

KEY TO GROUPS AND SPECIES OF THE NEOMYZOMYIA SERIES ADULT FEMALES

From PLATE 20: Maxillary palpus with 4 or more pale bands; antepronotum with scales

1. Tibio-tarsal joint of hindleg with large white band
2. Proboscis without pale scales on apical half



Leucosphyrus Group

1. Tibio-tarsal joint of hindleg with narrow white band
2. Proboscis with pale scales on apical half



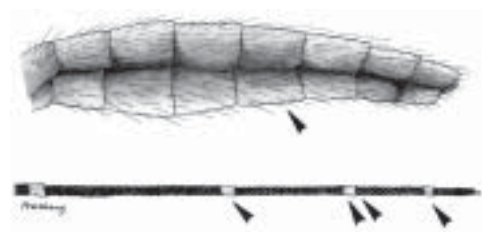
➔ To PLATE 29

1. Sterna with median tufts of dark scales
2. Hindtarsomeres 3-5 with broad basal and apical pale bands



Kochi Group
An. kochi

1. Sterna without median tufts of dark scales
2. Hindtarsomeres 1-4 with narrow apical pale bands

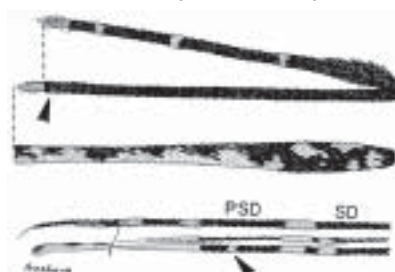
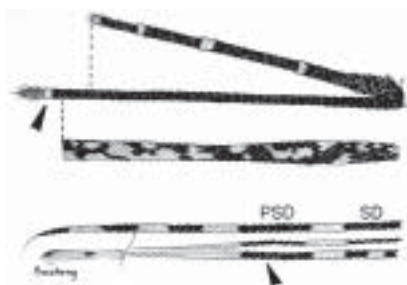


Tessellatus Group
An. tessellatus

KEY TO THE SPECIES OF THE LEUCOSPHYRUS GROUP ADULT FEMALES^a

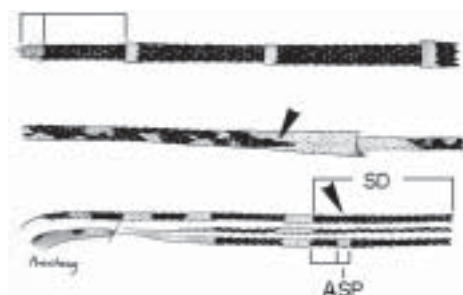
From PLATE 28: Tibio-tarsal joint of hindleg with large white band; proboscis without pale scales on apical half

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Proboscis distinctly longer than forefemur (ratio 1.16-1.45) and usually much longer than maxillary palpus, often with narrow pale band or patch before labella 2. Presector dark (PSD) spot of vein R without pale interruptions | <ol style="list-style-type: none"> 1. Proboscis shorter or only slightly longer than forefemur (ratio 0.88-1.17) and only slightly longer than maxillary palpus, if longer than forefemur then without pale band or patch before labella 2. Presector dark (PSD) spot of vein R with or without pale interruptions |
|---|--|

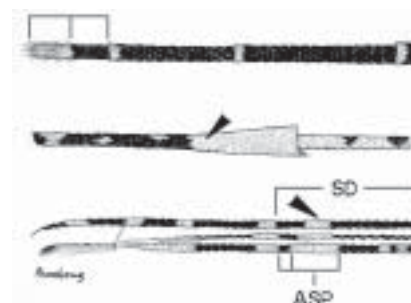


➔ To PLATE 30

- | | |
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| <ol style="list-style-type: none"> 1. Palpomere 5 of maxillary palpus with narrow apical pale band, much narrower than preapical dark band 2. Hindtibia with or without narrow apical extension of dark scales on ventral aspect 3. Accessory sector pale (ASP) spot very small and restricted to vein R, shorter than basal dark spot of sector dark (SD) of vein R and sometimes reduced to 1 or 2 scales | <ol style="list-style-type: none"> 1. Palpomere 5 of maxillary palpus with broad apical pale band approximately as long as preapical dark band 2. Hindtibia without narrow apical extension of dark scales on ventral aspect 3. Accessory sector pale (ASP) spot on vein R longer than basal dark spot of sector dark (SD) of vein R, extending onto subcosta and costa on at least one wing |
|--|---|



An. hackeri



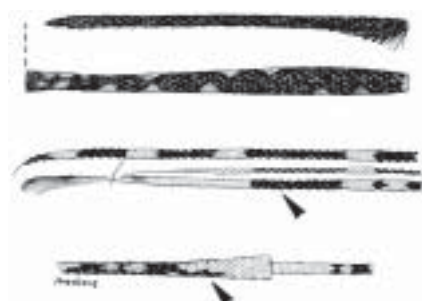
An. pujutensis

^a Constructed using information provided by Sallum *et al.* (2005) and contained in unpublished keys of EL. Peyton.

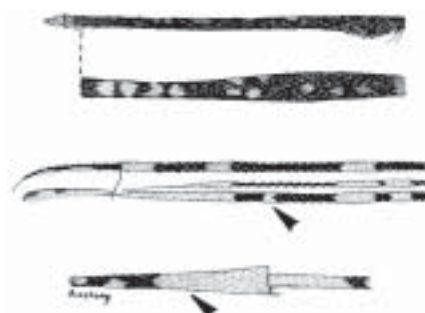
PLATE 30

From PLATE 29: Proboscis shorter or only slightly longer than forefemur (ratio 0.88-1.17) and only slightly longer than maxillary palpus, if longer than forefemur then without pale band or patch before labella; presector dark (PSD) spot of vein R with or without pale interruptions

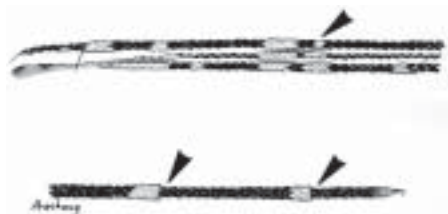
1. Proboscis shorter than forefemur, ratio of proboscis length to forefemur length 0.88-0.99
2. Presector dark (PSD) spot of vein R always without pale interruption in both wings
3. Hindtibia with narrow apical extension of dark scales on ventral surface

*An. macarthurii*

1. Proboscis as long as or slightly longer than forefemur, ratio of proboscis length to forefemur length 1.00-1.17
2. Presector dark (PSD) spot of vein R variable with or without pale interruption
3. Hindtibia without narrow apical extension of dark scales on ventral surface^a

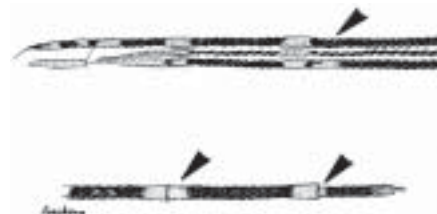


1. Accessory sector pale (ASP) spot usually extending onto subcosta and costa at least on one wing, **and/or**
2. Hindtarsomere 4 without obvious basal pale band or patch
3. Hindtarsomere 5 without basal pale band



➡ To PLATE 31 (Above)

1. Accessory sector pale (ASP) spot absent on costa and usually absent on subcosta, **or**
2. Hindtarsomere 4 with obvious basal pale band or patch
3. Hindtarsomere 5 often with minute basal pale band



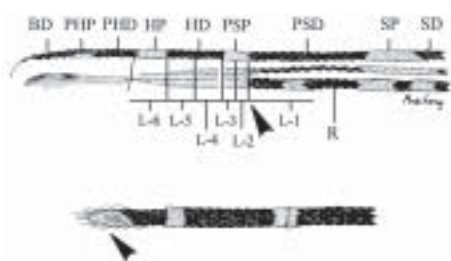
➡ To PLATE 31 (Below)

^aExcept *An. scanloni*.

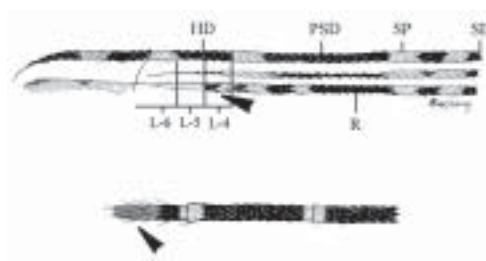
PLATE 31

From PLATE 30: Accessory sector pale (ASP) spot usually extending onto subcosta and costa at least on one wing **and/or**; hindtarsomeres 4 without obvious basal pale band or patch; hindtarsomere 5 without basal pale band

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|--|--|
| <ol style="list-style-type: none"> 1. Presector dark (PSD) spot of vein R often not extending basally beyond level of PSD spot on costa (level 3) and rarely extending onto apical 0.5 of humeral dark (HD) spot on costa, never extending beyond middle of HD (level 4) 2. Apical pale band on palpomere 5 distinctly white or whitish, not strongly contrasting with light bands on palpomeres 2 and 3 | <ol style="list-style-type: none"> 1. Presector dark (PSD) spot of vein R usually extending basally well onto level of humeral dark (HD) spot of costa, or beyond middle of HD (levels 4 and 5) 2. Apical pale band on palpomere 5 distinctly cream-colored or yellowish, strongly contrasting with silvery white band on palpomeres 2 and 3 |
|--|--|



An. introlatus
and *An. nemophilous* (in part)



An. latens

From PLATE 30: Accessory sector pale (ASP) spot absent on costa and usually absent on subcosta, **or** hindtarsomeres 4 with obvious basal pale band or patch; hindtarsomere 5 often with minute basal pale band

All pale scales of wing, cream-colored to golden or yellowish, including those of presector pale (PSP) and sector pale (SP) spots

Pale scales on anterior veins of wing, [especially those on presector pale (PSP) and sector pale (SP) spots of costa] white, contrasting with pale spots on posterior veins

An. nemophilous (in part)

➡ To PLATE 32

PLATE 32

From PLATE 31: Pale scales on anterior veins of wing, [especially those on presector pale (PSP) and sector pale (SP) spots of costa] white, contrasting with pale spots on posterior veins

Apical pale band of hindtibia with short to long, narrow, dark linear extension onto basal portion on ventral surface (specimens from Kanchanaburi only)

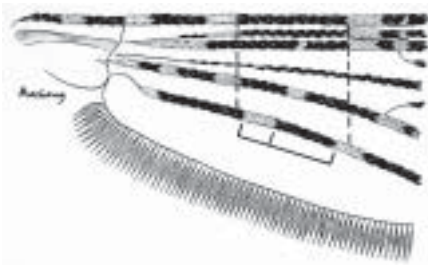


Apical pale band of hindtibia without dark extension onto basal portion on ventral surface

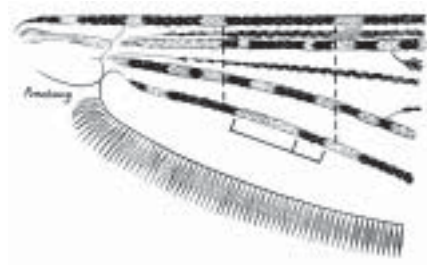


An. scanloni (in part)

Vein 1A without noticeably longer pale spot at level of presector dark (PSD), if long pale spot is present, then usually less than 0.33 length of PSD spot of costa and not noticeably longer than other pale spot on vein 1A, especially most basal spot



Vein 1A with long pale spot at level of presector dark (PSD) of costa at least on one wing, ratio of length to PSD at least 0.28-1.36, at least 0.4 on one wing, and always longest pale spot on vein 1A



└─▶ To PLATE 33

└─▶ To PLATE 34

PLATE 33

From PLATE 32: Vein 1A without noticeably longer pale spot at level of PSD, if long pale spot is present, then usually less than 0.33 length of PSD spot of costa and not noticeably longer than other pale spot on vein1A, especially most basal spot

Abdominal sternum VI with small postero-medial patch of dark scales

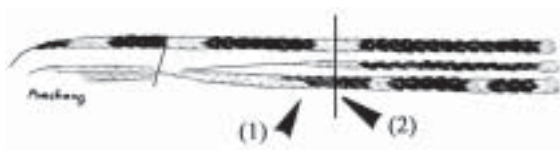
Abdominal sternum VI without scales or with at most 1 or 2 dark scales



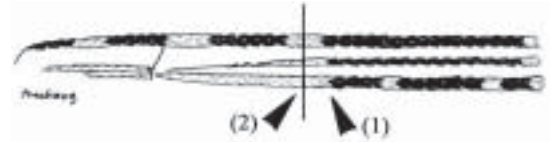
An. cracens

Presector dark (PSD) spot on vein R extending basally beyond PSD spot on costa, at least on one wing, usually reaching humeral dark (HD) of costa (1) or beyond, or at least beyond middle (2) of presector pale (PSP) spot of costa

Presector dark (PSD) spot on vein R usually at level of PSD spot on costa (1), or extending only slightly basally, usually no more than middle (2) of presector pale (PSP) spot of costa



An. dirus



An. baimaii (in part)

PLATE 34

From PLATE 32: Vein 1A with long pale spot at level of PSD of costa at least on one wing, ratio of length to PSD 0.28-0.36, at least 0.4 on one wing, and always longest pale spot on vein 1A

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Combined pale spots and bands along dorsolateral surface of foretarsomeres 1 and /or 2 dominating the dark portions along this line, often 2 or more of these spots on foretarsomere 1 fused, forming long line or splashes of pale scales along entire length, at least on one leg 2. Foretarsomere 2 often with pale bands and pale spots fused and completely pale dorsally, or spots and bands longer, reducing dark area to narrower median band | <ol style="list-style-type: none"> 1. Combined pale spots and bands along dorsolateral surface of foretarsomeres 1 and /or 2 smaller, more discrete, usually occupying less surface than dark scales along dorsolateral line, pale spots on foretarsomere 1 usually not fused, or forming long line or splashes of pale scales along entire length, often restricted to 2-4 spots on basal 0.60 2. Middle dark area of foretarsomere 2 always long, usually without pale spots on dorsal surface, occasionally with 1-3 tiny separate pale spots |
|---|--|



An. baimaii (in part)



An. scanloni (in part)

KEY TO THE SPECIES OF THE MYZOMYIA SERIES, FUNESTUS GROUP ADULT FEMALES

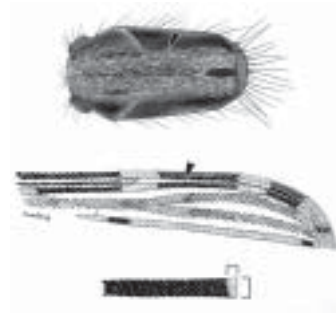
From PLATE 20: Legs entirely dark or with narrow apical pale bands or dorsal patches on some tarsomeres; abdominal segments VII and VIII and female cerci without scales

1. Center of scutum covered with short oblong white scales extending back to scutellum
2. Vein R_1 usually with accessory pale spot on preapical dark (PD) area
3. Foretarsomere 1 with apical pale band nearly 2.0 width of tarsomere diameter



An. jeyporiensis
(A, B, C, and D)

1. Center of scutum without white scales except for setae, or with slender seta-like white scales
2. Vein R_1 usually without accessory pale spot on preapical dark (PD) area
3. Foretarsomere 1 with apical pale band no wider than tarsomere diameter



1. Maxillary palpus with preapical dark band much longer than apical pale band
2. Remigium entirely or mostly dark-scaled
3. Vein R_{4+5} usually dark except at base



Culicifacies Subgroup
An. culicifacies
(A and B)

1. Maxillary palpus with preapical dark band equal to or shorter than apical pale band
2. Remigium entirely white or with few gray or black scales at apex
3. Vein R_{4+5} usually with basal and apical dark spots



└─▶ To PLATE 36

PLATE 36

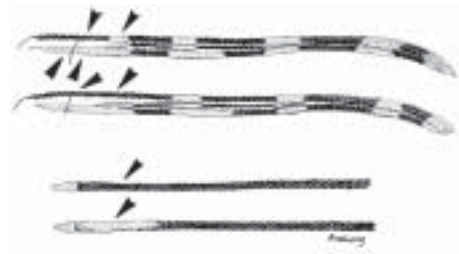
From PLATE 35: Maxillary palpus with preapical dark band equal to or shorter than apical pale band; remigium entirely white or with few gray or black scales at apex; vein R_{4+5} usually with basal and apical dark spots

1. Apex of remigium and base of vein R with gray to black scales
2. Costa with humeral pale (HP) and presector pale (PSP) spots
3. Proboscis dark-scaled

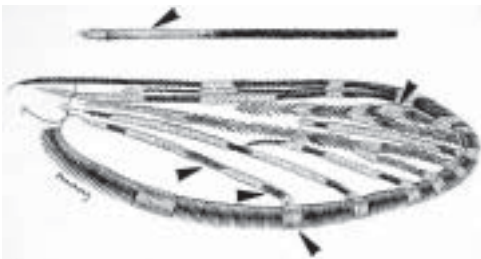


Aconitus Subgroup (in part)
An. pampanai

1. Apex of remigium and base of vein R with pale scales
2. Costa usually without humeral pale (HP) and presector pale (PSP) spots or with PSP spot only
3. Proboscis dark or with some pale scales

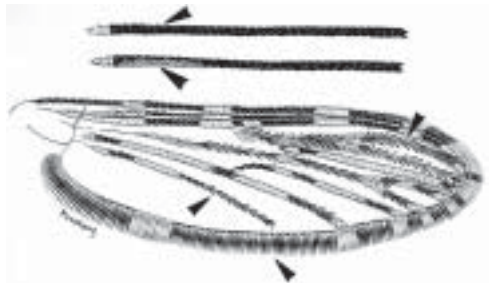


1. Proboscis with distal pale area on dorsum and venter^a
2. Vein R_2 with median pale spot
3. Hind margin of wing usually with pale fringe spot at vein $1A^b$
4. Vein $1A$ with two dark spots on distal half



Aconitus Subgroup (in part)
An. aconitus
(A, B, and C)

1. Proboscis usually entirely dark or with ventral pale patch
2. Vein R_2 dark except at base and apex
3. Hind margin of wing usually without pale fringe spot at vein $1A$ (97-98%)
4. Vein $1A$ with one long dark spot on distal half



➡ To PLATE 37

^aOccasionally confined to small ventral patch.

^bIn southern and central areas, less frequent in the north.

PLATE 37

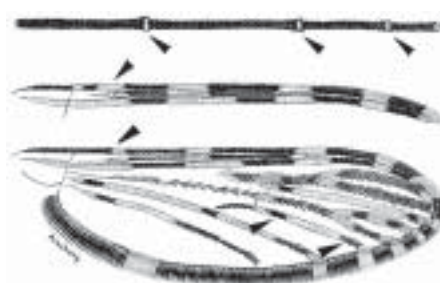
From PLATE 36: Proboscis usually entirely dark or with ventral pale patch; vein R_2 dark except at base and apex; hind margin of wing usually without pale fringe spot at vein 1A (97-98%); vein 1A with one long dark spot on distal half

1. Foretarsomeres entirely dark-scaled
2. Costa without presector pale (PSP) spot
3. Vein M_{3+4} with one long dark spot distal to mcu fork



Aconitus Subgroup (in part)
An. varuna

1. Foretarsomeres 1-4 with very small dorsoapical pale patches
2. Costa with presector pale (PSP) spot^a
3. Vein M_{3+4} with two dark spots distal to mcu fork



Minimus Subgroup

Costa usually without humeral pale (HP) spot^b



An. minimus

Costa usually with humeral pale (HP) **and/or** prehumeral (PHP) pale spots^b



An. minimus
species C

^a Infrequently, specimens of *An. minimus* have no presector pale spot.

^b Although this character may be useful in Kanchanaburi Province, Harrison (1980:88) demonstrated that 2.5% of female progeny reared from classic *An. minimus* females collected all over the country had humeral pale (HP) and/or prehumeral pale (PHP) spots. Recent papers (Green *et al.*, 1990, Van Bortel *et al.*, 1999, Chen *et al.*, 2002, Sungvornyothin *et al.*, 2006) have determined that the HP spot is not a good character for identifying *An. minimus* C in southeast Asia.

KEY TO THE SPECIES OF THE PYRETOPHORUS SERIES ADULT FEMALES

From PLATE 20: Legs with basal and apical pale bands on some tarsomeres; abdominal segments VII and VIII and female cerci with at least few scales

Hindfemur, tibia, and tarsomere 1 speckled with pale scales

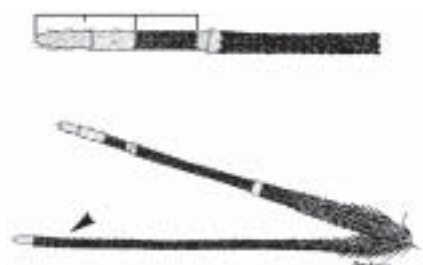
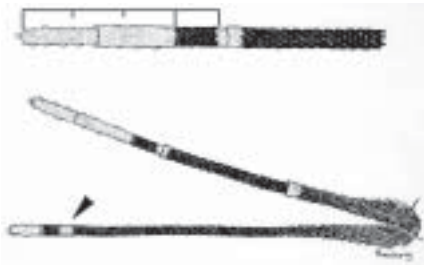
Hindfemur, tibia, and tarsomere 1 dark, not speckled with pale scales



An. epiroticus

1. Maxillary palpus with apical pale band 3-4 times length of preapical dark band
2. Proboscis with well defined pale spot towards the apex

1. Maxillary palpus with apical pale band 2.5 times or less length of preapical dark band
2. Proboscis without or with faint pale spot towards the apex



(A and B)

Maxillary palpus with subapical pale band usually 0.33 or less length of preapical dark band, which is 0.5 or more length of apical pale band

Maxillary palpus with subapical pale band usually 0.5 or more length of preapical dark band, which is often less than 0.5 length of apical pale band



An. subpictus
(B, C, and D)

An. indefinitus