
LISTA DE LOS CULICOIDES DEL MUNDO (DIPTERA. HELEIDAE)

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Los *Culicoides* son picadores muy molestos y en algunas áreas originan indecible sufrimiento. Por el hábito de chupar sangre algunas veces se les ha considerado como vectores de enfermedades que posteriormente se demostró tenían otros modos de diseminación.

Willcocks (1917) sugirió que *Leptoconops kerteszi* Kieffer y *Culicoides sp.* podrían ser vectores de pelagra. Van Saseghem (1918) menciona a los *Culicoides* como transmisores de una enfermedad que afecta a los caballos del Congo Belga. Sharp (1927, 1928) menciona a *Culicoides austeni* Carter y a *Culicoides grahami* Austen como vectores de *Acanthocheilonema perstans* Manson, una filaria sanguínea del hombre, gorila y chimpancé. Wanson (1939) agrega a *C. trichops*.

Steward (1933) señaló que *C. nubeculosus* y posiblemente *C. obsoletus* y *C. parroti* transmiten *Onchocerca cervicalis* (Railliet et Henry). Buckley (1933, 1934) encontró que en la Isla de San Vicente, en las Antillas, *C. furens* es el vector de *Mansonella ozzardi* Manson.

Según Causey (1938) George encontró en Panamá que algunas filarias de monos son transmitidas por *Culicoides*. Causey (1939) colectó en una recámara de Nakon-Sri-Tamarat un ejemplar de *C. peregrinus* fuertemente infestado con microfilarias. Dampf (1935, 1936) disecó en el Estado de Chiapas, México, un ejemplar de *C. guttatus* con filarias. Van Volkenberg (1935) encontró en Puerto Rico a caballos infestados con *Onchocerca cervicalis* y señala que *C. furens* es muy abundante ahí. Purcell (1937) encuentra que *C. grahami* prevalece en áreas endémicas con una fiebre parecida al dengue.

Según Buckley (1938) *C. pungens* de Meijere transmite *Onchocerca gibsoni* en la Federación de los Estrechos Malayos. El mismo papel parecen tener *C. oxystoma* Kieffer, *C. shortti* Smith y Swaminath, *C. orientalis* Macfie, *C. peregrinus* Kieffer y *C. buckleyi* Macfie. Du Toit (1944) informa acerca de la transmisión de la "lengua azul" y de la enfermedad de los caballos por medio de *Culicoides*.

La lista actual incluye 360 especies de *Culicoides* de las cuales 136 son paleárticas, 33 neárticas, 68 neotropicales, 60 etiópicas, 48 orientales y 17 australianas. Casi la mitad de las especies anotadas son holárticas y casi el 30 por ciento se encuentra en el Nuevo Mundo. Excepto algunas áreas muy bien estudiadas de Europa son tan grandes las extensiones no exploradas que sería un atrevimiento suponer el número de especies que esperan ser descubiertas.

El género *Culicoides* no es uniforme, por caracteres de la terminalia masculina es posible separarlos en subdivisiones más homogéneas. La lista presente intenta ayudar al estudiante de este importante grupo de parásitos Artrópodos. Para dar mayor difusión al uso de esta lista, se ha redactado también en inglés.

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Culicoides are vicious biters and cause in some areas untold suffering. Sometimes by the habit of blood-feeding they have been suspected of transmitting diseases that later were proved to have other ways of spreading.

Willcocks (1917) suggested that *Leptoconops kerteszi* Kieffer and *Culicoides sp.* could be vectors of pellagra. Van Saseghem (1918) mentions *Culicoides* as vectors of a disease attacking horses of the Belgian Congo. Sharp (1927, 1928) mentions *Culicoides austeni* Carter and *C. grahami* Austen as vectors of *Acanthocheilonema perstans* Manson, a blood-filaria of man, gorilla and chimpanzee. Wanson (1939) adds *C. trichopsis*.

Steward (1933) reported that *C. nubeculosus* and possibly *C. obsoletus* and *C. parroti* transmit *Onchocerca*

cervicalis (Raillet et Henry). Buckley (1933, 1934) reported that in St. Vincent Is., W. I., *C. furens* is the vector of *Mansonella ozzardi* Manson.

According to Causey (1938) George found in Panama that some filariae of monkeys are transmitted by *Culicoides*. Causey (1939) collected in a bed-room of Nakon Sri Tamarat a specimen of *C. peregrinus* heavily infested with microfilariae. Dampf (1935, 1936) dissected in the State of Chiapas, Mexico, a specimen of *C. guttatus* and found microfilariae. Van Volkenberg (1935) reports *Onchocerca cervicalis* from horses of Puerto Rico and notes that *C. furens* is very abundant there. Purcell (1937) found that *C. grahmi* is prevalent in endemic areas with a dengue-like fever.

According to Buckley (1938) *C. pungens* de Meijere transmits *Onchocerca gibsoni* in the Federated Malay Straits. The same role may have *C. oxystoma* Kieffer, *C. shorti* Smith and Swaminath, *C. orientalis* Macfie, *C. peregrinus* Kieffer and *C. buckleyi* Macfie. Du Toit (1944) reports the transmission of blue-tongue and horse-sickness by *Culicoides*.

The present list includes 360 species of *Culicoides* of which 136 are Palearctic, 30 Nearctic, 68 Neotropical, 60 Ethiopian, 48 Oriental and 17 Australian. Almost half of the reported species are Holarctic and almost 30 per cent are found in the New World. Except by some thoroughly studied areas of Europe, so vast lands remains unexplored that it is bold to assume how many new species wait to be described.

The genus *Culicoides* is not a uniform one; by characters of the male terminalia it is possible to arrange them in further more compact subdivisions. The present list intends to help the student of this important group of Arthropods parasites.

Culicoides Latreille. 1809.

Genera Crustaceorum et Insectorum secundum Ordinem naturalem in Familias disposita, etc. Vol. 4 p. 251. Paris.

Synonyms.

Type *Culex pulicaris* Linnaeus.

Oecacta furens Poey, 1851. Mem. Hist. Nat.

Psychophaena pictipennis Philippi, 1865. Rend. Acad. Sc. Lincei. 14:114-120.

Haematomyidium paraensis Goeldi, 1905. Mem. ALus. Goeldi 4: 1-154.

Cotocripus caridei Bréthes, 1912. Anls. Mus. Nac. Hist. Nat. Buenos Aires, 22: 451-455.

Centrorhynchus setifer Lutz, 1913. Mem. Inst. O. Cruz. 5: 64.

Haemophoructus maculipennis Macfie, 1925. Bull. Ent. Res. 15: 349-351.

Synhelea tropicalis Kieffer, 1925. Arch. Inst. Pasteur d'Algerie. 3: 405-430.

Prosapelma cinera Kieffer, 1925. *ibid.*

ABDOMINALIS Santos Abreu, 1918. Canary Islands.

ACCRAENSIS Carter. Ingram d Macfie, 1920. Gold Coast.

ACOTYLUS Lutz, 1913. Brazil.

ACTONI Smith. 1929. India. See PUNGENS de Meijere, 1909.

ADERSI Ingram d Macfie, 1923. Kenya.

ALAMBICULORUM Macfie, 1948. México.

ALBICANS (Winnertz, 1852). Europe.

ALBIDIGASTER Santos Abreu, 1918. Canary Islands.

ALBIDIPIES Santos Abreu, 1918. VERSICOLOR var. Canary Islands (See note).

ALBIFASCIA Tokunaga, 1937. Formosa.

ALBIHALTER Kieffer, 1921. Europe.

Vitreipennis Austen, 1921. Palestine.

ALBIPENNIS Kieffer. 1925. France.

Albipennis Smith d Swaminath, 1932. India According to Macfie (1937) it is possible that this is a variety of RARIPALPIS Smith, 1929.

ALBOGUTTATUS Kieffer, 1921. Formosa See SUGIMOTONIS Shiraki, 1913.

ALBOHALTERATUS Santos Abreu. 1918. SERICATUS var. Canary Islands (See note).

Albohalteratus Goetghebuer. 1935. NEGLECTUS var. Europe. See NEGLECTUS (Winnertz, 1852).

ALBOMACULA Root d Hoffmann. 1937. México.

ALBONATATUS Kieffer, 1918. Asia Minor. See FASCIPENNIS (Staeger. 1839).

Albonotatus Vimmer. 1932 Palestine. See CIRCUMSCRIPTUS Kieffer, 1918.

ALBOSPARSUS Kieffer, 1918. Abyssinia.

ALBOSIGNATUS Vimmer, 1932. Palestine.

Alexis De Meillon. 1936. Transvaal. See PYCNOSTICTUS Ingram d Macfie, 1925.

Algarum Kieffer, 1924. Germany. See CIRCUMSCRIPTUS Kieffer. 1918.

ALGECIRENSIS Strobl. 1900. PULICARIS var. Africa. See PUNCTICOLLIS Becker, 1903.

ALTICOLA Kieffer. 1913. East Africa.

AMAMIENSIS Tokunaga, 1937. Japan. Manchuria.

AMAZONIUS Macfie, 1935. Brazil. Trinidad d Tobago.

Amoenus (Winnertz, 1852) Neetherlands. See CHIOPTERUS Meigen, 1830.

ANALIS Santos Abreu, 1918. Canary Islands.

Analís Kieffer. 1925 *subfascipennis* var. Belgium. See CUBITALIS Edwards, 1939.

ANDREWSI Causey, 1938. Siam.

ANOPHELIS Edwards. 1922. Malaya. India.

ferox (Lalor, 1912). Malaya. India.

 var. *flavescens* Macfie. 1937 Malaya.

Arakawae (Matsumara, 1915) Japan. See SUGIMOTONIS Shiraki, 1913.

ARBORICOLA Root d Hoffmann. 1937. U. S. A.

Arcuatus (Winnertz, 1852). Europe. Japan. Manchuria. See PICTIPENNIS Staeger, 1839.
Var. *nigrus* Tokunaga, 1941. Manchuria.
Arcuatus Edwards, 1926. (nec Winnertz 1852). See IMPUNCTATUS Goetghebuer, 1920.
ARDENTISSIMUS Tokunaga, 1940. Caroline Islands.
Arenarius Edwards, 1922. British Somaliland. See INORNATIPENNIS var. RUTILUS Ingram d Macfie, 1921.
ARICOLA Kieffer, 1922. Vienna.
ARUBAE Fox d Hoffman, 1944. Aruba. W. I. Venazuela.
ASSAMENSIS Smith d Swaminath, 1932. PEREGRINUS var. India.
ATERINERVIS Tokunaga, 1937. Japan.
Aurantiacus Kieffer, 1905. Seychellen Island. Feijó Colaço (1946) considers that this is not a CULICOIDES.
AUSTENI Carter. Ingram d Macfie, 1920. Gold Coast. Belgium Congo. *vitshumbiensis* Goetghebuer, 1935. Belgian Congo.
AUSTRALIENSIS Kieffer, 1917. New Guine.
BABRIUS De Meillon; 1943. Southern Rhodesia.
BAHIENSIS Barbosa, 1947. Brazil.
BAMBUSICOLA Lutz, 1913. Brazil.
BAUERI Hoffman, 1925. U. S. A. Mexico.
BEDFORDI Ingram d Macfie, 1923. Transvaal.
BELGICUS Kieffer, 1919 Belgium.
BIARCUATUS Vimmer, 1932. Palestine.
Biclavatus Kieffer, 1924. Central Europe. See HALOPHILUS Kieffer, 1924. (apud Edwards, 1939).
BIGUTTATUS Coquillet, 1901. U. S. A.
BIMACULATUS Floch d Abonnenc, 1942. French Guiana.
Bipunctatus Vimmer, 1932. Palestine. See PUNCTICOLLIS Becker, 1902.
BISCAPUS Kieffer, 1925. Cochin-China.
BISIGNATUS Kieffer, 1921. Kamerum.
BODENHEIMERI Vimmer, 1932 Palestine.
BOOPHAGUS Macfie, 1937. Malay Arch.
BORINQUENI Fox d Hoffman, 1944. Puerto Rico.
Brevimanus Kieffer, 1910. East Indies. According to Kieffer (1919) is *Dasyhelea*.
BREVITARSIS Kieffer, 1917. Australia.
BROMOPHILUS Kieffer, 1922. Vienna.

BRUCEI Austen, 1909. Uganda.

Bruneoscutellatus von Zilahi, 1934. Bulgaria. *pallidicornis* var. See ODIATUS Austen, 1921.

BRUNNEUS Santos Abreu. 1918. Canary Islands.

BRUNNICANS Edwards, 1939. Britain.

BUCKLEYI Macfie, 1937. Malay Arch.

BUHETOENSIS Takahasi, 1941. Manchuria.

CACOZELEUS Macfie, 1948. Mexico.

CANARIENSIS Santos Abreu, 1918. Canary Islands.

C. Edwards, 1926. *pulicaris* var. Europe. See HALOPHILUS Kieffer, 1924.

CANCRISOCIUS Macfie, 1946. Fiji.

CANITHORAX Hoffman 1925. U. S. A.

CARIDEI (Brethés, 1912). South America.

setifer (Lutz, 1913) . Brazil.

CASTILLAE Fox, 1946. Honduras.

CHIOPTERUS Meigen, 1830. Holarctic.

amoenus (Winnertz, 1852) Neetherlands.

CILIPES Kieffer, 1921. Baltic.

Cinerea (Kieffer, 1925). Hungary. See PULICARIS L., 1761.

Cinereilus Kieffer, 1919. Hungary. See PULICARIS L., 1761.

CIRCUMSCRIPTUS Kieffer, 1918. Palearctic.

edwardsi Goetghebuer, 1921. Europe.

nadayanus Kieffer, 1918. Asia Minor.

algarum Kieffer, 1924. Germany.

salicola Kieffer, 1924. *pictidorsum* var. Norway.

polymaculatus Vimmer, 1932. Palestine.

albonotatus Vimmer, 1932. Palestine.

pulcher von Zilahi, 1934. Bulgaria.

CITRINELLUS Kieffer, 1933. Algeria.

Citrinus Kieffer, 1921. Kamerun. See FULVITHORAX (Austen, 1912).

CITRONEUS Carter, Ingram d Macfie, 1920. Gold Coast.

CLARKEI Carter, Ingram d Macfie, 1920. Gold Coast.

Clavatus Kieffer, 1921. Palearctic. See OBSOLETUS Meigen, 1918.

CLAVIPALPIS Muckerji, 1931. India. Siam.

COCKERELLI (Coquillet, 1901). U. S. A. Canada.

Var. TRISTIATULUS Hoffman, 1925. U. S. A. México.

COLUMBIANUS Kieffer, 1917. Colombia. *Dasyhelea* according Kieffer (1919).

Concitus Kieffer, 1923. Europe. See OBSOLETUS Meigen, 1818.

CONFUSUS Carter, Ingram d Macfie, 1920. Gold Coast.

CONJUNCTUS Kieffer, 1918. French Guinea. Feijó Caloca (1946) suggest that this species is an ALLUAUDOMYIA.

COPIOSUS Root d Hoffman, 1937. México.

Cordatus Kieffer, 1921. Baltic. See RIETHI Kieffer, 1914.

CORDIFORMIS Kieffer, in Dampf, 1926. Estonia.

Cordiformitarsis Carter, 1916. Africa. See STIGMA (Meigen, 1818) .

CORDIGER Macfie, 1934. Malay Arch.

CORNUTUS De Meillon, 1937. Zululand.

CORSONI Ingram d Macfie, 1921. Gold Coast.

CORTI Causey, 1938. Siam.

COUTINHOI Barreto, 1944. Brazil.

Crassiforceps Kieffer, 1924. Central Europe. See REITHI Kieffer, 1914.

Crassiforceps Goetghebuer 1933. Palearctic (nec Kieffer, 1924). See SALINARIUS Kieffer, 1914.

CRASSIPILOSUS Tokunaga, 1937. Japan.

CREPUSCULARIS Malloch, 1915. U. S. A.

CUBITALIS Edwards, 1939. Britain.

subfasciipennis var. *analis* Kieffer, 1925. Belgium.

CUNCTANS (Winnertz, 1852) Europe.

DAEDALUS Macfie, 1948. Mexico.

DALEKI Smith d Svaminath, 1932. India Malay Arch. Siam.

DAMPFI Root d Hoffman, 1937. México.

DASYOPHRUS Macfie, 1940. British Guiana. Panama.

D. Edwards. 1926. *pulicaris* var. Britain. See DELTA Edwards, 1939.

DEBILIPALPIS Lutz, 1913. Brazil. Trinidad. St. Croix. Barbados. Venezuela. var.

GLABRIOR Macfie, 1940. British Guiana. Brazil. Panamá.

DECOR Williston, 1896. St. Vincent Island.

DELTA Edwards, 1939. Britain.

D. Edwards, 1939. *pulicaris* var. Britain.

DENMEADI Causey, 1938. Siam.

Dentatus Kieffer, 1921. Kamerum. According to Feijó Colaço (1946) this is an OXYHELAE.

DEWULFI Goetghebuer, 1936. Belgium. Lower Congo.

DIABOLICUS Hoffman, 1925. Panama. Colombia. Trinidad. See GUTTATUS Coquillet, 1904.

Dileucus Kieffer, 1921. France. See PALLIDICORNIS Kieffer, 1919.

Distictus Kieffer, 1916. Sewden. See PALLIDICORNIS Kieffer, 1919.

DISTIGMA Kieffer, 1922. Algeria. Morocco. Jugo-Slavia.

DISTINCTIPENNIS Austen, 1912. Nigeria. Uganda. Gold Coast.

wasoni Goetghebuer, 1938. Belgian Congc.

DONATIENI Kieffer, 1922. Africa. See PUNCTICOLLIS Becker, 1902.

Dovei Hall, 1932. U. S. A. See FURENS (Poey, 1853).

DRENSKII von Zilahi, 1934. Bulgary.

DUFOURI Laboulbène According to Kieffer (1919) is a *Dasyhelea*.

DUODENARIOS Kieffer, 1922. Formosa.

DUTOITI De Meillon, 1943. Transvaal.

edwardsi Goetghebuer, 1921. Europe. See CIRCUMSCRIPTUS Kieffer, 1918.

edwardsi Goetghebuer, 1933. *pulicaris* var. Europe Egypt. See HALOPHILUS Kieffer, 1924.

edwardsianus Goetghebuer, 1933, *pulicaris* var. Europe. Egypt. See HALOPHILUS Kieffer, 1924.

EGYPTI Macfie, 1924. Egypt.

Praetermissus Carter Ingram d Macfie, 1920. proparte. Gold Coast. Lourenzo Marques.

ELUTUS Macfie, 1948. México.

ENGUBANDEI De Meillon, 1937. Zululand.

ERAIRAI Kono y Takahasi, 1940. Japan. Manchuria.

ERIODENDRONI Carter, Ingram d Macfie, 1920. Gold Coast.

ERYTHROGASTER Santos Abreu, 1918. Canary Islands.

ESAKI Tokunaga, 1940. Caroline Islands.

ESMONETI Salm, 1917. Java. See PEREGRINUS Kieffer, 1910.

EUBLEPHARUS Macfie, 1948. México. Perhaus is a DASYHELEA.

EXIMIUS Santos Abreu, 1918. Canary Islands.

FAGINEUS Edwards, 1939. Britain.

FASCIPENNIS (Staeger, 1839) Europe. Lower Volga.

albonotatus Kieffer, 1918. Asia Minor.

turficota Kieffer, 1925. Estonia.

FENESTRALIS Santos Abreu, 1918. Canary Islands.

Ferox (Lalor, 1912) Malay, India. See ANOPHELIS Edwards. 1927.

Festivipennis Kieffer, 1914, Europe. See ODIBILIS Austen. 1921.

Filariferus Hoffman, 1939. México. See GUTTATUS Coquillett. 1904.

FLAVESCENS Macfie, 1937. ANOPHELIS var. Malay Arch.

FLAVIMANUS Santos Abreu, 1918. Canary Islands.

FLAVIPES Vimmer, 1932. Palestine.

Flavipluma Kieffer, 1924. Holstein. See PULICARIS (L. 1761)

FLAVIROSTRIS Vimmer, 1932, Palestine.

Flavitaris Vimmer, 1932. Palestine. See PUNCTICOLLIS Becker. 1902.

FLAVIVENTRIS Santos Abreu, 1918. Canary Islands.

FLAVIVENULA Lutz in da Costa Lima, 1937. Brazil.

FLUMINEUS Macfie, 1937. Malay Arch.

FLUVIALIS Macfie, 1940. British Guiana.

Fluviatilis Lutz, 1914. First described as JOHANNSENIELLA was considered by Fairchild (1943) as CULICOIDES Lane (1945) determined it as LASIOHELEA.

FOLEYI Kieffer, 1922, Algeria.

FORMOSAE Kieffer, 1912. Formosa.

FOSSICOLA Kieffer, 1922. Schleswig-Holstein.

FRATERCULUS Santos Abreu, 1918. Canary Islands.

FULVITHORAX (Austen, 1912) East Africa.

citrinus Kieffer, 1921. Kamerun.

ochrothorax Carter, 1919. Gold Coast.

ruficollis Goetghebuer, 1935. Belgian Congo.

FURENS (Poey, 1853). Bahamas, Barbadas. Brazil. British Honduras. Cuba. Guatemala. Honduras. Jamaica. México. Nicaragua. Panama. Puerto Rico. Saint Vincent Island. Trinidad. U.S.A. Venezuela.

dovei Hall. 1932. U.S.A.

maculithorax (Williston, 1896). St. Vincent Island.

GEMELLUS Macfie, 1934. Borneo.

GEMINUS Macfie, 1937. Malay Arch.

GENTILIS Macfie, 1934. Malay Arch.

GERMANUS Macfie, 1940. British Guiana.

GEWERTZI Causey, 1938. Siam.

GIGAS Root d Hoffman, 1937. Canada.

Glabior Macfie, 1940. DEBILIPALPIS var. British Guiana. Brazil. Panama.

GLABRIPENNIS Goetghebuer. 1935. Belgian Congo.

nudipennis Goetghebuer, 1933. Belgian Congo. nec. Kieffer, 1922.

GRAHAMI Austen, 1909. Uganda. Nigeria. Lower Congo. Cold Coast.

hebereri Becker, 1909. Kamerun.

hostilissimus (Pitaluga, 1910) Spanish Guinea. Fernando Poo Island.

trichopis De Meillon, 1938. Belgian Congo.

GRISEIDORSUM Kieffer, 1918. Tunis.

GRISEOLUS Zetterstedt, 1855. Europe.

oculatus Strobl. 1900.

GRISEOVITTATUS Vimmer, 1932. Palestine.

GRISESCENS Edwards, 1939. Britain.

GUINEENSIS Kieffer, 1918. French.

GUTTATUS Coquillett, 1904. Brazil. Guatemala. México. Nicaragua. Panama. Trinidad.

diabolicus Hoffman, 1925. Colombia, Panama. Trinidad.

filariferus Hoffman, 1939. México.

Guttatus Lutz. 1913 Brazil. See INSIGNIS Lutz, 1913.

Guttatus Macfie, 1932. Colombia. See INSIGNIS Lutz, 1913.

GUTIFER de Meijere, 1907. Malay Arch. Sumatra. Siam.

leucostictus Kieffer, 1905. Seychelles Island.

var. HISTRIO Johannsen, 1946. Guam Island.

GUTIPENNIS (Coquillett, 1901). U.S.A.

Gutipennis de Meijere, 1906. See MEIJERERI Kieffer, 1919.

Guttularis Kieffer, 1919, Hungary. See PICTIPENNIS Straeger, 1839.

GUYANENSIS Floch d Abonnenc, 1942. French Guiana. Brazil. Canal Zone. Panamá.

recifensis Simoes Barbosa, 1943. Brazil.

stubalensis Fox, 1946. Trinidad.

GYMNOPTERUS Edwards, 1926. Borneo Sarawak.

HAEMATOPOTUS Malloch, 1915. U.S.A. México.

halobius Kieffer, 1914. Austria. See SALINARIUS Kieffer, 1914.

HALOPHILUS Kieffer, 1924. Germany. Norway.

biclavatus Kieffer, 1924. Central Europe.

pulicaris var. C. Europe. Edwards. 1926.

pulicaris var. *edwardsi* Goetghebuer. 1933. Europe.

pulicaris var. *edwardsianus* Goetghebuer, 1933. Europe.

Hebereri Becker, 1909. Kamerun. See GRAHAMI Austen, 1909.

HEGNERI Causey, 1938. Siam.

HELICONIAE Fox d Hoffman, 1944. Venezuela.

HELIOPHILUS Edwards, 1926. Britain.

Heterocercus Kieffer, 1921. Germany. See OBSOLETUS Meigen. 1918.

HEWITTI Causey, 1938. Siam.

HIEMALIS Santos Abreu, 1918. Canary Islands.

var. INMACULATUS Santos Abreu, 1918. Canary Islands.

HIEROGLYPHICUS Malloch, 1915. U.S.A.

Hirtipes Kieffer, 1917. Peru. Is *Dasyhelea* according Kieffer (1919).

HIRTIUS De Meillon d Lavoipierre, 1944. Transvaal.

var. MAGNUS Feijó Colaço, 1946. Transvaal

HIRTULUS Coquillett, 1900. Alaska.

HISTRIO Johannsen, 1940. GUTIFER de Meijere, 1907. var. Guam Island.

HOFFMANI Fox, 1946. Trinidad. Venezuela.

HOLLENSIS Melander d Brues, 1903. U.S.A.

HOMOTOMUS Kieffer, 1922. Formosa.

nueculosus Tokunaga, 1937. nec. Meigen, 1818. Japan and Manchuria.

osakensis Iwata, 1935. Osaka.

HORTICOLA Lutz, 1913. Brazil.

Hostilissimus Pittaluga, 1910. Spanish Guinea. Fernando Poo Island. See GRAHAMI Austen, 1909.

HOUSEI Causey, 1938. Siam.

HUFFI Causey, 1938. Siam.

HYLAS Macfie. 1940. British.

HYSIPYLES De Meillon, 1936. Transvaal.

I Tokunaga, 1941 *arcuatus* var. Manchuria. See PICTIPENNIS Staeger. 1839.

imicola Kieffer, 1913. First referred to as *Culicoides*, now is considered by Kieffer (1925) and Feijó Colaço (1946) as SYNHELEA.

INMACULATUS Santos Abreu. 1918. HIEMALIS var. Canary Islands.

IMPERFECTUS Goetghebuer. 1935. Belgian Congo. Macfie (1939) considers that this species may be ALLUAUDOMYIA or FANTHAMIA but Feijó Colaço (1946) still herds it as CULICOIDES.

Impressus Kieffer, 1918. Tunis. See PUNCTICOLLIS Becker. 1903.

IMPUNCTATUS Goetghebuer. 1920. Belgium. Britain Germany. Manchuria.

arcuatus Edwards, 1926. (nec. Winnertz, 1852). Britain.

var. MINOR Tokunaga, 1941. Manchuria.

INAMOLLAE Fox d Hoffman. 1944. Puerto Rico.

INDECORA Kieffer, 1912. Formosa.

INDIANUS Macfie, 1932. British Guiana.

INORNATIPENNIS Carter, Ingram d Macfie, 1920. Gold Coast.

var. RUTILUS Ingram d Macfie, 1921. West Africa.

Insignicornis Kieffer, 1913. Kieffer (1925) considers it as species of the genus TETRAHELEA. Feijó Colaço (1946) does not consider that this species is a CULICOIDES.

INSIGNIPENNIS Macfie, 1937. Malay Arch.

INSIGNIS Lutz, 1913. Brazil. México. Venezuela.

guttatus Lutz, 1913. (nec Coquillett, 1904) Brazil.

guttatus Macfie, 1932. (nec Coquillett, 1904) Colombia.

trinidadensis Hoffman, 1925. Trinidad.

INSULANS Macfie, 1935. Tahiti.

INTERMEDIUS Santos Abreu, 1918. Canary Islands.

JACOBSONI Macfie. 1934. Sumatra.

JAMAICENSIS Hoffman. 1925. LOUGHNANI var. Jamaica. Panama. México.

JAMESI Fox, 1946. U.S.A.

JAVANICUS Salm. 1917. Java.

JUDAEAE Macfie, 1933. Palestine.

JUDICANDUS Bezzi, 1917. Philippine Islands.

KABYLIENSIS Kieffer, 1922. Algeria.

KAGIENSIS Tokunaga, 1937. Formosa.

KIBATIENSIS Goetghebuer, 1935. Belgian Congo.

KIBUNENSIS Tokunaga, 1937. Japan. Manchuria.

KIEFFERI Goetghebuer, 1912. Belgium. See STIGMA. (Meigen, 1818).

Kiefferi Patton, 1913. India. See SCHULZEI (Enderlein, 1908).

KII Tokunaga, 1937. Japan.

KINGI Austen, 1912. Anglo-Egyptian Sudan. See SCHULZEI (Enderlein, 1908).

KIVUENSIS Goetghebuer, 1935. Belgian Congo.

KLOSSI Edwards, 1933. Borneo.

KRIBIENSIS Kieffer, 1921. Kamerun.

KUSAIENSIS Tokunaga, 1940.

Lacteinervis Kieffer, 1919. Hungary. See OBSOLETUS Meigen, 1818.

LAMBORNI Ingram d Macfie, 1925. Nyasaland.

LANGERONI Kieffer, 1921. Tunis.

LATIPENNIS Kieffer, 1919. Hungary.

Leucosticus Kieffer, 1905. Seychelles Island. See GUTTIFER de Meijeres 1907.

LIMAI Barreto, 1944. Brazil.

LINEATUS Kieffer, 1917. New Guinea.

LOPESI Barreto, 1944. Brazil.

LOUGHMANI Edwards, 1922. Jamaica.

Var. JAMAICENSIS Hoffman, 1925. Jamaica. Canal Zone. México.

LUGENS Kieffer, 1918. Natal.

LUTEIPALPIS Santos Abreu, 1918. Canary Islands.

LUTEOSCUTELLATUS Santos Abreu, 1918. Canary Islands.

LUTEOSIGNATUS Vimmer, 1932. Palestine.

LUTEOVENUS Root d Hoffman. 1937. México. Canal Zone.

LUTZI Lima, 1937. Brazil.

MACFIEI Causey, 1938. Siam.

MACROSTOMA Kieffer, 1910. East Indies. Is *Dasyhelea* according Kieffer, (1919).

MACULATUS (Shiraki, 1913). Formosa.

tainana Kieffer, 1916.

Maculatus Zilah, 1936. L. Balaton. See PICTIPENNIS (Straeger: 1839).

MACULIPENNIS (Macfie, 1925) Malay.

Maculithorax (Williston. 1896). Saint Vincent Island. See FURENS (Poey, 1853).

MAGNUS Feijó Colaço 1946. HIRTIUS var. Transvaal.

MALAYAE Macfie, 1937. Malay Arch.

MANCHURIENSIS Tokunaga, 1941. Manchuria.

Maritimus Kieffer, 1924. Holstein. See ODIBILIS Austen. 1921.

MARIUM Lutz, 1913. Brazil. Venezuela.

MARMORATUS (Skuse, 1939) Australia.

MAYERI Goetghebuer, 1935. Germany.

Meeserellus De Meillon, 1936. South Africa. See PYCNOSTICTUS Ingram & Macfie, 1925.

MEIJERERI Kieffer, 1919,
gutipennis de Meijere, 1906.

Meinerti Kieffer, 1915. Denmark, See SALINARIUS Kieffer, 1914.

MELANESIAE Macfie, 1939. New Guinea.

MELEUS Coquillett, 1901. U.S.A.

MESOPOTAMIENSIS Pattor, 1920. Mesopotamia.

MICROMACULATUS Vimmer, 1932. Palestine.

MIHARAI Kinoshita, 1918. Korea.

MILNEI Austrn, 1909. East Africa.

MINOR Tokunaga, 1941. IMPUNCTATUS var. Manchuria.

MINUTISSIMUS Zetterstedt, 1855. Europe.
pumilus (Winnertz, 1825) Europe.
nanulus Kieffer, 1919. Hungary.

MISSISSIPIENSIS Hoffman. 1926. U.S.A.

MOLESTUS (Skuse, 1839). Australia.

MOLLIS Edwards. 1928. Samoa.

MONTIVAGUS Kieffer. 1910. East Indies. According to Kieffer (1919) is *Dasyhelea*.

MULTIMACULATUS (Skuse, 1839) Australia.

MULTIPUNCTATUS Malloch. 1915, U.S.A.

MUSCICOLA Kieffer, 1925. France.

MYSTACINUS Vimmer. 1932. Palestine.

Nadayanus Kieffer, 1918. Asia Minor. See CIRCUMSCRIPTUS Kieffer 1918.

Nanulus Kieffer, 1919. Hungary. See MINUTISSIMUS Zetterstedt, 1855.

Nanus Root & Hoffman. 1937. U.S.A.

NEAVEI Austen. 1912. Anglo-Egyptian Sudan.

NEGLECTUS (Winnertz. 1852) Central Europe.

neglectus var. *albohalteratus* Goetghebuer 1935. Europe.

NIGER Root d Hoffman. 1937. U.S.A.

NIGERIAE Ingram d Macfie, 1921. Nigeria.

NIGRIPENNIS Carter, Ingram d Macfie, 19 20. Gold Coast.

NIGROANNULATA Goetghebuer. 1932. Duth East Indies.

NIGROSIGNATUS Kieffer, 1901. France.

Nigrus Tokunaga. 1941. *arcuatus* var. Manchuria. See PICTIPENNIS Staeger 1839.

NILOGENUS Kieffer, 1921. Soudan.

Nilophilus Kieffer 1921. Soudan. Feijó Colaço (1946) considers that this species is not a CULICOIDES

NILOTES Kieffer, 1924. Egypt.

NITENS Edwards, 1933. Borneo.

Nitidulus Kieffer, 1910. East Indies. According to Kieffer, 1919 is *Dasyhelea*.

NIVOSUS De Meillon, 1937. Zululand. Lourenço Marques.

NOCIVUM Harris. 1862. U.S.A.

NUBECULOSUS (Meigen. 1818). Europe.

punctaticollis Goetghebuer. 1920. Europe.

puncticollis Goetghebuer. 1912. (nec Becker. 1902) Belgium.

Nubeculosus Tokunaga, 1937. nec Meigen, 1818. Japan and Manchuria. See HOMOTOMUS Kieffer, 1922.

NUDIPENNIS Kieffer. 1922. Algeria.

Nudipennis Goetghebuer, 1933. Belgian Congo. See GLABRIPENNIS Goetghebuer. 1935. Belgian Congo.

Obscuripes Santos Abreu. 1918. *varius* var. Canary Islands. See OBSOLETUS Meigen. 1818.

OBSOLETUS (Meigen, 1818) Holarctic.

clavatus Kieffer. 1924. Palearctic.

concitus Kieffer. 1923. Europe.

heterocercus Kieffer, 1921. Germany.

lacteinervis Kieffer. 1919. Hungary.

obscuripes Santos Abreu. 1918. *varius* var. Canary Islands.

pegobius Kieffer. 1922. Germany. Koro Takahasi (1944) report the species from Japan.

rivicola Kieffer, 1924. France. 1933.

sanguineus Goetghebuer, 1933. Ascr. Coquillett, 1901. U. S. A.

sanguisugus (Coquillett, 1901) U. S. A.
varitus (Winnertz, 1852).
yesoensis (Matsumara, 1915). Japan.
OCELLARIS Kieffer, 1921. PULICARIS var. Europe.
Ochrothorax Carter, 1919. Gold Coast. See FULVITHORAX (Austen, 1912) .
OCTOSIGNATUS Kieffer, 1921. Belgian Congo.
Oculatus Strobl, 1900. See GRISOLEUS (Zetterstedt, 1855).
ODIATUS Austen, 1921. Palestine.
pallidicornis var. *bruneoscutellatus* von Zilahi, 1934. Bulgaria.
ODIBILIS Austen, 1921, Lower Volga.
festivipennis Kieffer. Europe.
winnertzi, Edwards, 1926, Europe.
Oliveri Fox d Hoffman, 1944. Haiti.
ONOI Tokunaga, 1940. Manchuria.
Opacus Kieffer, 1910. East Indies. According to Kieffer (1919) is DASYHELEA.
ORIENTALIS Macfie, 1932. Malay Arch. India. Java. Siam.
ORNATIGASTER Santos Abreu, 1918. Canary Islands.
Oosakensis Iwata, 1935. Osaka. See HOMOTOMUS Kieffer, 1922.
Oxystoma Kieffer, 1910. India. See SCHULTZEI (Enderlein, 1908).
PACHYMERUS Lutz, 1914. Brazil.
PAINTERI Fox, 1946. Honduras.
PALLIDICORNIS Kieffer, 1919. Hungary.
disticus Kieffer, 1916. Sweden.
dileucus Kieffer, 1921. France.
subfascipennis Goetghebuer, 1933. In part. nec Kieffer, 1919. Europe.
Pallidicornis var. *bruneoscutellatus*, von Zilahi, 1934. Bulgaria. See ODIATUS Austen 1921.
PALLIDIPENNIS Carter, Ingram d Macfie, 1920. Gold Coast.
PALMERAЕ James, 1943. U. S. A.
PALPALIS Macfie, 1948. Mexico.
PAMPOIKILUS Macfie, 1948. Mexico.
PANAMENSIS Simoes Barbosa, 1947. Canal Zone.
PANAMERICANUS Fox, 1947. Mexico.

PARAENSIS (Goeldi, 1905) Brazil, Grenada, W. I. Panama, Peru, Trinidad. Venezuela.
undecimpunctatus Kieffer, 1917. Argentina.

PARROTI Kieffer, 1922. Europe. North Africa, Sahara, Turkey.

Pattoni Kieffer, 1921. India. See SCHULTZEI (Enderlein, 1908).

PAUCIENFUSCATUS Barbosa, 1947. Brazil. Panama.

Pegobtus Kieffer, 1922. Germany. See OBSOLETUS Meigen, 1818.

PELILIONENSIS Tokunaga y Esaki, 1936. Palau Islands.

PEREGRINUS Kieffer, 1910. Siam Formosa. India.

esmoneti Salm, 1917. Java.

var. *assamensis* Smith d Swaminath, 1932. Assam.

Perpungens Kieffer. 1925. France. nec de Meijere, 1909 nec Salm 1914. See VEXANS (Staeg. 1839).

PHARAO Kieffer, 1924. Egypt.

PHILIPPINENSIS Kieffer, 1921. Philippine. Islands.

PHLEBOTOMUS (Williston, 1896) St. Vincent Island. Puerto Rico. Honduras.

PHOTOPHILUS Kieffer, 1911. Germany.

Pictidorsum Kieffer, 1924. *salicola* var. See CIRCUMSCRIPTUM Kieffer, 1918.

PICTIPENNIS (Staeger, 1839) Europe. Lower Volga.

guttularis Kieffer, 1918. Hungary.

arcuatus Winnertz, 1852. Europe.

maculatus von Zilahi, 1936. *pictipennis* var. L. Balaton.

arcuatus var. *nigrus* Tokunaga. 1941. Manchuria.

Pictipennis (Philippi, 1865) Chile. Edwards (1931) notes that the name is occupied and that the species probably has been described with other name.

Pictipennis (Winnertz, 1852) nec Staeger, 1839 is ODIBILIS Austen 1921 according to Edwards (1939).

Piliferus Root d Hoffman, 1937. U. S. A. Mexico.

PILOSIPENNIS Kieffer, 1924. Egypt.

Poikilonotus Macfie, 1948. Mexico.

Polymaculatus Vimmer, 1932. Palestine. See CIRCUMSCRIPTUS Kieffer, 1918.

POLYSTICUS Kieffer, 1921. Paraguay.

PONKIKIRI Kono d Takahasi, 1940. Japan.

Praetermissus Carter, Ingram d Macfie, 1920. Gold Coast, Lourenço Marques. The female is EGYPTI Macfie. 1924, the male is PYCNOSTICTUS Inghlatn d Macfie, 1925, according to Feijó Colaço (1946).

PROPIIPENNIS Macfie, 1948. Mexico.
PROPINQUUS Macfie. 1948. Mexico.
PSEUDODIABOLICUS Fox, 1946. Trinidad.
PSEUDOPULICARIS Goetghebuer, 1935. Belgian Congo.
Pulcher von Zilahi, 1934. Bulgaria. See CIRCUMSCRIPTUS Kieffer, 1918.
Pulchripennis Macfier 1939. Brazil.
PULCHRIPES Santos Abreu, 1918. Canary Islands.
PULICARIS (Linné, 1758) Europe.
punctatus (Meigen, 1804) Europe.
flavipluma (Kieffer. 1924) Holstein.
cinerea (Kieffer, 1925) Hungary.
cinerellus (Kieffer, 1919) Hungary.
stephensi (Carter, 1916) Africa.
var. *pulicaris* (Linné, 1761) Kieffer, 1921. Europe.
var. *ocellaris* (Kieffer, 1921) Europe Manchuria.
var. *edwardsi* (Goetghebuer. 1926) North Africa.
var. *algecirensis* (Strobl. 1900) Algeria.
sawamotoi Kono d Takahasi, 1940. Japan.
Pullatus (Kieffer, 1915) See RIETHI (Kieffer, 1914).
Pumilus (Winnertz. 1852). See MINUTISSIMUS (Zettersted, 1855).
Punctaticollis (Goetghebuer, 1920) Europe. See NUBECULOSUS (Meigen. 1818).
Punctatidorsum (Kieffer, 1924). Holstein. See SALINARIUS Kieffer, 1914.
Punctatus (Meigen. 1804) Europe. See PULICARIS (Linné, 1758).
PUNCTICEPS Goetghebuer d Lenz, 1933. Austria.
PUNCTICOLLIS (Becker, 1903). Palearctic.
pulicaris var. *algecirensis* (Strobl. 1900). Algeria.
impresus (Kieffer. 1918). Tunis.
donatieni (Kieffer, 1922). Africa.
sciniphes (Kieffer, 1924). Egypt.
flavitarsis Vimmer, 1932. Palestine.
vavrai (Vimmer, 1932). Palestine.
bipunctatus Vimmer, 1932.

nubeculosis (Medwedewa, 1928) (nec Meigen, 1818).

Puncticollis (Goetghebuer, 1912) (nec Becker, 1903) Belgium. See NUBECULOSUS (Meigen, 1818).

PUNCTIDORSUM (Kieffer, 1924). Europe.

PUNCTITHORAX Carter, Ingram d Macfie, 1920. Gold Coast.

PUNGENS de (Meijere, 1909). Sunda Arch.

actoni (Smith, 1929). India.

Pungens (Kieffer, 1901). France. See *vexans* (Staeg. 1839).

PURIPENNIS (Austen. 1921). Palestine.

PUSILLUS (Lutz, 1913) . Caribbean Islands. Central and South America. Mexico.

PYCNOSTICUS Ingram d Macfie, 1935. Mozambique, Natal.

alexis (De Meillon, 1936). Transvaal.

meeserellus (De Meillon, 1936). South Africa.

praetermissus Carter, Ingram d Macfie, 1920. Male. Gold Coast. Lourenço Marques.

Quadrilobatus (Kieffer, 1910). East Indies. According to Kieffer (1919) is DASYHEL EA.

QUADRIPUNCTATUS (Goetghebuer, 1934). Central Europe.

QUADRISIGNATUS (Kieffer, 1921). Kamerun.

QUADRIVITTATUS (Vimmer, 1932). Palestine.

QUINQUELINEATUS (Goetghebuer, 1934). Belgian Congo.

QUINQUEMACULATUS (Vimmer, 1932). Palestine.

Qinquepunctatus (Goetghebuer, 1921). Belgium. See SETOSINERVIS (Kieffer, 1913).

RABAULI (Macfie, 1939). New Guinea.

RARIPALPIS (Smith, 1929). Malaya. Kuala Lumpur. Siam.

RAVUS de (Meillon, 1936). Transvaal.

RECIFEI Simoes (Barbosa, 1947). Brazil.

RECIFENSIS Simoes (Barbosa, 1943). Brazil. See GUYANENSIS Floch d AbonnenÇ 1942.

REMOTUS (Kieffer, 1918). French Guinea.

RETICULATUS (Lutz, 1913). Brazil.

RIETHI (Kieffer, 1914). Holarctic.

pullatus (Kieffer, 1915).

crassiforceps (Kieffer, 1924). Central Europe.

cordatus (Kieffer, 1921). Baltic.

Rivicola (Kieffer. 1921). France. See OBSOLETUS (Meigen. 1818).

ROZEBOOMI Simoes (Barbosa, 1947). Trinidad. Perú. Panamá.

RUFICOLLIS (Goetghebuer, 1935). Belgian Congo.

RUTILUS Ingram d Macfie, 1921. INORNATIPENIS var. Gold Coast.

arenarius (Edwards, 1922). British Somaliland.

RUTSHURUENSIS (Goetghebuer, 1935). Belgian Congo.

SAEVUS (Kieffer, 1922). Algeria.

SAHARIENSIS (Kieffer, 1923). Algeria.

Salicola (Kieffer, 1924). *pictidorsum* var. Norway. See CIRCUMSCRIPTUS (Kieffer, 1918). Norway.

SALINARIUS (Kieffer, 1914). Algeria. Britain.

halobius (Kieffer, 1914). Austria.

meinerti (Kieffer, 1915). Denmark.

punctatidorsum (Kieffer, 1924). Holstein.

crassiforceps (Lenz, 1934). nec (Kieffer, 1924). Palearctic.

SANCTAE-MARTAE (Kieffer, 1917). Colombia. According to Kieffer (1919) is DASYHELEA.

Sanguineus Goetghebuer d Lenz, 1934. Ascr. Coquillett, 1901. U. S. A. See *obsoletus* (Meigen, 1818) .

Sanguisugus (Coquillett, 1901) U. S. A. See *obsoletus* (Meigen, 1818).

Sawamotoi Kono d Takahasi, 1940. Japan. See PULICARIS (Linné, 1758).

Scapularis Kieffer, 1910. East. Indies. According to Kieffer (1919) is DASYHELEA.

SCHULTZEI (Enderlein, 1908) South West Africa. Zululand. Malay Arch. Formosa. Japan. Belgian Congo.

kinyi Austen, 1912. Anglo-egyptian Sudan.

Kingi Austen, 1912. Anglo-egyptian Sudan.

Kiefferi Patton, 1913. India.

oxystoma Kieffer, 1910. India.

patroni Kieffer, 1921. India.

Sciniphes Kieffer, 1924. Egypt. See PUNCTICOLLIS Becker, 1902.

SCOPUS Root d Hoffman, 1937. Mexico.

Scotti Kieffer, 1905. Seychelles Islands. According to Feijó Colaço (1946) this is not a *Culicoides*.

SCUTELLATUS var. TIGALATENSIS Santos Abreu, 1918. Canary Islands (See note).

SEPTEMACULATUS Goetghebuer, 1935. Belgian Congo.

SERGENTI (Kieffer, 1921). Algeria.

SERICATUS var. ALBOHALTERATUS Santos Abreu, 1918. Canary Islands (See note).

Setifer (Lutz, 1913) Brazil. See CARIDEI (Brethes, 1912).

SETIGER Goetghebuer, 1938. Belgium.

Setiger Kieffer, 1910. East Indies. According to Kieffer (1919) is DASYHELEA.

SETOSNERVIS (Kieffer, 1913). Europe.

quinquepunctatus (Goetghebuer, 1921). Europe.

Seychellensis (Kieffer, 1905). Seychelles Islands. According to Feijó Colaço (1946) this is not considered to be a *Culicoides*.

Shimai (Sasaki, 1927) Japan. See SUGIMOTONIS (Shiraki, 1913).

SHORTTI Smith d Swaminath, 1932. India. Malay Arch Siam. Australia.

SIGAENSIS (Tokunaga, 1937). Japan.

SiGNATUS (Kieffer, 1921). French Soudan.

SILVESTRII (Kieffer, 1918). Kamerun.

SIMILIS (Macfie, 1921). Gold Coast. India. Siam.

SIMULANS (Vimmer, 1932). Palestine.

Simulans Root d Hoffman, 1937. U. S. A. See TRAVISI (Vargas, 1949).

SIMULATOR (Edwards, 1939). Britain.

SINANOENSIS (Tokunaga, 1937). Japan. Manchuria.

SORDIDELLUS (Zetterstedt, 1938). Greenland.

SPINOSUS Root d Hoffman, 1937. U. S. A.

STELLIFER (Coquillett, 1901). U. S. A. Trinidad. Venezuela.

Stephensi (Carter, 1916). Africa. See PULICARIS (Linné, 1758) Europe.

STIGMA (Meigen, 1818). Europe. Africa.

cordiformitarsis (Carter, 1916). Africa.

Kiefferi (Goetghebuer, 1912). Belgium.

unimaculatus (Goetghebuer, 1920). Belgium.

STIGMATICUS (Kieffer, 1911). Central Europe. Lower Volga.

Stonei (James, 1943). U. S. A.

Stubalensis (Fox, 1946). Trinidad. See GUYANENSIS. Floch Abonnenc. 1942.

STYLIFER (Lutz, 1913) . Brazil.

SUBFASCIPENNIS (Kieffer, 1919). Europe.

Subfascipennis (Goetghebuer, 1933). Europe. (nec Kieffer, 1919). See PALLIDICORNIS (Kieffer, 1919).

Subfascipennis var. *analis* (Kieffer, 1921). Belgium. See CUBITALIS Edwards, 1939.

Subneglectus Vimmer, 1932. Palestine.

SUGIMOTONIS Shiraki, 1913. Formosa. Japan.
alboguttatus Kieffer, 1921. Japan.
arakawae (Matsumura, 1915) . Japan.
shimai (Sasaki, 1927) . Japan.

SUMATRAE Macfie, 1934. Malay Arch.

SUSSAE Kieffer, 1919. Italy.
Tainana Kieffer, 1916. Formosa. See MACULATTUS (Shiraki, 1913).

TAIWANUS (Shiraki, 1913) Formosa. According to Tokunaga (1937) is a LASYHELEA.

TENTORIUS Austen, 1921. Palestine.

TIGALATENSIS Santos Abreu. 1918. SCUTELLATUS var. Canary Islands.

TOBAENSIS Tokunaga. 1937. Japan.

TORKWENSIS De Meillon. 1942. Southern Rhodesia.
Townsvillensis Taylor. 1918. Australia. According to Macfie, 1939. is *Lasiohelea*.

TRANSIENS Walker. 1948. Canada.

TRAVISI Vargas. 1949. U. S. A.
simulans Root d Hoffman, 1937. U. S. A.

Trichopis De Meillon. 1937. Belgian Congo. See GRAHAMI Austen, 1909.

TRIFASCIELLUS Goetghebuer, 1935. Belgian Congo.

TRILLINEATUS Fox, 1946. West Indies.
Trinidadensis Hoffman, 1925. Trinidad. See INSIGNIS Lutz, 1913.

TRIPUNCTATUS Vimmer, 1932. Palestine.

TRISIGNATUS Kieffer, 1921. Kamerun.

TRISTRATULUS Hoffman, 1925. COCKERELLI. U. S. A. Mexico.

TRIVITTATUS Vimmer, 1932. Palestine.

TROPICALIS Kieffer, 1913. British East Africa.

TRUNCORUM Edwards, 1939. Britain.
Turficola Kieffer, 1925. Estonia. See FASCIPENNIS Staeg. (1839).

Undecimpunctatus Kieffer, 1917. Argentine. See *paraensis* Goeldi, 1905.

UNGUIS Tokunaga, 1940. Japan.

UNICOLOR (Coquillett, 1905). U. S. A.
Unimaculatus Goetghebuer, 1920. Belgium. See STIGMA Meigen. 1818.

UNIVITTATUS Vimmer, 1932. Palestine.

UTAHENSIS Fox, 1946. U. S. A.

VARICORNIS Santos Abreu, 1918. Canary Islands.

VARIIPPENNIS (Coquillett, 1901). U. S. A. Mexico.

Varius (Winnertz, 1852). See OBSOLETUS Meigen, 1852.

var. *obscuripes* Santos Abreu, 1918. Canary Islands. See OBSOLETUS Meigen. 1852.

Vavrai Vimmer, 1932. Palestine. See PUNCTICOLLIS Becker, 1902.

VENUSTUS Hoffman, 1925. U.S.A.

VERBOSUS Tokunaga, 1937. Formosa.

VERECUNDUS Macfie, 1948 Mexico.

VERSICOLOR (See note).

var. ALBIDIPES Santos Abreu., 1918. Canary Islands.

VEXANS (Staeg, 1839). Denmark.

pungens (Kieffer, 1901). France.

perpungens Kieffer, 1925. France.

VICTORIAE Macfie, 1941. Australia.

VILLOSIPPENNIS Root d Hoffman, 1937. U.S.A.

Villosipes Kieffer, 1917. Paraguay. According Kieffer (1919). Is *Dasyhelea*.

Vitreipennis Austen, 1921. Palestine. See ALBIHALTER Kieffer, 1921.

Vitshumbiensis Goetghebuer, 1935. Belgian Congo. See AUSTENI Carter, Ingram d Macfie, 1920.

VOLATILIS Goetghebuer, 1935. Belgian Congo.

VARICORNIS Santos Abreu, 1918. Canary Islands.

wasoni Goetghebuer, 1938. Belgian Congo. See DISTINCTIPPENNIS Austen, 1912.

WENIGI Vimmer, 1932. Palestine.

WINNERTZI Edwards, 1926. Europe. See ODIBILIS Austen, 1921.

WOKEI Fox, 1947. Canal Zone. (See note 2).

WOKEI Simoes Barbosa, 1947. Panamá. México. Guatemala. Nicaragua. (See note 2).

XANTHOCERAS Kieffer, 1917. New Guinea.

Xanthocoma Kieffer, 1913. India. Is *Alluaudomya gloriosa* Kieffer, 1925. Austria.

XANTHOGASTER Kieffer, 1918. French Guiana.

Yesoensis (Matsumura, 1915). Japan. See OBSOLETUS (Meigen, 1818).

YUKONENSIS Hoffman, 1925. Alaska. Mexico.

ZULUENSIS De Meillon, 1936. Zululand.

NOTES. Santos Abreu (1918) described as varieties several possibly good species of *Culicoides* but the species mentioned, described by old authors, have been included in different genera.

REFERENCES

- ATCHLEY, F. O. d J. B. HULL, 1936. Ovoposition by *Culicoides* breeding in salt marshes. J. Parasitol. 22: 514.
- AUSTEN, E. E., 1909. Ann. Mag. Nat. Hist. 3: 280-282.
- 1909. Illustrations of African Bloodsucking flies. London.
- 1912. Notes on African Blood-sucking midges (Family Chironomidae, subfamily Ceratopogoninae) with descriptions. Bull. Ent. Res. 3: 99-108.
- 1921. A contribution to knowledge of the Blood-sucking diptera of Palestine, other than Tabanidae. Bull. Ent. Res. 1 2: 107-124.
- BARRETO, M. P., 1944. Sobre o Genero *Culicoides* Latreille, 1809. con a Descripcao de tres novas especies (Diptera, Ceratopogonidae) An. Fac. Med. Univ. S. Paulo, 20: 89-115.
- BECKER, T. 1903. Aegyptische Dipteren. Mith. Zool. Mus. Berlin. 2: 1-195.
- 1909. Lahreshefte des Vereins für vaterland. Naturkunde in Württemberg, 9: 289.
- BEDFORD, G. A. H., 1927. 11th d 12 th. Reports Dir. Vet. Edn. d Res. U.S. Africa. pp. 286-287.
- BEQUAERT, J., 1926. Cont. Harvard Inst. Trop. Biol. Med. 4: 203.
- BEZZI, M., 1917. Studies in Phillippine *Diptera*. II. Philline Journal of *Science*, 12:108.
- BRÉTHES, J., 1912. Descripción de un nuevo género y especie nueva de Chironomidae. Anls. Mus. Nac. Hist. Nat. Buenos Aires, 22: 451-453.
- BRICEÑO IRAGORRY, L. 1949. Breve note sobre Culicoides. Bol. Lab. Bol. Lab. Clin. L. Razetti. 15: 318-319.
- BUCKLEY, J. J. C. 1933. A note on the development of *Filaria ozzardi* in *Culicoides furens* Poey. J. Helminth. 11: 257-258.
- 1934. On the Development in *Culicoides furens* Poey. of *Filaria* (= Mansonella) *ozzardi* Manson, 1857. J. Helminth. 12 : 99-118.
- 1938. On *Culicoides* as a vector of *Onchocerca gibsoni* (Cleveland and Johnson. 1910). J. Helminth. 16: 121-151.
- CARTER, H. F., 1916. On three new African midges. Ann. Trop. Med. d Parasit., 10:131-138.
- 1919. New West African Ceratopogoninae. Ann. Trop. Med. d Parasit. 12 :289-302.
- CARTER, H. F., A. INGRAM d J. W. S. MACFIE, 1920. Observations on Ceratopogoninae midges of the Gold Coast, with descriptions of new species. Part I-II. Ann. Trop. Med. d Parasit. 14: 211-274.
- 1921. Observations on the Ceratopogoninae midges of the Gold Coast with descriptions of new species. III. Ann. Trop. Med. Parasit. 15: 309-331.
- 1922. Observations on the Ceratopogoninae midges of the Gold Coast with descriptions of new species. IV. Ann. Trop. Med. Parasit. 16: 177-212.
- CAUSEY, O. R., 1938. *Culicoides* of Siam with Descriptions of new species. Amer. J. Hygs. 27: 399-416.
- COQUILLET, D. W. 1901. New Diptera in the U. S. Nat. Mus. Proc. U. S. Nat. Mus. 23: 593-618.

- 1905. New Nematocerosus Diptera from North America. J. New York Ent. Soc. 13: 56-69.
- COLLADO, GIL J., 1931. Nota sobre el jen-jen de Fernando Poo. Medicina Países Cálidos, 4: 236-240.
- 1931a. Note sur le jen-jen de Fernando Pool Bull. Soc. Path. exot. 24: 672-677.
- CORDERO, E. H., 1929. Contribución al estudio de los dipteros del Uruguay. Anls. Mus. Hist. at. Montevideo. 3: 93-108.
- COSTA LIMA, A. da. 1937. Chave das especies de *Culicoides* da regioa neotropica (Diptera. Ceratopogoninae). Mem. Inst. Oswaldo Cruz, 32: 411-422.
- DAMPF, A., 1926. Zur Kenntnis der estländischen Hochmoor-fauna (IV. Beitrag). SitzBer. Naturf. Ges Univ. Tartus. 33: 57-98.
- 1935. Los Ceratopogónidos o Jejenes (Insecta, Diptera, Fram. Ceratopogonidae) como Transmisores de Filarias. Medicina. 16: 227-233. México.
- 1936. Les Ceratopogonidés agents transmetteurs de filaires. Bull. Off. Int. Hygs. Pub. 28: 1955-1960.
- DOVE, W. E., D. G HALL d J. B. HULL. 1932. The Salt marsh Sand Fly Problem. Ann. Ent. Soc. Amer. 25: 505-527.
- DUTOIT, R. M. 1944. The transmission of blue-tongue and horse-sickness by *Culicoides*. Onderstepoort J. Vet. Sci. 19: 7.
- EDWARDS, F. W., 1922. On some malayan and other species of *Culicoides* with a note on the genus *Lasiohelea* Bull. Ent. Res. 13:161-168.
- 1926. On the British Biting midges. Trans. Ent. Soc. London. 74: 389-426.
- 1931. *Culicoides riethi* Kieffer, a new British biting midge. Entomologist 64: 1.
- 1933. Diptera Nematocera from Mount Kinabalu. J. F. M. S. M. 17: 223-296.
- 1938. *Culicoides sordidellus* Zett. Ann. Mag. at. Hist. 1: 345.
- EDWARDS, F. W., H. OLDROYD d J. SMART, 1939. British Blood-sucking Flies. British Mus. (Nat. Hist.) London.
- ENDERLEIN, G., 1908. Densk. Med. Ges. Jena, 1: 155-162.
- ESAKI, T., 1939. Arthropoda injurious to Man in Mandated South Sea Islands of Japan (Ist. Report) (In Japanese). Vol. Jub. Prof. S. Yoshida. 1: 230-252. Osaka Nat. Hist. Soc.
- FAIRCHILD, G. B., 1943. Am. J. Trop. Med. 23: 572.
- FLOCH, H. et E. ABONNENC. 1942. Ceratopogonides hemaophages de la Guyane Francaise. Inst. Pasteur Guy. Terr. Inini. Pub. 37: 1-10.
- 1942a. Ceratopogonides hematophages de la Guyane Francaise. II. Inst. Pasteur Guy. Terr. Inini. Pub. 49: 1-5.
- FOX, I., 1946. A review of the species of biting midges or *Culicoides* from the Caribbean Region (Diptera. Ceratopogonidae). Ann. Ent. Soc. Amer. 39: 248-258.
- 1946a. Two new biting midges or *Culicoides* from Western United States (Diptera, Ceratopogonidae). Proc. Ent. Soc. Wash. 48: 244-246.
- 1947. Two new Central America Biting midges or *Culicoides*. Kuba, 3: 90-91.
- FOX, I. d W. A. HOFFMAN, 1944. New Neotropical Biting Sandflies of the Genus *Culicoides* (Diptera: Ceratopogonidae). Puerto Rico J. Pub. Health d Trop. Med. 20:108-115.
- GOELDI, E. A., 1905. Os mosquitos no Pará. Mem. Mus. Goledi, 4: 1-154.

GOETGHEBUER, M., Rev. de la Soc. Entom. Namur 10: 96.

— 1912. Quelques chironomides nouveaux de Belgique. Ann. Biol. Lacustre, 5: 1-11.

— 1920. Ceratopogoninae de Belgique. Mem. Mus. Belgique, 8 (3)1-116.

— 1921. Chironomides de Belgique. Mem. Mus. Belgique, 8 (4)1-208.

— 1932. Resultats scientifiques du voyage aux Indes Orientales neerlandaises de L.L.A.A.R.R. le prince et la princesse Leopold de Belgique. Dipteral. Ceratopogonidae et Chironomidae. Mem. Mus. H. n. Bel. 4: 5-7.

— 1933. Ceratopogonidae et Chironomidae nouveaux ou peu connus d'Europe. 11 IV-. Bull. Ann. Soc. Ent. Belgique, 72: 287-294.

— 1933a. Ceratopogonidae et Chironomidae du Congo Belgue. Rev. Zool. Bot. Afr. 24: 129-151.

— 1934. Ceratopogonidae et Chironomidae recoltés par M. le Prof. Thienemann dans les environs de Garmisch-Partenkirchen (Haute Baviere) et par M. Geükes pres de Bale den le Röserenbach. Bull. Ann. Soc. Ent. Belg. 74: 334-350.

— 1935. Un *Culicoides* nouveaux (*C. wansoni* sp. n.) du Bas Congo. Rev. Zool. Bot. Afr. 26: 477-478.

— 1935b. Ceratopogonidae et Chironomidae nouveaux ou peu connus d'Europe. 6e note. Encycl. Ent. Dipt. Ser. B. II. 8: 3 -14.

— 1935c. Note a propos des Ceratopogonidae (Dips. Nemat.) Bull. Ann. Soc. Ent. Belg. 75: 309, 414.

— 1938. Note sur quelques Ceratopogonidae de Belgique. Bull. Ann. Soc. Ent. Belg. 78: 375-380. Brussels.

GOETCHEBUER, M. d F. LENZ, 1934. Heleidea (Ceratopogonidae). In Lindner's "Die Fliegen". Stuttgart.

HALL, D. G., 1932. A new biting *Culicoides* from saltmarshes in the southeastern states. Proc. Ent. Soc. Wash. 34:88-89.

HARRIS, T. W., 1862. Insects injurious to vegetation-Flint Edition. page 602.

HILL, M. A., 1947. The life-cycle and habits of *Culicoides impunctatus* Goetghebuer and *Culicoides obsoletus* Meigen together with some observations on the life-cycle of *Culicoides odibilis* Austen, *Culicoides pallidicornis* Kieffer, *Culicoides cubitalis* Edwards and *Culicoides chiopterus* Meigen. Ann. Trop. Med. Parasit. 41: 55.

HOFFMAN, W. A., 1925. A review of the species of *Culicoides* of North and Central America and the West Indies. Amer. J. Hyg. 5: 274-301.

— 1939. *Culicoides filariferus* n. sp. Puerto Rico J. Pub. Health and Trop. Med. 15:172-174,

INGRAM, A. d J. W. S. MACFIE, 1921. West African Ceratopogoninae. Ann. Trop. Med. d Parasit. 15: 313-376.

— 1922. West African Ceratopogoninae. Ann. Trop. Med d Parasit. 16: 243-282.

— 1923. Notes on some African Ceratopogoninae. Bull. Ent. Res. 14: 41-74.

— 1924. A further note on African Ceratopogoninae. Bull. Ent. Res. 15: 179-189.

— 1925. New Ceratopogoninae from Mysaland (Dipt.) Bull. Ent. Res. 15: 283-288.

IWATA, M., 1935. On blood-sucking dipterous Insects. Hiroshima-Konshn-DokokaiKaishi. 2: 5-9. (Japanese).

JAMES, M. T., 1943. genus *Culicoides* in Northen Colorado. Pan Pacific Entomologist, 19: 148-153.

JOHANNSEN, O. A., 1931. Ceratopogoninae from de Malayan subregion of the Dutch East Indies. Arch. f. Hydrobiol. Suppl. 9: 403-448.

- 1943. A generic synopsis of the Ceratopogonidae (Heleidae) of the Americas, a bibliography and a list of the North American species. *Ann. Ent. Soc. Amer.* 36:763-791.
- KIEFFER, J. J., 1901. Synopse des representants europeens du groupe *Ceratopogon*, avec description d'especes nouvelles. *Bull. Soc. Nat. Hist. Metz.* 21: 143-165.
- 1905. *Trans. Lin. Soc. Lond.* 14: 342.
- 1906. *Diptera. Fam. Chironomidae. Genera Insectorum.* 42.
- 1910. Etude sur les chironomides des Indes Orientales avec description de quelques nouvelles especes d'Egypte. *Mem. Ind. Mus.* 2:181-242.
- 1911. Nouvelles descriptions de chironomides obtenus d'eclosion. *Bull. Soc. hist. nat. Metz.* 27: 1-60.
- 1913. Voyage de C. Allnaud et R. Jeannel en Afrique Oriental 1:11.
- 1913a. Nouveau chironomides d'Allaunaque. *Bull. Soc. Hist. Nat. Metz.* 28: 7-36.
- 1914. Zwölf. neue Culicoiden Arten. *Arch. Hydrobiol. Supp.* 2: 231-241.
- 1915. *Arch Hydrobiol. Supp.* 2: 474.
- 1915a. Über dänische chironimiden. *Ent. Medd.* 10: 280-297.
- 1917. Chironomides d'Australie conservees au Musee National Hongrois de Budapest. *An. Mus. Nat. Hungar. Budapest.* 15: 175-208.
- 1917a. Chironomides d'Amerique conservees au Musee Natural Hongrois de Budapest. *Ann. Mus. Nat. Hung.* 15: 292-364.
- 1918. Chironomides d'Afrique et d'Asie conservees au Musse Natural Hongrois de Budapest. *An. Mus. Nat. Hung.* 16:31-136.
- 1919. Observations sur les Chironomides (Diptera) decrits par J. R. Malloch. *Bull. Soc. Ent. France*, 1919: 191-194.
- 1919a. Chironomides d'Europe conservees au Musee Natural Hongrois de Budapest. *Ann. Mus. Nat. Hung.* 17: 1-161.
- 1921. Synopse de la tribu des Chironomarie (Diptera). *C. R. Ann. Soc. Sci. Brux.* 40: 269-277.
- 1921a. Chironomides nouveaux ou peu connus de la region paleartique. *Bull. Soc. Hist. Nat. Moselle*, 29: 51-109.
- 1921b. Sur quelques Dipteres piqueurs de la tribu des Ceratopogoninae. *Arch. Inst. Pasteur l'Afr. Nord.* 1:107-115.
- 1921c. Chironomides des Philippines et du Formose. *Philippine Journal of Science* 18: 557-573.
- 1921d. Chironomides de l'Afrique equatoriale. IIere. partie. *Ann. Soc. Ent. France.* 90:1-56.
- 1921e. Chironomides de Conrlande. *Ann. Soc. Sci. Bruxelles* 40: 275-298.
- 1922. Etude sur les Chironomides de Formose. *Ann. Soc. Linn. Lyon.* 68: 149163.
- 1922a. Nouveaux Chironomides piqueurs habitant le Slevig. Holstein. *Ann. Sac. Scient. Bruxelles.* 41: 230-238.
- 1922b. Observations biologiques sur les chironomides piqueurs avec description de deux especes nouvelles. *Arch. Inst. Pasteur d'Alger.* 2: 387-392.
- 1922c. Nouveaux Chironomides piqueurs habitant l'Algerie. *Arch. Inst. Pasteur Afr. Nord.* 2: 494-518.

- 1923. Chironomides nouveaux ou peu connus de la region paleartique Ann. Soc. Sci. Bruxelles. 42: 71.
 - 1923a. Ceratopogonines recueillis au Sahara Constantinois. Arch. de l'Inst. Pasteur d'Algerie, 1: 654-683.
 - 1924. Chironomides nouveaux ou pares de l'Europe Centrale. Bull. Soc. Hist. Nat. Moselle, 30: 11-110.
 - 1924a. Quelques nouveaux Chironomides piqueurs de l'Europe Centrale. Arch. Inst. Pasteur Alg. 2: 391-408.
 - 1924b. Chironomides d'Egypte (Diptera) Bull. Soc. Ent. Egypte. 8: 244-313.
 - 1925. Faune de France. Ceratopogonidae. Lechevalier. Ed. Paris. 1-130.
 - 1925a. Nouveaux genres et nouvelles especes de Chironomides piqueurs. Arch. Inst. Pasteur d'Algerie. 3: 405-430.
- KINOSHITA, S., 1918. A blood sucking species of *Culicoides* from Corea. Dobutsugaku-Zasshi, 30: 155-160 (Japanese).
- KONO, H. d H. TAKAHASI, 1940. A revision of the *Culicoides*, Species of Sakhalin and Hokkaido (Ceratopogonidae, Diptera) Including 2 new species from Japan and 1 from Sakhalin. Insecta Matsum, 14: 69-77.
- LANE, J., 1945. Redescricao de Ceratopogonideos neotropicos (Diptera Ceratopogonidae) Rev. Ent. 16: 366-367.
- 1947. A biologia e taxonomia de algumas especies dos grupos Forcipomyia e Culicoides (Diptera, Ceratopogonidae. Heleidae) Arq. Fac. Hig. Saude Pub. Univ. S. Paulo. 1 (1) 159-170.
- LENZ, F., 1934. B. Die Metamorphose der Heleidae. Die Fliegen. 13. a. Heleidae (Ceratopogonidae) M. Goetghebuer d F. Lentz. Stuttgart pp. 95-133.
- LINNE, C. VON, 1758. Syst. Nat. ed. 10.
- 1790. Systema Natural, ed. 13. p. 2888. Lipsiae.
- LUTZ, A., 1912. Contribucao para o estudo das "Ceratopogoninas" hematofagas encontradas no Brazil. Mem. Inst. Osw. Cruz. 4: 1-33.
- 1913. Contribucao para o estudo das Ceratopogoninas hematofagas do Brazil. II. Mem. Inst. Osw. Cruz., 5: 45-73.
 - 1914. Contribucao para o conhecimento das Ceratopogoninas do Brazil. III. Mem. Inst. Osw. Cruz. 6: 81-99.
- MACFIE, J. W. S., 1924. On some Egyptian Ceratopogoninae. Bull. Ent. Res. 15: 61-67.
- 1925. A new Blood sucking midge from Singapore. Bull. Ent. Res. 15: 349-351.
 - 1926. Ceratopogoninae from Dar-es-Salam. Bull. Ent. Res. 16: 355.
 - 1932. Some new or little known Ceratopogonidae. Ann. Mag. Nat. Hist. 9: 485-499.
 - 1933. A new species of *Cullcoides* from Palestine. Ann. Trop. Med. d Parasit. 27: 79-81.
 - 1934. Ann. Mag. Nat. Hist. 14: 328.
 - 1934a. Report on a collection of Ceratopogonidae from Malaya. Ann. Trop. Med. d Parasit. 28:177-194; 279-293.
 - 1934b. Fauna Sumatrensis. Bydrage Núm. 75. Ceratopogonidae (Diptera) Tijdschr. Ent. 77: 202-231.
 - 1935. Ceratopogonidae from the river Amazon. Stylops., 4: 49-56.
 - 1935a. Ceratopogonidae from de Society Islands. Bull. Bishop. Mus. 113: 75-80. Honolulu.
 - 1937. Notes on Ceratopogonidae (Diptera). Proc. R. Ent. Soc. London (B) 6:111-118.

- 1937a. Ceratopogonidae from Trinidad Ann. Mag. Nat. Hist. 20:1-18.
 - 1937b. Ceratopogonidae (Diptera) from Ethiopia and British Somaliland. Proc. R. Ent. Soc. Lond. 6 (4): 73-79.
 - 1937c. Three new species of *Culicoides* (Diptera Ceratopogonidae) from Malaya. Ann. Trop. Med. d Parasit. 31: 469-472.
 - 1938. Notes on Ceratopogonidae. Proc. R. Ent. Soc. Londn, (B) 7: 157-166.
 - 1939. A report on a collection of Brazilian Ceratopogonidae. Rev. Ent. Rio Janeiro. 10: 137-219; 481-482.
 - 1939a. Ceratopogonidae. Ruwenzori Exped. 1934-1935. London. British Museum Pub. 1: 81-107.
 - 1939b. The Diptera of the Territory of New Guinea. X. Family Ceratopogonidae. Proc. Linn. Soc. N. S. W. 64: 356-368. Sidney.
 - 1939c. A note on the reexamination of the Australian species of Ceratopogonidae. Proc. Linn. Soc. N. S. W. 64 (5/6): 555-558.
 - 1940. Ceratopogonidae from British Guiana and Triridad. Proc. R. Ent. Soc. London. 9:179-195.
 - 1940a. A report on a collection of Ceratopogonidae from British Guiana. Ent. Month. Mag. 76: 23-32.
 - 1940b. The genera of Ceratopogonidae. Ann. Trop. Med. d Parasit. 34: 13-30.
 - 1941. Notes on Ceratopogonidae (Diptera) Proc. R. Ent. Soc. London. (B) 10: 67-69.
 - 1943. Ceratopogonidae (Diptera) from Egypt. Proc. R. Ent. Soc. London.12: 145-159.
 - 1946. A new species of *Culicoides* (Diptera, Ceratopogonidae) from Fiji. Proc. R. Ent. Soc. London. (B) 15: 15-16.
- MALLOCH, J. R., 1915. The Chironomidae or midges of Illinois. Bull. Ill. State. Lab. Nat. Hist. 10: 275-543.
- 1915a. Some additional records of Chironomidae from Illinois. Bull. Ill. State Lab. at. Hist. 11: 303-363.
- MARTORELL, L. F., 1939. Insects observed in the States of Aragua, Venezuela South America. Journ. Agr. Univ. Puerto Rico, 23: 210.
- MATSUMARA, S., 1915. Konchu Bunruigaku II p. 56.
- 1931. 6000 Ill. Inst. Jap. Emp. p. 1497.
- MEDWEDEWA, N. B., 1927. Über die Morphologie und Biologie von *Culicoides nubeculosus* Mg. Mitteil. Institutes f. Heimatskunde a. d. Universitat Saratow. 2.
- 1927a. The morphology and biology of *Culicoides nubeculosus* Mg. Rep. Volga Biol. Sta. No. 2.
- MEIGEN, J. W., 1800. Nouvelle classification des mouches a deux ailes (Diptera) Paris. p. 18: Helea. (Reproduit en 1908 par Friedrich Hendel dans; Verh. Zool bot. Ges. Wien. p. 13-69).
- 1804. Klassifikazion und Beschreibung der europäischen zweiflügligen Insekten. Braunschweig, 1:28-152, 6-314.
 - 1818. Systematische Beschreibung bekannten europäischen zweiflügligen Insekten, 1-259.
 - 1830. Systematische Beschreibung der bekannten europäischen zweiflügligen Insekten, 6: 1-401.
- MEIJERE, J. C. H. DE 1902. Ueber die Prothoracal stigmen der Dipteren puppen. Zool. Jahrb. 15, Abt. f. Morphol. p. 623-692.
- 1907. Tijdschrift voor Entomologie, 50: 196.
 - 1909. Tijdschrift voor Entomologie, 52: 191.

- MEILLON, B. DE. 1929. Trans. Ent. Soc. London, 77: 245.
- 1936. Studies in insects of medical importance in South Africa. Publ. S. Afr. Inst. Med. Res. 7: 14 7.
- 1937. Studies on insects of medical importance from South Africa and adjacent territories. Publ. S. Africa Inst. Med. Res. 40: 305-411.
- 1938. Notes on African Ceratopogonidae (Diptera) Proc. R. Ent. Soc. London. (B) 7: 266-270.
- 1940. Trans. R. Ent. Soc. London. 90 (16) 466.
- 1942. Simuliidae d Ceratopogonidae da Colonia de Mocambique pag. 8. Lorenzo Marques.
- 1942a. New Nematocera from the Ethiopian region. J. Ent. Soc. South Africa, 5: 87-98.
- 1942b. Ceratopogonidae (Dipt. Nematocera) from Southern Rhodesia. Trans. Rodhesia Sci. Assoc. 39: 113-119.
- 1943. Simuliidae and Ceratopogonidae (Dipt. Nematocera) from the Colony of Mocambique. 1-27 pp.
- 1943a. New Record and new species of Nematocera (Diptera) from the Ethiopian region. J. Ent. Soc. South Afr. 6: 90-113. Pretoria.
- MEILLON, B. DE d M. LAVOPIERRE. 1944. New records and species of bitin insects from the Ethiopian region. Journ. Ent. Soc. South Afr. 7: 38-67.
- MELANDER, A. L. d C. T. BERNES 1903. Guests and parasites of the burrowing bee *Halictus*. Biol. Bull. 5: 13-14.
- MUKERJI, S., 1931. On a new species of *Culicoides* (*Culicoides clavipalpis* sp. nov.) with notes on the morprology of the mouth parts an male terminalia of an Indian *Culicoides*. Ind. Jour. Med. Res. 18: 1050-1058.
- MIYERS, J. G., 1934. The Sand-fly Pest (*Culicoides*). Trop. Agriculture 12: 71-73. Trinidad.
- 1934a. Report on the sandfly (*Culicoides*) investigation in the Bahamas.
- NEAVE, S. A., 1912. Notes on the Blood-sucking Insects of Eastern Tropical Africa. Bull. Ent Res. 3: 275-323.
- OLENEV, N. O. 1945. On the Simuliidae of thc Lower Volga (In Russian). Priroda, 1945 (2) 74-75.
- ORTIZ, C. I, 1949. Nota sobre nuevos ceratopogónidos Hematófagos para Venezuela, Bol. Lab. Clin. L. Razetti. 15: 326, 328-32,9.
- PATTON. W . S. 1913. *Culicoides kiefferi* n. Indian Blood sucking midge. Indian J. Med. Res. 1: 1-3.
- 1920. Some notes on the Arthropods of medical and veterinary importance in Mesopotamia, and on their relation to disease. Par. IV. Some Mesopotamiam Nematocera of economic importance. Indian J. Med. Res. 8: 246.
- PITTALUGA, G. 1911. Centr. Bakt. Abt. 1 Bd. 59-69.
- POEY, F., 1851. Mem. Sobre la Hist. Nat. de la Isla de Cuba. 1: 236-242.
- PURCELL. F. M., 1937. A Dengue-like fever in the Gold Coast. Trans. R. Soc. Trop. Med. Hyg. 30: 541.
- ROOT, F. M., d W. A. HOFFMAN, 1937. The North American Species of *Culicoides*. Amer. J. Hyg. 25:150-176.
- SALD, A. J., 1914. Sur les insects suceur de sang de l'archipel de la Sonde. Arch. Parasit. 16 :404-410. Paris.
- 1917. Nematoceres hematophages de Java. Bull. Soc. Zool. France 42:135-139.
- SANTOS ABREU, E. S., 1918. Ensayo de una monografía de los Tendipedidos de las Islas Canarias. Mem. Ac. Ci. Barcelona. 14 (2) 159-326.

- SASAKI, C., 1927. *Ceratopogon shimai*, a new midge affecting the domestic fowl. Proc. Imperial Academy, 3 :687-689.
- SASEGHEM, R. VON, 1918. Bull. Soc. Path. Exot. 11: 423.
- 1918a. La tripanosomiase du Ruanda. C. R. Soc. Biol. 84: 283.
- SCHWETZ, J., 1930. Sur quelques dipteres hematophages au Congo. Bull. Soc. Path. Exot. 23: 987.
- 1932. Notes geographiques d'entomologie medecate sur la Province Orientale. Ann. Soc. Belg. Med. Trop. 12:549.
- SHARP, N. A. D., 1927. Development of *Microfilaria perstans* in *Culicoides grahamii*; a preliminary note. Trans. Royal Soc. Trop. Med. d Hyg. 21: 70.
- 1928. *Filaria perstans*: its developemt in *Culicoides austeni* Traps. Royal Soc. Trop. Med. d Hyg. 12:371-396.
- SHIRAKI, T., 1913. Investigation on general injurious insects. Taiwan-Sotokuf Noji-Shikenjo-Tokubetsu-Hokodu, 8: 280-297.
- SIMOES BARBOSA, F. A., 1943. Descricao de *Culicoides recifensis* n. sp. e do macho de *Culicoides reticulates* Lutz (Diptera, Chironomidae) Rev. Brazil Biol. 3: 261-264. Rio Janeiro.
- 1944. *Culicoides insignia* Lutz, com a descricao do hipopigio (Diptera, Chironomidae) Rev. Brazil Biol. 4: 259-261
- SIMPSON, J. J., 1912. Entomological Research in British West Africa. Bull. Ent. Res. 3:137-193.
- SKUSE, F., 1889. Diptera of Australia. Proc. Linn. Soc. N. S. Wales, 4: 288.
- SMITH, R. O. A., 1929. Two species of *Culicoides* which reed on man. Ind. J. Med. Res. 17: 255-257.
- d C. S. SWAMINATH, 1932. Notes on some *Culicoides* from Assam. Ind. Med. Res. Mem. 25: 182-186. Calcuta.
- STAEGER, C., 1839. Kroy. Nat. Tidsskr. 2 :593-594.
- 1840. Diptera Danica.
- STEWARDS, J. S., 1933. *Onchocerca cervicalis* (Poillet and Henry. 1910) and ist development in *Culicoides nubeculosus* Mg. Univ. Camb. Inst. Anim. Path 3: 272-284.
- STROBL, P. G., 1900. Wien. Ent. Zeit. 19: 170.
- TAKAHASI, H., 1941. Notes on some species of the genus *Culicoides* from Manchukuo with descriptions of a new species (*C. bahetoensis*) (Ceratopogonidae Diptera) Insecta Matsum. 15:80-85. Sapporo.
- 1941a. Biting Midge from Manchuria (Ceratopogonidae Diptera) (Icluding several new species) Insecta Matsum. 15: 89-10 2. Sapporo.
- THEOBALD, F. V., 1912. 2nd Rep. Dir. Vet. Ed. E. Res. U. S. Afr. 341. Onderstepoort, Transvaal.
- TOKUNAGA, M., 1937. Sand Flies (Ceratopogonidae. Diptera) from Japan. Tenthredo 1: 233-338. Shinomiya, Yamashina, Kyoto.
- 1937a. Supplementary Report on Japanese Sand Flies (Ceratopogonidae, Diptera) Tenthredo 1 (4): 455-459.
- 1940. Biting midges from Japan and neighbouring countries, including Micronesian Islands. Manchuria. North Chine and Mongolia (Diptera, Ceratopogonidae) Tenthredo 3: 144-149.
- 1940a. Ceratopogonidae and Chironomidae from the Micronesian Islands with biological notes by Teiso Esaki.

- Philipp. J. Sci. Manila. 71: 205-230.
- 1940b. Chironomidae from Japan (Diptera) XII New or little-known Ceratopogonidae and Chironomidae. Philipp. J. Sci. Manila. 72: 255-311.
- 1941. Biting midges from Manchuria (Ceratopogonidae. Diptera). Insecta Matsum 15: 86-89.
- d T. ESAKI, 1936. A new biting midge from the Palau Island, with its biological notes. Mushi, 9: 55-58.
- VAN DER WULP, 1877. Diptera Neerlandica, 1: 240.
- VARGAS, L., 1944. *Culicoides diabolicus* en México. Caracteres del macho. Rev. Inst. Salub. Enf. Trop. México. 5:163-169.
- 1945. Nota sobre Ceratopogonidos y Culicoides. Rev. Inst. Salub. Enf. Trop. México. 6: 41-49.
- 1949. *Culicoides travisi* Vargas n. nom. Rev. Inst. Salub. Enf. Trop. 10 (3) . México.
- VIMMER, A., 1932. Neue species aus der Unter-familien Ceratopogoninae e from the Bodenheimer Collection) (En Checo con resumen en Alemán) Sbornik. Ent. Oddel. Nar. Mus. Prague, 10(79) : 130-144.
- VOLKENBERG, H. L. VAN, 1935. Parasites and Parasitic Diseases of horses in Puerto Rico. Bull. P. R. Agric. Exp. Sta. No. 37:1-19.
- WANSON, M., 1939. Observations sur la biologic des Ceratopogonidés et des simuliés du Bas Congo. Ann. Soc. Belge Med. Trop. 19: 97-112. Bruselas.
- WILLCOCKS, F. C., 1917. Notes on some Insects found in Egypt of Medical and Veterinary Interest. Bull. Soc. Ent. d'Egypt. Caire 10:79-90.
- WILLINSTON, S. W., 1896. On the Diptera of St. Vincent. Trans. Ent. Soc. London. 276-282.
- WINNERTZ. J., 1852. Beitrage zur Kenntnis der Gattung Ceratopogon. Linnaea Entomologica, 6:1-80.
- ZETTERSTED, J. W., 1850. IX. Dipt. Scandinaviae. Lundae.
- 1855. Insecta Scandinavae. 12: 820 y 4860.
- ZILAH, G. SEBEES V., 1933. Unser e blutsaugenden chironomiden. (In Hungarian with Germany Summary). Allatt Kozlem. 30:146-151.
- 1936. Ueber Heleiden des Balaton-Gebietes. Arb. Urg. Biol. Forsch. Inst. 8: 196.
- 1936a. Die Heleiden Fauna von Szeged und Szeged und Umgebung. Acta Univ. Szeged Biol. 4: 39-45.
- ZILAHÍ GÉZA. 1934. Beitrage zur Filiegenfauna Bulgariensis. I. Chironomiden. Bull. So. Ent. Bulg. 8:152-158.