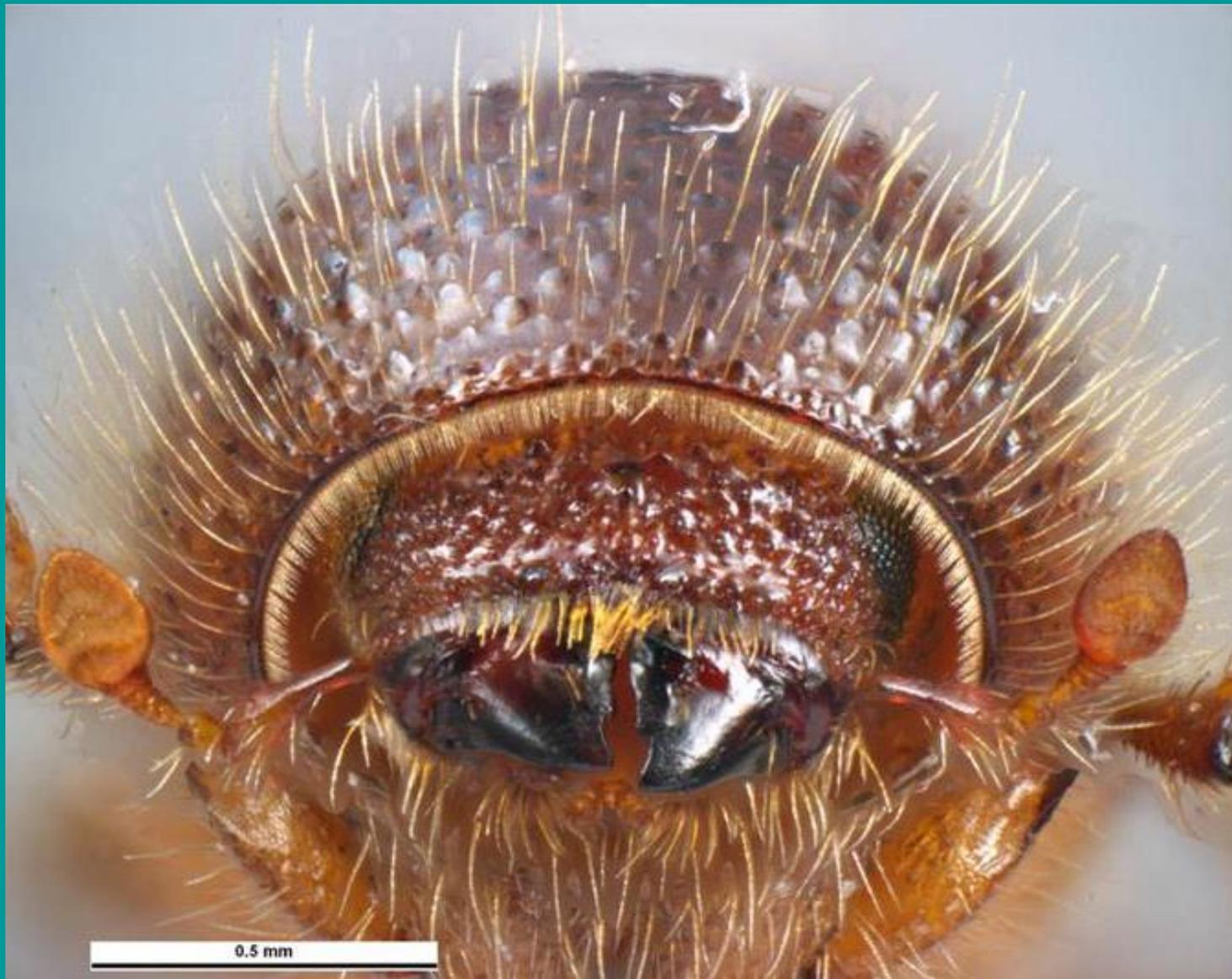
- Generally found on broad leaved trees (oaks, cottonwood, mesquite, palo verde), cypress and junipers.
- Spread by birds.
- Not aggressive pathogens, and do not usually cause mortality, but can cause galls (which can lead to branch dieback).

Dwarf Mistletoe



True Mistletoe





Questions--I dare you!

Questions?



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