

First Report of Japanese Maple Scale Parasitoids in Tennessee Nursery Production.

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JMS - *Lopholeucaspis japonica*



Must know fact about – Japanese Maple Scale



(Pic: Paul O'Neal)

Adesso and Blalock 2014

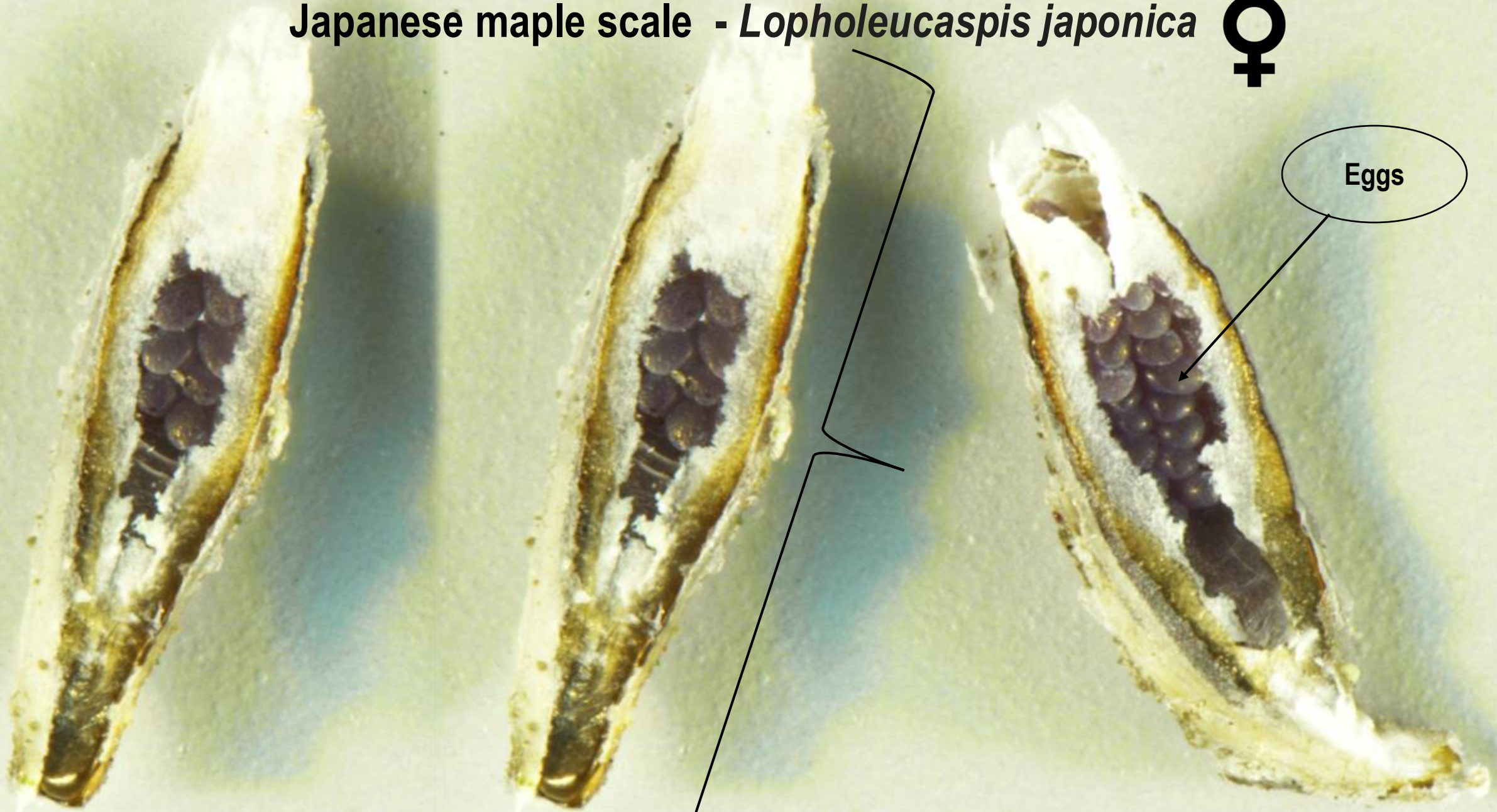
Soft bodied insect with wax armor

The wax armor repels insecticide formulations

The armor also act a barrier against generalist predators

Suck on bark cells, not leaves - further complicates control.

Japanese maple scale - *Lopholeucaspis japonica*

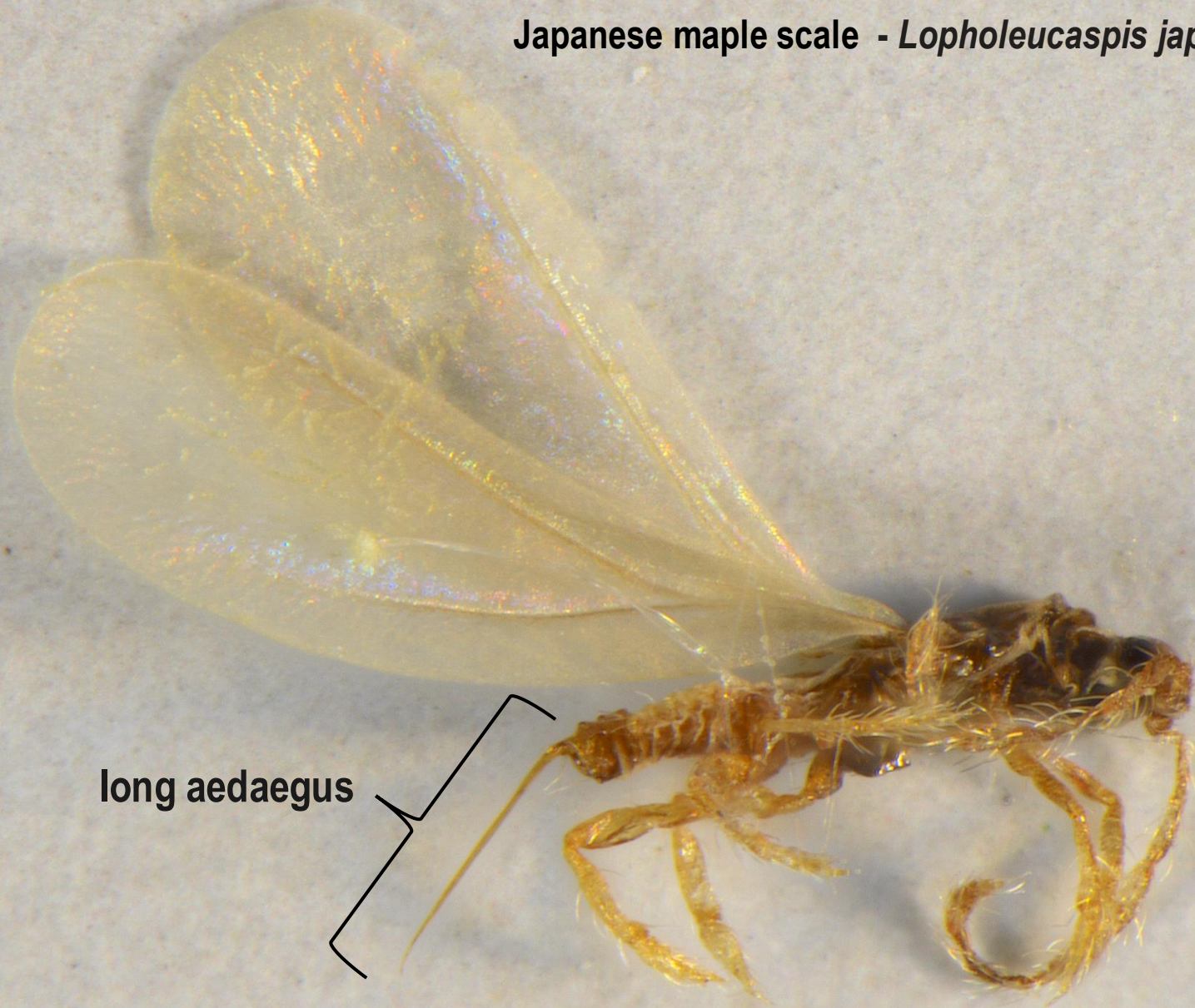


Eggs

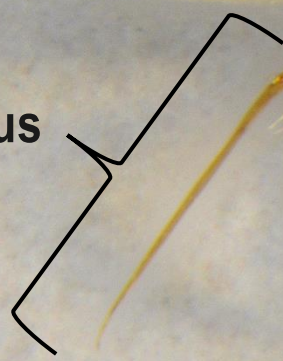
1-1.8 mm

Pic - Paul O'Neal

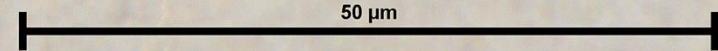
Japanese maple scale - *Lopholeucaspis japonica*



long aedaegus



50 μm



Crawler stage



Only mobile stage

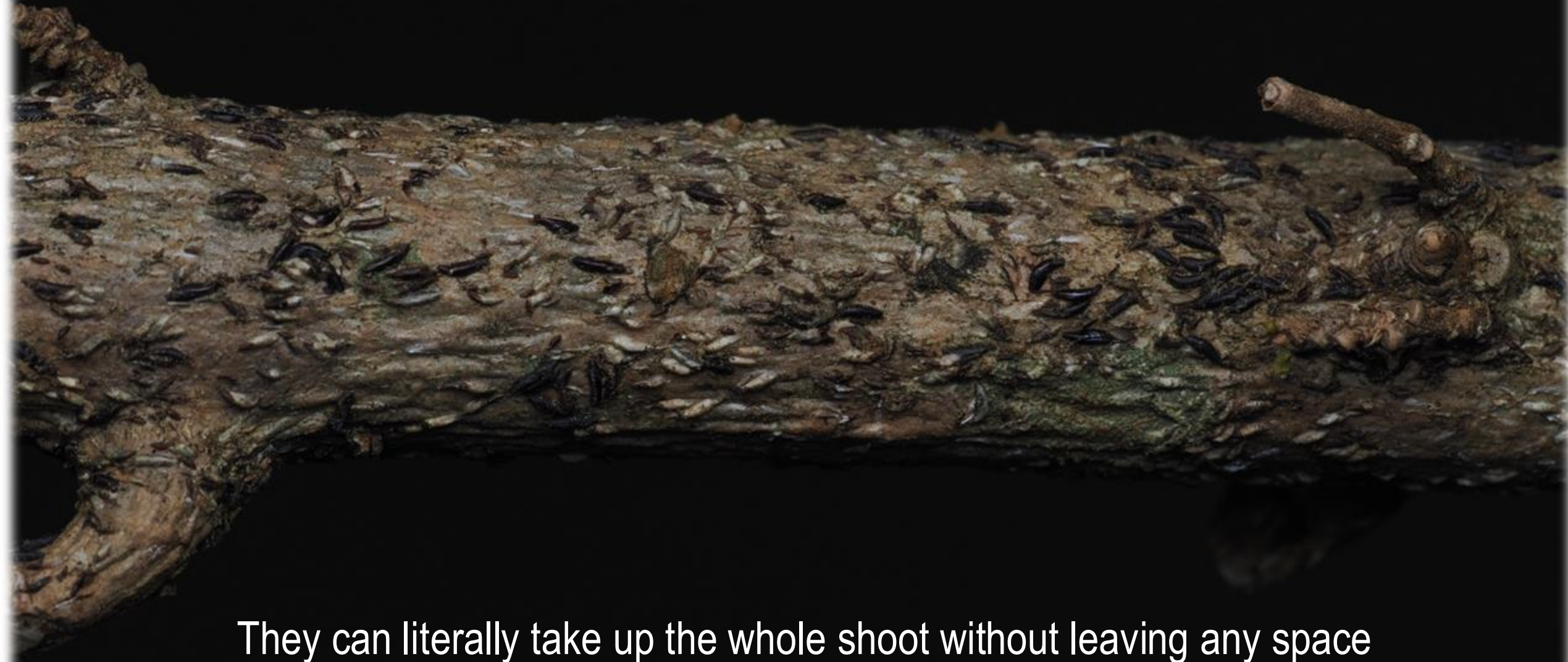


Most vulnerable to insecticides because it has no wax cover to protect it



Secrete their wax covering within a few short hours after settling

Infested privet shoot

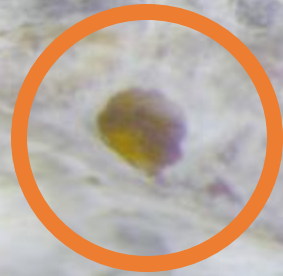


They can literally take up the whole shoot without leaving any space

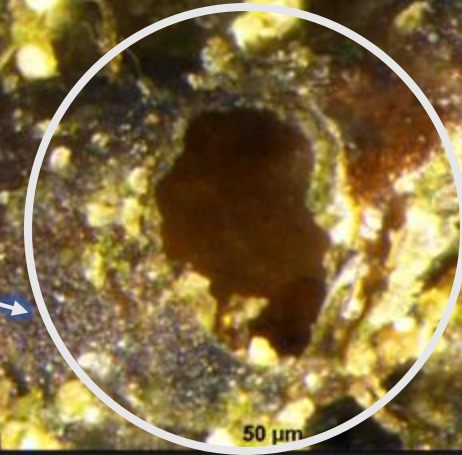
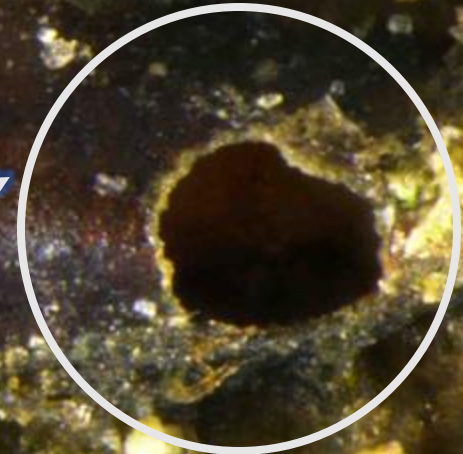
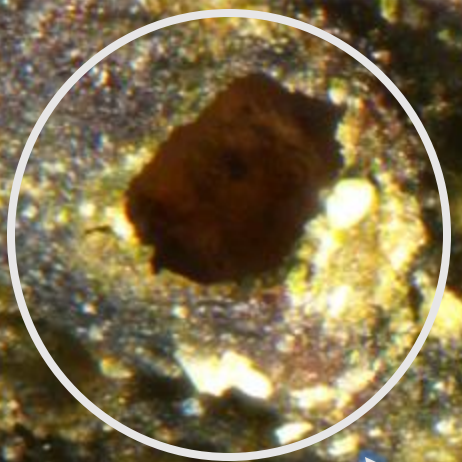
Feeds on >97
plant species
37 families



What About Biological Control?



Parasitoid
wasp exit
hole



50 μm

Survey: End of June 2023

(second instar insects)

(Good time to observe emergence of parasitoids)



Euonymus



Privet

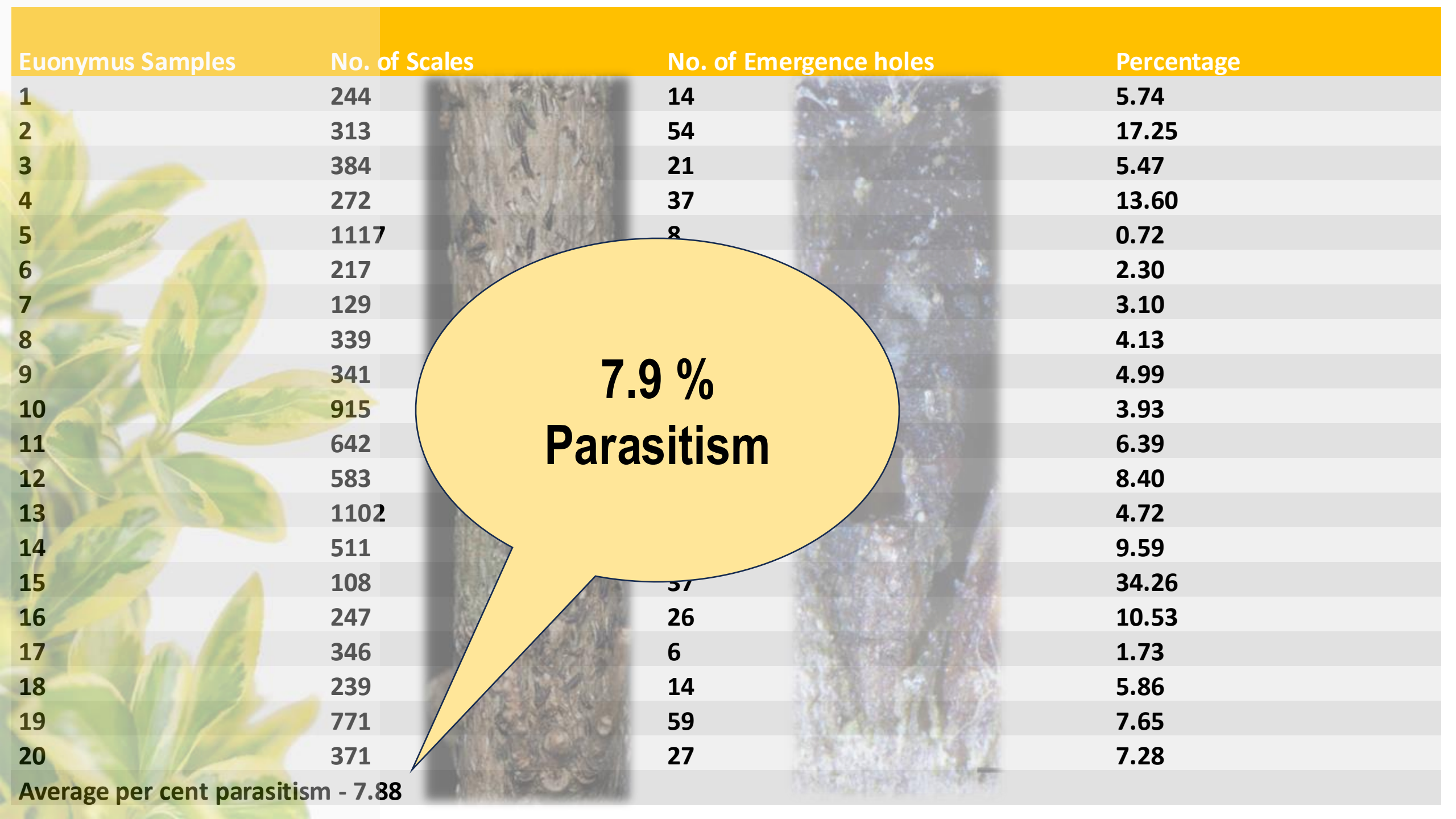


Parasitoid emergence cages

Privet Samples	No. of Scales	No. of Emergence holes	Percentage %
1	240	9	3.75
2	114		11.5
3	281		7.11
4	476		4.2
5	459		7.19
6	290	13	4.48
7	198	21	10.6

7 % Parasitism

Average per cent parasitism - 7.00



**7.9 %
Parasitism**

Introducing to y'all our three "little specks" of hope - for the first time in Tennessee



Pteroptrix chinensis



Aphytis hispanicus



Marlattiella prima

Family: Aphelinidae

Host Plant

Parasitoids

Total No.

Privet



Pteroptrix chinensis



94

Marlattiella prima



29

Aphytis hispanicus



11

Euonymus

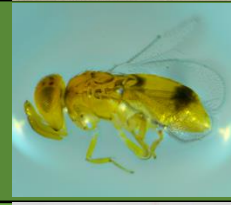


Pteroptrix chinensis



14

Marlattiella prima



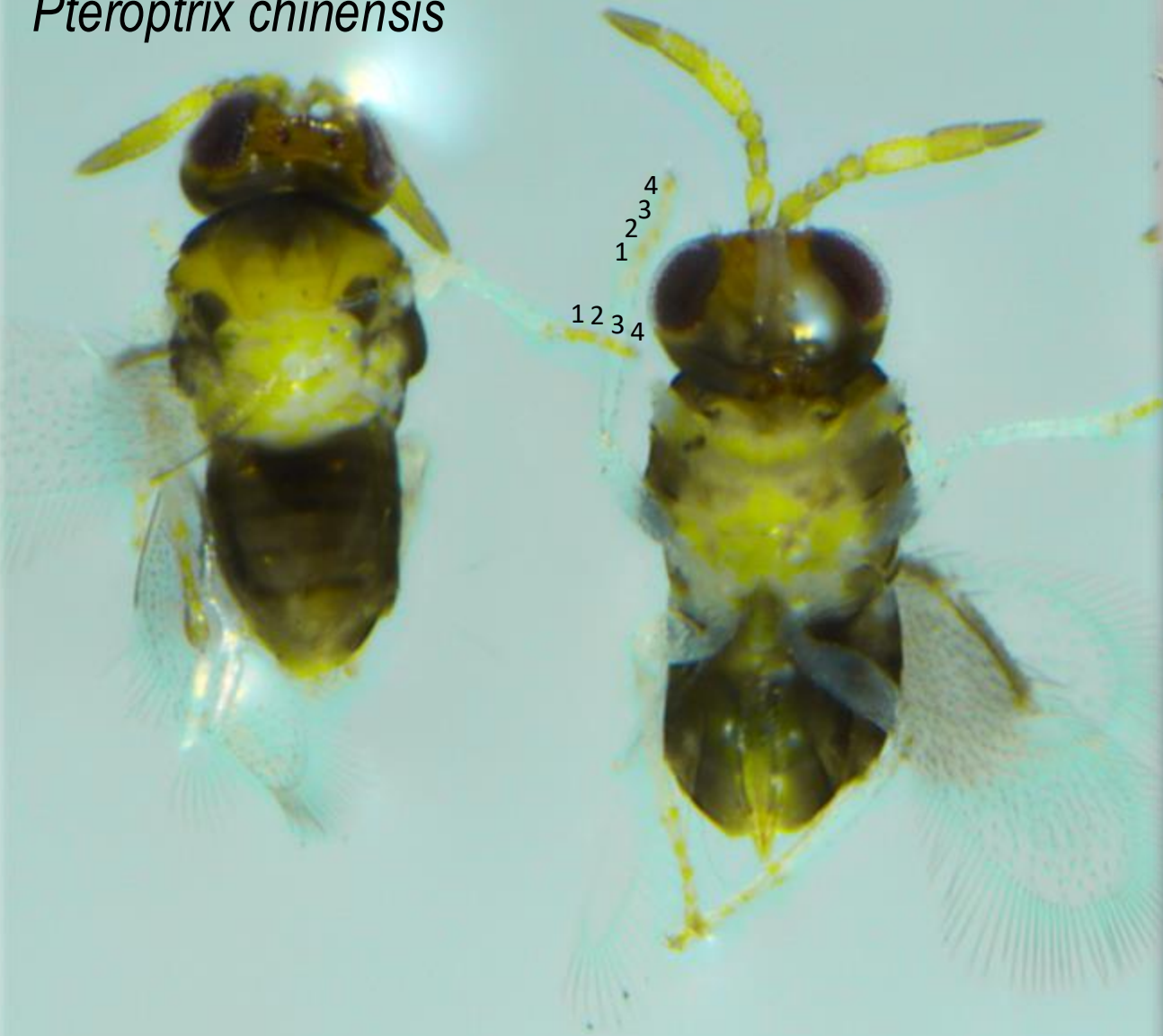
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Aphytis hispanicus



09

Pteroptrix chinensis

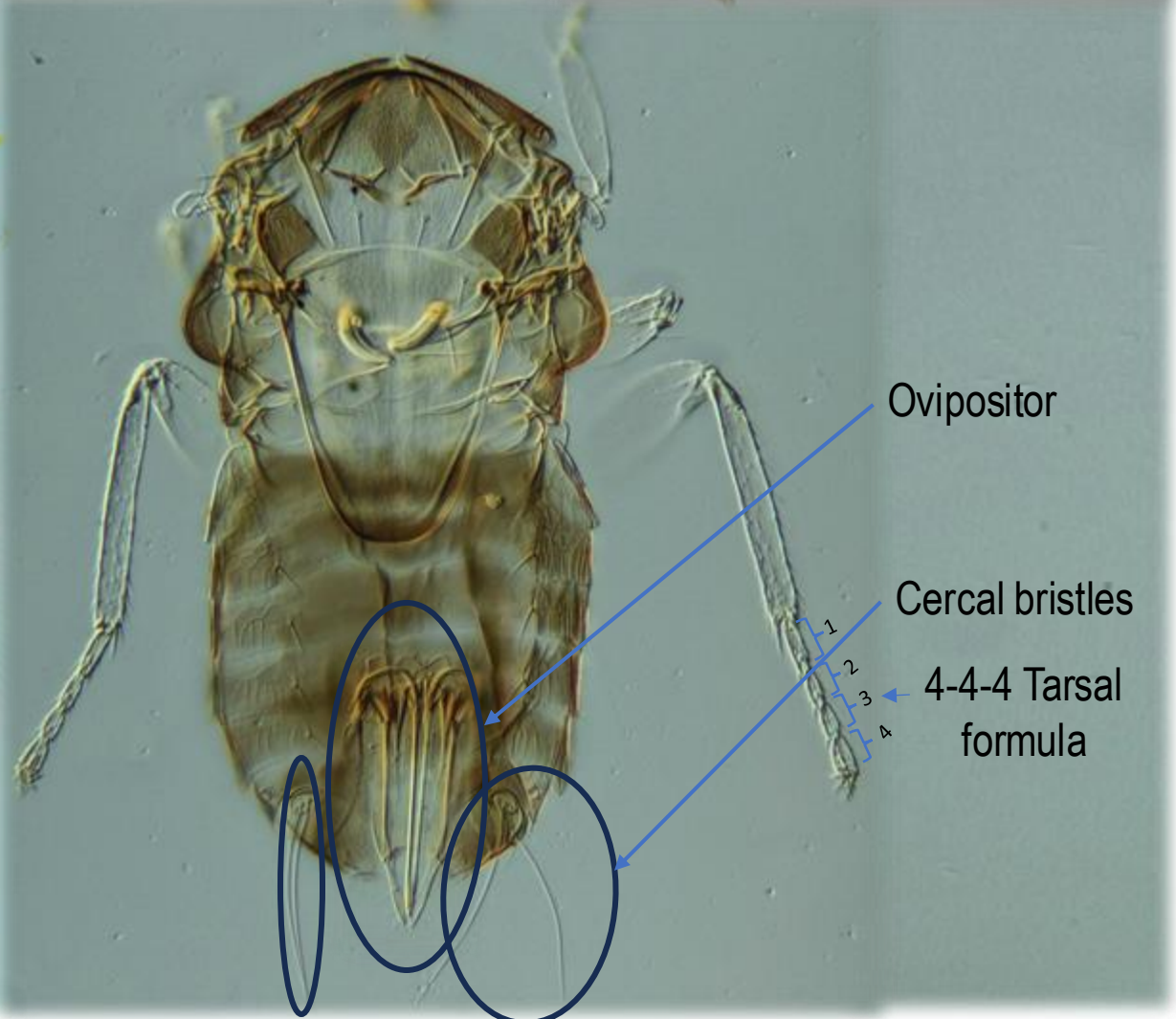


100 μ m

Wing



Head



Pteroptrix chinensis

- Autoparasitoids
- Native of China and Taiwan
- Recorded from California and now in Tennessee



4-4-4 Tarsal
formula

Hunter & Woolley, 2001

Aphytis hispanicus

- Thelytokous
- Native of South Palearctic
- Recorded so far from Texas, Florida, California and now in Tennessee

Rosen and DeBach, 2012



Aphytis hispanicus

All females



100 μ m



Marlattiella prima

Exotic parasitoid for an exotic pest with a range extension now !!



Native of
China and Japan



2020
Texas



2023
Tennessee



1979
Maryland

Krombein et al. 1979
Gilder et al., 2020

100 μ m

Marlattella prima

Clava

Linea Calva

Cercal Bristles



100 μm

Future JMS Parasitoid Plans

Spring 2024 survey of additional farms and sites in middle Tennessee to see if more species of parasitoids are present.

Possible colony development for biological studies.

Questions?

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Acknowledgements

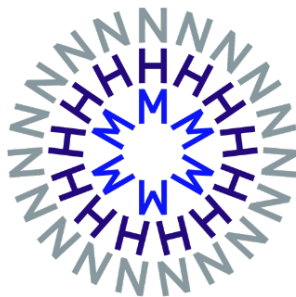
Andrew Polaszek

Luke Kresslein

Paul O'Neal

Angelo Woods

Cheyenne Morales



Natural
History
Museum



Smithsonian