

Annotated Catalog of the Ceratopogonid Specimens (Diptera: Ceratopogonidae) Deposited in the Natural History Museum of the National Science Museum Thailand

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Abstract

A checklist of the ceratopogonid specimens housed in the Natural History Museum of the National Science Museum, Thailand (THNHM) is presented for research and scientific communication. A total of 504 specimens, in 94 species of Ceratopogonidae, including 63 paratypes of 19 species in nine genera are housed in THNHM. With 52 species (23 type and 194 non-type specimens), *Culicoides* Latreille, 1809 has the largest representation. The specimens were collected mainly in Thailand and neighboring countries from 1959 to 1979.

Keywords

Specimens, Natural History Museum, National Science Museum, Ceratopogonidae, Thailand,

Introduction

The Natural History Museum of the National Science Museum in Thailand (THNHM) was established in 1995 belonging to the Ministry of Higher Education, Science, Research and Innovation. The museum maintains a large collection of plant, bird, amphibian, reptile, mammal, animal horn, antler, and insect specimens, which is one of the most important collections in Southeast Asia. The curators of the museum have started cataloging the type and non-type materials in the THNHM to improve the knowledge about the collections and

provide information to the taxonomic community. Recently, catalogs of the type specimens of amphibians and reptiles (Chan-ard and Makchai, 2011) and insects (Jeenthong *et al.*, 2013; Jeenthong *et al.*, 2021) were published. In the year 2000, the museum received the historical insect specimens from Thailand Institute of Scientific and Technological Research. The specimens contain a large number of ceratopogonid specimens (Ceratopogonidae) that is kept separately and secretly in the THNHM. The ceratopogonid specimens were mainly collected from 1959 to 1979 by Alexander A. Hubert (USA), Donald H. Colless (Australia), H. Elliott McClure (USA), John E. Scanlon (Australia), Keizo Yasumatsu (Japan), Manop Rathpradith (Thailand), Robert E. Elbel (USA), and Willis W. Wirth (USA) (Taylor and Elbel, 1958; Yasumatsu *et al.* 1980; Wirth and Hubert, 1989). Most specimens were mounted permanently on slides, they were old, covered with dust and with unclear labels. We examined all the ceratopogonid specimens deposited in the THNHM collection, cleaned them up and compared the labels with the previously published papers. In the present catalog, all the ceratopogonid specimens in the THNHM are listed for the taxonomic community.

Materials and Methods

Every specimen of Ceratopogonidae deposited in the THNHM was examined and their labels (Figure 1) compared with data include in the previous published papers (*i.e.*, Taylor and Elbel, 1958; Yasumatsu *et al.*, 1980; Wirth and Hubert, 1989). Localities have been corrected when they were misspelled on the original labels; some additional locality information taken from specimen labels missing in the previous published papers is also provided. Type specimens of all species were imaged using a Nikon Digital Sight-R1 camera attached to a Nikon AZ100M stereoscope.

The list of the specimens is arranged alphabetically by genus and species, following the format:

Specific name author, publication date

Original name, author(s), publication date: pages of the original description. Type locality.

Types. Paratypes: If available.

Non-type material examined. COUNTRY: Number of specimen and sex (THNHM code), locality, date (months in Roman numerals), collector (leg.).

Annotated Catalog of the Specimens

This checklist is the Ceratopogonidae specimens deposited in THNHMC. A total of 504 specimens in 94 species of Ceratopogonidae including 63 paratypes of 19 species in nine genera (Table 1) are housed in THNHM. It is composed mainly of *Culicoides* Latreille, 1809, with 52 species (ca. 55% of the total species). The specimens were collected mainly in Thailand and neighboring countries from 1959 to 1979.



Figure 1. Ceratopogonid specimens and labels of specimens. A, permanent specimens mounted on slides; B, paratype label of *Culicoides griffithi*; C, non-type label of *Culicoides geminus*.

Alluaudomyia formosana Okada, 1942

Alluaudomyia formosana Okada, 1942: 317, as variety of *A. maculipennis*. Type locality: Taiwan.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25386), E Thailand, Sa Kaeo Prov. [designated as Prachin Buri Province], Watthana Nakhon Dist., Ban Huai Dyu, 8.XI.1976, K. Yasumatsu leg.

Alluaudomyia marginalis Wirth and Delfinado, 1964

Alluaudomyia marginalis Wirth and Delfinado, 1964: 625. Type locality: Malaysia.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25394), NE Thailand, Si Sa Ket Prov., Khukhan Dist., Ban Ta Muan, 30.X.1976, K. Yasumatsu leg.: 1♀ (THNHM-I-25395) and 1♂ (THNHM-I-25396), NE Thailand, Udon Thani Prov.,

Ban Nong Nok Kiaw, 8.VIII.1978, K. Yasumatsu leg., II; 1♀ (THNHM-I-25391) and 1♂ (THNHM-I-25390), E Thailand, Chachoengsao Prov., Bang Khla Dist., 12.VII.1978, K. Yasumatsu leg.; 1♂ (THNHM-I-25392), E Thailand, Prachin Buri Prov., Prachantakham Dist., Ban Khao Noi, 9.XI.1976, K. Yasumatsu leg.; 1♀ (THNHM-I-25393), Sa Kaeo Prov. [= Prachin Buri Prov., Sa Kaeo Dist.], Bang Nong Ka Poa, 8.XI.1976, K. Yasumatsu leg.; 1♂ (THNHM-I-25397), E Thailand, Chachoengsao Prov., Ban Pho Dist., 16.XI.1976, K. Yasumatsu leg.

Table 1. Number of genera, species and specimens of Ceratopogonidae deposited in THNHM.

Genera	Number of species	Number of specimens	
		Non-types	Paratypes
<i>Alluaudomyia</i>	3	16	–
<i>Bezzia</i>	3	7	16
<i>Calyptopogon</i>	3	5	–
<i>Clinohelea</i>	1	2	–
<i>Culicoides</i>	52	194	23
<i>Dasyhelea</i>	1	2	–
<i>Dibezzia</i>	1	–	1
<i>Echinohelea</i>	1	2	–
<i>Fittkauhelea</i>	1	–	1
<i>Homohhelea</i>	1	7	–
<i>Jenkinshelea</i>	3	2	2
<i>Johannsenomyia</i>	1	1	–
<i>Leehelea</i>	1	3	–
<i>Mallochohelea</i>	1	2	–
<i>Neosphaeromias</i>	1	–	3
<i>Nilobezzia</i>	2	166	–
<i>Parabezzia</i>	1	1	–
<i>Phaenobezzia</i>	4	7	6
<i>Probezzia</i>	1	–	3
<i>Sphaeromias</i>	1	8	–
<i>Stenoxenus</i>	1	1	–
<i>Stilobezzia</i>	9	14	8
<i>Xenohelea</i>	1	1	–
Total	94	441	63

***Alluaudomyia xanthocoma* (Kieffer, 1913)**

Culicoides xanthocoma Kieffer, 1913b: 182. Type locality: India.

Non-type material examined. THAILAND: 1♂ (THNHM-I-25398), N Thailand,

Chiang Rai Prov., Mueang Dist., Ban Kua Tae, 28.III.1979, K. Yasumatsu leg.; 1♀ (THNHM-I-25404), NE Thailand, Ubon Ratchathani Prov., rice field, 29.X.1976, K. Yasumatsu leg.; 2♂♂ (THNHM-I-25399 and THNHM-I-25403), E Thailand, Chachoengsao Prov., Ban Po Dist., 16.XI.1976, K. Yasumatsu leg.; 1♂ (THNHM-I-25400), E Thailand, Prachin Buri Prov., Prachantakham Dist., Ban Mueang, 8.XI.1976, K. Yasumatsu leg.; 1♂ (THNHM-I-25401), E Thailand, Sa Kaeo Prov. [= Prachin Buri Prov., Sakeao Dist.], Ban Nong Ka Poa, 8.XI.1976, K. Yasumatsu leg.; 1♀ (THNHM-I-25402), E Thailand, Sa Kaeo Prov. [designated as Prachin Buri Prov.], Ban Huai Dyud, 8.XI.1976, K. Yasumatsu leg.

***Bezzia micronyx* Kieffer, 1922**

Bezzia micronyx Kieffer, 1922: 162. Type locality: Taiwan.

Non-type material examined. THAILAND: 2♂♂ (THNHM-I-25411 and THNHM-I-25412), N Thailand, Chiang Mai Prov., San Sai Dist., Ban San Kad Tong Nur, 4.V.1978, K. Yasumatsu leg.; 2♂♂ (THNHM-I-25213 and THNHM-I-25414), N Thailand, Chiang Mai Prov., San Pa Tong Dist., Ban Yu Wha (?), 8.V.1978, K. Yasumatsu leg.; 1♀ (THNHM-I-25415), N Thailand, Chiang Mai Prov., San Pa Tong Dist., 19.II.1979, K. Yasumatsu leg.

***Bezzia serena* Johannsen, 1932**

Bezzia serena Johannsen, 1932: 443. Type locality: Indonesia.

Non-type material examined. THAILAND: 2♀♀ (THNHM-I-25216 and THNHM-I-25417), N Thailand, Chiang Mai Prov., Chom Thong Dist., Doi Inthanon, 19.XI.1978, K. Yasumatsu leg.

***Bezzia yasumatsui* Wirth and Ratanaworabhan, 1981 (Figure 2)**

Bezzia yasumatsui Wirth and Ratanaworabhan, 1981b: 424. Type locality: Thailand, Chiang Mai Prov.

Types. Paratypes: 16♀♀ (THNHM-I-25418 to THNHM-I-25433), N Thailand, Chiang Mai Prov., Hang Dong Dist., Ban Kong Ku, 27.III.1979, K. Yasumatsu leg.

***Calyptopogon brevitarsis* Macfie, 1939**

Calyptopogon brevitarsis Macfie, 1939: 8. Type locality: Thailand.

Non-type material examined. THAILAND: 2♂♂ (THNHM-I-25438 and THNHM-I-25439), NE Thailand, Udon Thani Prov., Phen Dist., Ban Nong Kiang, 8.VIII.1978, K. Yasumatsu leg.

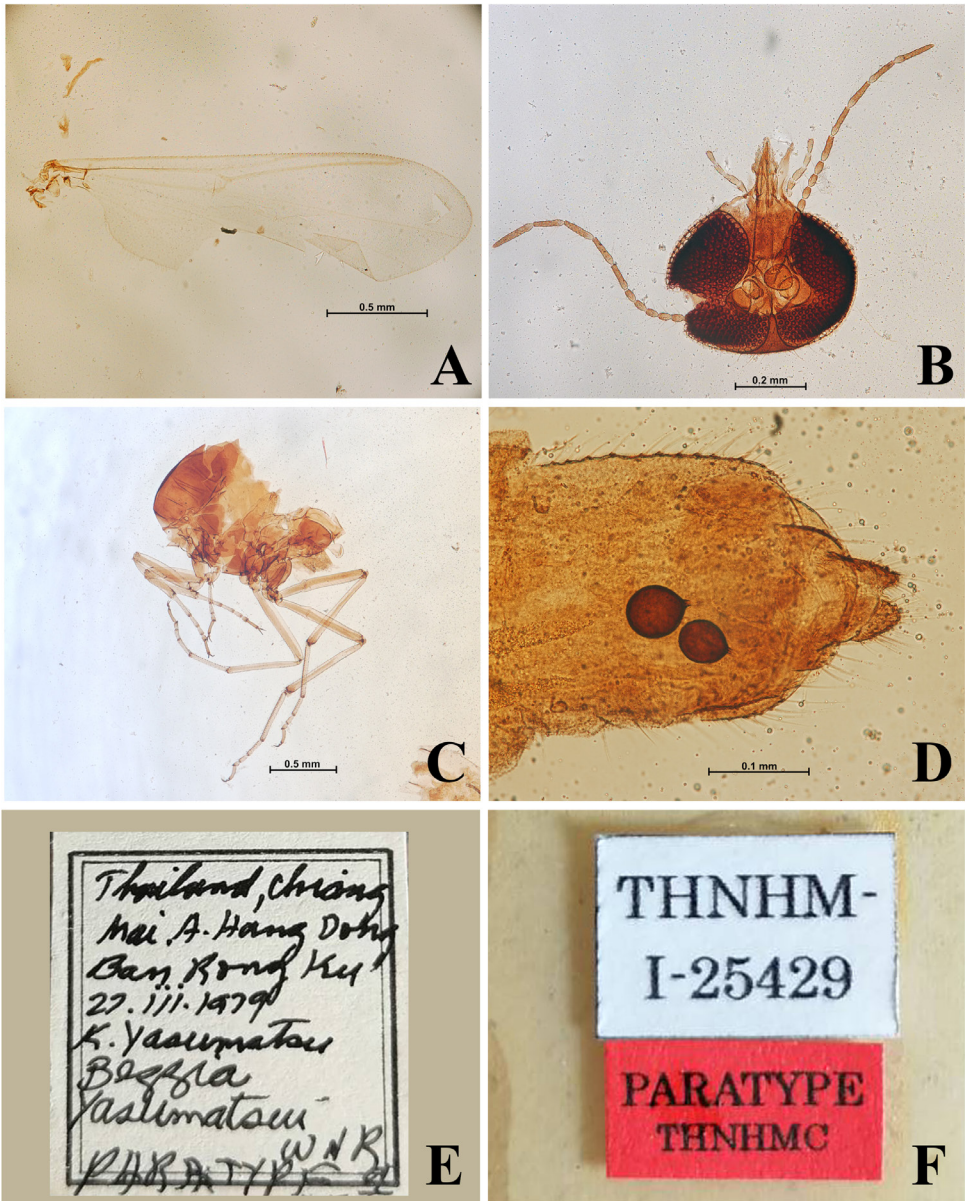


Figure 2. *Bezzia yasumatsui*, paratype ♀. A, Wing; B, head including antennae; C, thorax; D, abdomen; E, label; F, catalog number.

***Calyptopogon gibbosus* (Wiedemann, 1824)**

Macropeza gibbosus Wiedemann, 1824: 10. Type locality: Indonesia.

Non-type material examined. THAILAND: 1 ♀ (THNHM-I-25441), NE Thailand, Si Sa Ket Prov., Mueang Dist., Ban Ka Sang, 30.X.1976, K. Yasumatsu leg.; 1 ♂ (THNHM-I-25442), NE Thailand, Ubon Ratchathani Prov., Phibun Mangsahan Dist., 6.IX.1977, K. Yasumatsu leg.

***Calyptopogon javanensis* (Kieffer, 1910)**

Macropeza javanensis Kieffer, 1910: 210. Type locality: Indonesia.

Non-type material examined. THAILAND: 1 ♂ (THNHM-I-25440), NE Thailand, Si Sa Ket Prov., Khukhan Dist., Ban Ta Muan, 30.X.1976, K. Yasumatsu leg.

***Clinohelea bimaculata* (Loew, 1861)**

Ceratopogon bimaculata Loew, 1861: 311. Type locality: USA (District of Columbia).

Non-type material examined. USA: 1 ♀ (THNHM-I-25469) and 1 ♂ (THNHM-I-25470), USA, Alachua Co. Fla., Gainesville, 27.IV.1970, W.W. Wirth leg., light trap.

***Culicoides actoni* Smith, 1929**

Culicoides actoni Smith, 1929: 255. Type locality: India (Assam).

Non-type material examined. THAILAND: 1 ♀ (THNHM-I-25523), N Thailand, Chiang Mai Prov., Chom Thong Dist., Doi Inthanon, 19.XI.1978, K. Yasumatsu leg.; 1 ♀ (THNHM-I-25520), NE Thailand, Si Sa Ket Prov., Mueang Dist., Ban Kra Sang, 30.X.1976, K. Yasumatsu leg.; 1 ♀ (THNHM-I-25521), Si Sa Ket Prov., Khukhan Dist., Ban Ta Muan (?), 30.X.1976, K. Yasumatsu leg.; 1 ♀ (THNHM-I-25217), NE Thailand, Udon Thani [= Udrontani] Prov., Phen Dist., 23–24.VI.1959, R. Manop leg., light trap; 1 ♂ (THNHM-I-25218), central Thailand, Chon Buri [= Cholburi] Prov., Si Racha Dist., Bamgphra Subdist., I.1963, J.E. Scanlon leg., light trap; 1 ♀ (THNHM-I-25522), E Thailand, Chachoengsao Prov., 29.VI.1978, K. Yasumatsu leg. MALAYSIA: 1 ♀ (THNHM-I-25219), Malaysia, Johore, Kahang, 7–9.I.1961, A.A. Hubert leg., light trap.

***Culicoides albibasis* Wirth and Hubert, 1959**

Culicoides albibasis Wirth and Hubert, 1959: 31. Type locality: Malaysia, Kuala Lumpur, Selangor.

Non-type material examined. MALAYSIA: 4 ♀♀ (THNHM-I-25272 to THNHM-I-25275), Malaysia, Kuala Lumpur, Selangor, IMR Grazing Grd., IX.1959, light; 1 ♀ (THNHM-I-25276), Malaysia, Kuala Lumpur, Selangor, IMR Grazing Grd., IV.1959, light.

***Culicoides anophelis* Edwards, 1922**

Culicoides anophelis Edwards, 1922: 161. Type locality: Malaysia.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25296), N Thailand, Chiang Mai [= Chiengmai] Prov., Mueang Dist., XI.1962, J.E. Scanlon leg., light trap; 1♀ (THNHM-I-25297), NE Thailand, Khon Kaen Prov., Mueang Dist., 20–24.V.1959, R. Manop leg., light; 1♀ (THNHM-I-25298), NE Thailand, Nakhon Ratchasima [= Nakronrajasrima] Prov., Mueang Dist., 5–7.VII.1959, R. Manop leg., light; 2♀♀ (THNHM-I-25299 and THNHM-I-25300), central Thailand, Chon Buri [= Cholburi] Prov., Si Racha Dist., Bangphra Subdist., I.1963, J.E. Scanlon leg., light trap.

***Culicoides arakawae* (Arakawa, 1910)**

Ceratopogon [sic] *arakanae* Arakawa, 1910: 411. Type locality: Japan.

Non-type material examined. THAILAND: 1♂ (THNHM-I-25310), N Thailand, Chiang Mai [= Chiengmai] Prov., IV–V.1958, V. Notananda leg., light trap; 1♂ (THNHM-I-25493) and 2♀♀ (THNHM-I-25492 and THNHM-I-25496), N Thailand, Chiang Mai Prov., Hang Dong Dist., Ban Rong Ku, 27.III.1979, K. Yasumatsu leg.; 1♀ (THNHM-I-25494) and 1♂ (THNHM-I-25495), N Thailand, Chiang Mai Prov., Saraphi Dist., Ban San Kad Tong, 4.V.1978, K. Yasumatsu leg.; 1♀ (THNHM-I-25497), N Thailand, Chiang Rai Prov., Mueang Dist., Ban Teen Doi, 27.III.1979, K. Yasumatsu leg.; 1♀ (THNHM-I-25498), N Thailand, Chiang Rai Prov., Ban Pa Bong, 22.II.1979, K. Yasumatsu leg.; 2♀♀ (THNHM-I-25311 and THNHM-I-25312), central Chon Buri [= Cholburi] Prov., Si Racha Dist., Bangphra Subdist., I.1963, J.E. Scanlon leg., light trap.

***Culicoides barnetti* Wirth and Hubert, 1959**

Culicoides barnetti Wirth and Hubert, 1959: 32. Type locality: Malaysia, Selangor, Ulu Langat.

Non-type material examined. MALAYSIA: 2♀♀ (THNHM-I-25267 and THNHM-I-25268), Malaya, Singapore, Kg. Chantek Bahru, 8.XII.1959, D.H. Colless leg.; 3♀♀ (THNHM-I-25269 to THNHM-I-25271), Malaysia, Ulu Kelantan, Ft. Betis, 11.XI.1961, light trap.

***Culicoides brevipalpis* Delfinado, 1961**

Culicoides brevipalpis Delfinado, 1961: 654. Type locality: Philippines.

Non-type material examined. SRI LANKA: 1♀ (THNHM-I-25214), Sri Lanka (= Ceylon), Colombo, Kalutaluwewa, 19.II.1958, light trap. **THAILAND:** 1♀ (THNHM-I-25215), S Thailand, Phang-nga Prov., Pulau Panjang (?), 5.X.1954, Cowshed, D.H. Colless leg. **MALAYSIA:** 1♀ (THNHM-I-25216), Malaysia, Selangor, Kuala Lumpur, 8.VIII.1958, R. Traub leg., light trap.

***Culicoides brevitarsis* Kieffer, 1917**

Culicoides brevitarsis Kieffer, 1917: 187. Type locality: Australia.

Non-type material examined. **THAILAND:** 1♂ (THNHM-I-25210), N Thailand, Chiang Mai [= Chiengmai] Prov., IV–V.1958, V. Notananda leg., light trap; 1♀ (THNHM-I-25211), NE Thailand, Nakhon Phanom [= Nakronpanom] Prov., 28–30. VI.1959, R. Manop leg., light trap; 1♀ (THNHM-I-25212), S Thailand, Phang-nga Prov., 11.XI.1954, Cowshed, nigh, D.H. Colless leg. **MALAYSIA:** 1♀ (THNHM-I-25213), W Malaysia, Selangor, Kuala Lumpur, III.1958, R. Traub, light trap, T2.

***Culicoides bubalus* Delfinado, 1961**

Culicoides bubalus Delfinado, 1961: 658. Type locality: Philippines, Mindanao, Cotabato Prov., Kidapawan.

Non-type material examined. **THAILAND:** 1♀ (THNHM-I-25241), N Thailand, Chiang Rai Prov., Ban Teen Doi, 12.XII.1957, J.L. Gressitt leg., light trap. **MALAYSIA:** 2♀♀ (THNHM-I-25242 and THNHM-I-25243), Malaysia, Pahang, Tahin R., King George N.P., 4–5.XI.1959, H.E. McClure, light trap.

***Culicoides circumscriptus* Kieffer, 1918**

Culicoides circumscriptus Kieffer, 1918: 49. Type locality: Tunis (location of type, unknown).

Non-type material examined. **THAILAND:** 1♀ (THNHM-I-25499), N Thailand, Chiang Rai Prov., Mueang Dist., Ban Teen Doi, 27.III.1979, K. Yasumatsu leg.; 1♀ (THNHM-I-25305), N Thailand, Chiang Mai [= Chiengmai] Prov., IV–V.1958, V. Notananda leg., light trap.

***Culicoides damnosus* Delfinado, 1961**

Culicoides damnosus Delfinado, 1961: 642. Type locality: Philippines, Palawan Island.

Non-type material examined. **MALAYSIA:** 1♀ (THNHM-I-25352), Malaysia, Selangor, 5 mi N Klang Rantau Panjang, 15.VII.1958, R. Traub leg., biting man, 123.

***Culicoides dumdumi* Sen and Das Gupta, 1959**

Culicoides dumdumi Sen and Das Gupta, 1959: 628. Type locality: India.

Non-type material examined. **MALAYSIA:** 1♀ (THNHM-I-25207), Malaysia, N Borneo, Labuan Island, IV.1952, D.H. Colless leg., C-28; 2♀♀ (THNHM-I-25208 and THNHM-I-25209), N Borneo, Labuan Island, IX–X.1948, D.H. Colless leg., C-12.

***Culicoides elbeli* Wirth and Hubert, 1959 (Figure 3)**

Culicoides elbeli Wirth and Hubert, 1959: 27. Type locality: Malaysia, Selangor, Ulu Langat.

Type. Paratype: 1 ♀ (THNHM-I-25265), Loei Prov., Dan Sai Dist., Ban Na Mueang, 30.IX.1954, K.E. Elbel leg.

Non-type material examined. MALAYSIA: 2 ♀♀ (THNHM-I-25264 and THNHM-I-25266), Malaysia, Pahang, Tahan River, King George V N.P., 4–6.XI.1959, H.E McClure leg., light trap.

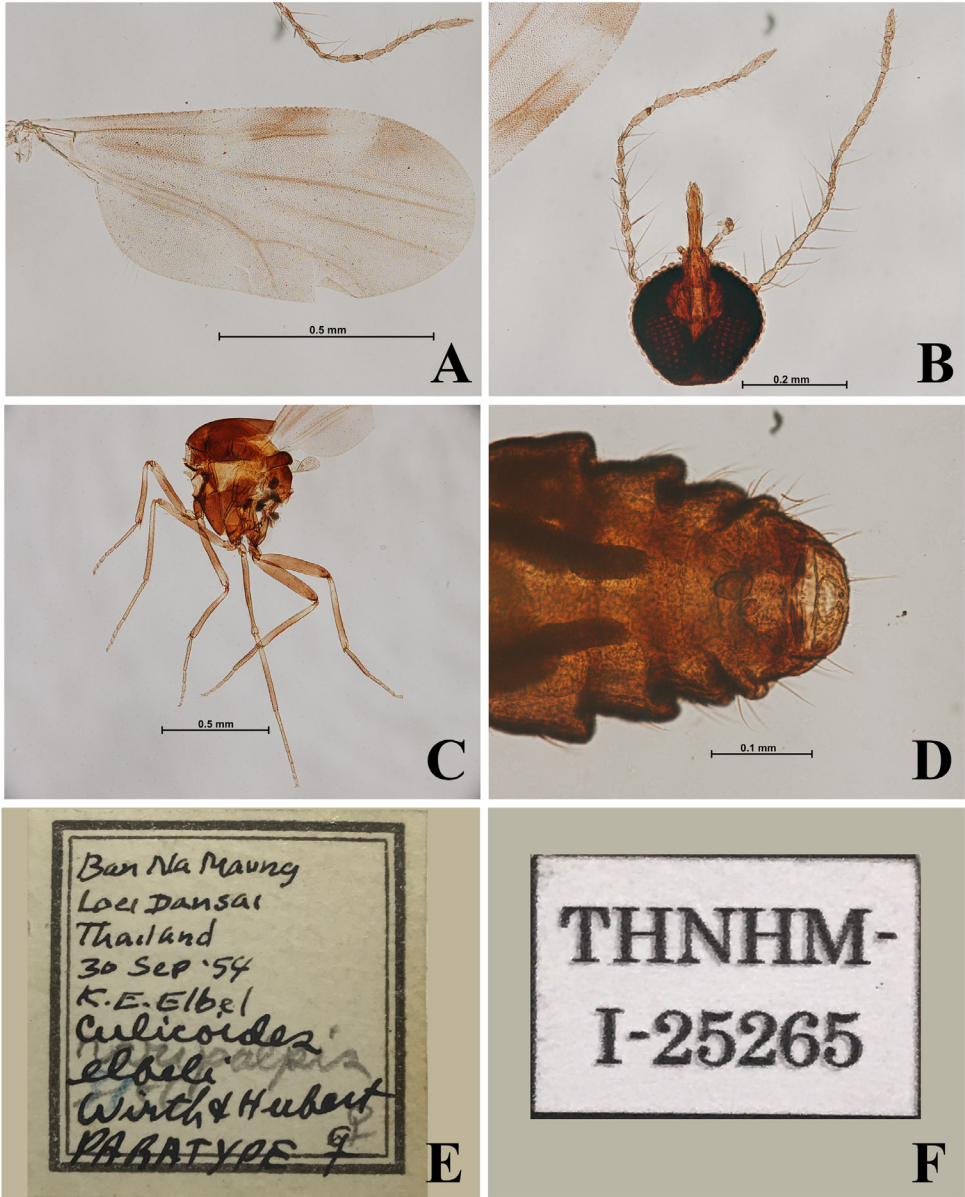


Figure 3. *Culicoides elbeli*, paratype ♀. A, Wing; B, head including antennae; C, thorax; D, abdomen; E, label; F, catalog number.

***Culicoides flavescens* Macfie, 1937**

Culicoides anophelis var. *flavescens* Macfie, 1937a: 114. Type locality: Malaysia, Kuala Lumpur.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25294), N Thailand, Chiang Mai Prov., Chiang Dao Dist., 5-11.IV.1958, T. Mae leg., #313, light.
MALAYSIA: 1♀ (THNHM-I-25295), Malaysia, Pahang, Tahan River, King George V N.P., 23.II.1961, G. Hendrickson leg., light trap.

***Culicoides flaviscutatus* Wirth and Hubert, 1959**

Culicoides flaviscutatus Wirth and Hubert, 1959: 34. Type locality: Malaysia, Borneo, Labuan Island.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25259), NE Thailand, Loei [= Loey] Prov., Dan Sai Dist., 6-7.VI.1959, R. Manop leg., light; 1♀ (THNHM-I-25260), NE Thailand, Loei Prov., Dan Sai Dist., Ban Na Mueang, 30.IX.1954, K.E. Elbel leg., 8; 1♀ (THNHM-I-25261), central Thailand, Nonthaburi Prov., 20.XII.1958, R. Manop leg.
MALAYSIA: 1♀ (THNHM-I-25261), Malaysia, Selangor, Ulu Gombak Forest Reserve, I-V.1960, H.E. McClure, at light; 1♀ (THNHM-I-25263), Malaysia, Johore, Kahang Kluang, 7-9.I.1961, A.A. Hubert leg., light trap.

***Culicoides fordae* Wirth and Hubert, 1989** (Figure 4)

Culicoides fordae Wirth and Hubert, 1989: 133, figure 58, 225, 381. Type locality: Malaysia.

Types. Paratypes: 1♀ (THNHM-I-25254), Malaysia, Ulu Kelantan, Ft. Betis, 11.XI.1961, light trap; 1♀ (THNHM-I-25258), Malaysia, Johore, Kahang Kluang, 7-9.I.1961, A.A. Hubert leg., light trap; 3♀♀ (THNHM-I-25255 to THNHM-I-25257), Malaysia, Pahang, Tasek Bera, 11.X.1961, R.H. Wharton leg., light trap.

***Culicoides fulvus* Sen and Das Gupta, 1959**

Culicoides fulvus Sen and Das Gupta, 1959: 628. Type locality: India.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25206), NE Thailand, Khon Kaen Prov., Ban Phai Dist., 28-30.V.1959, R. Manop leg., light trap.

***Culicoides gemellus* Macfie, 1934**

Culicoides gemellus Macfie, 1934a: 192. Type locality: Malaysia, Borneo, Sabah, Sandakan.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25247) and 1♂ (THNHM-I-25248), Malaysia, Pahang, Kuala Singgora, 18.VII.1958, R.H. Wharton leg., light trap.



Figure 4. *Culicoides fordae*, paratype ♀. A, Wing; B, head including antennae; C, thorax; D, abdomen; E, label; F, catalog number.

***Culicoides geminus* Macfie, 1937**

Culicoides geminus Macfie, 1937b: 472. Type locality: Malaysia, Kuala Lumpur.

Non-type material examined. **THAILAND:** 3 ♀♀ (THNHM-I-25489 to THNHM-I-25491), N Thailand, Chiang Mai Prov., Chom Thong Dist., Wang Nam Yad, 7.V.1978, K. Yasumatsu leg.; 1 ♀ (THNHM-I-25343), central Thailand, Samut Prakan Prov., 22.XII.1958, R. Manop leg.

***Culicoides gewertzi* Causey, 1938**

Culicoides gewertzi Causey, 1938: 409. Type locality: Chiang Mai Province, Thailand.

Non-type material examined. MALAYSIA: 1♀ (THNHM-I-25249), Malaysia, Selangor, 5 mi. N. Klang Rantau Panjang, IX–XII.1959, H.E. McClure leg., light trap; 1♀ (THNHM-I-25250), Malaysia, Johore, Kahang Kluang, 7–9.I.1961, A.A. Hubert leg., light trap; 3♀♀ (THNHM-I-25251 to THNHM-I-25253), Malaysia, N Borneo, Labuan Island, IX–XI.1948, H.D. Colless leg., C-81, at light.

***Culicoides griffithi* Wirth and Hubert, 1989** (Figure 5–6)

Culicoides griffithi Wirth and Hubert, 1989: 307, figures 134, 298, 435. Type locality: Thailand.

Types. Paratypes: 1♀ (THNHM-I-25316) and 2♂ (THNHM-I-25317 and THNHM-I-25325), NE Thailand, Loei [= Loey] Prov., Tha Li Dist., 8–9.VI.1959, R. Manop leg., light; 2♀♀ (THNHM-I-25318 and THNHM-I-25319), NE Thailand, Nong Khai Prov., Mueang Dist., 10–14.VI.1959, R. Manop leg., light; 3♀♀ (THNHM-I-25320 to THNHM-I-25322), Sakon Nakhon [= Sakhonakron] Prov., Mueang Dist., 25–27.VI.1959, R. Manop leg., light; 1♀ (THNHM-I-25323), NE Thailand, Nakhon Phanom Prov., 28–30.VI.1959, R. Manop leg., light; 1♀ (THNHM-I-25324), NE Thailand, Nakhon Ratchasima [= Nakronrajasrima] Prov., 5–7.VII.1959, R. Manop leg., light.

***Culicoides guttifer* (Meijere, 1907)**

Ceratopogon (*Cukoides*) *guttifer* Meijere, 1907: 209. Type locality: Indonesia, Java.

Non-type material examined. THAILAND: 1♂ (THNHM-I-25308), NE Thailand, Nakhon Phanom [= Nakronpanom] Prov., Mueang Dist., 28-30.VI. 1959, R. Manop leg., light; 1♀ (THNHM-I-25309), NE Thailand, Sakon Nakhon [= Sakronakron] Prov., 25–27.VI.1959, Manop leg., light; 1♀ (THNHM-I-25307), central Thailand, Bangkok, Ratchthewi Dist., Makkasan, 11–12.V.1959, R. Manop leg., light.

***Culicoides gymnopterus* Edwards, 1926**

Culicoides gymnopterus Edwards, 1926a: 247. Type locality: Malaysia, Borneo, Sarawak, Mt. Penrissen, 2,000 ft.

Non-type material examined. MALAYSIA: 1♀ (THNHM-I-25246), Malaysia, Pahang, Tahin River, King George N.P., 4–5.XI.1959, H.E. McClure, at light.

***Culicoides hegneri* Causey, 1938**

Cukoides hegneri Causey, 1938: 402. Type locality: Thailand, Chiang Rai Prov.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25306), NE Thailand, Loei [= Loey] Prov., Dan Sai Dist., 6–7.VI.1959, R. Manop leg., light.

***Culicoides hoffmanioides* Wirth and Hubert, 1989** (Figure 7)

Culicoides hoffmanioides Wirth and Hubert, 1989: 173. Type locality: Malaysia, Negri Sembilan, Port Dickson, Telok Pelandok.

Type. Paratype: **MALAYSIA:** 1 ♀ (THNHM-I-25245), Malaysia, N Borneo, Sabah, Laboun Island, IX–XI.1949, D.H. Colless leg., at light.

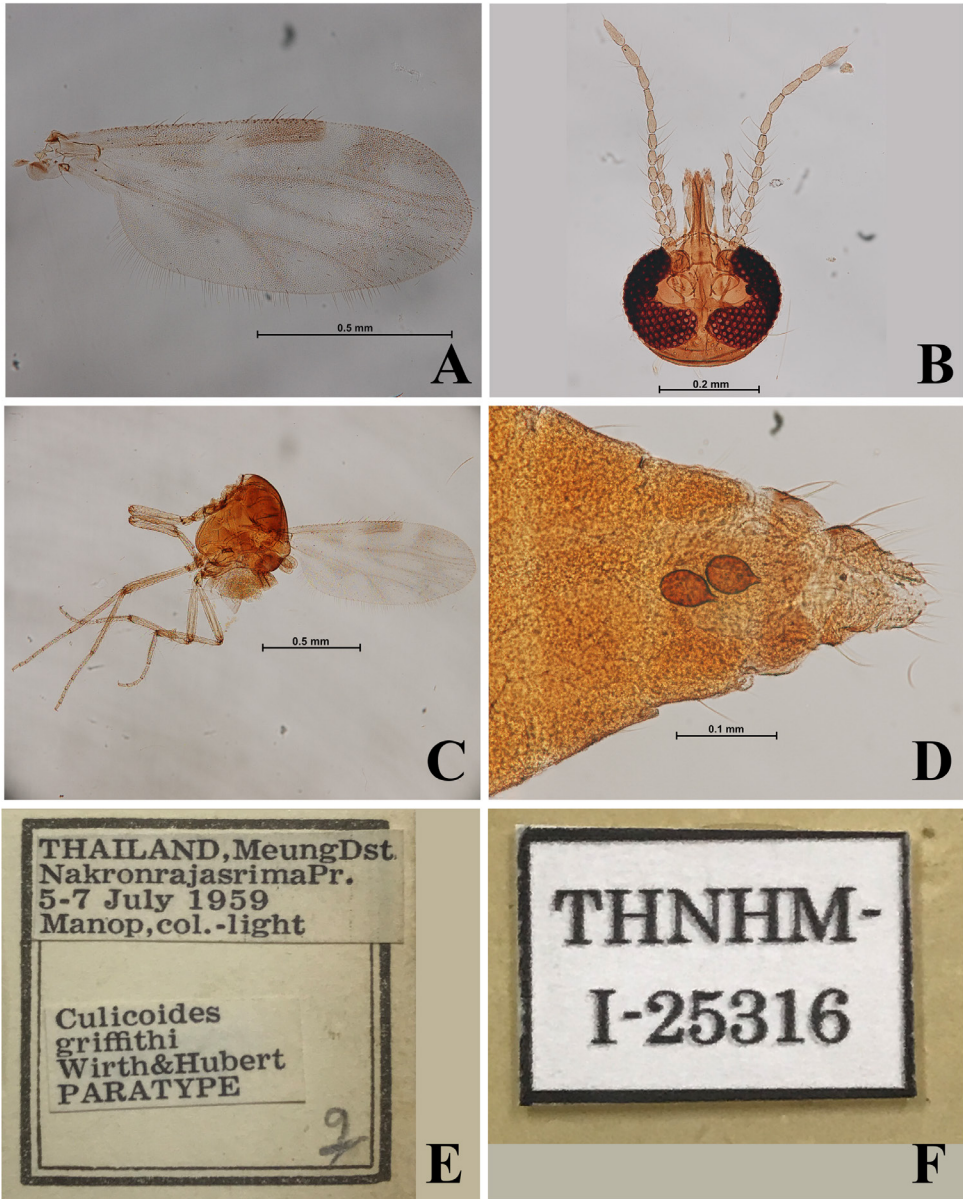


Figure 5. *Culicoides griffithi*, paratype ♀. A, Wing; B, head including antennae; C, thorax; D, abdomen; E, label; F, catalog number.

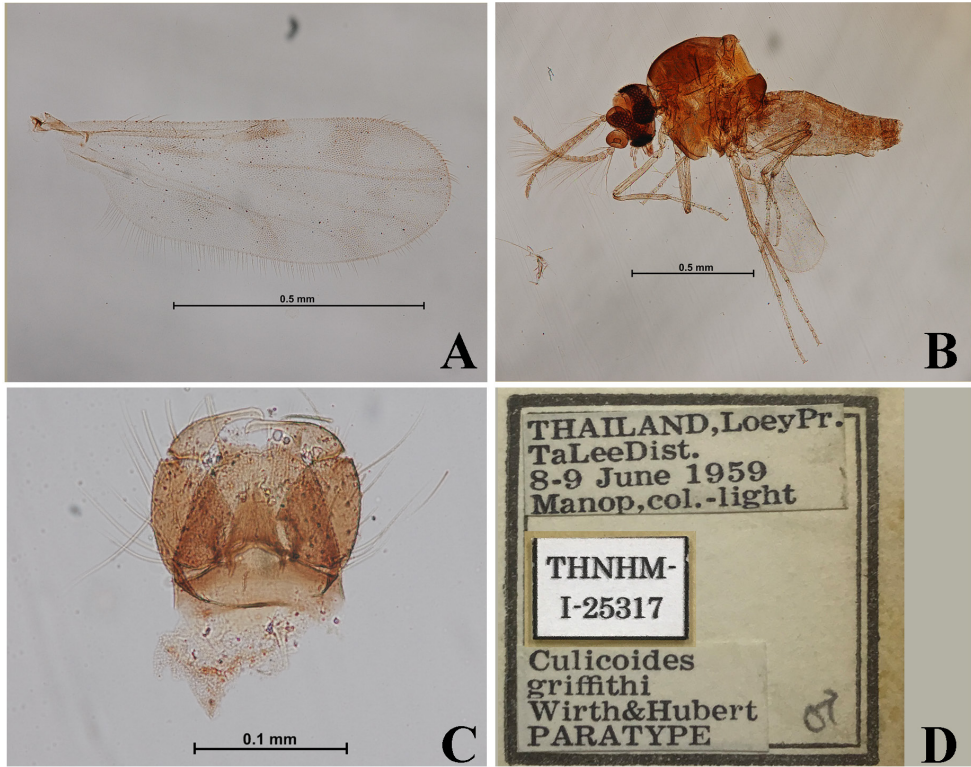


Figure 6. *Culicoides griffithi*, paratype ♂. A, Wing; B, body in profile view; C, genitalia; D, label and catalog number.

***Culicoides homotomus* Kieffer, 1921**

Culicoides homotomus Kieffer, 1921: 158. Type locality: Taiwan, Daitotei.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25304), central Thailand, Bangkok, Thong Lo, VIII–IX. 1962, J. Scanlon leg., light.

***Culicoides huffi* Causey, 1938**

Culicoides huffi Causey, 1938: 406. Type locality: Thailand (Siam), Bangkok.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25339), NE Thailand, Udon Thani [= Udrontani], Prov., Nong Han Dist., 21–22.VI.1959, R. Manop leg., light; 1♀ (THNHM-I-25340), NE Thailand, Loei [= Loey] Prov., Dan Sai Dist. 6–7. VI.1959, R. Manop leg., light; 1♀ (THNHM-I-25341), NE Thailand, Khon Kaen Prov., Chum Phae Dist., 25–27.V.1959, R. Manop leg., light; 1♀ (THNHM-I-25342), central Thailand, Chon Buri [= Cholburi] Prov., Si Racha Dist., Bangphra Subdist., I.1963, J.E. Scanlon leg., light trap. **MALAYSIA:** 1♀ (THNHM-I-25338), Malaysia, Kuala Lumpur, Selangor, IMR Grazing Grd., IX.1959, light.

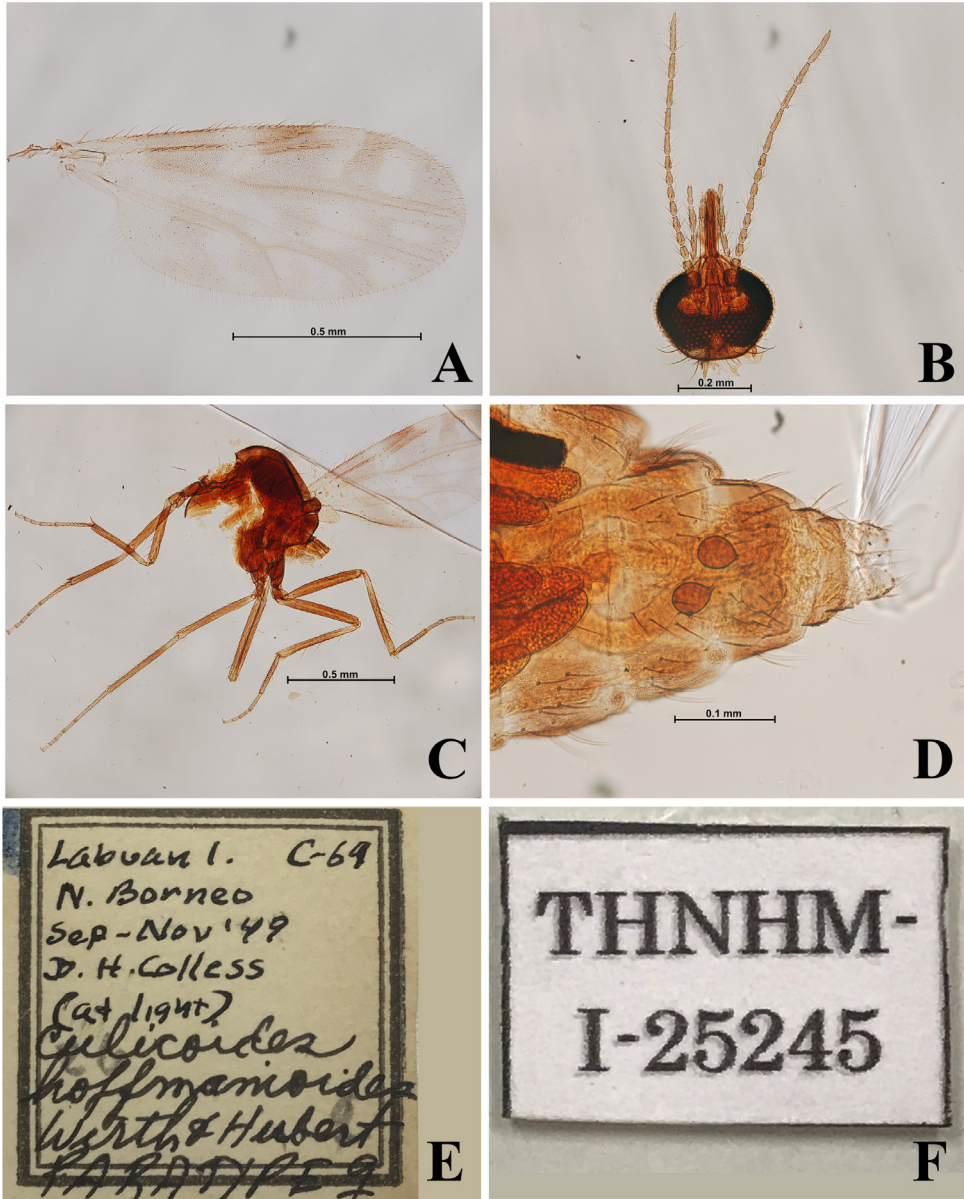


Figure 7. *Culicoides hoffmanioides*, paratype ♀. A, Wing; B, head including antennae; C, thorax; D, abdomen; E, label; F, catalog number.

***Culicoides imicola* Kieffer, 1913**

Culicoides imicola Kieffer, 1913a: 11. Type locality: E Africa, Brit, Mombasa.

Non-type material examined. **THAILAND:** 1♀ (THNHM-I-25203), N Thailand, Chiang Mai [= Chiegmai] Prov., IV–V.1958, V. Notananda leg., light trap; 1♂ (THNHM-I-25204), NE Thailand, Udon Thani [= Udrontani] Prov., Phen Dist.,

23–24.VI.1959, R. Manop leg., light trap; 1♀ (THNHM-I-25205), central Thailand, Nakhon Pathom [= Nakronprathom] Prov., 18.XII.1958, R. Manop leg.

***Culicoides innoxius* Sen and Das Gupta, 1959**

Culicoides innoxius Sen and Das Gupta 1959: 626. Type locality: India, Calcutta.

Non-type material examined. THAILAND: 1♂ (THNHM-I-25524), N Thailand, Chiang Rai Prov., Mueang Dist., Ban Kua Tae, 28.III.1979, K. Yasumatsu leg.; 3♀♀ (THNHM-I-25238 to THNHM-I-25240), central Thailand, Chon Buri [= Cholburi] Prov., Si Racha Dist., Bangphra Subdist., I.1963, J.E. Scanlon leg.

***Culicoides insignipennis* Macfie, 1937**

Culicoides insignipennis Macfie, 1937b: 469. Type locality: Malaysia, Kuala Lumpur.

Non-type material examined. THAILAND: 2♀♀ (THNHM-I-25235 and THNHM-I-25236), NE Thailand, Loei Prov., Dan Sai [= Dansai] Dist., Koksato, 27.XI.1954, K.E. Elbel leg. **MALAYSIA:** 1♀ (THNHM-I-25237), Malaysia, Pahang, Tahan R., 4–6.XI.1959, H.E. McClure leg., trap.

***Culicoides jacobsoni* Macfie, 1934**

Culicoides jacobsoni Macfie, 1934b: 215. Type locality: Indonesia, Sumatra.

Non-type material examined. LAOS: 1♀ (THNHM-I-25360), N Laos, Luang Prabang, 6.VI.1960, L.&S Quate, light trap. **MALAYSIA:** 2♀♀ (THNHM-I-25201 and THNHM-I-25202), Malaysia, Borneo, Salawak, Tebang, 7.IX.1958, flying about house, MB-300.

***Culicoides klossi* Edwards, 1933**

Culicoides klossi Edwards, 1933: 252. Type locality: Malaysia, Borneo, Sabah, Kinabalu, 1600 m a.s.l.

Non-type material examined. MALAYSIA: One ♀ (THNHM-I-25234), Malaysia, Pahang, Mt. Brinchang, 5000–6000 ft., III.1963, H.E. McClure, light trap.

***Culicoides kusaiensis* Tokunaga, 1940**

Culicoides kusaiensis Tokunaga, 1940: 215. Type locality: Japan, Kusaie Island.

Non-type material examined. MALAYSIA: 1♂ (THNHM-I-25302) and 1♀ (THNHM-I-25303), Malaysia, N Borneo, Labuan Island, IX.1948, D.H. Colless leg., at light, C-11.

***Culicoides luteolus* Wirth and Hubert, 1989 (Figure 8)**

Culicoides luteolus Wirth and Hubert, 1989: 100, figures 42, 209, 367. Type locality:

Malaysia (holotype and paratypes) and Indonesia (paratypes).

Type. Paratype: 1♀ (THNHM-I-25291), Malaysia, Pahang, Tahan River, King George V N.P., 4–6.XI.1959, H.E. McClure leg., light trap.

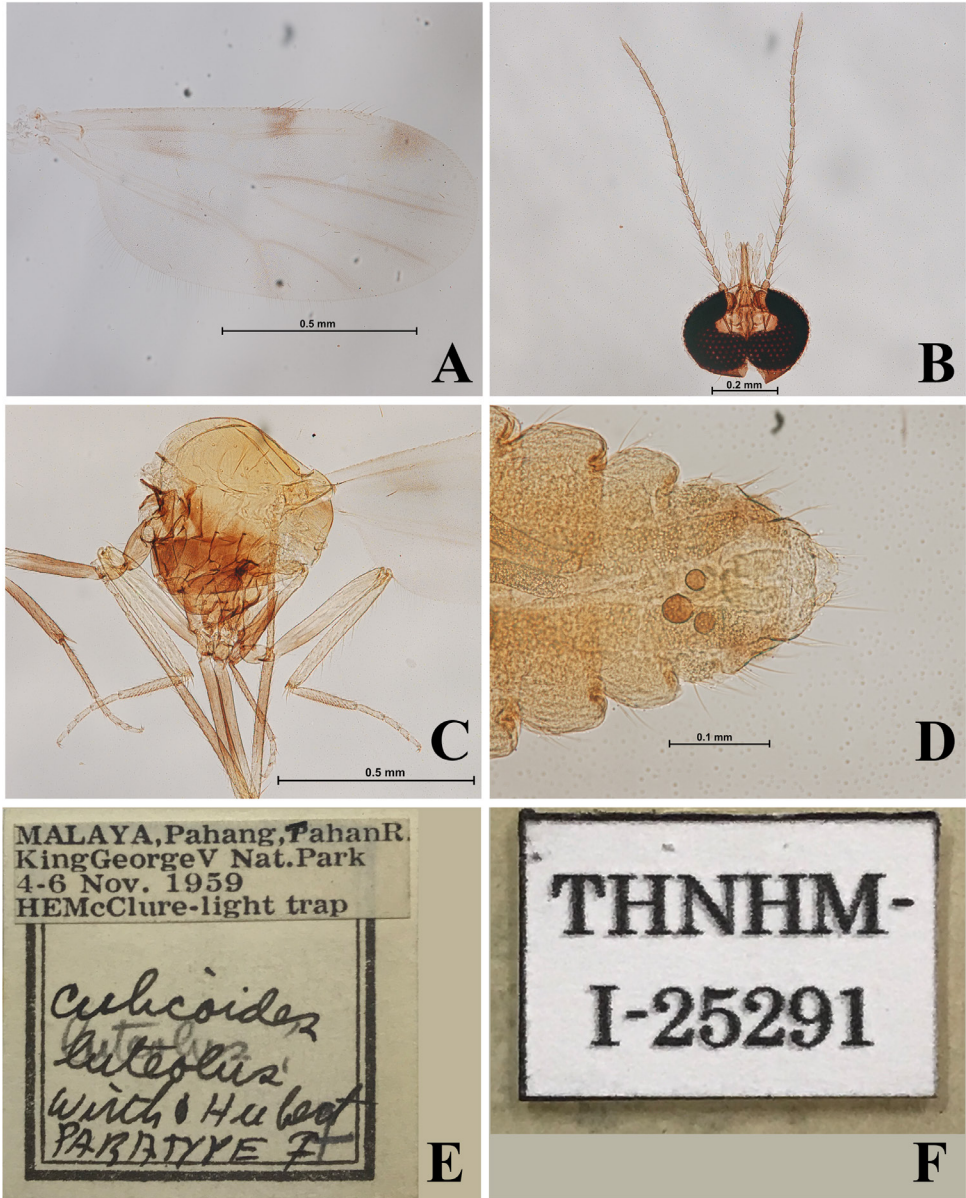


Figure 8. *Culicoides luteolus*, paratype ♀. A, Wing; B, head including antennae; C, thorax; D, abdomen; E, label; F, catalog number.

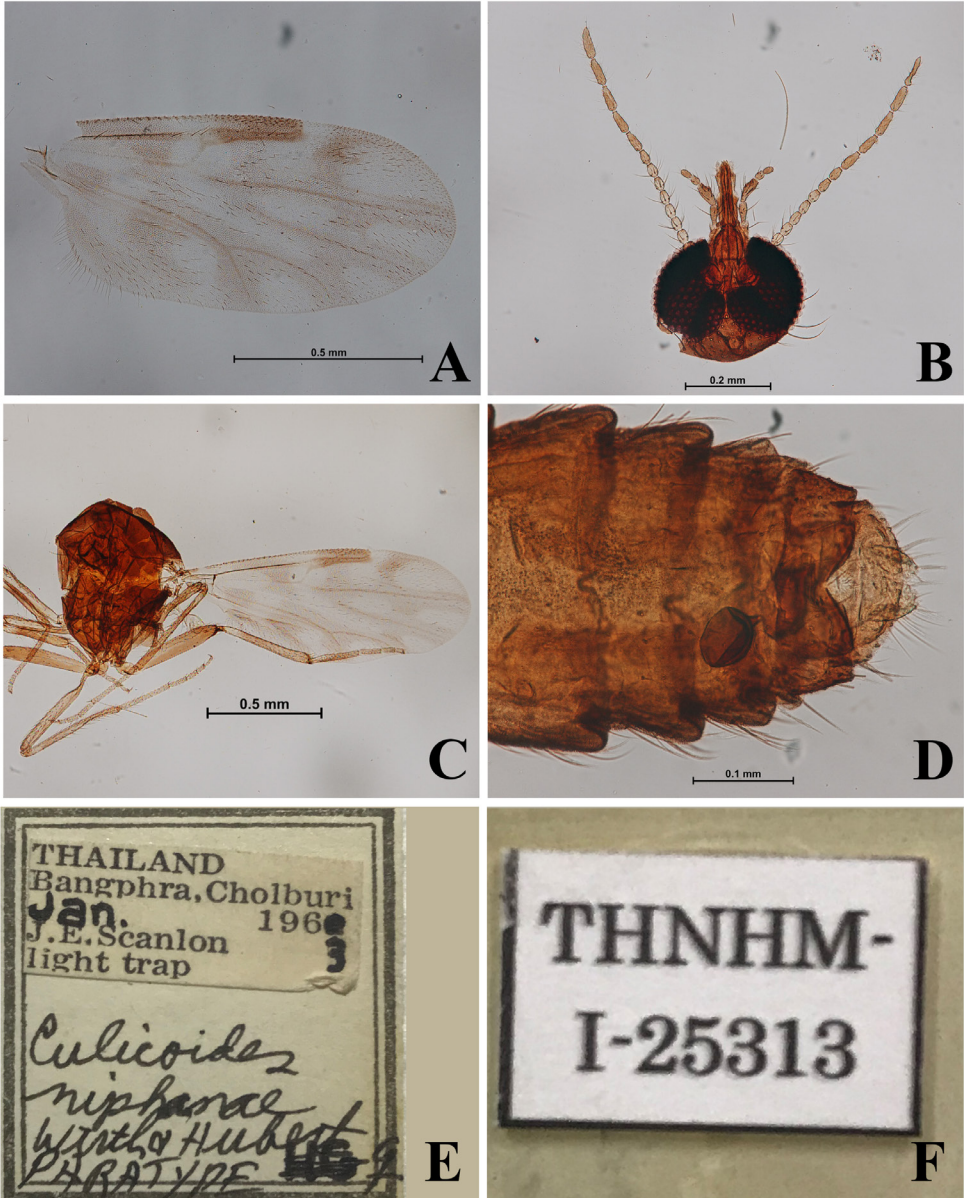
Culicoides maculatus* Shiraki, 1913Ceratopogon maculatus* Shiraki, 1913: 296. Typelocality: Taiwan.**Non-type material examined. SRI LANKA:** 1♀ (THNHM-I-25359), Sri Lanka, Kitulkala Resthouse, K.V. Krawbein *et al.* leg., 3–5.II.1979, B/L trap.

Figure 9. *Culicoides niphae*, paratype ♀. A, Wing; B, head including antennae; C, thorax; D, abdomen; E, label; F, catalog number.

***Culicoides niphanae* Wirth and Hubert, 1989** (Figure 9)

Culicoides niphanae Wirth and Hubert, 1989: 316, figures 139, 303, 440. Type locality: Thailand, Chon Buri Province.

Types. Paratypes: 2♀♀ (THNHM-I-25313 and THNHM-I-25314), central Thailand, Chon Buri [= Cholburi] Prov., Si Racha Dist., Bangphra Subdist., I.1963, J.E. Scanlon leg., light trap.

***Culicoides nitens* Edwards, 1933**

Culicoides nitens Edwards, 1933: 252. Type locality: Malaysia, Borneo, Sabah, Mt. Kinabalu, Marei Parei.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25244), central Thailand, Chon Buri [= Cholburi] Prov., Si Racha Dist., Bangphra Subdist., I.1993, J.E. Scanlon leg., light trap.

***Culicoides orientalis* Macfie, 1932**

Culicoides orientalis Macfie, 1932: 490. Type locality: Malaya.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25354), central Thailand, Samut Prakan Prov., 22.XII.1958, R. Manop leg. **MALAYSIA:** 4♀♀ (THNHM-I-25355 to THNHM-I-25358), Malaysia, Pahang, Tesek Bera, 11.X.1961, R.H. Wharton, light trap.

***Culicoides oxystoma* Kieffer, 1910**

Culicoides oxystoma Kieffer, 1910: 193. Type locality: unknown.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25331), NE Thailand, Nong Khai, Mueang Dist., 10-14.VI.1959, R. Manop leg., light; 1♂ (THNHM-I-25332), Khon Kaen Prov., Chum Phae Dist., 25–27.V.1959, R. Manop leg., light; 1♀ (THNHM-I-25333), central Thailand, Saraburi, Prabuddhabat Dist., 29.XII.1958, R. Manop leg.; 1♀ (THNHM-I-25334), central Thailand, Bangkok, Pathum Wan, 9–10.V.1959, R. Manop leg., light; 1♂ (THNHM-I-25335) and 1♀ (THNHM-I-25336), S Thailand, Phang-nga Prov., 20.X.1954, P. Panjang leg., Cowshed, 1–6 A.M.

***Culicoides pampangensis* Delfinado, 1961**

Culicoides pampangensis Delfinado, 1961: 650. Type locality: Philippines.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25350), NE Thailand, Loei [= Loey] Prov., Mueang Dist., 1–5.VI.1959, R. Manop leg., light; 1♀ (THNHM-I-25351), Thonburi Prov., Mueang Dist., 1.V.1959, R. Manop leg., light.

***Culicoides palpifer* Das Gupta and Ghosh, 1956**

Culicoides palpifer Das Gupta and Ghosh, 1956: 122. Type locality: India, West Bengal, Thakurpukur, near Calcutta.

Non-type material examined. **THAILAND:** 1♀ (THNHM-I-25281), NE Thailand, Nong Khai Prov., Mueang Dist., 10–14.VI.1959, R. Manop leg., light; 1♀ (THNHM-I-25282), NE Thailand, Sakon Nakhon [= Sakhonakron] Prov., 25–27.VI.1959, R. Manop leg., light; 1♀ (THNHM-I-25283), NE Thailand, Loei Prov., Dan Sai Dist., Ban Na Mueang, 30.IX.1954, K.E. Elbel leg., 29; 1♀ (THNHM-I-25284), NE Thailand, Nakhon Ratchasima [= Nakornrajasrima] Prov., 8–10.VII.1959, R. Manop leg., light; 1♀ (THNHM-I-25285), central Thailand, Nonthaburi Prov., 20.XII.1958, R. Manop leg.; 1♀ (THNHM-I-25286), Bangkok, Pathum Wan, VIII–IX.1962, J.E. Scanlon leg., light. **MALAYSIA:** 1♀ (THNHM-I-25287), Malaysia, Perak, Pulau Pangkor, 1.IV.1959, R. Traub leg., light; 1♀ (THNHM-I-25288), Malaysia, Trengganu, Dungun, Bukit Besi, 6.VIII.1958, R. Traub leg., light trap; 1♀ (THNHM-I-25289), Malaysia, Kelantan, Lambok, Sungei Betis, Ulu Kelantan, 9.XI.1961, R.H. Wharton, light trap. **INDONESIA:** 1♀ (THNHM-I-25290), Indonesia, W Java, 28.XI.1959, R.T. Adiwinata leg., light trap.

***Culicoides paraflavescens* Wirth and Hubert, 1959**

Culicoides paraflavescens Wirth and Hubert, 1959: 15. Sri Lanka, Colombo, Kalutaluwewa.

Non-type material examined. **THAILAND:** 2♀♀ (THNHM-I-25292 and THNHM-I-25293), central Thailand, Chon Buri [= Cholburi] Prov., Si Racha Dist., Bangphra Subdist., I.1963, J.E. Scanlon leg., light trap.

***Culicoides parahumeralis* Wirth and Hubert, 1989** (Figure 10)

Culicoides parahumeralis Wirth and Hubert, 1989: 110. Type locality: Malaysia, Kuala Lumpur, Selangor.

Types. Paratypes: 1♀ (THNHM-I-25278), N Thailand, Chiang Mai [= Chiengmai] Prov., Mueang Dist., X.1962, J.E. Scanlon leg., light trap; 1♀ (THNHM-I-25277), NE Thailand, Loei Prov., Dan Sai Dist., Ban Na Mueang, 30.IX.1954, K.E. Elbel leg.

***Culicoides peliliouensis* Tokunaga, 1936**

Culicoides peliliouensis Tokunaga, in Tokunaga and Esaki, 1936: 55. Type locality: Palau Island.

Non-type material examined. **THAILAND:** 2♀♀ (THNHM-I-25344 and THNHM-I-25345), central Thailand, Chon Buri [Cholburi] Prov., Si Racha Dist., Bangphra Subdist., I.1963, J.E. Scanlon leg., light trap; 2♀♀ (THNHM-I-25346 and THNHM-I-25347), S Thailand, Songkhla Prov., seaside, IV.1960, light trap;



Figure 10. *Culicoides parahumeralis*, paratype ♀. A, Wing; B, head including antenna; C, thorax; D, abdomen; E, label; F, catalog number.

1♀ (THNHM-I-25348), S Thailand, Songkhla Prov., seaside, 14.IV.1960, light; 1♀ (THNHM-I-25349), S Thailand, Phang-nga Prov., 11.XI.1954, Pulau Panjang leg., Cowshed, at night.

***Culicoides peregrinus* Kieffer, 1910**

Culicoides peregrinus Kieffer, 1910: 191. Type locality: India, Orissa Coast, Puri.

Non-type material examined. THAILAND: 2♀♀ (THNHM-I-25227 and THNHM-I-25228), N Thailand, Chiang Mai [= Chiengmai] Prov., IV–V.1958, V. Notananda leg., light trap; 2♀♀ (THNHM-I-25457 and THNHM-I-25458), N Thailand, Chiang Mai Prov., Saraphi Dist., Ban San Kab Tong, 4.V.1978, K. Yasumatsu leg.; 1♀ (THNHM-I-25459) and 1♂ (THNHM-I-25462), Chiang Mai Prov., Mueang Dist., Ban Mae Khao Tom, 22.II.1979, K. Yasumatsu leg.; 1♀ (THNHM-I-25451), N Thailand, Chiang Mai Prov., Hang Dong Dist., Bab Kord Ku, 27.III.1979, K. Yasumatsu leg.; 3♀♀ (THNHM-I-25452, THNHM-I-25453, THNHM-I-25455) and 1♂ (THNHM-I-25454), N Thailand, Chiang Mai Prov., San Pa Tong Dist., Ban Thung Siea, 19.II.1979, K. Yasumatsu leg.; 1♂ (THNHM-I-25456), N Thailand, Chiang Mai Prov., San Sai Dist., Ban Mae Yai, 24.VI.1979, K. Yasumatsu leg.; 1♀ (THNHM-I-25460), N Thailand, Chiang Rai Prov., Ban Pa Bong, 22.II.1979, K. Yasumatsu leg.; 1♂ (THNHM-I-25461), N Thailand, Chiang Rai Prov., Mueang Dist., Ban Teen Doi, 27.III.1979, K. Yasumatsu leg.; 1♀ (THNHM-I-25463), N Thailand, Chiang Rai Prov., Wiang Pa Pao Dist., Ban Mae Kachiang, 24.VI.1979, K. Yasumatsu.; 1♀ (THNHM-I-25229), Loei [= Loey] Prov., Dan Sai Dist., 6–7.VI.1959, R. Manop leg., light trap; 1♀ (THNHM-I-25230), NE Thailand, Sakon Nakhon [= Sakhonakron] Prov., 25–27.VI.1959, Manop leg., light trap; 2♀♀ (THNHM-I-25443 and THNHM-I-25444), NE Thailand, Si Sa Ket Prov., Khukhan Dist., Ban Ta Muan, 30.X.1976, K. Yasumatsu leg.; 2♂♂ (THNHM-I-25446 and THNHM-I-25447) and 2♀♀ (THNHM-I-25448 and THNHM-I-25449), NE Thailand, Khon Kaen Prov., Ban Nong Bua, 23.VI.1977, K. Yasumatsu leg.; 1♀ (THNHM-I-25445), E Thailand, Sa Kaeo Prov. [= Prachin Buri Prov., Sa Kaeo Dist.], Ban Nong Ka Poa, 8.XI. 1976, K. Yasumatsu leg.; 1♀ (THNHM-I-25450), E Thailand, Chachoengsao Prov., 12.VII.1978, K. Yasumatsu leg.; 1♀ (THNHM-I-25231), central Thailand, Bangkok, Thong Lo, VIII–IX.1962, J.E. Scanlon leg., light. **MALAYSIA:** 1♂ (THNHM-I-25232) and 1♀ (THNHM-I-25233), Malaysia, Selangor, Kuala Lumpur, III.1958, R. Traub leg., light, T2.

***Culicoides pungens* de Meijere, 1909**

Culicoides pungens de Meijere, 1909: 200. Type locality: Sumatra.

Non-type material examined. MALAYSIA: 1♀ (THNHM-I-25353), Malaysia, Negri Sembilan, Pt. Dickson, Telok Pelandok, 18.VII.1958, R. Traub leg., trap, 34.

***Culicoides quatei* Wirth and Hubert, 1989** (Figure 11)

Culicoides quatei Wirth and Hubert, 1989. 333, figures 147, 311, 447. Type locality: Malaysia and Indonesia.

Type. Paratype: 1 ♀ (THNHM-I-25315), Malaysia, Negri Sembilan Pt. Dickson, Telok Pelandok, 18.VII.1958, R. Traub leg., light trap.

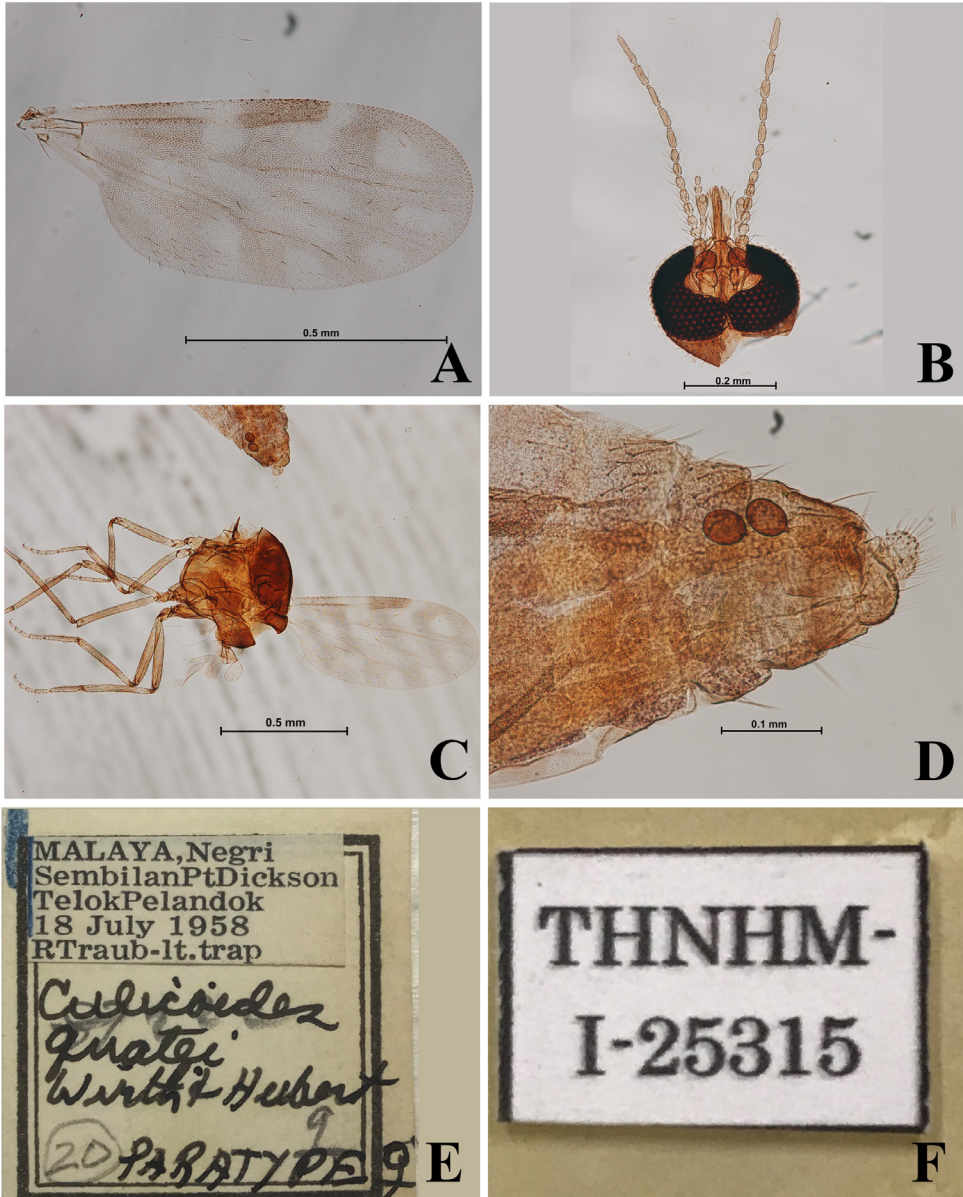


Figure 11. *Culicoides quatei*, paratype ♀. A, Wing; B, head including antennae; C, thorax; D, abdomen; E, label; F, catalog number.

***Culicoides recurvus* Delfinado, 1961**

Culicoides recurvus Delfinado, 1961: 663. Type locality: Philippines, Pampanga, Angeles, Clark Air Base.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25225), N Thailand, Chiang Mai [= Chiengmai] Prov., IV–V.1958, V. Notananda leg., light trap; 1♀ (THNHM-I-25226), central Thailand, Nakhon Pathom [= Nakronprathom] Prov., 18.XII.1958, R. Manop leg.

***Culicoides schultzei* (Enderlein, 1908)**

Ceratopogon schultzei Enderlein, 1908: 459. Type locality: Namibia.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25510), N Thailand, Chiang Rai Prov., Mueang Dist., Ban Kua Tae, 28.III.1979, K. Yasumatsu leg.; 1♀ (THNHM-I-25506), N Thailand, Chiang Mai Prov., Hang Dong Dist., Bang Rong Ku, 27.III.1979, K. Yasumatsu leg.; 2♂♂ (THNHM-I-25507 and THNHM-I-25509) and 1♀ (THNHM-I-25508), N Thailand, Chiang Mai Prov., Chiang Dao Dist., Ban Thung Ka La, 6.IX.1978, K. Yasumatsu leg.; 1♀ (THNHM-I-25500), NE Thailand, Udon Thani Prov., Unknown Dist., 8.VIII.1978, K. Yasumatsu leg.; 1♀ (THNHM-I-25505), NE Thailand, Khon Kaen Prov., rice field, 30.IX.1977, K. Yasumatsu leg.; 2♂♂ (THNHM-I-25501 and THNHM-I-25503) and 1♀ (THNHM-I-25502), NE Thailand, Ubon Ratchathani Prov., Phibun Mangsahan Dist., 6.IX.1977, K. Yasumatsu leg.; 1♀ (THNHM-I-25504), NE Thailand, Ubon Ratchathani Prov., Phibun Mangsahan Dist., 29.X.1976, K. Yasumatsu leg.

***Culicoides shortti* Smith and Swaminath, 1932**

Culicoides shortfi Smith and Swaminath, 1932: 183. Type locality: India (Assam).

Non-type material examined. THAILAND: 2♀♀ (THNHM-I-25326 and THNHM-I-25327), N Thailand, Chiang Mai [= Chiengmai] Prov., IV–V.1958, V. Nontananda leg., light trap; 1♀ (THNHM-I-25513), N Thailand, Chiang Mai Prov., Mueang Dist., Ban Hua Tae, 28.III.1979, K. Yasumatsu leg.; 2♀♀ (THNHM-I-25514 and THNHM-I-25515), Chiang Mai Prov., Chom Thong Dist., Doi Inthanon, Doi Pa Moun, 10.XI.1978, K. Yasumatsu leg.; 1♀ (THNHM-I-25516), Chiang Mai Prov., Mueang Dist., Ban Mae Khao Tong, 22.II.1979, K. Yasumatsu leg.; 3♀♀ (THNHM-I-25517 to THNHM-I-25519), N Thailand, Chiang Mai Prov., Hang Dong Dist., Bang Rong Ku, 27.III.1979, K. Yasumatsu leg.; 1♀ (THNHM-I-25511), N Thailand, Mae Hong Son Prov., Mae Sariang Dist., 5.V.1978, K. Yasumatsu leg.; 1♀ (THNHM-I-25512), E Thailand, Prachin Buri Prov., Prachantakram Dist., Ban Mueang, 8.XI.1976, K. Yasumatsu leg.; 1♂ (THNHM-I-25328), NE Thailand, Nong Khai Prov., Mueang Dist., 10–14.VI.1959, R. Manop leg., light; 1 specimen (THNHM-I-25329, unknown sex), Chon Buri Prov.,

Si Racha Dist., Bangphra Subdist., I.1963, J.E. Scanlon, light trap; 1 ♀ (THNHM-I-25330), central Thailand, Bangkok, Thong Lo, I–III.1963, J.E. Scanlon leg., light trap.

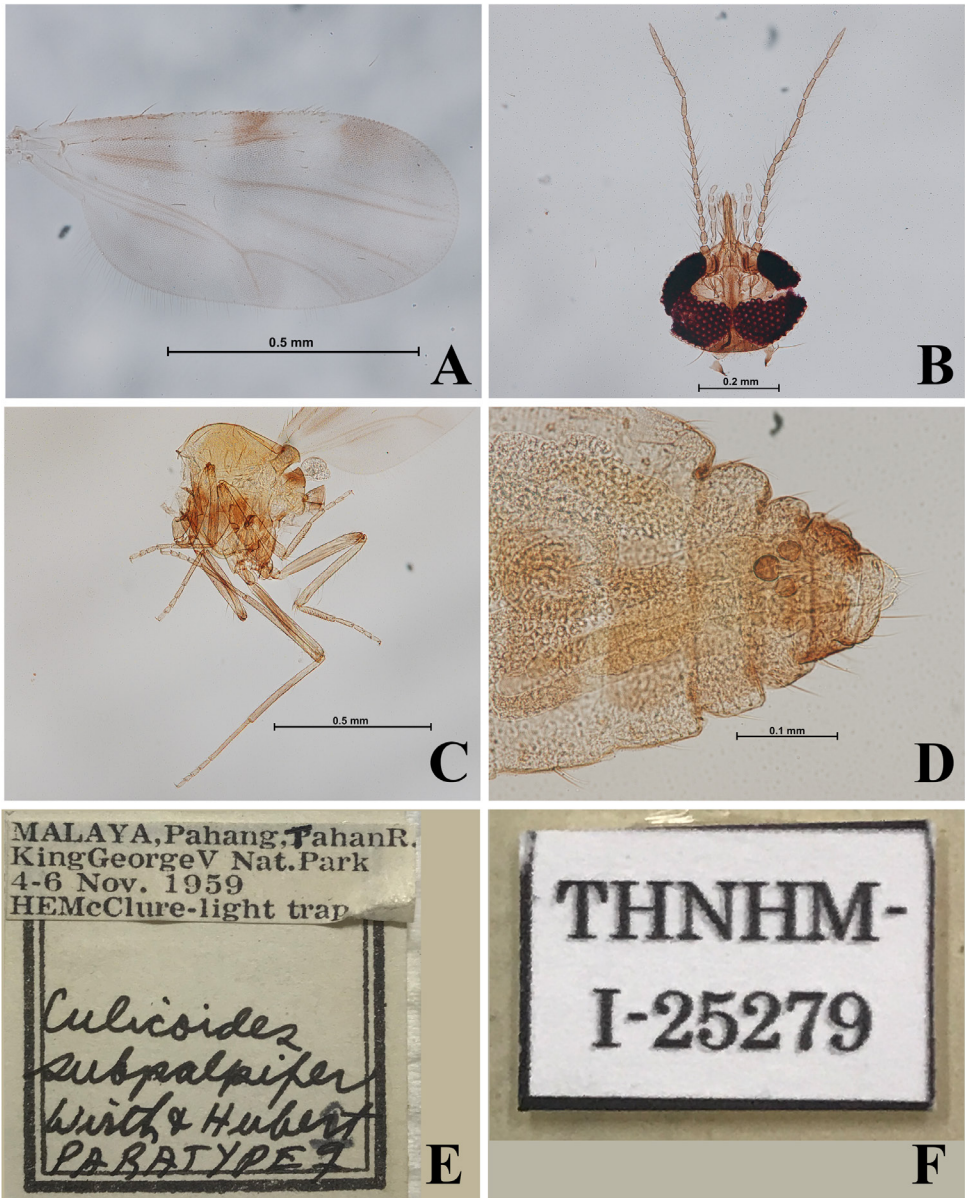


Figure 12. *Culicoides subpalpifer*, paratype ♀, Wing; B, head including antennae; C, thorax; D, abdomen; E, label; F, catalog number.

***Culicoides subpalpifer* Wirth and Hubert, 1989** (Figure 12)

Culicoides subpalpifer Wirth and Hubert, 1989: 115. Type locality: Malaysia.

Types. Paratypes: 1♀ (THNHM-I-25279), Malaysia, Pahang, Tahan River, King George V N.P., 4-6.XI.1959, H.E. McClure leg., light trap; 1♀ (THNHM-I-25280), Malaysia, Kuala Lumpur, Selangor, 2.V.1961, from decaying fruit in jungle.

***Culicoides sumatrae* Macfie, 1934**

Culicoides sumatrae Macfie, 1934a: 190. Type locality: Malaya, Selangor, Kuala Lumpur.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25220), central Thailand, Nakhon Pathom [= Nakronprothom] Prov., 18.XII.1958, R. Manop leg. **MALAYSIA:** 1♀ (THNHM-I-25221), Malaysia, Kelantan, Lambok, Sunggei Betis, Ulu Kelantan, 9.XI.1961, R.H. Wharton leg., light trap; 1♀ (THNHM), Malaysia, Selangor, Ulu Lui, Ulu Langit, 6.IV.1961, R.H. Wharton leg., biting man near cattle; 3♀♀ (THNHM-I-25222 to THNHM-I-25224), Malaysia, Pahang, Tahang R., King George V N.P., 4-6XI.1959, H.E. McClure, light trap.

***Culicoides yasumatsui* Tokunaga, 1941**

Culicoides yasumatsui Tokunaga, 1941: 113. Type locality: Caroline Islands.

Non-type material examined. MALAYSIA: 1♀ (THNHM-I-25337), Malaysia, N Borneo, Labuan Island, IX-XI.1948, D.H. Colless leg., C-63.

***Dasyhelea assimilis* (Johannsen, 1932)**

Tetrphora assimilis Johannsen, 1932: 425. Type locality: Indonesia.

Non-type material examined. SINGAPORE: 1♂ (THNHM-I-25464) and 1♀ (THNHM-I-25465), Singapore, Malaya, II.1955, D.H. Colless leg., M-16.

***Dibezzia debenhamae* Wirth and Ratanaworabhan, 1981** (Figure 13)

Dibezzia debenhamae Wirth and Ratanaworabhan, 1981b: 290. Type locality: Malaysia.

Type. Paratype: 1♀ (THNHM-I-25437), N Thailand, Chiang Mai Prov., Mueang Dist., XI.1962, J.E. Scanlon leg., light trap.

***Echinohelea zonata* Tokunaga, 1963**

Echinohelea zonata Tokunaga, 1963: 234. Type locality: Papua New Guinea.

Non-type material examined. PHILIPPINES: 1♀ (THNHM-I-25364), Philippines, Palawan Island, Mantalinajan, Tagembung, 1,150 m, 19.IX.1961, Noona Dan Exp.; 1♂ (THNHM-I-25364), same locality, 15.IX.1961, 61-61.

***Fittkauhelea amazonica* Wirth and Blanton, 1970** (Figure 14)*Fittkauhelea amazonica* Wirth and Blanton, 1970: 9. Type locality: Brazil.**Type. Paratype:** 1♀ (THNHM-I-25366), Brazil, Amazolas, Rio Meravia, XII.1962–II.1963, E.J. Fittkau leg., light.

Figure 13. *Dibezzia debenhamae*, paratype ♀. A, Wing; B, head; C, thorax; D, abdomen; E, label; F, catalog number.

***Homohoelea insons* (Johannsen, 1932)**

Sphaeromias insons Johannsen, 1932: 436. Type locality: Indonesia.

Non-type material examined. THAILAND: 1♂ (THNHM-I-25704), N Thailand, Chiang Mai Prov., Chom Thong Dist., Ban Nam Yard, 7.V.1978, K. Yasumatsu leg.; 1♂ (THNHM-I-25705) and 1♀ (THNHM-I-25706), Udon Thani Prov., Phen Dist., Ban Nong Kiang, 8.VIII.1978, K. Yasumatsu leg.; 1♀ (THNHM-I-25707), NE Thailand, Ubon Ratchathani Prov., Phibun Mangsahan Dist., 29.X.1976, K. Yasumatsu leg.; 2♀♀ (THNHM-I-25708 and THNHM-I-25709), NE Thailand, Ubon Ratchathani Prov., Phibun Mangsahan Dist., 6.IX.1977, K. Yasumatsu leg.; 1♀ (THNHM-I-25710), NE Thailand, Nakhon Phanom Prov., 10.IX.1978, K. Yasumatsu leg.

***Jenkinshelea blantoni* Grogan and Wirth, 1977** (Figures 15–16)

Jenkinshelea blantoni Grogan and Wirth, 1977: 139. Type locality: USA (Florida).

Types. Paratypes: 1♂ (THNHM-I-25176), USA, Florida, Putnam Co. Lons' Lake, 984m, VI.1971, F.S. Blanton leg.; 1♀ (THNHM-I-25477), USA, Florida, Putnam Co. Lons' Lake, 983m, V.1971, F.S. Blanton leg.

***Jenkinshelea niphanae* Grogan and Wirth, 1981**

Jenkinshelea niphanae Grogan and Wirth, 1981: 45. Type locality: Thailand

Non-type material examined. THAILAND: 1♀ (THNHM-I-25702), N Thailand, Chiang Mai Prov., San Pa Tong Dist., 19.II.1979, K. Yasumatsu leg.

***Jenkinshelea tokunagai* Grogan and Wirth, 1981**

Jenkinshelea tokunagai Grogan and Wirth, 1981: 49. Type locality: Thailand.

Non-type material examined. THAILAND: 1♂ (THNHM-I-25703), N Thailand, Chiang Mai Prov., San Pa Tong Dist., 11.III.1979, K. Yasumatsu leg.

***Johannsenomyia argentata* (Loew, 1861)**

Ceratopogon argentata Loew, 1861: 310. Type locality: USA (District of Columbia).

Non-type material examined. USA: 1♀ (THNHM-I-25479), USA, unknown locality, date (September?), and collector (damage).

***Leehelea punctipes* (Macfie, 1934)**

Sphaeromias punctipes Macfie, 1934c: 287. Type locality: Malaysia.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25434), NE Thailand, Loei Prov., Mueang Dist., 1–5.VI.1959, R. Manop leg.; 1♀ (THNHM-I-25435), N Thailand, Chiang Mai Prov., Mueang Dist., XI.1962, J.E. Scanlon leg., light trap; 1♀ (THNHM-I-25436), N Thailand, Phayao Prov., Mueang Dist., 27.V.1977, N. Ratanaworabhan leg., rice paddy.



Figure 14. *Fittkauhelea amazonica*, paratype ♀. A, Wing; B, head including antennae; C, thorax; D, abdomen; E, label; F, catalog number.

***Mallochohelea atripes* Wirth, 1962**

Mallochohelea atripes Wirth, 1962: 281. Type locality: USA (New Jersey).

Non-type material examined. *USA*: 1♂ (THNHM-I-25478), USA, Florida, Santa Rosa Co., Black Water A&M Biological Station, 176m, 21.V.1971, G.B. Fairchild leg., B.L. trap; 1♀ (THNHM-I-25487), USA, West Gainesville, 29.VI.1968, Blanton & Fletcher leg., light trap.

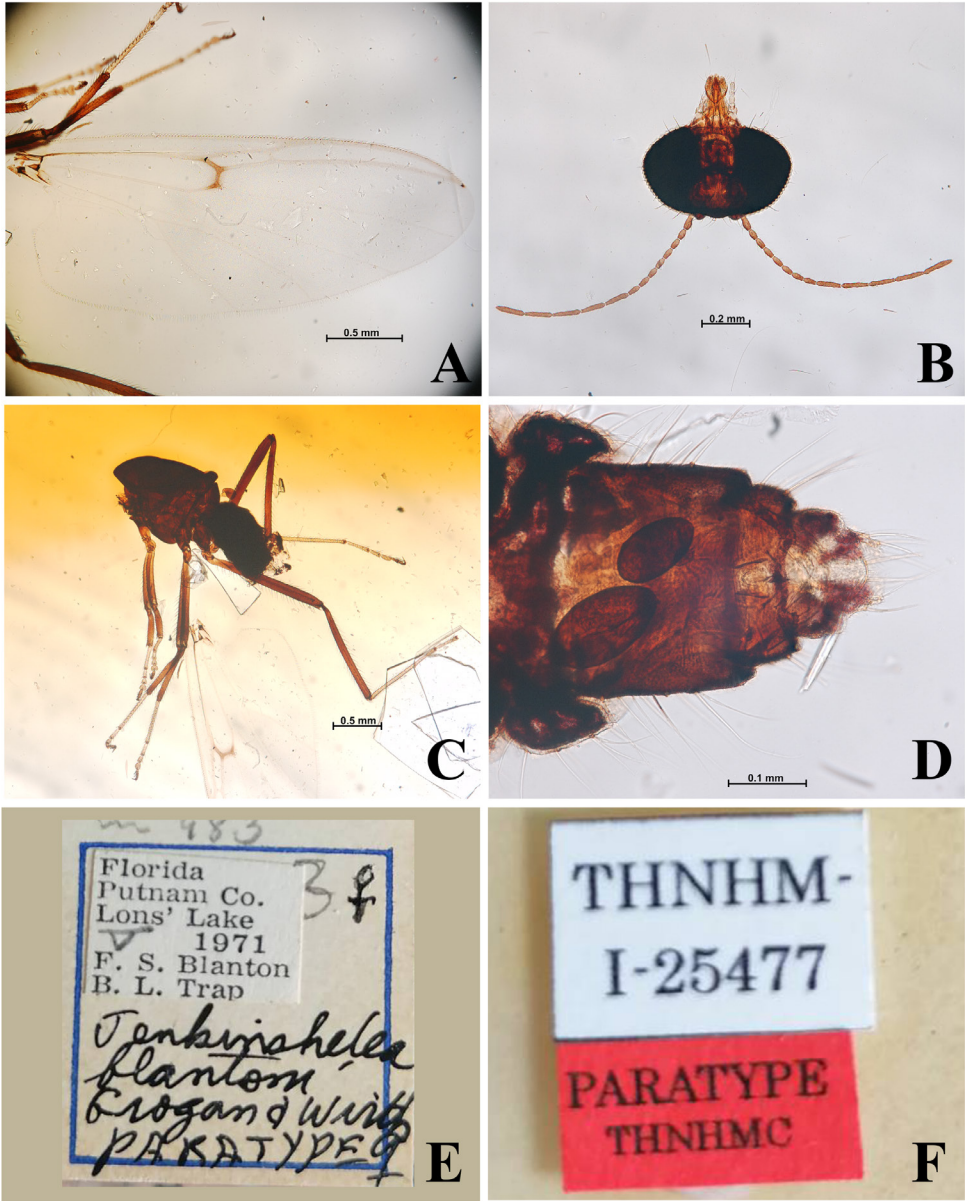


Figure 15. *Jenkinshelia blantoni*, paratype ♀. A, Wing; B, head including antennae; C, thorax; D, abdomen; E, label; F, catalog number.

***Neosphaeromias gibbus* Das Gupta and Wirth, 1971 (Figure 17)**

Neosphaeromias gibbus Das Gupta and Wirth, 1971: 877. Type locality: Thailand.

Types. Paratypes: 2♀ (THNHM-I-25473 and THNHM-I-25474), NE Thailand, Loei Prov., Mueang Dist., 1–5.VI.1959. R. Manop leg.; 1♀ (THNHM-I-25475), NE Thailand, Udon Thani Prov., Nong Han Dist., 21–22.VI.1959, R. Manop leg., light.

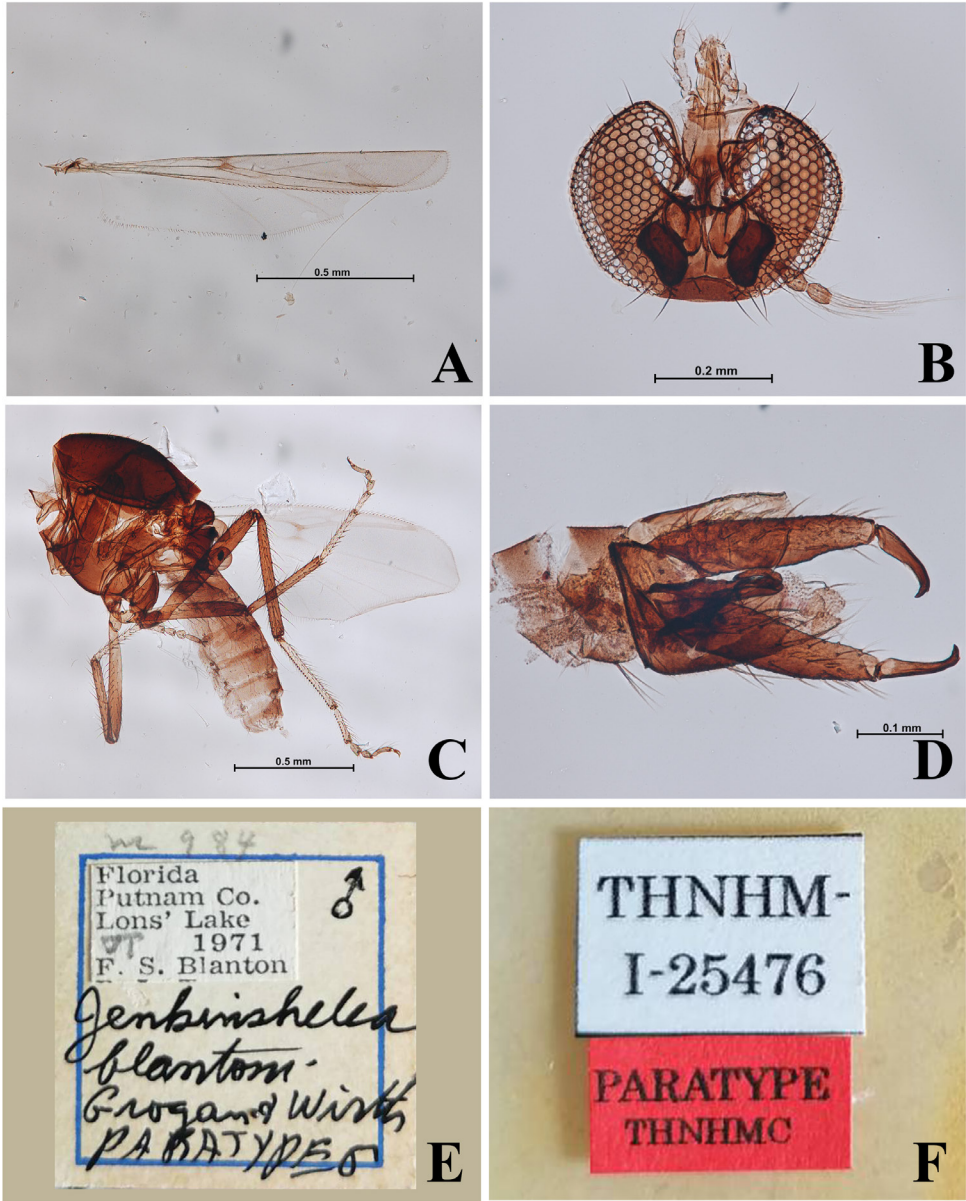


Figure 16. *Jenkinshalea blantoni*, paratype ♂. A, Wing; B, head including antennae; C, thorax and abdomen in profile view; D, genitalia; E, label; F, catalog number.

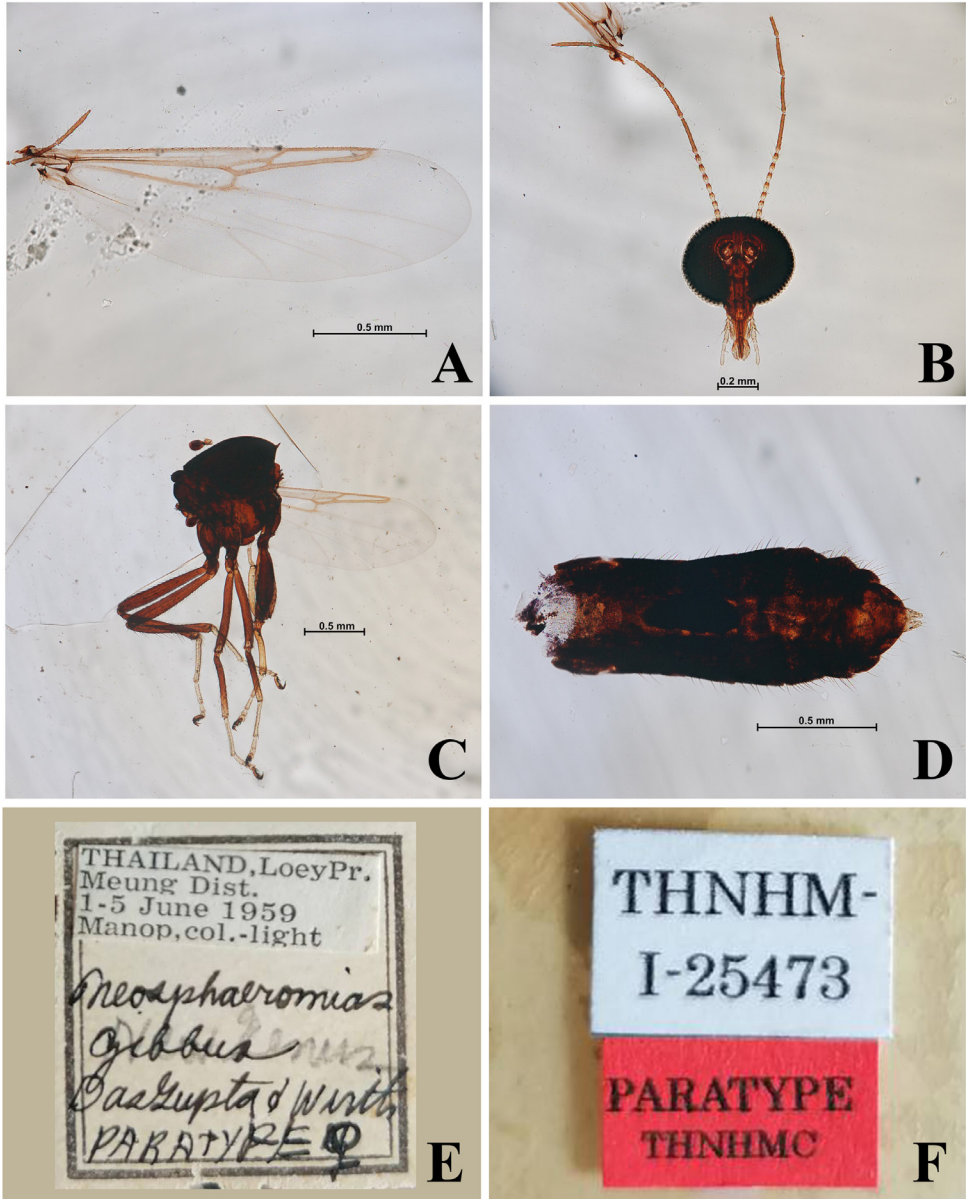


Figure 17. *Neosphaeromias gibbus*, paratype ♀. A, Wing; B, head including antennae; C, thorax; D, abdomen; E, label; F, catalog number.

***Nilobezzia acanthopus* (de Meijere, 1907)**

Ceratopogon acanthopus de Meijere, 1907: 215. Type locality: Indonesia.

Non-type material examined. **THAILAND:** 10♀♀ (THNHM-I-25600 to THNHM-I-25608, and THNHM-I-25611), N Thailand, Chiang Mai Prov., IV-V.1958, V. Notananda leg., light trap; 2♀♀ (THNHM-I-25609 and THNHM-I-25610), N Thailand, Chiang Mai Prov., Mueang Dist., XI.1962, J.E. Scanlon leg., light trap; 2♀♀ (THNHM-I-25630 and THNHM-I-25631), N Thailand, Chiang Mai Prov., Mueang Dist., X.1962, J.E. Scanlon leg., light trap; 7♂♂ (THNHM-I-25574 to THNHM-I-25578, THNHM-I-25580 and THNHM-I-25582) and 5♀♀ (THNHM-I-25579, THNHM-I-25613, THNHM-I-25614, THNHM-I-25620 and THNHM-I-25621), NE Thailand, Udon Thani Prov., Mueang Dist., IX.1962, J.E. Scanlon leg., light trap; 2♀♀ (THNHM-I-25546 and THNHM-I-25547), NE Thailand, Udon Thani Prov., Mueang Dist., 17–20.VI.1959, R. Manop leg., light.; 1♀ (THNHM-I-25543), NE Thailand, Sakon Nakhon Prov., Mueang Dist., 25–27.VI.1959; 1♀ (THNHM-I-25635), NE Thailand, Khon Kaen Prov., 17.X.1953, K.E. Elbel leg.; 1♀ (THNHM-I-25542), NE Thailand, Khon Kaen Prov., Mueang Dist., 20–24.V.1959, R. Manop leg., light; 2♀♀ (THNHM-I-25540 and THNHM-I-25541), NE Thailand, Khon Kaen Prov., Ban Phai Dist., 28–30.V.1959, R. Manop leg., light; 2♀♀ (THNHM-I-25634 and THNHM-I-25637), NE Thailand, Khon Kaen Prov., 16.XI.1953, K.E. Elbel leg.; 6♀♀ (THNHM-I-25539, THNHM-I-25626 to THNHM-I-25629, THNHM-I-25632, THNHM-I-25693 to THNHM-I-25701), NE Thailand, Khon Kaen Prov., Chum Phae Dist., 25–27.V.1959, R. Manop leg., light; 1♀ (THNHM-I-1♀ (THNHM-I-25625), Loei Prov., Mueang Dist., 1–5.VI.1959, R. Manop leg., light; 1♀ (THNHM-I-25633), Chaiyaphum Prov., Phu Khiao Dist., Ban Tad, 16.XII.1952, Elbel leg.; 1♀ (THNHM-I-25544), Nakhon Ratchasima Prov., Mueang Dist., 5–7.VII.1959, R. Manop leg., 4♂♂ (THNHM-I-25525, THNHM-I-25527, THNHM-I-25535, THNHM-I-25536) and 7♀♀ (THNHM-I-25537 and THNHM-I-25538, THNHM-I-25592 to THNHM-I-25594, THNHM-I-25687, THNHM-I-25688), central Thailand, Bangkok, Thonglo [= Thong Lo], VIII-IX.1962, J. Scanlon, light; 1♀ (THNHM-I-25533) and 7♂♂ (THNHM-I-25526, THNHM-I-25528 to THNHM-I-25532, THNHM-I-25534), central Thailand, Bangkok, Huai Khwang [= Huai Kwang], VIII.1962, J. Scanlon leg.; 2♀♀ (THNHM-I-25563 and THNHM-I-25564) and 9♂♂ (THNHM-I-25565, THNHM-I-25567, THNHM-I-25568, THNHM-I-25573, and THNHM-I-25583 to THNHM-I-25587), central Thailand, Bangkok, Thong Lo [= Thonglo], X.1962, J.E. Scanlon leg., light trap; 12♂♂ (THNHM-I-25569 to THNHM-I-25572, THNHM-I-25679, THNHM-I-25680 to THNHM-I-25686) and 18♀♀ (THNHM-I-25548, THNHM-I-25556, THNHM-I-25559 to THNHM-I-25562, THNHM-I-25588 to THNHM-I-25591, THNHM-I-25595 to THNHM-I-25599, THNHM-I-25677, THNHM-I-25678, THNHM-I-25692), central

Thailand, Bangkok Huai Khwang [= Huai Kwang], IX.1962, J.E. Scanlon leg., light; 1♂ (THNHM-I-25581), central Thailand, Bangkok, Huai Khwang [= Huai Kwang], X.1962, J.E. Scanlon leg., light trap; 9♀♀ (THNHM-I-25549 to THNHM-I-25555, THNHM-I-25557 and THNHM-I-25558), central Thailand, Bangkok, Huai Kwang [= Huai Khwang], VIII–IX.1962, J.E. Scanlon leg., light; 1♀ (THNHM-I-25623), central Thailand, Bangkok, Min Buri [= Minburi], 24.XII.1958, R. Manop leg.; 3♀♀ (THNHM-I-25689 to THNHM-I-25691), central Thailand, Bangkok, Bang-po, VIII–IX.1962, J.E. Scanlon leg., light; 1♀ (THNHM-I-25636), central Thailand, Nonthaburi Prov., 20.XII.1958, R. Manop leg.; 1♀ (THNHM-I-25624), central Thailand, Nakhon Pathom Prov., 18.XII.1958, R. Manop leg.; central Thailand, Samut Prakan Prov., 22.XII.1958, R. Manop leg.; 1♀ (THNHM-I-25545), central Thailand, Nakhon Pathom Prov., Mueang Dist., 28–30.VI.1959, R. Manop leg., light; 1♂ (THNHM-I-25566) and 6♀♀ (THNHM-I-25612, THNHM-I-25615 to THNHM-I-25615 to THNHM-I-25619), Chon Buri Prov., Si Racha Dist., Bangphra Subdist., X.1962, J.E. Scanlon leg., light trap.

***Nilobezzia raphaelis* (Salm, 1917)**

Ceratopogon raphaelis Salm, 1917: 135. Type locality: Indonesia. New name for *Ceratopogon blanchardi*.

Non-type material examined. THAILAND: 2♀♀ (THNHM-I-25671 and THNHM-I-25672), N Thailand, Chiang Mai Prov., IV–V.1958, V. Notannanda leg., light trap; 1♀ (THNHM-I-25667), N Thailand, Chiang Mai Prov., Mueang Dist., VII.1962, J.E. Scanlon leg., light trap; ♀ (THNHM-I-25670), N Thailand, Chiang Mai Prov., Mueang Dist., XI.1962, J.E. Scanlon leg., light trap; 1♀ (THNHM-I-25659), NE Thailand, Udon Thani Prov., Mueang Dist., 17–20.VI.1962, R. Manop leg., light; 1♂ (THNHM-I-25639) and 2♀♀ (THNHM-I-25638 and THNHM-I-25642), NE Thailand, Udon Thani Prov., Mueang Dist., IX.1962, J.E. Scanlon leg., light trap; 2♀♀ (THNHM-I-25654 and THNHM-I-25655), NE Thailand, Sakon Nakhon Prov., Mueang Dist., 25–27.VI.1959, R. Manop leg., light; 3♀♀ (THNHM-I-25656 to THNHM-I-25658), Nakhon Phanom Prov., Mueang Dist., 28–30.VI.1959, R. Manop leg., light; 3♀♀ (THNHM-I-25640, THNHM-I-25641, THNHM-I-25650), NE Thailand, Khon Kaen Prov., Chum Phae Dist., 25–27.V.1959, R. Manop leg., light; 3♀♀ (THNHM-I-25651 to THNHM-I-25653, THNHM-I-25666), NE Thailand, Khon Kaen Prov., 28–30.V.1959, R. Manop leg., light; 2♀♀ (THNHM-I-25668 and THNHM-I-25668), NE Thailand, Khon Kaen Prov., 16.XI.1953, K.E.Elbel leg.; 4♀♀ (THNHM-I-25673 to THNHM-I-25676), NE Thailand, Nakhon Ratchasima Prov., Pak Chong Dist., 8–10.VII.1959, R. Manop leg., light; 2♀♀ (THNHM-I-25643, 25647), central Thailand, Bangkok, Phloen Chit? [= Plukchit], VIII–IX.1962, J.E. Scanlon leg., light; 1♀ (THNHM-I-25644), central Thailand, Bangkok, Thonglo [= Thong Lo], VIII–IX.1962, J.E. Scanlon leg., light;

2♀♀ (THNHM-I-25645 and THNHM-I-25646), central Thailand, Bangkok, Bangpo, VIII-IX.1962, J.E. Scanlon leg., light; 2♀♀ (THNHM-I-25648 and THNHM-I-25648), central Thailand, Bangkok, Huai Kwang [= Huai Khwang], IX.1962, J.E. Scanlon leg., light; 1♀ (THNHM-I-25660), central Thailand, Samut Prakan Prov., 22.XII.1958, R. Manop leg.; 5♀♀ (THNHM-I-25661 to THNHM-I-25665), central Thailand, Nakhon Pathom Prov., 18.XII.1958, R. Manop leg.

***Parabezzia inermis* (Coquillett, 1902)**

Ceratopogon inermis Coquillett, 1902: 86. Type locality: USA (Arizona).

Non-type material examined. USA: 1♀ (THNHM-I-25363), U.S.A, Arizona, Postal, S.W. Res. Station, 4.X.1974, V. Roth leg., light.

***Phaenobezzia conspersa* (Johannsen, 1932)**

Bezzia conspersa Johannsen, 1932: 446. Type locality: Indonesia.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25488), NE Thailand, Loei Prov., Tha Li Dist., 8-9.VI.1959, R. Manop leg., light.

***Phaenobezzia eucera* (Kieffer, 1911)**

Bezzia eucera Kieffer, 1911: 123. Type locality: India.

Non-type material examined. THAILAND: 1♂ (THNHM-I-25485) and 1♀ (THNHM-I-25485), N Thailand, Mae Hong Son Prov., Mueang Dist., Ban Pa Bong, 6.V.1978, K. Yasumatsu leg.

***Phaenobezzia mellipes* Wirth and Ratanaworabhan, 1981 (Figure 18)**

Phaenobezzia mellipes Wirth and Ratanaworabhan, 1981b: 427. Type locality: Thailand.

Types. Paratypes: 5♀♀ (THNHM-I-25480 to THNHM-I-25484), Sri Sa Ket Prov., Kanthararom Dist., Ban Nong Bua, 30.X.1976, K. Yasumatsu leg.

***Phaenobezzia javana* (Kieffer, 1923)**

Probezzia javana Kieffer, 1923: 142. Type locality: Indonesia, Java.

Non-type material examined. THAILAND: 2♀♀ (THNHM-I-25407 and THNHM-I-25408) and 2 ♂♂ (THNHM-I-25409 and THNHM-I-25410), N Thailand, Chiang Mai Prov., Chom Thong Dist., Doi Inthanon, Doi Fa Moum, 19.XI.1978, K. Yasumatsu leg.

***Probezzia albitibia* Wirth, 1971 (Figures 19–20)**

Probezzia albitibia Wirth, 1971: 732. Type locality: USA (Virginia).

Types. Paratypes: 1♀ (THNHM-I-25466) and 1♂ (THNHM-I-25467), USA, York, Pa. 13 mi W Conewango Creek, 20VIII.1960, P.J. Spangler leg.



Figure 18. *Phaenobezzia mellipes*, paratype ♀. A, Wing; B, head including antennae; C, thorax; D, abdomen; E, label; F, catalog number.

***Sphaeromyias discolor* (de Meijere, 1907)**

Ceratopogon discolor de Meijere, 1907: 214. Type locality: Indonesia.

Non-type material examined. **THAILAND:** 2♀♀ (THNHM-I-25711 and THNHM-I-26712), N Thailand, Chiang Mai prov., Chom Thong Dist., Ban Huai Dib, 8.V.1978, K. Yasumatsu leg.; 1♂ (THNHM-I-25713) and 1♀ (THNHM-I-25714), N Thailand, Chiang Mai Prov., San Pa Tong Dist., Ban Than Sico, II-III.1979, K.

Yasumatsu leg.; 1♀ (THNHM-I-25715), NE Thailand, Si Sa Ket Prov., Kanthararom Dist., Ban Nong Bua, 30.X.1976, K. Yasumatsu leg.; 2♀ (THNHM-I-25716 and THNHM-I-25717), S Thailand, Songkhla Prov., I.1979, N. Ratanwontham leg.; 1♀ (THNHM-I-25718), unknown locality, 9.III.1978, K. Yasumatsu leg.



Figure 19. *Probezzia albitibia*, paratype ♀. A, Wing; B, head including antenna; C, thorax; D, abdomen; E, label; F, catalog number.

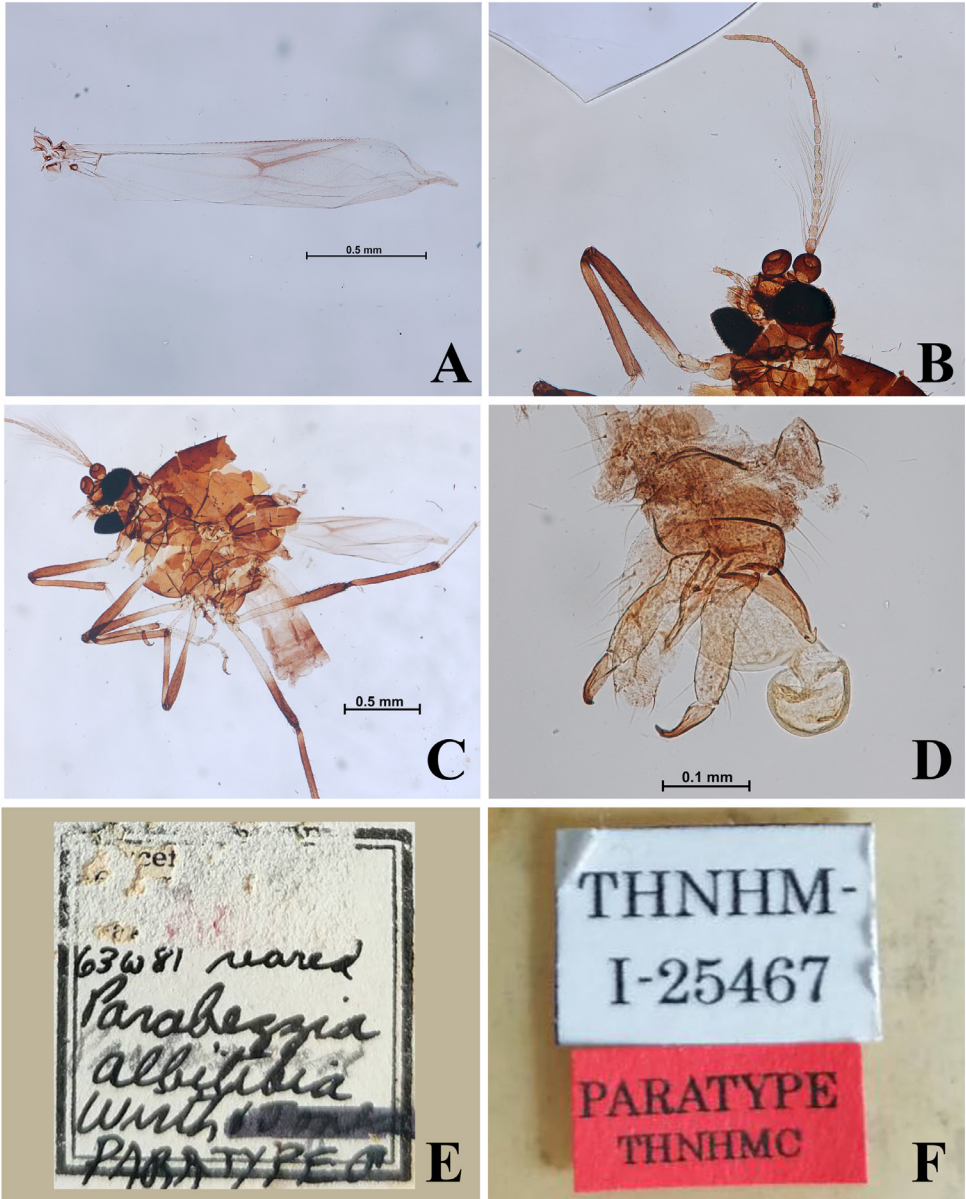


Figure 20. *Probezzia albitibia*, paratype ♂. A, Wing; B, head including antenna; C, thorax; D, genitalia; E, label; F, catalog number.

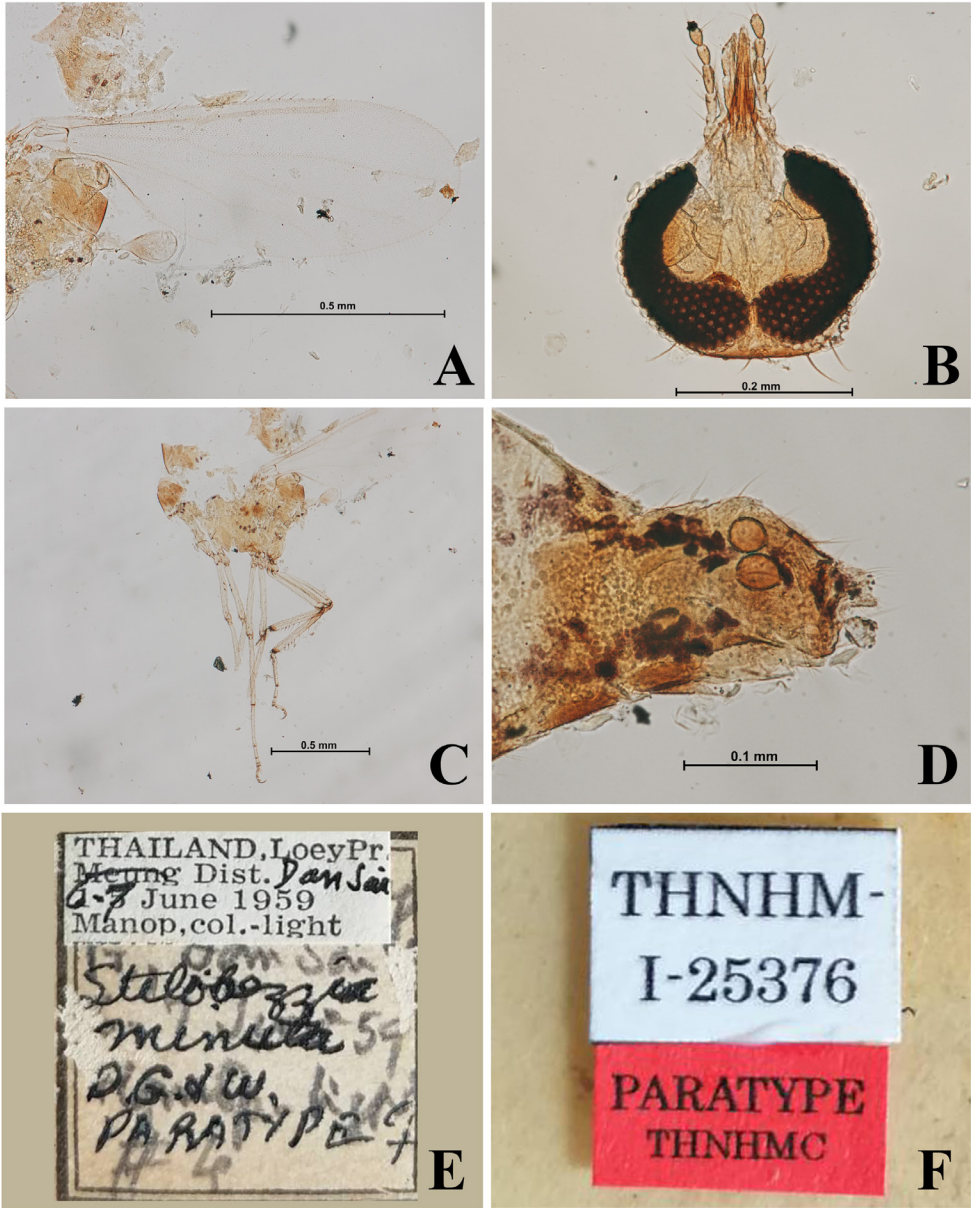


Figure 21. *Stilobezzia minuta*, paratype ♀. A, Wing; B, head; C, thorax; D, abdomen; E, label; F, catalog number.

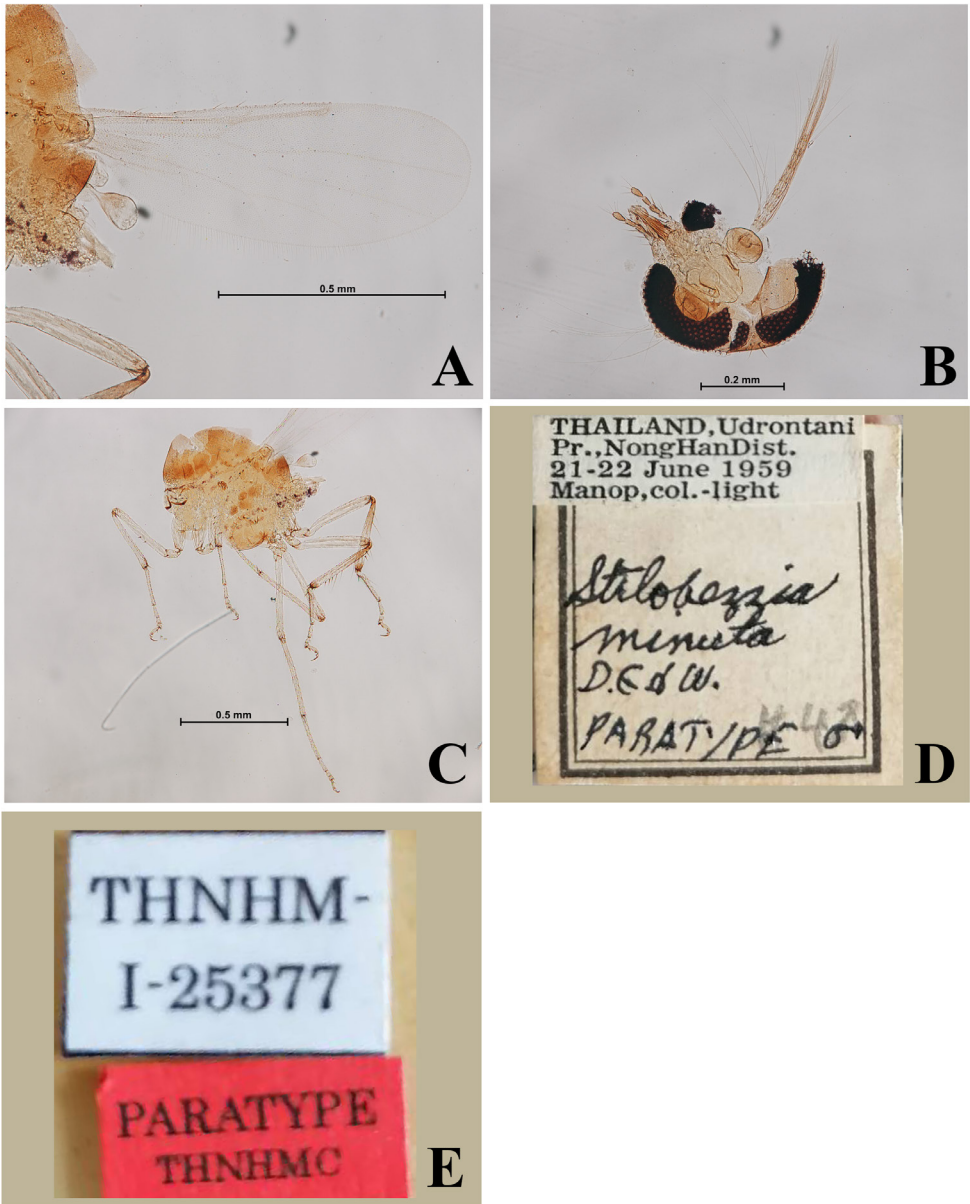


Figure 22. *Stilobezzia minuta*, paratype ♂. A, Wing; B, head including antenna; C, thorax; D, abdomen; E, label; F, catalog number.

***Stenoxenus coomani* Séguy, 1931**

Stenoxenus coomani Séguy, 1931: 210. Type locality: Viet Nam.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25471), N Thailand Chiang Mai Prov., Mueang Dist., X.1962, J.E. Scanlon leg., light trap.

***Stilobezzia festiva* Kieffer, 1911**

Stilobezzia festiva Kieffer, 1911: 118. Type locality: India.

Non-type material examined. THAILAND: 1♂ (THNHM-I-25405), N Thailand, Chiang Rai Prov., Mueang Dist., Ban Teaw Doi, 27.III.1979, K. Yasumastu leg.; 1♀ (THNHM-I-25406), Thailand, unknown province, Ban Lane, 9.III.1978, K. Yasumatsu leg.; 1♀ (THNHM-I-25380), N Thailand, Chiang Mai Prov., IV-V.1958, V. Notananda leg., light trap; 1♀ (THNHM-I-25381), central Thailand, Bangkok, Thonglo [=Thong Lo], VIII-IX.1962, J.E. Scanlon leg., light; 1♂ (THNHM-I-25382), central Thailand, Chon Buri Prov., Si Racha Dist., Bangphra Subdist., X.1962, J.E. Scanlon leg., light trap.

***Stilobezzia guianae* (Macfie, 1940)**

Acanthohelea guianae Macfie, 1940: 28. Type locality: Guyana.

Non-type material examined. BRAZIL: 1♀ (THNHM-I-25362), Brazil, Para, Belem, VI.1970, T.H.G. Aitken leg., APEG Forest, terra firma, light trap.

***Stilobezzia inermipes* Kieffer, 1912**

Stilobezzia inermipes Kieffer, 1912: 8. Type locality: Sri Lanka.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25367), central Thailand, Bangkok, Min buri [= Min Buri] Dist., 24.XII.1958, R. Manop leg.; 1♂ (THNHM-I-25369), central Thailand, Chon Buri Prov., Si Racha Dist., Bangphra Subdist., I.1993, J.E. Scanlon leg., light trap.

***Stilobezzia minuta* Das Gupta and Wirth, 1968 (Figures 21–22)**

Stilobezzia minuta Das Gupta and Wirth, 1968: 23. Type locality: Thailand.

Types. Paratypes: 1♀ (THNHM-I-25376), NE Thailand, Loei Prov., Dan Sai Dist., 6–7.VI.1959, R. Manop leg., light; 1♂ (THNHM-I-25377), Udon Thani Prov., Nong Han Dist., 21–22.VI.1959, R. Manop leg., light.; 1♂ (THNHM-I-25375), NE Thailand, Loei Prov., Tha Li Dist., 8-9.VI.1959, Manop leg., light; 1♀ (THNHM-I-25374), central Thailand, Bangkok, Min Buri [= Minburi] Dist., 24.XII.1958, Manop leg.

***Stilobezzia notata* (de Meijere, 1907)**

Ceratopogon notata de Meijere, 1907: 210. Type locality: Indonesia.

Non-type material examined. THAILAND: 1♀ (THNHM-I-25378) and 1♂



Figure 23. *Stilobezzia punctifemorata*, paratype ♀. A, Wing; B, head including antennae; C, thorax; D, abdomen; E, label; F, catalog number.

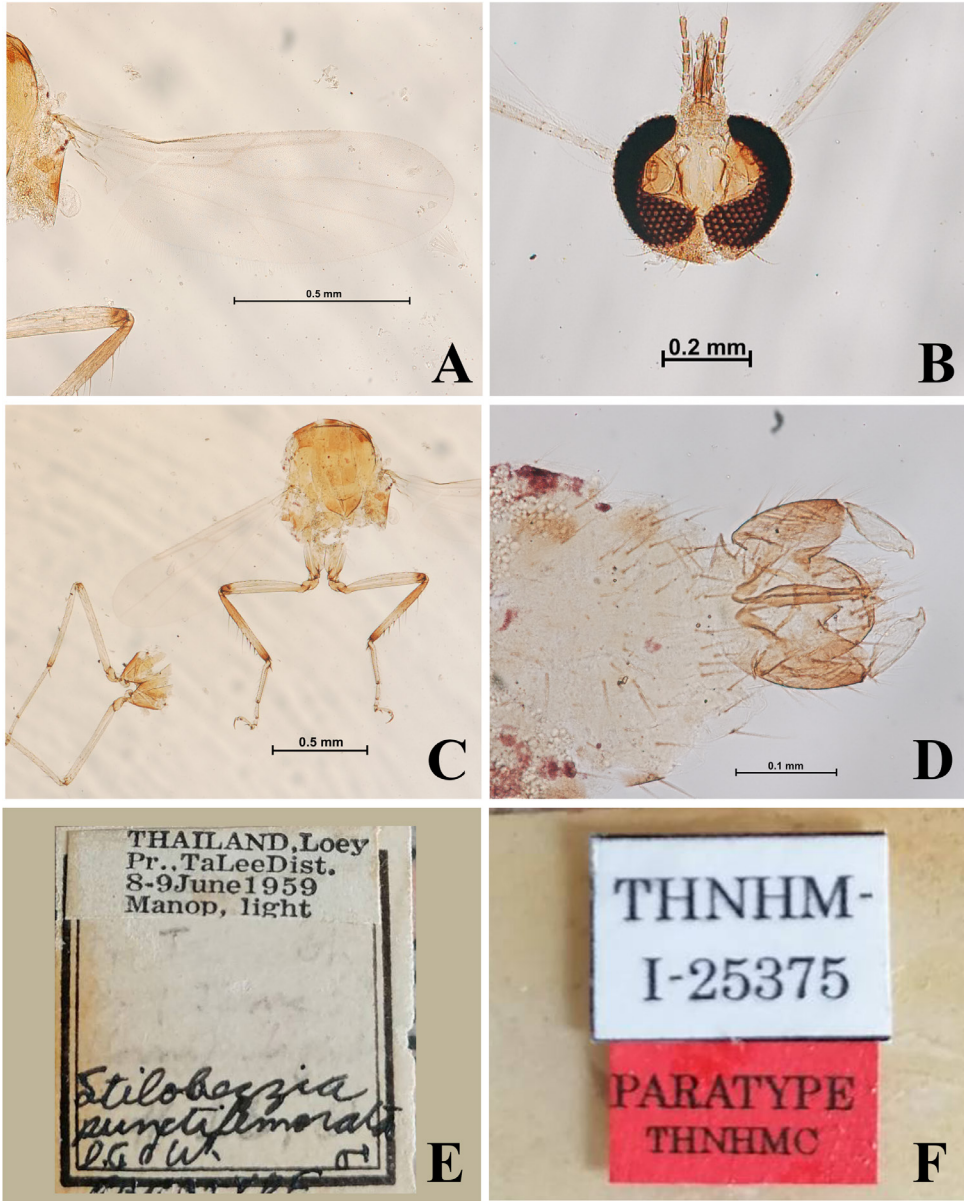


Figure 24. *Stilobezzia punctifemorata*, paratype ♂. A, Wing; B, head including antennae; C, thorax; D, genitalia; E, label; F, catalog number.

(THNHM-I-25379), N Thailand, Chiang Mai Prov., VI-V.1958, V. Notonanda leg., light trap.

***Stilobezzia punctifemorata* Das Gupta and Wirth, 1968** (Figures 23–24)

Stilobezzia punctifemorata Das Gupta and Wirth, 1968: 25. Type locality: Malaysia.

Types. Paratypes: 1 ♀ (THNHM-I-25374), Bangkok, Min Buri [= Minburi], 24.XII.1958, R. Manop leg.; 1 ♂ (THNHM-I-25375), NE Thailand, Loei Prov., Tha Li Dist., 8–9.VI.1959, R. Manop leg., light.

***Stilobezzia pseudofestiva* Das Gupta and Wirth, 1968** (Figures 25–26)

Stilobezzia pseudofestiva Das Gupta and Wirth, 1968: 89. Type locality: Thailand.

Types. Paratypes: 1 ♀ (THNHM-I-25383), Bangkok, Plukchit [Phloen Chit?], VIII–IX.1962, J. Scanlon leg.; 1 ♂ (THNHM-I-25384), Bangkok, Thong Lo [= Thonglo], I–III.1963, J. Scanlon leg., light trap.

***Stilobezzia* sp. 1**

Non-type material examined. THAILAND: 1 ♂ (THNHM-I-25372), Thailand, Loei Prov., Dan Sai Dist., 6–7.VI.1959, R. Manop leg., light.

***Stilobezzia* sp. 2**

Non-type material examined. THAILAND: 1 ♀ (THNHM-I-25372), central Thailand, Nakhon Pathom Prov., 18.XII.1958, Manop leg.; 1 ♀ (THNHM-I-25371) and 1 ♂ (THNHM-I-25373), NE Thailand, Khon Kaen Prov., Chum Pae Dist., 25–27.V.1959, R. Manop leg., light.

***Xenohelea polydora* Macfie, 1934**

Xenohelea polydora Macfie, 1934d: 226. Type locality: Indonesia.

Non-type material examined. THAILAND: 1 ♀ (THNHM-I-25472), central Thailand, Chon Buri Prov., Si Racha Dist., Bangphra Subdist., X.1962, J.E. Scanlon leg., light trap.

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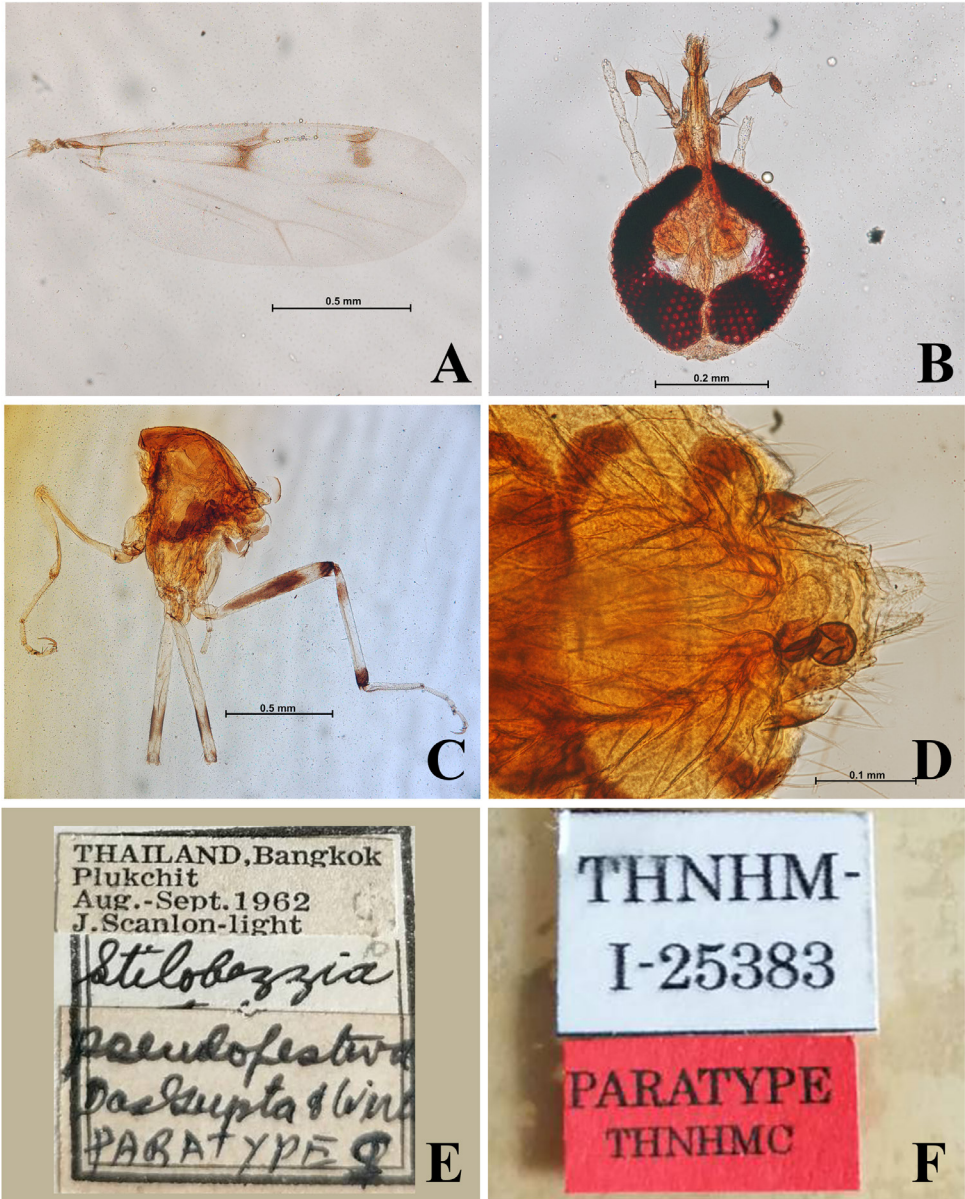


Figure 25. *Stilobezzia pseudofestiva*, paratype ♀. A, Wing; B, head including antennae; C, thorax; D, abdomen; E, label; F, catalog number.

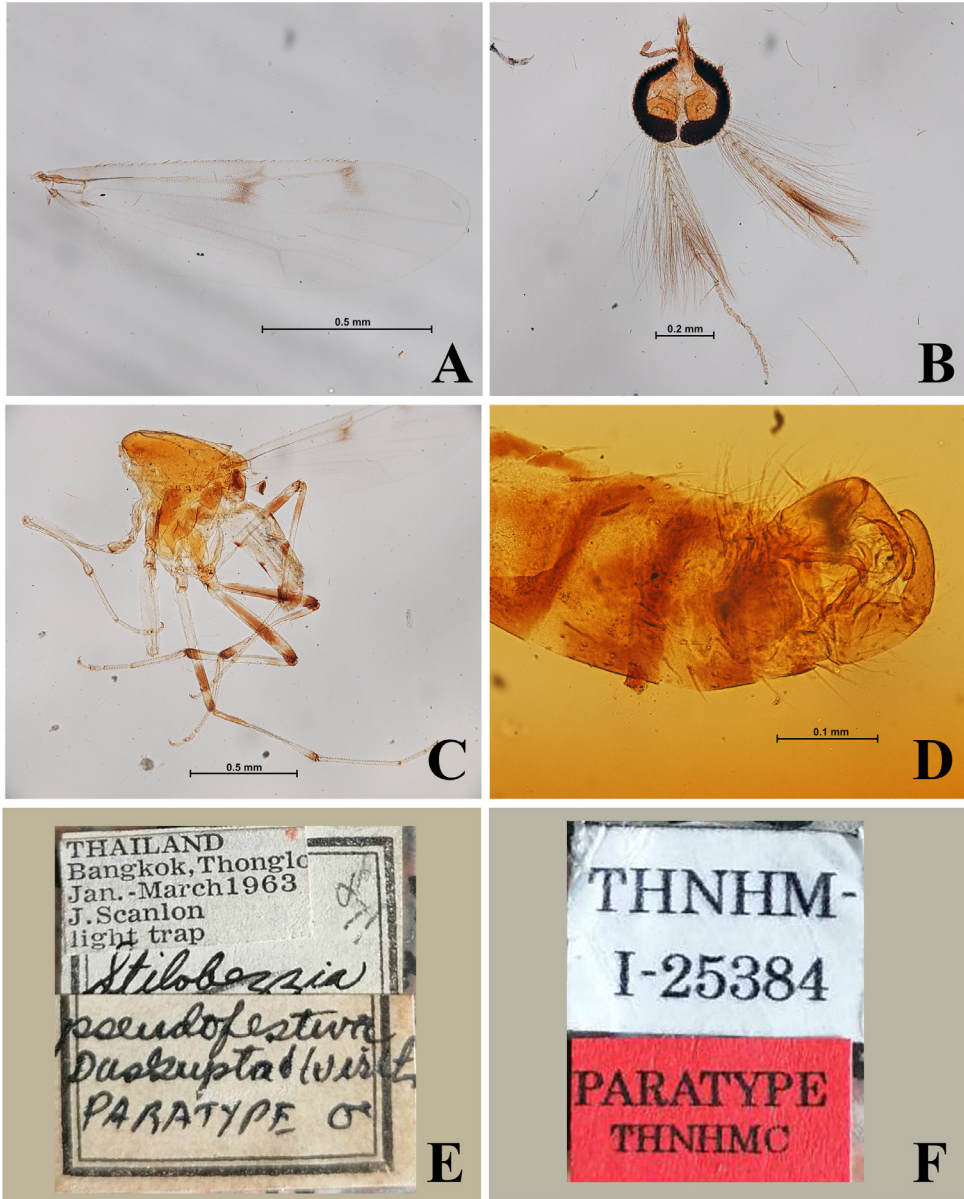


Figure 26. *Stilobezzia pseudofestiva*, paratype ♀. A, Wing; B, head including antennae; C, thorax; D, abdomen including genitalia; E, label; F, catalog number.

References

- Arakawa, S. 1910. Kakei no Shin-Gaichu O-nukaka (*Ceratopogon arakanae* Mats.) nitsuite. *Konchu-Sekae* 14: 411–414.
- Causey, O.R. 1938. *Culicoides* of Siam with descriptions of new species. *American Journal of Hygiene* 27: 399–416.
- Chan-ard, T. and S. Makchai. 2011. Catalogue of type specimens of amphibians and reptiles in the Natural History Museum, National Science Museum, Thailand. *The Thailand Natural History Museum Journal* 5(2): 113–123.
- Coquillett, D.W. 1902. New Diptera from North America. *Proceedings of the United States National Museum* 25: 83–126.
- Das Gupta, S.K. and S.M. Ghosh. 1956. Notes on *Culicoides palpifer*, a new species (Family Ceratopogonidae, Order Diptera). *Bulletin of the Calcutta School of Tropical Medicine* 4: 122.
- Das Gupta, S.K. and W.W. Wirth. 1968. Revision of the Oriental species *Stilobezzia* Kieffer (Diptera, Ceratopogonidae). *United States National Museum Bulletin* 283:1–149.
- Das Gupta, S.K. and W.W. Wirth. 1971. A new genus of Sphaeromiini (Diptera: Ceratopogonidae) from the Oriental Region. *Pacific Insects* 12: 875–882.
- De Meijere, J.C.H. 1907. Studien über Südostasiatische Dipteren. I. *Tijdschrift voor Entomologie* 50: 196–264.
- Delfinado, M.D. 1961. The Philippine biting midges of the genus *Culicoides* (Diptera: Ceratopogonidae). *Fieldiana Zoology* 33: 627–675.
- Edwards, F.W. 1922. On some Malayan and other species of *Culicoides* with a note on the genus *Lasiohelea*. *Bulletin of Entomological Research* 13: 161–167.
- Edwards, F.W. 1926a. Diptera Nematocera from the mountains of Borneo. *The Sarawak Museum Journal* 3: 243–278.
- Edwards, F.W. 1933. Diptera Nematocera from Mount Kinabalu. *Journal of the Federated Malay States Museums* 17: 223–296.
- Enderlein, G. 1908. Neue Ceratopogoninen aus Südafrika. *Denkschriften der medizinisch-naturwissenschaftlichen Gesellschaft zu Jena* 13: 459–461.
- Grogan, W.L. and W.W. Wirth. 1977. A revision of the Nearctic species of *Jenkinshalea* Macfie (Diptera: Ceratopogonidae). *Proceedings of the Entomological Society of Washington* 79: 126–141.
- Grogan, W.L. and W.W. Wirth. 1981. Three new Oriental species of *Jenkinshalea* Macfie (Diptera: Ceratopogonidae). *Proceedings of the Entomological Society of Washington* 83: 44–51.
- Jeenthong, T., W. Jaitrong and S. Chantira. 2013. Insect type specimens deposited in the Natural History Museum of the National Science Museum. National Science Museum Press., Pathum Thani, Thailand. 84 pp. (In Thai)
- Jeenthong, T., P. Teawkul, Y. Samung and W. Jaitrong. An updated checklist of the insect and other arthropods type specimens deposited in the collection of Natural History Museum of the National Science Museum, Thailand. *The Thailand Natural History Museum Journal* 15(2): 73–133.
- Johannsen, O.A. 1932. Ceratopogoninae from the Malayan subregion of the Dutch East Indies. *Archiv für Hydrobiologie*, Suppl. 9: 403–448.
- Kieffer, J.J. 1910. Etude sur les Chironomides des Indes Orientales, avec description de quelques nouvelles especes d'Egypte. *Memoirs of the Indian Museum* 2: 181–242.

- Kieffer, J.J. 1911. Description de nouveaux chironomides de l'Indian Museum de Calcutta. *Records of the Indian Museum* 6: 113–177.
- Kieffer, J.J. 1912. Nouveaux *Chironomides* (Tendipedidae) de Ceylan. *Spolia Zeylanica* 8: 1–24.
- Kieffer, J.J. 1913a. Chironomidae et Cecidomyiidae. In: Voyage de Ch. Alluaud et R. Jeanne en Afrique Orientale (1911–1912). *Resultats scientifiques. Diptera*, 1, pp. 1–43.
- Kieffer, J.J. 1913b. Nouvelle etude sur les chironomides de l'Indian Museum de Calcutta. *Records of the Indian Museum* 9: 119–197.
- Kieffer, J.J. 1917. Chironomides d'Australie conserves au Musee national hongrois de Budapest. *Annales Historico-Naturales Musei Nationalis Hungarici* 15: 175–228.
- Kieffer, J.J. 1917. Chironomides d'Afrique et d'Asie conserves au Museum National Hongrois de Budapest. *Annales Historico-Naturales Musei Nationalis Hungarici* 16: 31–136.
- Kieffer, J.J. 1922 (1991). Etude sur les Chironomides de Formose. *Annales de la Société Linnéenne de Lyon* 68: 149–163.
- Kieffer, J.J. 1923. Chironomides piqueurs de Java. *Annales de la Société Scientifique de Bruxelles* 43: 134–143.
- Loew, H. 1861. Diptera Americae septentrionalis indigena. *Berliner Entomologische Zeitschrift* 5: 307–359.
- Macfie, J.W.S. 1932. Some new or little known Ceratopogonidae. *The Annals and magazine of natural history; zoology, botany, and geology* 9(10): 485–499.
- Macfie, J.W.S. 1934a. Report on a collection of Ceratopogonidae from Malaya. *Annals of Tropical Medicine & Parasitology* 28: 177–194, 279–293.
- Macfie, J.W.S. 1934b. Fauna Sumatrensis. Bijdrage no. 75. Ceratopogonidae (Diptera). *Tijdschrift voor entomologie* 77: 202–231.
- Macfie, J.W.S. 1934c. Report on a collection of Ceratopogonidae from Malaya. *Annals of Tropical Medicine and Parasitology* 28: 279–293.
- Macfie, J.W.S. 1937a. Notes on Ceratopogonidae (Diptera). *Proceedings of the Royal Entomological Society of London (B)* 6: 111–118.
- Macfie, J.W.S. 1937b. Three new species of *Culicoides* (Diptera, Ceratopogonidae) from Malaya. *Annals of Tropical Medicine & Parasitology* 31: 469–472.
- Macfie, J.W.S. 1939. A key to the species of Ceratopogonidae akin to *Macropeza* Mg. (Diptera). *Transactions of the Royal Entomological Society of London* 89: 1–12.
- Macfie, J.W.S. 1940. A report on a collection of Ceratopogonidae (Diptera) from British Guiana. *Entomologist's Monthly Magazine* 76: 23–32.
- Meijere, J.C.H. de. 1907. Studien über Südostasiatische Dipteren. I. *Tijdschr. Ent.* 50: 196–254.
- Meijere, J.C.H. de. 1909. Blutsaugende Micro-Dipteren aus Niederländisch Ostindien. *Tijdschrift voor entomologie* 52: 191–204.
- Okada, T. 1942. *Alluaudomyia* (Diptera, Heleidae) from Formosa with a revised key. *Transactions of the Natural History Society of Formosa* 32: 315–320.
- Salm, A.J. 1917. Nématocères hématophages de Java. *Ibid.* 42: 135–139.
- Sen, P. and S.K. Das Gupta. 1959. Studies on Indian *Culicoides* (Ceratopogonidae: Diptera). *Annals of the Entomological Society of America* 52: 617–630.
- Séguy, E. 1931. Sur les affinités des genres *Stenoxenus* et *Macroptilum* et description d'une espèce

- nouvelle (Dipt. Ceratopogonidae). *Bulletin de la Société Entomologique de France* 1931: 208–210.
- Shiraki, T. 1913. 1913. Investigation on general injurious insects. *Taiwan Sotokufu Noji Shikenjo Tokubetsu Hokoku* 8: 286–297. (In Japanese)
- Smith, R.O.A. 1929. Two species of *Culicoides* which feed on man. *Indian Journal of Medical Research* 17: 255–257.
- Smith, R.O.A. and C.S. Swaminath. 1932. Notes on some *Culicoides* from Assam. *Indian Journal of Medical Research* 25: 182–186.
- Taylor, E.H. and R.E. Eibel. 1958. Contribution to the herpetology of Thailand. *The University of Kansas science bulletin* 38: 1033–1089.
- Tokunaga, M. 1940. Ceratopogonidae and Chironomidae from the Micronesian Islands with biological notes by Teiso Esaki. *The Philippine journal of science* 71: 205–230.
- Tokunaga, M. 1941. Biting ceratopogonid midges from the Caroline Islands. *Annotationes Zoologicae Japonenses* 20: 109–117.
- Tokunaga, M. and T. Esaki. 1936. A new biting midge from Palau Islands with its biological notes. *Mushi* 9: 55–58.
- Tokunaga, M. 1963. New Guinea biting midges (Diptera: Ceratopogonidae), 3. *Pacific Insects* 5: 211–279.
- Wiedemann, C.R.W. 1824. *Munus rectoris in Academia Christiana Albertina aditurus analecta entomologica ex Museo Regio Havniensi maxime congesta profert iconibusque illustrat.* Kiliae [= Kiel]. 60 pp.
- Wirth, W.W. 1962. A reclassification of the *Palpomyia-Bezzia-Macropenza* groups and a revision of the North American Sphaeromiini (Diptera, Ceratopogonidae). *Annals of the Entomological Society of America* 55: 272–287.
- Wirth, W.W. 1971. Six new North American species of *Probezzia* (Diptera: Ceratopogonidae), with biological notes and a key to species. *Annals of the Entomological Society of America* 64: 729–739.
- Wirth, W.W. and F.S. Blanton. 1970. New genera of Neotropical Ceratopogonidae (Diptera). *Florida Entomologist* 53: 7–14.
- Wirth, W.W. and M.D. Delfinado. 1964. Revision of the oriental species of *Alluaudomyia* Kieffer (Diptera, Ceratopogonidae). *Pacific Insects* 6: 599–648.
- Wirth, W.W. and A.A. Hubert. 1959. *Trithecoides*, a new subgenus of *Culicoides* (Diptera, Ceratopogonidae). *Pacific Insects* 1: 1–38.
- Wirth, W.W. and A.A. Hubert. 1989. The *Culicoides* of Southeast Asia (Diptera: Ceratopogonidae). *Memoirs of the American Entomological Institute* 44: 1–508.
- Wirth, W.W. and N.C. Ratanaworabhan. 1981a. New species and records of predaceous midges (Diptera: Ceratopogonidae) from rice paddies in Thailand. *Pacific Insects* 23: 396–431.
- Wirth, W.W. and N.C. Ratanaworabhan. 1981b. The Oriental species of the genus *Dibezzia* Kieffer (Diptera: Ceratopogonidae). *Ibid.* 83: 287–295.
- Yasumatsu, K., T. Wongsiri, C. Tirawat, N. Wongsiri and A. Lewvanich. 1980. *Contributions to the development of integrated rice pest control in Thailand.* Thailand Department of Agriculture. Bangkok. 163 pp.

