Quick Guide to Common Potato Pests & Beneficial Insects

Leaf Feeding Pests

Colorado Potato Beetle feeding damage

Jeff Hahn

Typical Caterpillar feeding damage

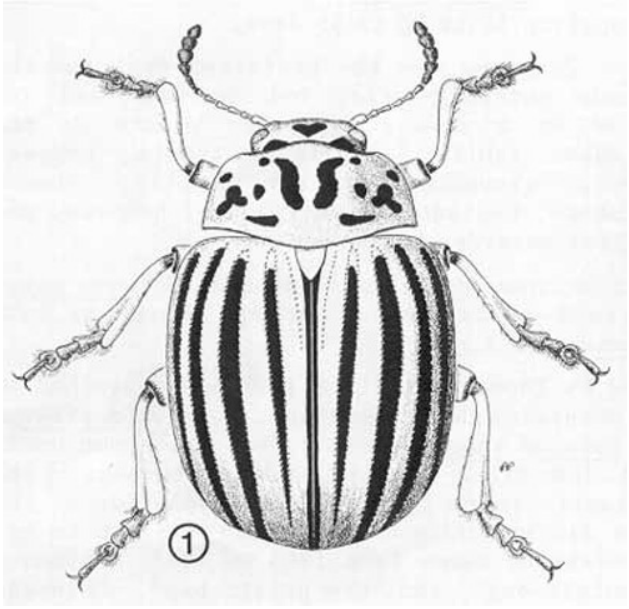
http://www.missouribotanicalgarden.org/

Adult Flea Beetle feeding damage

Jeff Hahn

Colorado Potato Beetle

David Cappaert, Michigan State University



Florida Division of Plant Industry

Both adults and larvae eat leaves
Can defoliate entire plant

Larvae are reddish pink with two rows of dark spots on each side, and 3/8" long

Adults are yellowish with black stripes, round, and 3/8" long

Active throughout the summer

Identification tips:

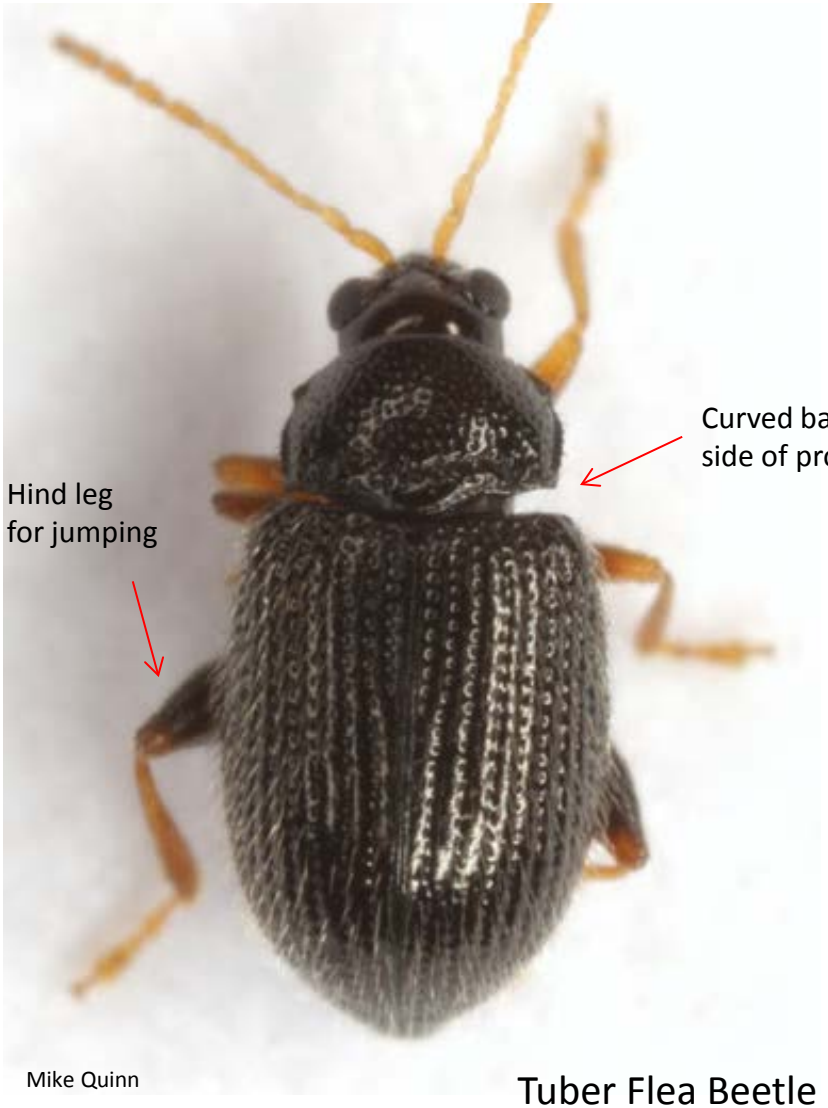
1. Notice individual variation in color – collect multiple specimens
2. Notice relative size
3. Right and left sides of body are “mirror images” – bilaterally symmetrical

Buyung Hadi

Colorado Potato Beetle

Understand biology of species
For example, where larva feed on plant or where eggs are laid

Tuber Flea Beetle



Mike Quinn

Tuber Flea Beetle

Compare size with
Colorado Potato Beetle (Below)

extension.umass.edu

peninsulapeasant.blogspot.com

Ken Gray – Oregon State University

Caterpillars have the same body sections as other insects
1 – Head
2 – Thorax (with 3 pairs of true legs)
3 – Abdomen (with “prolegs”, fleshy projections that act like legs)
The number of pairs of prolegs is usual in identification

Sucking Pests

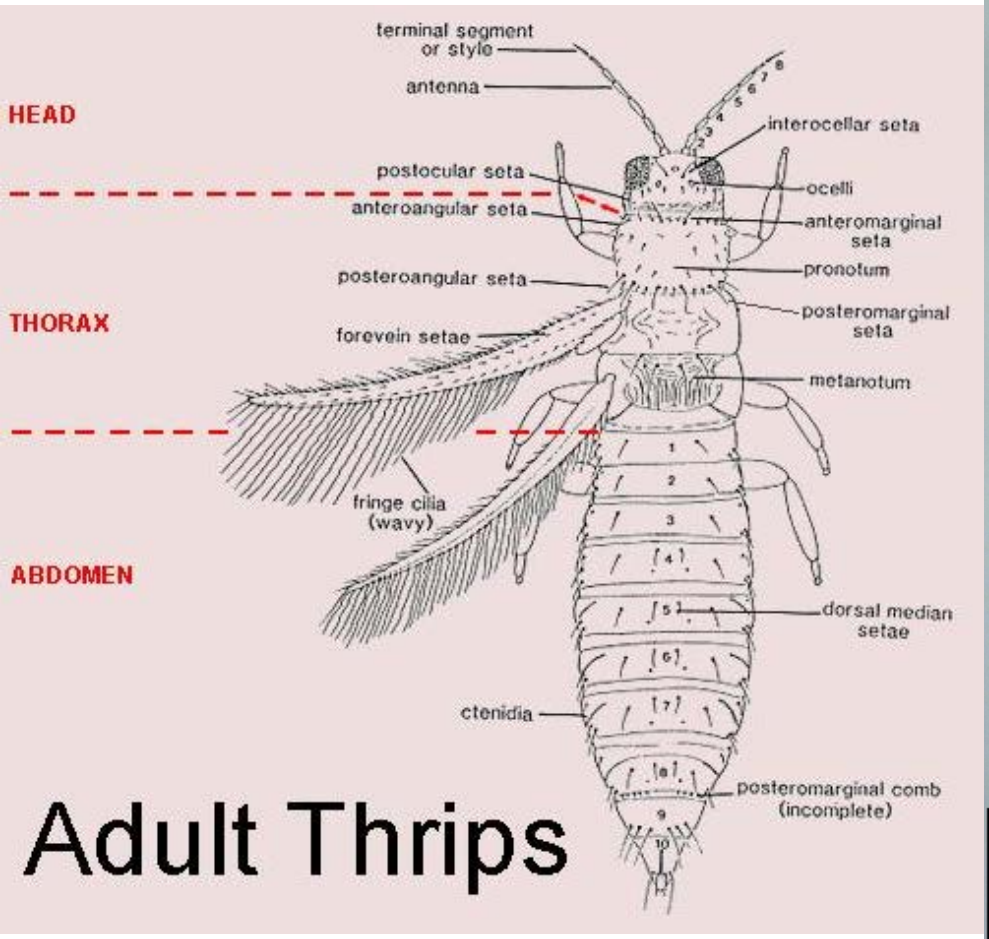
Notice the general body shapes
of thrips, aphids, psyllids, leafhoppers and mites
(and how they differ)

Jack Kelly Clark,
University of California
Statewide IPM Program

Oklahoma State University

David Cappaert

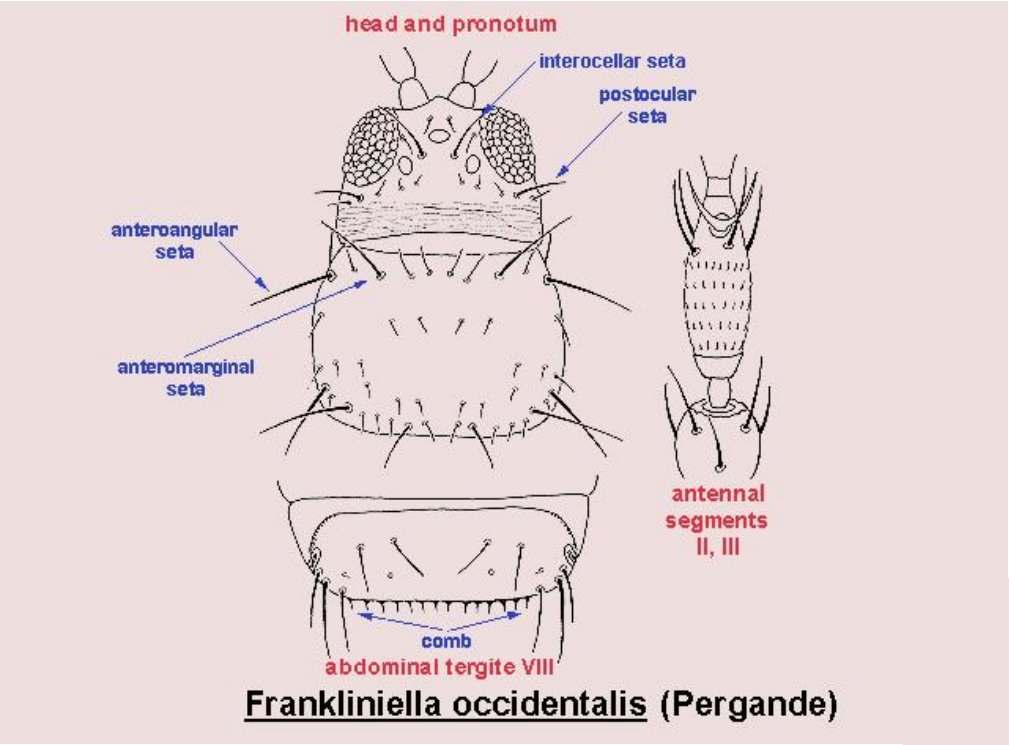

Adult mites have 8 legs – they are related to spiders
Two spotted Spider mites have a large dark spot on each side of the body
David Cappaert
UGA5



Liu / university of Florida

Jack Reed

Western Flower Thrips

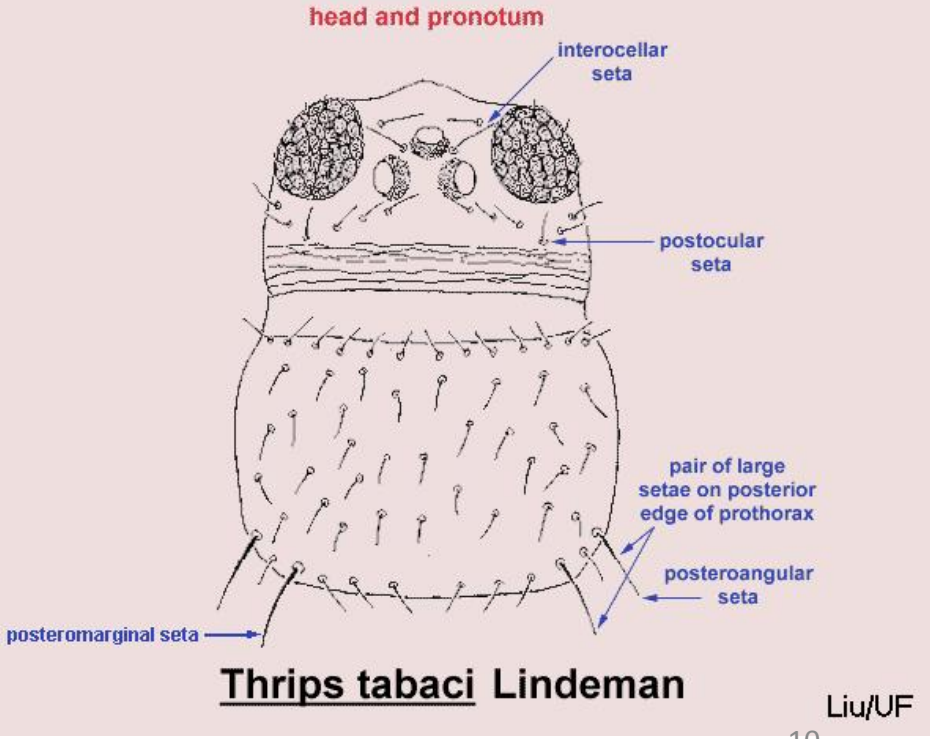


Liu / university of Florida

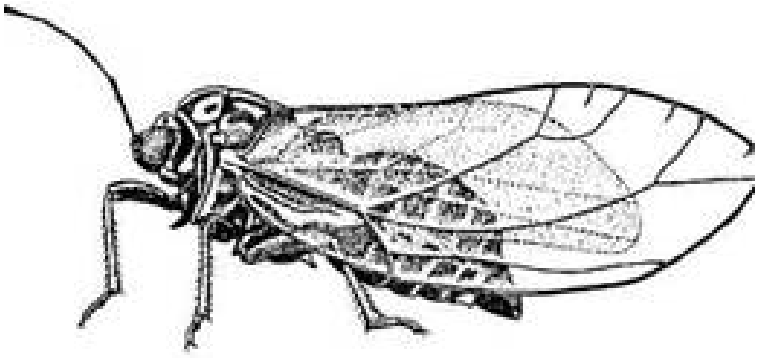
Western Flower Thrips

Note differences between
Western Flower Thrips and Onion Thrips

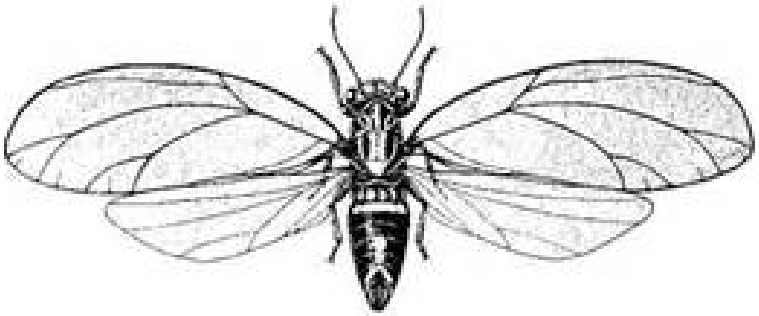
1. Western flower thrips have 2 long hairs on the shoulder behind the head – Onion thrips have none (anteromarginal seta)
2. Western flower thrips have a long hair behind the eye – Onion thrips do not (postocular seta)
3. Western flower thrips have 8 antennal segments – Onion thrips have 7



OnionThrips



Adult potato psyllid.



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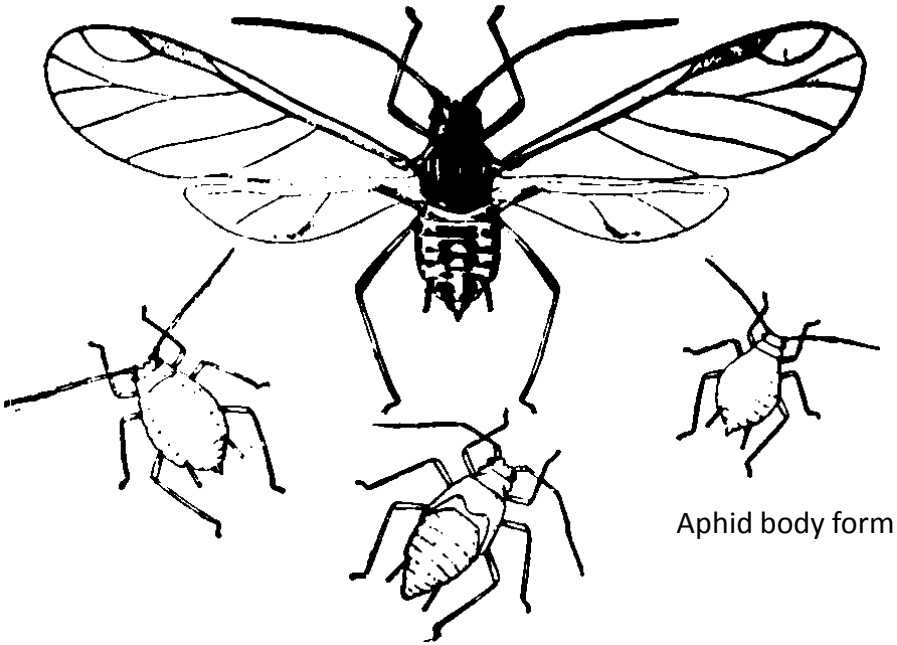
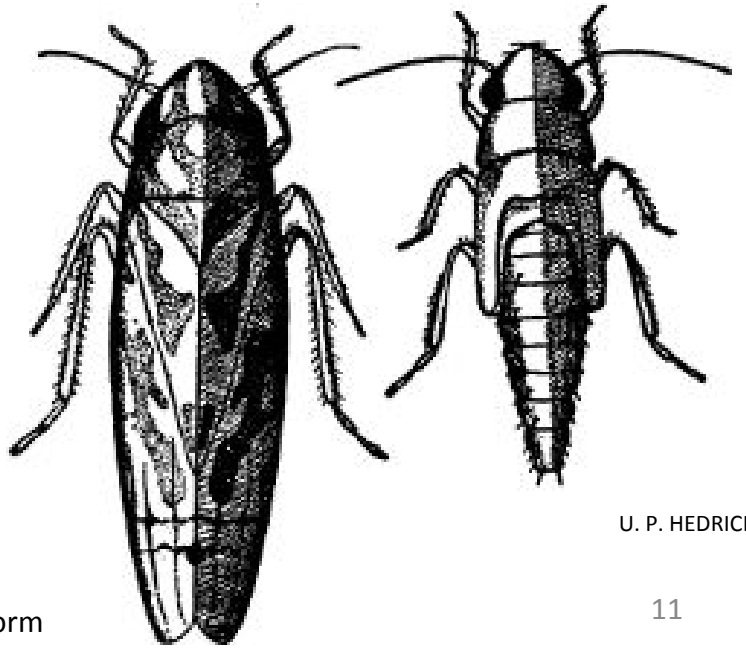


Aphid body form



U. P. HEDRICK

Leafhopper body form

Beet Leafhopper

Other Leafhoppers, Which Do Not Transmit Purple Top


Smaller, often bright green

Empoasca

Dark spots always on head


Exitianus

Slim, with pointy head


Dikraneura

Pointy head,
always mottled wings


Latalus

Beet leafhopper Females

Beet leafhopper females - are easily recognized by the dark-margined notch at the base of the ovipositor that looks exactly like a burn mark left on the edge of a table from a lit cigarette.

Males are equally distinctive from the underside, having truncate "plates" (the terminal flaps that protect the genitalia look as if they have been cut off transversely).

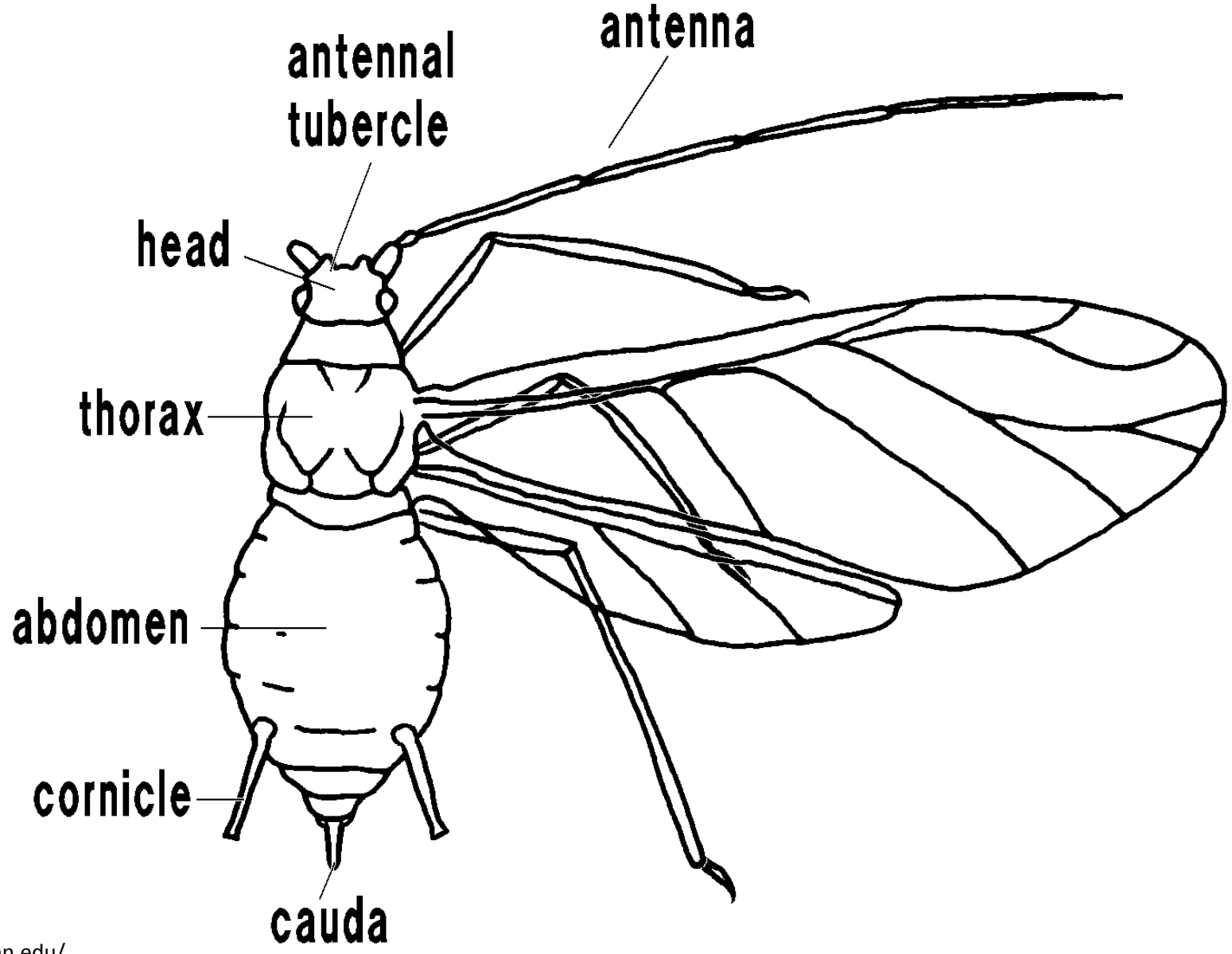
Arlo Pelegrin

Purple top – caused by Beet leafhopper transmitted phytoplasma

Aerial tubers – also a result of Purple top

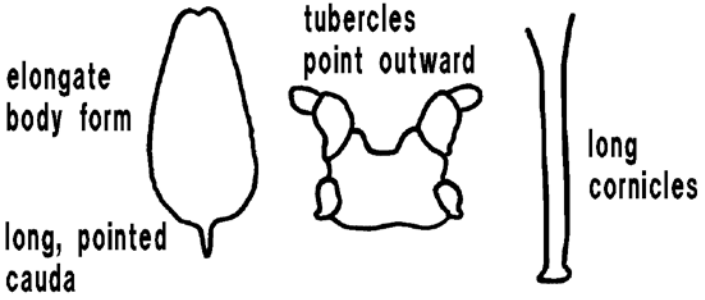
www.nwpotatoresearch.com/

General Aphid Body Form

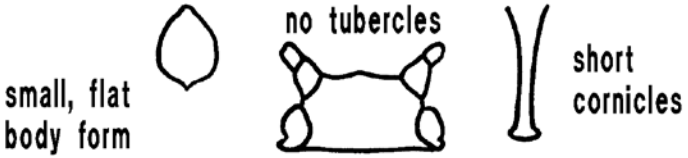


http://ipmworld.umn.edu/

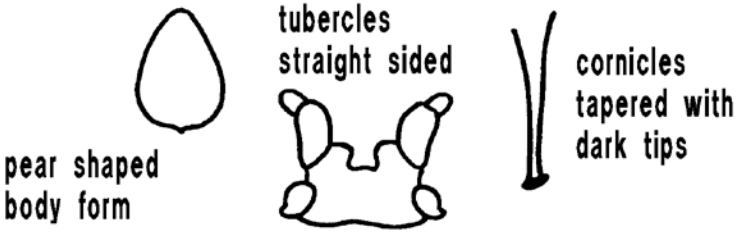
a) Potato Aphid



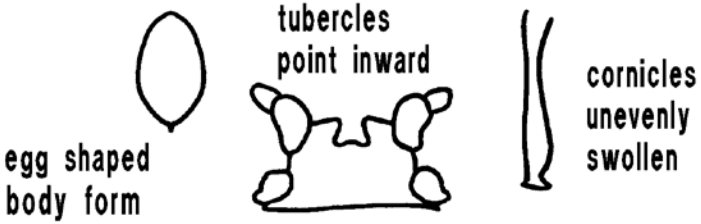
b) Buckthorn Aphid



c) Foxglove Aphid



d) Green Peach Aphid



Key for distinguishing the wingless forms of the primary aphid pests on potato:

1a. body outline egg or teardrop shaped, cauda short 2

1b. body outline elongate, antennal tubercles large, pointing outward, cauda long and pointed, cornicles longer than the distance between their bases (Fig. a), legs prominent, color green, yellow, or pink, may have a darker dorsal stripe, highly mobile aphids . . . . . potato aphid

2a. body thick, head with prominent antennal tubercles, antennae as long or longer than body . .3

2b. body flattened, head without prominent antennal tubercles, antennae shorter than length of body, cornicles almost as short as cauda (Fig. b), color opaque lemon yellow to green in color, black in autumn . . . . . buckthorn aphid

3a. body pear shaped, widest at base of cornicles, antennal tubercles prominent and almost parallel sided, cornicles tapered with prominent flanges on the dark tip (Fig. c), color light yellow green to dark green, with dark areas around base of cornicles, legs and antennae with dark joints . . . . . foxglove aphid

3b. body egg shaped, almost the same width from base of middle legs to base of cornicles, antennal tubercles prominent and pointing inward, cornicles unevenly swollen (Fig. d), color light green to almost translucent, pink, or peach, legs and cornicles the same color as the body . . . . . green peach aphid

http://ipmworld.umn.edu/aphidalert/alert2.htm

Green Peach Aphid

Jim Baker, North Carolina State University

Potato Aphid – Notice differences in overall body shape

lisacar

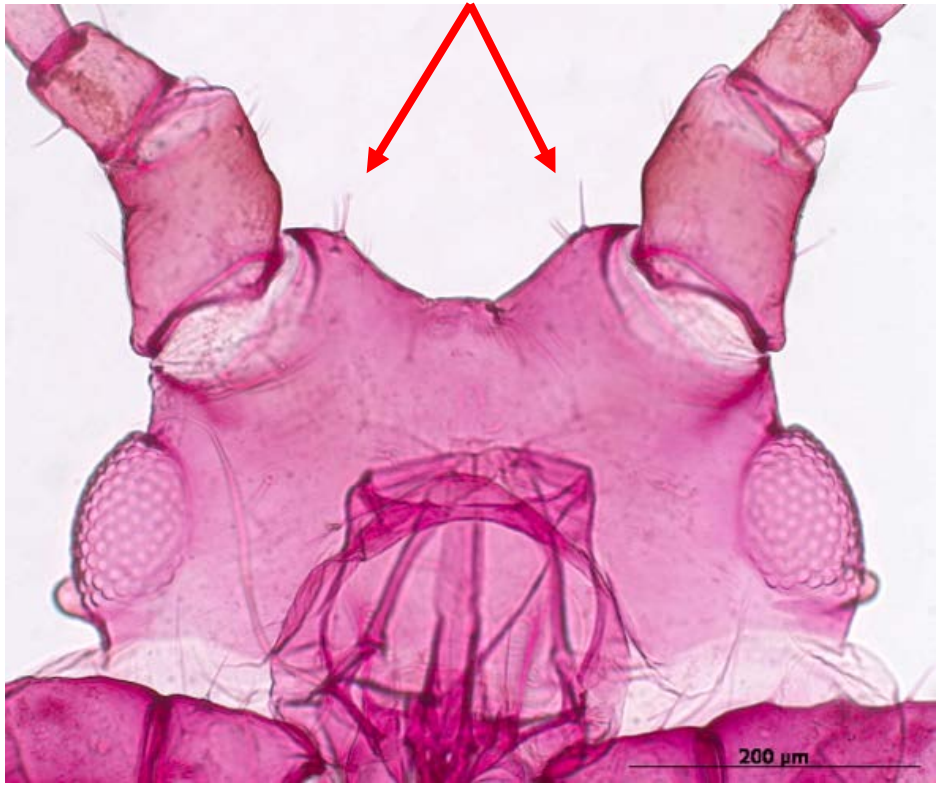
Potato Aphid – Notice differences in overall body shape

Andy Jensen

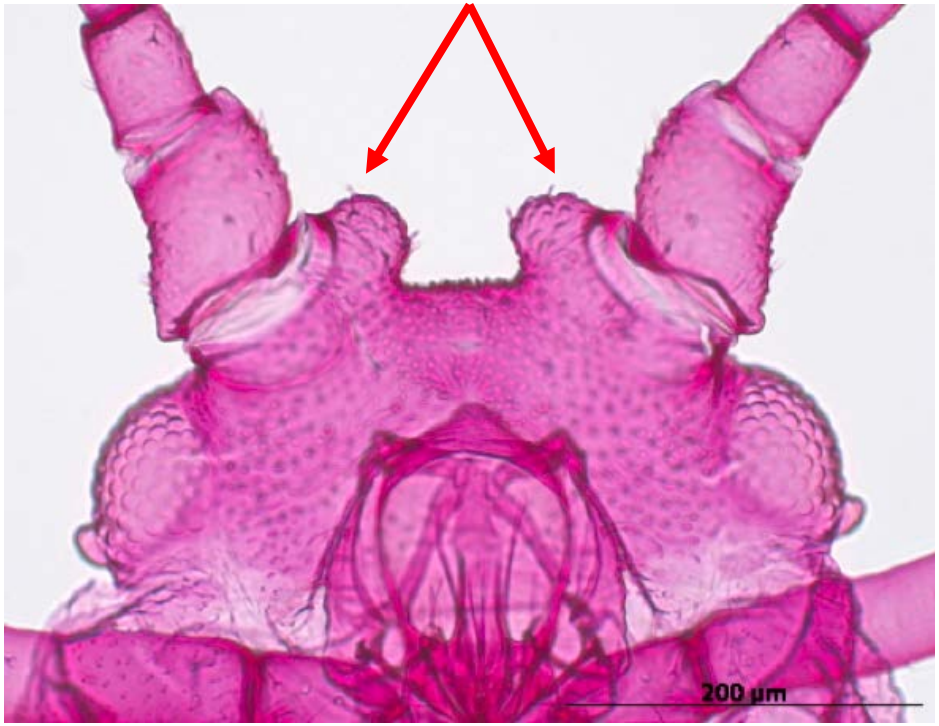
Green Peach Aphid

Differences in head shape of potato aphid and green peach aphid

Potato Aphid – front is a shallow curve



Green Peach Aphid – notice projections (tuburcles) on head that poir



http://aphid.aphidnet.org

Notice different head shape of these aphids – neither is a green peach aphid or potato aphid

Stuart Reitz

www.agroatlas.ru

Potato psyllid

White rim on top of head

White bands on otherwise dark abdomen

Psyllid adults and nymphs on a penny for size comparison

Psyllids don't always look their best on traps

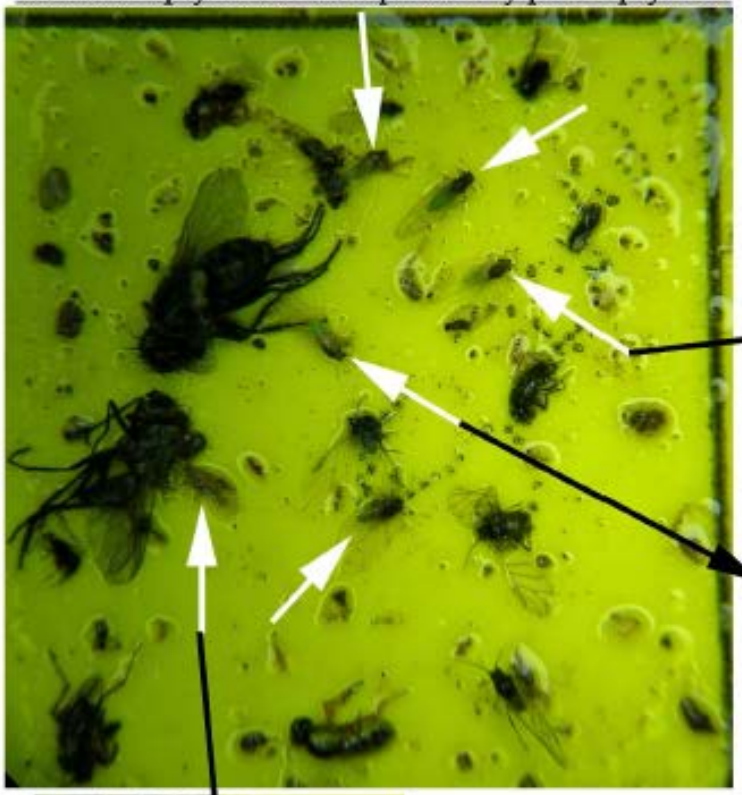
Wings are clear, without markings

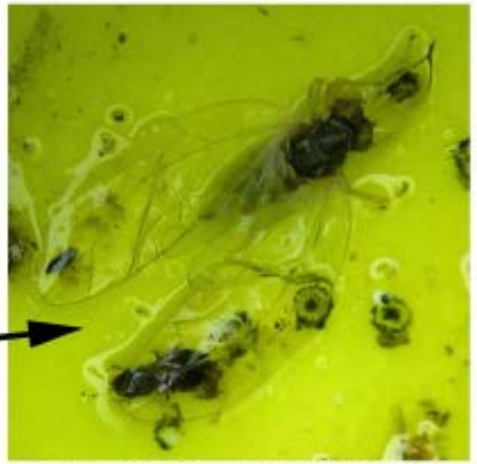
Three-way branch in wing vein

Photos Andy Jensen

Recognizing Psyllids, and then Potato Psyllids, on Sticky Traps (continued)

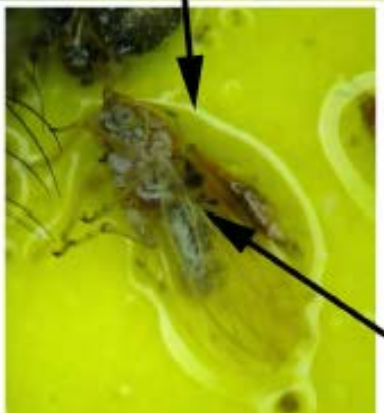
There are 6 psyllids in this square. Any potato psyllids?





How about this one? Nope, abdomen is green, the head lacks white rim.

How about this one? Nope, abdomen is green, not dark/black.



Seeing the wing veins takes a lot of magnification!

Photos Andy Jensen

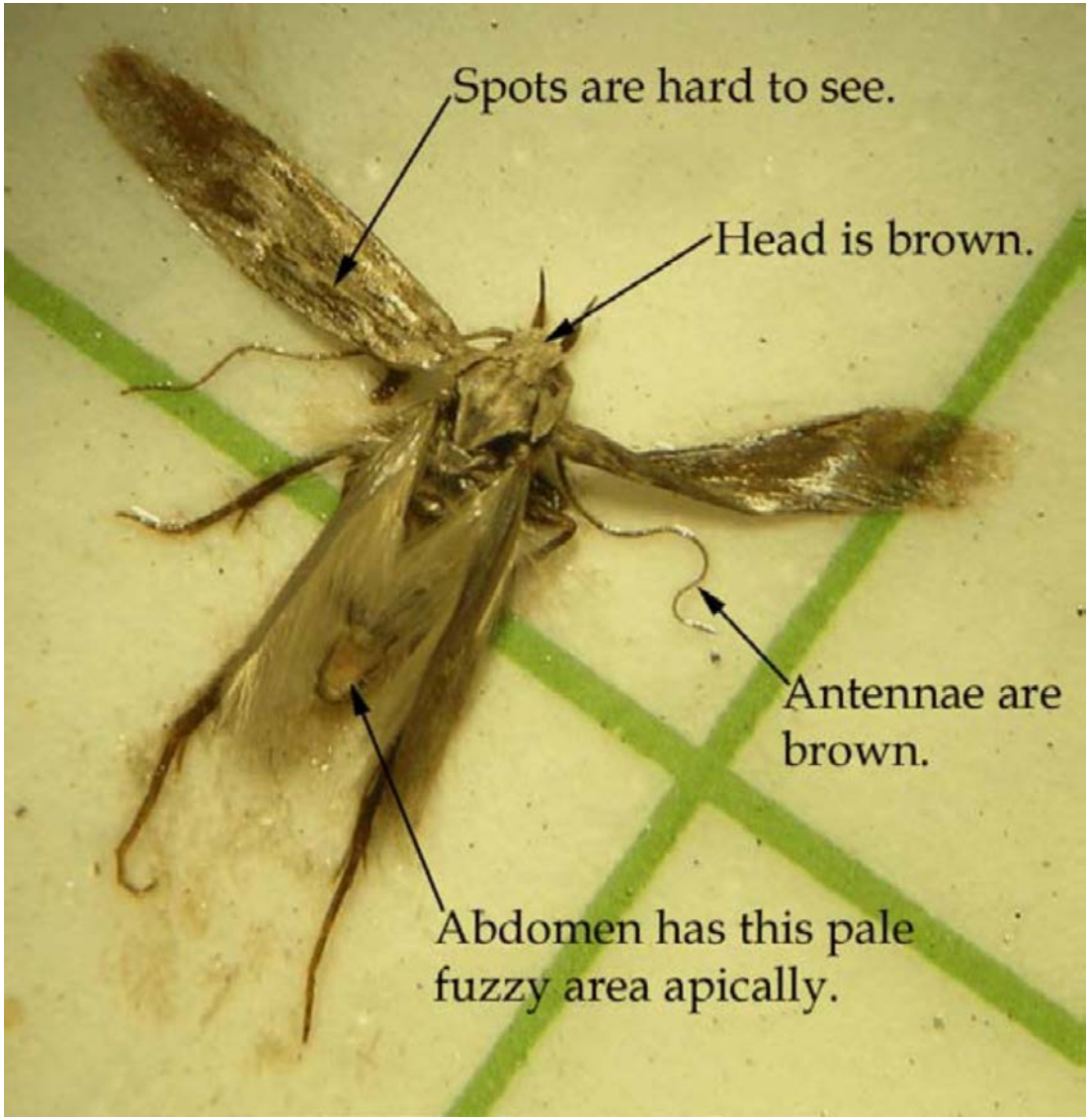
These six specimens are **not potato psyllid**, and are representative examples of the type of specimens you will likely find on yellow sticky traps in the Northwest.

Photos Andy Jensen

Potato Psyllid

Jack Kelly Clark,
University of California
Statewide IPM Program

Potato Tuber Worm / Moth



Photos Andy Jensen

Tuberworm damage to potato tuber

http://www.nwpotatoresearch.com/

Tuberworm mining damage to potato leaf
Caterpillar is still in leaf

David Jones, University of Georgia, Bugwood.org

Stuart Reitz

Beneficial Predators and Parasites

- Big Eyed Bugs
- Predators of small soft-bodied insects (thrips, psyllids, aphids, small worms, worm eggs) and mites

Tony DiTerlizzi

LADYBIRD BEETLES, several species		
Description	Picture	Prey attacked
• well known insects • usually under 1/4 inch • hemispherical shaped beetles • often reddish with black spots or black with reddish spots • color varies within and between species • small forms are not often recognized as ladybird beetles • antennae are clubbed • larvae are elongate and flattened grubs • active and move about freely	 Photo credit: W. L. Sterling, Department of Entomology, Texas A&M University	Adults and larvae feed on: • aphids • and other small insects

http://ipm.ncsu.edu/

Ladybird Beetle Larva

http://extension.entm.purdue.edu/

David Riley

MINUTE PIRATE BUGS, *Orius* spp.		
Description	Picture	Prey attacked
• generally black with some white markings • small, about 1/8 inch	 Photo credits: Department of Entomology, Texas A&M University	feed on: • insect eggs • other soft-bodied insects

Stuart Reitz

Charlie Eiseman

Whitney Cranshaw, Colorado State University

Green Lacewing
Predators of small soft-bodied insects

<- Larva feeding on psyllids and adult below

Frank Peairs, Colorado State University

Brown globe shaped aphids have been parasitized by parasitic wasp