Identifying Some Pest and Beneficial Insects on Your Sticky Cards

Leanne Pundt

University of Connecticut

Department of Extension

Scouting Methods

Random plant inspections

Indicator Plants

Scouting

- Use yellow sticky cards to trap adult whiteflies, fungus gnats, winged aphids, leafminers, & shoreflies

Use in Retail Greenhouses

Magnification Needed

- Use a 10x-20x handlens to see identifying characteristics of insects on sticky cards

A hands free Optivisor™ helps you see the entire card

Vertical Placement

Horizontal Placement

- More effective to catch fungus gnat adults

Pest Insects Trapped on Sticky Cards

- Aphids
- Fungus Gnats
- Shore Flies (nuisance pest)
- Leafminers
- Leafhoppers
- Thrips
- Whiteflies

Winged Aphids

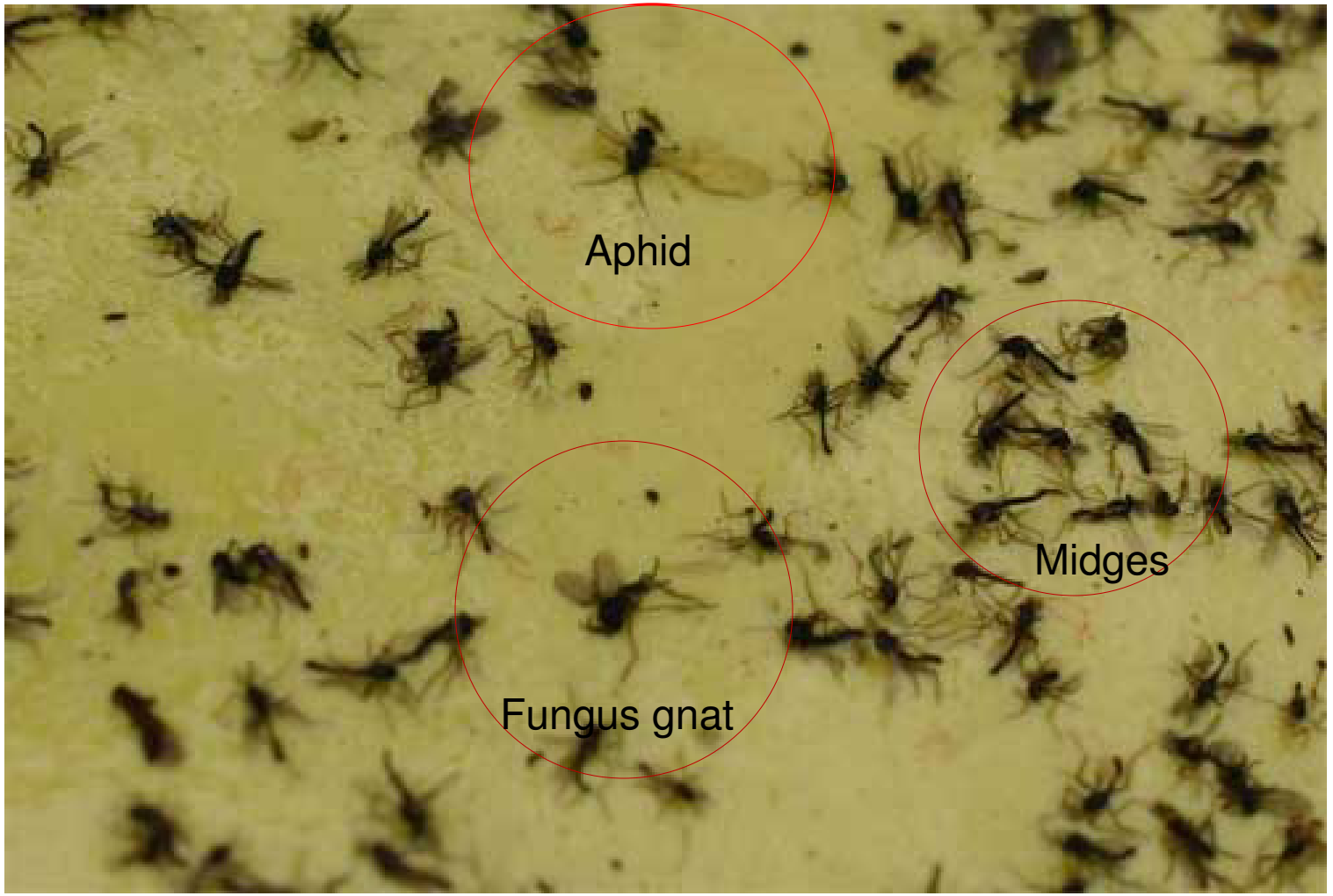
- Aphids have pear shaped bodies with two cornicles or “tailpipes” at their rear
- Legs & antennae are long and thin
- Trapped aphids may give birth to several nymphs before they die

Winged Aphids

- Wings tend to be spread on either side of their body on the sticky cards
- Wings are longer than their body
- Look for two parallel veins close to the edge with a darkened area

Winged Adult Aphid

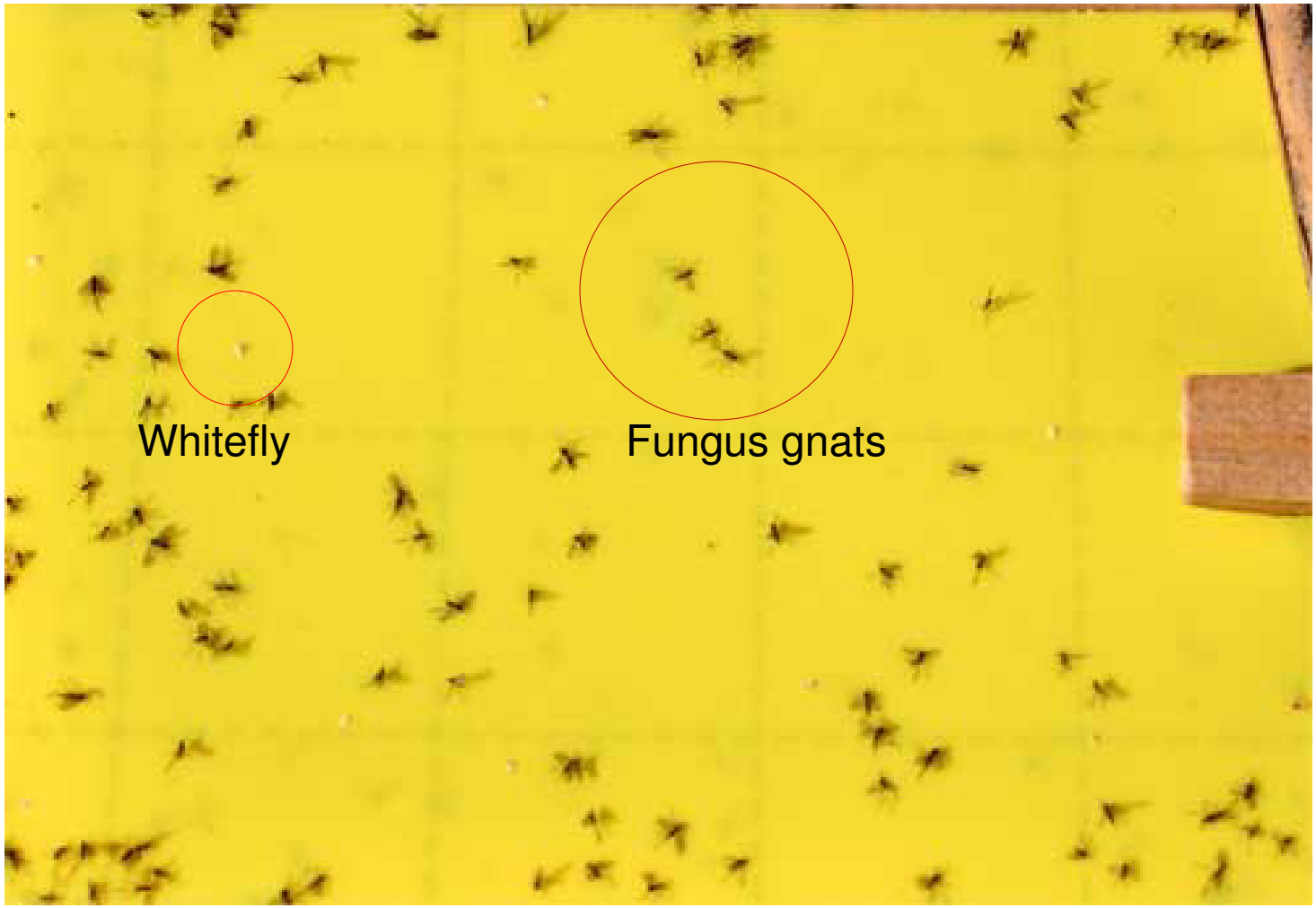
Aphids vs Midges vs Fungus Gnats



Fungus Gnat Adults

- Small, dark mosquito-like flies with grayish wings
- Have long, slender legs and antennae
- Look for distinct Y-shaped vein at the tip of the single pair of wings
- Bodies may be hump backed (depends upon species)

Fungus Gnat Adults

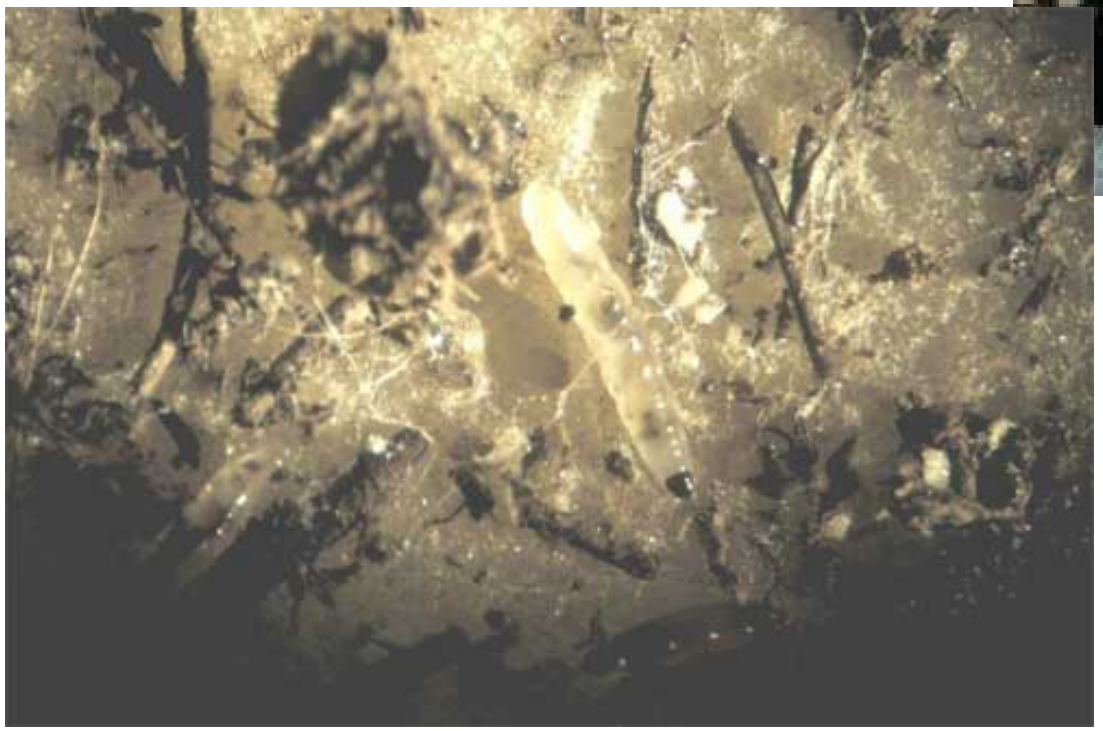


Fungus Gnat Adult

Look for distinct Y-shaped vein at the tip of the single pair of wings

Fungus Gnats

- Potato slices or chunks can be used to monitor for larvae



Shore Flies

- Look for
  - three to five pale spots on their grayish wings
  - short bristle- like antennae
  - and moderately long legs
- Have robust, stout body compared to fungus gnats
- About the size of fruit flies

Fungus Gnats vs Shore Flies

Shore Flies

Often found near algae, their food source

Shore fly Adult

Leafminer Adults

- Small, robust flies with noticeable yellow patch on their body
- Have short antennae and two transparent wings
- Have a large cannon-shaped structure at the end of the abdomen that is used to puncture leaves and lay eggs
- Often confused with shore flies (look for yellow on their body) plus plant damage

Leaf miner adults & egg-laying punctures

Adult Shore Flies vs. Leafminer Adults

Shorefly Adult

Leafminers

Shoreflies vs Leafminers

- Mines from leafminers

- Fecal droppings from shore flies

Leafhoppers

- Slender insects with short bristle like antennae
- Wings are held roof like over the abdomen
- Wedge shaped, tapering to the rear
- No antennae visible
- Color vary depending upon species

Leafhopper

Leafhopper Adult

Thrips

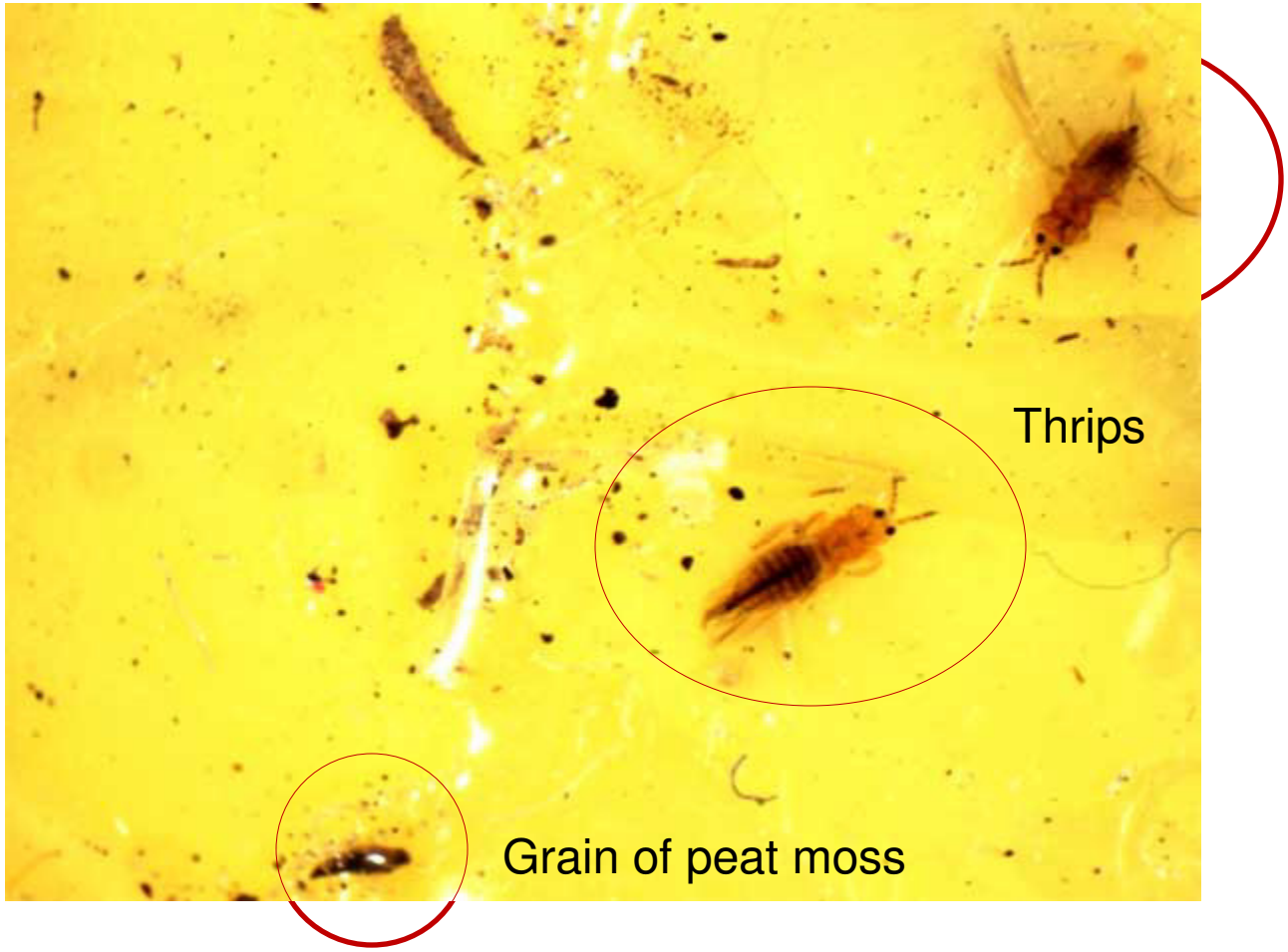
- Generally, the smallest insects you will see on the cards
- Narrow and cigar shaped
- Look for red eyes, short antennae

  fringed wings with hairs on end

  to distinguish from grains of peat moss

Thrips

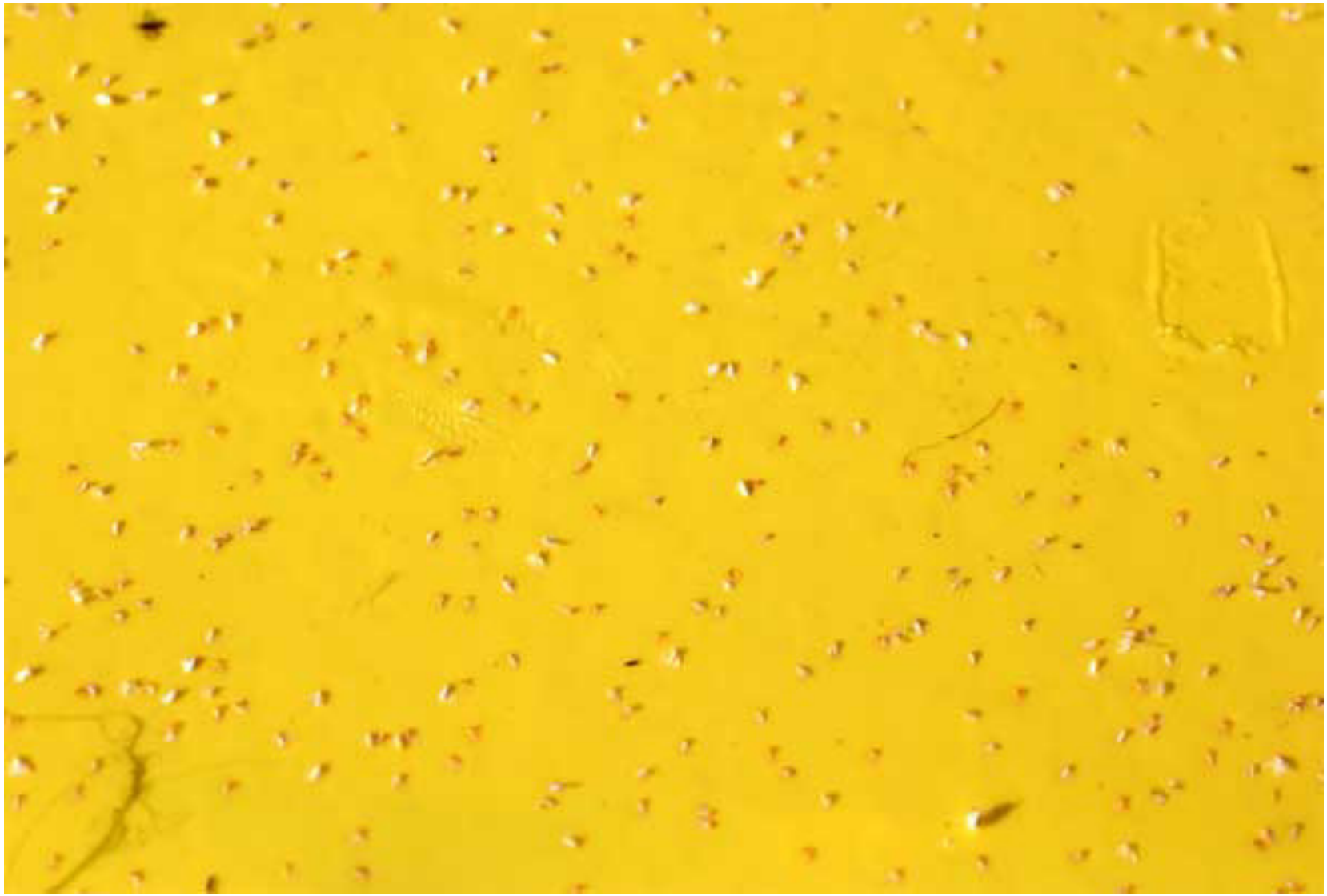
Thrips



Whiteflies

- Look for whitish bloom which tends to disappear after a few days
- Whiteflies becomes orangish in color as they blend into the sticky material on the trap
- Slightly larger than thrips

Whiteflies



Whitefly Adult

Banded Winged Whiteflies

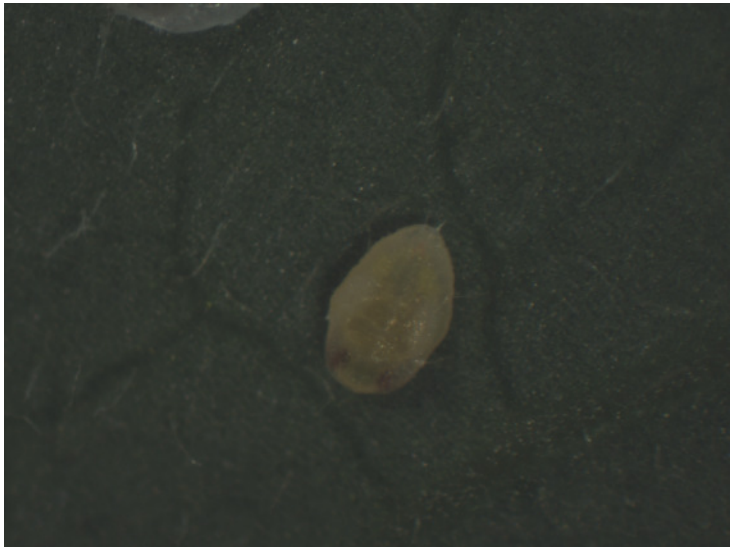
- Similar to Greenhouse Whiteflies
- Look for two grayish bands that form a zigzag pattern across each front wing
- Entering greenhouses from outdoor weeds (especially pigweed & ragweed) in the fall
- Not a pest of poinsettias, do not include in whitefly card counts

Banded Winged Whitefly

Pupal stage found on underside of leaves

Greenhouse Whitefly

Note: dried, discolored pupae were killed by Insecticide application



Sweet potato whitefly

Some Beneficial Insects Trapped on Cards

- Parasitic Wasps (many different types)
  - Often attracted to yellow sticky cards

- Hunter flies, Hover Flies and other Beneficial Flies

Parasitic Wasps

- Often *Hymenoptera* species
- May be stout or slender
- In comparison with flies, often have longer, elbowed antennae and bodies may be more pointed toward the rear
- Many have clear wings with only one distinct, angular vein along the front of each forewing

Photo: R. McGaughey

Aphidius colemanii is a commercially available parasitic wasp

Encarsia formosa

- Commercially available parasitic wasps used to control whiteflies (especially greenhouse whiteflies)
- Small, parasitic wasp with black head and thorax and yellow abdomen
- May look like tiny black dots on yellow card

Encarsia formosa

Note: This card was used for quality control of a shipment and NOT found in a greenhouse

Encarsia formosa

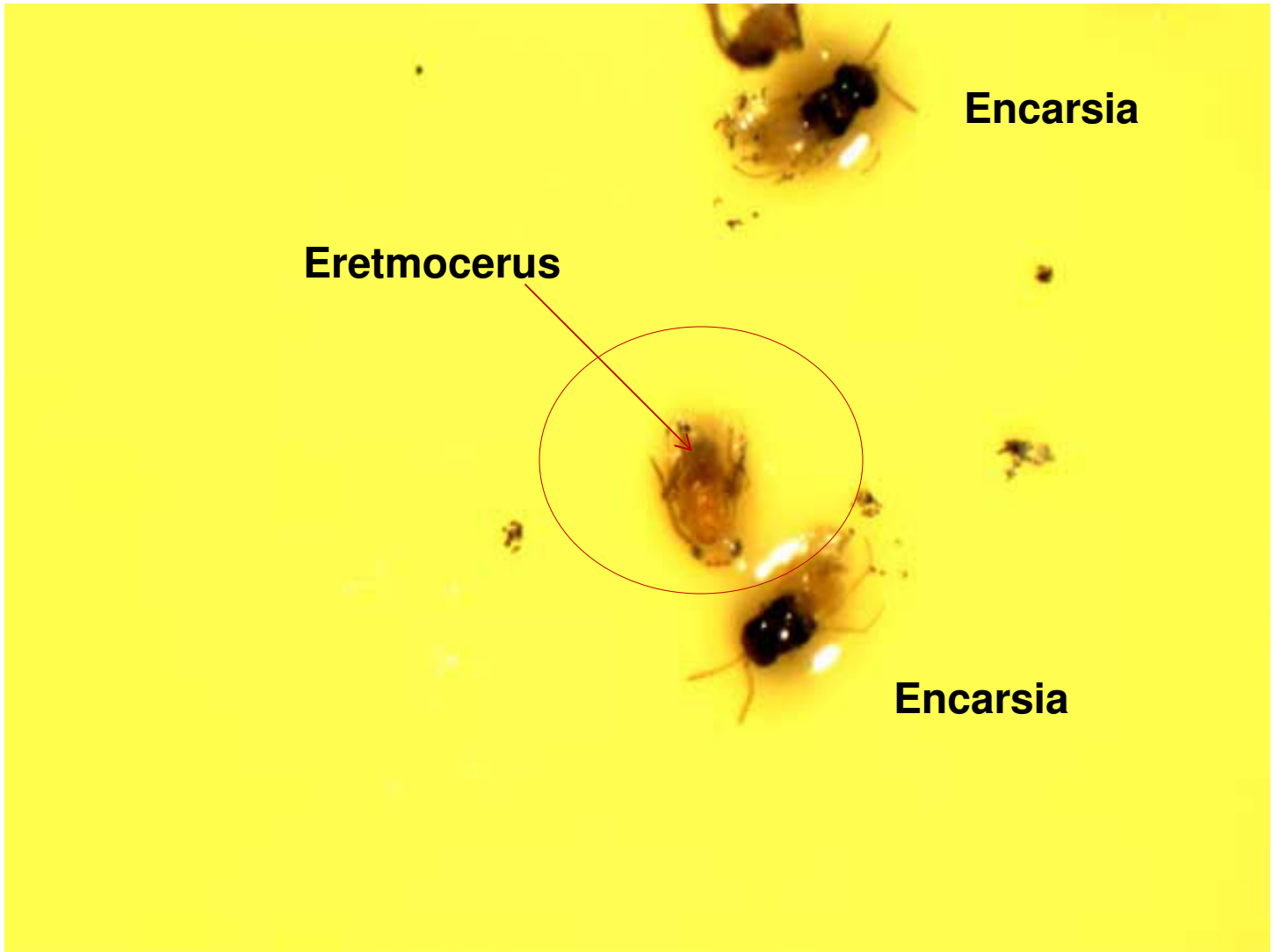
Eretmocerus sp.

- Commercially available parasitic wasp used against whiteflies (especially sweet potato whiteflies)
- Yellow or straw colored
- With elbowed antennae

Eretmocerus sp.

Note: This was part of quality control by the grower and sticky card was not found in the greenhouse

Encarsia compared to Eretmocerus



Eretmocerus compared to thrips

Shore Fly Parasitoid

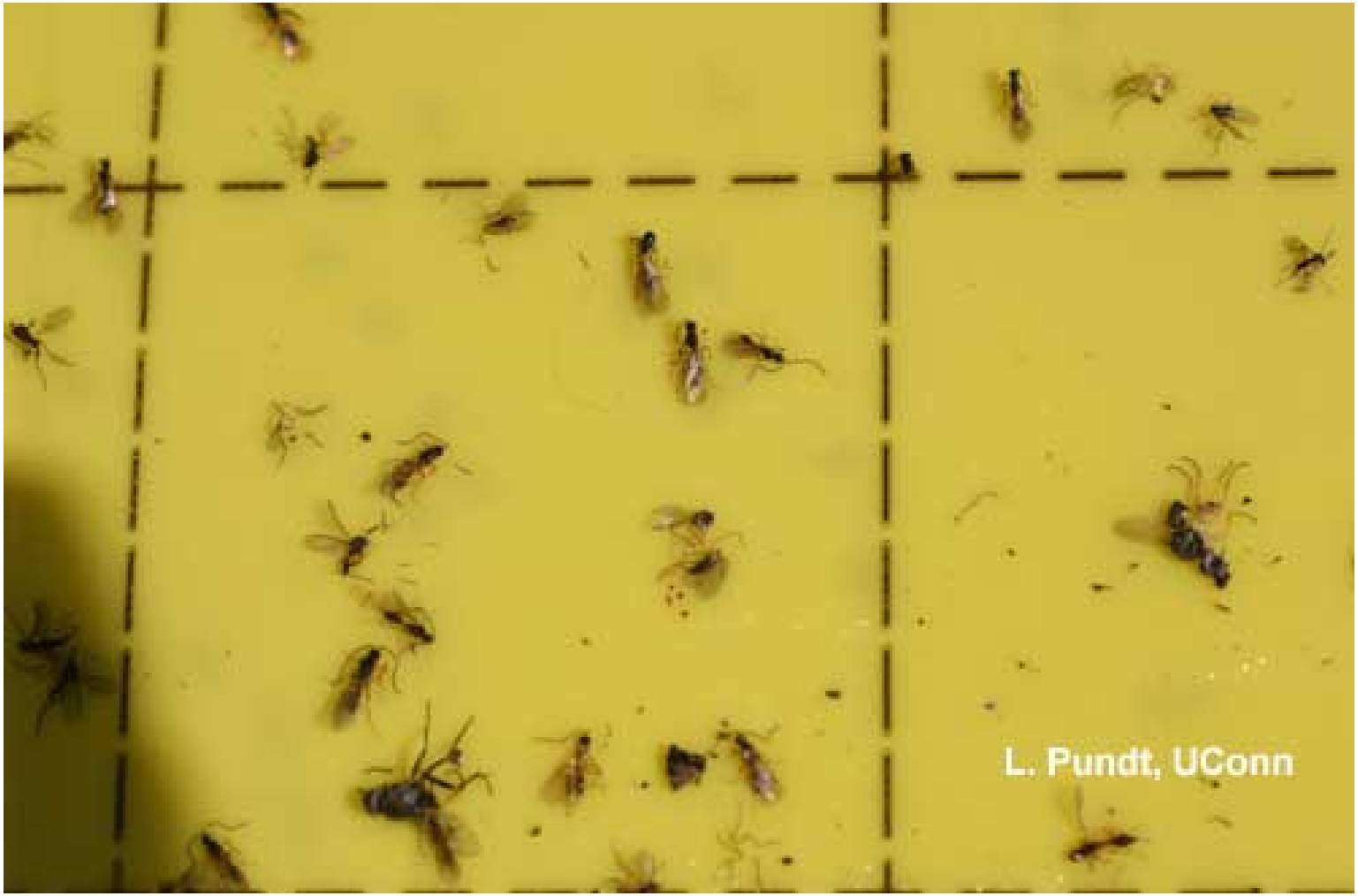
Hexacola sp. is a parasitic wasp that lays it eggs into shorefly larvae

From: Fungus Gnats and Shoreflies in Greenhouse Crops
http://www.omafra.gov.on.ca/english/crops/facts/06-079.htm

Synacra pauperi

- Naturally occurring parasite of fungus gnats
- Adults are about the same size as fungus gnats
- Look for narrowing between the head and thorax & between thorax and abdomen
- Abdomen tapers to a sharp tip
- Antennae are beaded & elbowed
- May be seen in unsprayed greenhouses

Fungus Gnat Parasitoid – *Synacra pauperi*



Hunter Flies

- Same family as house flies but are smaller
- Males are a lighter gray than females
- Wings are uniformly clear (unlike shore flies)
- (Shore flies are about ½ the size of hunter flies)
- Hunter flies prey on fungus gnats, shore flies, leafmining flies

Hunter flies

Hunter Fly Adult

Hunter Fly

This shows the size comparison between a shorefly on the left and hunter fly on the right.

From:Fungus Gnats and Shoreflies in Greenhouse Crops
http://www.omafra.gov.on.ca/english/crops/facts/06-079.htm

Hover Flies

- Have clear yellow and black markings
- Only a single pair of wings
- Have short antennae
- Adults feed on pollen and nectar
- Larvae feed on aphids and other soft-bodied insects

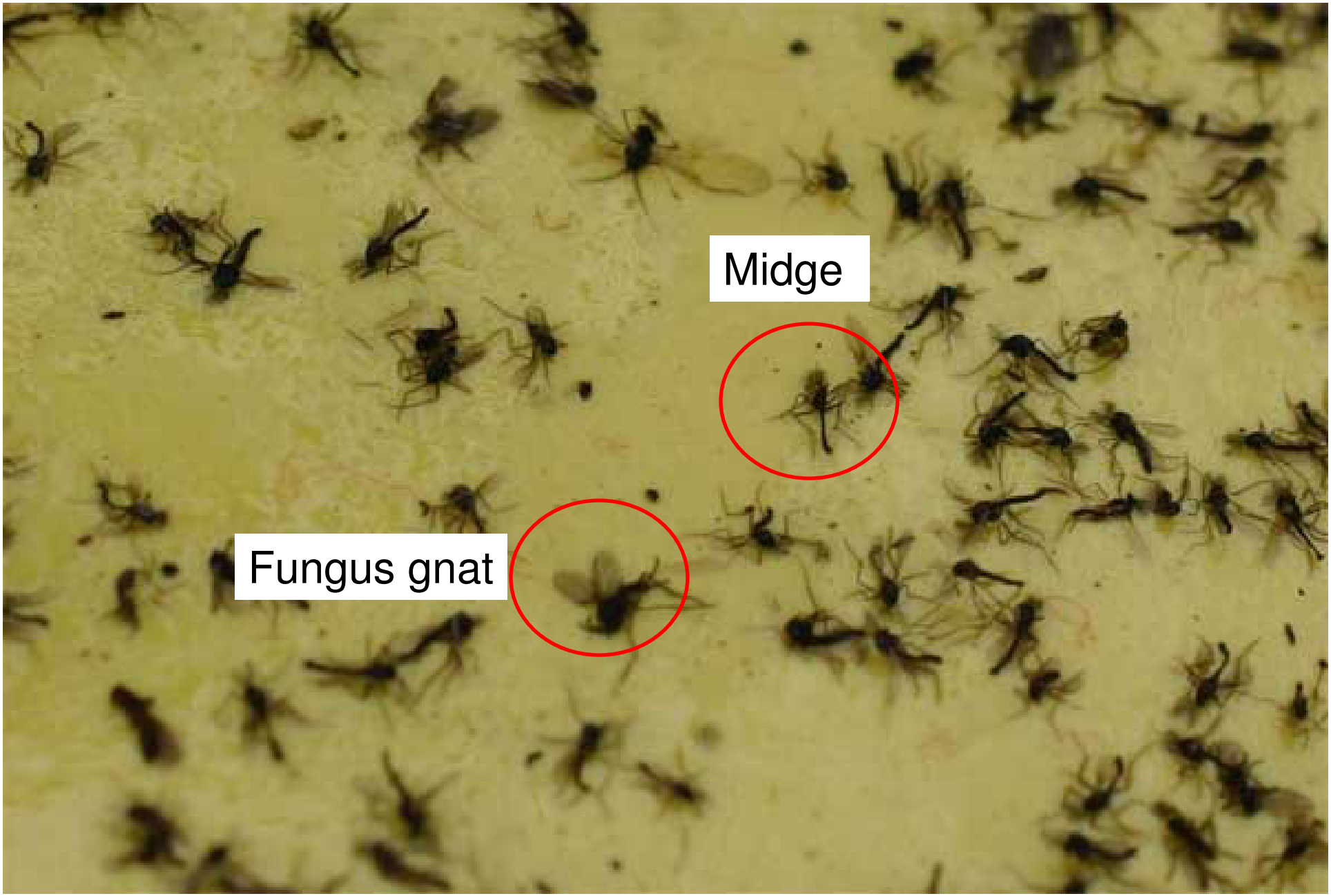
Hover fly

Some Miscellaneous Insects on Cards

- Midges (not a plant pest)
- Moth flies (not a plant pest)

Midges

- Small, delicate insects resembling mosquitoes
- Note: narrow, elongate body may be confused with fungus gnats
- Males have very feathery, plumose type antennae
- Note: Not a plant pest, seen in areas with poor drainage where fungus gnats and shore flies occur


Midge
Fungus gnat

Midge Adult

Moth or Drain flies

Adult drain flies are small ($^1/_6$ to $^1/_5$ inch long), fuzzy, dark colored insects with the body and wings densely covered with hairs.

- Their wings are held roof-like over the body when at rest, giving them a moth-like appearance.

- http://www.ces.ncsu.edu/depts/ent/notes/Urban/drainfly.htm

Moth Flies

- Small, gray insect with a single pair of very large broad wings
- Wings have a fringed, hair like appearance similar to moth wings
- Antennae are beaded
- Note: not a plant pest, seen in areas with poor drainage where fungus gnats and shore flies occur

Moth flies

References

- Identifying Insects on Your Sticky Cards
- http://www.ces.ncsu.edu/depts/ent/notes/O&T/production/stickycard/sticky.html
- Hunter Flies, Good Guys in the Greenhouse *GrowerTalks*, August 2004
- Fungus Gnats and Shoreflies in Greenhouse Crops
- http://www.omafra.gov.on.ca/english/crops/facts/06-079.htm

References

- Ball Identification Guide to Greenhouse Pests and Beneficials
- Greenhouse IPM with an Emphasis on Biocontrols
  - http://extension.psu.edu/ipm/program/greenhouse/greenhouse-manual
- Sticky Trap Monitoring of Insect Pests
  - Univ. of California Publication 21572