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REVIEW OF THE GENUS *GELOEMYIA* (DIPTERA, PYRGOTIDAE), WITH DISCUSSION OF ITS TAXONOMIC POSITION

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Review of the Genus *Geloemyia* (Diptera, Pyrgotidae), with Discussion of its Taxonomic Position. Korneyev, V. A. — Species assigned to *Geloemyia* Hendel, 1908, *Trichempodia* Malloch, 1930 **syn. n.**, *Parageloemyia* Hendel, 1933 **syn. n.**, and *Dicranostira* Enderlein, 1942 **syn. n.** are shown to be congeneric. *Geloemyia* is refined to include eight species: *Geloemyia cheni* Kim, Han & Korneyev, **sp. n.**, *Geloemyia cockerelli* (Malloch, 1930) **comb. n.** (= *Trichempodia cockerelli* Malloch, 1930), *Geloemyia dorsocentralis* (Hering, 1940) **comb. n.** (= *Adapsilia dorsocentralis* Hering, 1940), *Geloemyia quadriseta* Hendel, 1933, *Geloemyia stylata* Hendel, 1908, *Geloemyia wonjuensis* (Kim & Han, 2001) **comb. n.** (= *Parageloemyia wonjuensis* Kim & Han, 2001) from Eastern Asia, *Geloemyia namibica* **sp. n.**, from mainland Africa (Namibia) and *Geloemyia trifasciata* (Enderlein, 1942) **comb. n.** (= *Trichempodia trifasciata* Enderlein, 1942) from Madagascar. *Geloemyia nigrofasiata* Hendel, 1933 based on a single male is supposed to be a junior synonym of *G. quadriseta* Hendel, 1933, based on females, but the synonymy is tentative. A key to species is provided. The genus *Geloemyia* belongs in the tribe Pyrgotini forming (or belonging to) a basal lineage in the subtribe Adapsiliina together with *Pyrgotomyia* Hendel, 1914 and *Porpomastix* Enderlein, 1942.

Key words: Diptera, Cyclorrhapha, Tephritoidea, Pyrgotidae, *Geloemyia,* taxonomy, new species, synonymy.

Обзор рода *Geloemyia* (Diptera, Pyrgotidae) с обсуждением его систематического положения. Корнеев В. А. — Показано, что виды, относившиеся к *Geloemyia* Hendel, 1908, *Trichempodia* Malloch, 1930 **syn. n.**, *Parageloemyia* Hendel, 1933 **syn. n.** и *Dicranostira* Enderlein, 1942 **syn. n.** конгенеричны. Состав рода *Geloemyia* пересмотрен и включает в себя восемь видов: *Geloemyia cheni* Kim, Han & Korneyev, **sp. n.**, *Geloemyia cockerelli* (Malloch, 1930) **comb. n.** (= *Trichempodia cockerelli* Malloch, 1930), *Geloemyia dorsocentralis* (Hering, 1940) **comb. n.** (= *Adapsilia dorsocentralis* Hering, 1940), *Geloemyia quadriseta* Hendel, 1933, *Geloemyia stylata* Hendel, 1908, *Geloemyia wonjuensis* (Kim & Han, 2001) **comb. n.** (= *Parageloemyia wonjuensis* Kim & Han, 2001) из Восточной Азии, *Geloemyia namibica* **sp. n.** из материковой Африки (Намибия) и *Geloemyia trifasciata* (Enderlein, 1942) **comb. n.** (= *Trichempodia trifasciata* Enderlein, 1942) с Мадагаскара. *Geloemyia nigrofasiata* Hendel, 1933, описанная по единственному самцу, — предположительно, младший синоним *G. quadriseta* Hendel, 1933, описанного по самкам, но это синонимия не доказана строго. Приведен ключ для определения видов. Род *Geloemyia* относится к трибе Pyrgotini, где он образует вместе с *Pyrgotomyia* Hendel, 1914 и *Porpomastix* Enderlein, 1942 отдельную базальную ветвь в подтрибе Adapsiliina.

Ключевые слова: Diptera, Cyclorrhapha, Tephritoidea, Pyrgotidae, *Geloemyia,* таксономия, новые виды, синонимия.

Introduction

While preparing the Pyrgotidae chapter for the Manual of Afrotropical Diptera (Korneyev, in press) extensive material deposited in several African, European and American collections was examined.

Detailed study of the species assigned to *Geloemyia* Hendel, 1908, *Trichempodia* Malloch, 1930, and *Parageloemyia* Hendel, 1933 revealed them to be congeneric, and the three genus names are synonymized. An odd species with elongate head discovered in materials from Namibia, *G. namibica* sp. n., is described. The species previously misidentified as "*Parageloemyia quadriseta*" (sensu Chen, 1947 and Kim & Han, 2001) is described here as *Geloemyia cheni* Kim, Han & Korneyev sp. n.

A modified description of "*Parageloemyia quadriseta*" (sensu Kim, Han, 2001) is used for description of *Geloemyia cheni* sp. n. by the courtesy of Prof. Ho-Yeon Han, with the morphological terms changed to conform the terminology used in this and the series of revisions of the Old World Pyrgotidae genera (Korneyev, 2004, 2006 a, b, 2012; 2014 a, b, 2015). I refer to those papers for some special morphological terms and abbreviations used below.

Material

The specimens examined in this study are deposited in the following collections: BBM — Bernice Pauahi Bishop Museum, Honolulu, Hawai', U. S. A. (N. Evenhuis); BMNH — the Natural History Museum, London, U. K. (D. Notton, K. Goodger, D. Whitmore); MHNP — Muséum national d'histoire naturelle, Paris, France (C. Daugeron; E. Delfosse); MNKB — Museum für Naturkunde, Berlin, Germany (J. Ziegler); NHMG — Muséum d'histoire naturelle, Genève, Switzerland (B. Merz); NHMW — Naturhistorisches Museum Wien, Austria (P. Sehnal); NICW —Namibian National Insect Collection, Windhoek, Namibia (V. Bliss, through A. Kirk-Spriggs); SDEI — Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany (F. Menzel); SIZK — Schmalhausen Institute of Zoology, Kyiv, Ukraine (V. Korneyev); USNM — National Museum of Natural History, Smithsonian Institution, Washington, D. C., U. S. A. (c/o A. L. Norrbom, SEL USDA); YSUW — Yonsei University, Wonju-si, Gangwon-do, Korea (H.-Y. Han); ZMUM — Zoological Museum, University of Moscow, Russia (A. Ozerov).

The slash character (/) is used to separate lines, and the square brackets are for data absent in the literally cited labels.

Geloemyia Hendel, 1908

Hendel, 1908: 151; 1909: 21; 1933: 13; Steyskal, 1977: 41.
Type species: *Geloemyia stylata* Hendel, 1908 (by monotypy).

Parageloemyia Hendel, 1934: 142; Soós, 1984: 37; Kim, Han, 2001: 281; Korneyev, 2004: 42, Korneyev, Nartshuk, 2004: 408, **syn. n.**
Type species: *Geloemyia quadriseta* Hendel, 1933 (by original designation).

Trichempodia Malloch, 1930: 466; Steyskal, 1977: 42, 1980: 362, **syn. n.**
Type species: *Trichempodia cockerelli* Malloch, 1930 (by original designation).

Dicranostira Enderlein, 1942: 111; Soós, 1984: 37; Korneyev, 2004: 42, **syn. n.**
Type species: *Parageloemyia ornata* Hering, 1940 (by original designation, as "*D. ornata* (Hering)").

Diagnosis. Medium-sized flies (wing length 4.5–8.5) with moderately developed subocular sclerite, variously developed or lacking facial carina; mesonotum with 0–1 presutural and 3 (rarely 2) postsutural dorsocentral setae (dc), presutural supra-alar (prst sa) setae, and prescutellar acrostichal setae (prsc ac) present; scutellum with 2 pairs of setae, normally without or with a few additional setulae; wing with short or without spurious vein on R_{2+3}, vein R_{4+5} dorsally setulose though all its length (in most species) or bare (in *G. dorsocentralis* and *G. wonjuensis*), vein Sc broken at apex and not reaching costa; costal vein basally with humeral and more or less conspicuous subcostal break, apically reaching vein M; femora only with normal setae, without ventral rows of spurs; empodium clearly microtrichose at base; female mid femur anterodorsally with or without femoral organ; epandrium dorsally bare, usually with a few dorsolateral setae; surstyli large, strongly extended postero-ventrally, papillose, without prensisetae or long setae; oviscape apically straight, almost cylindrical, with apex blunt or slightly curved dorsally and moderately long medioventral lobe and short lateral lobes apically; aculeus moderately long, at least 5–7× as long as wide at middle, usually with clear subapical constriction.

Geloemyia shares the broken subcosta, numerous dc, setulose R_{4+5}, and large postero-ventrally directed surstyli with *Pyrgotomyia*, differing by having short pedicel and flagellomere 1, well developed prst sa and prsc ac setae, and body more robust and microtrichose (slender and shining in *Pyrgotomyia*). Another genus that also shares with them more than 2 dorsocentral setae and long posteriorly directed surstyli is *Porpomastix* Enderlein, 1942 from the Far East Asia; that genus can be differentiated by the long antenna, palp and legs,

completely developed facial carina, oviscape with aperture on its ventral side, and prescutellar acrostichal and presutural supra-alar seta lacking.

Distribution. Far East of the Palaearctic Region (Russia, China, Korean Peninsula, Japan), Oriental (Indochinese Peninsula to Borneo), and Afrotropical Region (Madagascar, Namibia).

Description. Flies of medium size (wing length 4.5–8.5 mm) and ordinary habitus, matt yellow to gray-and-brown body coloration; wings either grey, with mottled pattern of white spots or with brown or gray pattern of irregular bands and spots.

Head higher than long, rarely longer than high (in *G. namibica* sp. n.), and wider than long and high; ocelli absent and ocellar triangle very poorly defined or absent; parafacial bare, with distinctive subocular dilation; face concave, with (in *G. dosrsocentralis*) or without facial carina; epistome (supraclypeal sclerite) either high (*G. namibica* sp. n., *G. trifasciata*) to very low (in *G. cheni* sp. n., *G. quadriseta*); lateral vertical seta moderately developed; antenna shorter than face, flagellomere 1 micropubescent, short and round, 1.5× as long as pedicel; arista micropubescent, 2-segmented; palp variously developed: oval, 2–4× as long as wide and 1.5× as long as flagellomere 1 in Asian and 1–2× as long as wide and at most as long as flagellomere 1 in African species; and, 0.7× as long as flagellomere 1, 1.7–1.9× as long as wide, rounded; labellum 0.7× as long as oral cavity; 1–2 proclinate or lateroclinate orbital setae, 1 ocellar and 1 postocellar setae 2–3× as long as irregular seta-like setulae in anterior portion of frons; 1 medial vertical seta 2–3× as long as flagellomere 1, lateral vertical seta 0.3–0.5× as long as medial vertical seta; presternum simple saddlelike without projected lobes, with 2–6 pairs of fine setulae; postpronotal lobe with 5–7 setulae and 1 seta; proepimeron slender, with 2–5 setae; mesonotum subshining or microtrichose, sparsely and short setulose, with 0–1 presutural and 2–4 postsutural dorsocentral setae forming regular row; prst sa and prsc ac setae strong; scutellum with 2 pairs of setae; 1–3 anepisternal, 1–2 anepimeral and 1–2 katepisternal seta; wing moderately wide, 2.3–2.8× as long as wide, with humeral and subcostal breaks; costa reaching medial vein; Sc straight, narrowly broken before costa; vein R_{2+3} with or without spurious ("stump") vein; vein R_{4+5} setose over whole length or bare (in *G. dorsocentralis* and *G. wonjuensis*); Cu_2 reaching wing margin; haltere yellow; coxae and trochanters normally setulose without brushes of combs of setae; femora and tibiae uniformly short setulose, fore femur with strong setulae ventrally (in *G. dorsocentralis*) and dorsally (in most species), mid femur without long setae (except in *G. dorsocentralis*), hind femur dorsally with 2–4 setae, in *G. dorsocentralis* also with postero-ventral row of setulae; female mid femur with or without bare area (femoral organ) on antero-dorsal surface; hind tibia without sub-basal constriction; fore tarsi with normally developed apical tarsomeres, except in females of *G. cheni* sp. n. and *G.quadriseta* two apical tarsomeres asymmetrical, flattened and either long setulose or bare at one side, hind tarsi in both sexes symmetrical; empodium conspicuously microtrichose; syntergite 1+2 not narrowed at middle; preabdominal sternites of various shape; oviscape narrow, almost cylindrical, curved dorsally, as long as or slightly longer than preceding abdominal tergites, its apex with row of moderately long setae around its perimeter, often with longer and somewhat curled setae on dorsal side, except in *G. dorsocentralis* very widened basally; apex without papillae, hooks or spinules, usually with medio-ventral or sometimes with medio-dorsal (in *G. trifasciata* and *G. wonjuensis*) taenia-like lobes on eversible membrane and short, semicircular lateral lobes; in *G. dorsocentralis* with pairesd rasper-like structures on ventral side of eversible membrane; aculeus short (nearly as long as oviscape width in its medial portion), flattened dorsoventrally, with wider, bulky base and narrow, usually barbed apex (with preapical constriction); 3 oval or tubular, smooth spermathecae; male abdomen elongate oval, not periolate, sternites 3–4 subquadrate in Asian and narrow to linear in African species, setulose; sternite 5 almost equal-sided triangular; sternite 8 setulose, hypandrium narrow, with gonites flap-like, microtrichose; phallapodeme narrow, vanes separate; ejaculatory apodeme fan-shaped; epandrium and surstyli densely covered with microscopic setulae mounted on small papillae, but without

setae, except lateralu at place of incertion of surstyli; lateral (outer) surstylus flat, long and broadly bar-like, directed posteriorly or postero-vantrally; medial (inner) surstylus short, without prensisetae; phallus long, bare; glans without filaments of acrophallus, with single tubular sclerite of praeputium.

Remarks. *Geloemyia* has a well developed subocular sclerite — assumed synapomorphy with almost all Old World genera (except *Tephritopyrgota* Hendel, 1914 and allied *Tylotrypes* Bezzi, 1914, *Pyrgotina* Malloch, 1929, and *Rhagostira* Enderlein, 1942) here attributed to the subtribe Adapsiliina and belongs to the group of genera with three or more dorsocentral setae and posteriorly directed long surstyli (possible synapomorphies with *Pyrgotomyia* Hendel, 1934 and *Porpomastix* Enderlein, 1942), an arrow-like, subapically barbed or elongated aculeus (possible synapomorphy with *Pyrgotomyia*) and setulose vein R_{4+5} (possible synapomorphy of most species of *Pyrgotomyia* and *Geloemyia* spp. except *G. dorsocentralis* (Hering, 1940) and *G. wonjuensis* (Kim & Han, 2001); setulae on R_{4+5} are not found elsewhere in the tribe Pyrgotini. A preliminary analysis based on a few morphological characters alone shows that *Geloemyia* might be a paraphyletic taxon, with *Pyrgotomyia* nested inside of it and possibly related to the Afrotropical species of *Geloemyia*; this analysis, however, shows no good statistical support, and further phylogenetic studies are needed in the future.

Key to species of *Geloemyia*

1. Wing with cells m and cu mottled, with numerous gray and hyaline spots (fig. 1, 2). 2
— Cells m and cu either hyaline or with 2–3 darker bands (fig. 3–10). 3
2. Parafacial dorsally at most as wide as flagellomere 1 (fig. 101). Vein R_{2+3} usually without, rarely with spurious vein; vein R_{4+5} dorsally bare; crossvein dm-cu forming acute angle (70–75°) with vein CuA1 (fig. 2, 103); mesonotum with 0 presutural and 3 postsutural dorsocentral setae (fig. 102). East of Palaearctic Region (Far East Russia, Korean Peninsula). ..... *Geloemyia wonjuensis* (Kim & Han, 2001)
— Parafacial dorsally twice as wide as flagellomere 1 (fig. 55, 56). Vein R_{2+3} with spurious vein; vein R_{4+5} dorsally setulose; crossvein dm-cu form almost right angle (80–85°) with vein CuA1 (fig. 3, 59); mesonotum with 1 presutural and 3 postsutural dorsocentral setae (fig. 60). Namibia. .... *Geloemyia namibica* V. Korneyev, sp. n.
3. Vein R_{2+3} with stump vein (fig. 3, 4); mesonotum with 1 presutural and 3 postsutural dorsocentral setae. Madagascar. ..... *Geloemyia trifasciata* (Enderlein, 1942)
— Vein R_{2+3} without stump vein; mesonotum with 0 presutural and 3 postsutural dorsocentral setae. East Asia. 4
4. Vein R_{4+5} entirely bare. Palp moderately long, bar-like, at least 3× as long as wide; postgena with one strong seta, 1.5× as long as lateral vertical or ocellar seta. Frons with 2 pairs of orbital setae; antennal grooves separated by carina; epistome one-third as high as face. .... *Geloemyia dorsocentralis* (Hering, 1940)
— Vein R_{4+5} setulose. Palp short oval, at most 2.5× as long as wide; postgena with numerous uniformly short setulae. Frons with 1 pair of orbital setae; antennal grooves antennal grooves fused, face without carina; epistome lower than one-fourth of face. 4
4. Crossvein dm-cu strongly oblique, not shaded, with at most indistinctive brownish spots at ends (fig. 5). Female apical fore tarsomere ovoid, unmodified in shape, moderately setulose, with normally developed claws and pulvilla (fig. 13). Female mid femur with at least poorly distinctive femoral organ dorsally in basal half (fig. 44, 51). Oviscape apex with 3 thickened, moderately long setae lateroventrally (fig. 18). Indochinese Peninsula, Borneo. ..... *Geloemyia cockerelli* (Malloch, 1930)
— Crossvein dm-cu less oblique, entirely shaded with brown (fig. 7–10). Female apical fore tarsomere either ovoid or modified, sometimes lobate, long setulose, with short claws and pulvilla (fig. 15,16). Oviscape apex of various shape and with variously arranged long and thin setae. 5
5. Female mid femur with large femoral organ dorsally (fig. 24). Subapical fore tarsomere of female conspicuously flattened, dorsally very short setulose, apical tarsomere oval with very long setulae on anterior margin (fig. 15). Oviscape apex on ventral side with pair of rows containing 3 shorter and one long apical setae (fig. 20). Korea, China. ..... *Geloemyia cheni* sp. n.
— Female mid femur entirely setulose on anterodorsal surface, without distinct femoral organ (fig. 69,

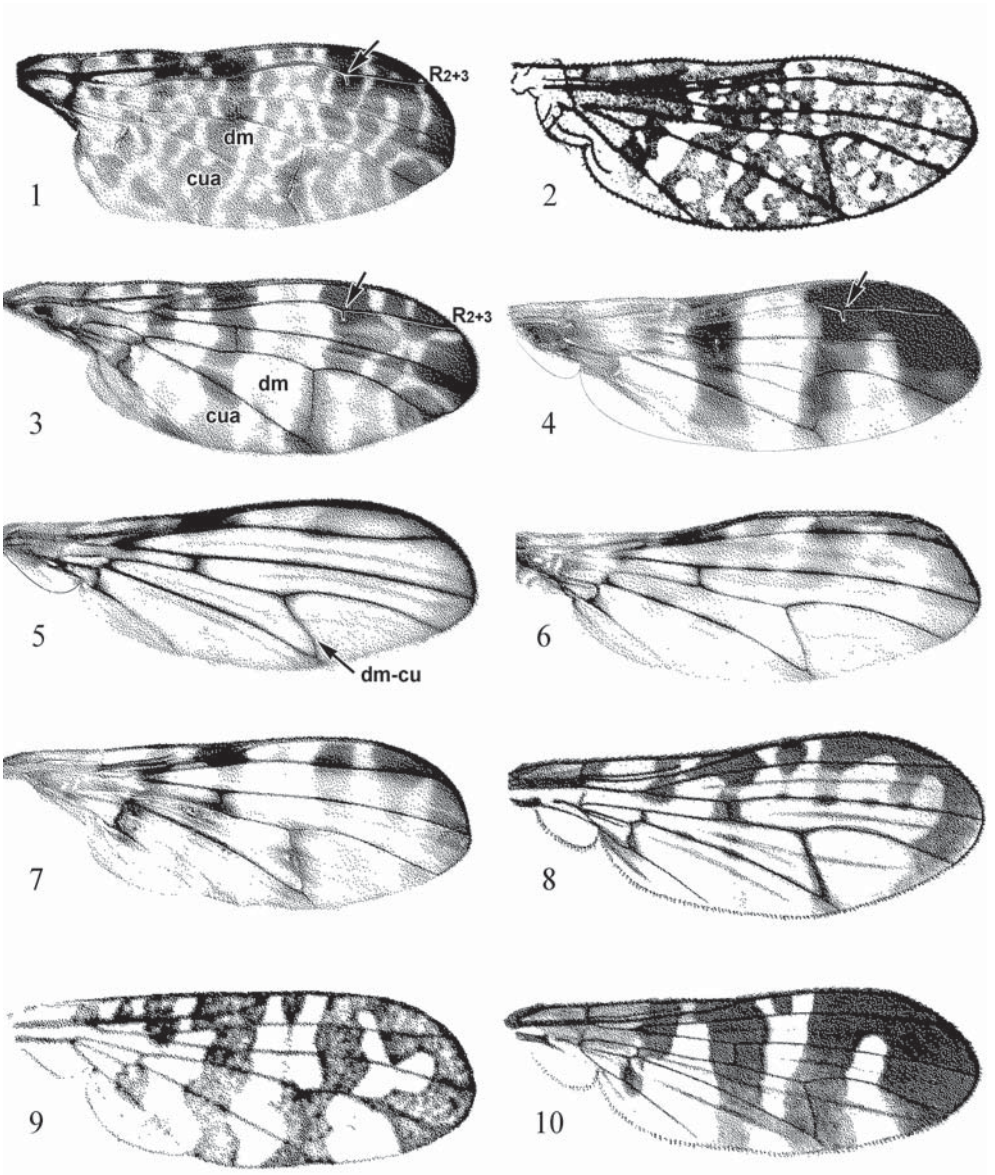

Fig. 1–10. *Geloemyia* wings : 1 — *G. namibica* Korneyev, sp. n.; 2 — *G. wonjuensis*; 3–4 — *G. trifasciata* (3 — ♀, 4 — ♂); 5 — *G. cockerelli*; 6 — *G. trifasciata* holotype ♀; 7 — *G. cheni* Kim, Han & Korneyev, sp. n. paratype ♀; 8–9 — *G. quadriseta* (8 — syntype ♀ *G. quadriseta*, syntype ♀ *G. ornata*); 10 — *G. nigrofasciata* holotype ♀; dm — discomedial cel; cua — anterior cubital cell; dm-cu — discal mediocubital crossvein; cua — anterior cubital cell; arrows indicate spurious vein.

83). Subapical fore tarsomere of female not flattened, dorsally uniformly long setulose; apical tarsomere variable (fig. 14, 16). Oviscape apex variably setulose (fig. 19, 21). 6

6. Female apical tarsomere ovoid, unmodified, apically long setulose (fig. 14). Oviscape apex with dorsolateral and lateral setae longer than ventral subapical setae (fig. 19). Vietnam. .... *Geloemyia stylata* Hendel, 1908

— Female apical tarsomere anteriorly with flattened, long setulose projection (fig. 16). Oviscape apex ventrally with pair of rows consisting of 3 shorter and one long apical setae (fig. 21). Japan, China. .... *Geloemyia quadriseta* Hendel, 1933

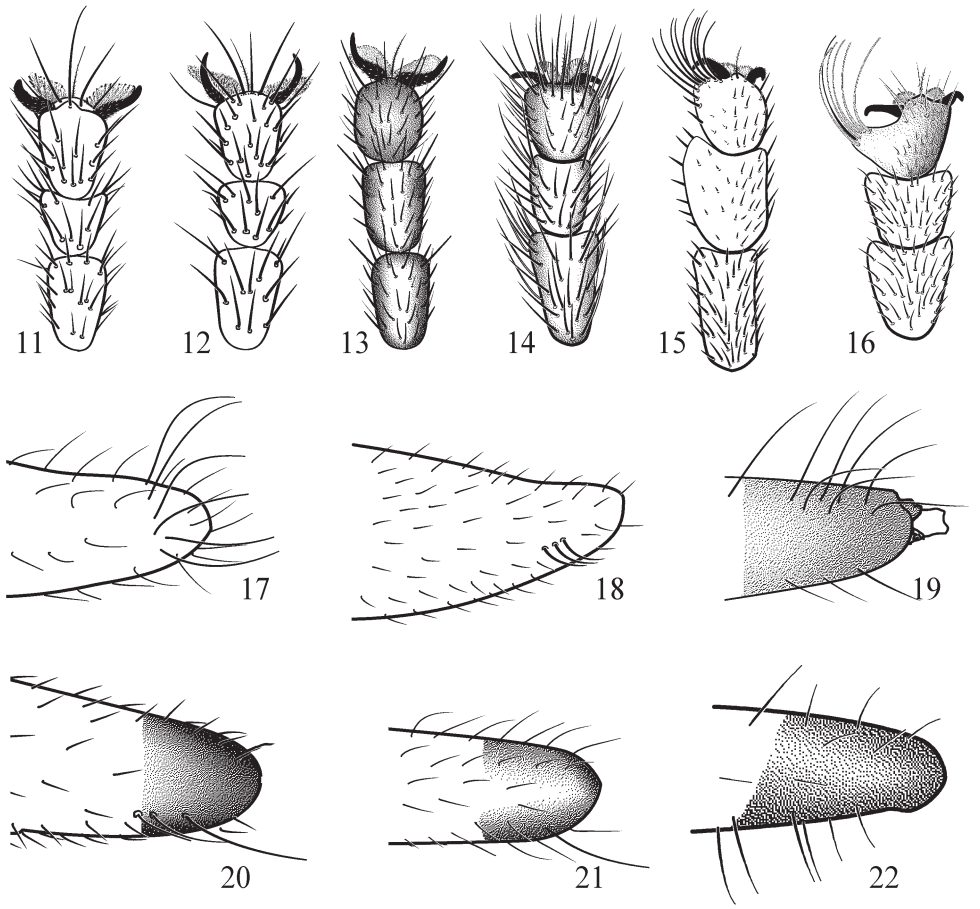

Fig. 11–22. *Geloemyia* ♀, three apical right fore tarsomes, dorsal view (11–16) and apex of oviscape, left view (17–22): 11, 17 — *G. namibica* Korneyev, sp. n.; 12 — *G. trifasciata*; 13, 18 — *G. cockerelli*; 14, 19 — *G. stylata*; 15, 20 — *G. cheni*, sp. n.; 16, 21 — *G. quadriseta*; 22 — *G. wonjuensis*.

Geloemyia cheni Kim, Han & Korneyev, sp. n. (fig. 7, 15, 20, 23–28)

nigrofasciata: Chen, 1947: 55; Shi, 1996: 577; Kim, Han, 2001: 281 (*Parageloemyia*) (misidentification).

Material. Type. Holotype ♀: **Korea**: Gangwon-do, Wonju-si, Heungeob-myeon, Mt. Deoggasan, black & mercury vapor light trap, 16.06.1997 (H.-W. Byun) (YSUW). Paratypes: **Korea**: 2 ♀, labels as in the holotype (NHMG); 1 ♂, 1 ♀: Gangweon-do, Weonju-si, Maeji-ri, Yonsei Univ. campus, black+ mercury vapor light trap, 12.06.2000 (S.-K. Kim); 1 ♀: Gyeongsandam-do, Geoje-si, Dongbu-myeon, Mt. Noja, mercury light trap, 4.06.1997, 70 % EtOH to chloroform (D. S. Gu); 1 ♀: Seoul, Jung-gu, Mt. Hamsan, Seoul tower, 3.06.2001 (H.-W. Byun) (SIZK); other specimens listed by Kim & Han (2001) as "*Parageloemyia nigrofasciata*" are also paratypes.

D i a g n o s i s. This species can be readily distinguished from other species of the genus *Geloemyia* by the following combination of characters: 1 or, face with epistome 0.3× as high as antennal grooves, the latter entirely fused, vein R_{4+5} setulose, female fore tarsus with tarsomeres 4 and 5 widened in female; mid femur with femoral organ in female.

D e s c r i p t i o n (partly modified from Kim, Han, 2001). Body brownish yellow, with reddish yellow to reddish-brown pattern; setae and setulae black; mesonotum length 1.95–2.55 mm, wing length 5.6–7.6 mm.

Head (fig. 26) reddish yellow, length : height : width ratio = 1 : 1.2 : 1.3; frons reddish yellow to reddish brown with sparse fine setulae, anteriormost setulae half as long as orbital setae; frons 1.4× as long as wide, 0.36–0.45× as wide as head, gena 0.55–0.63× as high as eye in male and 0.36–0.52× in female; medial vertical seta 1.1–1.4× as long as horizontal diameter of eye; outer vertical seta 0.55–0.65× as long as medial vertical seta in male, 0.47–0.51×

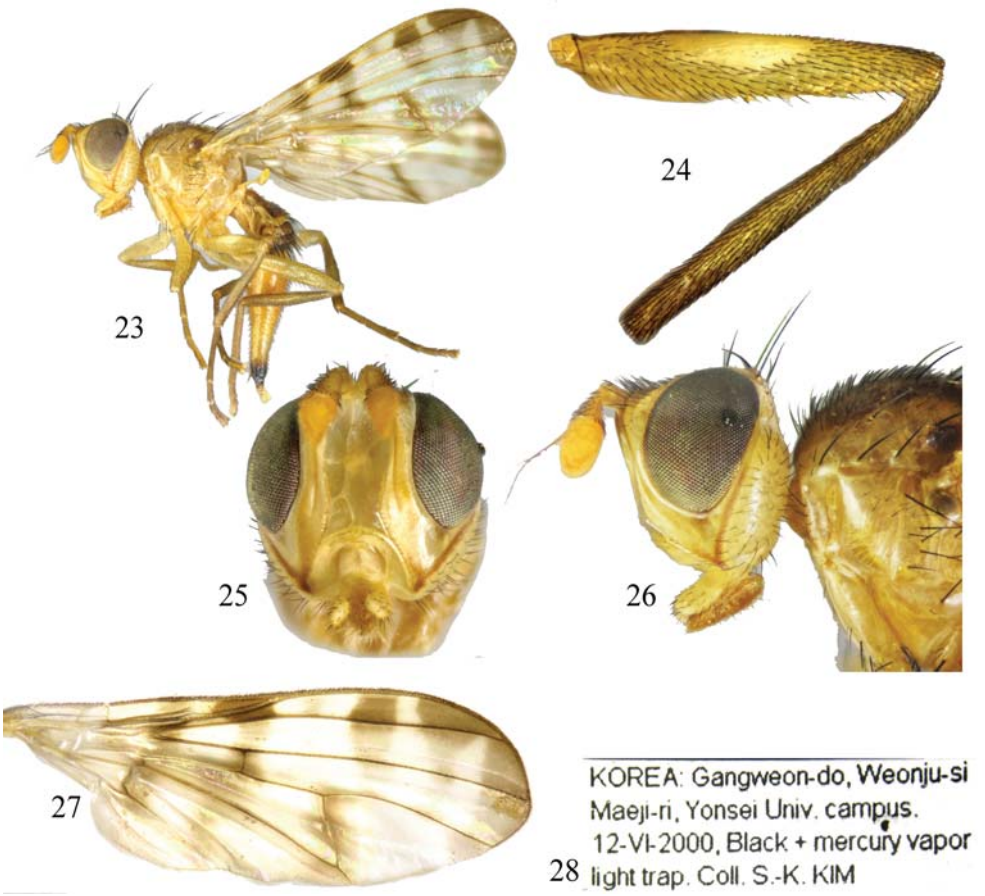

Fig. 23–28. *Geloemyia cheni*, sp. n., paratype ♀ (SIZK): 23 — habitus, lateral view; 24 — mid femur and tibia, anterior view; 25–26 — head (25 — anterior, 26 — lateral view); 27 — wing; 28 — label.

in female; postocellar seta 0.37–0.51× as long as medial vertical seta; ocellar seta 0.23–0.43× as long as medial vertical seta; 1 orbital seta: frontal setae absent; antenna yellow to reddish yellow; flagellomere 1 oval, brownish yellow to reddish yellow microtrichose, apically rounded, 1.5× as long as wide, 0.86–1.0× as long as pedicel; first flagellomere; arista short pubescent; eye elliptic 0.63–0.70× as long as high; face pale yellow to reddish yellow; antennal grooves deeply concave, without median carina, 0.74–0.84× as high as face; epistome low, 0.15–0.25× as high as face; gena and postgena reddish yellow; occiput reddish yellow to brownish yellow with short supracervical setae, 1 long postocular seta; all setulae at anterior margin of postgena subequal; mouthparts pale yellow, labellum with yellowish brown setulae, prementum yellow with 2 moderately short setae at each side; palp yellow to reddish yellow, wide and moderately long, 2× as long as wide and almost as wide as flagellomere 1.

Thorax (fig. 21, 31, 32) reddish yellow to brownish yellow with brown to reddish-brown pattern; postpronotal lobe pale yellow to brownish yellow with 1 seta and 4–8 setulae; scutum with 1 presutural supra-alar, 1 scapular seta (scap), 3 postsutural dc, and 1 prst ac seta, and also 1 postsutural supra-alar, 1 intra-alar, 1 postalar and 2 notopleural setae; round dark brown spot ventral of postsutural supra-alar seta; mesonotum with brown or reddish brown lyrate pattern at incertions of dorso-ventral muscles; scutellum pale yellow to brownish yellow, bare; apical scutellar seta 1.8–2.9×, basal scutellar seta 1.6–2.5× as long as scutellum; pleura (fig. 23, 32; Kim, Han, 2001: Fig. 14G) pale yellow to reddish yellow; proepisternum with 2–7 setae; 1 anepisternal seta and 2–4 long setulae and relatively short setulae in posterior part of anepisternum; 1 katepisternal, 1 anepimeral seta; katepimeron pale yellow to reddish yellow; mediotergite brown.

Legs (fig. 23, 24) pale yellow to brownish yellow; fore coxa as on fig. 33; fore trochanter unmodified, with 3 fine setulae; fore femur brownish yellow with erect setulae, postero-dorsally with 3 dorsal setae, postero-ventrally with 4–6 setae shorter than postero-dorsal ones; female fore tarsus modified: tarsomeres 3–5 in female modified: tarsomere 3 wide, 1.5× as wide as tarsomere 2; tarsomere 4 enlarged and asymmetrical, anterior half flattened, short and sparsely setulose on dorsal surface, tarsomere 5 smaller than tarsomere 4, with 6–7 long setulae on anterior margin longer than claws; male fore tarsus unmodified; mid coxa and trochanter unmodified, as on fig. 34; mid femur with short dense setulae, antero-dorsally in medial part with large oval femoral organ, almost half as long as femur, and not concave; hind femur with 2–5 apicodorsal setae and long antero-ventral setulae.

Wing of female hyaline with extensive brown banded pattern (fig. 27; Kim, Han, 2001: Fig. 14G); wing bands broader and darker in males; humeral break present, subcostal break almost inconspicuous; Sc incomplete at C; cells bm and cu*p* covered with microtrichia;

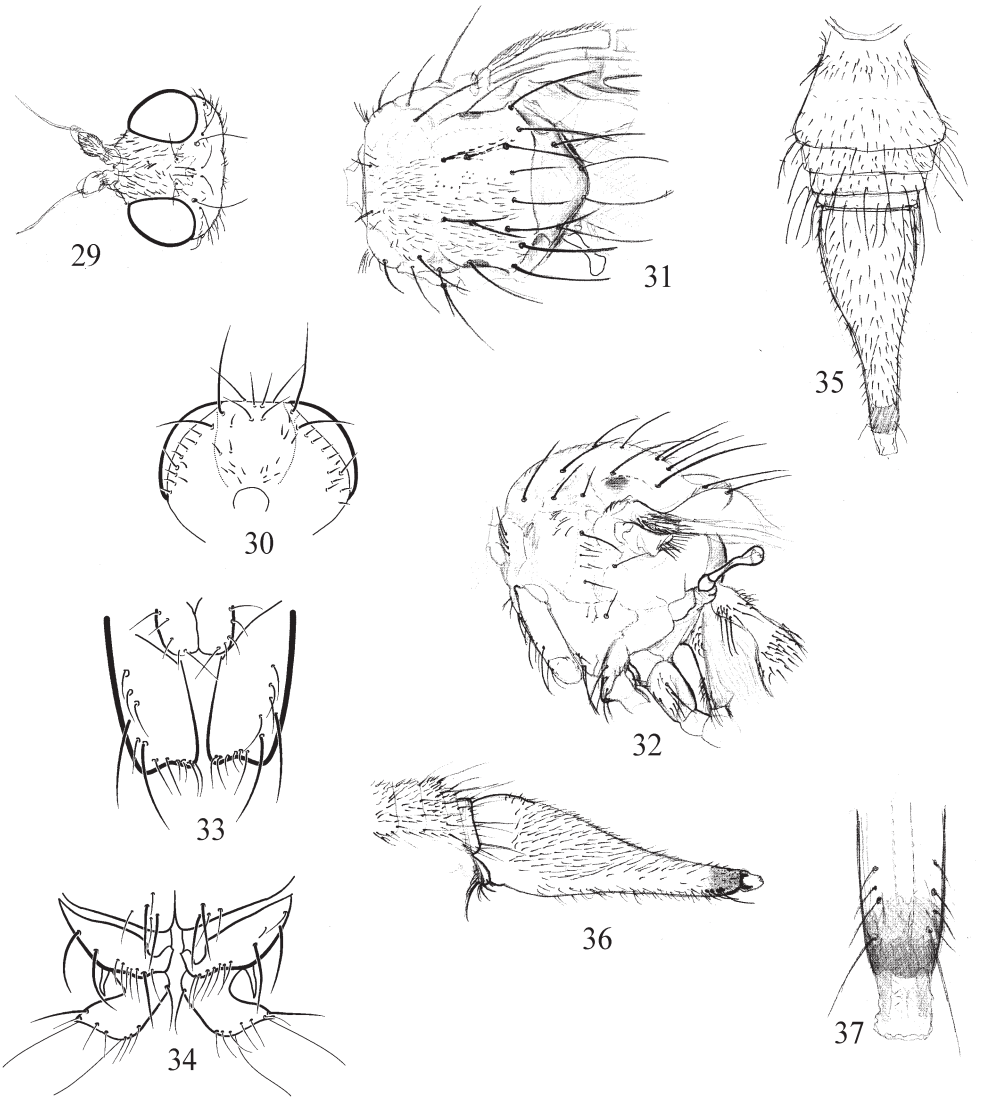

Fig. 29–37. *Geloemyia cheni*, sp. n., paratype ♀ (MHNG): 29 — head, dorsal view; 30 — occiput, posterior view; 31–32 — thorax (31 — dorsal, 32 — lateral view); 33 — fore coxa, anterior view; 34 — mid coxa, anterior view; 35–36 — abdomen (35 — dorsal, 36 — lateral view); 37 — apex of oviscape, ventral view. Drawings by the author, incl. pencil drafts.

vein R_{4+5} setulose dorsally; halter yellow. Wing of male with wide crossbands, similarly to those in *G. nigrofasciata* holotype (as on fig. 73), but differing in subapical crossband often broken on vein M.

Male abdomen (Kim, Han, 2001: Figs 14C, D) yellowish brown, densely setulose, laterally long setulose; syntergite 1+2 1.8× as long as tergites 3–4 combined; tergite 5 0.64–0.7× as long as syntergite 1+2; sternites 3–4 subquadrate.

Female abdomen (figs 35–37) reddish yellow to brownish yellow; syntergite 1+2 1.54–2.35× as long as tergites 3–6 combined; tergites 5–6 short, sometimes hidden in dorsal view; sternites 1+2 and 6 trapezoid, sternites 3–5 subrectangular.

Male genitalia (Kim, Han, 2001: Figs 15E-H): epandrium dorsally bare, with few laterodorsal setulae; cerci with relatively short sparse setulae; surstylus distinctly protruding postero-ventrally.

Female terminalia: oviscape tapering towards apex (Kim, Han, 2001: Fig. 15A) brownish yellow, in apical one-fifth or one-sixth dark brown, with pair of ventrolateral rows of 5–6 slightly thickened and elongated setulae, laterally and dorsally with suberect, unmodified setulae; 1.59–2× as long as preabdominal tergites combined and 1.05–1.1 times as long as thorax; apex black with 3–4 pairs fairly long and stout setae ventrally (fig. 37); aculeus barbed, with conspicuous subapical constriction (Kim, Han, 2001: Fig. 15B); 3 smooth oval spermathecae (Kim, Han, 2001: Fig. 15C); egg (Kim, Han, 2001: Fig. 15D) oblanceolate in outline.

Wing length ♂: 5.8, ♀ 6.4–6.8

Remarks. As was noted by Hering (1940) and then by Korneyev (2004), Hendel confused the figures of *G. quadriseta* and *G. nigropunctata* wings that was resulted in further misidentifications. A female from "Kirin: Kao-lin-tze, 20.VII.1940… in Museum Heude" identified by Chen (1947: 55) as "*Parageloemyia nigrofasciata*" and depicted (Chen, 1947: Figs 8, 10) clearly belongs here.

Geloemyia cockerelli (Malloch, 1930), **comb. n.** (fig. 5, 13, 38–53)

Malloch, 1930: 466; Steyskal, 1977: 42 (*Trichempodia*). — coquereli : Enderlein, 1942: 109 (*Trichempodia*) (emendation).

Material. **Type.** Holotype ♀: [**Thailand**:] "Siam. / top of Doi Satep / 5000 ft., 8.ii.1908 / Alice Mackei / per T.D.A. Cockerell", "Pres by Imp. Inst. Ent. / Brit Mus. 1932–143", "Trichempodia cockerelli / Type / Det. / J.R. Malloch", "Type" [red-bordered circle], "Holotype / Trichempoidia / cockerelli / Malloch / verified by J.E. Chainey, 2002", "Holotype" [red-bordered circle], "BMNH #252236" (BMNH).

Non-type. Malaysia: Malay Peninsula: Selangor, Bukit Kutu, 3,300 ft., 27.09.1932, 1 ♀ (H. M. Pendlebury) (ex F. M. S. Museum B. M. 1955–354) (BMNH); Borneo, Mt. Kinabalu, Tenompok-Kundasan, 4.11.1958, 1 ♀ (T. C. Maa) (BBM).

Brief redescription. This species can be recognized from combination of the head with narrow parafacial dorsally 0.8–1.0× as long as flagellomere 1, face almost vertical, with ventral portions of antennal grooves with slightly protruding calluses, and peristomal cavity longer than eye horizontal diameter, ocellar seta as long as anterior frontal setulae; wing (fig. 42, 49, 50) hyaline, entirely gray microtrichose, with a few pale brown spots along costa vein R_{2+3} without stump vein; vein R_{4+5} setulose dorsally; crossvein dm-cu strongly oblique, forming angle c. 45° with vein CuA_1; without brownish shade (or at most pale darkened at ends); mesonotum with no presutural and 3–4 postsutural setae (anterior one poorly distinguishable from longer setulae); scutellum with 2 pairs of setae and 0–3 marginal setulae; fore femur with relatively strong postero-dorsal and postero-ventral setae; female fore tarsus (fig. 13) with apical tarsomere unmodified, 1.4–1.6 as long as wide, with claw 0.8 times an long as apical fore tarsomere width; female mid femur with unclear femoral organ (larger and sparsely setulose in basal second one-quarter, closer to middle, in the holotype (fig. 44) and small U-shaped bare area in basal one-quarter (fig. 51)

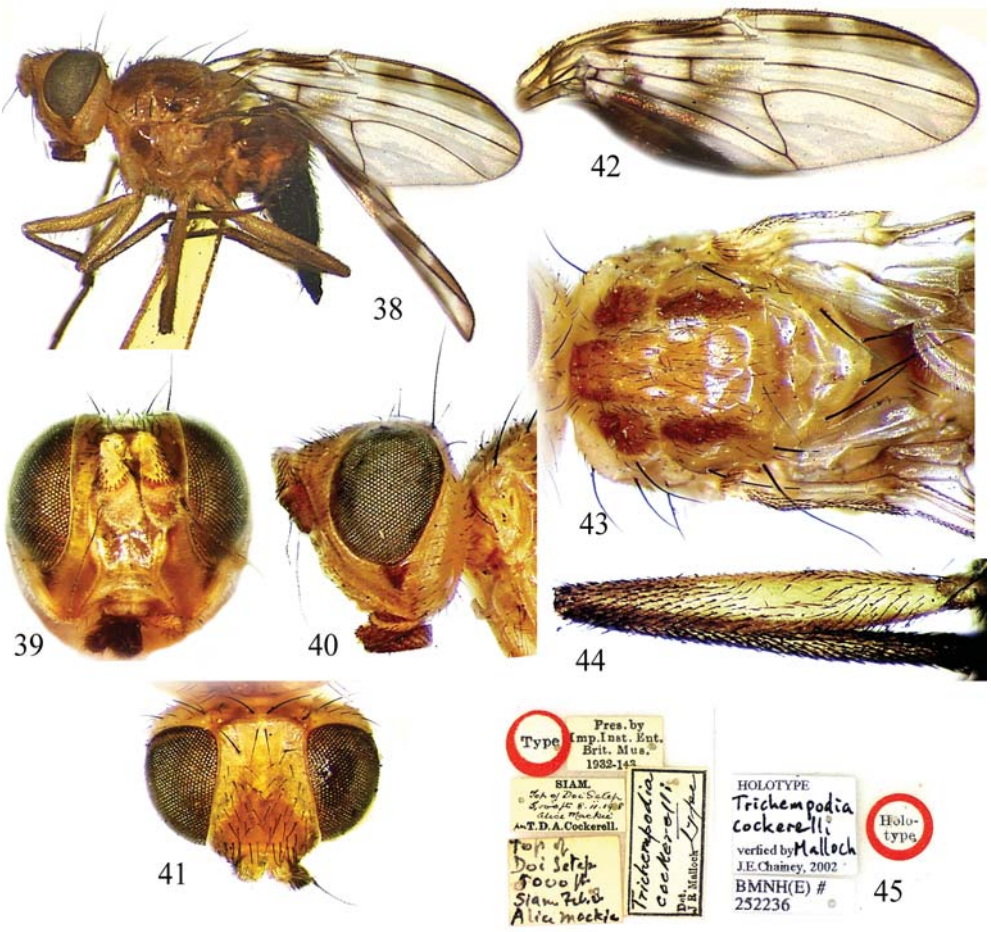

Fig. 38–45. *Geloemyia cockerelli*, holotype ♀ (BMNH): 38 — habitus, lateral view; 39–41 — head (39 — anterior, 40 — lateral, 41 — dorsal view); 42 — wing; 43 — mesonotum, dorsal view; 44 — mid femur and tibia, anterior view; 45 — labels.

in non-type specimens from Malaysia); oviscape almost as long as preabdominal tergites combined, bearing 3–4 moderately thickened, long and curved preapical setae on latero-ventral surface (fig. 18) and thinner 3–4 pairs of periapical setae.

Wing length 5.2–5.8 mm.

Genitalia not dissected.

Male unknown.

R e m a r k s. This species is very similar to *G. cheni* sp. n., *G. quadriseta*, and *G. stylata*, in all the essential characters, but the synonymy of *Geloemyia*, *Trichempodia* and *Parageloemyia* remained overlooked until the type specimens of the three species were examined and they were found congeneric.

The non-type specimens assigned here to *G. cockerelli* show quite constant differences in the shape and position of the femoral organ, which can be the characters of different species or subspecies, along with minor differences in frons width and wing pattern, but as the material is very limited, I cannot judge if this is not merely a variability of the three characters.

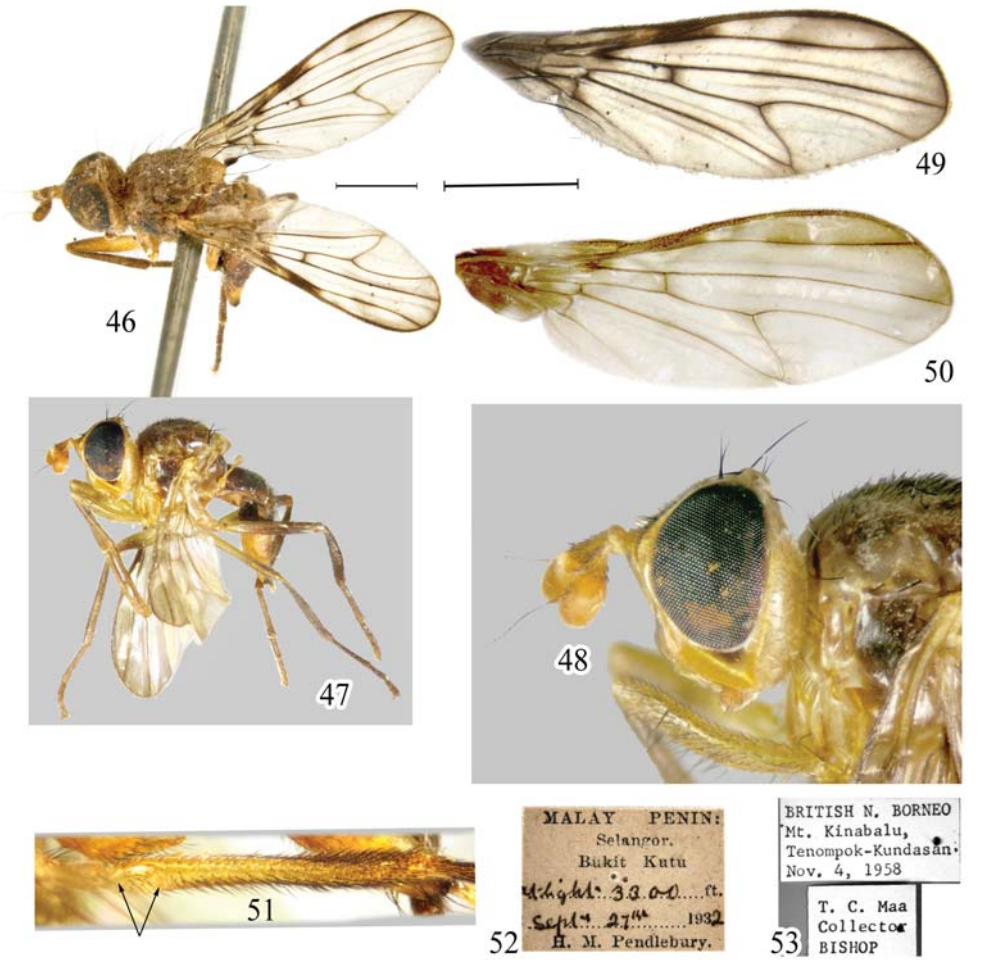

Fig. 46–53. *Geloemyia cockerelli*, non-type ♀ from Malay Peninsula (46, 49, 52) (BMNH) and Borneo (47, 48, 50, 51, 53) (BBM): 46, 47 — habitus; 48 — head left; 49, 50 — wing; 51 — mid femur, dorsal view; 52, 53 — labels. Scale bar 2 mm. Arrows indicate femoral organ.

Geloemyia dorsocentralis (Hering, 1940), **comb. n.**

Hering, 1940: 291; Korneyev, 2004: 26; Korneyev, Nartshuk, 2004: 403 (*Adapsilia*); Soós, 1984: 36 (*Adapsila*).

Material. **Type**. Holotype ♂: "Charbin 5.VII / Maoershan / W. Alin", "Type" [red paper, printed], "Adapsilia / dorsocentralis /m. Type / det. M. Hering 1940" (ZMHB). Paratype ♀: China, Heilongjiang: "Chandaochezsy / 1.–10.8.1937", "Mandschukuo", "W. Alin ed.", "Adapsilia / dorsocentralis ♀. P. T. / Hering 1940", "Paratypus" [red paper printed] (SDEI). **Non-type**. "Charbin Mandsch. / W. Alin VIII", "Adapsilia / dorsocentralis /m. ♀ Type / det. M. Hering 193-" (MNKB); Russia: S of Primorskiy Kray, Gorno-Tayozhnoe [SE of Ussuriysk], light trap, 20.07.1994, ♀ (A. Belov) (SIZK); Kamenushka 45 km SE of Ussuriysk, 29.07.1984, ♀ (Shatalkin) (ZMUM).

Brief redescription. Eye small, gena 0.8× as high as eye, without subocular spot, twice as high as length of flagellomere 1. Antenna scarcely longer than half face height, flagellomere 1 narrowed towards apex, rounded apically, 1.4× as long as pedicel. Face yellow, with antennal grooves reaching lower 1/4, and rather high, receding epistomal margin. Palpus moderately large, about as long and wide as antenna; labellum moderately developed. All head setae well-developed, except vte 0.3 as long as vti (Korneyev, 2004: fig. 4, *1*). Thorax orange yellow, except postnotum brown, with 3 dc, 2 pairs of sctl, and well-developed prst sa, prsc ac and kepst)

(Korneyev, 2004: fig. 4, *4*). Prosternum with 4–5 long setulae on each side. Scutellum with 1–3 short setulae on each postero-lateral side. Wing as in fig. 4, *2*. Costal vein conspicuously reaching apex of M. R_{2+3} without spur vein, R_{4+5} bare. Crossvein dm-cu 2.1.5–1.7× as long as cell r_{4+5} in front of it. Coxae without thickened setae, but mid and hind coxae with numerous moderately fine and long black setulae. Femora yellow, setulose, with ventral row setae; fore femur (Korneyev, 2004: fig. 4, *3*) with 2 rows of postero-dorsal setae in apical half, hind femur with 2 dorsal subapical setae; mid femur without bare area. Abdomen yellow, with moderately long black setulae. Male genitalia (in situ): epandrium oval, with elongate surstyli; proctiger dorsoventrally flattened, apically very slightly lobate, but not split (Korneyev, 2004: fig. 4, *5, 6*). Oviscape (Korneyev, 2004: fig. 5, *1*) wide and long, as long as mesonotum and 1.2–1.4× as long as preabdomen, directed postero-ventrally, with ventral apodeme rather short and weakly sclerotized, apical portion of oviscape with ventral lobe moderately wide and short, ending with flat triangular plate (Korneyev, 2004: fig. 5, *3*), dorsal medial lobe absent, two wrinkled, taenium-like carinae in basal half of dorsal side of eversible membrane (modified taenia?) running into each other medially (Korneyev, 2004: fig. 5, *2*), paired lateral lobes slightly shorter than ventral lobe, two rasper-like kidney-shaped or irregular-oval sclerites (modified ventral taeniae) between medial and lateral sclerites well separated from each other and oviscape (Korneyev, 2004: fig. 5, *1*). Aculeus with preapical constriction, as in most species of *Geloemyia* (Korneyev, 2004: fig. 5, *4*). Three separate spermathecae, one smaller than other two (Korneyev, 2004: fig. 5, *5*)

Wing length 4.5–5.0 mm.

Remarks. This species shares the well-developed prsc sa and additional dorsocentral setae, shape of surstyli and aculeus with other species of *Geloemyia* and I place it to this genus; it differs from them by 2 or, bare R_{4+5} (both characters also in *G. wonjuensis*) and mid and hind femora setose ventrally, and oviscape strongly widened at base, as in many other Adapsiliina; it is believed to be a basalmost taxon in the genus, quite close to outgroups.

Geloemyia namibica V. Korneyev, sp. n. (fig. 1, 11, 17, 55–66)

Material. **Type.** Holotype ♀: **Namibia:** Rundu Dist., Kotara Okavango River, 17°48'56" S 18°53'38" E, light trap sample, 22–23.i.1998 (Kirk-Spriggs & Marais) (NICW). Paratypes 3 ♀: **Namibia**: same label as in the holotype (NICW; SIZK); 1 ♂: Mahango Game Reserve, 1–3.x.1993 (Koch) (MNKB).

Diagnosis. This species can be recognized from combination of the head triangular in profile, with the parafacial dorsally 1.5–2× as long as flagellomere 1, face strongly receding, and peristomal cavity very short (as long as or slightly shorter than parafacial), ocellar setae long, one pair of orbital setae; wing with mottled pattern covering whole disk, including anal cell and lobe; vein R_{2+3} with stump vein; vein R_{4+5} setulose dorsally; crossvein dm-cu forming almost right angle (80–85°) with vein CuA_1; mesonotum with 1 presutural and 3 postsutural dorsocentral setae; scutellum with 2 pairs of setae but without setulae; female mid femur without femoral organ; oviscape slightly longer than tergites 3–6 combined.

Description. Head (fig. 55–58) yellow to brownish yellow, triangular in profile, height : length : width ratio = 1 : 1 : 1.1; with face strongly receding, and peristomal cavity very short; frontal vitta yellow, matt, microtrichose, black setulose anterolaterally, medially bare, 1.3–1.4× as long as wide in posterior half; parafacial 1.5–2× as wide as flagellomere 1; eye 1.4× as high as wide, 1.4–1.5× as wide as parafacial and 2–2.5× as high as gena. Face concave, with faint medial suture, in ventral one-fourth with short carina. Epistome acute triangular, very long, slightly longer than antennal grooves. Gena with short and low, sometimes brownish, subocular sclerite; postgena anteriorly with 1–2 subequal setae and 7–7 shorter setulae. Occiput entirely yellow. First flagellomere entirely reddish yellow, 1.3×

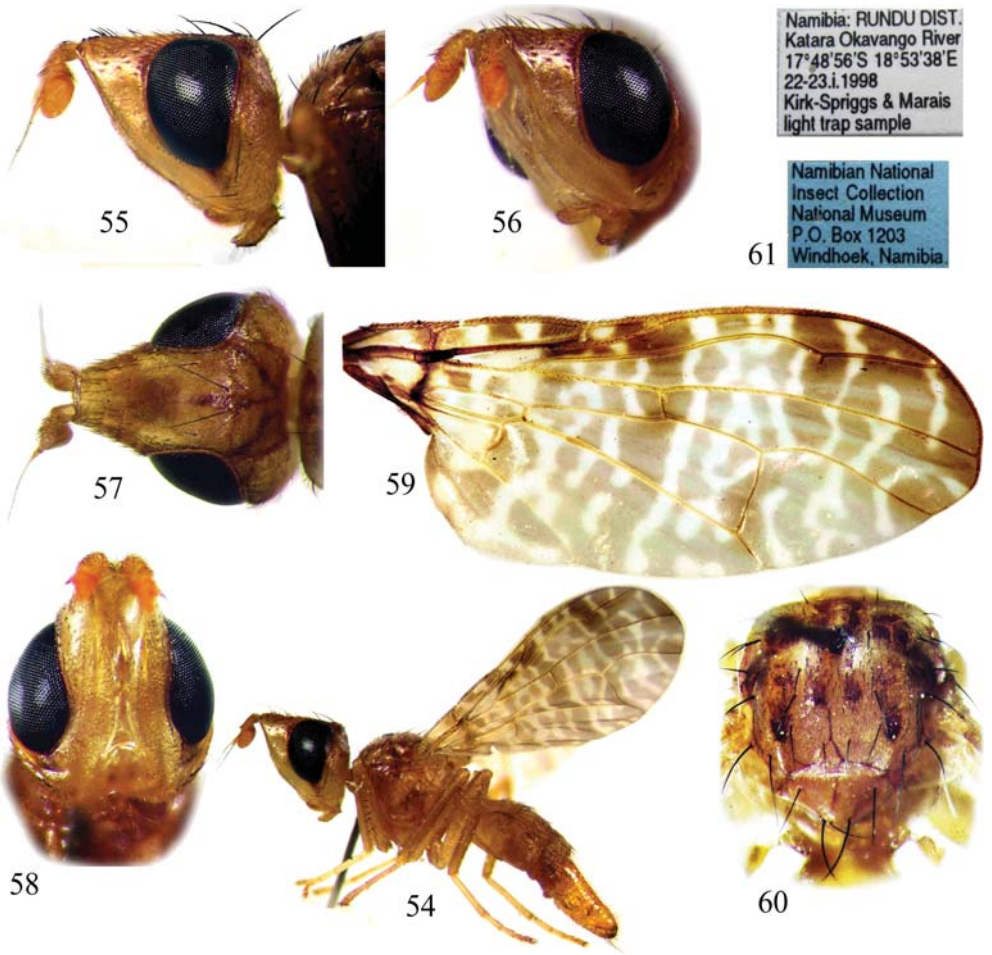

Fig. 54–61. *Geloemyia namibica*, sp. n., paratype ♀ (SIZK): 54 — habitus; 55–58 — head (55 — lateral, 56 — anterolateral, 57 — dorsal, 58 — anteroventral view); 59 — wing; 60 — mesonotum, dorsal view; 61 — labels.

as long as wide, 1.3× as long as pedicel and 2.3× as long as scape. Arista reddish yellow in basal half, 2-segmented, very short pubescent. Scape as long as wide. Palp yellow, oval, 2.5× as long as wide, and as long as first flagellomere. Labellum small, almost as long as palp. Lateral vertical setae (vte) 0.2–0.3× as long as medial vertical setae (vti); vti 3× as long as pedicel, 1.5× as long as ocellar and 3× as long as postocellar and orbital setae and 3–4× as long as setulae (above lunule).

Thorax yellow to brownish yellow, without distinct dark pattern (fig. 60). Prosternum saddle-like, short setulose. Postpronotal lobe with 4–6 setulae and one long seta; proepisternum with 3–5 setae. Scutum as long as wide, subshining yellow with faint brown areas, sparsely black setulose, with white microtrichia not obscuring underlying cuticle; 2 notopleural, 1 presutural and 1 postsutural supra-alar, 1 intra-alar, 1 postalar, 1 short presutural and 2–3 postsutural dorsocentral, and 0–1 acrostichal setae (if present, slightly longer than setulae). Scutellum yellow, whitish microtrichose, with 2 pairs of setae: apical 1.5× as long as scutellum and basal as long as scutellum, but without setulae (fig. 1, 5). Anepisternum yellow, with reddish or brownish anterior part covered with 10–12 short setulae; posterior part with 1–2 long setae and 6–7 irregular long setulae; anepimeron with 1 long seta and 1–2 short setulae; katepisternum with 1–3 long setae and 1–2 thinner and slightly shorter setulae dorsally and 2–3 setae medioventrally, anterior of mid coxa. Katatergite, anatergite and mediotergite matt yellow.

Wing (fig. 1, 59) 2.5–2.6× as long as wide, yellowish or hyaline with mottled pattern of moderately small grey spots partly fused apically and from pterostigma to posterior margin through crossvein r-m, and dark spots in anterior cubital and anal cells, anal lobe and alula; veins brown or yellowish. Costa with conspicuous humeral and subcostal break, subcostal vein broken at apex and not joined to costa. Pterostigma half as long as costal cell. Vein R_{2+3} sinuate, with stump vein. Vein R_{4+5} dorsally setulose over almost entire length. Cell cup closed by slightly sinuate crossvein and very short lobe. Wing length 6.0–6.4 mm. Lower calypter narrow, without cilia; upper calypter with long and dense setulae forming black fringe. Halter creamy white.

Legs (fig. 54) entirely yellow, black setulose and setose. Coxae moderately long and sparsely setose and setulose, unmodified. Fore femur moderately narrow, with basiventral seta and row of 6–7 strong black posteroventral setae as long as femur width and 4–5 shorter and thinner postero-dorsal setae; long setulose on posterior surface. Fore tibia widened apically, with 3–4 short preapical setae on dorsal surface. Fore tarsus unmodified in both sexes, yellow, tarsomere 1 twice as long as tarsomere 2; tarsomere 5 orange, narrow, as wide as tarsomere 3; tarsomere 4 unmodified, as wide as and 0.7× as long as tarsomere 5 (fig. 11). Mid femur unmodified, without long setae, uniformly setulose on anterior surface setose without femoral organ. Hind femur narrow, short setulose, without 2 longer subapical dorsal setae.

Abdomen (fig. 54) moderately wide, as long as thorax, with syntergite 1+2 transverse, 0.6× as long as wide and 0.7× as long as tergites 3–6 combined. Sternites of female wide ,with short setulae and long marginal and submarginal setae on posterior margins, synsternite 1+2 trapezoid, sternites 3–5 subrectangular, wider than long; sternite 6 wide trapezoid. Synsternite 1+2 of male triangular, sternites 3–4 very narrow, somewhat widened at anterior margin and with oval posterior portion bearing 6–8 setae and 5-6 short setulae; sternite 5 with narrow anterior half and equilaterally triangular posterior half (fig. 62).

Female genitalia. Oviscape entirely orange (fig. 54), 1.5–1.6 mm long, uncompressed, cylindrical, twice as long as wide basally, sparsely black setulose, and as long as tergites 3–6 combined, with apex short and inconspicuously bent dorsally, laterally bearing long setulae 1.2–2× as long as oviscape width (fig. 17). Dorsal (dorso-medial) lobes short, latero-ventral lobes very short, medial lobe long, twice as long as width of apex. Eversible membrane not examined. Aculeus (fig. 65) basally widened, without preapical constriction, 7× as long as wide at middle. Ventral receptacle as in other Pyrgotinae. Spermathecae oval (fig. 66).

Male genitalia as on figs 63, 64; epandrium and surstyli covered by short setulae inserted into big sockets; dorsal portion of epandrium bearing no long setae, only 4–5 short setae at level of cerci and fusion of epandrium with surstyli; surstyli directed posteriorly, as long as epandrium, robust; inner surstylus without prensisetae; phallus bare, with glans as on fig. 64, very similar to that of *G. trifasciata*.

Remarks. The main difference of *G. namibica* sp. n. from most other species of the genus (at least from those known from both sexes) is that it shows no sexual dimorphism in the wing pattern or structure of fore and mid legs; it seems to be related to the Madagascan *G. trifasciata* as they share the high epistome, developed presutural dorsocentral seta and conspicuously narrowed abdominal sternites of males (possible synapomorphies, not occurring in most other Pyrgotinae except *Pyrgotomyia*), in combination with well developed spurious vein on R_{2+3} and unmodified fore tarsus of female (possible symplesiomorphies).

Geloemyia quadriseta Hendel, 1933 (fig. 8–10, 16, 21, 67–76)

quadriseta Hendel 1933: 13 (*Geloemyia*); Hendel, 1934: 142; Soós, 1984: 38; Korneyev, 2004: 43; Korneyev, Nartshuk, 2004: 408; Nartshuk, Korneyev, 2005: 9 (*Parageloemyia*). — *ornata* Hering, 1940: 293 (*Parageloemyia*); Enderlein, 1942: 111; Soós, 1984: 37 (*Dicranostira*) , **syn. n.** — *nigrofasciata* (*Geloemyia*); Hendel 1933: 13; Soós, 1984: 37; Korneyev, 2004: 43; Korneyev, Narchuk, 2004: 408 (*Parageloemyia*), **possible synonym**.

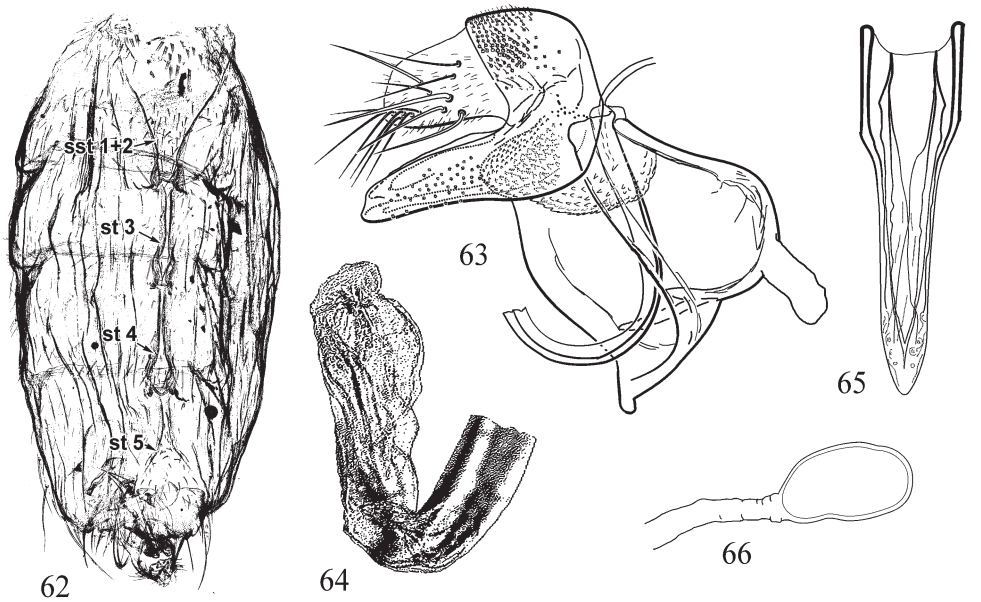

Fig. 62–66. *Geloemyia namibica*, sp. n., paratype ♂ (62–64) (MNKB) and ♀ (65–66) (SIZK): 62 — abdomen, ventral view; 63 — epandrium, lateral view; 64 — glans of phallus; 65 — aculeus; 66 — spermatheca (one of the three).

M a t e r i a l**. Type.** Syntype ♀ *Geloemyia quadriseta*: [**China**:] "Shin Kai Si / Mt. Omei / Szechuen China", "1000 feet / alt", "DCGraham / collector", "Geloemyia / quadrisetosa [sic!] / Hend. Hend. [det.]" (red paper rectangle) (USNM). Holotype ♀ *Parageloemyia ornata*: [**China**:] "Chandaoche / Manchukuo, VIII. 1938 / W Alin", "Type", "Parageloemyia ornata m. Type ♀ / Hering det." (MNKB).

Holotype ♂ *Geloemyia nigrofasciata*: "Suifu / Szechuen / China", "DC Graham / coll.", "Type No / 41873 / U.S.N.M." (red paper rectangle), "Geloemyia / nigrofasciata / Hend." (USNM).

Non-type. Japan: Tokyo, 11.05.1910, 1 ♀ (E. Galois) (MHNP).

B r i e f r e d e s c r i p t i o n. This species can be recognized from combination of the head with narrow parafacial dorsally approximately as long as flagellomere 1 width, face slightly receding, with ventral portions of antennal grooves slightly protruding, and peristomal cavity nearly as long as eye horizontal diameter, ocellar seta as long as anterior frontal setulae; wing gray microtrichose, with a variously developed brown pattern consisting of the short subbasal crossband posterior of costal cell apex and a spot at base of cell cua1, pterostigmal crossband, from the apical half of stigma through crossvein r-m to posterior wing margin, short accessory crossband in cell r1 distal of vein R_1 apex, preapical crossband (from cell r1 through dm-cu) either broken at vein M or complete, and apical band usually with extensions into cell r_{2+3} or along vein M; vein R_{2+3} without stump vein; vein R_{4+5} setulose dorsally; crossvein dm-cu moderately oblique, forming angle c. 60–70° with vein CuA_1; variously brownish shaded (narrowly in *G. quadriseta* holotype and broadly in *P. ornata* syntypes); mesonotum with no presutural and 3 postsutural dorsocentral setae; scutellum with 2 pairs of setae and no marginal setulae; female fore tarsus with unmodified trapezoid preapical, and strongly modified apical tarsomere 0.8× as long as wide, bearing thumb-like, long setulose lateral process, with claw 0.4–0.5 times an long as apical fore tarsomere width; female mid femur without femoral organ; oviscape almost as long as preabdominal tergites combined, its apex ventrally with pair of rows consisting of 3 shorter and one long apical setae (fig. 16).

R e m a r k s. Study of holotype females of *Geloemyia quadriseta* and *Parageloemyia ornata* shows them to have similarly modified fore tarsomere and no femoral organ; I therefore consider them conspecific and synonymize these names. As the wing pattern

of *Geloemyia cheni* and *G. trifasciata* is sexually dimorphic, with darker, wider and solid crossbands in males, it can be interpolated on other species, including *G. quadriseta* (but except *G. namibica* and *G. wonjuensis*). Description of *G. nigrofasciata* was based on a single male, which shows no characters differing closely related *G. cheni* and *G. quadriseta* and thus cannot be formally proven to belong either to the first or to the second species. Type localities of *G. quadriseta* based on females and of *G. nigropunctata* based on male are in Sichuan Province c. 200 km from each other, and this is quite a reason that they could be conspecific. I leave the formal synonymization pending until more rigorous proofs are found.

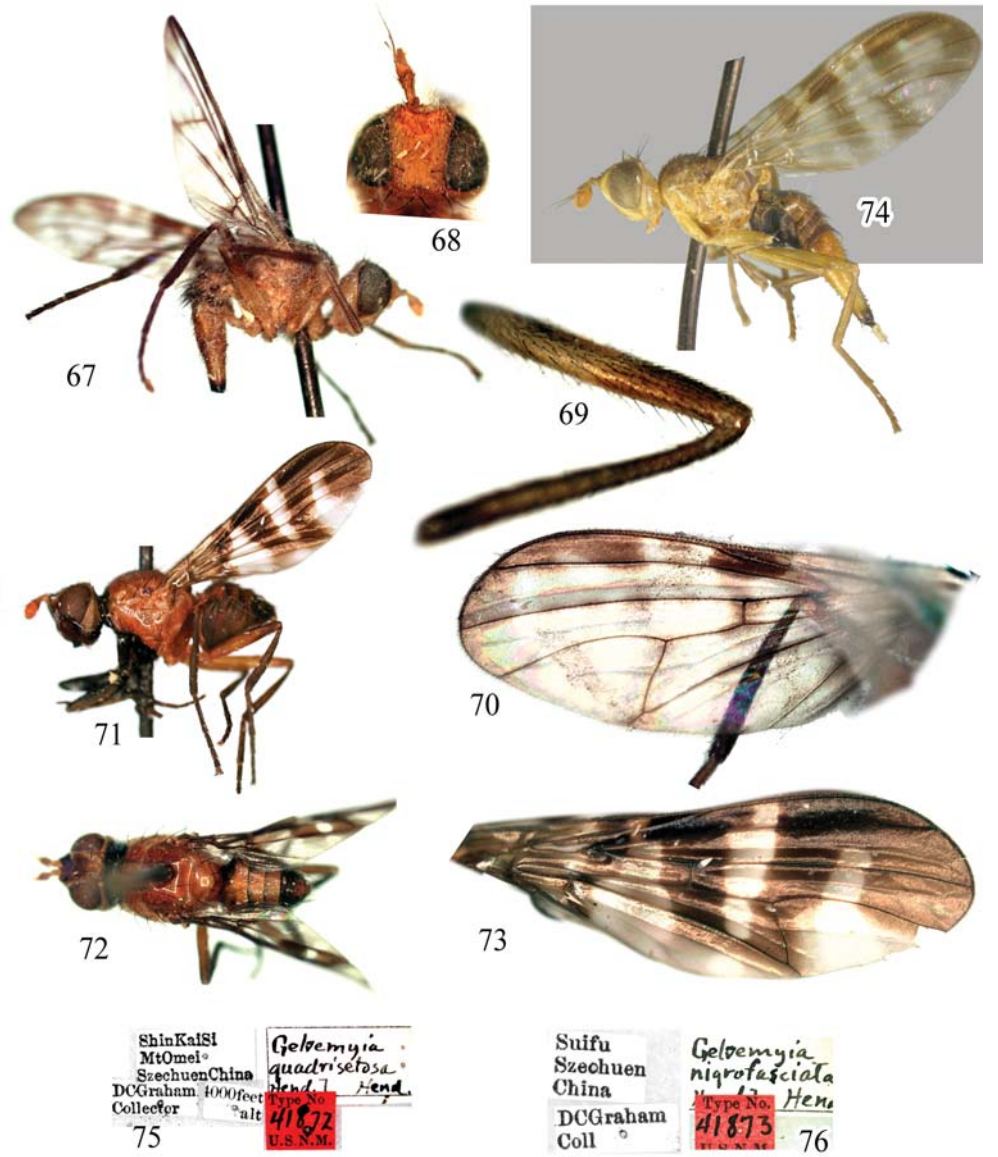

Fig. 67–76. *Geloemyia quadriseta*: holotype ♀ (67–70, 75), holotype ♂ of *G. nigrofasciata* (71–73, 76) (USNM) and non-type ♀ (74) (MHNP): 67, 71, 74 — habitus, lateral view; 68 — head, dorsal view; 69 — mid femur, anterior view; 70, 73 — wing; 72 — habitus, dorsal view; 75, 76 — labels.

Geloemyia stylata Hendel, 1908 (fig. 6, 14, 19, 78–87)
Hendel 1908: 151; 1909: 21; Steyskal, 1977: 41; Shi, 1996: 6.

Material. **Type.** Holotype ♀ *Geloemyia stylata*: [**Vietnam**:] "Tonkin / Montes, Marson / April, Mai, 2–3000' / H. Fruhstorfer" [printed label], "Geloemyia / stylata, Hend. / ♀", "Holotype ♀ / Geloemyia / stylata / Hend. / des. V. Korneyev 2006" (NHMW).

Brief redescription. This species can be recognized from combination of the head with narrow parafacial in its dorsal part approximately as long as flagellomere 1 width; face slightly receding, with ventral portions of antennal grooves slightly protruding, and peristomal cavity nearly as long as eye horizontal diameter; ocellar seta as long as anterior frontal setulae; wing gray microtrichose, with a pattern consisting of five dark brown spots on anteriorior margin and apical band from the apex of cell r1 to the apex of cell m, and four pale brown oval spots in cells r_{2+3} and r_{4+5} (one on crossvein r-m and three distally of it); vein R_{2+3} without stump vein; vein R_{4+5} setulose dorsally; crossvein dm-cu oblique, forming angle c. 45° with vein CuA_1, pale brownish shaded; mesonotum with no presutural and sockets of at least 2 postsutural dorsocentral setae (all dorsocentrals broken off); scutellum with 2 strong black setae at left, 3 setae at rightside and no marginal setulae; female fore tarsus with unmodified trapezoid preapical, and apical tarsomere as long as wide, densely setulose, with setulae as long as tarsomere itself, with claw 0.6 times an long as apical fore tarsomere width; female mid femur without femoral organ; oviscape 1.1× as long as preabdominal tergites combined, its apex with numerous fine and long periapical setae (dorsolateral and lateral setae longer and denser than ventral setae) (fig. 19), but without stout lateroventral setae.

Genitalia not dissected.

Male unknown.

Wing length 5.5 mm.

Remarks. The holotype ♀ of *G. stylata*, the type species of *Geloemyia*, is in rather fair condition, having partly deformed (compressed) head, scutum with a big hole in posterior part of scutum, setae partly broken off and the wings partly damaged (fig. 77, 78; 80, 81). It is similar to *G. quadriseta* in the wing pattern and lacking the femoral organ, clearly differing by the unmodified last tarsomere of female fore leg. Presence of an intermediate scutellar seta on the right side of scutellum is obviously of a teratologic origin, as the left side has the normal two setae (fig. 85). However, Hendel (1934) considered its abnormal number of setae a character of the genus, and established a new genus *Parageloemyia* for the species with two pairs of scutellar setae. Otherwise, there is no essential characters to recognize them as belonging to different genera.

Geloemyia trifasciata (Enderlein, 1942) **comb. n**. (fig. 3, 4, 12, 88–99)

Enderlein, 1942: 109; Hennig, 1960: 329; Steyskal, 1980: 562 (*Trichempodia*).

Material. **Type.** Holotype ♀: [Madagascar:] "Sambirano / N.-O. Madagasc.[ar]", [clean blue label], "Typus" [red label], "Trichempodia / trifasciata / Type Enderl. ♀ / Dr. Enderlein det. 1934̶0" (MNKB).

Non-type. Madagascar: "Perinet", "Institut Scientifique Madagascar", 3 ♂, 5 ♀ (DEI); Maroantsetra, à la lumière. 2 ♂; Manambato sur l'Anove, Sahafanjona, 1 ♀; Madagascar Centre-Est : R. N. III. Nosivola, 1 ♂, 4 ♀; Mora-manga, Sandrangato. 1 ♂; Périnet, 9 ♂, 30 ♀ (MHNP); Andasibe, Perinet Nat. Reserve, 18°50' S 48°23' E, h = 1100 m, 1, 4–5, 11.12.2000, 2 ♂, 3 ♀, idem, h = 1200 m, at light, 30.12.2003–8.01.2004, 5 ♂, 24 ♀ (Dolin & Andreeva) (SIZK); Ibity Mts, Analamazotra, Manandona, 14.04.2007, at light, 2 ♀ (W. Mey) (MNKB).

Diagnosis. This species can be recognized from combination of the head quadrangular in profile, with the parafacial dorsally 0.7–1× as long as flagellomere 1 width, face slightly receding, epistome, twice as high as wide, and peristomal cavity moderately short (0.8× as long as longitudinal diameter of eye), ocellar setae long; wing with five crossbands and a few additional pale brown spots between them; vein R_{2+3} with stump vein; vein R_{4+5}

setulose dorsally; crossvein dm-cu forming angle about 60° with vein CuA_1; mesonotum with 1 presutural and 3 postsutural dorsocentral setae; scutellum with 2 pairs of setae but without setulae; female mid femur without femoral organ; oviscape 1.5× as long as preabdominal tergites combined.

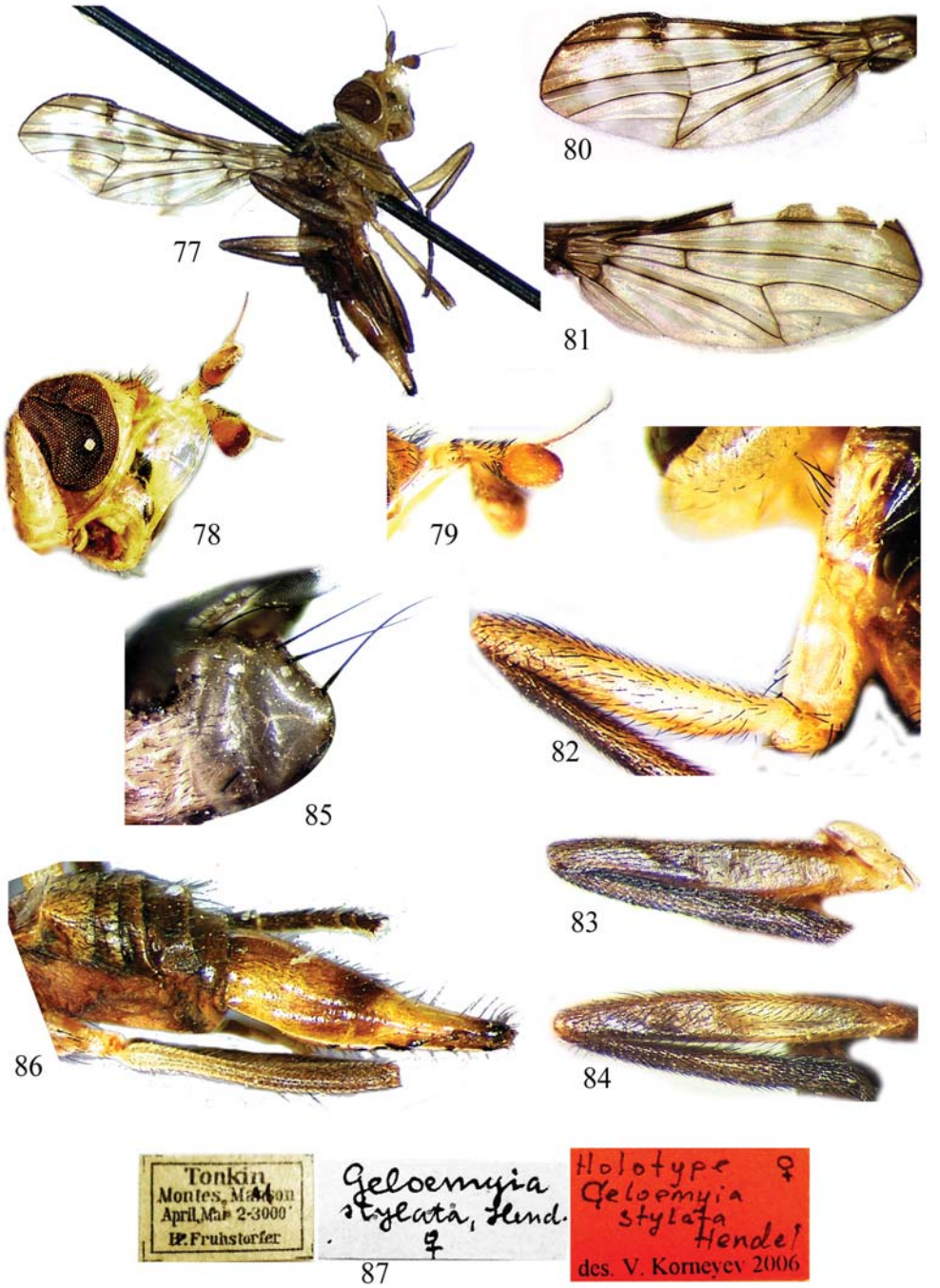

Fig. 77–87. *Geloemyia stylata*: holotype ♀ (NHMW): 77 — habitus; 78 — head, anterolateral view; 79 — antennae, lateral view; 80 — right wing, ventrally; 81 — left wing, ventrally; 82 — postgena, proepisternum and fore femur, posterior view; 83 — mid femur, anterior view; 84 — hind femur, anterior view; 85 — scutellum; 86 — abdomen, lateral view; 87 — labels.

D e s c r i p t i o n. Head (fig. 90, 91) yellow to brownish yellow, quadrangular in profile, height : length : width ratio = 1 : 1.1 : 1.2; with face slightly receding, and peristomal cavity moderately short; frontal vitta yellow, matt, microtrichose, black setulose anterolaterally, medially bare, 1.27× as long as wide in posterior half; parafacial 0.7–1× as wide as flagellomere 1 width; eye 1.5–1.8× as high as long, twice as long as parafacial and 4–5× as high as gena. Face concave, with faint medial suture, in ventral one-third with short incomplete carina. Epistome elongate pentagonal, as long as antennal grooves and twice as high as wide at its middle. Gena with short and low, matt orange or brownish, subocular sclerite; postgena anteriorly with 5–6 subequal setae and 3–5 shorter setulae. Occiput entirely yellow. First

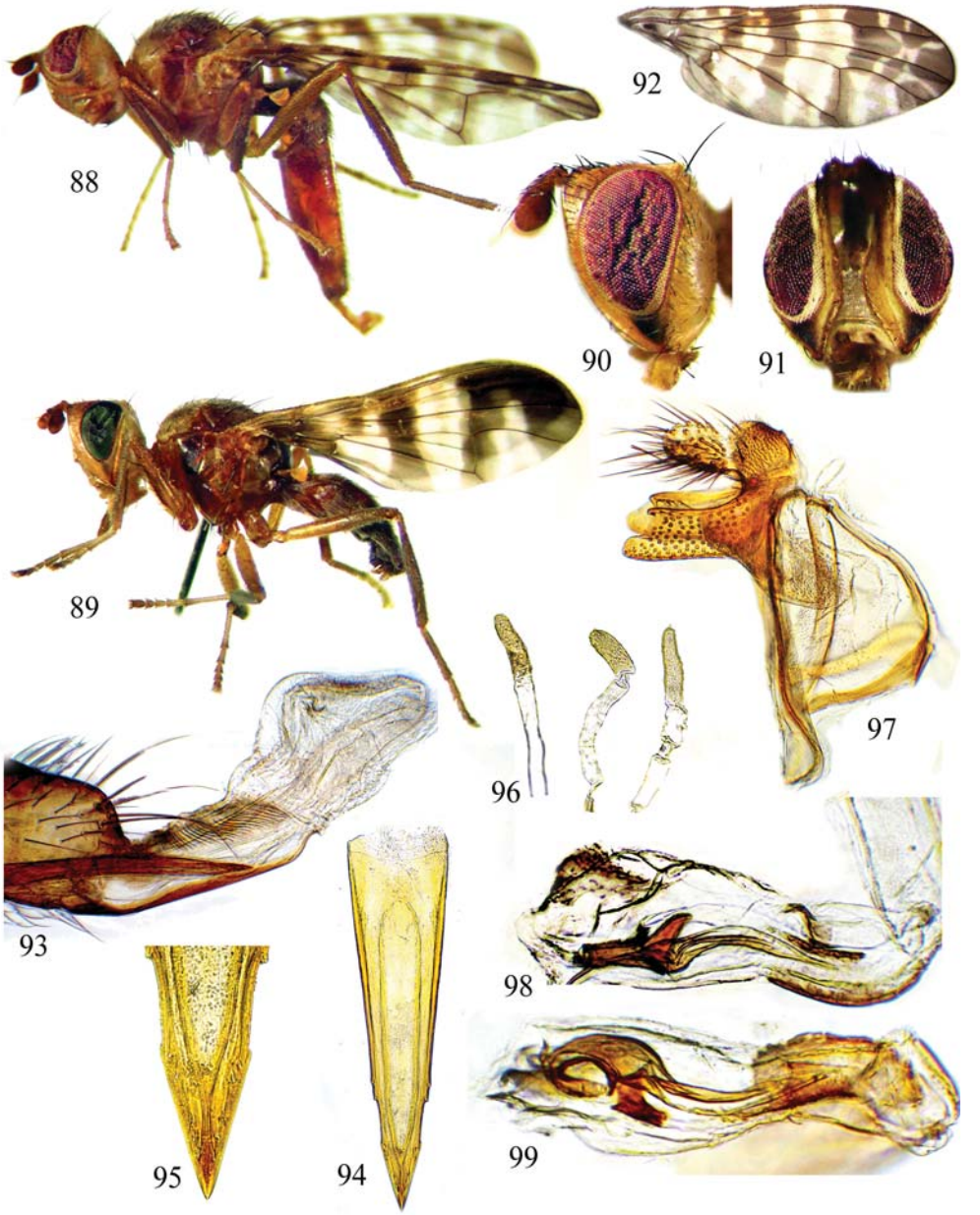

Fig. 88–99. *Geloemyia trifasciata*: non-type ♀ (88, 90–96) and ♂ (89, 97–99) (SIZK): 88, 89 — habitus, left; 90, 91 — head (90 — lateral, 91 — anterior view); 92 — right wing, dorsally; 93 — apex of oviscape and eversible membrane, lateral view; 94 — aculeus, ventrally; 95 — same, apex, enlarged; 96 — spermathecae; 97 — epandrium and hypandrium, right view; 98, 99 — phallus glans (98 — ventral, 99 — lateral view).

flagellomere entirely reddish yellow, 1.1–1.2 as long as wide, 1.1–1.2× as long as pedicel and 2.5× as long as scape. Arista reddish yellow in basal half, 2-segmented, bare. Scape as long as wide. Palp yellow, wide oval, 1.7× as long as wide, and as long as first flagellomere. Labellum small, almost as long as palp. Lateral vertical setae (vte) 0.15–0.2× as long as medial vertical setae (vti); vti twice as long as pedicel, twice as long as ocellar and 2.5× as long as postocellar and orbital setae and 2–2.5× as long as setulae above lunule.

Thorax yellow to brownish yellow, often with reddish or reddish brown vittae at insertion of muscles on dorsum and prefragmal part of anepisternum. Prosternum saddle-like, short setulose. Postpronotal lobe with 4–5 setulae and one long seta; proepisternum with 4–5 setae. Scutum as long as wide, subshining yellow with faint brown areas, sparsely black setulose, with white microtrichia not obscuring underlying cuticle; 2 notopleural, 1 presutural and 1 postsutural supra-alar, 1 intra-alar, 1 postalar, 1 short presutural and 3–4 postsutural dorsocentral, and 0–1 acrostichal setae (if present, at most twice longer than setulae). Scutellum yellow, whitish microtrichose, with 2 pairs of setae: apical 1.5× as long as scutellum and basal as long as scutellum, but without setulae (fig. 1, 5). Anepisternum yellow, with reddish or brownish anterior part covered with 10–12 short setulae; posterior part with 1–2 long setae and 6–8 irregular long setulae; anepimeron with 1–2 long setae and 1–2 short setulae; katepisternum with 1–3 long setae and 1–2 thinner and slightly shorter setulae dorsally and 2–3 setae medioventrally, anterior of mid coxa. Katatergite, anatergite and mediotergite matt yellow to brown.

Wing (fig. 3, 4, 89, 92) 2.6–2.8× as long as wide, yellowish or hyaline with highly variable pattern of crossbands with gray spots between them partly fused. Costa with conspicuous humeral and subcostal break, subcostal vein broken at apex and not joined to costa. Pterostigma 0.3× as long as costal cell. Vein R_{2+3} sinuate, with stump vein. Vein R_{4+5} dorsally setulose over almost entire length. Cell cup closed by slightly sinuate crossvein and with very short lobe. Wing length 5.5–7.0 mm. Lower calypter narrow, without cilia; upper calypter with long and dense setulae forming black fringe. Halter creamy white.

Legs entirely yellow, black setulose and setose, as described for *G. namibica* sp. n.; Female fore tarsus (fig. 12) yellow, unmodified, with moderately short and sparse setulae; claw 0.8× as long as tarsomere width.

Abdomen moderately wide, with syntergite 1+2 transverse, 0.6× as long as wide and 0.7× as long as tergites 3–6 combined. Sternites of female wide, with short setulae and 6–8 long marginal and submarginal setae on posterior margins, synsternite 1+2 trapezoid, sternites 3–5 subrectangular, 1.1–1.2 times longer than wide; sternite 6 transverse. Sternites of male slightly wider than those of *G. namibica* sp. n.: synsternite 1+2 long trapezoid, sternites 3–4 narrow, c. 3× as long as wide, sternite 4 with oval posterior portion bearing 4–6 setae and 13–15 short setulae; sternite 5 with narrow equilaterally triangular.

Female genitalia. Oviscape (fig. 89) entirely orange, 1.3 mm long, uncompressed, cylindrical, 3× as long as wide basally, sparsely black setulose, and as 1.5× as long as tergites 3–6 combined, with apex short and inconspicuously bent dorsally, laterally bearing long setulae 1.2–1.3× as long as oviscape width (fig. 93). Dorsal (dorso-medial) lobes absent, latero-ventral lobes very short, medial lobe long, 1.2× as long as width of apex. Eversible membrane dorsally wrinkled (fig. 93). Aculeus (fig. 94, 95) tapered apically, with conspicuous steps in apical one-third and distinctive preapical constriction, 4.7× as long as wide at middle. Ventral receptacle as in other Pyrgotinae. Spermathecae very long, sausage-like, 10× as long as wide, with sclerotized apices (fig. 96).

Male genitalia as on fig. 97–99, very similar to those of *G. namibica*.

Remarks. *G. trifasciata* is one of the most common species of the genus, known from big series, with wide range of variability in wing pattern easily observed, including sexual dimorphism as has been described by Hennig (1960); it apparently forms a monophyletic lineage with Mainland African *G. namibica* sp. n. (see remarks to that species).

Geloemyia wonjuensis (Kim & Han 2001), **comb. n.** (fig. 2, 22, 100–106)

Kim, Han 2001: 285; Korneyev, 2004: 408; Nartshuk, Korneyev, 2005: 9 (*Parageloemyia*).

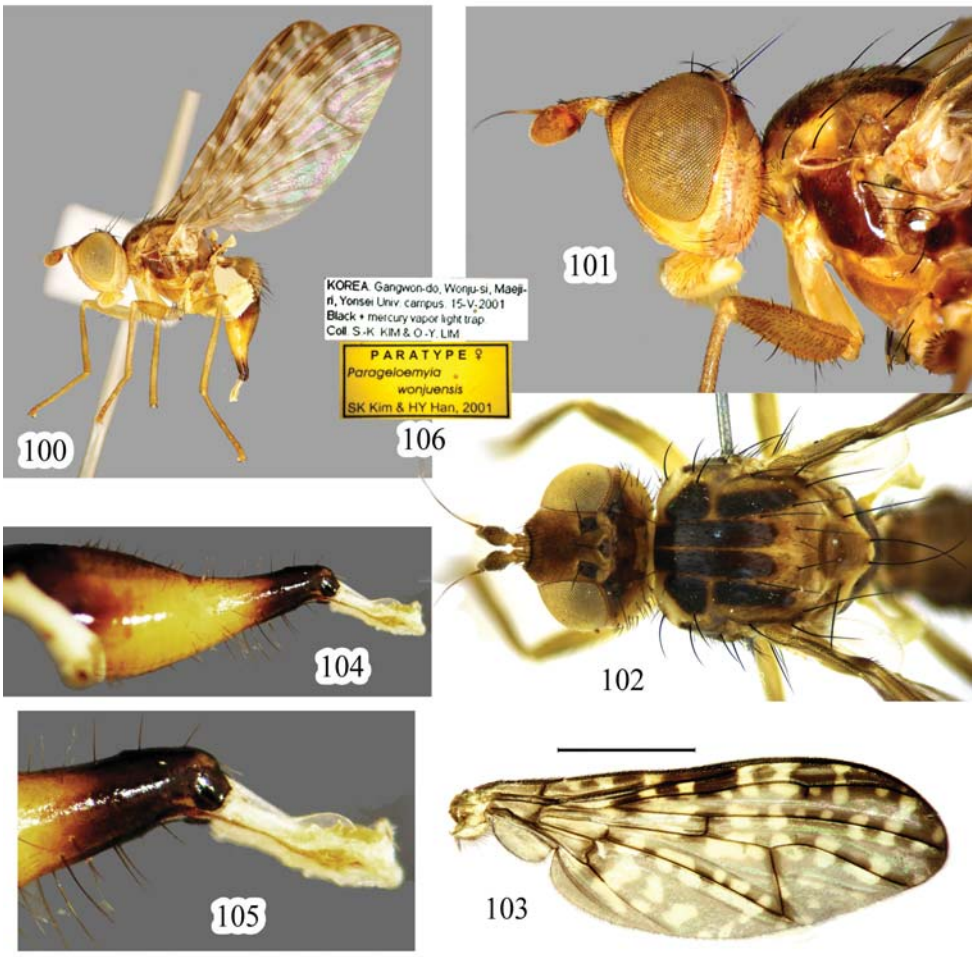

Fig. 100–106. *Geloemyia wonjuensis*, paratype ♀ (SIZK): 100 — habitus; 101 — head, lateral view; 102 — mesonotum, dorsal view; 103 — wing; 104 — oviscape and eversible membrane; 105 — same, apex, enlarged; 106 — labels. Scale bar 2 mm.

Material. Paratypes 1 ♂, 3 ♀, Gangweon-do, Weonju-si, Maeji-ri, Yonsei Univ. campus, black + mercury vapor light trap, 29.04.2000 (S.-K. Kim) (SIZK).

Brief redescription. This species can be recognized from combination of the head with narrow parafacial dorsally as long as flagellomere 1; face slightly receding, with ventral portions of antennal grooves not protruding, and peristomal cavity nearly as long as eye horizontal diameter; ocellar setae moderately long, one-third as long as medial vertical seta; two orbital setae (fig. 101); wing gray microtrichose, mottled with a pattern of irregular spots (fig. 2, 103); vein R_{2+3} without or rarely with spurious vein; vein R_{4+5} bare; crossvein dm-cu oblique, forming angle c. 60° with vein CuA_1; mesonotum (fig. 102) with no presutural, and with 3 postsutural dorsocentral setae and strong prescutellar acrostichal seta; scutellum with 2 pairs of setae no setulae; female fore tarsus with unmodified preapical and apical tarsomeres; female mid femur without femoral organ; oviscape 1.6–2.1× as long as preabdominal tergites combined, its apex with at least three long preapical ventral setae (fig. 104–105); eversible membrane with moderately long mediodorsal and medioventral lobes, short lateral lobes; aculeus barbed. Male genitalia as figured by Kim & Han (2001: fig. 17).

Wing length 7.0–8.5 mm.

Detailed description and illustrations are given by Kim & Han (2001).

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