

(Note: Cited references are listed at the end of the classification.)

Subgenus *Cellia* Theobald

Cellia Series (Christophers, 1924a)

argenteolobatus (Gough)
brumpti Hamon & Rickenbach
crisipalpis Service
murphyi Gillies & de Meillon
pharoensis Theobald (2 species, see Miles *et al.*, 1983)
swahilicus Gillies

Squamosus Group (Grjebine, 1966)

cydippis de Meillon
squamosus Theobald

Myzomyia Series (Christophers, 1924a)

apoci Marsh
azaniae Bailly-Choumara
barberellus Evans
bervoetsi D'Haenans
brunnipes (Theobald)
domicolus Edwards
dthali Patton
erythraeus Corradetti
ethiopicus Gillies & Coetzee
flavicosta Edwards
fontinalis Gillies & de Meillon
gabonensis Rahola, Makanga & Paupy, 2014
majidi Young & Majid
moucheti Evans
schwetzi Evans
tchekedii de Meillon & Leeson
walravensi Edwards

Demeilloni Group (Gillies & de Meillon, 1968)

carteri Evans & de Meillon
demeilloni Evans
freetownensis Evans
garnhami Edwards
keniensis Evans
lloreti Gil Collado
sergentii (Theobald)
 subspecies *macmahoni* Evans
 subspecies *sergentii* (Theobald)

Funestus Group (Garros *et al.*, 2005b)

jeyporiensis James

Aconitus Subgroup (Chen *et al.*, 2003)
aconitus Dönitz
filipinae Manalang
mangyanus (Banks)
pampanai Büttiker & Beales
varuna Iyengar

Culicifacies Subgroup (Garros *et al.*, 2005b)
culicifacies Giles (species A, B, C, D and E) (Kar *et al.*, 1999)

Funestus Subgroup (Garros *et al.*, 2005b)
aruni Sobti
confusus Evans & Leeson
funestus Giles
funestus-like species (Spillings *et al.*, 2009)
longipalpis (Theobald) (Type C) (Koekemoer *et al.*, 2009)
parensis Gillies
vaneedeni Gillies & Coetzee

Minimus Subgroup (Chen *et al.*, 2003)
flavirostris (Ludlow)
leesoni Evans
longipalpis (Theobald) (Type A) (Koekemoer *et al.*, 2009)

Fluviatilis Complex (Sarala *et al.*, 1994)
fluviatilis James (species S, T and U)

Minimus Complex (Green *et al.*, 1990)
harrisoni Harbach & Manguin (species C)
minimus Theobald (species A)
yaeyamaensis Somboon & Harbach

Rivulorum Subgroup (Garros *et al.*, 2005b)
brucei Service
fuscivenosus Leeson
rivulorum Leeson
rivulorum-like species (Cohuet *et al.*, 2003)

Marshallii Group (Gillies & de Meillon, 1968)
austenii (Theobald)
berghei Vincke & Leleup
brohieri Edwards
gibbinsi Evans
hancocki Edwards
hargreavesi Evans
harperi Evans
mortiauxi Edwards
mousinhoi de Meillon & Pereira
njombiensis Peters
seydeli Edwards

Marshallii Complex (Gillies & Coetzee, 1987)
hughi Lambert & Coetzee
kosiensis Coetzee, Segerman & Hunt

letabensis Lambert & Coetzee
marshallii (Theobald)
 Wellcomei Group (Gillies & de Meillon, 1968)
distinctus (Newstead & Carter)
erepens Gillies
theileri Edwards
wellcomei Theobald
 subspecies *ugandae* Evans
 subspecies *ungujae* White
 subspecies *wellcomei* Theobald
 Neocellia Series (Christophers, 1924a)
ainshamsi Gad, Harbach & Harrison
dancalicus Corradetti
hervyi Brunhes, le Goff & Geoffroy
karwari (James)
maculipalpis Giles
moghulensis Christophers
paltrinierii Shidrawi & Gillies
pattoni Christophers
pretoriensis (Theobald)
pulcherrimus Theobald
rufipes (Gough)
 subspecies *broussesi* Edwards
 subspecies *rufipes* (Gough)
salbairi Maffi & Coluzzi
stephensi Liston (possibly a species complex; see Firooziyan *et al.*, 2018)
superpictus Grassi (species A and B) (Oshaghi *et al.*, 2007; Oshaghi *et al.*, 2008)
theobaldi Giles
 Annularis Group (Reid, 1968)
 Annularis Complex (Atrie *et al.*, 1999)
 annularis van der Wulp (species A and B)
 pallidus Theobald
 philippinensis Ludlow
 schueffneri Stanton
 Nivipes Complex (Green *et al.*, 1985b; Harrison *et al.*, 1991)
 nivipes (Theobald) (2 cytogenetic species in Thailand)
 Jamesii Group (Rattanaarithikul *et al.*, 2006b)
 jamesii Theobald
 pseudojamesi Strickland & Chowdhury
 splendidus Koidzumi
 Maculatus Group (Rattanaarithikul & Green, 1987)
 dispar Rattanaarithikul & Harbach
 greeni Rattanaarithikul & Harbach
 pseudowillmori (Theobald)
 willmori (James)
 Maculatus Subgroup (Rattanaarithikul *et al.*, 2006b)

dravidicus Christophers
Maculatus Complex (Ali *et al.*, 2019b)
maculatus Theobald
maculatus Javanese form (Ali *et al.*, 2019a)
Sawadwongporni Subgroup (Rattanaarithikul *et al.*, 2006b)
notanandai Rattanaarithikul & Green
rampae Harbach & Somboon, 2011
sawadwongporni Rattanaarithikul & Green
Neomyzomyia Series (Christophers, 1924a)
amictus Edwards
annulatus de Rook
aurirostris (Watson)
dualaensis Brunhes, le Goff & Geoffroy
hilli Woodhill & Lee
incognitus Brug
kokhani Vythilingam, Jeffery & Harbach
kolambuganensis Baisas
longirostris Brug
meraukensis Venhuis
novaguinensis Venhuis
saungi Colless
stokesi Colless
watsonii (Leicester)
Annulipes Complex (Green, 1972)
annulipes Walker (species A–Q) (Foley *et al.*, 2007b)
Lungae Complex (Belkin, 1962)
lungae Belkin & Schlosser
nataliae Belkin
solomonis Belkin, Knight & Rozeboom
Ardensis Group (Gillies & de Meillon, 1968)
ardensis (Theobald)
buxtoni Service
cinctus (Newstead & Carter)
deemingi Service
dureni Edwards
eouzani Brunhes, le Goff & Bousses
kingi Christophers
machardyi Edwards
maliensis Bailly-Choumara & Adam
millecampsi Lips
multicinctus Edwards
natalensis (Hill & Haydon)
vernus Gillies & de Meillon
vinckei de Meillon
Nili Complex (Gillies & de Meillon, 1968)
carnevalei Brunhes, le Goff & Geoffroy

nili (Theobald)
ovengensis Awono-Ambene, Kengne, Simard, Antonio-Nkondjio & Fontenille
somalicus Rivola & Holstein

Kochi Group (Rattanaarithikul *et al.*, 2006b)
kochi Dönitz

Leucosphyrus Group (Reid, 1949)
Hackeri Subgroup (Sallum *et al.*, 2005a)
hackeri Edwards
mirans Sallum & Peyton
pujutensis Colless
recens Sallum & Peyton
sulawesi Waktoedi Koesoemawinangoen

Leucosphyrus Subgroup (Peyton, 1990; Sallum *et al.*, 2005b)
baisasi Colless

Dirus Complex (Sallum *et al.*, 2005b)
aff. takasagoensis (Takano *et al.*, 2010)
baimaii Sallum & Peyton
cracens Sallum & Peyton
dirus Peyton & Harrison
elegans (James)
nemophilous Peyton & Ramalingam
scanloni Sallum & Peyton
takasagoensis Morishita

Leucosphyrus Complex (Sallum *et al.*, 2005a)
balabacensis Baisas
introlatus Colless
latens Sallum & Peyton
leucosphyrus Dönitz

Riparis Subgroup (Peyton, 1990)
cristatus King & Baisas
macarthuri Colless
riparis King & Baisas

Mascarensis Group (Harbach, 1994a)
mascarensis de Meillon

Pauliani Group (Grjebine, 1966)
grassei Grjebine
grenieri Grjebine
milloti Grjebine & Lacan
pauliani Grjebine
radama de Meillon

Punctulatus Group (Schmidt *et al.*, 2001)
clowi Rozeboom & Knight
koliensis Owen
punctulatus Dönitz
rennellensis Taylor & Maffi
sp. near *punctulatus* (Foley *et al.*, 1995)

- Farauti Complex (Schmidt *et al.*, 2003)
 - farauti* Laveran
 - farauti* 4 and 5 (Foley *et al.*, 1993)
 - farauti* 8 (Bower *et al.*, 2008)
 - hinesorum* Schmidt
 - irenicus* Schmidt
 - oreios* Bangs & Harbach, 2014
 - torresiensis* Schmidt
- Ranci Group (Grjebine, 1966)
 - griveaudi* Grjebine
- Ranci Subgroup (Grjebine, 1966)
 - ranci* Grjebine
- Roubaudi Subgroup (Grjebine, 1966)
 - lacani* Grjebine
 - notleyi* van Someren
 - roubaudi* Grjebine
- Rhodesiensis Group (Gillies & de Meillon, 1968)
 - cameroni* de Meillon & Evans
 - lounibosi* Gillies & Coetzee
 - rhodesiensis* Theobald
 - subspecies *rhodesiensis* Theobald
 - subspecies *rupicolus* Lewis
 - rodhaini* Leleup & Lips
 - ruarinus* Edwards
- Smithii Group (Gillies & de Meillon, 1968)
 - caroni* Adam
 - faini* Leleup
 - hamoni* Adam
 - jebudensis* Froud
 - lovettae* Evans
 - rageaui* Mattingly & Adam
 - smithii* Theobald
 - vanhoofi* Manson & Lebiec
 - wilsoni* Evans
- Tessellatus Group (Rattanaarithikul *et al.*, 2006b)
 - tessellatus* Theobald
 - subspecies *kalawara* Stoker & Waktoedi
 - subspecies *orientalis* (Swellengrebel & Swellengrebel de Graaf)
 - subspecies *tessellatus* Theobald
- Tessellatus Complex (Bourke *et al.*, 2021)
 - tessellatus* Theobald (species A, B, C, D, E and F)
- Paramyzomyia Series (Christophers & Barraud, 1931)
 - Cinereus Group (Gillies & de Meillon, 1968)
 - azevedoi* Ribeiro
 - cinereus* Theobald
 - subspecies *cinereus* Theobald

subspecies *hispaniola* (Theobald)
turkhudi Liston
 subspecies *telamali* Saliternik & Theodor
 subspecies *turkhudi* Liston
 Listeri Group (Gillies & de Meillon, 1968)
listeri de Meillon
multicolor Cambouliu
seretsei Abdulla-Khan, Coetzee & Hunt
 Pyretophorus Series (Edwards, 1932a)
christyi (Newstead & Carter)
comorensis Brunhes, le Goff & Geoffroy
daudi Coluzzi
indefinitus (Ludlow)
limosus King
litoralis King
ludlowae (Theobald)
 subspecies *ludlowae* (Theobald)
 subspecies *torakala* Stoker & Waktoedi
parangensis (Ludlow)
pseudosundaicus Tyagi, Hiriyani, Tewari, Ayanar, Samuel, Arunachalam,
 Paramasivan, Krishnamoorthy, Dhananjayan, Leo & Rajendran
vagus Dönitz
 Gambiae Complex (White, 1985)
amharicus Hunt, Wilkerson & Coetzee
arabiensis Patton
bwambae White
coluzzii Coetzee & Wilkerson
gambiae Giles
melas Theobald
merus Dönitz
quadriannulatus (Theobald)
 Subpictus Complex (Suguna *et al.*, 1994)
subpictus Grassi (species A, B, C and D)
 Sundaicus Complex (Sukowati *et al.*, 1999)
epiroticus Linton & Harbach
sundaicus (Rodenwaldt)
sundaicus (species B, C, D and E) (Dusfour *et al.*, 2007)

References

- Ali, R.S.M., Wahid, I., Saeung, A., Wannasan, A., Harbach, R.E. & Somboon, P. 2019a. Genetic and morphological evidence for a new species of the Maculatus Group of *Anopheles* subgenus *Cellia* (Diptera: Culicidae) from Java, Indonesia. *Parasites & Vectors* 12: 107.
- Ali, R.S.M., Wahid, I., Saingamsook, J., Saeung, A., Wannasan, A., Walton, C., Harbach, R.E. & Somboon, P. 2019b. Molecular identification of mosquitoes of the *Anopheles maculatus*

- group of subgenus *Cellia* (Diptera: Culicidae) in the Indonesian Archipelago. *Acta Tropica* 199: 105124.
- Atrie, B., Subbarao, S.K., Pillai, M.K.K., Rao, S.R.V. & Sharma, V.P. 1999. Population cytogenetic evidence for sibling species in *Anopheles annularis* (Diptera: Culicidae). *Annals of the Entomological Society of America* 92: 243–249.
- Belkin, J.N. 1962. *The mosquitoes of the South Pacific (Diptera, Culicidae)*. Volumes 1 and 2. University of California Press, Berkeley and Los Angeles.
- Booth, D.R. & Bryan, J.H. 1986. Cytogenetic and crossbreeding evidence for additional species in the *Anopheles annulipes* Walker complex (Diptera: Culicidae). *Journal of the Australian Entomological Society* 25: 315–325.
- Bourke, B.P., Wilkerson, R.C. & Linton, Y.-M. 2021. Molecular species delimitation reveals high diversity in the mosquito *Anopheles tessellatus* Theobald, 1901 (Diptera, Culicidae) across its range. *Acta Tropica* 215: 105799.
- Bower, J.E., Dowton, M., Cooper, R.D. & Beebe, N.W. 2008. Intraspecific concerted evolution of the rDNA ITS1 in *Anopheles farauti* sensu stricto (Diptera: Culicidae) reveal recent patterns of population structure. *Journal of Molecular Evolution* 67: 397–411.
- Chen, B., Butlin, R.K. & Harbach, R.E. 2003. Molecular phylogenetics of the Oriental members of the Myzomyia Series of *Anopheles* subgenus *Cellia* (Diptera: Culicidae) inferred from nuclear and mitochondrial DNA sequences. *Systematic Entomology* 28: 57–69.
- Christophers, S.R. 1924a. Provisional list and reference catalogue of the Anophelini. *Indian Medical Research Memoirs* 3: 1–105.
- Christophers, S.R. & Barraud, P.J. 1931. The eggs of Indian *Anopheles*, with descriptions of the hitherto undescribed eggs of a number of species. *Records of the Malaria Survey of India* 2: 161–192, 5 pls.
- Cohuet, A., Simard, F., Toto, J.C., Kengne, P., Coetzee, M. & Fontenille, D. 2003. Species identification within the *Anopheles funestus* group of malaria vectors in Cameroon and evidence for a new species. *American Journal of Tropical Medicine and Hygiene* 69: 200–205.
- Dusfour, I., Michaux, J.R., Harbach, R.E. & Manguin, S. 2007. Speciation and phylogeography of the Southeast Asian *Anopheles sundaicus* complex. *Infection, Genetics and Evolution* 7: 484–493.
- Edwards, F.W. 1932a. *Genera Insectorum. Diptera, Fam. Culicidae*. Fascicle 194. Desmet-Verteneuil, Brussels.
- Firoozian, S., Djadid, N.D. & Gholizadeh, S. 2018. Speculation on the possibility for introducing *Anopheles stephensi* as a species complex: preliminary evidence based on odorant binding protein 1 intron I sequence. *Malaria Journal* 17: 366.
- Foley, D.H., Cooper, R.D. & Bryan, J.H. 1995. A new species within the *Anopheles punctulatus* complex in Western Province, Papua New Guinea. *Journal of the American Mosquito Control Association* 11: 122–127.
- Foley, D.H., Paru, R., Dagoro, H. & Bryan, J.H. 1993. Allozyme analysis reveals six species within the *An. punctulatus* complex of mosquitoes in Papua New Guinea. *Medical and Veterinary Entomology* 7: 37–48.
- Foley, D.H., Wilkerson, R.C., Cooper, R.D., Volovsek, M.E. & Bryan, J.H. 2007. A molecular phylogeny of *Anopheles annulipes* (Diptera: Culicidae) sensu lato: The most species-rich anopheline complex. *Molecular Phylogenetics and Evolution* 43: 283–297.

- Garros, C., Harbach, R.E. & Manguin, S. 2005b. Morphological assessment and molecular phylogenetics of the *Funestus* and *Minimus* Groups of *Anopheles* (*Cellia*). *Journal of Medical Entomology* 42: 522–536.
- Gillies, M.T. & Coetsee, M. 1987. A supplement to the Anophelinae of Africa south of the Sahara (Afrotropical Region). *Publications of the South African Institute for Medical Research* 55: 1–143.
- Gillies, M.T. & de Meillon, B. 1968. The Anophelinae of Africa south of the Sahara (Ethiopian Zoogeographical Region). *Publications of the South African Institute for Medical Research* 54: 1–343.
- Green, C.A., Cass, R.F., Munstermann, L.E. & Baimai, V. 1990. Population-genetic evidence for two species in *Anopheles minimus* in Thailand. *Medical and Veterinary Entomology* 4: 25–34.
- Green, C.A., Harrison, B.A., Klein, T.A. & Baimai, V. 1985b. Cladistic analysis of polytene chromosome rearrangements in anopheline mosquitoes, subgenus *Cellia*, series *Neocellia*. *Canadian Journal of Genetics and Cytology* 27: 123–133.
- Grjebine, A. 1966. *Faune de Madagascar. XXII. Insecies Diptères Culicidae Anophelinae*. Centre National de la Recherche Scientifique, Office de la Recherche Scientifique et Technique Outre-Mer, Paris.
- Harbach, R.E. 1994a. Review of the internal classification of the genus *Anopheles* (Diptera: Culicidae): the foundation for comparative systematics and phylogenetic research. *Bulletin of Entomological Research* 84: 331–342.
- Harrison, B. A. 1980. Medical entomology studies – XIII. The *Myzomyia* Series of *Anopheles* (*Cellia*) in Thailand, with emphasis on intra-interspecific variations (Diptera: Culicidae). *Contributions of the American Entomological Institute* 17(4): iv + 1-195.
- Harrison, B.A., Rattanarithikul, R., Peyton, E.L. & Mongkolpanya, K. 1991. Taxonomic changes, revised occurrence records and notes on the Culicidae of Thailand and neighboring countries. *Mosquito Systematics* (1990) 22: 196–227.
- Hunt, R.H., Coetsee, M. & Fettene, M. 1998. The *Anopheles gambiae* complex: a new species from Ethiopia. *Transactions of the Royal Society of Tropical Medicine and Hygiene* 92: 231–235.
- Kar, I., Subbarao, S.K., Eapen, A., Ravendaran, J., Satyanarayana, T.S., Raghavendra, K., Nanda, N. & Sharma, V.P. 1999. Evidence for a new malaria vector species, species E, within the *Anopheles culicifacies* complex (Diptera: Culicidae). *Journal of Medical Entomology* 36: 595–600.
- Koekemoer, L.L., Misiani, E.A., Hunt, R.H., Kent, R.J., Norris, D.E. & Coetsee, M. 2009. Cryptic species within *Anopheles longipalpis* from southern Africa and phylogenetic comparison with members of the *An. funestus* group. *Bulletin of Entomological Research* 99: 41–49.
- Miles, S.J., Green, C.A. & Hunt, R.H. 1983. Genetic observations on the taxon *Anopheles* (*Cellia*) *pharoensis* Theobald (Diptera: Culicidae). *Journal of Tropical Medicine and Hygiene* 86: 153–157.
- Oshaghi, M.A., Yaghoobi-Ershadi, M.R., Shemshad, Kh., Pedram, M. & Amani, H. 2008. The *Anopheles superpictus* complex: introduction of a new malaria vector complex in Iran. *Bulletin de la Société de Pathologie exotique* 101: 429–434.
- Oshaghi, M.A., Shemshad, Kh., Yaghoobi-Ershadi, M.R., Pedram, M., Vatandoost, H., Abaie, M.R., Akbarzadeh, K. & Mohtarami, F. 2007. Genetic structure of the malaria vector

- Anopheles superpictus* in Iran using mitochondrial cytochrome oxidase (COI and COII) and morphologic markers: A new species complex? *Acta Tropica* 101: 241–248.
- Peyton, E.L. 1990. A new classification for the Leucosphyrus Group of *Anopheles* (*Cellia*). *Mosquito Systematics* (1989) 21: 197–205.
- Rattanarithikul, R. & Green, C.A. 1987. Formal recognition of the species of the *Anopheles maculatus* group (Diptera: Culicidae) occurring in Thailand, including the descriptions of two new species and a preliminary key to females. *Mosquito Systematics* (1986) 18: 246–278.
- Rattanarithikul, R., Harrison, B.A., Harbach, R.E., Panthusiri, P. & Coleman, R.E. 2006b. Illustrated Keys to the mosquitoes of Thailand. IV. *Anopheles*. *Southeast Asian Journal of Tropical Medicine and Public Health* 37 (suppl. 2): 1–128.
- Reid, J.A. 1949. A preliminary account of the forms of *Anopheles leucosphyrus* Dönitz (Diptera: Culicidae). *Proceedings of the Royal Entomological Society of London Series B Taxonomy* 18: 42–53.
- Reid, J.A. 1968. Anopheline mosquitoes of Malaya and Borneo. *Studies from the Institute for Medical Research Malaya* 31: 1–520.
- Reid, J.A. & Knight, K.L. 1961. Classification within the subgenus *Anopheles* (Diptera, Culicidae). *Annals of Tropical Medicine and Parasitology* 55: 474–488.
- Sallum, M.A.M., Peyton, E.L., Harrison, B.A. & Wilkerson, R.C. 2005b. Revision of the Leucosphyrus group of *Anopheles* (*Cellia*) (Diptera, Culicidae). *Revista Brasileira de Entomologia* 49 (Supl. 1): 1–152.
- Sallum, M.A.M., Peyton, E.L. & Wilkerson, R.C. 2005a. Six new species of the *Anopheles leucosphyrus* group, reinterpretation of *An. elegans* and vector implications. *Medical and Veterinary Entomology* 19: 158–199.
- Schmidt, E.R., Foley, D.H., Bugoro, H. & Bryan, J.H. 2003. A morphological study of the *Anopheles punctulatus* group (Diptera: Culicidae) in the Solomon Islands, with a description of *Anopheles* (*Cellia*) *irenicus* Schmidt, sp.n. *Bulletin of Entomological Research* 93: 515–526.
- Schmidt, E.R., Foley, D.H., Hartel, G.F., Williams, G.M. & Bryan, J.H. 2001. Descriptions of the *Anopheles* (*Cellia*) *farauti* complex of sibling species (Diptera: Culicidae) in Australia. *Bulletin of Entomological Research* 91: 389–410.
- Spillings, B.L., Brooke, B.D., Koekemoer, L.L., Chiphwanya, J., Coetzee, M. & Hunt, R.H. 2009. A new species concealed by *Anopheles funestus* Giles, a major malaria vector in Africa. *American Journal of Tropical Medicine and Hygiene* 81: 510–515.
- Suguna, S.G., Rathinam, K.G., Rajavel, A.R. & Dhanda, V. 1994. Morphological and chromosomal descriptions of new species in the *Anopheles subpictus* complex. *Medical and Veterinary Entomology* 9: 88–94.
- Sukowati, S., Baimai, V., Harun, S., Dasuki, Y., Andris, H. & Efriwati, M. 1999. Isozyme evidence for three sibling species in the *Anopheles sundaicus* complex from Indonesia. *Medical and Veterinary Entomology* 13: 408–414.
- Takano, K.T., Nguyen, N.T.H., Nguyen, B.T.H., Sunahara, T., Yasunami, M., Nguyen, M.D. & Takagi, M. 2010. Partial mitochondrial DNA sequences suggest the existence of a cryptic species within the Leucosphyrus group [*sic*] of the genus *Anopheles* (Diptera: Culicidae), forest malaria vectors, in northern Vietnam. *Parasites and Vectors* 3: 41.

White, G.B. 1985. *Anopheles bwambae* sp.n., a malaria vector in the Semliki Valley, Uganda, and its relationships with other sibling species of the *An. gambiae* complex (Diptera: Culicidae). *Systematic Entomology* 10: 501–522.