

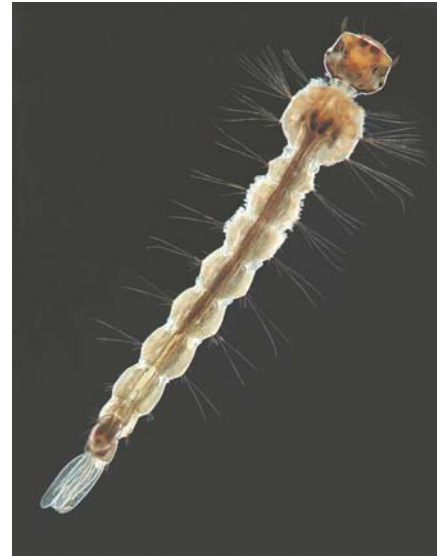
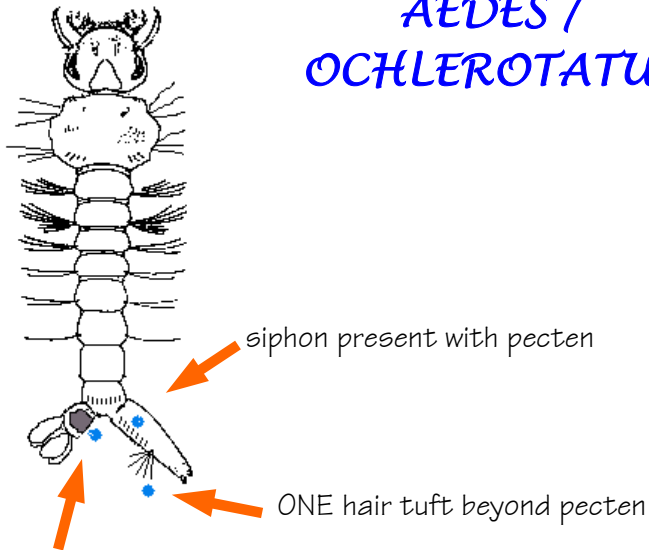
PHOTOGRAPHIC GUIDE TO COMMON MOSQUITOES OF FLORIDA

*by Michele M. Cutwa and George F. O'Meara
University of Florida
Florida Medical Entomology Laboratory*



QUICK GUIDE TO MOSQUITO GENERA—larvae

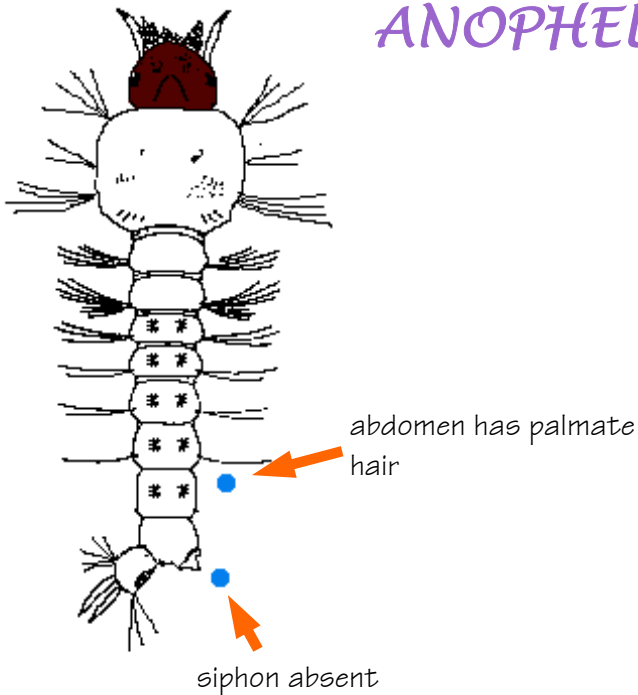
AEDES / OCHLEROTATUS



anal segment not completely ringed by saddle, or if ringed, not pierced by ventral brush

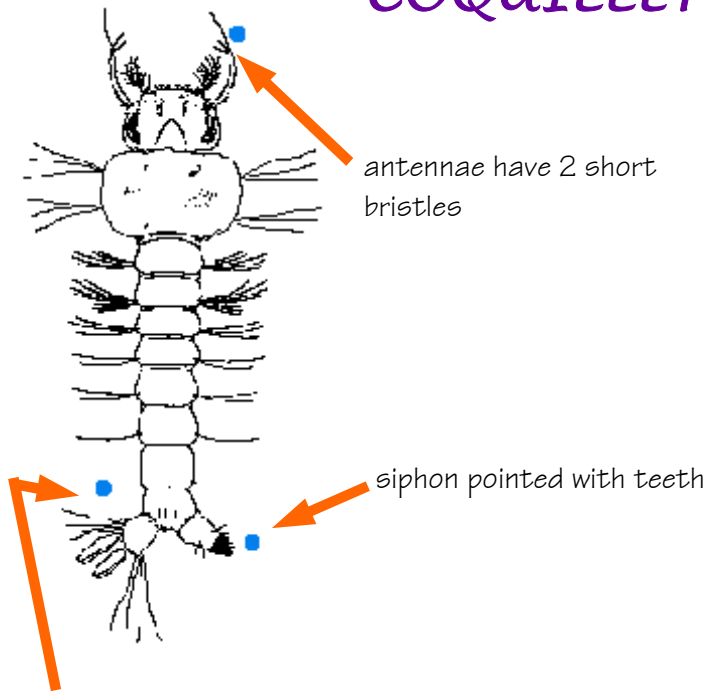
- artificial container or treehole habitat (occasionally bromeliads)

ANOPHELES



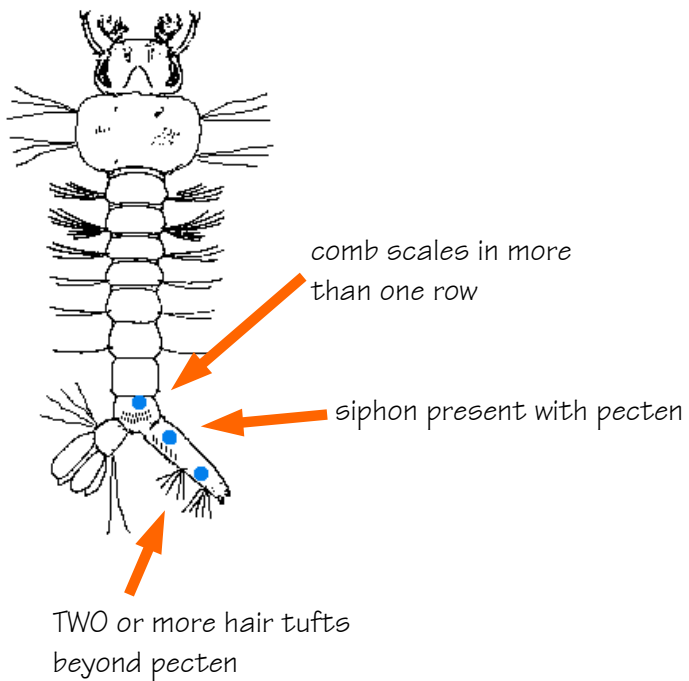
- usually sits on top of water resembling a twig, swims in a 'stiff' manner

COQUILLETTIDIA



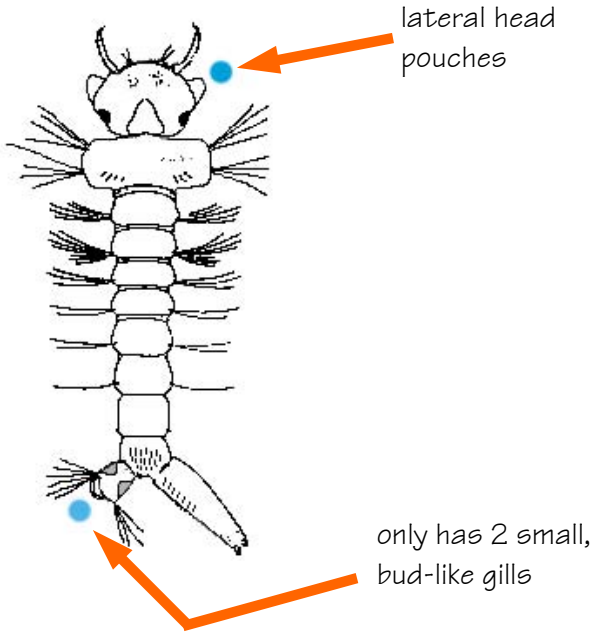
found on roots of aquatic plants

CULEX



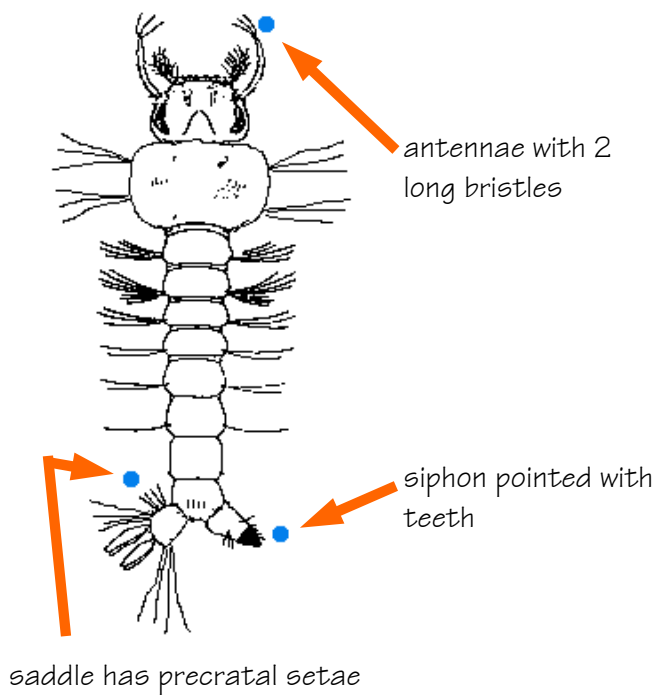
move very quickly - any habitat

DEINOCERITES



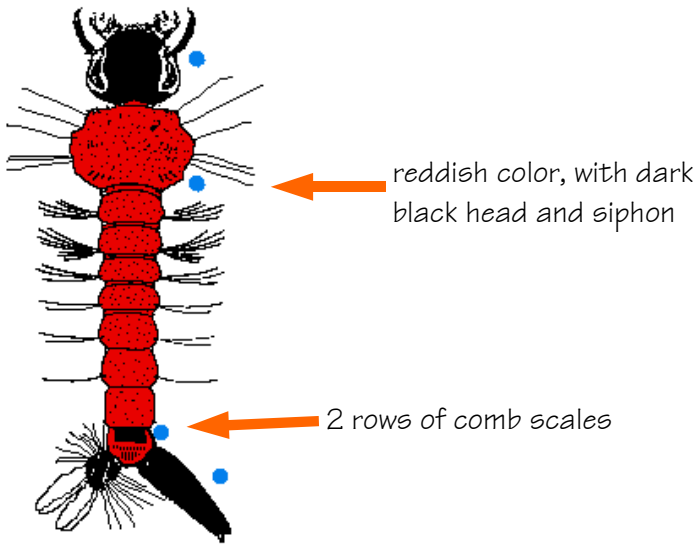
only found in saltwater crab holes

MANSONIA

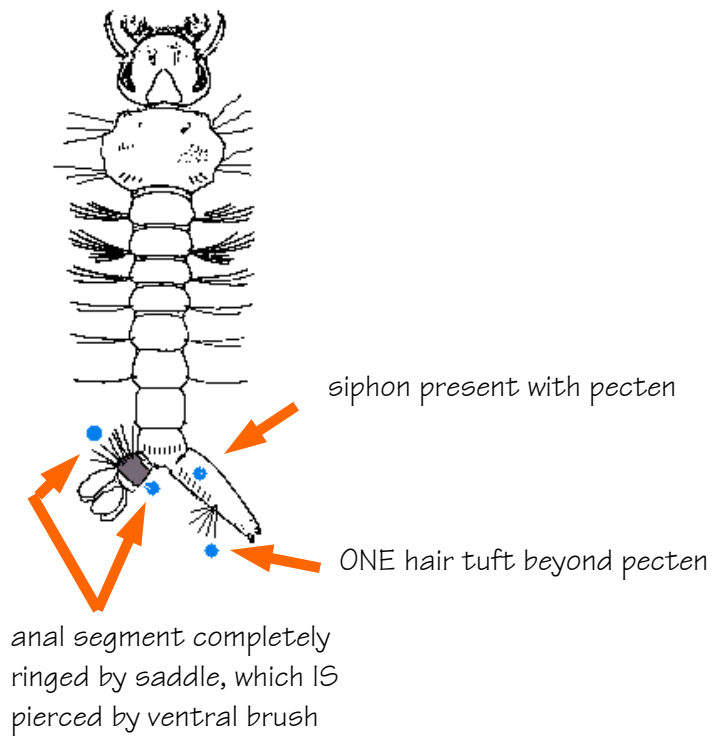


found on roots of aquatic plants

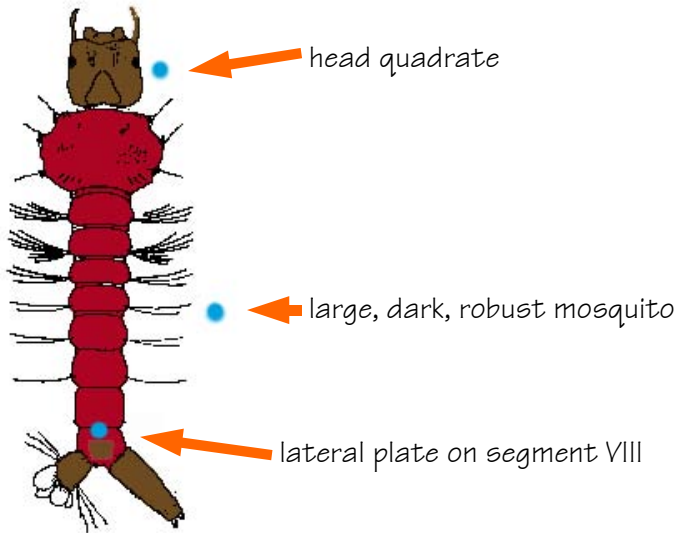
ORTHOPODOMYIA



PSOROPHORA

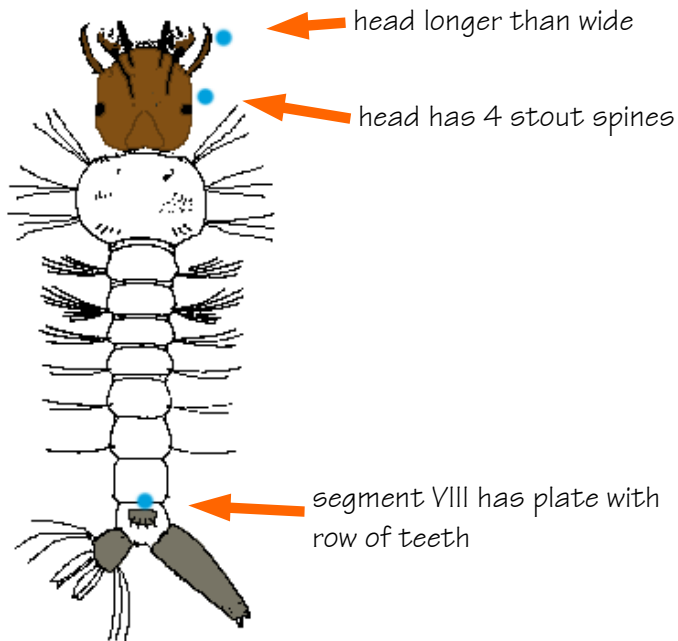


TOXORHYNCHITES

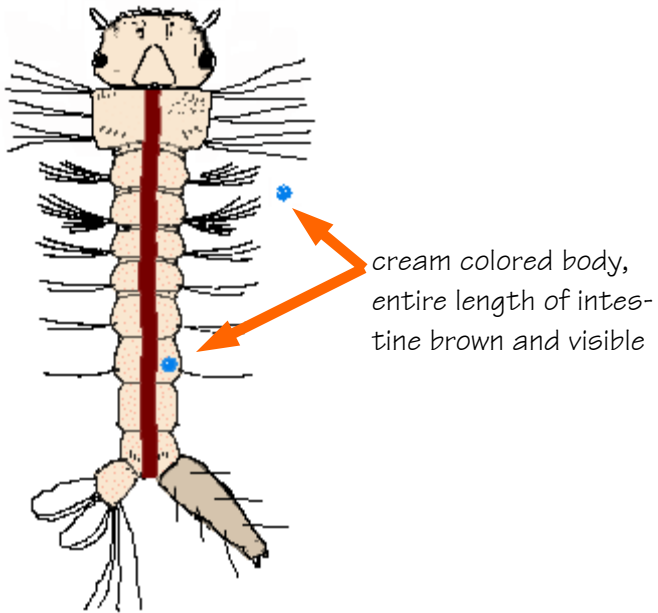


predatory on other species

URANOTAENIA

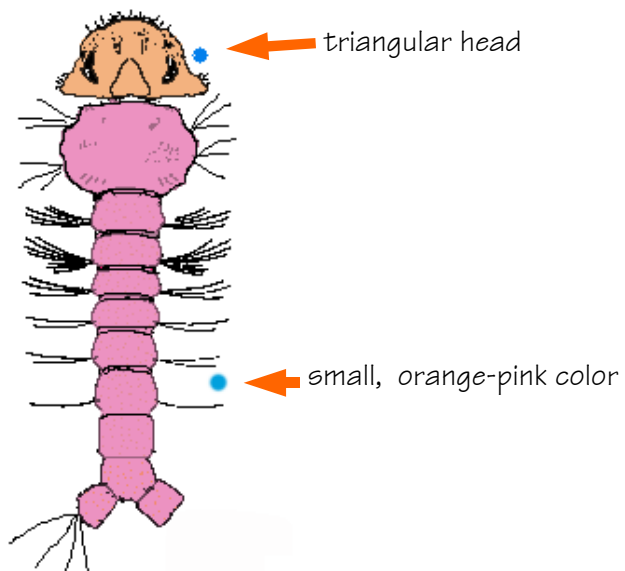


WYEOMYIA



' found in bromeliads

CORETHRELLA



' not a mosquito, a predator of small mosquito larvae

QUICK GUIDE TO MOSQUITO GENERA—adults

AEDES / OCHLEROTATUS



basal bands on
abdomen

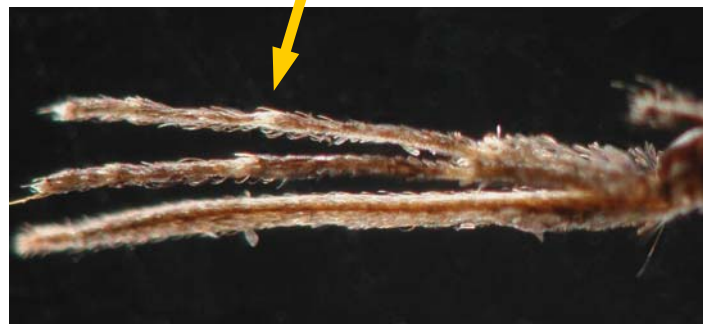


has postspiracular setae, no
prespiracular setae

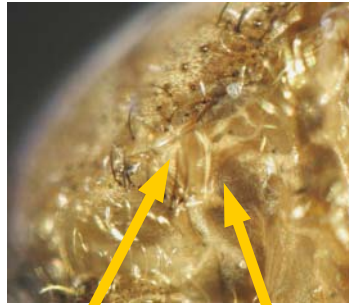
ANOPHELES



palps are as long as the proboscis

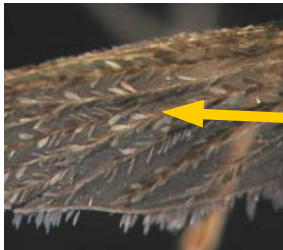


COQUILLETIDIA

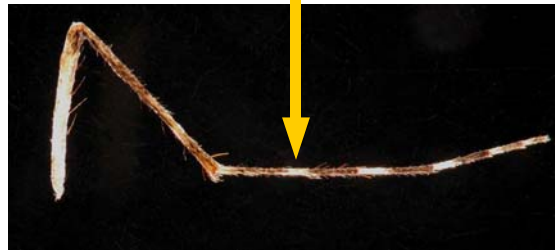


no prespiracular or postspiracular setae

1st tarsal segment has median pale ring



wing scales large, speckled light and dark



CULEX



antenna about the same size as the proboscis

no prespiracular or postspiracular setae



legs dark, no bands

DEINOCERITES



antennae longer than proboscis

MANSONIA



apex of abdomen blunt, cut-off

postspiracular setae present



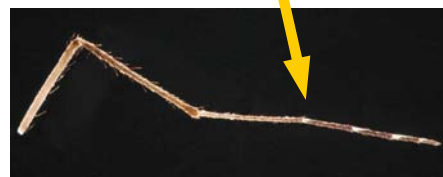
hind legs have narrow basal bands



antennae have white scales at flagellomere joints



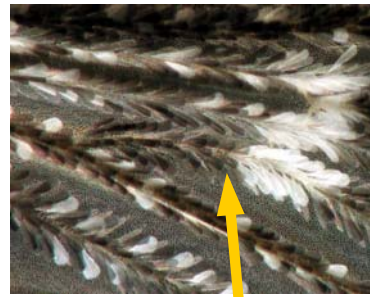
wing scales large, light and dark, ends of scales blunt, cut-off



ORTHOPODOMYIA



scutum has narrow lines of pale scales



large light and dark scales on wings

hindlegs have white apical and basal bands

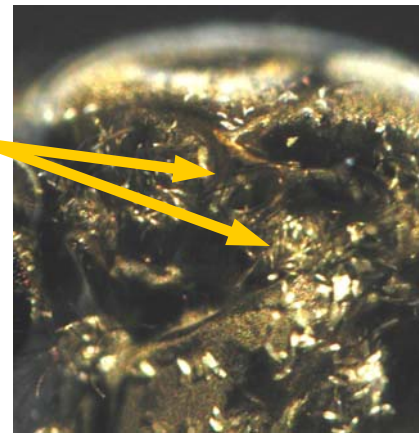


no prespiracular or postspiracular setae

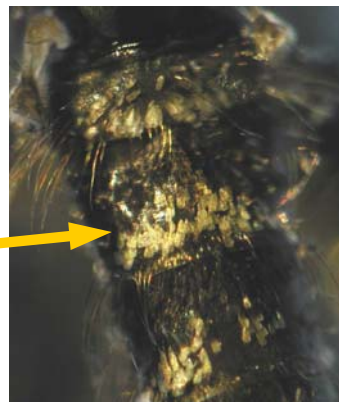
PSOROPHORA



has prespiracular and postspiracular setae

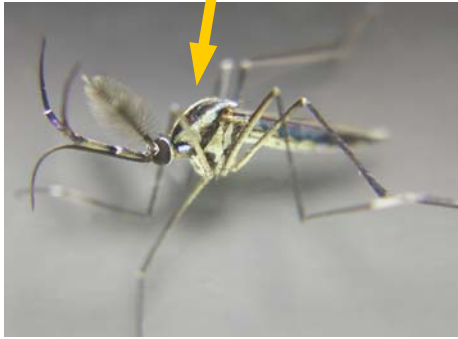


has apical abdominal bands



TOXORHYNCHITES

very LARGE, colorful mosquito

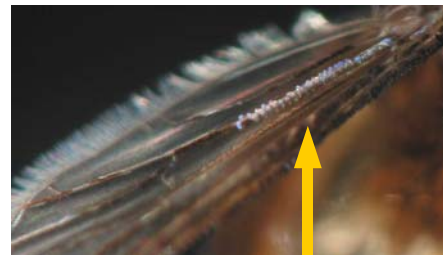


long, strongly recurved proboscis

URANOTAENIA



end of proboscis swelled



iridescent blue scales on wing



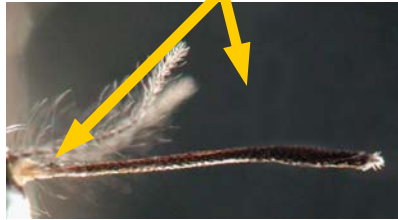
iridescent blue scales on thorax



WYEOMYIA



proboscis dark,
palps very short

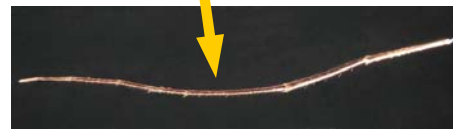


line down side of abdo-
men separating light
and dark scales



wings dark scaled

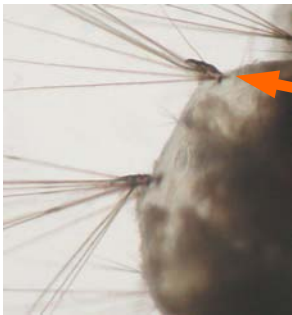
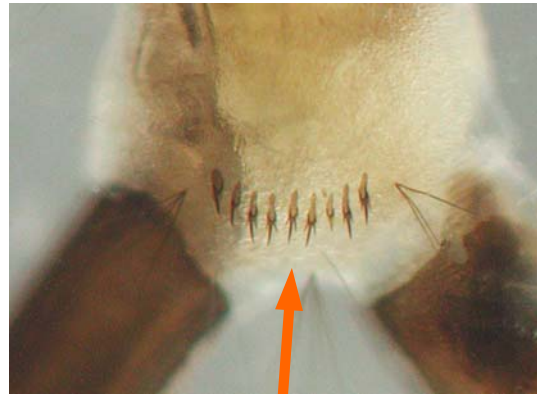
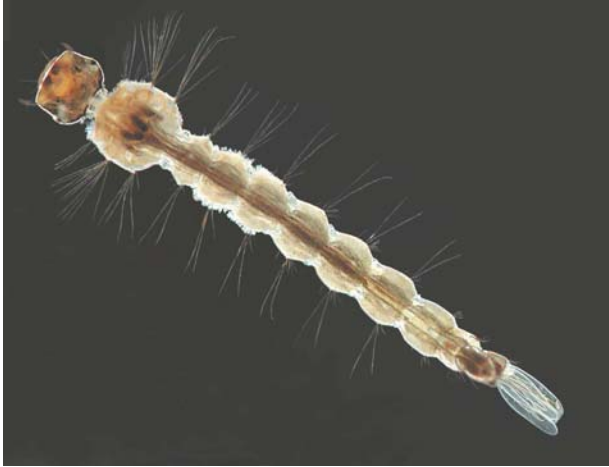
legs dark



SPECIES PAGES

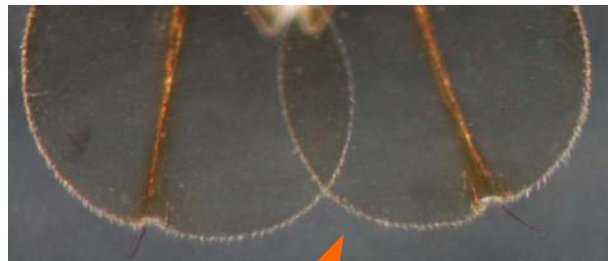
AEDES

Aedes aegypti



strong, black hooks on sides of thorax

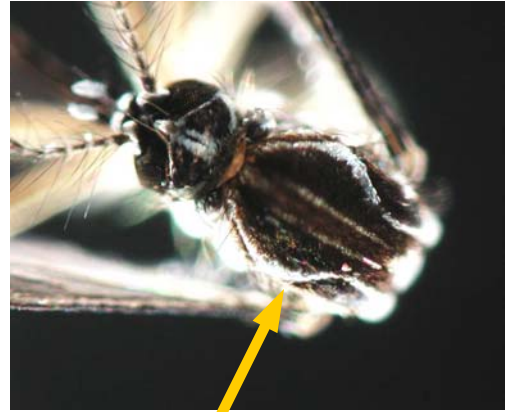
pitchfork- shaped comb scales in 1 row



pupa paddles have 'stubble'

AEDES

Aedes aegypti

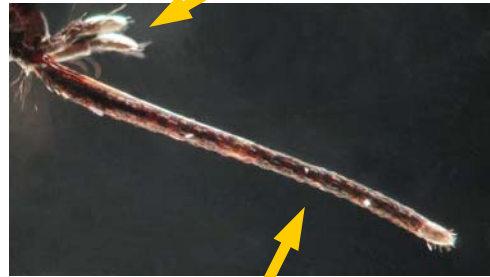


scutum has lyre-shaped silvery-white scales

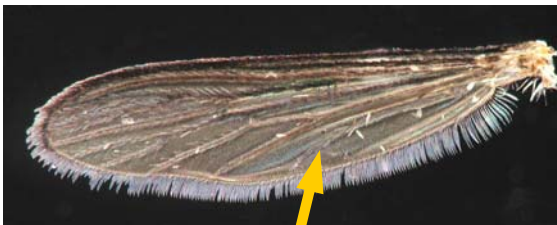


clypeus has white scales

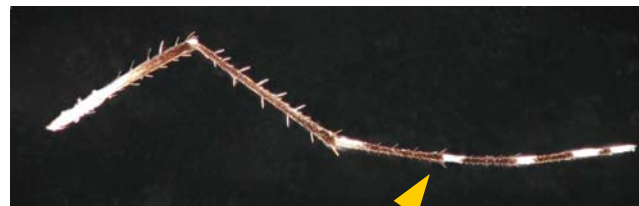
palps have silvery-white scales at the tips



proboscis is dark



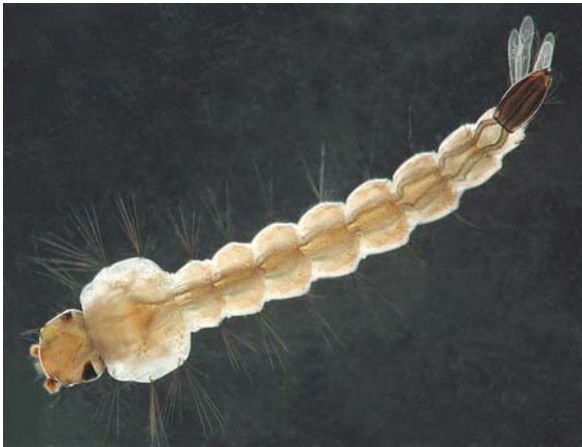
wing scales are dark



legs have white basal bands

AEDES

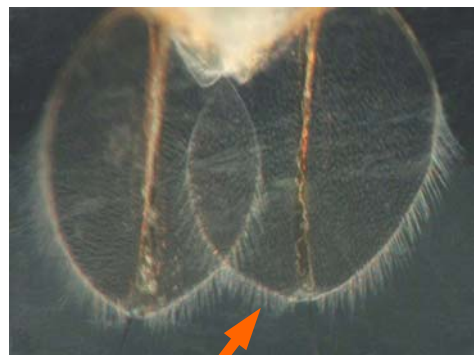
Aedes albopictus



straight thorn-like comb scales in 1 row



tiny hooks,
or no hooks
on side of
thorax



pupae paddles are 'hairy'

AEDES

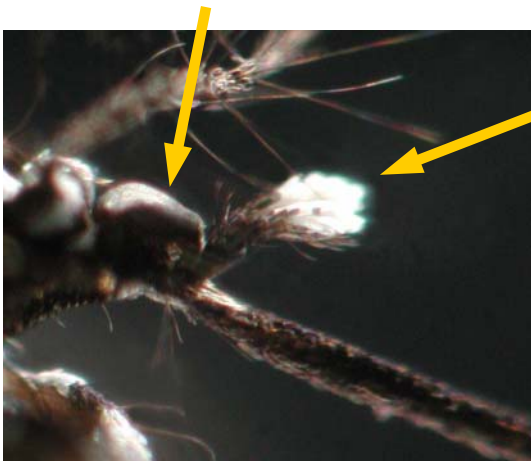
Aedes albopictus



clypeus is black



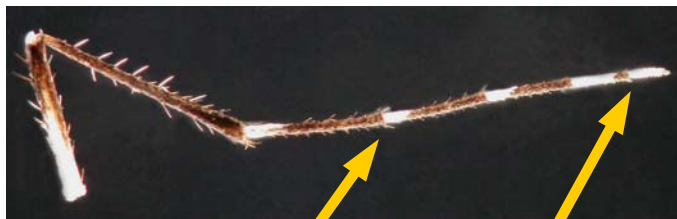
scutum has one silvery-white stripe down the middle



palps have silvery-white scales at the tips



wing scales are dark

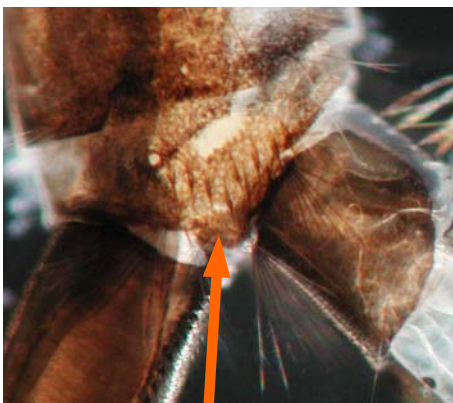


legs have white basal bands, tarsal segment 5 is entirely white

AEDES



upper and lower head hairs have multiple branches

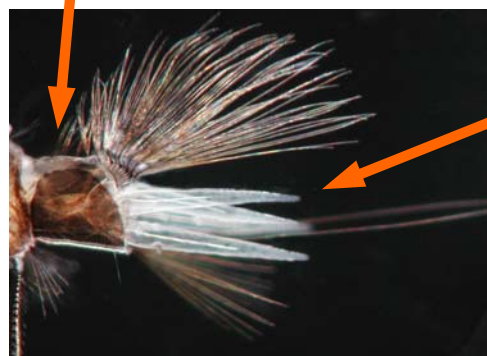


thorn-like comb scales in roughly 2 rows

Aedes vexans

side hairs on abdominal segments III—V double or triple

anal segment not completely ringed by saddle



4 gills; longer than anal segment, all the same length



pecten teeth not evenly spaced, last tooth more widely spaced



Aedes

Aedes vexans

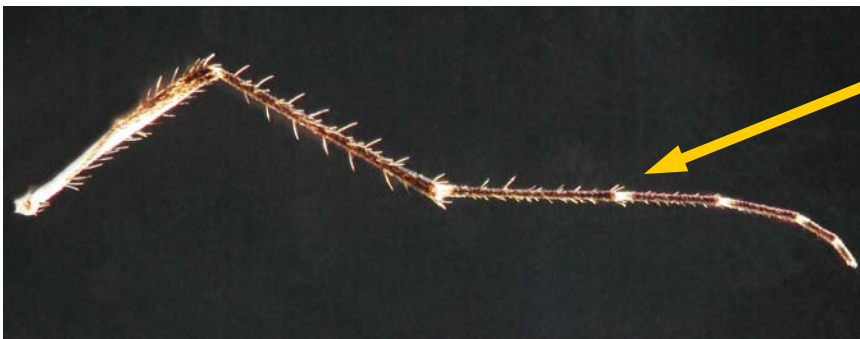
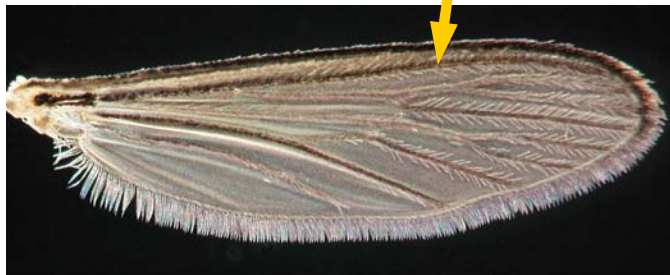


abdomen has pale basal bands with an inverted 'V'-shaped notch



palps and proboscis dark

wing scales dark



legs have narrow basal bands

ANOPHELES

Anopheles crucians

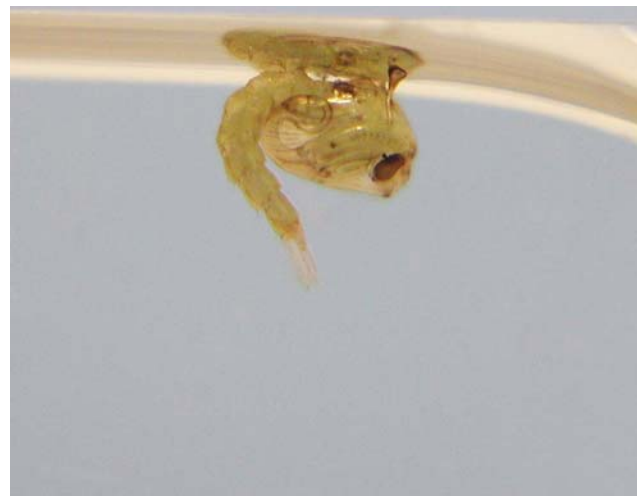


head hair #3
multibranched

hairs #0 & #2
on segments
IV & V multi-
branched



palmar hairs
on abdomen



ANOPHELES

Anopheles crucians



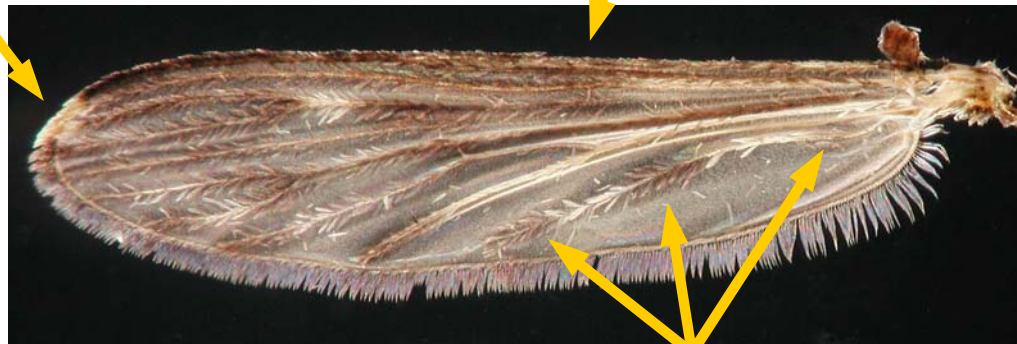
palps have white rings



proboscis dark

apical pale patch on wing

costal margin dark



3 dark patches on 6th vein



legs dark, sometimes with pale 'knee' spots

ANOPHELES

*Anopheles
quadrimaculatus*



head hair #3
multibranched



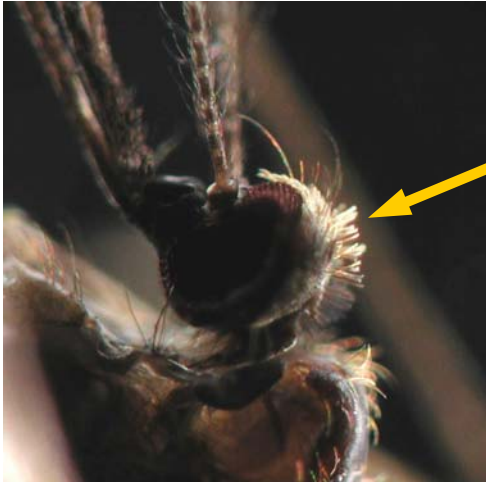
palmate hair on
abdomen

hair #0 single and
smaller than hair #2
on segments IV & V



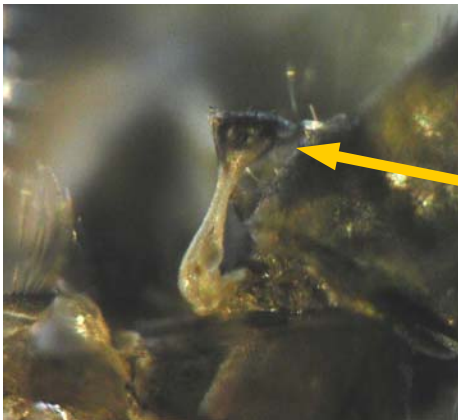
ANOPHELES

Anopheles quadrimaculatus



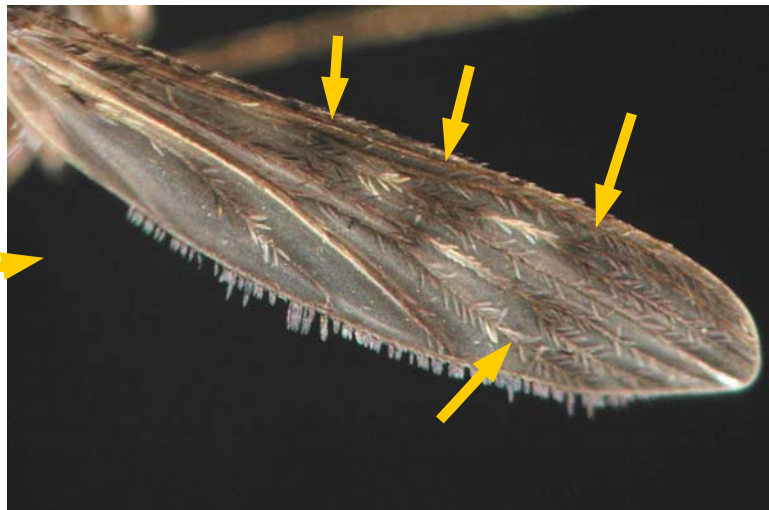
frontal tuft has pale setae

palps predominantly dark, no rings



knob of halter dark scaled

wing scales light and dark, arranged in 4 distinct dark spots



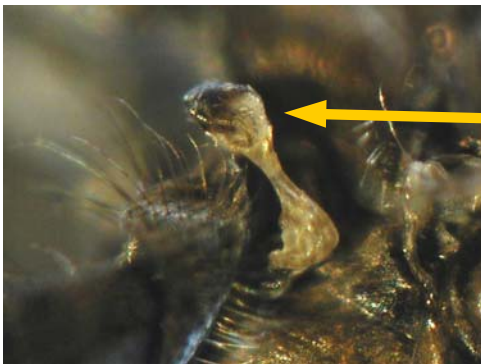
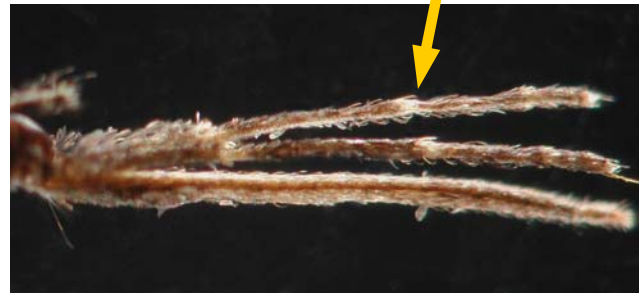
ANOPHELES

Anopheles walkeri



frontal tuft has dark setae only

palps have narrow white rings



knob of halter pale scaled

wing scales entirely dark, sometimes with 4 darker spots (similar to, but less distinct than *An. quadrimaculatus*)



COQUILLETTIDIA

Coquillettidia perturbans



proboscis has wide light-scaled band

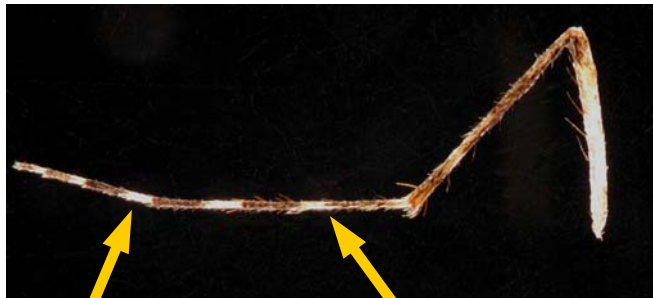


palps 'speckled' with light and dark scales



prespiracular and postspiracular setae absent

wings speckled with light and dark scales; wing scales broad, rounded on end



hind legs have white basal bands

1st tarsal segment has a medial pale ring

CULEX

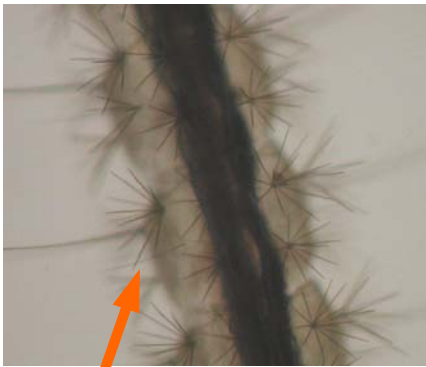
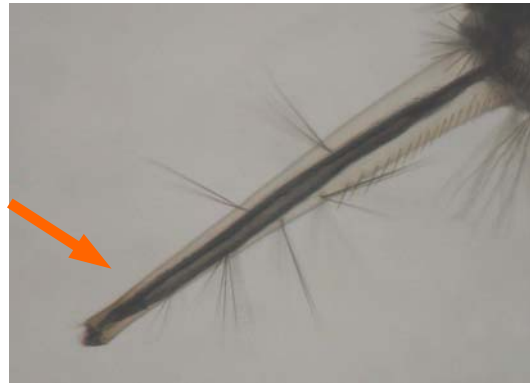
Culex biscoyensis



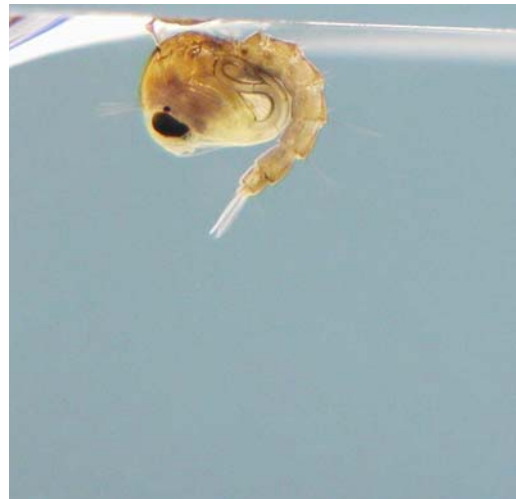
spikes on end of
anal segment



extremely long, thin,
needle-like siphon



many stellate hairs on abdomen



' bromeliad-specialist; only found near
Coral Gables

CULEX

Culex biscaynensis



LONG dark palps;
dark proboscis



thorax light
colored, usually
without scales



abdomen dark
scaled with
light-colored
lateral patches



legs dark



wing scales
dark, narrow

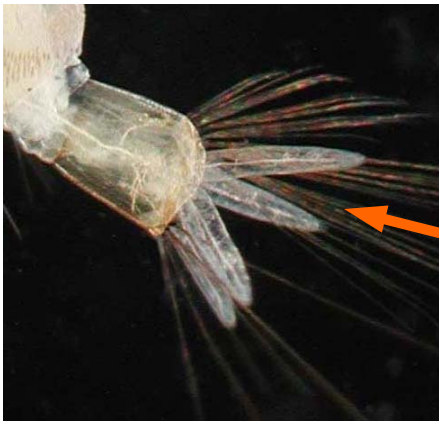
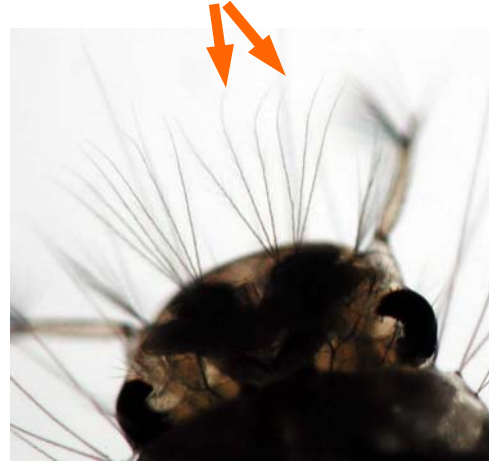


CULEX

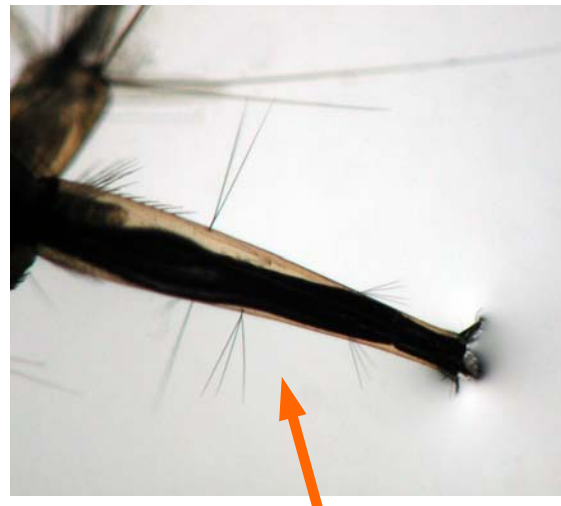


Culex declarator

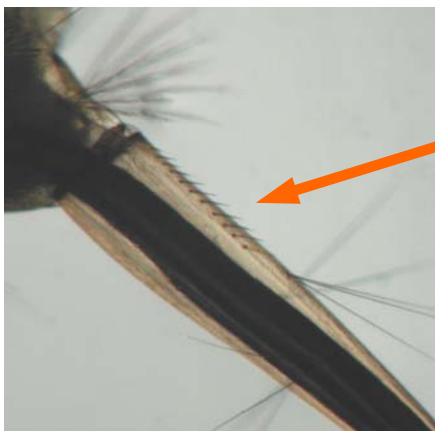
upper and lower head
hairs have 3 branches



gills short,
nearly equal
in length



siphon has only THREE pairs of
hair tufts, one is offset

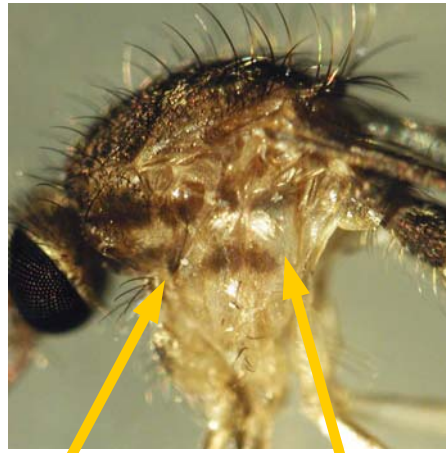


row of pecten
teeth has
slight spiral
twist

CULEX



Culex declarator



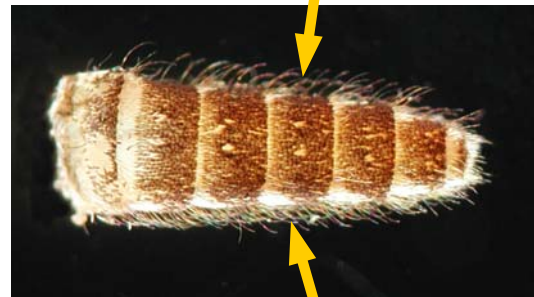
dark brown spots create 'striped' pattern

small patches of white scales



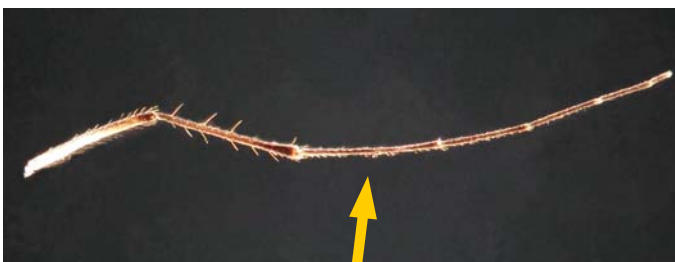
palps and proboscis dark

abdomen dark scaled



wing scales narrow, dark

lateral white patches on abdomen



legs dark



CULEX

Culex erraticus



antennae have large white area,
dark on end



sub-dorsal setae present

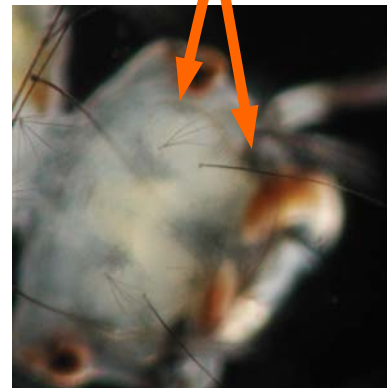
hair
strongly
curved



long, thin siphon

multiple hair
tufts on siphon

lower head hair single,
upper head hair short
and branched

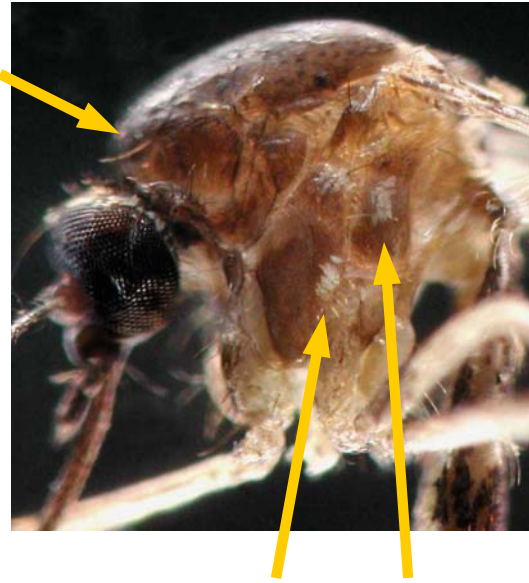


' 4th abdominal segment clear

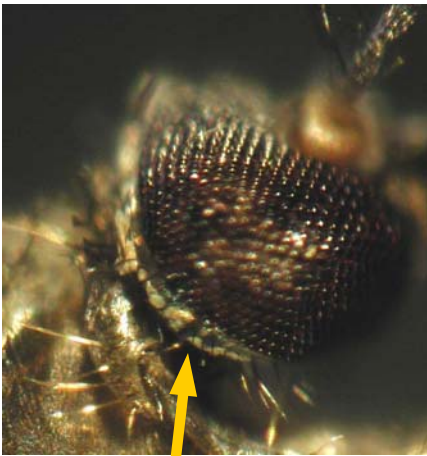
CULEX

Culex erraticus

small, dark
mosquito



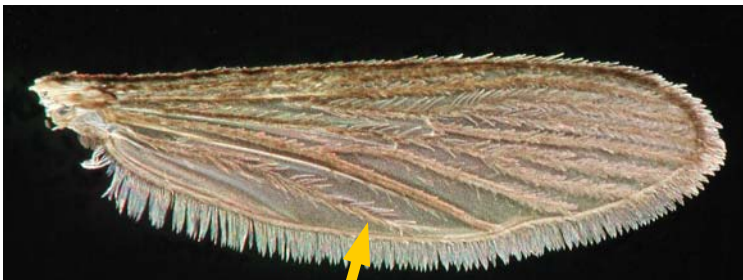
dark thorax has patches of broad
pale scales on the mesepimeron
and the mesokatepisternum



has a narrow line of broad, flat,
ovate pale scales bordering eye
margin



palps and proboscis dark



wing scales dark, narrow

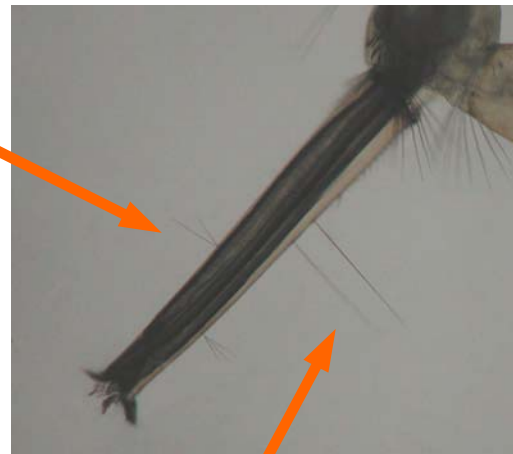
CULEX

Culex nigripalpus



lower head tufts with 3-4 branches

long non-bulbous siphon, 6x width



single (sometimes double) hairs, no tufts

4th segment of 1st instar clear



- ' thorax with fine spicules
- ' single hair extending from saddle



CULEX

Culex nigripalpus

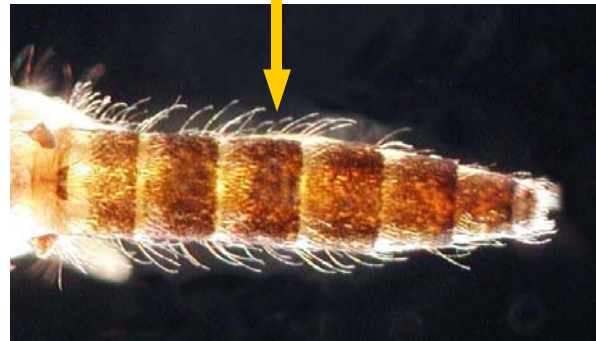


usually no scales on side of thorax, if present in groups <6



abdomen has triangular pale-scaled patches when viewed from the side—most prominent on segments V-VII

no bands on abdomen, dark-scaled



legs dark, no bands



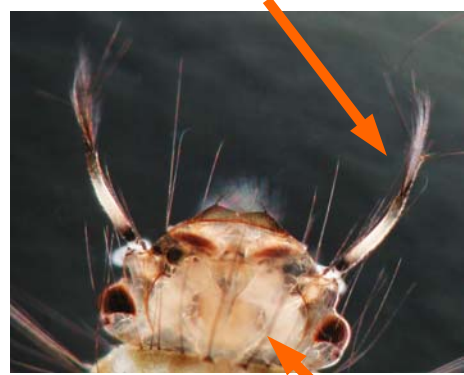
wing scales dark and narrow

CULEX

Culex pilosus

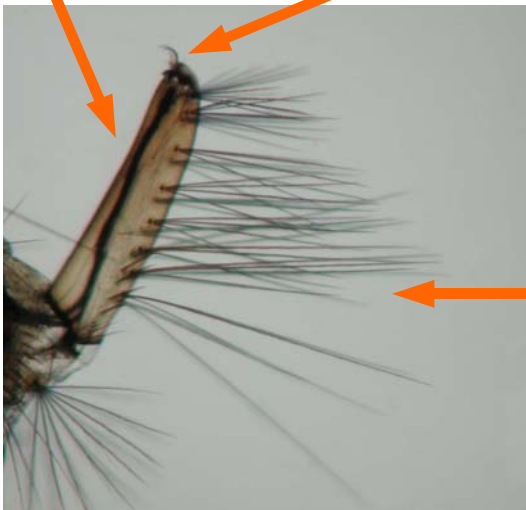


antennae longer than head, large tuft



siphon strongly upcurved

preapical spine curved



8 pairs of long tufts on siphon, first two pairs inserted within pecten

ovoid gills on ventral side of head



comb scales in single curved row; long, thorn-like



gills two different lengths



CULEX

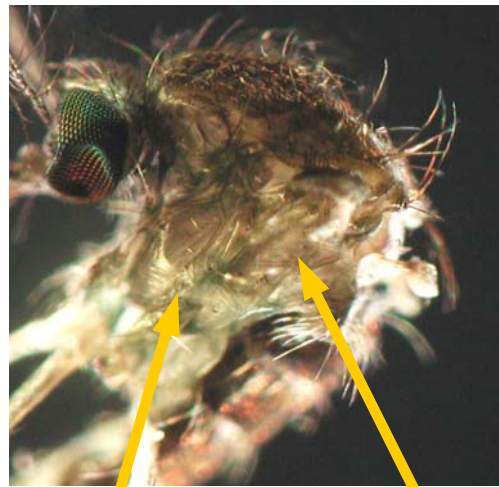
Culex pilosus



proboscis and palps dark, palps short

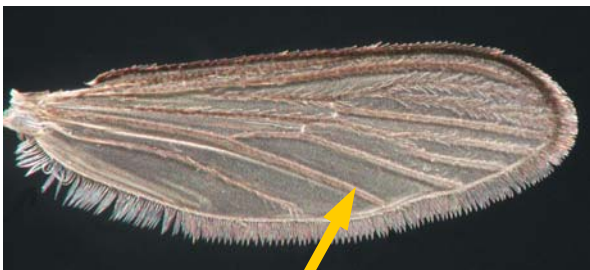


abdomen dark scaled, with bronze or blue-green reflection



thorax dark brown with only a few pale scales

Lighter area covering upper 2/3 of the mesepimeron



wing scales narrow, dark

legs dark, sometimes with blue-green reflection



' very small mosquito

CULEX

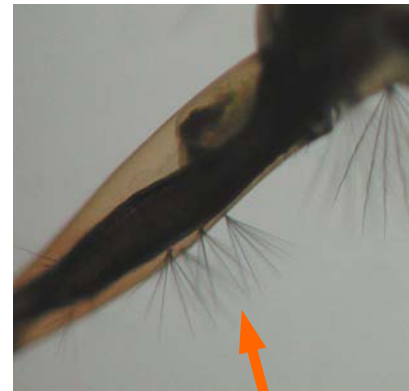
Culex quinquefasciatus



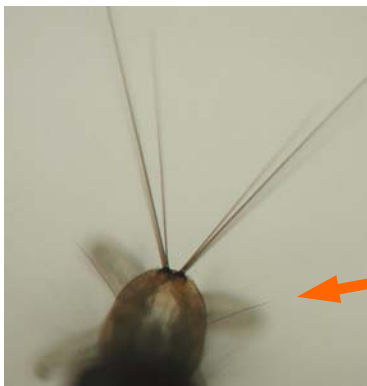
lower head tufts
with 5 or more
branches



short, bulbous
siphon, 4x width



two sets of hair tufts on
siphon (5 or more branches)



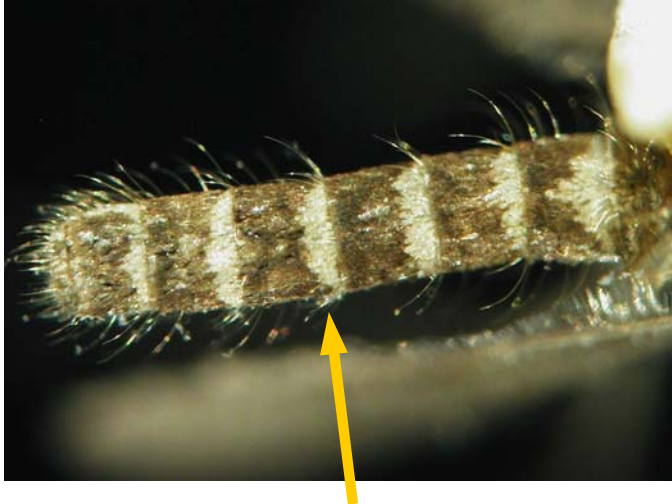
single hair
extending from
saddle

caudal setae
not widely
separated in
1st instar



CULEX

Culex quinquefasciatus



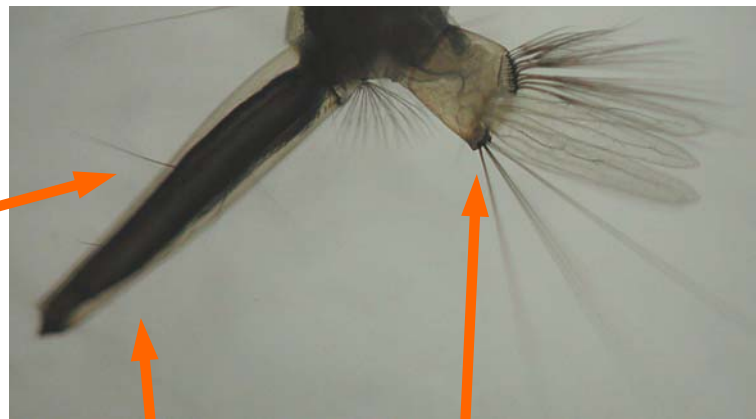
broad M-shaped bands on abdomen, most prominent on segments IV & V

CULEX

Culex restuans

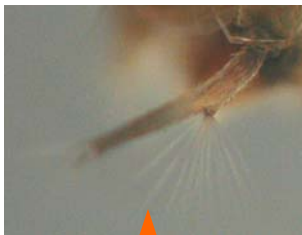


lower head tufts, 5 or more branches



single hairs on siphon, 2nd hair offset

DOUBLE hair extending from inside of anal segment



hair tuft in middle of antennae



clear crescent anterior to egg breaker



' single hair extending from saddle

CULEX

Culex restuans



scutum copper colored with 2 pale spots (sometimes absent)



palps and proboscis dark



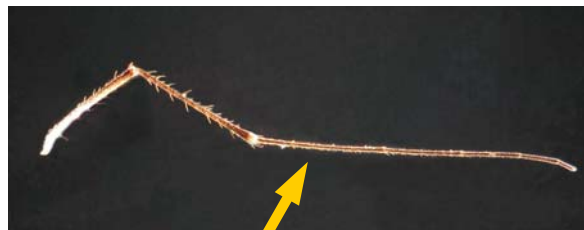
thorax has patches of white scales



white basal bands on the abdomen



wings dark



hind legs dark

CULEX

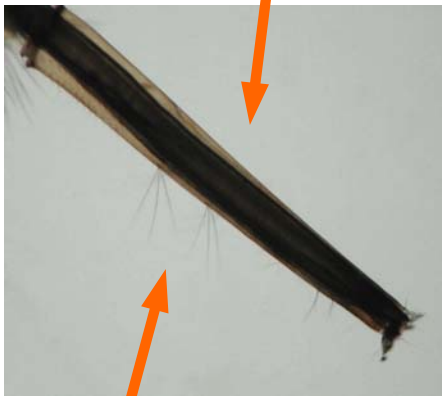
Culex salinarius



siphon long, non-bulbous, 7x width



lower head tufts, 4 or more branches



multiple hairs on siphon, 3rd hair (double) offset



DOUBLE hair extending from saddle

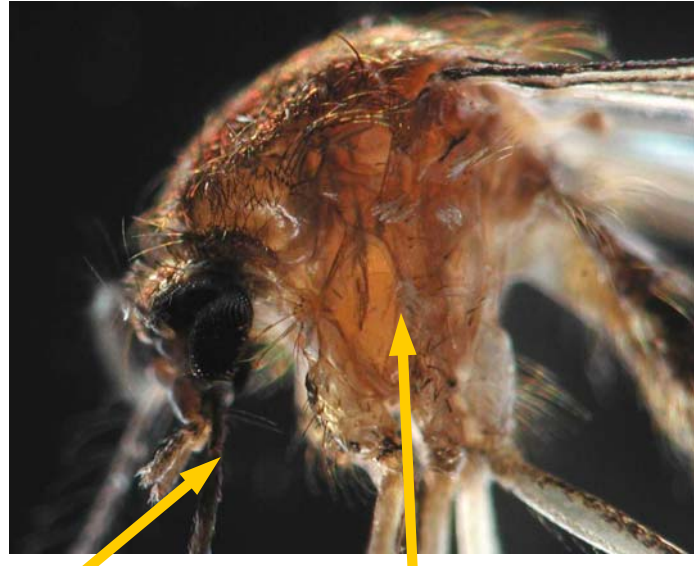


CULEX

Culex salinarius



reddish mosquito



patches of scales on sides of thorax, patches have >6 scales



proboscis dark



abdomen has golden basal bands, segment VII golden scaled

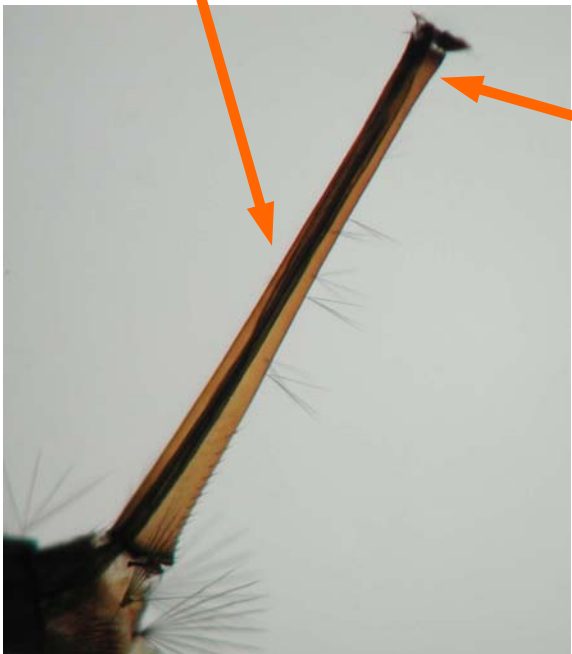


wing scales dark

CULEX



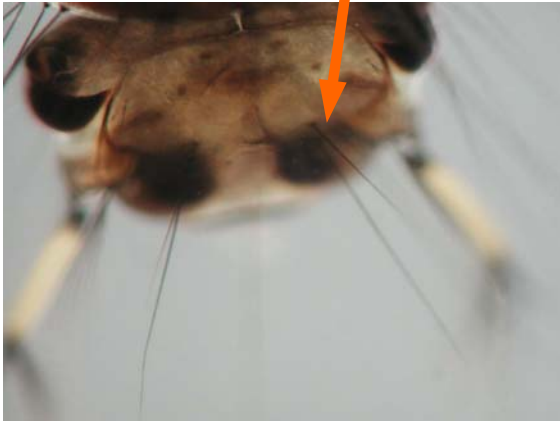
no sub-dorsal setae



long, thin siphon

Culex territans

head hair C is single



CULEX

Culex territans

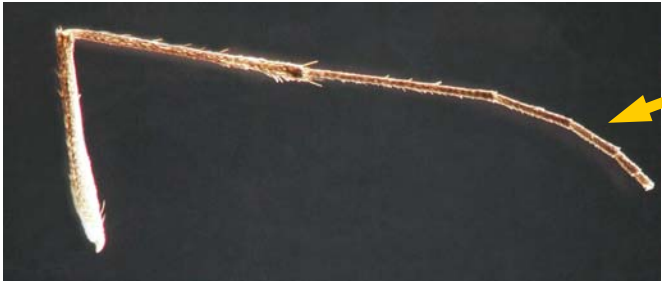
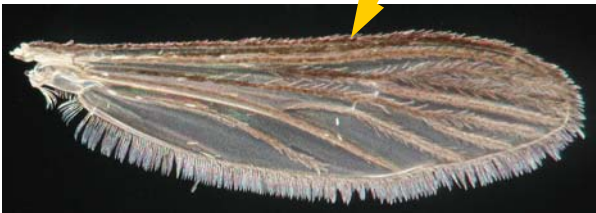


narrow APICAL bands on abdomen



palps and proboscis dark

wing scales dark



legs dark

DEINOCERITES

Deinocerites cancer

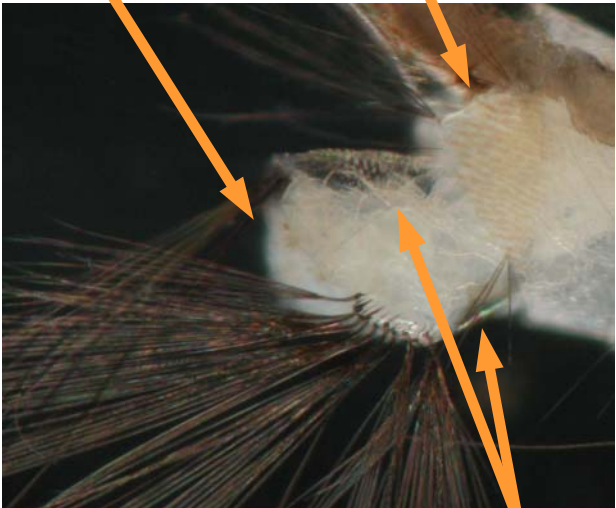


lateral pouches on sides of head



only has 2 bud-like gills

many comb scales



has dorsal and ventral sclerotized plates



➤ found in saltwater crab holes

DEINOCERITES

Deinocerites cancer



antennae longer than proboscis



legs dark

wing scales narrow, brown



MANSONIA

Mansonia dyari



subsiphon hair has 3 or 4 long, weakly-barbed branches



hairs on anal segment have more than 2 branches



comb scales are broad with many spines



pupal trumpets long, pointed



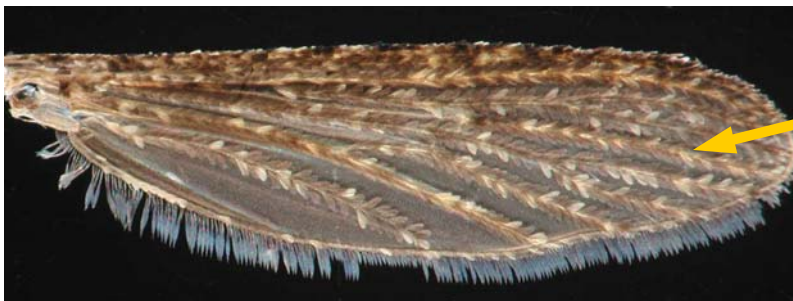
pupal paddles long and narrow

MANSONIA

Mansonia dyari



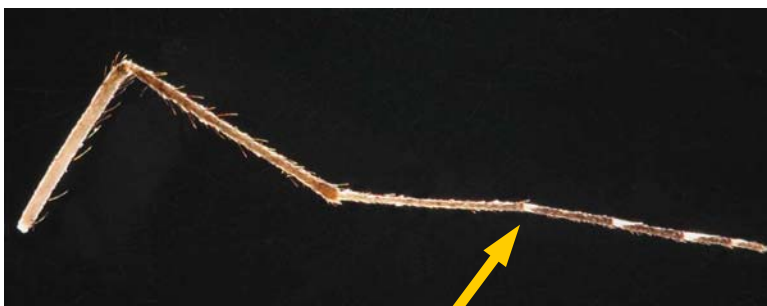
palps not more than 1/3 as long as proboscis, 'club-like'



wings speckled with large light and dark scales



wing scales broad, cut off at tip



hind legs have narrow pale basal bands

MANSONIA

Mansonia titillans



gills short, rounded



comb scales are very long, thorn-like

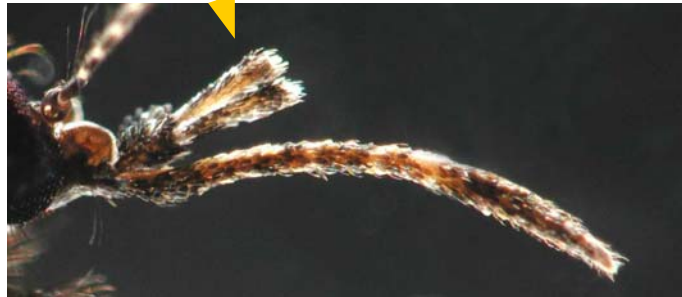


subsiphon hair has 2 or 3 long, strongly-barbed branches

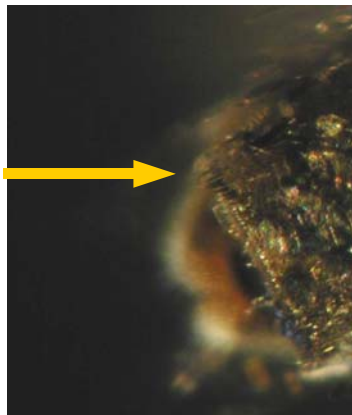
MANSONIA

Mansonia titillans

palps almost 1/2 as long as proboscis, 'stem-like'



the end of abdominal segment VII has a row of short dark spines (you must remove overlying scales to find these)



wings speckled with large light and dark scales; scales broad, cut off at tip



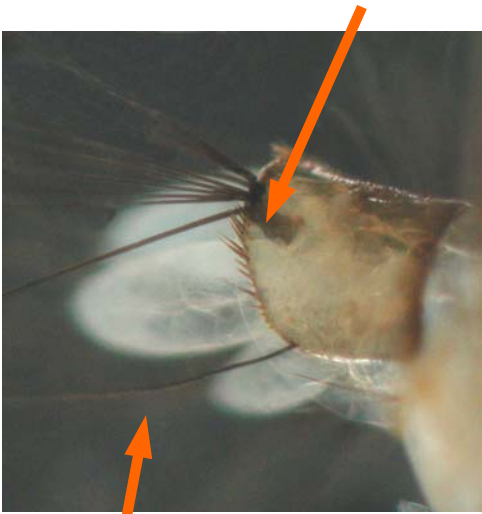
hind legs have narrow pale basal bands

OCHLEROTATUS

Ochlerotatus bahamensis



saddle has spines on caudal margin



gills two different lengths

stellate hair tufts on thorax and abdomen



' found in Broward/Dade counties

OCHLEROTATUS

Ochlerotatus bahamensis



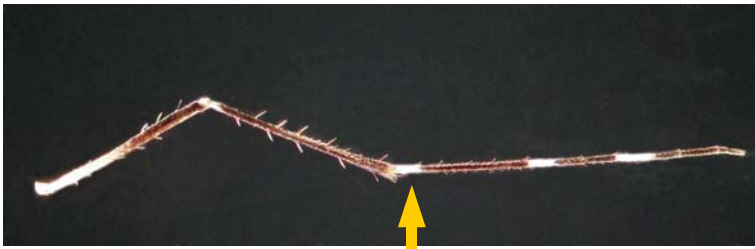
scutum has multiple golden and silvery-white scaled lines



palps white tipped; proboscis dark



wing scales dark, narrow



legs dark with white basal bands

OCHLEROTATUS

Ochlerotatus fulvus pallens



medium-sized yellow mosquito



scutum yellow with 2 large black spots

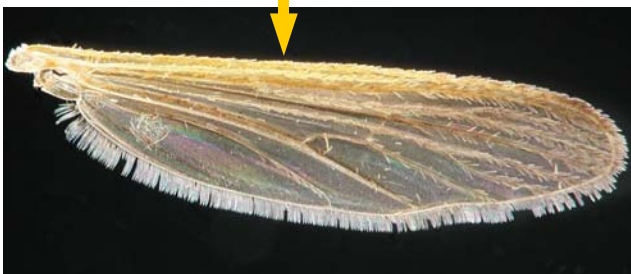


palps and proboscis yellow with black tips

abdomen yellow scaled with dark apical patches



yellow scales on the wing



legs predominately yellow scaled, with some black patches; lower tarsal segments usually dark



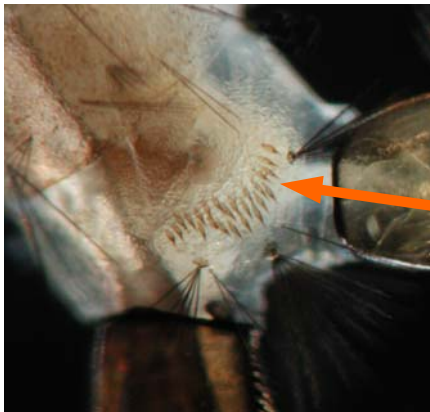
OCHLEROTATUS

Ochlerotatus infirmatus



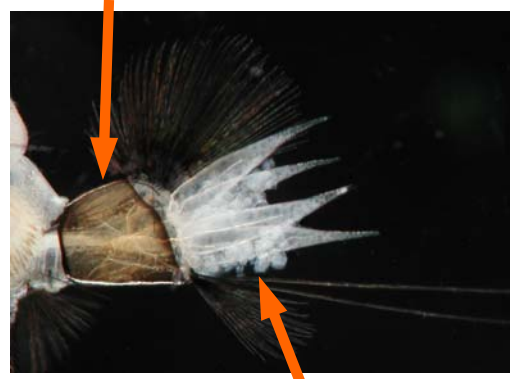
upper and lower head hairs single

anal segment completely ringed by saddle

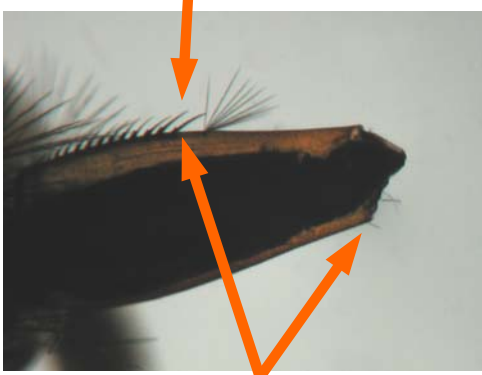


pecten evenly spaced; hair tuft beyond pecten

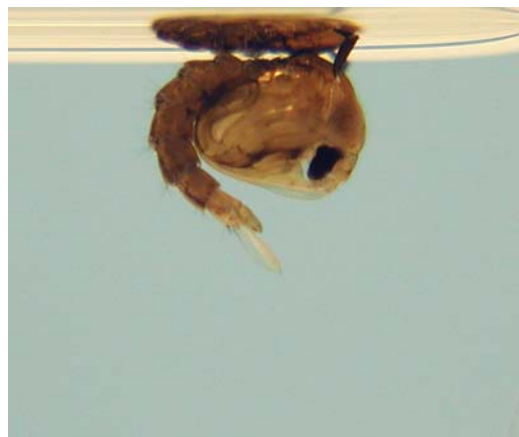
15-22 thorn-like comb scales in a patch



gills taper to a point; all the same length; longer than the anal segment



pre-apical spine not more than 1/2 as long as the apical pecten tooth



ochlerotatus

Ochlerotatus infirmatus



scutum has broad white patch that reaches from the anterior margin to just beyond the middle



palps and proboscis dark



abdomen dark scaled with basal triangular patches of white scales



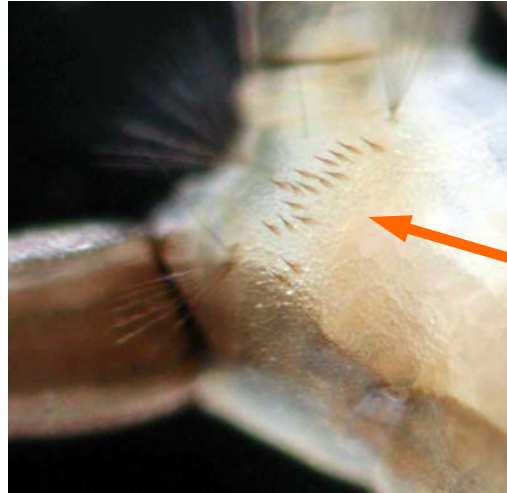
wing scales dark



legs dark

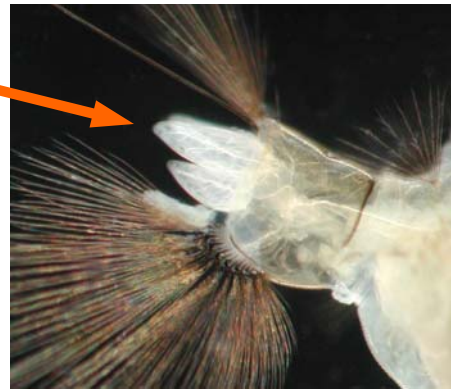
OCHLEROTATUS

Ochlerotatus sollicitans



thorn-like comb scales in patch

gills variable in length, usually shorter than anal segment



multiple hairs on center of antenna



siphon short 2-2.5x width, pecten reaches middle

' breeds in saltmarshes and coastal areas

OCHLEROTATUS

Ochlerotatus sollicitans



palps white tipped



white ring at middle of proboscis

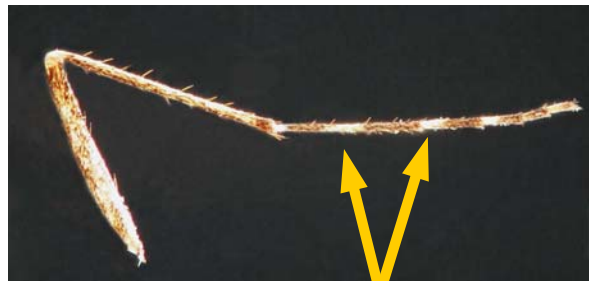


thorax covered with many narrow white scales



abdomen has white basal bands with a medial longitudinal stripe (or patch) of white scales

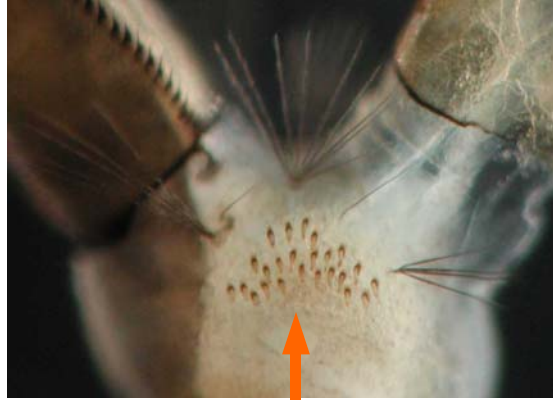
wings have narrow white and dark scales



legs have white basal bands, white band in middle of 1st tarsal segment

OCHLEROTATUS

Ochlerotatus taeniorhynchus



apically rounded comb scales in patch



gills short, bluntly rounded, usually shorter than anal segment



siphon short, less than 2x width

' breeds in saltmarshes and coastal areas

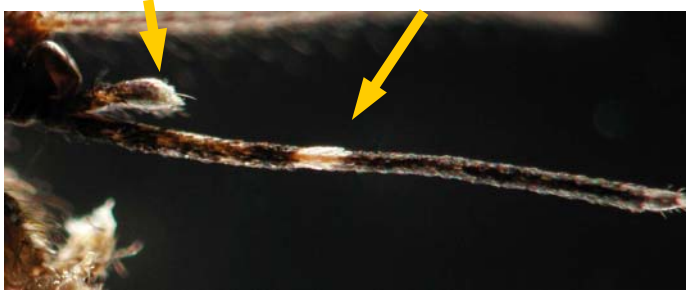
OCHLEROTATUS

Ochlerotatus taeniorhynchus

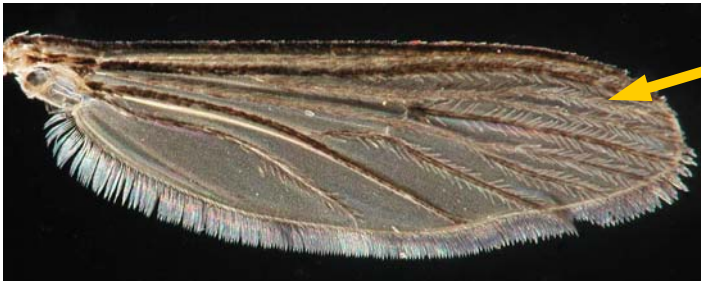


palps are white-tipped

white ring at middle of proboscis



abdomen has white basal bands



wing scales dark

legs have white basal bands



no ring at middle of first tarsal segment

OCHLEROTATUS

*Ochlerotatus
tormentor*



OCHLEROTATUS

Ochlerotatus triseriatus



thorn-like comb scales in uneven row

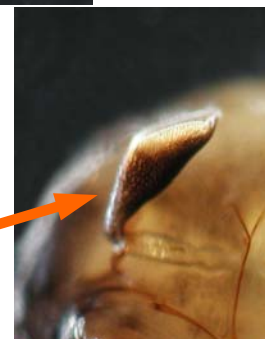


gills are short, two different lengths



paddles more oblong than *Ae. albopictus* or *Ae. aegypti*

pupa paddles have 'stubble'



trumpet very dark

' common in treeholes, and artificial containers near wooded areas

OCHLEROTATUS

Ochlerotatus triseriatus



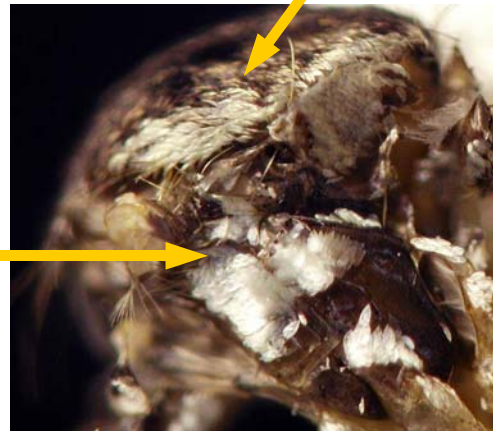
scutum dark,
no lines or
patterns of
white scales

patch of white
scales along
edge of scutum

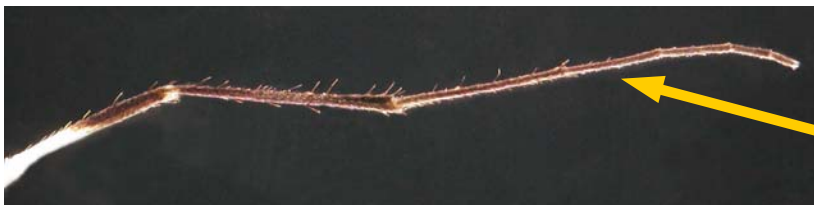
proboscis and palps
are dark



many
patches of
silvery white
scales on
thorax



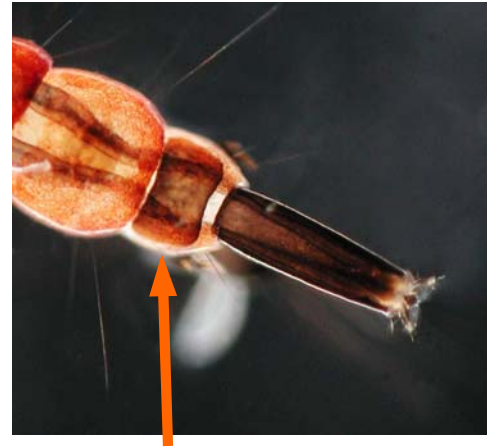
wing scales
are dark



legs are dark, no
white bands

ORTHOPODOMYIA

*Orthopodomyia
signifera*



abdominal segment VII has a large sclerotized plate

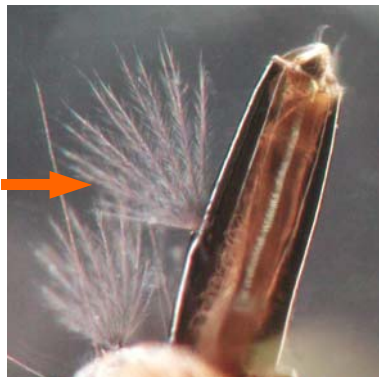


two rows of comb scales, one row has much longer comb scales than the other



gills two different lengths

hair tuft on siphon multi-branched (5-7 branches)



ORTHOPODOMYIA

Orthopodomyia signifera



scutum has narrow longitudinal lines of white scales, very 'hairy'

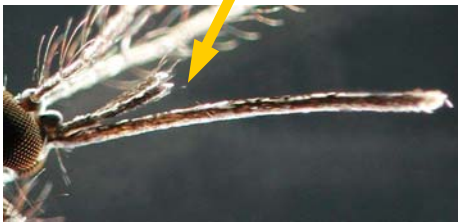


occiput has ovate white scales

thorax has several patches of narrow white scales

base of wing vein 4+5 usually with a patch of pale scales

proboscis and palps predominately dark with some white scales



legs have white apical and basal bands



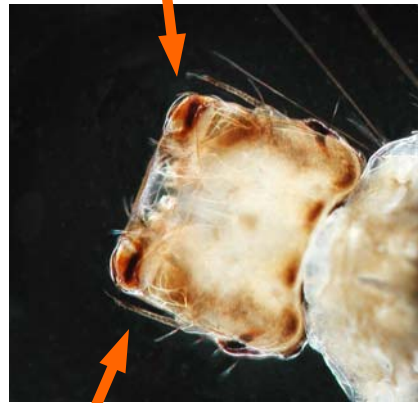
wings speckled with large white and dark scales

PSOROPHORA

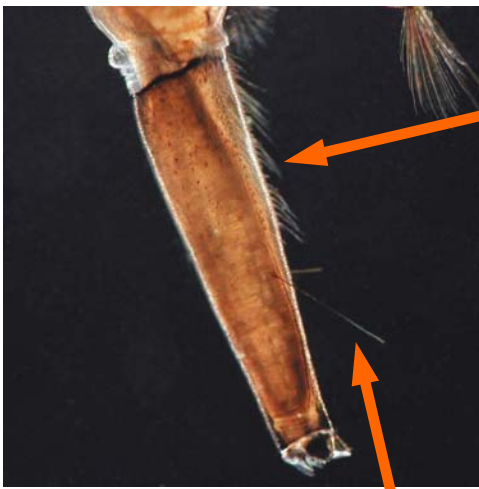
Psorophora ciliata



head quadrate; top of head concave



antennae about 1/3 as long as the head



pecten teeth are long and hair-like

single hair beyond pecten

12-16 thorn-like comb scales in 1 curved row



hair on anal segment with 3-4 branches



PSOROPHORA

Psorophora ciliata



very large mosquito



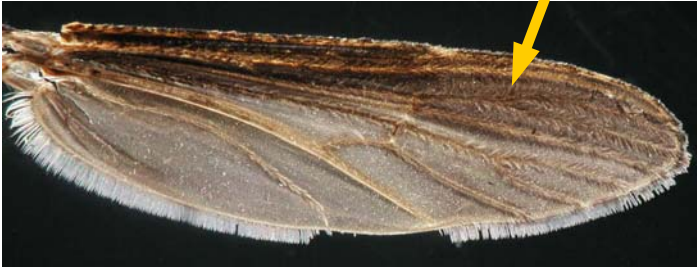
scutum has longitudinal stripe of gold scales

palps about 1/3 as long as proboscis



proboscis yellowish, dark at tip

wing scales dark



legs are 'shaggy' with white basal bands

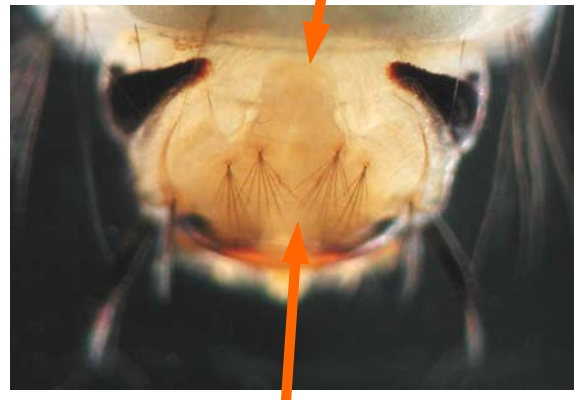


PSOROPHORA

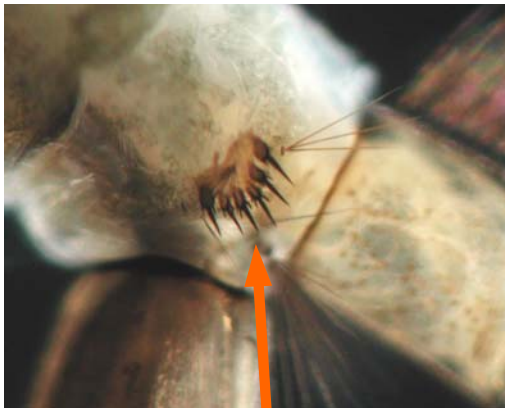
*Psorophora
columbiae*



head more broad than long



lower head hairs have more than 4 branches and are shorter than the antennae



6 thorn-shaped comb scales



gills longer than anal segment and pointed



siphon slightly bulbous with 3—6 pecten teeth



PSOROPHORA

*Psorophora
columbiae*

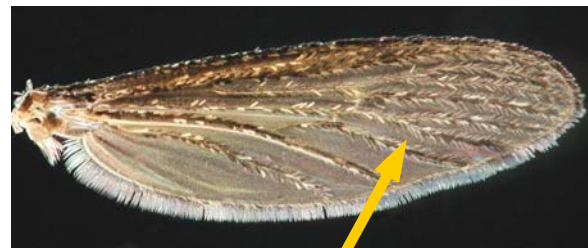


palps are dark with a white tip

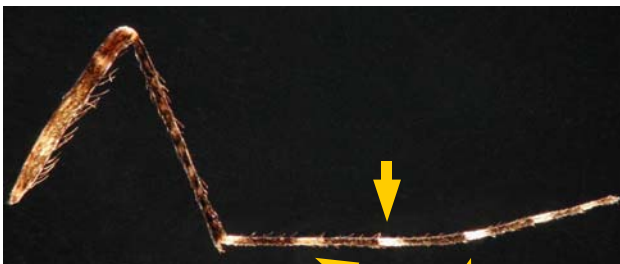
apical half of abdominal segments have pale scales



proboscis has a wide pale-scaled band in the middle



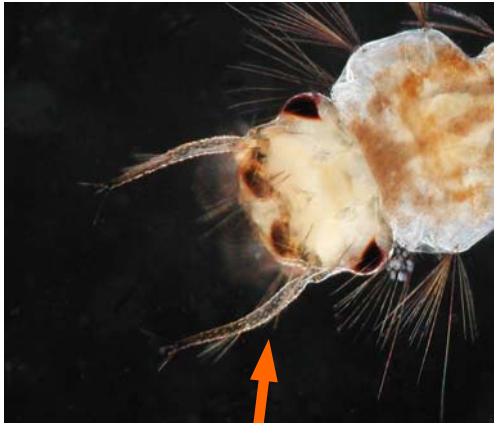
wings have light and dark scales with no distinctive pattern



tarsal segments have basal bands; 1st tarsal segment also has a pale band at the middle

PSOROPHORA

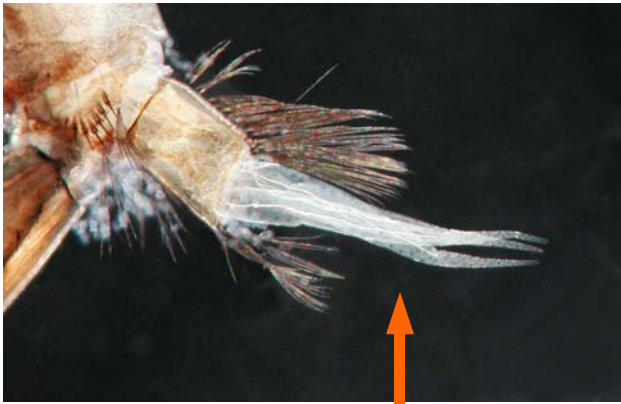
Psorophora ferox



antennae longer than median length of the head



6—8 thorn-like comb scales with strong subapical spines



long gills taper to a point; all the same length



siphon bulbous

3—5 widely spaced pecten teeth

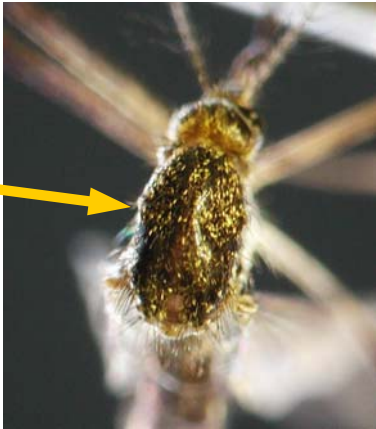


PSOROPHORA

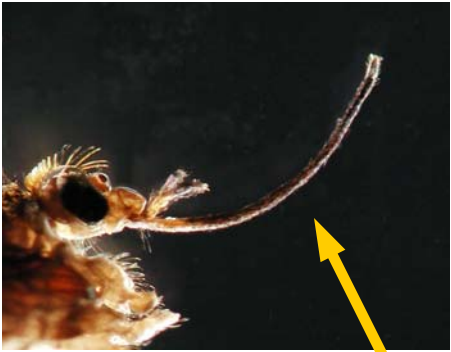
Psorophora ferox



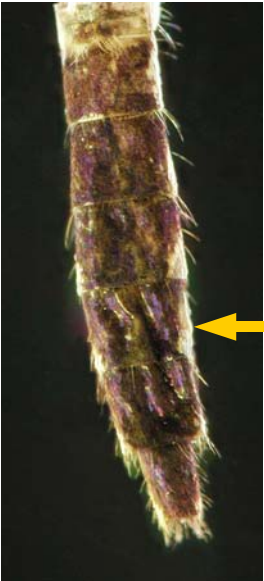
scutum dark with some golden scales,; no distinct pattern



thorax with dark and whitish scales



palps and proboscis dark

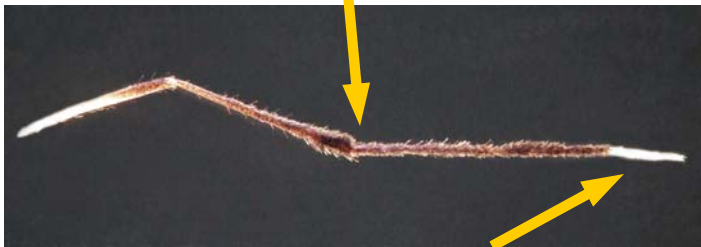


abdomen dark with a purplish reflection

wing scales dark and narrow



legs shaggy, mostly dark and purplish



tarsal segments 4 & 5 white (white 'booties')

PSOROPHORA

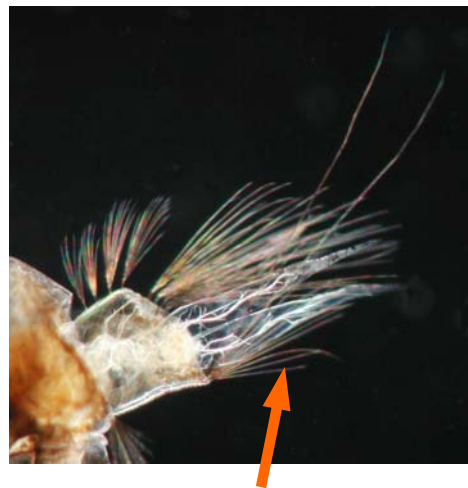
Psorophora johnstonii



antennae about as long as the head



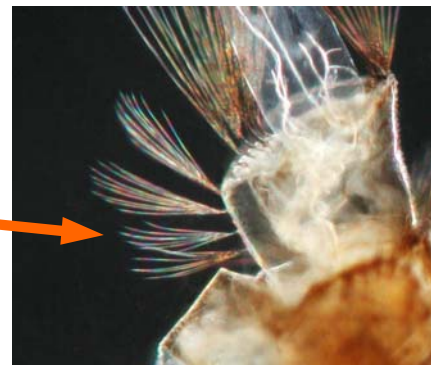
5-7 thorn-like comb scales with strong spines



four pointed gills, all the same length



siphon bulbous; with 3-8 widely spaced pecten teeth



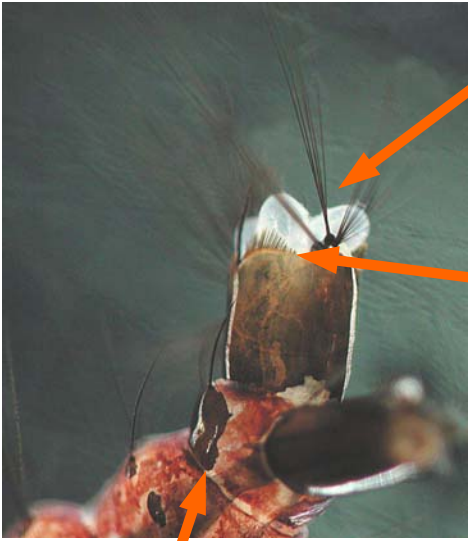
4-6 'fan-like' precratal setae on anal segment

TOXORHYNCHITES

Toxorhynchites rutilus



quadrate head



short, 'bud'-like gills

spines on edge of saddle

no comb scales, lateral plate with 2 spines



' large predatory species, common in tree-holes, also found in artificial containers and bromeliads

TOXORHYNCHITES

Toxorhynchites rutilus

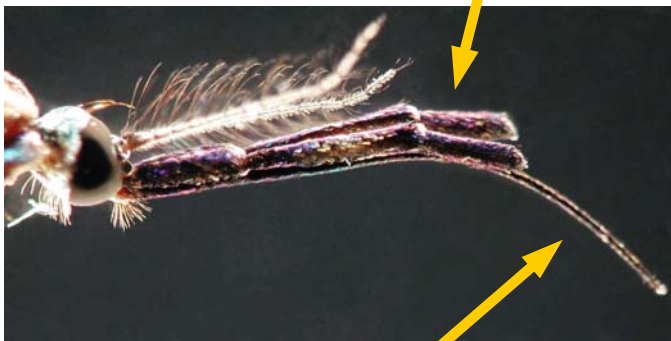


sides of thorax with silvery-white, iridescent blue and purple scales

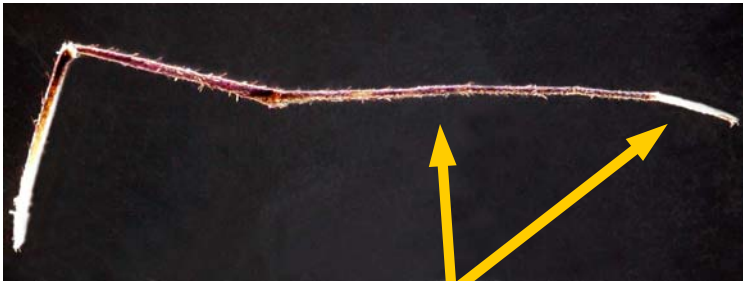


iridescent blue scales on occiput & antepnotum

palps long and dark with iridescent purple scales



proboscis very long and sharply curved downward



legs have iridescent purple scales, tips white

URANOTAENIA

*Uranotaenia
lowii*



upper thorax hair tuft (#3) has 4-8 branches and is more than half the length of long hair #1

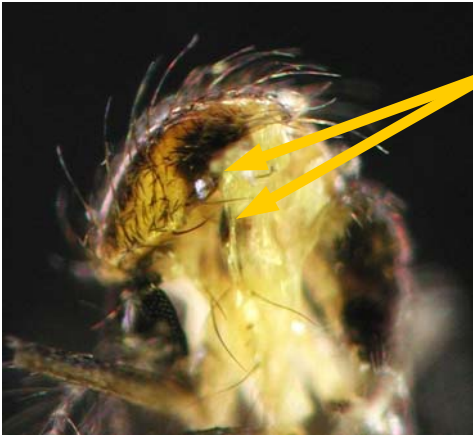


URANOTAENIA

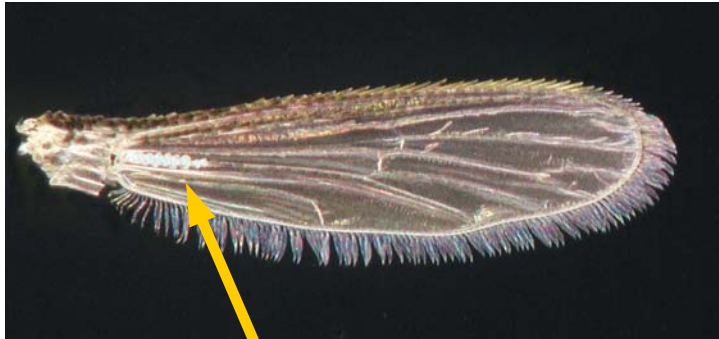
Uranotaenia lowii



scutum dark



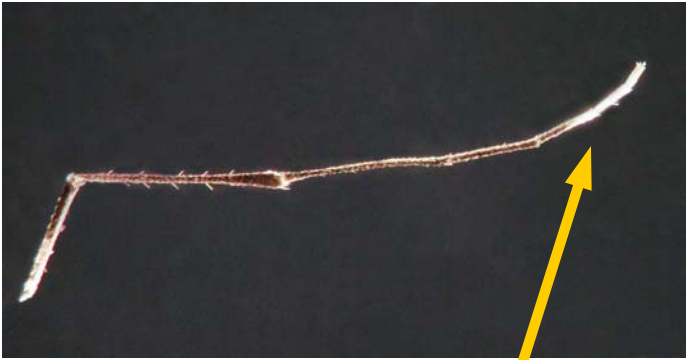
thorax has a few patches of iridescent blue scales and a dark spot



short stripe of blue scales on wing



apical patches of iridescent scales on abdomen



end of hindlegs white ('booties')

URANOTAENIA

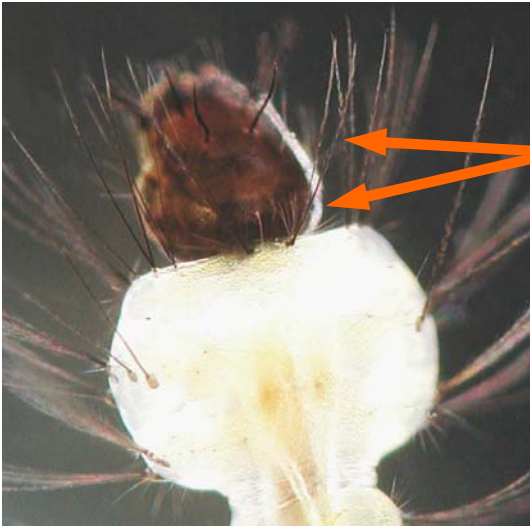
Uranotaenia sapphirina



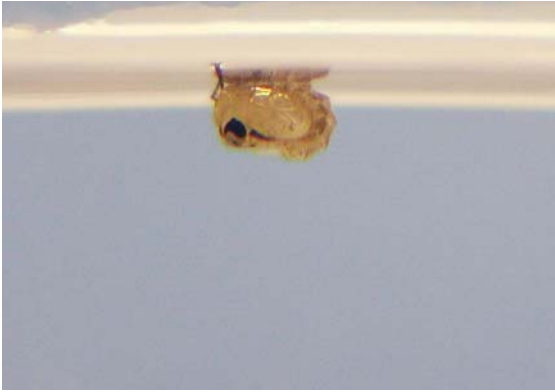
head with 4 strong spines



side hairs on segments I & II triple



upper thorax hair tuft (#3) has 8 to 10 branches and is less than half the length of long hair #1



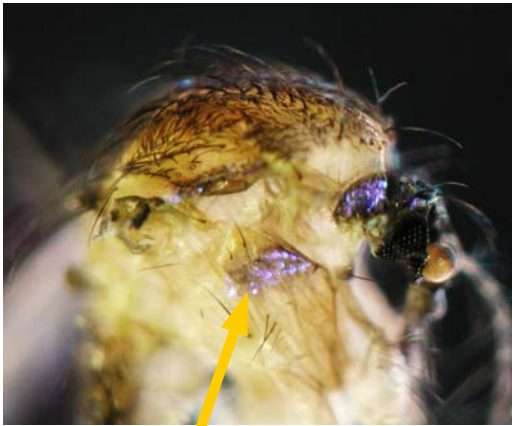
URANOTAENIA

Uranotaenia sapphirina



proboscis dark, fat at tip

longitudinal stripe of iridescent sapphire blue scales on scutum

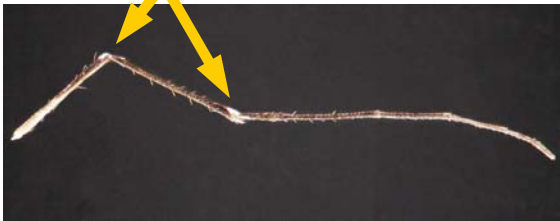


sapphire blue scales on side of thorax



long stripe of blue scales on wing

leg almost completely dark except for small white patch on apex of femur and tibia (like knee bands)



WYEOMYIA

Wyeomyia mitchellii



siphon short with many single hairs



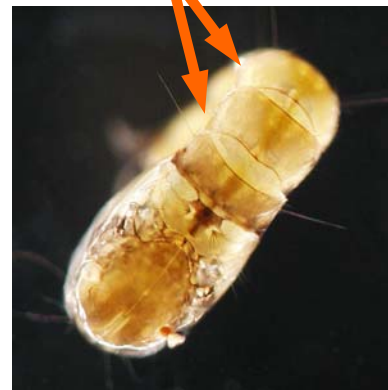
short tuft of branched hair on saddle

shorter, wider gills than *Wy. vanduzeei*

long hairs on saddle pairs of TWO



no patches on 2nd or 3rd abdominal segments

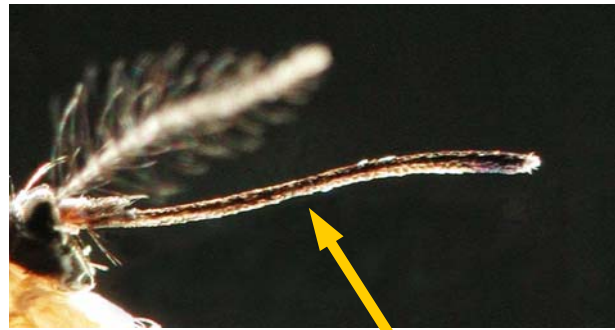


WYEOMYIA

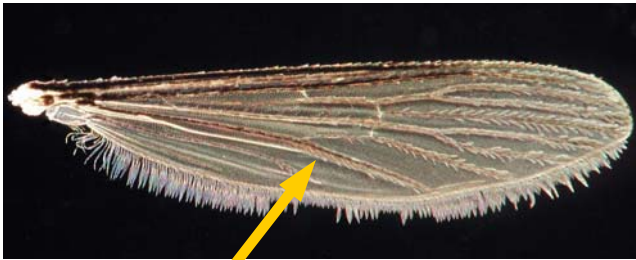
Wyeomyia mitchellii



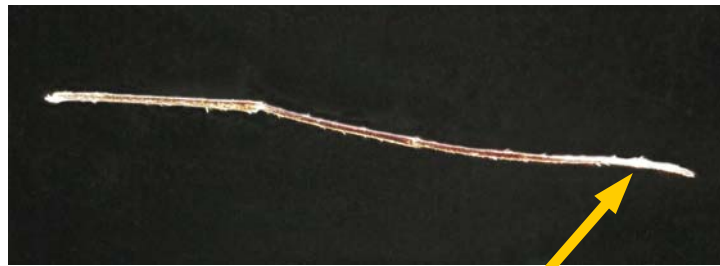
scales on
antepronotum
dark purple or
black



palps and proboscis dark



wing scales dark, narrow



middle legs dark with white on last
few tarsal segments



hind legs dark

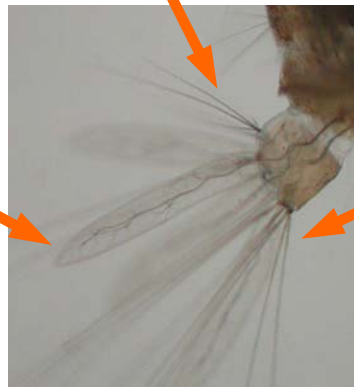
WYEOMYIA

Wyeomyia vanduzeei



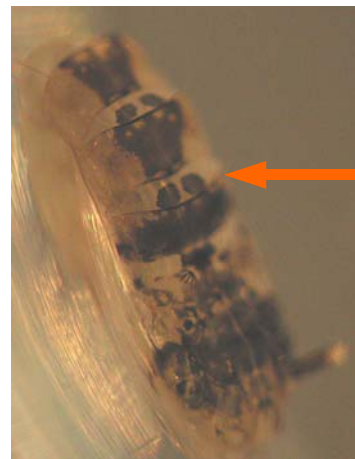
siphon long, thin and with few hairs

long simple hairs on saddle, no tuft



Longer, narrower gills

long hairs on saddle pairs of FOUR



pupae have circular pigmented areas on 2nd and 3rd abdominal segments

WYEOMYIA

Wyeomyia vanduzeei

scales on
antepronotum
silvery white



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REFERENCES

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Breeland, S.G. and T.M. Loyless. 1989. Illustrated Keys to the Mosquitoes of Florida: Adult Females and fourth stage larvae. 2nd Ed. Entomology Services, Jacksonville, FL.

Carpenter, S.J., Middlekauff, W.W. and R.W. Chamberlain. 1946. The mosquitoes of the Southern United States East of Oklahoma and Texas. The University Press. Notre Dame, ID.

Darsie, R.F. and C.D. Morris. 1998. Keys to the adult females and fourth instar larvae of the mosquitoes of Florida (Diptera, Culicidae). Bulletin of the Florida Mosquito Control Association Number 1.