

Revision of the *Euagathis* species (Hymenoptera: Braconidae: Agathidinae) from Wallacea and Papua

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The species of the genus *Euagathis* Szépligeti, 1900 (Braconidae: Agathidinae) from Wallacea and Papua (including Northeast Australia and Solomon Islands) are revised and keyed. Thirty-three species are recognized, of which 11 are new: *Euagathis brevitibialis* spec. nov. from Papua New Guinea; *E. dejongi* spec. nov. from Indonesia (Sulawesi); *E. fuscistigma* spec. nov. from Papua New Guinea; *E. kendariensis* spec. nov. from Indonesia (Sulawesi); *E. maculata* spec. nov. from Papua New Guinea; *E. mellifacies* spec. nov. from Papua New Guinea (Bougainville Island); *E. mellisoma* spec. nov. from Indonesia (Papua); *E. minutoides* spec. nov. from Indonesia (Sulawesi); *E. novabritanica* spec. nov. from Papua New Guinea (New Britain); *E. raymondi* spec. nov. from Indonesia (Papua); and *E. toxopeusi* spec. nov. from Indonesia (Papua).

Euagathis maculipennoides nom. nov. is a new name for *Euagathis maculipennis* Szépligeti, 1902, not Brullé, 1846. *Agathis etnella* Cameron, 1907, is a new synonym of *Cremnops variceps* (Cameron, 1907) and *Euagathis papua* Cameron, 1906, of *E. novaguineensis* Szépligeti, 1900. New combinations are: *Biroia cameroni* (Enderlein, 1920); *Cremnops papuana* (Cameron, 1907); *C. varipilosella* (Cameron, 1911); *C. variiceps* (Cameron, 1907); and *Zelomorpha maculipes* (Cameron, 1911).

Introduction

The members of the subfamily Agathidinae Nees, 1814 (Hymenoptera: Braconidae), from East Indonesia (now generally known as Wallacea and consisting of Sulawesi, the Moluccas or Spice Islands and the Lesser Sunda Islands) and the Papuan region (New Guinea, Solomon Islands and Northeast Australia) are hardly known and, consequently, no reliable keys to the species are available, except for the genus *Euagathis* Szépligeti, 1900, from Sulawesi (Simbolotti & van Achterberg, 1990). In this area, most members of the genus *Euagathis* are conspicuous among the braconids, but rather rarely collected. The genus *Euagathis* has a Palaeotropical and SE Palaearctic distribution, with most of the species in the Indo-Australian region. The key to the Oriental *Euagathis* species published by Bhat & Gupta (1977), proved to be unreliable for the identification of the described species, and in addition several new ones have been discovered; therefore, a new key had to be made. More reliable keys to part of the SE Asian *Euagathis* species have been published by Simbolotti & van Achterberg (1990, 1995) and van Achterberg & Chen (2002) for the species from Sulawesi, the Sunda area, and China and northern Vietnam, respectively. Study of the variation of most species is severely hampered by the lack of specimens, so the key presented here is just a start to a better understanding of the diversity of the genus in the area treated in this paper.

The phylogenetic position of the subfamily Agathidinae is in the Sigalphoid subgroup of the Helconoid lineage (Quicke & van Achterberg, 1990), and being the most speciose part of it. The Sigalphoid subgroup is placed near the base of the Helconoid lineage by Belshaw & Quicke (2002). The unique combination of length and number of central microtubules of axoneme and mitochondrial derivatives of the mature spermatozoa indicate a position comparatively close to the cyclostome clade (Quicke, 1994). The subfamily as treated by Quicke & van Achterberg (1990) is certainly monophyletic, possessing several autapomorphies, e.g. the shape of its sperm, the presence of a distinct pre-apical bulla in the vein r-m of the fore wing (figs 81, 114), the specialized tergal glands on the sixth and seventh metasomal tergites of the males (Buckingham & Sharkey, 1988), and the basally extremely narrow and rather long marginal cell of the fore wing (fig. 1). Additional apomorphies concern the loss of the occipital carina, and of the vein CU1b of the fore wing, and the posteriorly diverging veins m-cu and 1-M of the fore wing (van Achterberg, 1993).

The genus *Euagathis* has been placed in the tribe Disophrini Sharkey, 1992, separated from the tribe Cremonoptini Sharkey, 1992 (= Vipionini sensu van Achterberg, 1993) by Sharkey (1992). The tribe Disophrini is recognized because its members have the ovipositor curved and short (length of its sheath less than half the length of the metasoma), the hind basitarsus with a serrate ventral row of setae, and the tarsal claws are not pectinate. Obviously, its members seem to be specialized for parasitizing more or less exposed hosts (Sharkey, 1992), which agrees with the few hosts known for *Euagathis* species. The biology of most species is unknown, but in general the Agathidinae are koinobiont endoparasitoids of larvae of Lepidoptera. Some species of the genus *Euagathis* Szépligeti have been reared as larval parasitoids of Lymantriidae and Arctiidae (Bhat & Gupta, 1977; Simbolotti & van Achterberg, 1995; van Achterberg & Chen, 2002). The record of a tortricid (for *E. cryptophlebiae* Viereck, 1913; Shenefelt, 1970) is incorrect because the holotype of *E. cryptophlebiae* belongs to the genus *Bassus* Fabricius. Larvae of Tortricidae are in any case too small to support *Euagathis* species and they have a concealed way of life.

For the identification of the subfamily Agathidinae, see van Achterberg (1990, 1993, and 1997) and for the terminology used in this paper (except for the stigmal spot), see van Achterberg (1988, 1993). The stigmal spot is a well defined and more or less circular dark brown patch below the parastigma present in many species (figs 39, 44, 52, 162; fig. 113 in Bhat & Gupta, 1977; figs 19-21, 26-28 in Simbolotti & van Achterberg, 1995). The ramellus is the short vein externally connected to the second submarginal cell of the fore wing (figs 19, 106, 114, 182).

Genus *Euagathis* Szépligeti, 1900

Euagathis Szépligeti, (Jan.) 1900: 62; Shenefelt, 1970: 408; Bhat & Gupta, 1977: 183; Chou & Sharkey, 1989: 186; Sharkey, 1992: 441; Simbolotti & van Achterberg, 1995: 6; Sharkey, 1996: 21, 1998: 531; van Achterberg & Chen, 2002: 311. Type-species (designated by Viereck, 1914): *Euagathis bifasciatus* Szépligeti, 1900 [examined].

Chromomicrodus Ashmead, (July) 1900: 129; Shenefelt, 1970: 409. Type species (by original designation): *Chromomicrodus abbotti* Ashmead, 1900 [examined]. Synonymized by Baltazar, 1961.

Holcotroticus Cameron, 1902: 41; Shenefelt, 1970: 417; Sharkey, 1992: 441. Type species (by original designation): *Holcotroticus ruficollis* Cameron, 1902 [examined]. Synonymized by Simbolotti & van Achterberg, 1995.

Balcemena Cameron, 1903: 130; Shenefelt, 1970: 368; Sharkey, 1992: 441. Type species (by original designation): *Balcemena longicollis* Cameron, 1903 [examined]. Synonymized by van Achterberg & Chen, 2002.

Diagnosis.— Length of fore wing 7-16 mm; head distinctly elongated ventrally, malar space distinctly longer than basal width of mandible (figs 4, 5, 22); antenna distinctly longer than body, with 42-60 segments, its apex acute and without apical spine (figs 12, 14); labio-maxillary complex not enlarged (fig. 5); area between antennal sockets with a pair of crests (fig. 3); area behind antennal sockets slightly depressed (fig. 3) or flat; frons without lateral carinae (fig. 3), at most with a pair of non-carinate elevations; temple in lateral view concave medio-posteriorly (fig. 5); precoxal sulcus present and (largely) crenulate or costate (fig. 5); notauli present (figs 5, 6), but sometimes shallow; scutellum with crest-like elevation subposteriorly (fig. 6); propodeal spiracle medium-sized to large and elliptical (figs 11, 34, 95); propodeum (partly) areolate and costulae usually (largely) present (figs 11, 207); vein M+CU of hind wing shorter than vein 1-M (figs 1, 249); hind wing with 4-12 hamuli; fore tarsal claw bifurcate, its inner tooth large (fig. 2); all middle and hind tarsal claws similar, with smaller inner tooth (figs 7, 8), all species have inner tooth of hind claws minute or almost absent, but in the Sunda area some species occur with rather large inner tooth and almost bifurcate claws; fore tibial spur about 0.7 times fore basitarsus, without long glabrous apical spine (fig. 13); length of inner middle spur 0.3-0.6 times middle basitarsus; outer face of middle tibia without sub-medial pegs, only with 1-3 pegs apically (fig. 10); hind trochantellus with its lower edges rounded, without ventral carinae; hind basitarsus with serrate ventral row of strong setae; first metasomal tergite usually smooth, but it may be partly or completely sculptured, without lateral depressions (fig. 133) or depressions slightly developed (fig. 11), but sometimes rather distinctly depressed (fig. 232), its length 1.0-2.7 times its apical width, and laterope present (fig. 5); second and third tergites smooth; second metasomal suture at most slightly impressed dorsally (fig. 11); ovipositor short, gradually narrowed apicad, without teeth and curved downwards (fig. 5); ovipositor sheath subparallel-sided, apically subtruncate, glabrous ventrally, and about as long as apical height of metasoma (fig. 5).

Distribution.— Indo-Australian, SE Palaearctic, Afrotropical.

Biology.— Koinobiont endoparasitoids of caterpillars of Lymantriidae and Arctiidae.

Key to species of the genus *Euagathis* Szépligeti from Wallacea and Papua

1. Second metasomal suture comparatively widely impressed (figs 96, 232), distinct; first tergite of ♀ longitudinally depressed sublaterally near middle of tergite (figs 96, 232); metapleural flange absent; notauli distinctly crenulate, ending submedially and mesoscutum flat medio-posteriorly (figs 95, 233); costulae of propodeum absent or nearly so (figs 95, 233); laterally temples straight (fig. 92) or slightly concave (fig. 236); length of fore wing 14-15 mm; length of ovipositor sheath 0.03-0.05 times fore wing (but unknown of *E. tobiasi*); Sulawesi; ("Balcemena" Cameron, 1903") 2
- Second metasomal suture absent (fig. 11) or obsolescent (fig. 37); first tergite of ♀

- without or with weak sublateral depressions (figs 21, 37, 229); metapleural flange present, more or less protruding (fig. 5); notauli smooth or reduced or if finely crenulate, then ending more posteriorly and mesoscutum depressed medio-posteriorly (figs 23, 34, 49, 103, 165, 252); costulae of propodeum usually present (figs 11, 23, 34, 82, 110), but sometimes reduced or absent (figs 134, 141); laterally temples slightly concave (figs 26, 32) or straight (figs 75, 108); length of fore wing 6-14 mm, rarely up to 16 mm (*E. flava*); length of ovipositor sheath usually 0.08-0.11 times fore wing (but unknown of *E. maculata*, *E. maculipennoides*, *E. mellifacies*, *E. minutoides*, *E. pulcha*, *E. toxopeusi*, and *E. vermiculata*, and 0.05-0.07 times in *E. flava*, *E. dejongi* and *E. magnifica*) 3
2. Vertex and frons (including setae) yellowish-brown; vertex distinctly punctate; length of eye in dorsal view about 1.6 times temple and temples straight laterally (fig. 92); first subdiscal cell of fore wing (except basally) largely dark brown (fig. 91); third-sixth metasomal tergites yellowish-brown; Southeast Sulawesi *E. kendariensis* spec. nov.
- Vertex and frons (including setae) black; vertex punctulate; length of eye in dorsal view about 1.2 times temple and temples slightly concave laterally (fig. 236); first subdiscal cell of fore wing largely yellowish (fig. 231); third-sixth tergites black; North Sulawesi *E. tobiasi* van Achterberg, 2004
 - 3. Wings completely dark brown (fig. 137) **and** length of fore wing 11-15 mm; if from Wallacea then hind leg and propodeum completely black (but not so in species from Papua) 4
 - Wings at least basally yellowish or with yellowish patch or band below pterostigma (figs 1, 15, 29, 52, 106); if (nearly) completely dark brown or with only small part yellowish (figs 73, 129), then length of fore wing less than 10 mm; and if from Sulawesi then hind leg and propodeum often largely reddish or yellowish 11
 - 4. Stemmaticum protruding between posterior ocelli in lateral view (figs 199, 255); eyes in lateral view smaller (fig. 250); occipital flange less developed and less protruding (fig. 250); scapus dark brown or black; vertex coarsely sculptured (figs 197, 251); mesoscutum less tuberculate (fig. 254) and without pair of anterior depressions (figs 198, 252) 5
 - Stemmaticum not protruding between posterior ocelli in lateral view (figs 214, 221, 243); eyes in lateral view comparatively large (figs 210, 217); occipital flange wide and rather angularly protruding (figs 83, 174, 210, 217), but less developed in *E. toxopeusi* (fig. 244); scapus reddish-brown; vertex largely smooth (figs 138, 218, 241); mesoscutum usually distinctly protruding (figs 173, 212, 222, 247) but hardly protruding in *E. interdicta* (fig. 88) and with two shallow longitudinal depressions subanteriorly more or less developed (fig. 219) 6
 - 5. Vertex black, and rugose-vermiculate (fig. 251), and with small triangular depression behind stemmaticum (fig. 251); stemmaticum more protruding in lateral view (fig. 255); mesoscutum blackish, strongly vermiculate, and with rather deep posterior depression (fig. 252); occipital flange comparatively narrow (fig. 250); crenulae of precoxal sulcus very short (fig. 256); Sulawesi *E. vermiculata* Simbolotti & van Achterberg, 1990
 - Vertex dark reddish-brown, punctate or rugose (fig. 197) and at most with linear depression behind stemmaticum (fig. 197); stemmaticum less protruding in lateral

- view (fig. 199); mesoscutum (dark) reddish-brown, rugose, and with comparatively weak depression (fig. 198); occipital flange comparatively wide; precoxal sulcus with somewhat longer crenulae; Sulawesi *E. punctata* Szépligeti, 1902
6. Metapleuron, and to a lesser degree epipleuron of second metasomal tergite, densely yellowish pubescent (fig. 224); lamellae between antennal sockets narrowly separated (fig. 218); scutellum with short longitudinal carina medio-posteriorly (fig. 223); epomia double (figs 220, 222); precoxal sulcus widely crenulate (fig. 224); pronotum with shallow medial pronope (fig. 220); Sulawesi
..... *E. subpilosa* Simbolotti & van Achterberg, 1990
- Metapleuron and epipleuron of second tergite normally setose; lamellae between antennal sockets more separated (figs 138, 211, 241); scutellum without longitudinal carina posteriorly (figs 89, 141, 178, 216); epomia single (fig. 212); precoxal sulcus comparatively narrow, with shorter crenulae; pronope absent (fig. 211) 7
7. Propodeum and metapleuron black; first metasomal tergite strongly convex medially and coarsely obliquely rugose laterally (fig. 213); hind femur distinctly rugose ventrally, black; mesoscutum with oblique rugae medio-posteriorly; Sulawesi
..... *E. rufoscapa* Simbolotti & van Achterberg, 1990
- Propodeum and metapleuron reddish-brown; first tergite at most moderately convex medially and smooth laterally (figs 85, 176, 242); hind femur sparsely to densely punctate ventrally, yellowish or dark brown; mesoscutum without oblique rugae medio-posteriorly (figs 141, 246) 8
8. Head black; hind tibia nearly completely yellowish; occipital flange narrow and hardly protruding (fig. 244); [tegulum yellowish and humeral plate dark brown; base of hind tibia with dark brown band]; Indonesia (Papua)
..... *E. toxopeusi* spec. nov.
- Head largely or completely yellowish-brown; apical half of hind tibia dark brown or blackish; occipital flange wide and rather angularly protruding (figs 83, 139, 174) 9
9. Hind coxa, basal 0.6 of hind tibia and metasoma black; notauli deeply impressed and finely crenulate anteriorly (fig. 173); middle lobe of mesoscutum distinctly convex, coarsely punctate, distinctly higher than lateral lobe in lateral view (fig. 173); scutellum densely sculptured (fig. 178); Papua New Guinea, Indonesia (Papua) *E. novaguineensis* Szépligeti, 1900
Note.— The mesoscutum may be distinctly punctate and rather depressed medio-posteriorly (e.g. in type of *E. papua* Cameron) but seems to be too variable to be used for the recognition as a separate status as species. Lectotype of *E. novaguineensis* has the hind femur, fore and middle trochantelli dark brown and the hind femur comparatively sparsely punctate, but the hind femur is yellowish-brown and densely punctate in a female in RMNH.
- Hind coxa, and basal 0.6 of hind tibia yellowish; metasoma pale yellowish; notauli hardly impressed and smooth anteriorly (figs 88, 141); middle lobe of mesoscutum weakly convex, largely smooth, and hardly higher than lateral lobe in lateral view (fig. 88); scutellum sparsely to moderately sculptured (figs 89, 141) 10
10. Scapus, stemmaticum and medio-dorsal patch of face blackish; hind tibia blackish ventrally; antero-dorsal area of propodeum punctate (fig. 141); subposterior carina of scutellum obsolescent (fig. 141); Indonesia (Papua) *E. mellisoma* spec. nov.
- Scapus, stemmaticum and face completely yellowish-brown; hind tibia yellowish-brown ventrally; antero-dorsal of propodeum largely smooth (fig. 82); subposterior

- carina of scutellum strong (fig. 89); Indonesia (Papua) *E. interdicta* (Smith, 1865)
11. Vertex largely or completely black **and** hind femur dark brown or brown; fore wing largely or almost entirely brown, at most basal quarter subhyaline or yellowish (figs 146, 152, 182) or basally dark brown and with yellowish patch or band below pterostigma (fig. 106), but basal half yellow in *E. dejongi* (fig. 29); second submarginal cell frequently with ramellus (figs 106, 114, 182, 200); at least apical third of metasoma completely blackish or dark brown 12
- Vertex reddish, yellowish, or with restricted black pattern **and/or** hind femur reddish or yellowish; at least basal 0.4 of fore wing yellowish (figs 1, 15, 44, 52, 73, 121); ramellus of second submarginal cell absent or nearly so (figs 1, 15, 52, 67), except in *E. flava* and *E. brevitibialis* (figs 19, 41); metasoma yellowish, rarely apically dark brown or blackish 20
12. Mesosoma completely black; notauli completely crenulate (fig. 158); mesoscutum coarsely punctate-vermiculate or punctate medially (fig. 158); area between ocelli and eyes rather coarsely punctate (fig. 154); base of hind tibia largely dark brown; frons rather concave (fig. 154); scutellum rather convex medially (fig. 161), coarsely punctate, and anteriorly without carina (fig. 158) 13
- Mesosoma (except posteriorly) largely yellowish-brown or brownish-yellow; notauli often largely smooth (figs 34, 110, 134, 207); mesoscutum largely smooth or sparsely punctate medially (figs 34, 110, 134, 207); area between ocelli and eyes largely smooth at most moderately punctate (figs 32, 131, 203); base of hind tibia pale yellowish or dark brown; frons rather flat (figs 108, 131, 203, but rather concave anteriorly in *E. dejongi* (fig. 32)); scutellum usually nearly flat medially, and anteriorly often with carina (figs 148, 207) 14
13. Ocelli protruding above stemmaticum (fig. 159); mesoscutum coarsely punctate medially (fig. 158); first metasomal tergite 1.5-1.8 times as long as its apical width (fig. 157); basal cell of fore wing subhyaline apically (fig. 152); hind femur comparatively robust (fig. 160); second submarginal cell of fore wing without ramellus (fig. 152); vein 1-M curved posteriorly (fig. 152); [hind tibia coarsely rugose]; Sulawesi *E. minutoides* spec. nov.
- Ocelli not protruding above stemmaticum (fig. 186); mesoscutum coarsely punctate-vermiculate medially; first tergite about 2.2 times as long as its apical width (fig. 183); basal cell of fore wing brownish apically (fig. 182); hind femur slender (fig. 184); second submarginal cell of fore wing with distinct ramellus (fig. 182); vein 1-M of fore wing straight or nearly so posteriorly (fig. 182); Sulawesi *E. paraminuta* Simbolotti & van Achterberg, 1990
14. Temples in dorsal view distinctly concave laterally (fig. 32); basal 0.4-0.5 of wings yellow, contrasting with dark brown apical half of wings (fig. 29); first metasomal tergite brownish-yellow; length of fore wing about 13 mm; precoxal sulcus widely crenulate; frons rather concave behind antennal sockets (fig. 32); ovipositor sheath comparatively wide, flattened (fig. 36); Sulawesi *E. dejongi* spec. nov.
- Temples in dorsal view straight laterally (figs 108, 131, 203); basal half of wings brown or dark brown, not contrasting with apical half of wings (figs 106, 129, 146, 200); first tergite black or dark brown; length of fore wing less than 8 mm; precoxal sulcus moderately crenulate; frons nearly flat behind antennal sockets (figs 108, 131, 203); shape of ovipositor sheath unknown 15

15. Hind femur comparatively robust (fig. 149); hind basitarsus less elongate (fig. 149); basal half of metasoma black; scutellum with deep subparallel-sided depression medially, anteriorly bordered by strong carina (fig. 147); first metasomal tergite comparatively robust (fig. 150); Sulawesi
E. minuta Simbolotti & van Achterberg, 1990
- Hind femur more slender (figs 109, 120, 136, 196, 208); hind basitarsus elongate (figs 116, 189); basal half of metasoma yellowish-brown; scutellum weakly convex or concave medially (figs 110, 134, 195, 207); first tergite less robust (figs 113, 115, 133, 190, 204) 16
 - 16. Base of hind tibia and apex of hind femur dark brown; mesoscutum brownish-yellow; propodeum with large to medium-sized areola (figs 134, 188, 207); first metasomal tergite black or yellowish, if yellowish then strongly contrasting with dark brown second tergite; ramellus of second submarginal cell variable (figs 129, 187, 200); area below base of pterostigma dark brown (figs 129, 187, 200) 17
 - Base of hind tibia and apex of hind femur yellowish-brown; mesoscutum more or less brown; propodeum with incomplete or small areola (fig. 110); colouration of first and second tergites not contrasting, both yellowish or dark brown; ramellus of second submarginal cell present (figs 106, 114); area below base of pterostigma weakly pigmented (figs 106, 114) 19
 - 17. First metasomal tergite yellowish, contrasting with blackish second tergite, clypeus yellowish and face blackish; areola of propodeum large (fig. 188); metapleuron coarsely punctate ventrally, without distinct interspaces; flagellum brownish; scutellum distinctly punctate (fig. 195); Papua New Guinea
E. pulcha Szépligeti, 1902
 - First tergite blackish, not contrasting with blackish second tergite; clypeus black or yellowish, similar to colour of face; areola of propodeum comparatively small (figs 134, 207); metapleuron moderately punctate ventrally, with distinct interspaces; flagellum dark brown; scutellum weakly sculptured (figs 134, 207) 18
 - 18. Clypeus and face blackish; malar flange medium-sized (fig. 202); crests between antennal sockets strongly developed (fig. 203); hind coxa yellowish-brown; apical half of hind tibia brownish ventrally and laterally; epipleuron of second metasomal tergite ivory dorsally; second submarginal cell of fore wing comparatively large and with ramellus (fig. 200); Indonesia (Papua) *E. raymondi* spec. nov.
 - Clypeus and face brownish yellow; malar flange large (fig. 132); crests between antennal sockets weakly developed (fig. 131); hind coxa blackish; apical half of hind tibia completely dark brown; epipleuron of second tergite black dorsally; second submarginal cell of fore wing small and without ramellus (fig. 129); Bougainville Island *E. mellifacies* spec. nov.
 - 19. First and second metasomal tergites dark brown; head more elongate (fig. 111); fore wing with comparatively wide yellowish band (fig. 106); pterostigma largely yellow; hind coxa and femur dark brown; punctures of area below precoxal sulcus more or less coalescent; Papua New Guinea *E. maculata* spec. nov.
 - First and second tergites yellowish-brown; head less elongate (fig. 119); fore wing with comparatively small yellowish patch (fig. 114); pterostigma dark brown; hind coxa and femur yellowish-brown; punctures of area below precoxal sulcus remain separated; Papua New Guinea [= *E. maculipennis* Szépligeti, 1902, not Brullé, 1846] *E. maculipennoides* nom. nov.

20. Apical 0.5-0.6 of fore wing of female largely dark brown (figs 41, 121) **and** apex of hind tibia yellow dorsally; fore wing without pale yellowish band or patch below base of pterostigma (figs 41, 121); fore wing comparatively wide (figs 41, 121); notauli and mesoscutum entirely smooth; scutellum with distinct transverse carina anteriorly and longitudinal carinae (sub)laterally (figs 42, 127); [length of hind femur about 4 times its width (fig. 126)] 21
- Apical 0.2-0.4 of fore wing of female largely dark brown (figs 1, 39, 52, 58), remainder of wing yellowish with only apical rim of hind wing infuscate **or/and** apex of hind tibia dark brown dorsally; fore wing with pale yellowish band below base of pterostigma (fig. 1) **or** largely brownish, without distinct dark brown parts (fig. 73); fore wing usually more elongate (figs 1, 15, 52, 67, 162); notauli variable, sometimes with microcrenulae and/or crenulae near depression (figs 49, 103); scutellum usually without anterior and (sub)lateral carinae (figs 23, 46, 55, 68, 74, 165) 22
21. Hind tarsus yellow; second submarginal cell of fore wing with distinct ramellus (fig. 41); carinae of scutellum regular, laterally situated (fig. 42); Sulawesi *E. flava* Szépligeti, 1902
- Hind tarsus largely dark brown; second submarginal cell of fore wing without ramellus (fig. 121); carinae of scutellum irregular, partly on disk of scutellum (fig. 127); Sulawesi *E. magnifica* Simbolotti & van Achterberg, 1990
22. Length of first metasomal tergite 1.3-1.4 times its apical width (figs 60, 229); length of hind femur 3.5-4.6 times its width **and** scutellum with strong lateral carina and slightly concave (fig. 40); pterostigma largely dark brown; mesoscutum punctulate or punctate 23
- Length of first tergite 1.6-2.3 times its apical width (figs 11, 21, 56, 79, 166); length of hind femur (3.6)-4.8-7.0 times its width; if 3.6-5.2 times then scutellum with indistinct lateral carina and antero-medially slightly convex (fig. 55) and pterostigma may be largely yellow; mesoscutum distinctly sculptured, mainly punctate 25
23. Apical 0.4 of fore wing dark brown, contrasting with yellowish remainder of wing (fig. 39); fore wing with distinct parastigmal spot (fig. 39); scapus black or largely so; frons medially and stemmaticum blackish; length of hind femur 3.5-4.2 times its width; mesoscutum punctulate or punctate 24
- Apical 0.4 of fore wing yellowish-brown, hardly darker than remainder of wing (fig. 58); fore wing without distinct parastigmal spot (fig. 58); scapus, frons medially and stemmaticum yellowish-brown; length of hind femur about 4.6 times its width (fig. 65); mesoscutum punctate; New Guinea *E. fulvipennis* Szépligeti, 1900
24. Scutellum without distinct carina anteriorly, only slightly angulate and rather convex; mesoscutum punctate; length of hind femur about 4.2 times its width; area below precoxal sulcus sparsely punctate; notauli smooth; apical half of antenna yellowish-brown; Sumbawa *E. tambora* Simbolotti & van Achterberg, 1995
- Scutellum with distinct carina anteriorly and laterally, distinctly angulate anteriorly and flat medially (fig. 40); mesoscutum punctulate; length of hind femur about 3.4 times its width; area below precoxal sulcus densely and coarsely punctate; notauli finely crenulate; apical half of antenna black; Halmahera *E. elevata* Bhat & Gupta, 1977
25. Length of hind femur (3.6)-4.8-5.7 times its width; pterostigma largely yellow (except of *E. fuscistigma*); at most apical 0.4 of fore wing of ♀ darkened (except for

- dark area below parastigma); apex of hind tibia dark brown or blackish; scutellum rather flat, or at most convex anteriorly (figs 1, 51, 104); parastigmal spot variable, frequently more or less developed (figs 44, 52) 26
- Length of hind femur 6.4-7.0 times its width; pterostigma largely dark brown, except for its yellowish basal quarter (fig. 67); apical 0.6 of fore wing of ♀ darkened; apex of hind tibia yellowish-brown; scutellum evenly convex medially (fig. 69); fore wing without distinct parastigmal spot (fig. 67); Sulawesi
E. fuscinervis Simbolotti & van Achterberg, 1990
26. Antennae yellow; medio-posterior depression of mesoscutum distinct (fig. 103); dark colouration of wings usually more intense (figs 44, 100); Sulawesi 27
- Antennae (except scapus and pedicellus) dark brown or black, at most apically reddish (*E. bipartita*); medio-posterior depression of mesoscutum comparatively shallow or absent (figs 23, 74, 165, but medium-sized in *E. forticarinata*: fig. 49); dark colouration of wings variable, frequently less intense and rather greyish (figs 73, 162) 28
27. Parastigmal spot of fore wing small, posteriorly only apical 0.2-0.3 of marginal cell dark brown, and apical infuscate part of fore wing ends far from second submarginal cell (figs 100, 105); malar space of ♂ 0.9 times maximal width of eye in lateral view; hind tarsus reddish-brown; Sulawesi
E. lorensis Simbolotti & van Achterberg, 1990
- Parastigmal spot of fore wing large, posteriorly apical 0.8 of marginal cell dark brown, and apical infuscate part of fore wing almost reaching second submarginal cell (figs 44, 47); malar space of ♂ 0.7 times maximal width of eye in lateral view; hind tarsus reddish-yellow; Sulawesi
E. flavicornis Simbolotti & van Achterberg, 1990
28. Mesoscutum and mesopleuron black or dark brown; hind tibia robust basally in dorsal view (fig. 20), tibia dorsally dark brown (but ventrally yellowish-brown); ramellus of fore wing distinct (fig. 19); inner hind tibial spur 0.5 times hind basitarsus; length of hind femur about 4.8 times its width (fig. 28); pterostigma yellow; length of first metasomal tergite about 1.3 times its apical width (fig. 21); Australia (Queensland) *E. brevitibialis* spec. nov.
- Mesoscutum and mesopleuron brownish-yellow; hind tibia slender basally in dorsal view (figs 80, 163), and tibia dorsally more or less brownish-yellow; ramellus of fore wing usually absent (figs 52, 73, 162); if present (fig. 1) then inner hind tibial spur 0.6 times hind basitarsus; hind femur at least 5.2 times as long as wide (figs 9, 48, 171) or pterostigma dark brown; length of first tergite 1.6-2.3 times its apical width (figs 11, 56, 79, 166) 29
29. Pterostigma largely or completely yellowish; second metasomal tergite yellowish-brown; fore tarsus of ♀ less robust (fig. 57); basal 0.4 of fore wing more or less yellowish (figs 1, 52); hind tibia yellowish-brown or dark brown dorso-basally 30
- Pterostigma completely dark brown; second tergite dark brown or black (but yellowish-brown in *E. bipartita*); fore tarsus of ♀ comparatively robust (fig. 169, but comparatively slender in *E. fuscistigma*: fig. 76); basal 0.4 of fore wing more or less infuscate (figs 73, 162, but yellowish-brown in *E. bipartita*: fig. 15); hind tibia dark brown or blackish dorso-basally 31
30. Scutellum rather convex in lateral view (fig. 51), usually without lateral and anterior

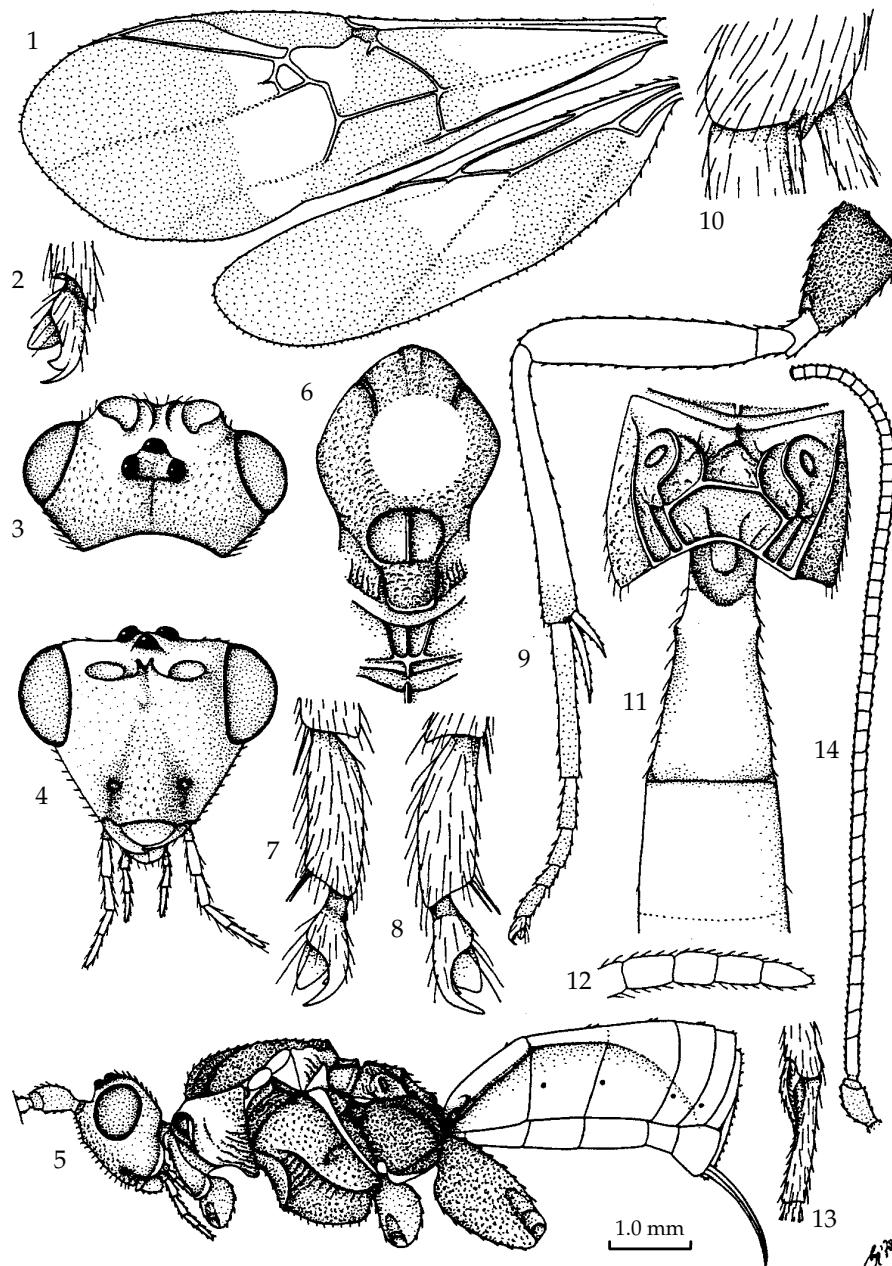
- carinae and consequently its anterior border rounded (fig. 55); stigmal spot of fore wing distinctly developed (fig. 52); notauli more or less finely crenulate anteriorly (fig. 49); metasoma of ♀ yellowish apically; hind tibia more or less dark brown dorso-basally; anteriorly propodeum with very coarse median carina and its surroundings partly smooth and shiny; Oriental, Wallacea
..... *E. forticarinata* (Cameron, 1899)
- Scutellum flat in lateral view (fig. 5), with rather irregular and more or less distinct lateral and anterior carinae and consequently its anterior border truncate (fig. 6); stigmal spot of fore wing absent, not differentiated from dark band below parastigma (fig. 1); notauli smooth anteriorly (fig. 6); apical third of metasoma of ♀ blackish; hind tibia yellowish-brown dorso-basally; anteriorly propodeum with rather weak median carina and its surroundings rather matt and sculptured (fig. 11); Indonesia (Papua) *E. bifasciata* Szépligeti, 1900
31. Fore wing with large but ill-defined stigmal spot (fig. 162); first metasomal tergite ivory (except for a dark subapical spot); hind femur black and slightly less robust (fig. 171); dorsally mesopleuron smooth; basally propodeum smooth between carinae (fig. 165); apical half of third tergite mainly glabrous dorsally; fore and middle tarsi of ♀ comparatively robust (figs 167, 169); New Britain
..... *E. novabritanica* spec. nov.
- Fore wing without stigmal spot (figs 15, 73); first tergite brownish and laterally pale yellowish; hind femur mainly brownish-yellow and more robust (fig. 18, but comparatively slender in *E. fuscistigma*: fig. 77); dorsally mesopleuron sparsely but distinctly punctate; basally propodeum variably sculptured between carinae; apical half of third tergite largely setose; fore and middle tarsi of ♀ slender (fig. 76) 32
32. Basal 0.4 of fore wing rather infuscate, hardly yellowish and no distinct border between darker and paler parts (fig. 73); second metasomal tergite dark brown; propodeum finely rugulose between carinae anteriorly (fig. 74); length of hind femur about 5 times its width (fig. 77); inner hind tibial spur 0.5 times hind basitarsus; Papua New Guinea *E. fuscistigma* spec. nov.
- Basal 0.4 of fore wing bright yellowish and well-separated by a distinct border from darker part of wing (fig. 15); second tergite yellowish-brown; propodeum more or less smooth between carinae anteriorly; length of hind femur about 3.6 times its width (fig. 18); inner hind tibial spur 0.6 times hind basitarsus; Sumba, ? Sabah
..... *E. bipartita* Enderlein, 1920

Descriptions

Euagathis bifasciata Szépligeti, 1900
(figs 1-14)

Euagathis bifasciata Szépligeti, 1900: 62; Shenefelt, 1970: 409; Simbolotti & van Achterberg, 1990: 5, figs 1-13, 1995: 4, figs 1-13; van Achterberg & Chen, 2002: 310, figs 1-13.

Material.— Holotype, ♀ (TMA), “N. Guinea, Biró, [18]96”, “Friedrich-Wilh.-hafen”, “*bifasciatus* det. Szépligeti”, “Holotypus ♀ *Euagathis bifasciatus* Szépl., 1900 % des. Papp, J., 1967”, “Hym. Typ. No. 726 Mus. Budapest”; 1 ♀ (RMNH), “[Indonesia: Papua], Neth. Ind. American New Guinea Expedit., Bernhard Camp, 50 m, vii-xi.1938, J. Olthof”.



Figs 1-14, *Euagathis bifasciata* Szépligeti, ♀, holotype, but 12 from Papua, Bernhard Camp. 1, wings; 2, inner fore claw, inner aspect; 3, head, dorsal aspect; 4, head, anterior aspect; 5, habitus, lateral aspect; 6, thorax, dorsal aspect; 7, inner hind claw, outer aspect; 8, outer hind claw, outer aspect; 9, hind leg; 10, apex of hind tibia, outer aspect; 11, propodeum and first metasomal tergite, dorsal aspect; 12, apex of antenna; 13, fore tibial spur; 14, antenna. 1, 5, 9, 14: 1.0 × scale-line; 2, 7, 8, 10, 12: 5.0 ×; 3, 4, 6, 11, 13: 2.0 ×.

Holotype, ♀, length of body 8.0 mm and of fore wing 7.9 mm.

Head.—Antenna incomplete, 42 segments remaining, length of third segment 1.4 times as long as fourth segment, length of third and fourth segments 3.0 and 2.2 times as long as wide, respectively; length of maxillary palp 0.8 times height of head, palpi rather slender (fig. 4); length of eye in dorsal view 2.0 times temple; temples straight laterally, and directly narrowed (fig. 3); OOL:diameter of ocellus:POL = 6:4:11; face laterally sparsely punctulate, but more dense and rather weakly punctate medially; vertex sparsely weakly punctate; crests between antennal sockets parallel, lamelliform, acute dorsally; occipital flange large, rather wide, its ventral margin subhorizontal; length of malar space 3.0 times basal width of mandible.

Mesosoma.—Length of mesosoma 1.3 times its height; laterally pronotum mainly smooth, dorsally sparsely punctate, and posteriorly rugose, but dorsally mainly absent (fig. 5); subpronope deep, wide and very large, touching each other medially; epomia single; middle lobe of mesoscutum rather sparsely punctate with interspaces wider than diameter of punctures, with pair of shallow grooves and a weak median crest anteriorly and rather flat dorsally in lateral view, lateral lobes coarsely punctate and rather flat near notauli, medio-posteriorly somewhat rugose (fig. 6); notauli complete, narrow, distinctly impressed, and mainly smooth, but partly not visible because of pin; scutellar sulcus with a strong median carina; scutellum rather flat, rugose-punctate, anteriorly with almost complete and lamelliform lateral carina, subposterior crest transverse, long and strong, without longitudinal carinae; mesopleuron (as metapleuron) moderately pilose, area below precoxal sulcus coarsely and densely punctate with interspaces mostly less than diameter of punctures, above sulcus moderately and less densely punctate; precoxal sulcus complete, medium-sized, distinctly and rather densely crenulate and its crenulae medium-sized; metapleural flange obtuse and medium-sized; metapleuron coarsely and densely punctate (fig. 5); antero-medially propodeum somewhat rugose, coarsely areolate and with a partly closed wide areola and costulae distinct (fig. 11), lateral carinae nearly complete and rather strong; spiracles large (fig. 11).

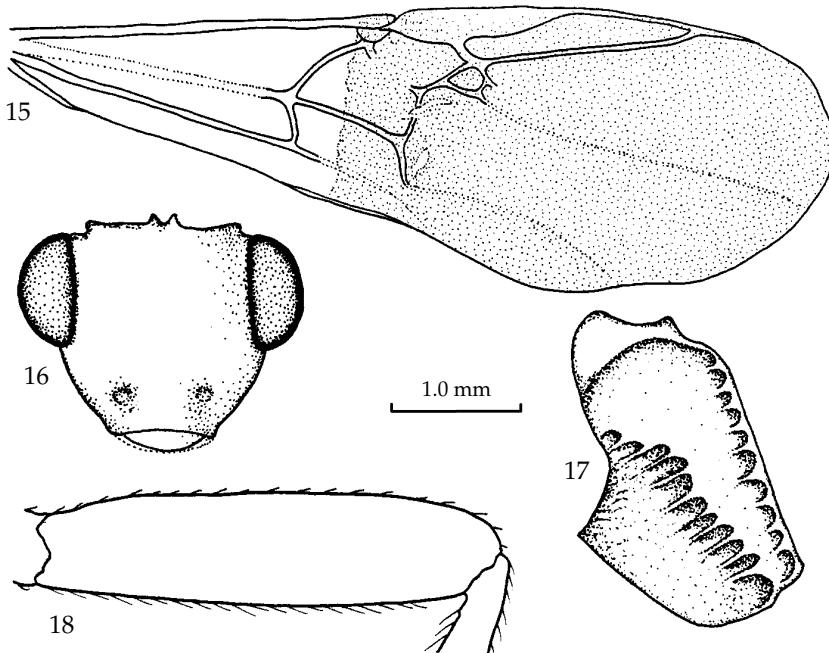
Wings.—Fore wing: second submarginal cell subtriangular, rather narrowed anteriorly, with indistinct ramellus (fig. 1); r:3-SR:SR1 = 4:3:75; SR1 straight; 2-SR:3-SR:r-m = 13:3:12. Hind wing: M+CU:1-M = 30:47.

Legs.—Length of hind femur, tibia and basitarsus 5.2, 7.9 and 7.4 times their width, respectively; hind femur slender (fig. 9), moderately punctate; hind coxa distinctly punctate; length of outer and inner spur of hind tibia 0.4 and 0.6 times hind basitarsus (fig. 9); inner tooth of hind tarsal claws minute (figs 7, 8).

Metasoma.—Slender, smooth; length of first tergite 1.6 times its apical width, tergite rather widened apically, rather flat posteriorly, subbasally slightly convex (fig. 11); second metasomal suture absent; length of ovipositor sheath 0.11 times fore wing, sheath rather wide.

Colour.—Brownish-yellow; antenna (except radix and annellus), ovipositor sheath and apical third of metasoma blackish; hind tibia apically and tarsus largely infuscate; wing membrane and pterostigma pale yellowish, with a wide yellowish band between submedial and apical wide conspicuous dark brown bands (fig. 1).

Distribution.—Papua New Guinea; Indonesia (Papua).



Figs 15-18, *Euagathis bipartita* Enderlein, ♀, holotype. 15, fore wing; 16, head, anterior aspect; 17, mesopleuron; 18, hind femur, lateral aspect. 15, 17: 1.0 × scale-line; 16: 1.1 ×; 18: 2.0 ×. After Simbolotti & van Achterberg (1995).

Euagathis bipartita Enderlein, 1920
(figs 15-18)

Euagathis bipartita Enderlein, 1920: 179; Shenefelt, 1970: 409; Bhat & Gupta, 1977: 220; Simbolotti & van Achterberg, 1995: 20-21, figs 22, 110-112, 114 (redescription).

Material.— Holotype, ♀ (PAN), “[Indonesia], Sumba, Grelak”, “*Euagathis bipartita* Enderl., ♀, Type, Dr. Enderlein, det. 1919”, “Museum Polonicum Warszawa, 12/45”.

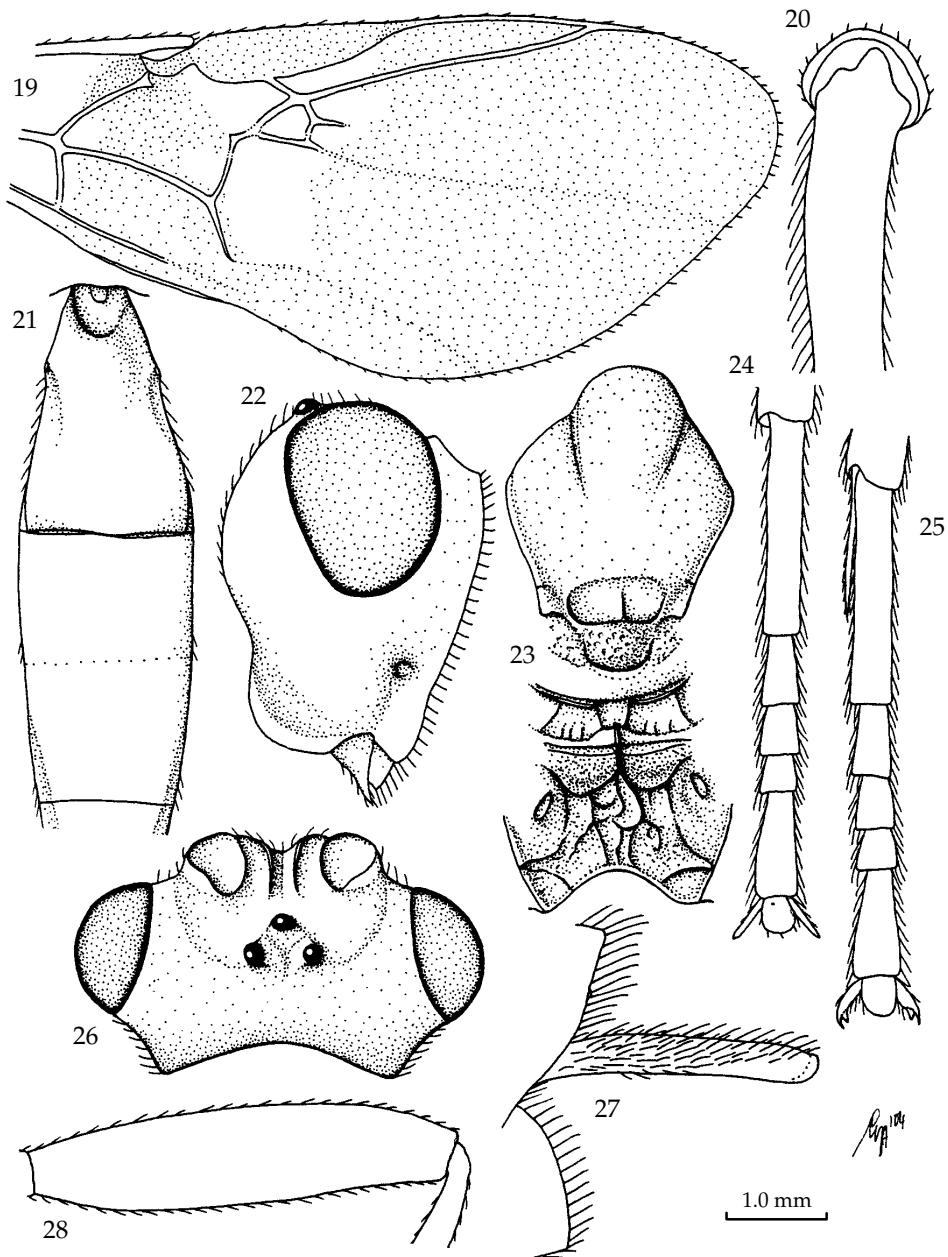
Only known with certainty from the holotype from Sumba. A similar male from Borneo (Sabah, Bettonan, near Sandakan) has been examined but the association is questionable without having the female available.

Distribution.— Indonesia (Sumba).

Euagathis brevitibialis spec. nov.
(figs 19-28)

Material.— Holotype, ♀ (ANIC), “[Australia]: Q[ueensland], Mt Webb Nat. P[ark], 15°04'S 145°07'E, 20-27.iv.1981, I.D. Naumann”.

Holotype, ♀, length of body 12.1 mm, of fore wing 11.4 mm.



Figs 19-28, *Euagathis brevitibialis* spec. nov., ♀, holotype. 19, fore wing; 20, base of hind tibia, dorsal aspect; 21, first-third metasomal tergites, dorsal aspect; 22, head, lateral aspect; 23, mesosoma, dorsal aspect; 24, fore tarsus, dorsal aspect; 25, middle tarsus, dorsal aspect; 26, head, dorsal aspect; 27, ovipositor sheath, lateral aspect; 28, hind femur, lateral aspect. 19: 1.0 × scale-line; 20, 22, 24, 25: 2.5 ×; 21, 23, 28: 1.1 ×; 26: 1.5 ×; 27: 2.5 ×.

Head.— Antenna with 60 segments; length of third antennal segment 1.2 times fourth segment; length of third and fourth segments 2.7 and 2.3 times their width, respectively; length of maxillary palp 0.8 times height of head, basal segments of palpi robust; length of eye in dorsal view 1.9 times temple; temples concave laterally and gradually narrowed behind eyes (fig. 26), in anterior view distinctly narrowed; OOL: diameter of ocellus:POL = 26:7:9; face sparsely punctulate; clypeus rather sparsely finely punctate, medially rather convex and hardly differentiated from face; stemmaticum not protruding; vertex finely and sparsely punctate; crests between antennal sockets subparallel, strong (fig. 26); frons rather concave; occipital flange large, lamelliform, rather wide, its ventral margin subhorizontal (fig. 22); length of malar space 3.0 times basal width of mandible; malar space rather long and densely setose.

Mesosoma.— Length of mesosoma 1.3 times its height; laterally pronotum sparsely punctate dorsally, with a short crenula anteriorly and punctate-crenulate posteriorly and remainder smooth; subpronope deep, large and triangular; epomia single, medium sized and not connected to anterior oblique carina; mesoscutum, medio-posterior half flat and sparsely punctate and lateral lobes rather flat and laterally moderately punctate, with interspaces wider than diameter of punctures, its middle lobe distinctly convex, rather densely punctate but smooth posteriorly, with a weak, mainly smooth median elevation; notauli weakly impressed, absent posteriorly and smooth; scutellar sulcus with a weak median carina; scutellum weakly convex, coarsely and densely punctate, rather steep and rather rounded anteriorly, with weak and irregular lateral carina, and subposteriorly with strong curved, crest-like carina (fig. 23); mesopleuron below precoxal sulcus densely and coarsely punctate with interspaces less than diameter of punctures or subequal, mesopleuron moderately yellowish pilose, above sulcus similarly punctate (but interspaces mostly more than diameter of punctures); precoxal sulcus with medium-sized and strong crenulae, moderately deep but shallow anteriorly; metapleural flange wide, rectangular and lamelliform; metapleuron densely punctate (but less so dorsally), not obscured by long yellowish setae; propodeum densely punctate anteriorly, areola coarse medially, irregular and rather wide, with irregular crenulae, without complete costulae in front of middle of propodeum (but laterally present: fig. 23); spiracles large and elliptical.

Wings.— Fore wing: second submarginal cell subpentangular, with medium-sized ramellus (fig. 19); r:3-SR:SR1 = 5:2:82; 2-SR:3-SR:r-m = 12:2:10. Hind wing: M+CU:1-M = 30:49; surroundings of cu-a rather sparsely setose.

Legs.— Length of hind femur, tibia and basitarsus 4.8, 7.6 and 10.0 times their width, respectively; hind femur densely and moderately punctate, with medium-sized and dense yellowish setosity, tibia with similar brown and tarsus with dark brown setae; hind tibia robust, hardly narrowed subbasally (fig. 20) and distinctly convex apically; length of outer and inner spur of middle tibia 0.3 and 0.5 times their basitarsus, slender; length of outer and inner spur of hind tibia 0.3 and 0.5 times hind basitarsus, respectively, rather slender; fore and middle tarsi slender (figs 24, 25).

Metasoma.— Rather slender, smooth; length of first tergite 1.3 times its apical width, not or hardly depressed sublaterally behind spiracles and without a median crest near it (fig. 21); second tergite without transverse groove; second metasomal suture shallow and narrow; third tergite with sparsely setose subapical band; length of ovipositor sheath 0.10 times fore wing, sheath slender and largely setose (fig. 27).

Colour.— Yellowish-brown (including pedicellus); scapus, head (including stemmaticum), pronotum anteriorly, metapleuron, first metasomal segment, pterostigma (including setae) and veins directly below it and palpi pale brownish-yellow; remainder of antenna, mesonotum, mesopleuron and mesosternum largely, parastigma, apex of vein C+SC+R of fore wing, ovipositor sheath, hind tibia dorsally and hind tarsus black or blackish-brown; hind tibial spurs, and veins in dark brown part of wings brown; hind trochantellus apically, large stigmal spot, area below it and apical 0.4 of fore wing and apical 0.45 of hind wing dark brown; basal 0.4 of fore wing membrane (including small posterior part of vein 1-M) and basal 0.6 of hind wing and a nearly complete band below pterostigma yellow (fig. 19); vein 1-R1 of fore wing brown and its setae blackish.

Distribution.— Australia (Queensland).

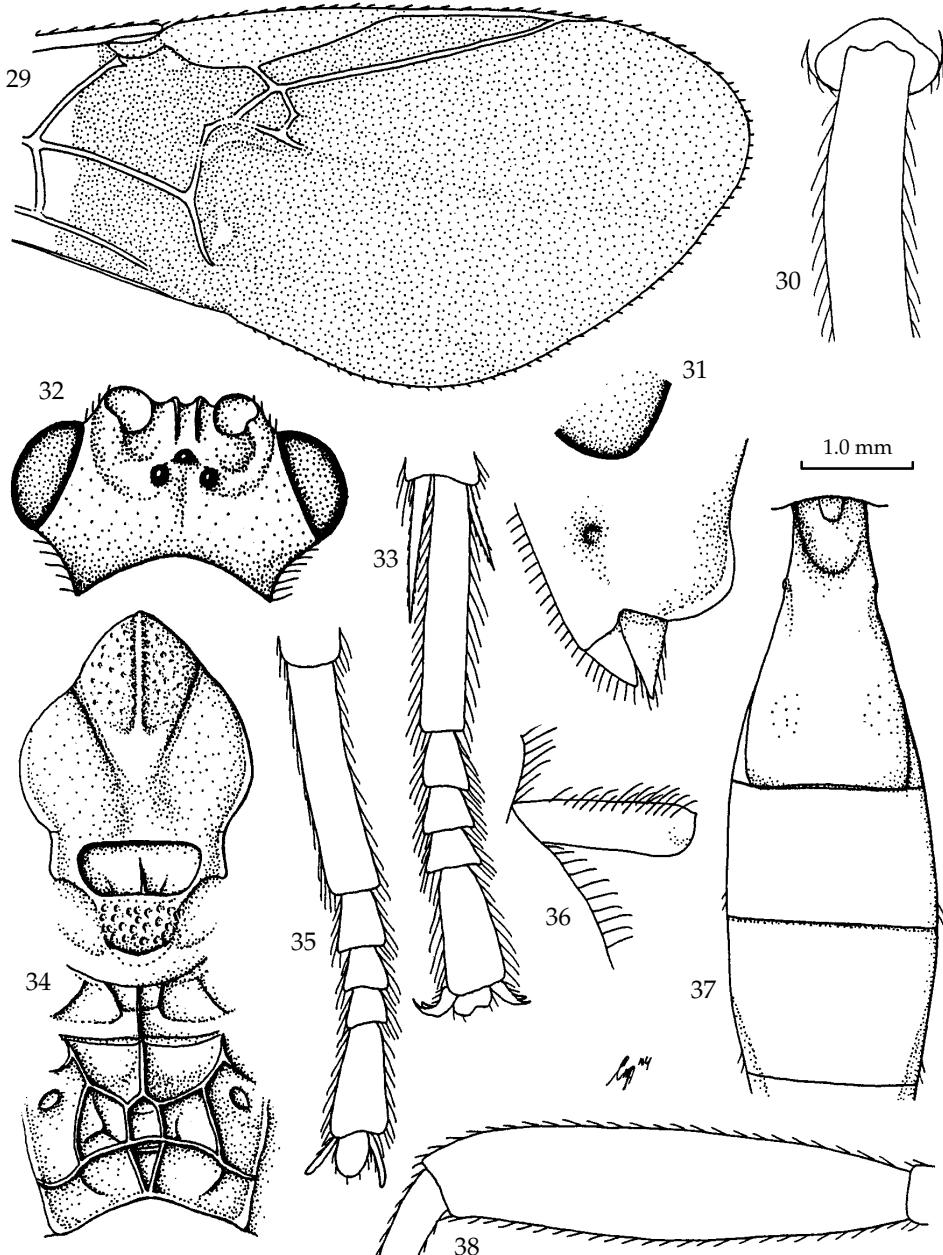
Euagathis dejongi spec. nov.
(figs 29-38)

Material.— Holotype, ♀ (RMNH), “Indonesia: Sulawesi Sel[atan], 27 km W of Palopo, 800 m, cultivations [and] disturbed forest, 20-22.iv.1991, R. de Jong”.

Holotype, ♀, length of body 12.1 mm, of fore wing 13.3 mm.

Head.— Antenna with 61 segments; length of third antennal segment 1.2 times fourth segment; length of third and fourth segments 2.8 and 2.3 times their width, respectively; length of maxillary palp 0.7 times height of head, palpi rather slender; length of eye in dorsal view 1.5 times temple; temples concave laterally and directly narrowed behind eyes (fig. 32), in anterior view directly narrowed below eyes; OOL:diameter of ocellus:POL = 19:5:8; outer side of antennal socket more strongly protruding than normal in the genus and rather concave behind sockets (fig. 32); face rather densely and moderately punctate with interspaces mostly about equal to diameter of punctures; clypeus densely punctate, medially flattened and not differentiated from face; stemmaticum not protruding; vertex distinctly but sparsely punctate; crests between antennal sockets subparallel, strong; occipital flange large, lamelliform, wide, its ventral margin subhorizontal; length of malar space 3.0 times basal width of mandible; malar space long and densely setose.

Mesosoma.— Length of mesosoma 1.3 times its height; laterally pronotum densely punctate dorsally, with a long crenula anteriorly and moderately crenulate posteroventrally and remainder smooth; subpronope deep, large; epomia single; mesoscutum sparsely punctate with interspaces much wider than diameter of punctures except on dorsal face of middle lobe of mesoscutum, medio-posterior half with weakly impressed notaui and lateral lobes weakly convex, lateral lobes medially largely smooth, its middle lobe distinctly convex, smooth posteriorly, with a shallow median crest anteriorly and medially; notaui completely impressed and smooth or nearly so; scutellar sulcus with one strong and two weak sublateral carinae; scutellum flattened, largely coarsely and irregularly punctate, steep and angulate anteriorly, no lateral carina, and subposteriorly with strong curved, crest-like carina (fig. 34); mesopleuron below precoxal sulcus densely and coarsely punctate with interspaces less than diameter of punctures, this area moderately yellowish pilose, above sulcus less punctate (interspaces mostly more than diameter of punctures except posteriorly); precoxal sulcus



Figs 29-38, *Euagathis dejongi* spec. nov., ♀, holotype. 29, fore wing; 30, base of hind tibia, dorsal aspect; 31, detail of malar space, lateral aspect; 32, head, dorsal aspect; 33, middle tarsus, dorsal aspect; 34, mesosoma, dorsal aspect; 35, fore tarsus, dorsal aspect; 36, ovipositor sheath, lateral aspect; 37, first-third metasomal tergites, dorsal aspect; 38, hind femur, lateral aspect. 29, 34, 37: 1.0 × scale-line; 30: 1.5 ×; 31, 36: 1.7 ×; 32: 1.1 ×; 33, 35: 2.0 ×; 38: 0.9 ×.

with long and very strong crenulae, deep; metapleural flange large, semicircular; metapleuron finely and sparsely punctate, not obscured by long yellowish setae, but in front of hind coxa coarsely punctate and with some rugae; propodeum coarsely and completely areolate, anteriorly smooth except for some punctulation, areola narrow and with transverse crenulae, with costulae in front of middle of propodeum complete (fig. 34); spiracles rather large elliptical.

Wings.— Fore wing: second submarginal cell subpentangular, without ramellus except for a short stub (fig. 29); $r_3\text{-SR:SR}_1 = 3:1:36$; $2\text{-SR}:3\text{-SR:r-m} = 11:2:12$. Hind wing: $M+CU:1\text{-M} = 5:8$; surroundings of cu-a normally setose; anteriorly with 12 hamuli.

Legs.— Length of hind femur, tibia and basitarsus 4.6, 8.0 and 7.9 times their width, respectively; hind femur densely and rather coarsely punctate, with medium-sized and dense yellowish setosity, as tibia and tarsus (but of tarsus dark brown) setae; hind tibia rather robust, rather narrowed subbasally (fig. 30) and hardly convex apically; length of outer and inner spur of middle tibia 0.3 and 0.5 times their basitarsus, slender; length of outer and inner spur of hind tibia 0.25 and 0.45 times hind basitarsus, respectively, rather robust and somewhat curved; fore and middle tarsi robust (figs 33, 35).

Metasoma.— Rather slender, smooth (except a small patch of punctures subposteriorly); length of first tergite 1.6 times its apical width, without sublateral depressions behind spiracles and without a median crest near it (fig. 37); second tergite without a transverse groove; second metasomal suture shallowly impressed, narrow; third tergite with apical row of setae; length of ovipositor sheath 0.07 times fore wing, sheath wide and ventral half glabrous (fig. 36).

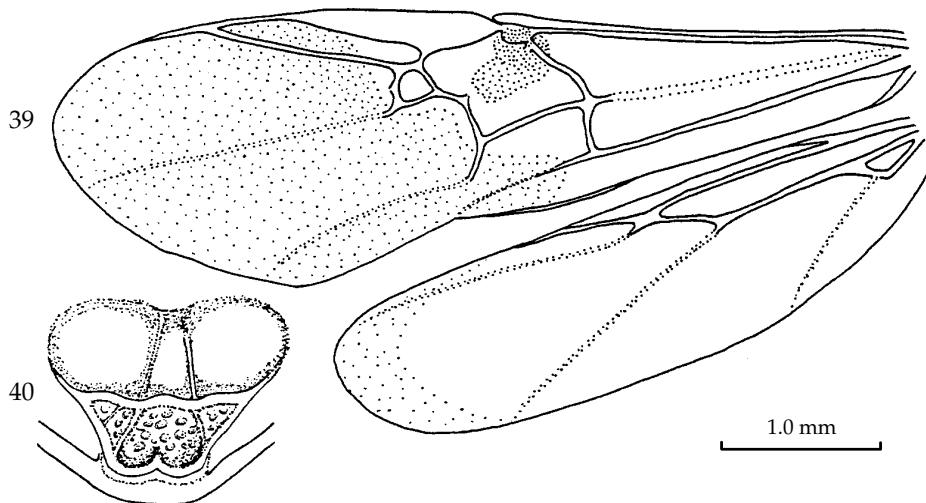
Colour.— Yellowish-brown; antenna (but segments apically more or less narrowly brownish), frons, stemmaticum, vertex, temples and occiput dorsally, apical half of metasoma dorsally, vein $C+SC+R$ apically, parastigma, pterostigma (but basally with small pale patch and including setae), hind tarsus and more or less apical half of hind tibia black or blackish; membrane of basal 0.4 of fore wing and of basal 0.5 of hind wing and their veins yellow; remainder of wings and veins, ovipositor sheath largely, hind femur apically and basal half of hind tibia (except basally) dark brown; vein $1-R_1$ of fore wing brown and its setae dark brown.

Distribution.— Indonesia (Sulawesi).

Note.— It is a real pleasure to name this beautiful species after friend and colleague, the lepidopterist Dr R. de Jong for his important contribution to our knowledge of the butterflies and for collecting several interesting Braconidae.

The new species is closely related (e.g., because of the similarly widened and flattened ovipositor sheath and the wing pattern and shape) to *E. magnifica* Simbolotti & van Achterberg, 1990, from Sulawesi. *E. magnifica* differs by having another colour pattern (e.g., the scapus and pedicellus mainly brownish-yellow and the hind femur and tibia completely yellowish), the ovipositor sheath largely setose in lateral view (fig. 122), the temples laterally straight in dorsal view (fig. 128); the hind femur more robust (fig. 126), the lateral carina of the scutellum present on disk of the scutellum (fig. 127), and the inner hind tibial spur 0.5 times as long as the hind basitarsus.

Resembles *E. philippinensis* Bhat & Gupta, 1977, from Mindanao (South Philippines). This species has the hind femur dark brown; only basal third of fore wing yellowish; the scutellum with only a few punctures, the middle lobe of the mesoscutum



Figs 39-40, *Euagathis elevata* Bhat & Gupta, ♀, holotype. 39, wings; 40, scutellum, dorsal aspect. 39: 1.0 × scale-line; 40: 3.0 ×. After Simbolotti & van Achterberg (1990).

smooth; vein cu-a of the fore wing antefurcal ("basad of basal vein" according to the original description); the ramellus of the fore wing present, the inner hind tibia spur half as long as the hind basitarsus and the second metasomal tergite blackish-brown.

Euagathis elevata Bhat & Gupta, 1977
(figs 39-40)

Euagathis elevatus Bhat & Gupta, 1977: 198-199; Simbolotti & van Achterberg, 1990: 10, figs 71, 72 (redescription), 1995: 24, figs 59, 60 (id.).

Material.— Holotype, ♀ (CNC), "[Indonesia]", Halmahera I., 500 m, Tolewang, x.1951, Wegener", "Holotype, *Euagathis elevatus*, 1975, Bhat & Gupta", "Holotype *Euagathis elevatus*, C.N.C. No 15622", "elevatus K6".

Only known from the type series from the northern Moluccas.

Distribution.— Indonesia (Halmahera).

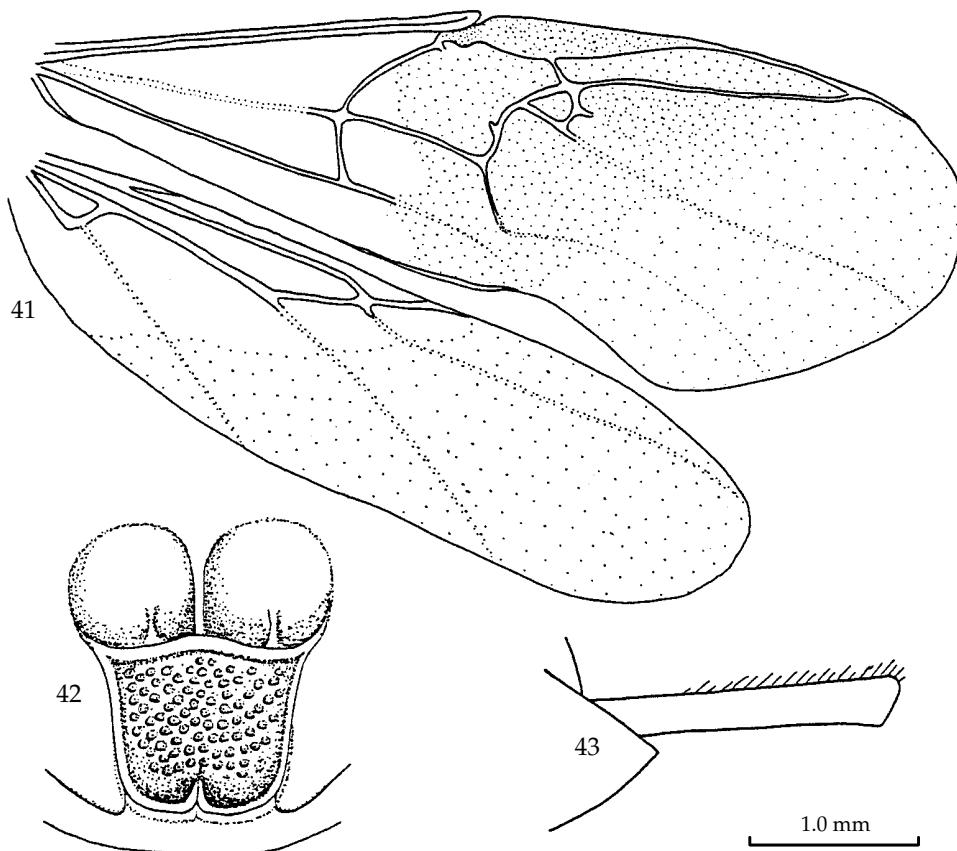
Euagathis flava Szépligeti, 1902
(figs 41-43)

Euagathis flava Szépligeti, 1902: 68; Szépligeti, 1904: 123; Shenefelt, 1970: 411; Simbolotti & van Achterberg, 1990: 10-11, figs 62-64 (redescription).

Material.— Holotype, ♀ (TMA), "[Indonesia]", Celebes, Minahassa", "77b11", "flavus det. Szépligeti", "Holotypus *Euagathis flava* Szépligeti 1902, det. Papp 1967", "Hym. Typ. No. 723, Museum Budapest".

Distribution.— Indonesia (Sulawesi).

Euagathis flavigornis Simbolotti & van Achterberg, 1990



Figs 41-43, *Euagathis flava* Szépligeti, ♀, holotype. 41, wings; 42, scutellum, dorsal aspect; 43, ovipositor sheath, lateral aspect. 41: 1.0 × scale-line; 42: 2.7 ×; 43: 2.4 ×. After Simbolotti & van Achterberg (1990).

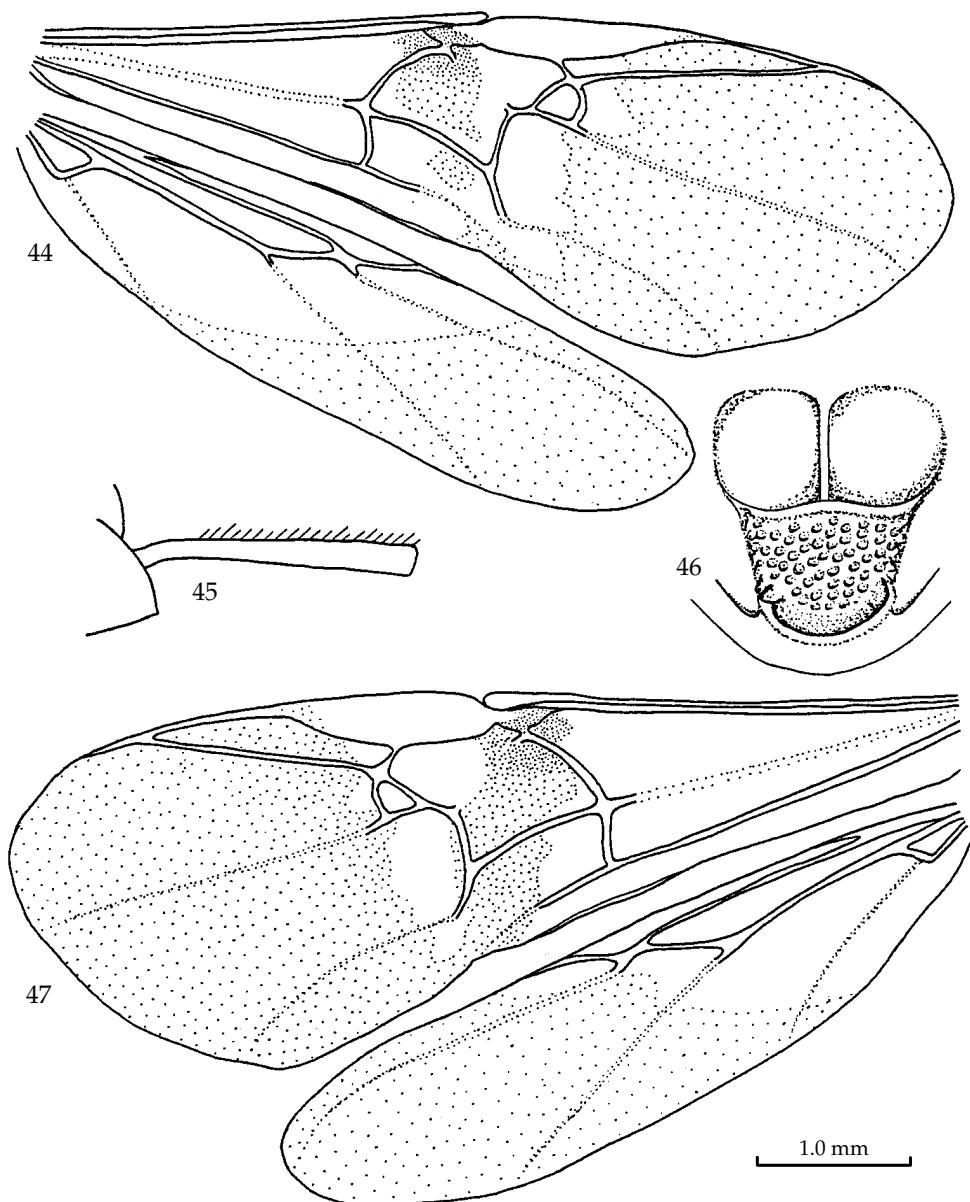
(figs 44-47)

Euagathis flavigornis Simbolotti & van Achterberg, 1990: 11-12, figs 83-86 (description).

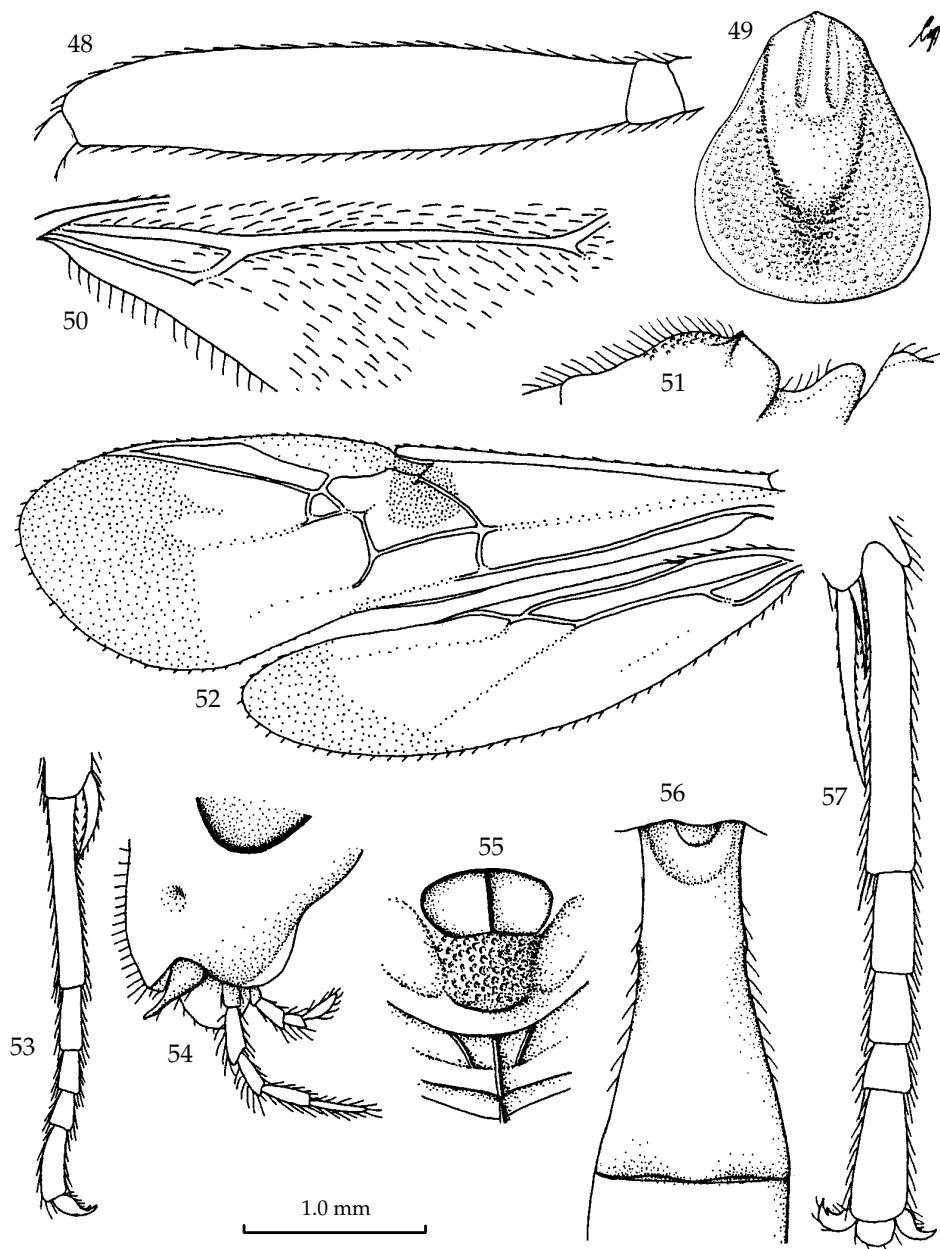
Material.— Holotype, ♀ (RMNH), "Indonesia: N. Sulawesi, Dumoga-Bone N.P., ca 220 m, Mal. trap: Maze Toraut R., 16-23.xi.1985, 0°34'N 123°54'E., C. v. Achterberg, RMNH'86". Paratypes: 1 ♀ + 1 ♂; 1 ♀ (MZB), topotypic and same date; 1 ♂ (RMNH), "RMNH-Project Wallace, Indonesia, N. Sulawesi, 20-26.iv.1985, R. de Jong, J. v.Tol", "Dumoga-Bone N.P. betw. Sg. Toraut & Sg. Tumpah, 220-500 m, 0°34'-35'N 123°52'-54' E., multistr. evergr. forest".

Distribution.— Indonesia (Sulawesi).

Euagathis forticarinata (Cameron, 1899)



Figs 44-47, *Euagathis flavicornis* Simbolotti & van Achterberg, ♀, holotype, but 47 of ♂, paratype. 44, 47, wings; 45, ovipositor sheath, lateral aspect; 46, scutellum, dorsal aspect. 44, 47: 0.6 × scale-line; 45: 1.0 ×; 46: 1.2 ×. After Simbolotti & van Achterberg (1990).

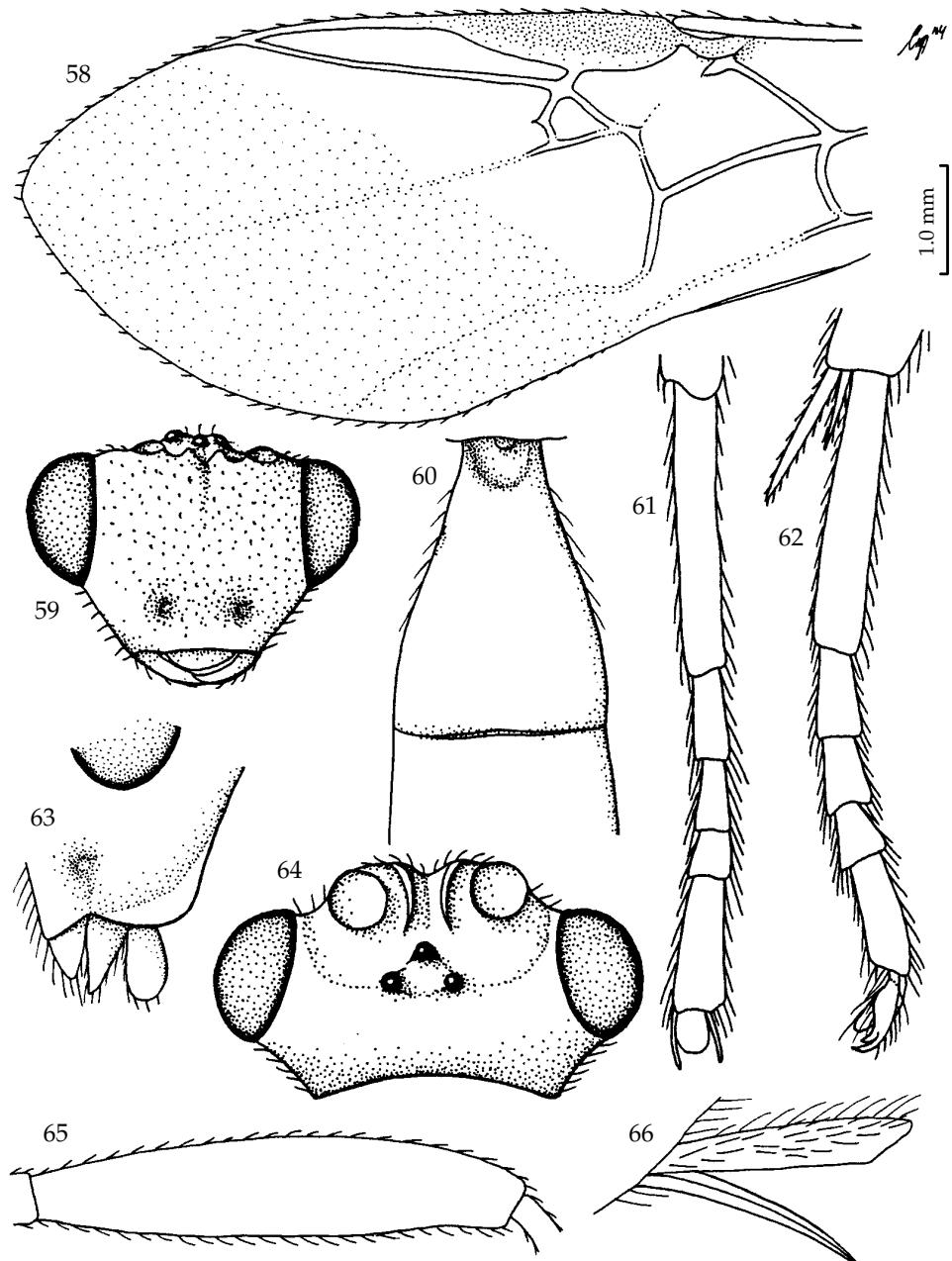


Figs 48-57, *Euagathis forticarinata* (Cameron), ♂, lectotype of *E. nigritarsis* (Cameron), but 48, 57 of ♀, India, Sikkim, Nam Nam; 49, ♀, holotype of *E. pallida* Fullaway; and 50, ♀, Vietnam, Thuong Cuu. 48, hind femur, lateral aspect; 49, mesoscutum, dorsal aspect; 50, detail of base of hind wing; 51, scutellum, lateral aspect; 52, wings; 53, fore tarsus, lateral aspect; 54, malar space and palpi; 55, scutellum, dorsal aspect; 56, first metasomal tergite, dorsal aspect; 57, middle tarsus, dorsal aspect. 48: 0.8 × scale-line; 49: 2.0 ×; 50: 1.8 ×; 52: 0.6 ×; 51, 53-56: 1.5 ×; 57: 1.8 ×.

(figs 48-57)

- Agathis forticarinata* Cameron, 1899: 86-87; van Achterberg & O'Toole, 1993: 18 (lectotype designation).
Euagathis forticarinata; Baltazar, 1963: 3; Shenefelt, 1970: 411; Bhat & Gupta, 1977: 216-218, figs 26c, 28c, 29e, 31g; Simbolotti & van Achterberg, 1990: 12-14, figs 73-76, 1995: 25-28, figs 31-35, 90-94 (redescription, synonymy); van Achterberg & Chen, 2002: 329-331, figs 62-71, 79 (synonymy, variation).
- Agathis nigritarsis* Cameron, 1899: 87-88; van Achterberg & Chen, 2002: 329 (synonymy with *E. forticarinata*).
- Cremonops nigritarsis*; Shenefelt, 1970: 387; Bhat & Gupta, 1977: 267.
- Euagathis nigritarsis*; van Achterberg & O'Toole, 1993: 27.
- Agathis peronata* Cameron, 1899: 89-91; van Achterberg & O'Toole, 1993: 31 (synonymy with *E. forticarinata*).
- Euagathis peronata*; Shenefelt, 1970: 413; Bhat & Gupta, 1977: 218-219.
- Agathis lepcha* Cameron, 1907: 113.
- Euagathis lepcha*; Shenefelt, 1970: 411; Dover, 1925: 40 (synonymy); Bhat & Gupta, 1977: 217.
- Euagathis pallida* Fullaway, 1919: 51; Baltazar, 1966: 218; Shenefelt, 1970: 413; Simbolotti & van Achterberg, 1990: 12 (synonymy with *E. forticarinata*).
- Euagathis variabilis* Enderlein, 1920: 175; Shenefelt, 1970: 415; Bhat & Gupta, 1977: 231-232, fig. 29f; Simbolotti & van Achterberg, 1995: 26 (synonymy with *E. forticarinata*).
- Euagathis variabilis* var. *tibialis* Enderlein, 1920: 176; Shenefelt, 1970: 416; Simbolotti & van Achterberg, 1995: 26 (synonymy with *E. forticarinata*).
- Euagathis variabilis* var. *melanogaster* Enderlein, 1920: 177; Shenefelt, 1970: 415; Simbolotti & van Achterberg, 1995: 26 (synonymy with *E. forticarinata*).
- Euagathis variabilis* var. *melanopleura* Enderlein, 1920: 177; Shenefelt, 1970: 415; Simbolotti & van Achterberg, 1995: 26 (synonymy with *E. forticarinata*).
- Euagathis variabilis* var. *tonkinensis* Enderlein, 1920: 176; Shenefelt, 1970: 416; Simbolotti & van Achterberg, 1995: 26 (synonymy with *E. forticarinata*).
- Euagathis variabilis* var. *sucarandana* Enderlein, 1920: 176 (δ , not lectotype φ); Shenefelt, 1970: 416; Simbolotti & van Achterberg, 1995: 26 (synonymy with *E. forticarinata*).
- Euagathis bipunctata* Enderlein, 1920: 179-180; Shenefelt, 1970: 410; Simbolotti & van Achterberg, 1995: 26 (synonymy with *E. forticarinata*).
- Euagathis hongkongensis* Fullaway, 1919: 52; Shenefelt, 1970: 411; van Achterberg & Chen, 2002: 330 (synonymy with *E. forticarinata*).
- Euagathis varuni* Bhat & Gupta, 1977: 234-235, figs 30d, 31e; van Achterberg & Chen, 2002: (synonymy with *E. forticarinata*).
- Euagathis nigrithorax* Bhat & Gupta, 1977: 235-236, figs 30f, 31f; van Achterberg & Chen, 2002: 330 (synonymy with *E. forticarinata*).
- Euagathis transcarinata* Bhat & Gupta, 1977: 236-238, figs 27a, 29h, 31a; van Achterberg & Chen, 2002: 330 (synonymy with *E. forticarinata*).

Material.— Lectotype of *E. forticarinata*, φ (OUM), “*Agathis forticarinata* Cam., Type, Khasia [India]”, “675”; lectotype of *E. nigritarsis*, δ (BMNH), “*Agathis nigritarsis* Cam., Type, Khasia”, “3.c.918”; holotype of *E. varuni*, φ (USNM), “India, Assam, Doom Doma, 29.v.1943, D.E. Hardy”, “Holotype *Euagathis varuni* Bhat & Gupta, 1975”; 1 δ (USNM), “Malaya, Selangor, Kepong”, “in forest”, “viii.1949, Army scrub Typhus Unit”, “Allotype *Euagathis varuni* Bhat & Gupta, 1975”; holotype of *E. pallida*, φ (BPBM), “Makassar, Celebes, F. Muir, Dec. 1908”, “Type *Eugathis pallida*”; 1 φ + 1 δ (RMNH), “Indonesia: C. Sulawesi, Lore-Lindu N.P., ca 975 m, 1°15'S 120°20'E, 9.xii.1985, nr Dongi-Dongi shelter, C.v.Achterberg, RMNH'86”; 2 δ (RMNH, MZB), topotypic but 11.xii.1985; 1 δ (RMNH), topotypic, at light, 3.xii.1985; 2 δ (RMNH), topotypic, but collected 7.xii and 10.xii.1985, respectively; 1 φ + 7 δ (RMNH), “Indonesia: C. Sulawesi, nr Luwuk, Salodik, 300-400 m, 31.x.-3.xi.1989, C. van Achterberg & M. Tulung, RMNH'89”; 1 φ + 5 δ (RMNH, MZB), “Indonesia: C. Sulawesi, nr Batui, Seseba-Siku, 50-75 m, 24.x-6.xi.1989, C. van Achterberg & M. Tulung, RMNH'89”; 3 δ (RMNH, MZB), “Indonesia:



Figs 58-66, *Euagathis fulvipennis* Szépligeti, ♀, holotype. 58, fore wing; 59, head, anterior aspect; 60, first metasomal tergite, dorsal aspect; 61, fore tarsus, dorsal aspect; 62, middle tarsus, dorso-lateral aspect; 63, detail of malar space, lateral aspect; 64, head, dorsal aspect; 65, hind femur, lateral aspect; 66, ovipositor sheath, lateral aspect. 58: 1.0 × scale-line; 59: 1.3 ×; 60: 1.8 ×; 61, 62: 2.6 ×; 63, 64: 2.0 ×; 65: 1.1 ×; 66: 2.9 ×.

C. Sulawesi, nr Batui, Seseba-Siku, c 50 m, 24.x.1989, Mal. trap 20, C. van Achterberg, RMNH'89"; 1 ♀ (RMNH), "Indonesia: C. Sulawesi, nr Batui, Seseba, c 375 m, 24.x-6.xi.1989, Mal. trap 19, C. van Achterberg, RMNH'89"; 3 ♀♀ + 1 ♂ (RMNH, MZB), "Indonesia: C. Sulawesi, nr Luwuk, Bunga, c. 300 m, 21-31.x.1989, Mal. trap 16, C. van Achterberg, RMNH'89"; 3 ♀♀ + 1 ♂ (RMNH, MZB), id., but 1-14.xi.1989, Mal. trap 17; 1 ♂ (RMNH), id., but 1-14.xi.1989, Mal. trap 15; 1 ♂ (RMNH), "Indonesia: C. Sulawesi, nr Luwuk, Bunga, c. 300 m, 21.x.1989, RMNH, C. van Achterberg"; 4 ♂♂ (RMNH, ZMB), "Indonesia: SE. Sulawesi, nr Sanggona, Mt. Watuwila Base Camp, c. 200 m, 14-15.x.1989, C. van Achterberg, RMNH'89"; 1 ♀ + 3 ♂♂ (RMNH, ZMB), "Indonesia: SE. Sulawesi, nr Sanggona, Base Camp, Gn. Watuwila, c. 200 m, 15.x-5.xi.1989, Mal. trap 6, C. van Achterberg, RMNH'89"; 1 ♂ (RMNH), "Indonesia: Sulawesi, nr Bantimurung, Ciaker Alam (Laya), c. 450 m, 20.iv.1991, C. v. Achterberg, RMNH'91"; 13 ♂♂ (RMNH, ZMB), "Indonesia: Sulawesi, nr Bantimurung, Ciaker Alam (Laya), c. 450 m, 23-28.xi.1991, C. v. Achterberg, RMNH'91"; 1 ♀ (RMNH), "Indonesia: SW Sulawesi, Gn. Bulusaraung, nr Camba, Malawa, Mal. trap 1, c. 800 m, 21.ii-25.iii.1997, C. v. Achterberg & R. de Vries, RMNH'97".

Distribution.— Oriental China (including Hongkong and Taiwan), India, Sri Lanka, Nepal, Burma, Thailand, Vietnam, Malaysia (West Malaysia) and Indonesia (Sumbawa, Java, Sumatra, Sulawesi). Not (yet) known from Borneo and from the Papuan region. This species is the only *Euagathis* species known to be common near human settlements in secondary vegetation.

Euagathis fulvipennis Szépligeti, 1900
(figs 58-66)

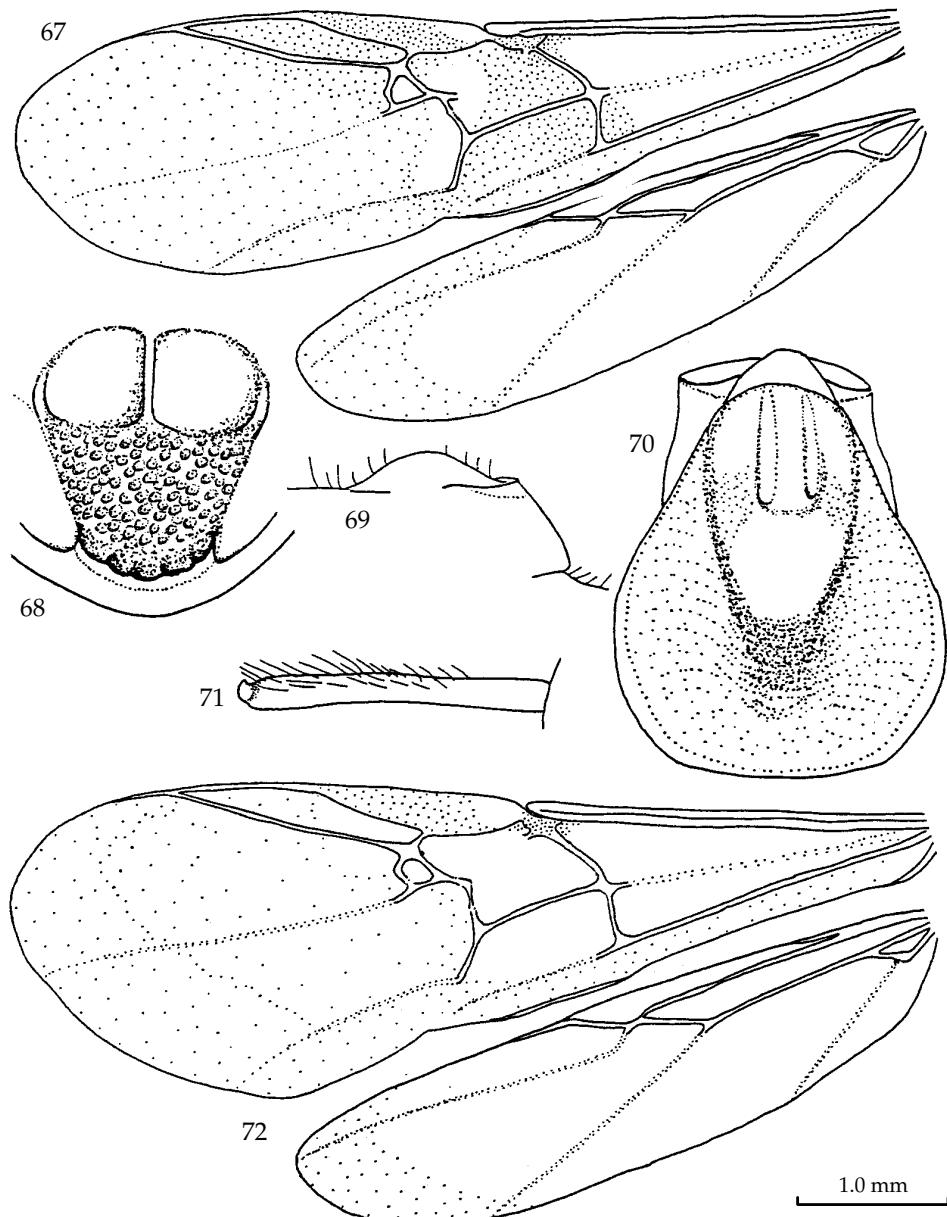
Euagathis fulvipennis Szépligeti, 1900: 63; Shenefelt, 1970: 411.

Material.— Holotype, ♀ (TMA), "[Papua New Guinea], N. Guinea, Fenichel", "*fulvipennis*, det. Szépligeti", "Holotypus ♀ *Euagathis fulvipennis* sp. n. Szépl., 1900/ des. Papp, J., 1967".

Holotype, ♀, length of body 11.7 mm, of fore wing 11.0 mm.

Head.— Antenna incomplete, 52 segments remaining; length of third antennal segment 1.2 times fourth segment; length of third and fourth segments 2.6 and 2.2 times their width, respectively; length of maxillary palp 0.8 times height of head, palpi rather slender; length of eye in dorsal view 1.9 times temple; temples weakly concave laterally (fig. 64) and distinctly narrowed in anterior view; OOL:diameter of ocellus: POL = 13:3:5; face rather densely and coarsely punctate medially, and less densely so laterally; clypeus rather sparsely punctate; stemmaticum not protruding; vertex behind stemmaticum distinctly punctate and laterally sparsely so; crests between antennal sockets subparallel, strong; occipital flange large, wide, its ventral margin oblique (fig. 63); length of malar space 2.8 times basal width of mandible.

Mesosoma.— Length of mesosoma 1.4 times its height; laterally pronotum sparsely punctate dorsally, rugose posteriorly and remainder largely smooth; subpronope deep, large; epomia single; mesoscutum coarsely punctate with interspaces mostly wider than diameter of punctures, medio-posteriorly flat and lateral lobes slightly convex, its middle lobe distinctly convex, without pair of shallow grooves anteriorly; notaui impressed, but rather shallow anteriorly, subanteriorly not pit-like, absent near margin of mesoscutum and completely smooth; scutellum flat, coarsely and rather densely punctate, steep and angulate anteriorly, with strong and complete regular lateral carina, subposteriorly curved, crest-like; mesopleuron below precoxal sulcus



Figs 67-72, *Euagathis fuscinervis* Simbolotti & van Achterberg, ♀, holotype, but 72 of ♂, paratype. 67, 72, wings; 68, scutellum, dorsal aspect; 69, outline of scutellum, lateral aspect; 70, mesoscutum, dorsal aspect; 71, ovipositor sheath, lateral aspect. 67, 72: 1.0 × scale-line; 68, 69: 3.4 ×; 70: 2.5 ×; 71, 2.4 ×. After Simbolotti & van Achterberg (1990).

densely and moderately strongly punctate with interspaces mostly less than diameter of punctures, this area moderately pilose, above sulcus less densely punctate (interspaces more than diameter of punctures); precoxal sulcus with medium-sized and strong crenulae, deep; metapleuron moderately punctate, not obscured by yellowish pilosity; propodeum coarsely areolate, areola rather narrow, with complete and strong costulae near middle of propodeum; spiracles large elliptical.

Wings.—Fore wing: second submarginal cell quadrangular, narrowed anteriorly, with indistinct ramellus (fig. 58); $r_3\text{-SR:SR}_1 = 5:3:106$; $2\text{-SR}:3\text{-SR:r-m} = 14:3:13$. Hind wing: $M+CU:1\text{-M} = 30:57$; surroundings of $cu\text{-a}$ sparsely setose.

Legs.—Length of hind femur, tibia and basitarsus 4.6, 8.6 and 10.6 times their width, respectively; hind femur densely punctate, with moderately long and dense yellowish setosity, tibia and tarsus with shorter (and of tarsus dark brown) setae; length of outer and inner spur of middle tibia 0.45 and 0.55 times their basitarsus, slender; length of outer and inner spur of hind tibia 0.30 and 0.45 times hind basitarsus, respectively, rather slender; fore and middle tarsi rather slender (figs 61, 62).

Metasoma.—Rather slender, smooth; length of first tergite 1.3 times its apical width, flattened sublaterally and without a median groove anteriorly (fig. 60); second metasomal suture absent; third tergite with densely setose apical band; length of ovipositor sheath 0.08 times fore wing, sheath rather wide (fig. 66).

Colour.—Yellowish-brown (including scapus, pedicellus, stemmaticum and veins); remainder of antenna, metasoma (except basally), hind femur dorso-apically, hind tibia dorsally, hind tarsus, hind trochantellus apically, vein $C+SC+R$ apically, parastigma, most of pterostigma (including setae) and ovipositor sheath dark brown or blackish; basal 0.7 of wing membrane fuzzy yellowish (including 1-M), without stigmal spot (fig. 58), and remainder of wing weakly infuscate; vein 1-R1 of fore wing and its setae yellow.

Distribution.—Papua New Guinea.

Euagathis fuscinervis Simbolotti & van Achterberg, 1990
(figs 67-72)

Euagathis fuscinervis Simbolotti & van Achterberg, 1990: 14-15, figs 65-70 (description).

Material.—Holotype, ♀ (RMNH), "Indonesia: C. Sulawesi, Lore-Lindu N.P., ca 1650 m, Lake Tambing, 5-9.xii.1985, C. v. Achterberg, RMNH'86, Mal. Trap 4 (PW56)". Paratype, ♂, (RMNH), topotypic and same date.

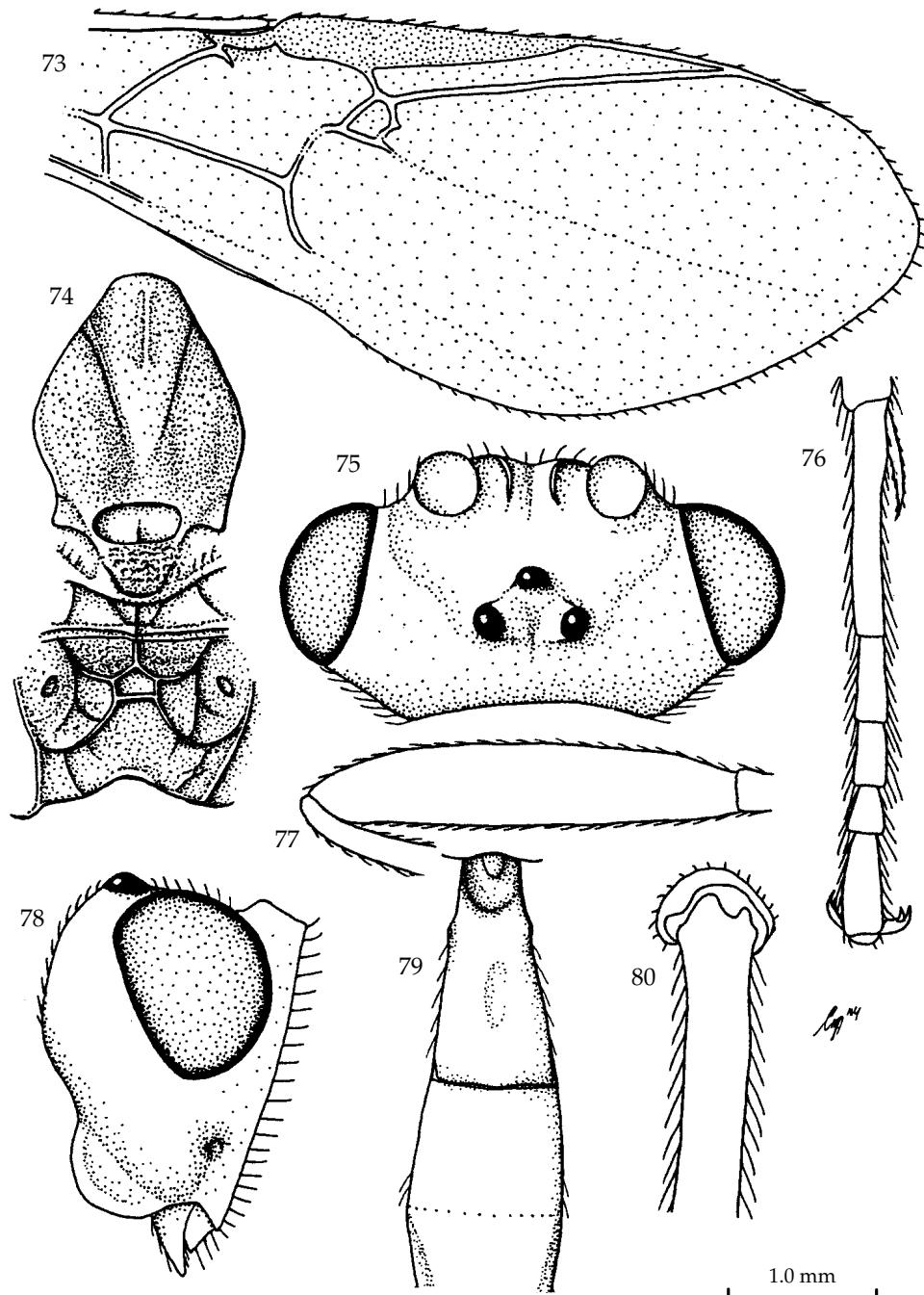
Only known from the type locality in Central Sulawesi; collected in submontane *Pandanus*-dominated swamp forest.

Distribution.—Indonesia (Sulawesi).

Euagathis fuscistigma spec. nov.
(figs 73-80)

Material.—Holotype, ♀ (ANIC), "[Papua] New Guinea, Amazon Bay area, Deria, 700 ft, 11.xii.1962-9.1.1963, W.W. Brandt".

Holotype, ♀, length of body 7.1 mm, of fore wing 8.1 mm.



Figs 73-80, *Euagathis fuscistigma* spec. nov., ♀, holotype. 73, fore wing; 74, mesosoma, dorsal aspect; 75, head, dorsal aspect; 76, fore tarsus, dorsal aspect; 77, hind femur, lateral aspect; 78, head, lateral aspect; 79, first-second metasomal tergites, dorsal aspect; 80, base of hind tibia, dorsal aspect. 73, 77: 1.0 × scale-line; 75, 76, 78, 80: 2.0 ×; 74, 79: 1.3 ×.

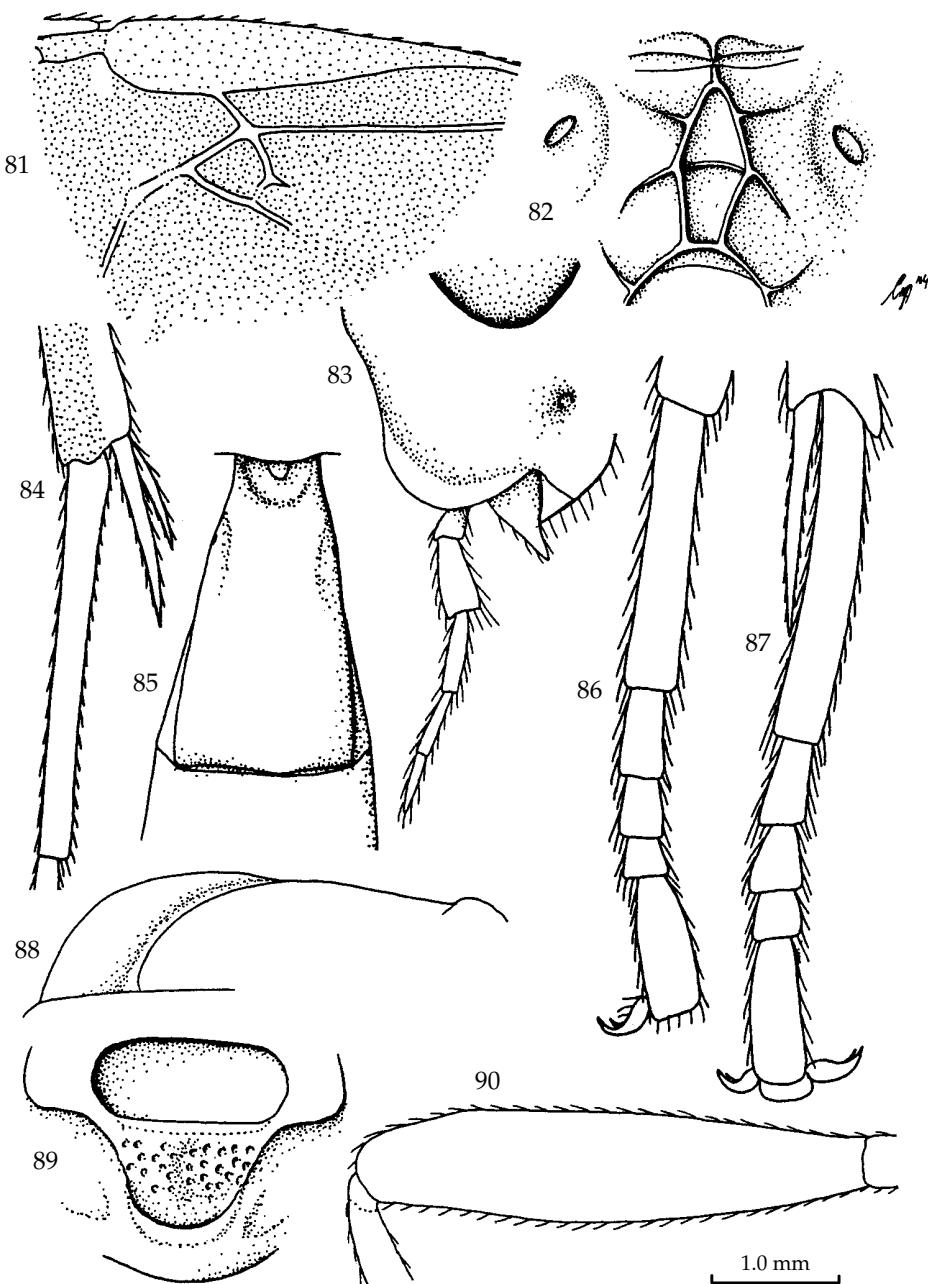
Head.— Antenna incomplete, 46 segments remaining; length of third antennal segment 1.3 times fourth segment; length of third and fourth segments 2.7 and 2.1 times their width, respectively; length of maxillary palp 0.7 times height of head, palpi rather slender; length of eye in dorsal view 1.8 times temple; temples straight laterally and gradually narrowed behind eyes (fig. 75), in anterior view directly narrowed; OOL:diameter of ocellus:POL = 15:5:8; face sparsely punctulate; clypeus sparsely and finely punctate, medially convex and slightly differentiated from face; stemmaticum not protruding; vertex sparsely and finely punctate; crests between antennal sockets subparallel, strong, carinate dorsally; frons nearly flat; occipital flange large, lamelliform, very wide, its ventral margin horizontal (fig. 78); length of malar space 2.9 times basal width of mandible; malar space long and densely setose.

Mesosoma.— Length of mesosoma 1.3 times its height; laterally pronotum sparsely and finely punctate, with some crenulae postero-ventrally; subpronope deep, large; epomia single and short; mesoscutum rather coarsely and partly rather densely punctate with interspaces mostly somewhat less than diameter of punctures, medio-posterior third depressed and lateral lobes rather convex and laterally more coarsely punctate, its middle lobe distinctly convex, with few punctures posteriorly, with a smooth weak median convexity and its surroundings depressed and coarsely punctate; notauli distinctly impressed, complete and nearly completely smooth; scutellar sulcus with short and rather weak median carina; scutellum slightly flattened, rather densely and coarsely punctate, rather steep anteriorly but largely without carina, with distinct lateral carina, and subposteriorly with strong curved, crest-like carina (fig. 74); mesopleuron below precoxal sulcus rather coarsely punctate with most interspaces less than diameter of punctures, this area densely yellowish pilose, above sulcus sparsely punctate; precoxal sulcus with rather long and coarse crenulae, distinctly impressed medially; metapleural flange rather acute and large; metapleuron rather coarsely and densely punctate ventrally and remainder sparser punctate, not obscured by long yellowish setae; propodeum anteriorly rather shiny and superficially sculptured, coarsely areolate medially, areola rather wide and transverse, pentagonal and without transverse crenulae, with coarse costulae in front of middle of propodeum (fig. 74); spiracles large elliptical.

Wings.— Fore wing: second submarginal cell subparallel-sided, without ramellus (fig. 73); r:3-SR:SR1 = 5:2:81; 2-SR:3-SR:r-m = 11:2:10. Hind wing: M+CU:1-M = 20:55; surroundings of cu-a completely glabrous.

Legs.— Length of hind femur, tibia and basitarsus 4.9, 10.2 and 9.6 times their width, respectively; hind femur densely and superficially punctate, shiny, with moderately long and dense yellowish setosity, tibia with similar yellowish-brown and tarsus with dark brown setae; hind tibia rather slender and weakly narrowed subbasally and hardly convex apically; length of outer and inner spur of middle tibia 0.35 and 0.50 times their basitarsus, slender; length of outer and inner spur of hind tibia 0.35 and 0.50 times hind basitarsus, respectively, rather slender; fore and middle tarsi slender (fig. 76).

Metasoma.— Rather slender, smooth; length of first tergite 1.7 times its apical width, hardly or not depressed sublaterally behind spiracles and flat medially (fig. 79); second tergite without transverse groove; second metasomal suture absent; apical half of third tergite largely setose; length of ovipositor sheath 0.10 times fore wing,



Figs 81-90, *Euagathis interdicta* (Smith), ♀, holotype. 81, detail of pterostigma and second submarginal cell of fore wing; 82, propodeum, dorsal aspect; 83, detail of malar space, lateral aspect; 84, hind basitarsus, lateral aspect; 85, first metasomal tergite, dorsal aspect; 86, fore tarsus, dorsal aspect; 87, middle tarsus, dorsal aspect; 88, mesoscutum, lateral aspect; 89, scutellum, dorsal aspect; 90, hind femur, lateral aspect. 81, 90: 1.0 × scale-line; 82: 1.8 ×; 83, 88, 89: 2.0 ×; 84, 85: 1.1 ×; 86, 87: 2.3 ×.

sheath narrow and largely setose.

Colour.— Brownish-yellow (including scapus and pedicellus and stemmaticum); first tergite baso-ventrally, epipleura of first and second epipleura and anteriorly third epipleuron ivory; notum of first tergite mostly brown but mixed with ivory; remainder of antenna, and apical half of metasoma dorsally black; inner side and apex of hind femur and middle telotarsus, brownish; stigmal spot absent; veins (but medial and posterior veins of basal third of wing yellowish), dorsally hind tibia, hind tarsus, second and third tergites (except epipleura), parastigma, pterostigma (but paler posteriorly), vein 1-R1 of fore wing and its setae, and ovipositor sheath dark brown; ventrally hind tibia and hind tibial spurs brown; wing membrane moderately brownish, with basal third of fore wing hardly yellowish.

Distribution.— Papua New Guinea.

Euagathis interdicta (Smith, 1865)
(figs 81-90)

Agathis interdicta Smith, 1865: 67.

Euagathis interdicta; Shenefelt, 1970: 412; van Achterberg & O'Toole, 1993: 22.

Material.— Holotype, ♀ (OUM), “[Indonesia], N [= New Guinea]”, “*Agathis interdicta* Smith”, “*Euagathis interdicta* (Smith, 1865), C. van Achterberg, 1990. Holotype”, “Type Hyme 2187, *Agathis interdicta* Smith, 1865. Holotype ♀ Hope Ent. Coll., OUMNH”.

Very similar to *E. mellisoma* spec. nov. and differs mainly by having the scapus, the stemmaticum and the face completely yellowish-brown, the hind tibia yellowish-brown ventrally, the propodeum near the areola largely smooth and the subposterior carina of the scutellum strongly developed (fig. 89). The holotype was collected by C. Allen, the assistant of A.R. Wallace during his fieldwork in Malaysia and Indonesia. During the period February-June 1861 he was somewhat longer than a month on the mainland of New Guinea, mostly in a hill village near Sorong, on the NW coast of the Vogelkop peninsula (Baker, 2001).

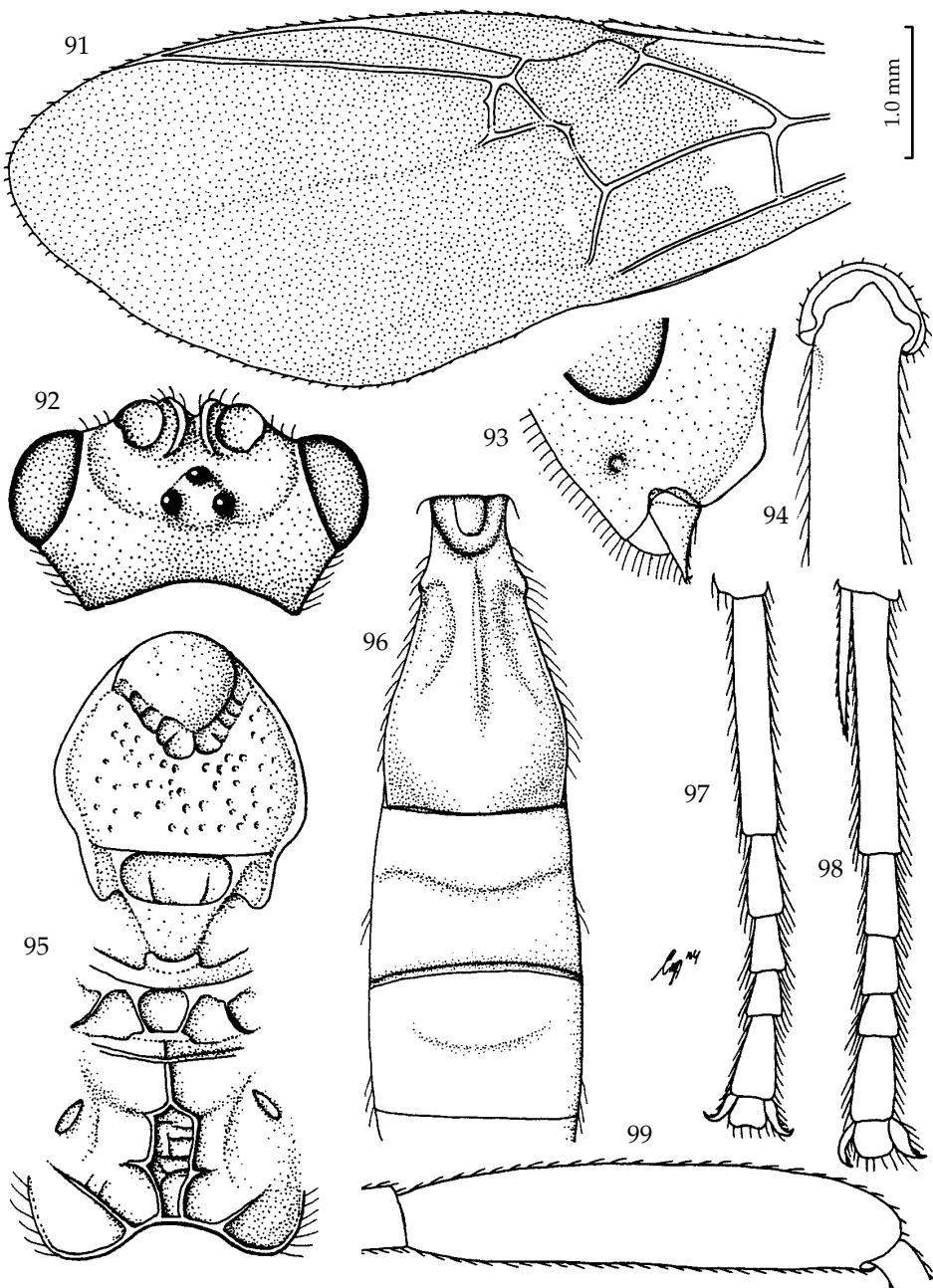
Distribution.— Indonesia (Papua).

Euagathis kendariensis spec. nov.
(figs 91-99)

Material.— Holotype, ♀ (RMNH), “Indonesia: SE Sul[awesi], Kendari, 50 m, 3°57'S 122°36'E, 24.iv.1988, R. Hensen”.

Holotype, ♀, length of body 14.4 mm, of fore wing 14.0 mm.

Head.— Antenna incomplete, 58 segments remaining; length of third antennal segment 1.4 times fourth segment; length of third and fourth segments 3.0 and 2.2 times their width, respectively; length of maxillary palp 0.8 times height of head, palpi rather slender; length of eye in dorsal view 1.6 times temple; temples straight laterally and gradually narrowed behind eyes (fig. 92), in anterior view directly narrowed; OOL:diameter of ocellus:POL = 13:3:5; face rather densely and finely punctate, and



Figs 91-99, *Euagathis kendariensis* spec. nov., ♀, holotype. 91, fore wing; 92, head, dorsal aspect; 93, malar space, lateral aspect; 94, base of hind tibia, dorsal aspect; 95, mesosoma, dorsal aspect; 96, first-third metasomal tergites, dorsal aspect; 97, fore tarsus, dorsal aspect; 98, middle tarsus, dorsal aspect; 99, hind femur, lateral aspect. 91: 0.6 × scale-line; 92: 1.0 ×; 93, 94: 1.5 ×; 95, 99: 0.9 ×; 96: 0.8 ×; 97, 98: 1.3 ×.

punctulate medially; clypeus rather sparsely punctulate, medially flattened and not differentiated from face; stemmaticum not protruding; vertex distinctly but sparsely punctate; crests between antennal sockets subparallel, strong; occipital flange large, lamelliform, wide, its ventral margin oblique (fig. 93); length of malar space 2.1 times basal width of mandible; malar space long and densely setose.

Mesosoma.— Length of mesosoma 1.5 times its height; laterally pronotum sparsely punctulate dorsally, with some crenulae anteriorly and postero-ventrally and remainder smooth; subpronope deep, large; epomia single; mesoscutum sparsely punctate with interspaces much wider than diameter of punctures, medio-posterior third flat and lateral lobes flattened and laterally smooth, its middle lobe distinctly convex, smooth posteriorly, with a shallow median groove anteriorly; notauli distinctly impressed, complete and coarsely crenulate; scutellar sulcus only with 2 sublateral strong carinae; scutellum flattened, partly smooth and partly coarsely and rather densely punctate, steep and angulate anteriorly, no lateral carina, and subposteriorly with strong curved, crest-like carina (fig. 95); mesopleuron below precoxal sulcus sparsely and finely punctate with interspaces much more than diameter of punctures, this area moderately yellowish pilose, above sulcus similarly punctate (interspaces mostly more than diameter of punctures); precoxal sulcus with medium-sized and very strong crenulae, deep; metapleural flange absent; metapleuron finely and sparsely punctate, not obscured by long yellowish setae; propodeum coarsely areolate medially, areola rather narrow and with transverse crenulae, without costulae in front of middle of propodeum (fig. 95); spiracles large elliptical.

Wings.— Fore wing: second submarginal cell subtriangular, without ramellus (fig. 91); $r_3\text{-}SR\text{:}SR_1 = 5:1:93$; $2\text{-}SR\text{:}3\text{-}SR\text{:}r\text{-}m = 13:1:14$. Hind wing: $M+CU\text{:}1\text{-}M = 2:3$; surroundings of cu-a normally setose.

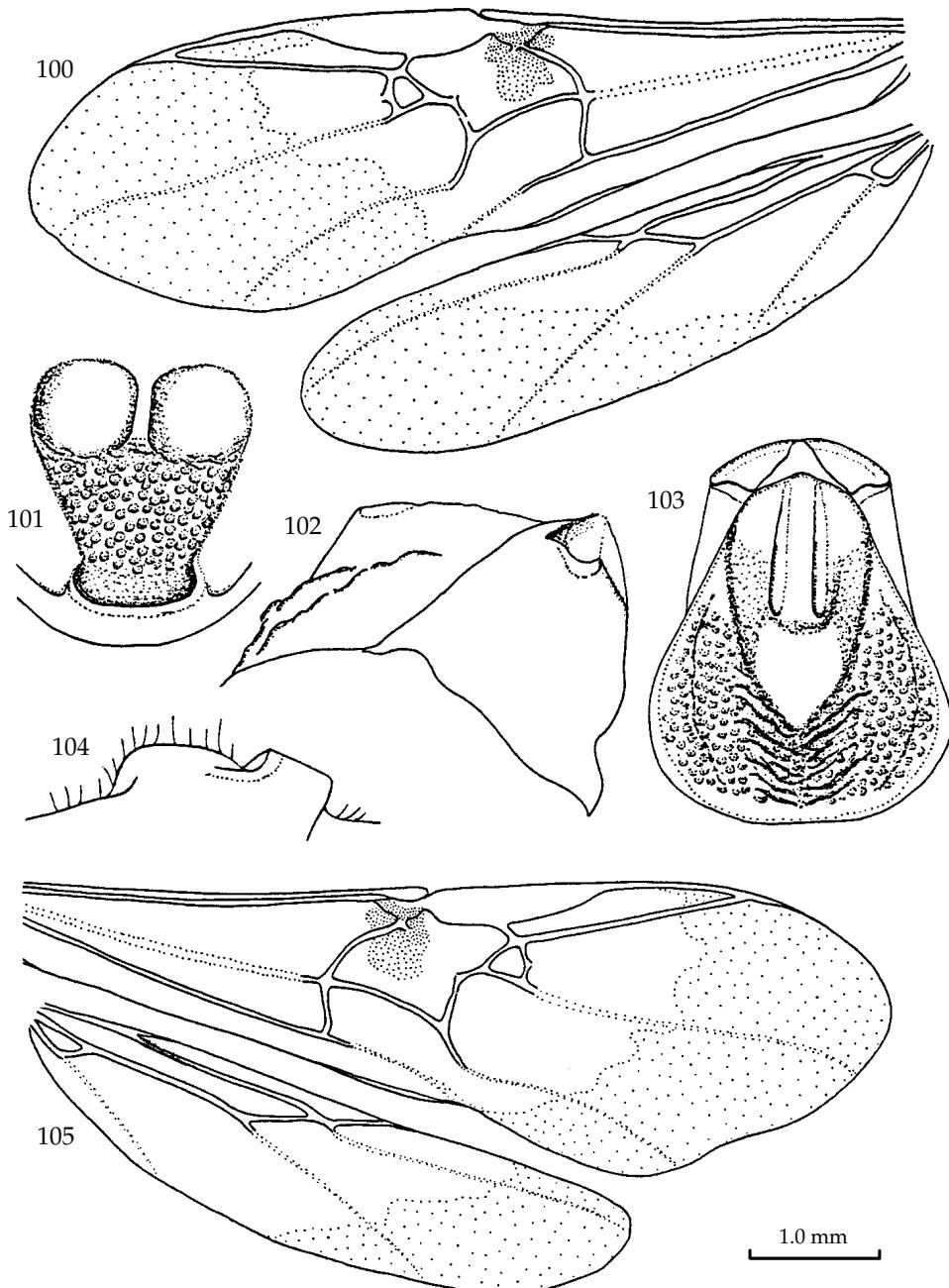
Legs.— Length of hind femur, tibia and basitarsus 4.7, 8.8 and 8.8 times their width, respectively; hind femur densely and coarsely punctate, with moderately long and dense yellowish setosity, tibia and tarsus with shorter (and of tarsus dark brown) setae; hind tibia robust, hardly narrowed subbasally and rather convex apically; length of outer and inner spur of middle tibia 0.3 and 0.5 times their basitarsus, slender; length of outer and inner spur of hind tibia 0.30 and 0.45 times hind basitarsus, respectively, rather slender; fore and middle tarsi rather slender (figs 97, 98).

Metasoma.— Rather slender, smooth; length of first tergite 1.6 times its apical width, distinctly depressed sublaterally behind spiracles and with a median crest near it (fig. 96); second tergite with shallow transverse curved groove; second metasomal suture deep and wide; third tergite with sparsely setose apical band; length of ovipositor sheath 0.03 times fore wing (retracted), sheath wide and largely setose.

Colour.— Yellowish-brown (including scapus laterally and dorsally, pedicellus dorsally, stemmaticum and veins of basal third of wings); remainder of antenna, inner side of hind tibia and apically (except dorsally), hind tarsus, hind trochantellus apically, vein $C+SC+R$ apically, parastigma, pterostigma (including setae) and ovipositor sheath dark brown or blackish; basal third of fore wing membrane yellow (including most of vein $1\text{-}M$), without stigmal spot (fig. 91) and remainder of wing dark brown; vein $1\text{-}R_1$ of fore wing and its setae blackish.

Distribution.— Indonesia (Sulawesi).

Note.— Similar to *E. semperi* Roman, 1913, from the Philippines by its size, the shape



Figs 100-105, *Euagathis lorensis* Simbolotti & van Achterberg, ♀, holotype, but 105 of ♂, paratype. 100, 105, wings; 101, scutellum, dorsal aspect; 102, mesoscutum, lateral aspect; 103, mesoscutum, dorsal aspect; 104, scutellum, lateral aspect. 100, 105: 0.9 × scale-line; 101: 3.1 ×; 102, 104: 1.2 ×; 103: 0.8 ×. After Simbolotti & van Achterberg (1990).

of the first tergite and the wing pattern, but *E. semperi* differs by having yellowish antennae, a narrow metapleural flange, and no transverse crenulae in the propodeal areola.

Euagathis lorensis Simbolotti & van Achterberg, 1990
(figs 100-105)

Euagathis lorensis Simbolotti & van Achterberg, 1990: 15-16, figs 77-82 (description).

Material.— Holotype, ♀ (RMNH), "Indonesia, C. Sulawesi, Lore Lindu N.P., ca 1100 m, 1°15'S 120°20'E, 6-9.xii.1985", "nr. Dongi-Dongi shelter, Mal. trap 6(PW58), C. v. Achterberg, RMNH'86". Paratypes, 2 ♂♂; 1 ♂, (MZB): "Indonesia, C. Sulawesi, Lore-Lindu N.P., ca 600 m, 1°14'S 120°21'E, nr Tongoa, 6.xii.1985, C. v. Achterberg, RMNH"; 1 ♂, (RMNH): topotypic, but collected by hand at ca 975 m, 7.xii.1985.

Distribution.— Sulawesi.

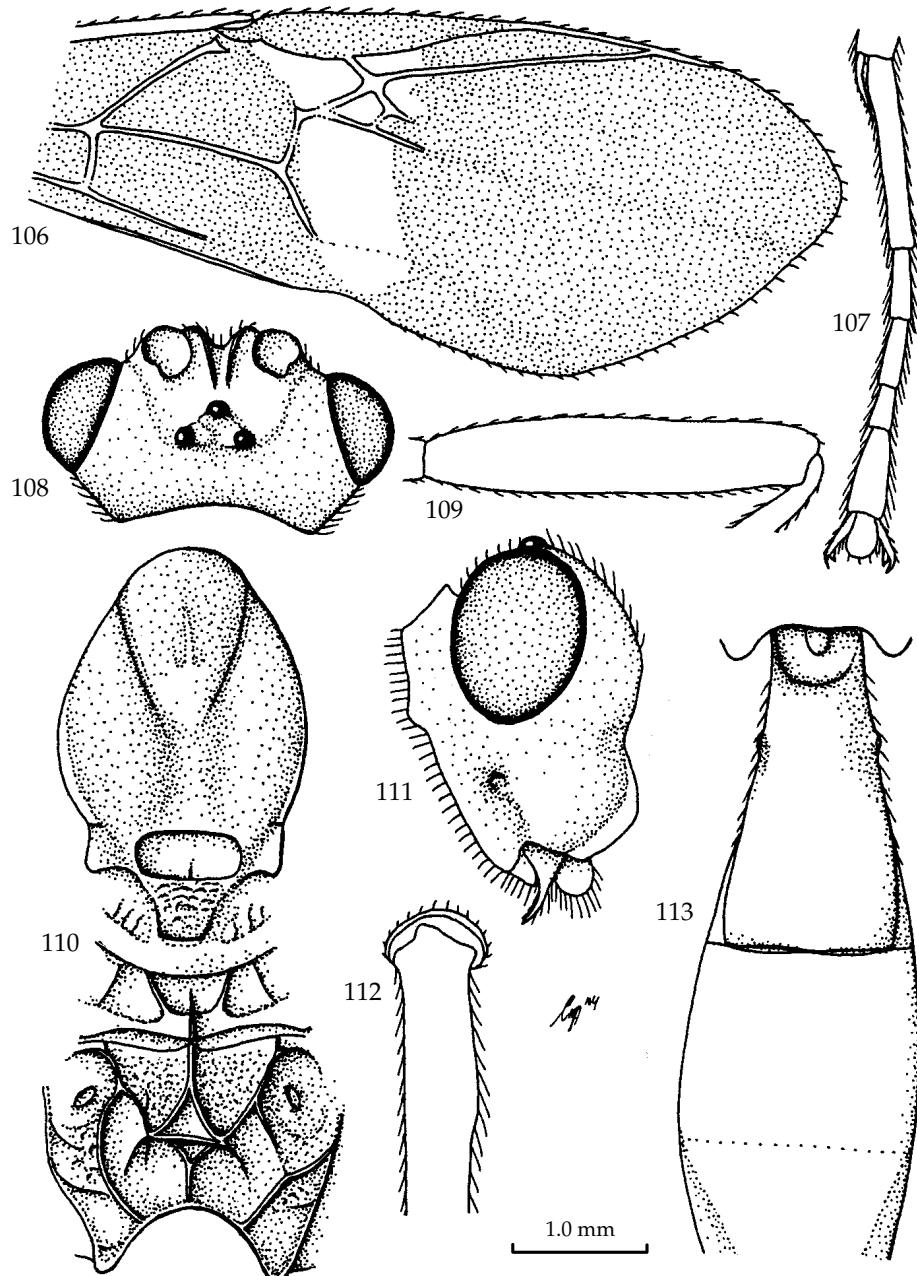
Euagathis maculata spec. nov.
(figs 106-113)

Material.— Holotype, ♂ (CAS), "Papua New Guinea, Madang Prov., Nobonpob Hill, (7 km NW Madang), 5°10'S 145°45'E, 16.xi.1987, M. Wasbauer".

Holotype, ♂, length of body 7.3 mm, of fore wing 7.8 mm.

Head.— Antenna with 54 segments; length of third antennal segment 1.1 times fourth segment; length of third and fourth segments 2.8 and 2.5 times their width, respectively; length of maxillary palp 0.6 times height of head, palpi rather slender; length of eye in dorsal view 1.9 times temple; temples straight laterally, with dense setosity and directly narrowed (fig. 108); OOL:diameter of ocellus:POL = 12:5:7; face sparsely punctulate, but more densely punctate medially and with a small protuberance (fig. 111); clypeus sparsely punctulate; vertex sparsely moderately punctate, less so near stemmaticum; crests between antennal sockets parallel, robust, acute dorsally; occipital flange large, very wide, subhyaline, its ventral margin subvertical (fig. 111); length of malar space 2.8 times basal width of mandible; malar space medium-sized dark brown setose.

Mesosoma.— Length of mesosoma 1.4 times its height; laterally pronotum mainly smooth, sparsely punctate dorsally and anteriorly, ventro-anteriorly with a long oblique carina and posteriorly crenulate; subpronope very deep, wide and large; epomia short, single; middle lobe of mesoscutum rather sparsely punctate (especially posteriorly), dorsally with interspaces wider than diameter of punctures, with pair of shallow grooves and a weak median convexity, lateral lobes coarsely but rather sparsely punctate and distinctly convex near notaui, medio-posteriorly distinctly depressed; notaui complete, narrow, distinctly impressed, and mainly smooth dorsally, finely crenulate anteriorly; scutellar sulcus largely smooth, with an indistinct median carina; scutellum flattened, rugose, anteriorly steep, angulate, with irregular carina, with distinct lateral carina, subposterior crest transverse, slightly curved and strong (fig. 110); mesopleuron (as metapleuron) moderately yellowish pilose, area below precoxal sulcus very coarsely



Figs 106-113, *Euagathis maculata* spec. nov., ♂, holotype. 106, fore wing; 107, fore tarsus, dorsal aspect; 108, head, dorsal aspect; 109, hind femur, lateral aspect; 110, mesosoma, dorsal aspect; 111, head, lateral aspect; 112, base of hind tibia, dorsal aspect; 113, first-second metasomal tergites, dorsal aspect. 106, 109: 1.0 × scale-line; 108, 110, 113: 1.5 ×; 107, 111, 112: 2.0 ×.

punctate with interspaces distinctly less than diameter of punctures and more or less coalescent, above sulcus sparsely punctate, and anteriorly with parallel oblique carinae; precoxal sulcus complete, medium-sized, distinctly and densely crenulate and its crenulae medium-sized, moderately robust; metapleural flange obtuse and large; metapleuron coarsely and densely rugose-punctate, but dorsally only less densely punctate; antero-medially propodeum largely rugulose and anteriorly with long median carina, with small subtriangular closed areola and pair of complete oblique costulae present (fig. 110), its lateral carinae complete and rather strong; spiracles large, elliptical.

Wings.— Fore wing: second submarginal cell subtriangular, narrowed anteriorly, with distinct ramellus (fig. 106); r:3-SR:SR1 = 5:1:42; SR1 straight or nearly so; 2-SR:3-SR:r-m = 7:1:7. Hind wing: M+CU:1-M = 10:23; surroundings of cu-a moderately setose.

Legs.— Length of hind femur, tibia and basitarsus 5.2, 9.1 and 10.2 times their width, respectively; hind femur slender (fig. 109), moderately and rather superficially punctate; length of outer and inner spur of middle tibia 0.45 and 0.65 times their basitarsus, rather slender; length of outer and inner spur of hind tibia 0.4 and 0.5 times hind basitarsus, respectively, slender and slightly curved; fore and middle tarsi slender (fig. 107); inner tooth of hind tarsal claws minute; hind tibia in dorsal view rather slender basally.

Metasoma.— Slender, smooth; length of first tergite 1.7 times its apical width, tergite rather widened apically, rather flat posteriorly, but subbasally rather convex (fig. 113); second tergite with weak transverse depression; second metasomal suture largely absent; third tergite with few setae subapically; paramere medium-sized, long and rather densely setose.

Colour.— Brownish-yellow; head (but clypeus, mouthparts, surroundings of anterior tentorial pits and malar space ventrally brownish-yellow), antenna and apical half of metasoma (except pale yellowish paramere) black; middle lobe of mesoscutum posteriorly, propodeum and metapleuron (except anteriorly), basal half of metasoma, hind leg (but basal third of hind tibia brownish-yellow and spurs brown), parastigma, wing membrane and its veins (but wide band below pterostigma pale yellowish with veins yellow: fig. 106) dark brown; pterostigma yellow (but apically darkened); vein 1-R1 of fore wing brown and with dark brown setae.

Distribution.— Papua New Guinea.

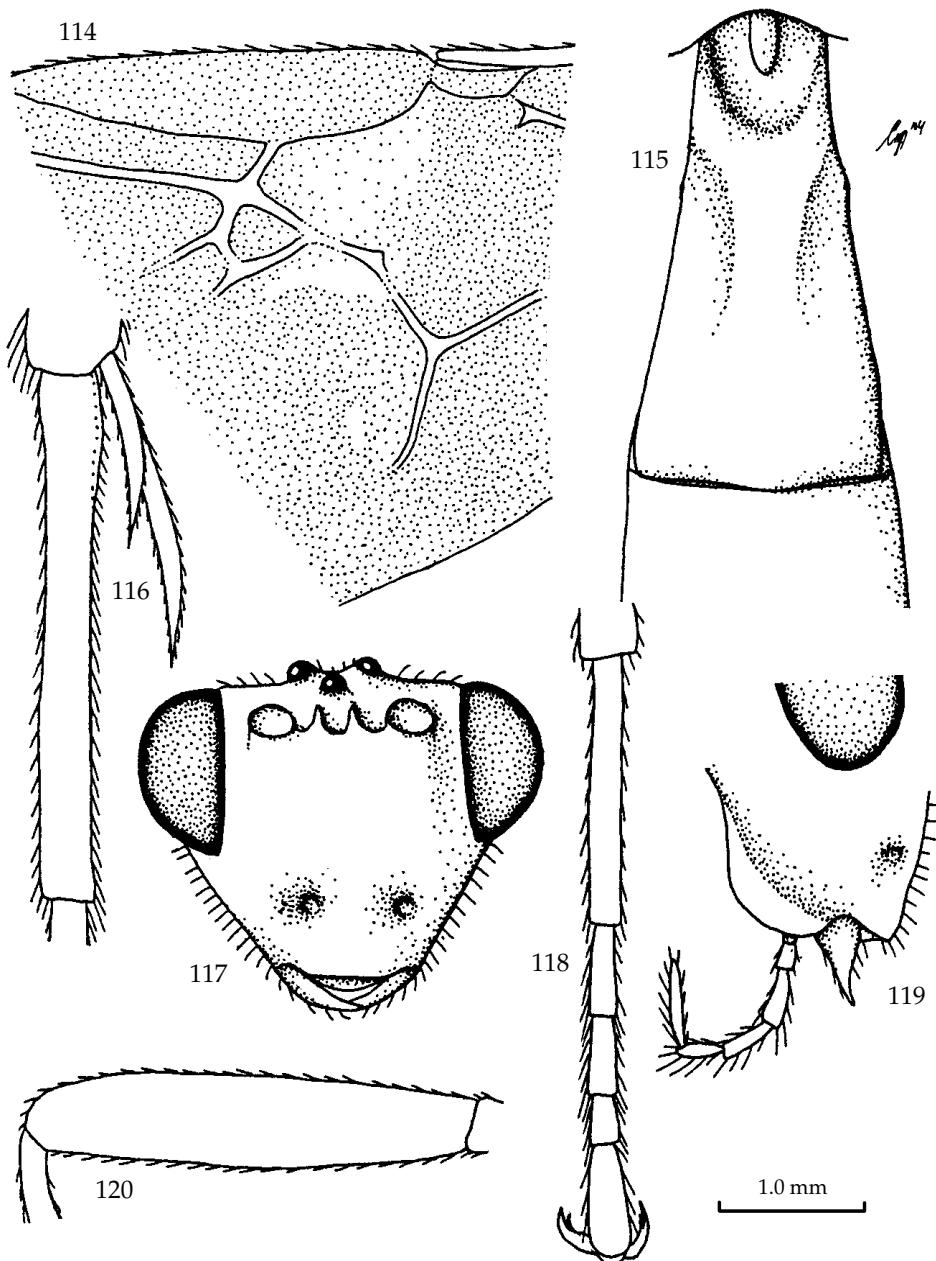
Euagathis maculipennoides nom. nov.
(figs 114-120)

Euagathis maculipennis Szépligeti, 1902: 69; Shenefelt, 1970: 413 (not Brullé, 1846).

Material.— Lectotype, ♂ (TMA), “[Papua New Guinea], N. Guinea, Biró, 1898”, “Simbang, Huon Golf”, “*maculipennis* Szépl., 1902 % des. Papp, J., 1967”, “Hym. Typ. No. 729 Mus. Budapest”.

Lectotype, ♂, length of body 8.2 mm, of fore wing 8.2 mm.

Head.— Antenna missing, except for scapus and pedicellus; length of maxillary palp 0.6 times height of head, palpi rather slender (fig. 119); length of eye in dorsal view 1.7 times temple; temples straight laterally, with dense setosity and directly



Figs 114-120, *Euagathis maculipennoides* nom. nov., ♂, lectotype of *E. maculipennis* Szépligeti. 114, detail of pterostigma and second submarginal cell of fore wing; 115, first metasomal tergite, dorsal aspect; 116, hind basitarsus, lateral aspect; 117, head, anterior aspect; 118, middle tarsus, dorsal aspect; 119, detail of malar space, lateral aspect; 120, hind femur, lateral aspect. 114: 1.8 × scale-line; 115, 117: 1.6 ×; 116, 118, 119: 2.1 ×; 120: 1.0 ×.

narrowed behind eyes; OOL:diameter of ocellus:POL = 12:5:9; face laterally rather sparsely punctulate, but more densely and rather coarsely punctate medially; vertex sparsely moderately punctate, but mainly smooth near stemmaticum; crests between antennal sockets parallel, robust, acute dorsally; occipital flange large, wide, subhyaline, its ventral margin subhorizontal (fig. 119); length of malar space 2.8 times basal width of mandible.

Mesosoma.— Length of mesosoma 1.4 times its height; laterally pronotum mainly smooth, sparsely punctulate, medio-anteriorly with some rugae, posteriorly crenulate, but dorsally finely so; subpronope deep, wide and large; epomia single; middle lobe of mesoscutum rather sparsely punctate with interspaces more than diameter of punctures, with pair of shallow grooves and a weak median crest anteriorly and weakly convex dorsally in lateral view, lateral lobes coarsely punctate and distinctly convex near notaui, medio-posteriorly distinctly depressed; notaui complete, narrow, distinctly impressed, and mainly smooth; scutellum rather flattened, rugose-punctate, anteriorly not visible because of pin, without distinct lateral carina, subposterior crest transverse, slightly curved, medium-sized and strong, connected to two short longitudinal carinae; mesopleuron (as metapleuron) moderately pilose, area below precoxal sulcus very coarsely punctate with interspaces mostly less than diameter of punctures, above sulcus moderately and less densely punctate, especially posteriorly finer and more sparsely punctate; precoxal sulcus complete, medium-sized, distinctly and densely crenulate and its crenulae medium-sized, moderately robust; metapleural flange obtuse and medium-sized; metapleuron coarsely and densely punctate, but ventrally less so; antero-medially propodeum largely rugose and anteriorly without closed areola and costulae partly absent, lateral carinae complete and rather strong; spiracles large.

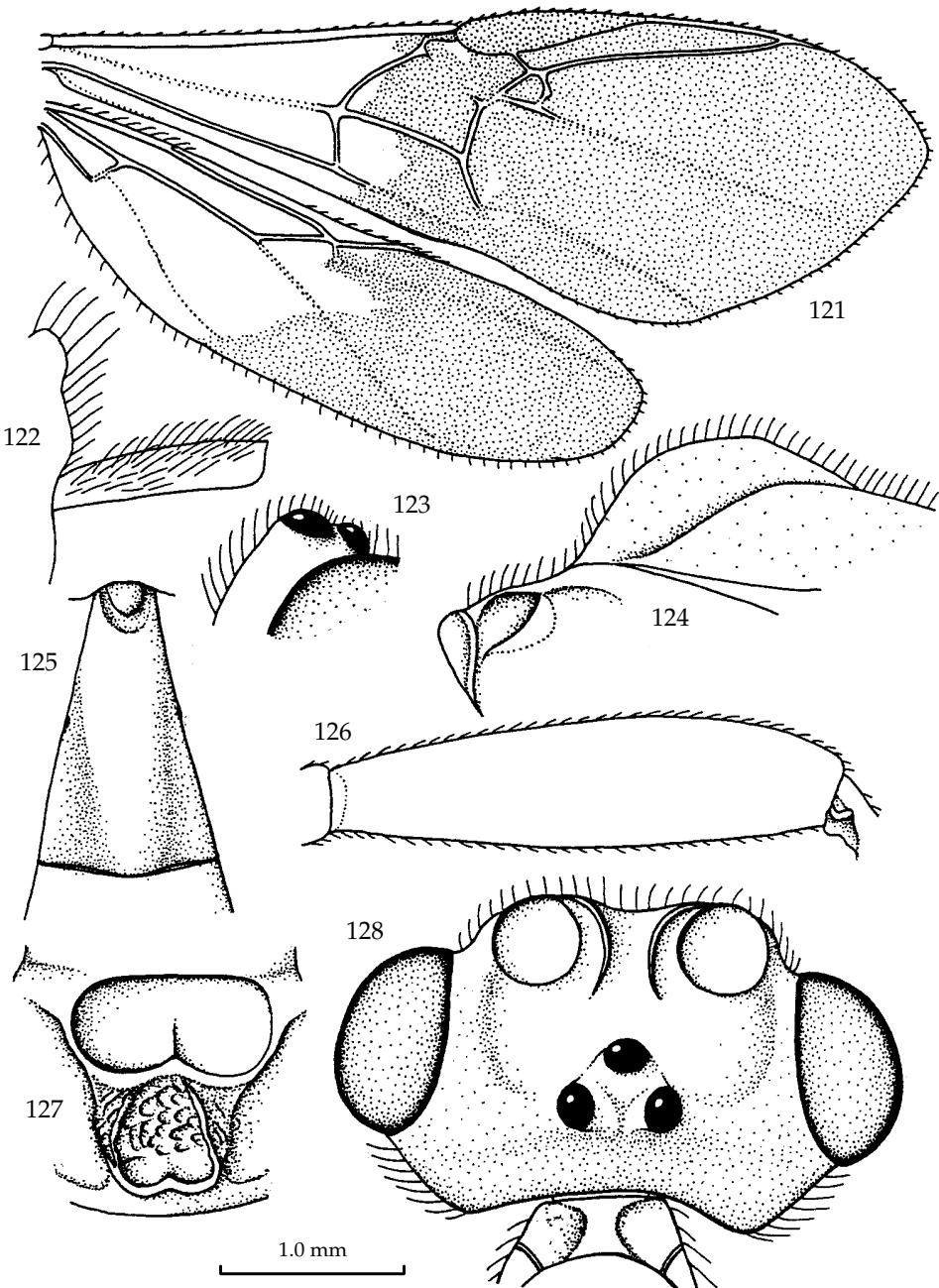
Wings.— Fore wing: second submarginal cell subtriangular, rather narrow anteriorly, with ramellus (fig. 114); r:3-SR:SR1 = 5:2:106; SR1 straight or nearly so; 2-SR:3-SR:r-m = 14:2:13. Hind wing: M+CU:1-M = 30:61; surroundings of cu-a sparsely setose.

Legs.— Length of hind femur, tibia and basitarsus 5.2, 9.1 and 9.3 times their width, respectively; hind femur slender (fig. 120) moderately and rather superficially punctate; length of outer and inner spur of middle tibia 0.45 and 0.65 times their basitarsus, robust; length of outer and inner spur of hind tibia 0.4 and 0.5 times hind basitarsus, respectively, slender and slightly curved (fig. 116); fore and middle tarsi slender (fig. 118); inner tooth of hind tarsal claws minute.

Metasoma.— Slender, smooth; length of first tergite 1.6 times its apical width, tergite rather widened apically, rather flat posteriorly, but subbasally rather convex; second metasomal suture absent.

Colour.— Rather dark brown; head (but clypeus brown), scapus, pedicellus and apical third of metasoma black; fore tibia blackish; hind tibia apically and tarsus, hind trochantellus narrowly apically dark brown; palpi, middle femur and tarsus, remainder of fore leg, of hind tibia, and of metasoma yellowish-brown; wing membrane and pterostigma dark brown, with inconspicuous yellowish patch below pterostigma (fig. 114) and veins mainly brown.

Distribution.— Papua New Guinea.



Figs 121-128, *Euagathis magnifica* Simbolotti & van Achterberg, ♀, holotype. 121, wings; 122, ovipositor sheath, lateral aspect; 123, stemmaticum, lateral aspect; 124, pronotum and mesoscutum, lateral aspect; 125, first metasomal tergite, dorsal aspect; 126, hind femur, lateral aspect; 127, scutellum, dorsal aspect; 128, head, dorsal aspect. 121: 0.3 × scale-line; 122-124, 127, 128: 2.0 ×; 125, 126: 1.0 ×.

(figs 121-128)

Euagathis magnifica Simbolotti & van Achterberg, 1990: 16-17, figs 54-61 (description).

Material.— Holotype, ♀ (RMNH), “Indonesia: C. Sulawesi, Luwuk, Hanga-Hanga Falls, c. 200 m, 23.x.1989, C. van Achterberg, J. Warouw & M. Tulung, RMNH”. Collected in rather low and open deciduous forest on limestone.

Distribution.— Indonesia (Sulawesi).

Euagathis mellifacies spec. nov.

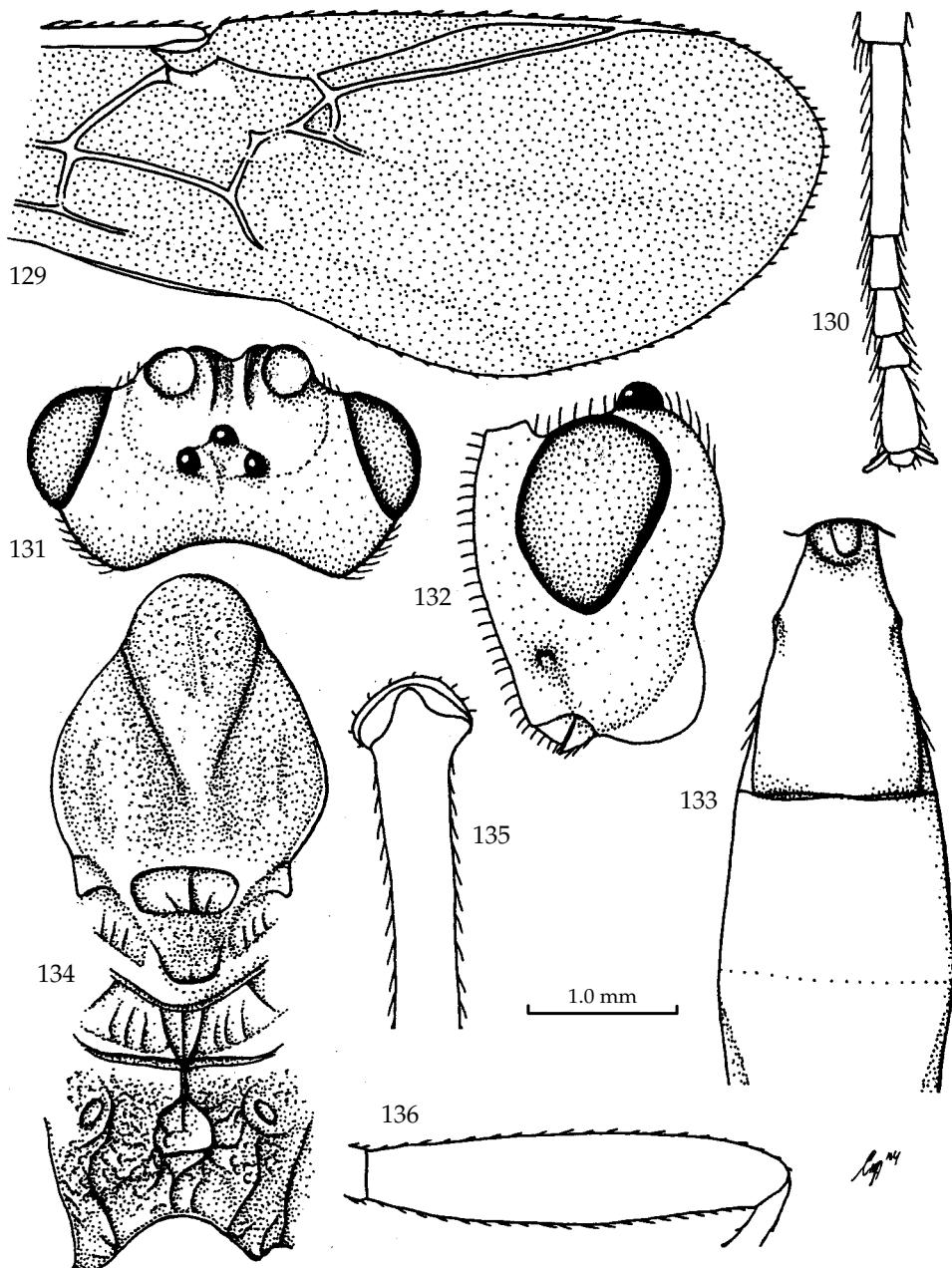
(figs 129-136)

Material.— Holotype, ♂ (ANIC), “Konga”, “[Papua New Guinea], Bougainville Is., Mar [= iii.]1961, W. Brandt”.

Holotype, ♂, length of body 7.1 mm, of fore wing 7.6 mm.

Head.— Antenna with 48 segments; length of third antennal segment 1.1 times fourth segment; length of third and fourth segments 2.8 and 2.6 times their width, respectively; length of maxillary palp 0.6 times height of head, palpi rather slender; length of eye in dorsal view 1.9 times temple; temples straight laterally and gradually narrowed behind eyes (fig. 131), in anterior view directly narrowed; OOL:diameter of ocellus:POL = 11:5:5; face rather densely punctulate; clypeus rather sparsely punctulate, medially rather convex and hardly differentiated from face; stemmaticum not protruding; vertex distinctly but sparsely finely punctate; crests between antennal sockets subparallel, weak, short and rather widely separated; frons nearly flat; occipital flange large, lamelliform, very wide, its ventral margin subhorizontal (fig. 132); length of malar space 2.6 times basal width of mandible; malar space medium-sized and densely setose.

Mesosoma.— Length of mesosoma 1.4 times its height; laterally pronotum rather coarsely and densely punctate dorsally, narrowly crenulate posteriorly, shallowly rugose medially and remainder largely smooth; subpronope deep, large; epomia single, long, connected to oblique carina ventrally and with a second parallel oblique carina; mesoscutum rather densely and coarsely punctate with interspaces mostly about equal to diameter of punctures or less, medio-posterior third depressed medially and lateral lobes posteriorly rather convex and laterally flattened, its middle lobe distinctly convex, sparsely punctate posteriorly, with a weak median elevation anteriorly; notaui rather distinctly impressed, complete but posteriorly shallow and largely smooth; scutellar sulcus with one strong carina; scutellum weakly convex anteriorly, coarsely and rather densely punctate, rather steep and rounded anteriorly, with coarse lateral carina, and subposteriorly with strong curved, crest-like carina (fig. 134); mesopleuron below precoxal sulcus densely and coarsely punctate with interspaces about equal to diameter of punctures, this area moderately yellowish pilose, above sulcus more sparsely punctate; precoxal sulcus with medium-sized and rather strong crenulae (long anteriorly), rather deep; metapleural flange rather wide, rather acute; metapleuron mainly coarsely and rather sparsely punctate (but posteriorly and ventrally coarsely rugose), not obscured by long greyish setae; propodeum coarsely areolate medially, anteriorly punctate (but near anterior margin largely smooth and median



Figs 129-136, *Euagathis mellifacies* spec. nov., ♂, holotype. 129, fore wing; 130, fore tarsus, dorsal aspect; 131, head, dorsal aspect; 132, head, lateral aspect; 133, first-second metasomal tergites, dorsal aspect; 134, mesosoma, dorsal aspect; 135, base of hind tibia, dorsal aspect; 136, hind femur, lateral aspect. 129, 136: 1.0 × scale-line; 130, 132, 135: 2.0 ×; 131, 133: 1.5 ×; 134: 1.3 ×.

carina shorter than of *E. raymondi*) and a few rugae, areola medium-sized subtriangular and posteriorly absent, only with median carina and with a transverse carina, without distinct oblique costulae in front of middle of propodeum (fig. 134); spiracles large and elliptical.

Wings.— Fore wing: second submarginal cell triangular and small, without ramellus (fig. 129); r:3-SR+SR1 = 5:64; 2-SR:r-m = 8:9. Hind wing: M+CU:1-M = 15:29; surroundings of cu-a sparsely setose.

Legs.— Length of hind femur, tibia and basitarsus 4.6, 10.3 and 8.4 times their width, respectively; hind femur and coxa densely and rather superficially punctate, with moderately long and dense yellowish setosity, more bristly and dark brown of tibia and tarsus; hind tibia slender subbasally in dorsal view and flattened apically; length of outer and inner spur of middle tibia 0.35 and 0.60 times their basitarsus, slender; length of outer and inner spur of hind tibia 0.30 and 0.50 times hind basitarsus, respectively, rather slender; fore and middle tarsi rather slender (fig. 130).

Metasoma.— Rather slender, smooth; length of first tergite 1.4 times its apical width, with a few setae subapically, without depression sublaterally and medially flattened (fig. 133); second tergite without transverse groove; second metasomal suture indistinct; third tergite with few setae subapically; paramere rather long and densely setose.

Colour.— Yellowish-brown; antenna, frons sublaterally, vertex near stemmaticum (but stemmaticum yellowish), occiput medio-dorsally, metanotum partly, metapleuron, propodeum, hind leg, parastigma, paramere, pterostigma anteriorly and vein C+SC+R of fore wing largely dark brown; metasoma black, but ventrally basal half pale yellowish; remainder of wing veins brown; remainder of pterostigma, veins 1-R1 and 2-R1 of fore wing pale brown with dark brown setae; basal 0.4 of wing membrane pale yellowish and slightly darkened, without distinct stigmal spot (area below parastigma evenly moderately dark; fig. 129) and remainder of fore wing more or less dark brown.

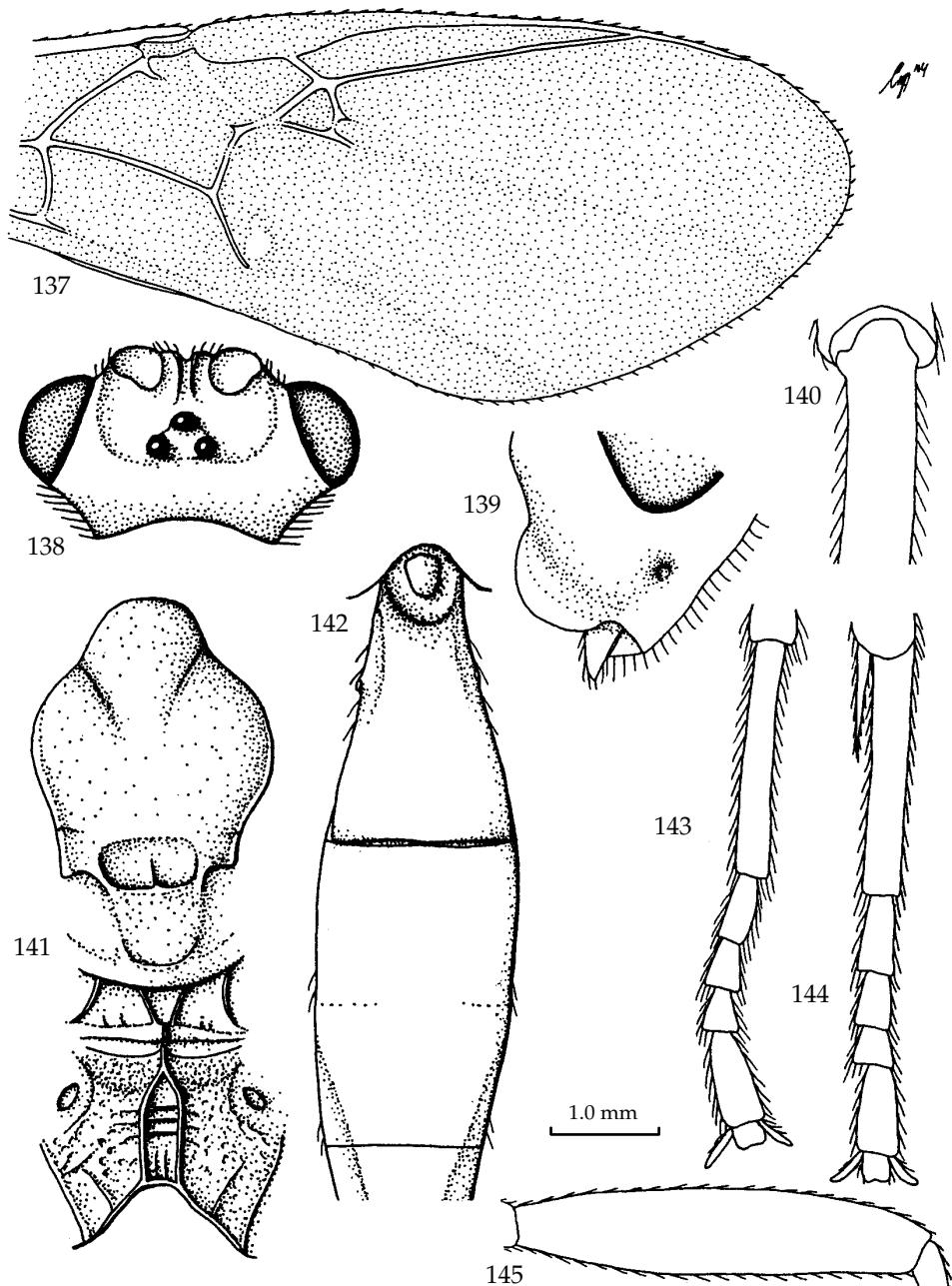
Distribution.— Papua New Guinea (Bougainville Island).

Euagathis mellisoma spec. nov.
(figs 137-145)

Material.— Holotype, ♀ (RMNH), “[Indonesia: Papua], Neth. Ind. American New Guinea Exped., Auracaria Camp, 800 m, 19.iii.1939, L.J. Toxopeus”.

Holotype, ♀, length of body 10.0 mm, of fore wing 12.2 mm.

Head.— Antenna complete, 56 segments; length of third antennal segment 1.2 times fourth segment; length of third and fourth segments 2.9 and 2.5 times their width, respectively; length of maxillary palp 0.7 times height of head, palpi rather robust; length of eye in dorsal view 1.7 times temple; temples weakly concave laterally and directly narrowed behind eyes (fig. 138), in anterior view directly narrowed; OOL:diameter of ocellus:POL = 18:5:7; face rather densely punctulate; clypeus sparsely punctate, medially convex and not differentiated from face; stemmaticum not protruding; vertex sparsely punctulate; crests between antennal sockets subparallel, strong; occipital flange large, lamelliform, wide, its ventral margin semicircular (fig.



Figs 137-145, *Euagathis mellisoma* spec. nov., ♀, holotype. 137, fore wing; 138, head, dorsal aspect; 139, malar space, lateral aspect; 140, base of hind tibia, dorsal aspect; 141, mesosoma, dorsal aspect; 142, first-third metasomal tergites, dorsal aspect; 143, fore tarsus, dorsal aspect; 144, middle tarsus, dorsal aspect; 145, hind femur, lateral aspect. 137: 1.0 × scale-line; 138, 141, 142: 1.7 ×; 139, 140, 143, 144: 2.0 ×; 145: 1.1 ×.

139); length of malar space 2.6 times basal width of mandible; malar space rather long, dark brown and densely setose.

Mesosoma.— Length of mesosoma 1.6 times its height; laterally pronotum sparsely punctulate, with some crenulae postero-ventrally, largely smooth; subpronope deep, large; epomia single, coarse; mesoscutum sparsely punctate with interspaces much wider than diameter of punctures (but laterally more densely punctate), medio-posterior half flat and lateral lobes flattened and laterally distinctly punctate, its middle lobe distinctly convex, smooth medially and posteriorly, without a median groove anteriorly; notauli only anteriorly distinctly impressed, smooth; scutellar sulcus with one median strong carinae; scutellum largely destroyed by pin, steep and angulate anteriorly, no lateral carina, subposterior carina of scutellum obsolescent (fig. 141); mesopleuron below precoxal sulcus densely and coarsely punctate with interspaces about equal to diameter of punctures, this area moderately yellowish pilose, above sulcus more sparsely punctate (interspaces mostly more than diameter of punctures); precoxal sulcus with short crenulae, rather deep posteriorly but obsolescent anteriorly; metapleural flange large, subtriangular; metapleuron largely finely and sparsely punctate but coarser and more densely dorsally and posteriorly, not obscured by long yellowish setae; propodeum punctate anteriorly, medially more or less rugose, coarsely areolate medially, areola moderately wide and with transverse crenulae, without complete costulae in front of middle of propodeum (fig. 141); spiracles large elliptical.

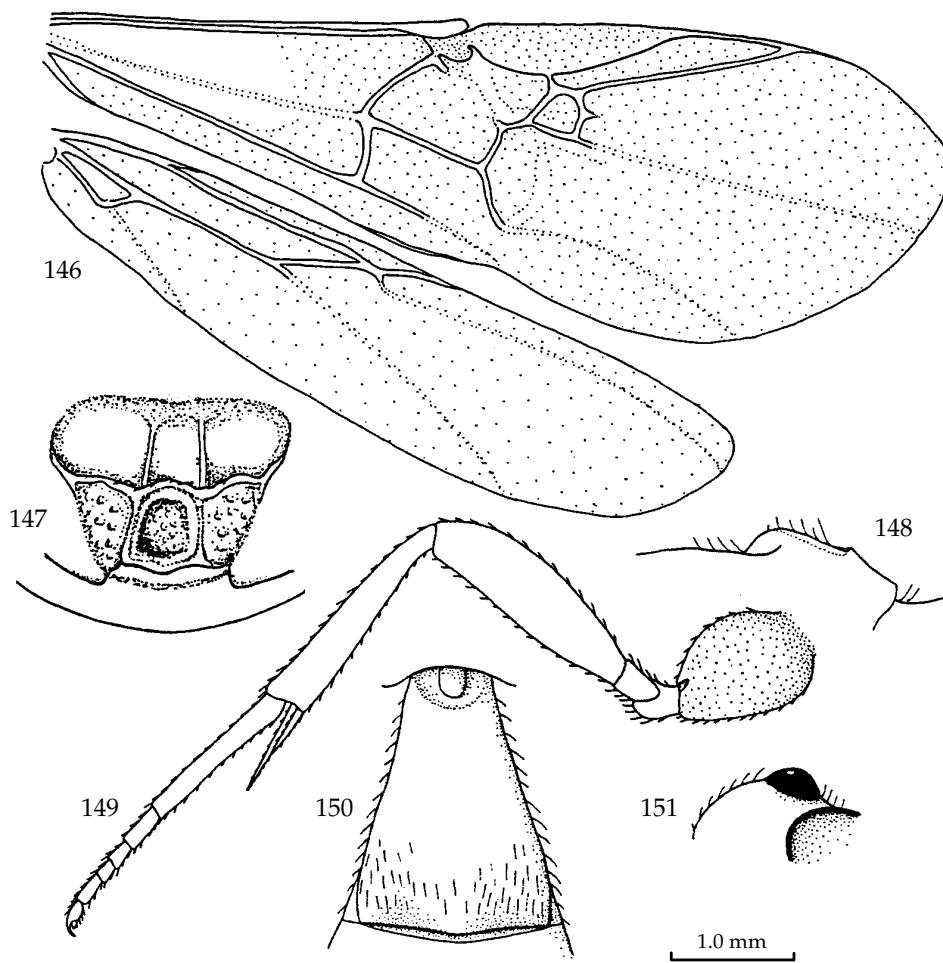
Wings.— Fore wing: second submarginal cell subpentagonal, without ramellus (fig. 137); r3-SR:SR1 = 5:1:62; 2-SR:3-SR:r-m = 10:1:84. Hind wing: M+CU:1-M = 5:12; surroundings of cu-a normally setose; anteriorly with 10 hamuli.

Legs.— Length of hind femur, tibia and basitarsus 4.7, 9.0 and 10.2 times their width, respectively; hind femur densely and rather coarsely punctate, with moderately long and dense yellowish setosity, tibia and tarsus with slightly shorter and dark brown setae; hind tibia rather robust in dorsal view, gradually narrowed subbasally and rather convex apically; length of outer and inner spur of middle tibia 0.5 and 0.7 times their basitarsus, slender; length of outer and inner spur of hind tibia 0.40 and 0.50 times hind basitarsus, respectively, rather slender; fore and middle tarsi rather robust (figs 143, 144).

Metasoma.— Rather slender, smooth; length of first tergite 1.5 times its apical width, not depressed sublaterally behind spiracles and without a median crest near it (fig. 142); second tergite without a transverse groove; second metasomal suture absent; third tergite with an apical row of setae; ovipositor sheath invisible, length of exerted ovipositor 0.14 times fore wing.

Colour.— Yellowish-brown; antenna (except brownish pedicellus), medio-dorsal patch of face, stemmaticum, hind tibia and tarsus and hind tibial spurs black or blackish; hind femur dorso-apically, humeral plate, hind coxa apically, propodeum dorsally, hind trochanter and trochantellus ventrally, parastigma, pterostigma (including setae), veins of wings and complete wing membrane dark brown; no stigmal spot; remainder of head brown.

Distribution.— Indonesia (Papua).



Figs 146-151, *Euagathis minuta* Simbolotti & van Achterberg, ♀, holotype. 146, wings; 147, scutellum, dorsal aspect; 148, scutellum, lateral aspect; 149, hind leg; 150, first metasomal tergite, dorsal aspect; 151, stemmata, lateral aspect; 146: 1.0 × scale-line; 147, 148: 2.0 ×; 149: 0.9 ×; 150, 151: 1.3 ×. After Simbolotti & van Achterberg (1990).

(figs 146-151)

Euagathis minuta Simbolotti & van Achterberg, 1990: 17-18, figs 43-45, 48, 49, 51 (description).

Material.— Holotype, ♀ (RMNH), “[Indonesia], N. Sulawesi, 7 km N. Malibagu, ca 125 m, 0°27'N 123°E, 14.xi.1985, C. v. Achterberg, RMNH’86”.

Distribution.— Indonesia (Sulawesi).

Euagathis minutoides spec. nov.

(figs 152-161)

Material.— Holotype, ♂ (RMNH), “Indonesia: C Sulawesi, near Batui, Seseba, c. 375 m, 24.x-6.xi.1989, Mal. trap 19, C. v. Achterberg, RMNH’89”. Paratypes: 8 ♂♂ (MZB, RMNH), topotypic, same date and trap.

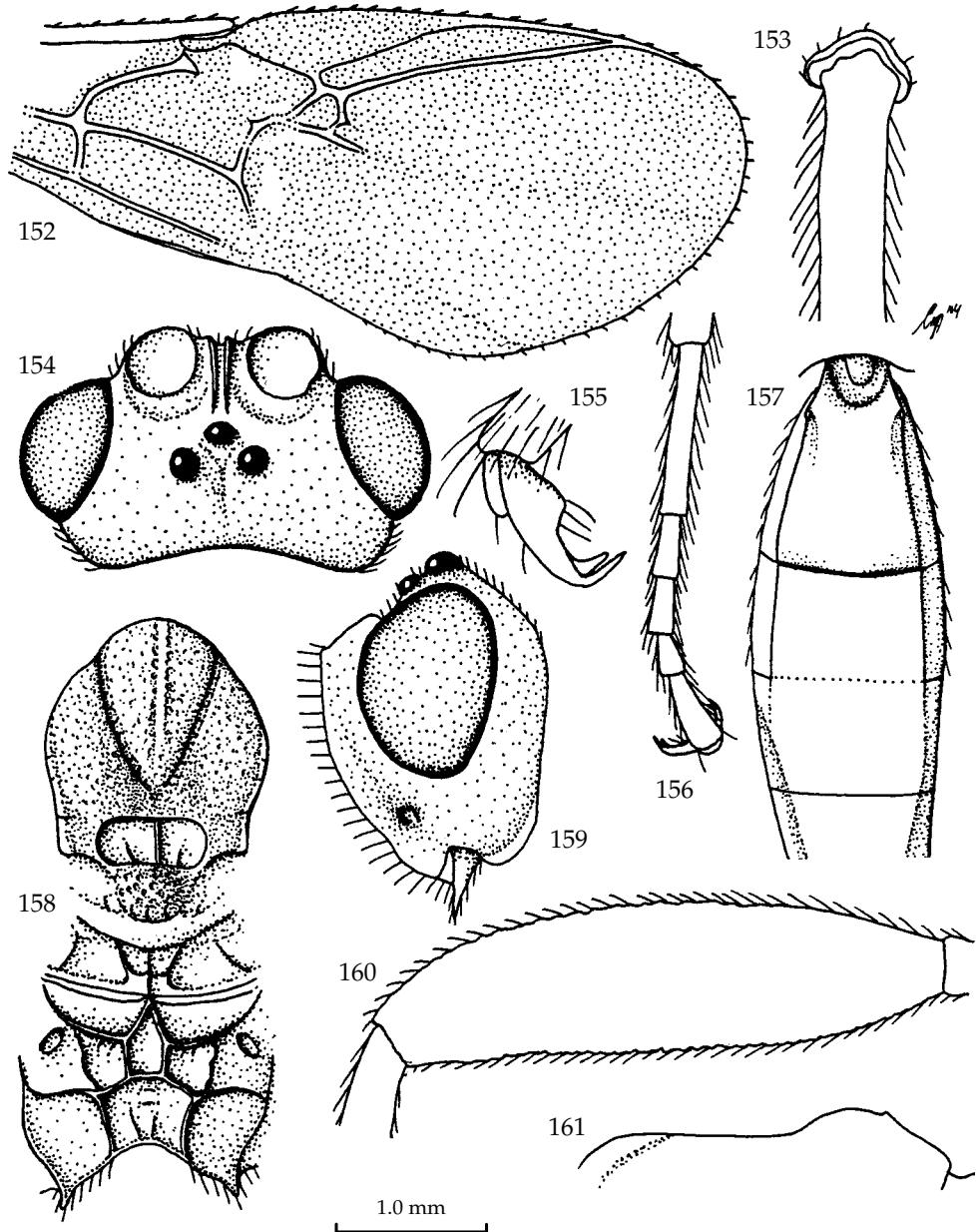
Holotype, ♂, length of body 6.5 mm, of fore wing 6.4 mm.

Head.— Antenna with 40 segments; length of third antennal segment 1.3 times fourth segment; length of third and fourth segments 2.6 and 2.0 times their width, respectively; length of maxillary palp 0.6 times height of head, palpi slender; length of eye in dorsal view 2.3 times temple; temples straight laterally and gradually narrowed behind eyes (fig. 154), in anterior view head directly narrowed; OOL:diameter of ocellus:POL = 10:5:6; face rather densely and coarsely punctate with interspaces mostly about equal to diameter of punctures, but sparsely punctulate laterally, dorsal half of face with median groove; clypeus rather sparsely and moderately punctate, medially flattened and not differentiated from face; stemmaticum not protruding; vertex rather coarsely and rather densely punctate; crests between antennal sockets subparallel, rather strong; frons rather concave; occipital flange medium-sized, lamelliform, rather wide, its ventral margin curved (fig. 159); length of malar space 2.2 times basal width of mandible; malar space long and densely setose.

Mesosoma.— Length of mesosoma 1.4 times its height; laterally pronotum sparsely and rather coarsely punctate postero-dorsally, posteriorly crenulate and remainder smooth, with one long oblique carina connected to epomia; single subpronope rather deep, large; mesoscutum coarsely punctate with interspaces mostly wider than diameter of punctures, medio-posterior third distinctly impressed medially and lateral lobes rather convex posteriorly and laterally flattened and less coarsely punctate, its middle lobe distinctly convex, punctate posteriorly, with a weak median crest anteriorly; notauli distinctly impressed, complete and coarsely crenulate posteriorly; scutellar sulcus only with a strong median carina; scutellum convex, coarsely and rather densely punctate, rounded anteriorly, no lateral carina, and subposteriorly with coarsely crenulate depression, no carina (fig. 158); mesopleuron below precoxal sulcus densely and rather coarsely punctate with interspaces about equal to diameter of punctures, this area rather densely greyish pilose, above sulcus similarly punctate but less densely (interspaces mostly more than diameter of punctures); precoxal sulcus with medium-sized and very strong crenulae, deep except anteriorly; metapleural flange medium-sized; metapleuron coarsely vermiculate, not obscured by long greyish setae; propodeum smooth anteriorly, coarsely areolate medially, areola rather narrow and with a transverse carina, with weak costulae in front of middle of propodeum and a strong one behind middle (fig. 158); propodeum densely greyish setose except medially; spiracles large elliptical.

Wings.— Fore wing: second submarginal cell subquadrangular, without ramellus (fig. 152); r:3-SR:SR1 = 5:4:97; 2-SR:3-SR:r-m = 7:2:7. Hind wing: M+CU:1-M = 7:12; surroundings of cu-a normally setose.

Legs.— Length of hind femur, tibia and basitarsus 3.9, 6.4 and 7.9 times their width, respectively, with dense blackish setosity, but of femur shorter than bristly setae of tibia and tarsus; hind femur densely and coarsely punctate; hind tibia coarsely



Figs 152-161, *Euagathis minutoides* spec. nov., ♂, holotype. 152, fore wing; 153, base of hind tibia, dorsal aspect; 154, head, dorsal aspect; 155, outer hind claw, outer aspect; 156, fore tarsus, dorsal aspect; 157, first-third metasomal tergites, dorsal aspect; 158, mesosoma, dorsal aspect; 159, head, lateral aspect; 160, hind femur, lateral aspect; 161, scutellum, lateral aspect. 152: 1.0 × scale-line; 153, 154, 156, 159, 160: 2.0 ×; 155: 4.5 ×; 157, 158: 1.1 ×; 161: 2.9 ×.

rugose; hind tibia robust, hardly narrowed subbasally in dorsal view and without convexity apically; length of outer and inner spur of middle tibia 0.5 and 0.8 times their basitarsus, slender; length of outer and inner spur of hind tibia 0.4 and 0.6 times hind basitarsus, respectively, rather slender; fore and middle tarsi slender (fig. 156).

Metasoma.— Rather slender, smooth; length of first tergite 1.5 times its apical width, glabrous apically, without sublateral depression behind spiracles and with a short median crest near it (fig. 157); second tergite without transverse groove; second metasomal suture shallow and narrow; third tergite with apical row of inconspicuous setae; parameres rather small.

Colour.— Black or blackish; palpi pale yellowish; ventrally basal half of metasoma white; fore tarsus brown; clypeus, antenna, tegulae, pronotum laterally largely, fore leg (except tarsus), middle leg, ventral apical half of metasoma, veins, parastigma, pterostigma (including setae and vein 1-R1) dark brown; basal 0.4 of wing membrane largely hyaline (but subbasal cell of fore wing somewhat brownish), remainder dark brown, without distinct stigmal spot (fig. 152).

Distribution.— Indonesia (Sulawesi).

Variation.— Length of fore wing 6.0-6.7 mm; antenna with 37-40 segments; length of first tergite 1.5-1.8 times its apical width; mesopleuron above precoxal sulcus, mesoscutum posteriorly, scutellum, and metanotum may be partly brown.

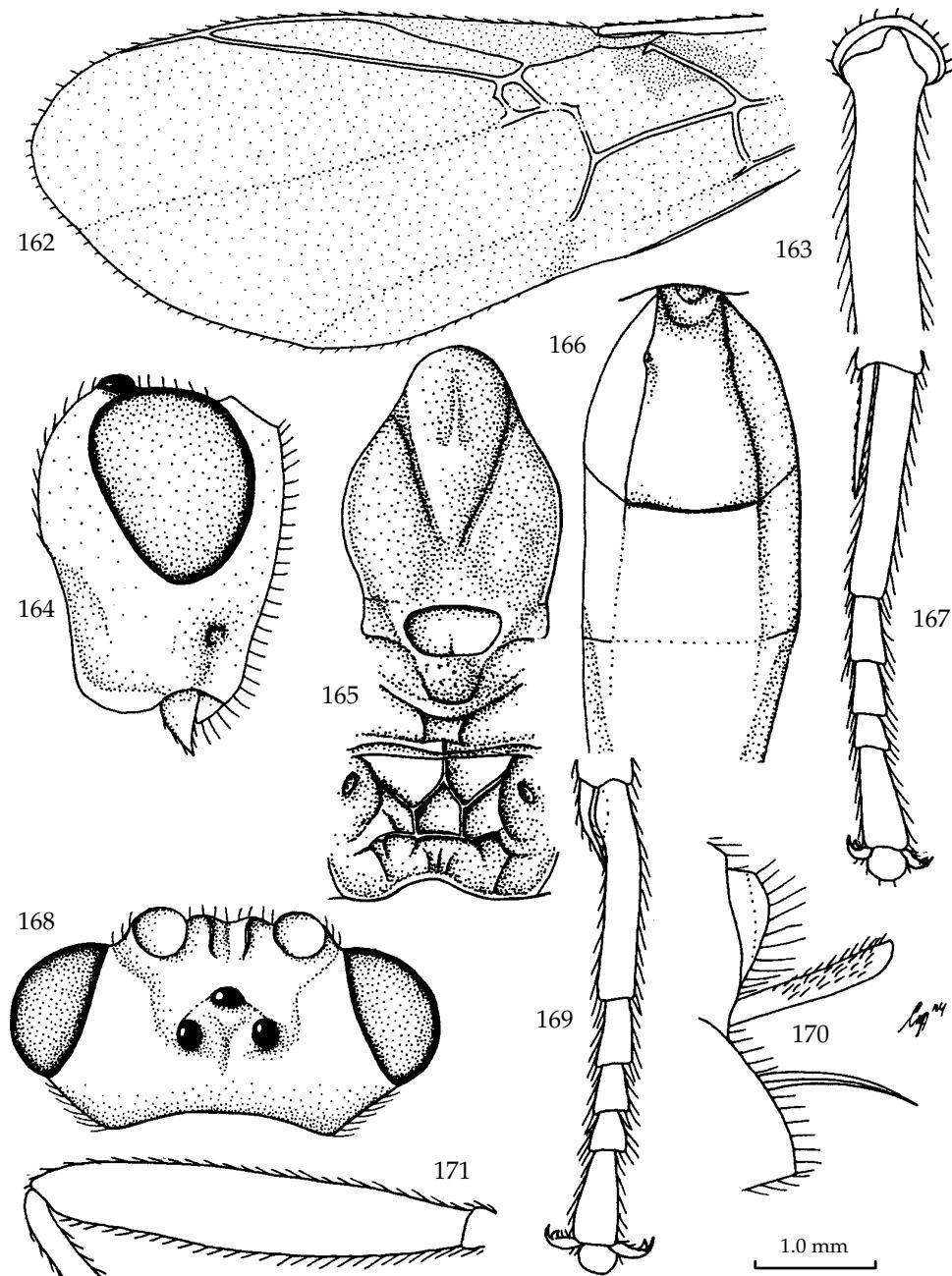
Euagathis novabritanica spec. nov.
(figs 162-171)

Material.— Holotype, ♀ (RMNH), “[Papua New Guinea], East New Britain, 21.ii.1999, coll. Lopez-V., RMNH'98, [partly] used for DNA-research [by D.L.J. Quicke]”.

Holotype, ♀, length of body 7.6 mm, of fore wing 8.6 mm.

Head.— Antenna with 50 segments; length of third antennal segment 1.1 times fourth segment; length of third and fourth segments 3.2 and 2.8 times their width, respectively; length of maxillary palp 0.6 times height of head, palpi rather slender; length of eye in dorsal view 2.0 times temple; temples straight laterally and gradually narrowed behind eyes (fig. 168), in anterior view directly narrowed; OOL:diameter of ocellus:POL = 12:5:7; face sparsely punctulate; clypeus sparsely and finely punctate, medially convex and slightly differentiated from face; stemmaticum not protruding; vertex sparsely punctulate; crests between antennal sockets subparallel, strong, carinate dorsally; frons nearly flat; occipital flange large, lamelliform, very wide, its ventral margin horizontal (fig. 164); length of malar space 2.3 times basal width of mandible; malar space long and densely setose.

Mesosoma.— Length of mesosoma 1.4 times its height; laterally pronotum sparsely punctulate, with some crenulae postero-ventrally; subpronope deep, large; epomia single and short; mesoscutum rather sparsely punctate with interspaces mostly somewhat wider than diameter of punctures, medio-posterior third depressed and lateral lobes rather convex and laterally more coarsely punctate, its middle lobe distinctly convex, with few punctures posteriorly, with a smooth weak median convexity and its surroundings rather coarsely punctate; notauli distinctly impressed, complete and nearly completely smooth; scutellar sulcus without distinct median carina; scutellum



Figs 162-171, *Euagathis novabritanica* spec. nov., ♀, holotype. 162, fore wing; 163, base of hind tibia, dorsal aspect; 164, head, lateral aspect; 165, mesosoma, dorsal aspect; 166, first-third metasomal tergites, dorsal aspect; 167, middle tarsus, dorsal aspect; 168, head, dorsal aspect; 169, fore tarsus, dorsal aspect; 170, ovipositor and ovipositor sheath, lateral aspect; 171, hind femur, lateral aspect. 162: 1.0 × scale-line; 163, 164, 167, 169, 170: 2.3 ×; 165, 166: 1.5 ×; 168: 2.0 ×; 171: 1.1 ×.

slightly convex, rather sparsely but coarsely punctate, steep and carinate anteriorly (except narrowly medially), with distinct lateral carina, and subposteriorly with strong curved, crest-like carina (fig. 165); mesopleuron below precoxal sulcus rather coarsely punctate with most interspaces about equal to diameter of punctures, this area moderately yellowish pilose, above sulcus sparsely punctulate; precoxal sulcus with medium-sized and mostly weak crenulae, shallow medially; metapleural flange rather acute and large; metapleuron finely and sparsely punctate ventrally and remainder punctulate, not obscured by long yellowish setae; propodeum anteriorly rather shiny and hardly sculptured, coarsely areolate medially, areola rather wide, pentagonal and without transverse crenulae, with coarse costulae in front of middle of propodeum (165); spiracles large elliptical.

Wings.— Fore wing: second submarginal cell subparallel-sided, without ramellus (fig. 162); r:3-SR:SR1 = 2:1:10; 2-SR:3-SR:r-m = 26:5:22. Hind wing: M+CU:1-M = 1:2; surroundings of cu-a partly glabrous.

Legs.— Length of hind femur, tibia and basitarsus 5.2, 10.3 and 11.6 times their width, respectively; hind femur densely and rather coarsely punctate, with moderately long and dense silvery setosity, tibia with similar silvery and tarsus with dark brown setae; hind tibia robust, hardly narrowed subbasally and hardly convex apically; length of outer and inner spur of middle tibia 0.45 and 0.65 times their basitarsus, slender; length of outer and inner spur of hind tibia 0.35 and 0.45 times hind basitarsus, respectively, rather slender; fore and middle tarsi robust (figs 167, 169).

Metasoma.— Rather slender, smooth; length of first tergite 1.7 times its apical width, hardly or not depressed sublaterally behind spiracles and without a median crest near it (fig. 166); second tergite without transverse groove; second metasomal suture absent or nearly so; third tergite mainly glabrous dorso-apically; length of ovipositor sheath 0.08 times fore wing, sheath rather narrow and largely setose (fig. 170).

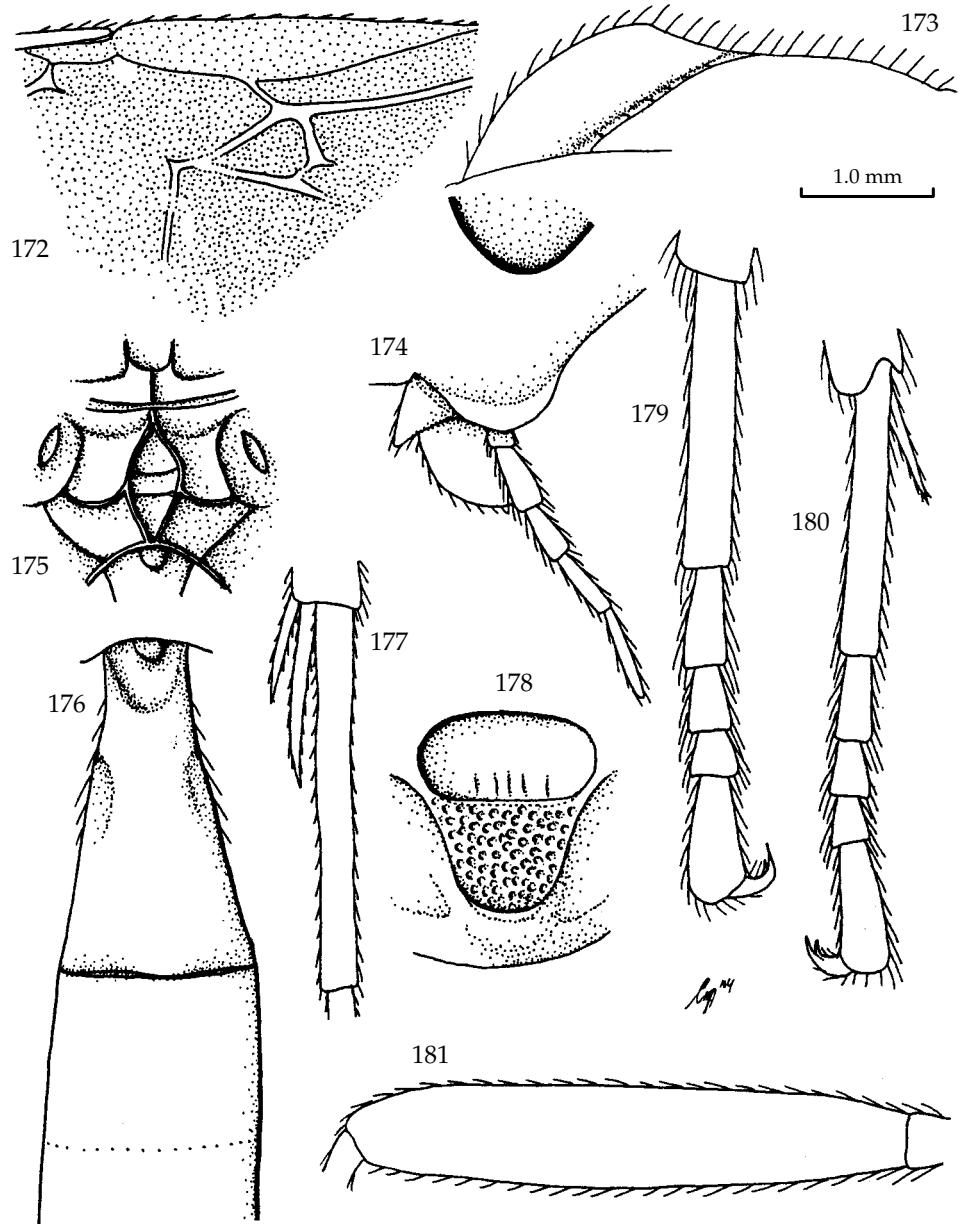
Colour.— Brownish-yellow (including scapus, pedicellus, but latter somewhat darkened, and stemmaticum); first tergite baso-ventrally, epipleura of first and second epipleuron and anterior part of third epipleuron, second tergite laterally and third tergite antero-laterally white or nearly so; notum of first tergite ivory but with dark brown patch medio-posteriorly; remainder of antenna, hind femur and remainder of metasoma black; veins (but medial and posterior veins of basal third of wing yellowish), dorsally hind tibia, hind tarsus, parastigma, ill-defined stigmal spot, pterostigma (but paler posteriorly), middle telotarsus, vein 1-R1 of fore wing and its setae, and ovipositor sheath dark brown; ventrally hind tibia and hind tibial spurs brown; wing membrane moderately brownish, but basal third of fore wing also slightly yellowish.

Distribution.— Papua New Guinea (New Britain).

Euagathis novaguineensis Szépligeti, 1900
(figs 172-181)

Euagathis novaguineensis Szépligeti, 1900: 63; Shenefelt, 1970: 413.

Euagathis papua Cameron, 1906: 46; Shenefelt, 1970: 413; van Achterberg, 1980: 212 (type status). **Syn. nov.**



Figs 172-181, *Euagathis novaguineensis* Szépligeti, ♂, lectotype, but 173 of ♀, Papua, Bernhard Camp and 179-181 of ♀, syntype of *E. papua* Cameron. 172, detail of second submarginal cell of fore wing; 173, mesoscutum, lateral aspect; 174, detail of malar space, lateral aspect; 175, propodeum, dorsal aspect; 176, first-second metasomal tergites, dorsal aspect; 177, hind basitarsus, lateral aspect; 178, scutellum, dorsal aspect; 179, fore tarsus, dorsal aspect; 180, middle tarsus, dorsal aspect; 181, hind femur, lateral aspect. 172, 177, 181: 1.0 × scale-line; 173: 1.7 ×; 174, 178-180: 2.0 ×; 175, 176: 1.1 ×.

Material.— Lectotype of *E. novaguineensis*, ♂ (TMA) "Holl. N. Guinea, Kapaur, Fruhstorfer", "*N. guineensis* [sic!], det. Szépligeti", "Lectotypus ♀ *Euagathis novaguineensis* [sic!], Szépl. 1900 % des. Papp, 1967", "Hym. Typ. No. 728 Mus. Budapest"; syntype of *E. papua* (with head missing), ♀ (ZMA), "Nieuw Guinea-Expeditie 1903, B. Jamoer, 4.viii.[1903]", "*Euagathis papua* Cam., Type, New-Guinea"; 1 ♀ (RMNH), "Neth. Ind.-American New Guinea Exped., Bernhard Camp, 50 m, vii-ix.1938, J. Olthof".

Lectotype of *E. novaguineensis*, ♂ (not ♀ as reported by Szépligeti; it has the apex of the metasoma somewhat damaged but considering the number of visible sternites it must be a male), length of body 11.1 mm, of fore wing 11.9 mm.

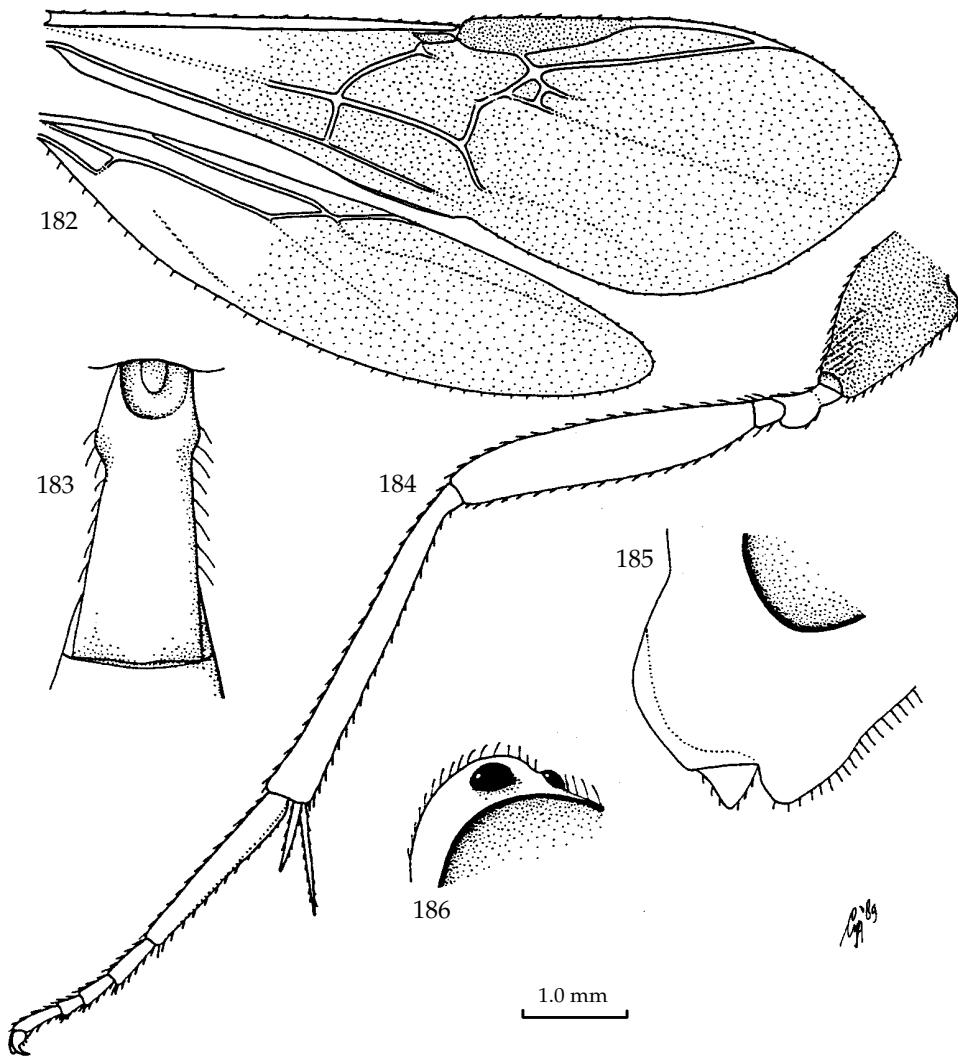
Head.— Antenna incomplete, with 29 segments; length of third antennal segment 1.1 times fourth segment; length of third, fourth and penultimate segments 3.2 and 3.0 times their width, respectively; length of maxillary palp 0.8 times height of head, palpi rather robust (fig. 174); length of eye in dorsal view 1.7 times temple; temples weakly concave laterally and directly narrowed; OOL:diameter of ocellus:POL = 12:3:6; face laterally largely smooth and finely sparsely punctate medially as clypeus; vertex concave near eyes, mainly smooth; crests between antennal sockets subparallel, acute, lamelliform dorsally; occipital flange medium-sized, its ventral margin subhorizontal (fig. 174); length of malar space 2.7 times basal width of mandible.

Mesosoma.— Length of mesosoma 1.4 times its height; ventrally laterally pronotum mainly smooth and dorsally sparsely and finely punctate, with posterior crenulation distinct; subpronope very large and deep; epomia single; middle lobe of mesoscutum coarsely punctate with interspaces about equal to diameter of punctures, with pair of shallow depressions and a weak median crest anteriorly and rather convex dorsally in lateral view (fig. 173), lateral lobes coarsely punctate and distinctly convex, medio-posteriorly mainly smooth and hardly depressed; notauli narrow, distinctly impressed, and mainly smooth, obsolescent posteriorly; scutellum flat, densely punctate (fig. 178), anteriorly truncate, carinate, with complete lateral carina, subposterior crest transverse, slightly curved and strong (fig. 178); mesopleuron (as metapleuron) rather long moderately pilose, area below precoxal sulcus coarsely and densely punctate with interspaces less than diameter of punctures, above sulcus less coarsely and less densely punctate, especially posteriorly finer and more sparsely so; precoxal sulcus complete, medium-sized, distinct and its crenulae medium-sized, moderately robust, but anteriorly rather long; metapleuron rather coarsely and densely punctate, with interspaces about equal to size of punctures; propodeum coarsely areolate, with costulae present, submedially situated, areola transversely costate (fig. 175), lateral carinae complete and strong, hardly protruding posteriorly, spiracles large.

Wings.— Fore wing: second submarginal cell subtriangular, rather narrow anteriorly, without distinct ramellus (fig. 172); r:3-SR:SR1 = 10:5:103; SR1 straight or nearly so; 2-SR:3-SR:r-m = 15:5:14. Hind wing: M+CU:1-M = 34:81; surroundings of cu-a setose.

Legs.— Length of hind femur, tibia and basitarsus 5.4, 8.7 and 11.0 times their width, respectively; hind femur slender (fig. 181), moderately punctate and with distinct smooth interspaces; length of outer and inner spur of middle tibia 0.3 and 0.5 times their basitarsus, robust; length of outer and inner spur of hind tibia 0.35 and 0.45 times hind basitarsus, respectively, slender; fore and middle tarsi slender (figs 179, 180); hind tarsal claws with small inner tooth.

Metasoma.— Slender, smooth; length of first tergite 1.5 times its apical width, tergite distinctly widened apically, slightly convex posteriorly (fig. 176); second



Figs 182-186, *Euagathis paraminuta* Simbolotti & van Achterberg, ♀, holotype. 182, wings; 183, first metasomal tergite, dorsal aspect; 184, hind leg; 185, detail of malar space, lateral aspect; 186, sternithecum, lateral aspect. 182, 184: 1.0 × scale-line; 183: 1.6 ×; 185: 3.3 ×; 186: 1.1 ×. After Simbolotti & van Achterberg (1990).

metasomal suture absent; syntype of *E. papua* has length of ovipositor sheath 0.07 times fore wing, sheath slender.

Colour.— Yellowish-brown; antenna (except scapus and pedicellus), fore and middle trochantelli, hind leg (but femur dorsally dark brown) and metasoma (except dark brown first tergite) black or blackish; wing membrane, veins and pterostigma dark brown, without stigmal spot.

Distribution.— Indonesia (Papua).

Variation.— Hind coxa may be completely yellowish-brown or only ventrally; hind femur may be largely yellowish-brown; first tergite may be mainly blackish except basally; length of fore wing 11.9-14.4 mm; fore tarsus of ♀ slender in dorsal view; apex of middle tibia and telotarsus may be darkened; mesoscutum largely smooth to rather densely and coarsely punctate medio-posteriorly; ovipositor sheath 0.07 times as long as fore wing, slender and its outer side large long setose.

Euagathis paraminuta Simbolotti & van Achterberg, 1990
(figs 182-186)

Euagathis paraminuta Simbolotti & van Achterberg, 1990: 18-19, figs 46, 47, 50, 52, 53.

Material.— Holotype, ♀ (RMNH), "SW. Celebes, 1600 m, G. [= Gunung] Lompobatang, vii., L.J. Toxopeus, 1936"; 1 ♀ + 1 ♂ (RMNH), "Indonesia: Sulawesi, Bantimurung, nr entrance, c 30 m, 23.iv.1991, C. v. Achterberg, RMNH'91"; 1 ♀ (RMNH), "Indonesia: C. Sulawesi, nr Luwuk, Bunga, c. 300 m, 21-31.x.1989, Mal. trap 16, C. van Achterberg, RMNH'89"; 1 ♀ (MZB), id., but 1-14.xi.1989, Mal. trap 17; 1 ♀ (RMNH), "Indonesia: SW Sulawesi, Gn. Bulusaraung, nr Camba, Malawa, Mal. trap 1, c. 750 m, 7.ii-28.iii.1995, C. v. Achterberg & Y. Yasir, RMNH'95"; 1 ♀ + 15 ♂♂ (RMNH, ZMB), "Indonesia: Taliabu, near Tubang, 10-40 m, along road, 10-18.iii.1995, C. van Achterberg, & Y. Yasir RMNH'95".

Distribution.— Indonesia (Sulawesi, Taliabu).

Euagathis pulcha Szépligeti, 1902
(figs 187-196)

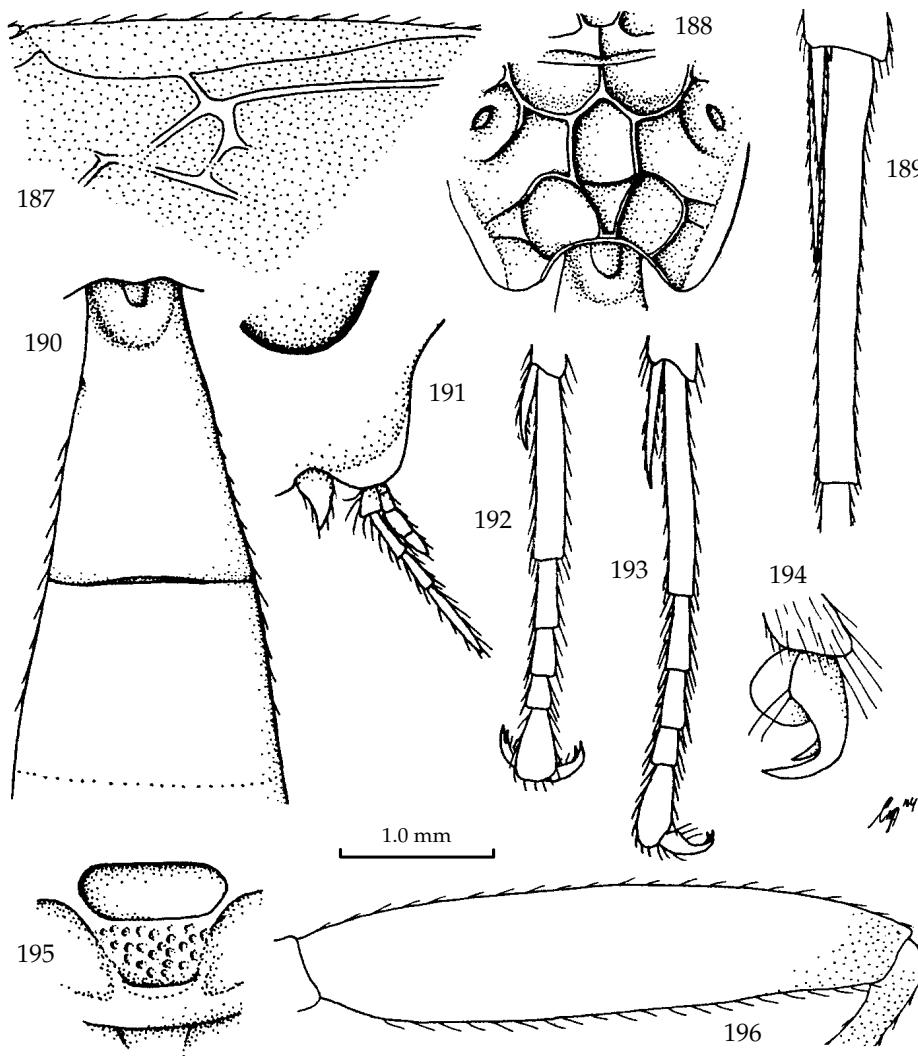
Euagathis pulcha Szépligeti, 1902: 69; Shenefelt, 1970: 414.

Material.— Lectotype, ♂ (TMA), "[Papua New Guinea], N. Guinea, Biró, 1899", "Simbang, Huon Gulf", "pulcher, det. Szépligeti", "Lectotypus ♂ *Euagathis pulcha* Szépl., 1902 % des. Papp, J., 1967", "Hym. Typ. No. 730 Mus. Budapest".

Lectotype, ♂, length of body 6.6 mm and of fore wing 6.4 mm.

Head.— Antenna incomplete, with 15 segments, length of third segment 1.2 times as long as fourth segment, length of third and fourth segments 3.0 and 2.6 times as long as wide, respectively; length of maxillary palp 0.6 times height of head, palpi rather slender (fig. 191); length of eye in dorsal view 1.9 times temple; temples weakly concave laterally, and directly narrowed; OOL:diameter of ocellus:POL = 9:5:5; face laterally largely smooth, medially sparsely punctate; vertex largely smooth; crests between antennal sockets parallel, rather obtuse dorsally; occipital flange large, subhyaline, wide, its ventral margin subhorizontal (fig. 191); length of malar space 2.6 times basal width of mandible.

Mesosoma.— Length of mesosoma 1.4 times its height; laterally pronotum mainly smooth, dorsally sparsely and finely punctate, and posteriorly weakly crenulate; subpronope very deep, wide and large; epomia single; middle lobe of mesoscutum coarsely punctate with interspaces about equal to diameter of punctures but smooth posteriorly, with pair of shallow grooves and a weak median crest anteriorly and rather convex dorsally in lateral view, lateral lobes coarsely punctate and rather



Figs 187-196, *Euagathis pulcha* Szépligeti, ♂, lectotype. 187, detail of second submarginal cell of fore wing; 188, propodeum, dorsal aspect; 189, hind basitarsus, lateral aspect; 190, first-second metasomal tergites, dorsal aspect; 191, detail of malar space, lateral aspect; 192, fore tarsus, dorsal aspect; 193, middle tarsus, dorsal aspect; 194, outer hind claw, outer aspect; 195, scutellum, dorsal aspect; 196, hind femur, lateral aspect. 187: 1.0 × scale-line; 188, 189, 196: 1.8 ×; 190-193, 195: 2.0 ×; 194: 4.0 ×.

convex near notaui, medio-posteriorly rather depressed; notaui complete, narrow, distinctly impressed, and mainly finely crenulate but smooth posteriorly, but partly not visible because of pin; scutellar sulcus with a strong median carina; scutellum nearly flat, moderately punctate, anteriorly truncate, carinate, with lateral carina only posteriorly developed, subposterior crest transverse, slightly curved and strong,

without longitudinal carinae (fig. 195); mesopleuron (as metapleuron) moderately pilose, area below precoxal sulcus very coarsely and densely punctate with interspaces less than diameter of punctures, above sulcus coarsely and less densely punctate; anterior half of precoxal sulcus absent, posterior half narrow, distinct and its crenulae short, rather robust; metapleural flange obtuse and medium-sized; metapleuron coarsely and densely punctate, less densely so dorsally; antero-medially propodeum somewhat rugulose, with comparatively large closed areola and with costulae distinct (fig. 188), lateral carinae nearly complete and rather strong; spiracles medium-sized.

Wings.— Fore wing: second submarginal cell slender subtriangular, narrow anteriorly, without ramellus (fig. 187); r:3-SR:SR1 = 10:6:123; SR1 slightly sinuate; 2-SR:3-SR:r-m = 19:6:17. Hind wing: M+CU:1-M = 30:71; surroundings of cu-a glabrous and cu-a strongly widened basally.

Legs.— Length of hind femur, tibia and basitarsus 4.4, 8.6 and 8.8 times their width, respectively; hind femur moderately slender (fig. 196), densely and coarsely punctate; length of outer and inner spur of middle tibia 0.4 and 0.6 times their basitarsus, slender (fig. 196); length of outer and inner spur of hind tibia 0.3 and 0.5 times hind basitarsus (fig. 189); fore and middle tarsi slender (figs 195, 196); inner tooth of hind tarsal claws comparatively large (fig. 194).

Metasoma.— Moderately slender, smooth; length of first tergite 1.4 times its apical width, tergite distinctly widened apically, rather flat posteriorly, subbasally slightly convex (fig. 190); second metasomal suture absent.

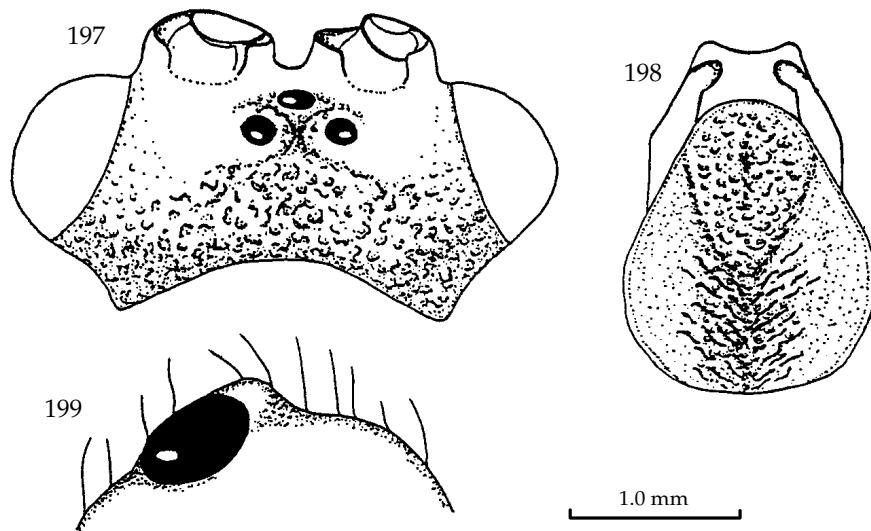
Colour.— Yellowish-brown; clypeus and first metasomal tergite pale yellowish, strongly contrasting with dark brown face and second tergite, respectively; antenna (except black scapus and pedicellus) brown; palpi, tegulae, fore and middle legs, and hind femur (except darkened apex) and metasoma ventro-basally pale yellowish; pterostigma, apex of hind coxa, hind trochanter and trochantellus, hind tibia and tarsus more or less dark brown; wings evenly and veins moderately brownish.

Distribution.— Papua New Guinea.

Euagathis punctata Szépligeti, 1902
(figs 197-199)

Euagathis punctata Szépligeti, 1902: 69; Shenefelt, 1970: 414 (lectotype designation); Bhat & Gupta, 1977: 213-214; Simbolotti & van Achterberg, 1990: 18-19, figs 40-42.

Material.— Lectotype, ♀ (TMA), “Celebes, Minahassa”, “Getotes”, “punctatus”, det. Szépligeti”, “728b”, “Lectotypus, ♀, *Euagathis punctata* Szépl., 1902, det. Papp’67”, “Hym. Typ. No 731, Museum Budapest”; 1 ♂ (RMNH), “N. Celebes, Dr. W. Kaudara, 1917”, “N. Celebes, Goeroepaki, 4.iv.1917, W. Kaudara”; 1 ♀ + 2 ♂♂ (RMNH), “Indonesia: C. Sulawesi, Lore-Lindu N.P., ca 1000 m, 1°15’S 120°20’E, 4-9.xii.1985 (♀, Malaise trap 1, PW 53) or 4 and 7.xii.1985, nr Dongi-Dongi shelter, C. v. Achterberg, RMNH’86”; 2 ♂♂ (RMNH, MZB), “Indonesia: N. Sulawesi, Dumoga-Bone N.P., ca 220 m, nr Base Camp Toraut R., 0°34’N 123°54’E, 22.xi.1985, C. v. Achterberg, RMNH’86”; 1 ♀ + 1 ♂ (RMNH), “Indonesia: C. Sulawesi, nr Luwuk, Salodik, 300-400 m, 1-3.xi.1989, C. van Achterberg & M. Tulung, RMNH’89”; 1 ♀ (RMNH), “Indonesia: C. Sulawesi, nr Luwuk, Salodik-Lenyek, c. 500 m, 22.x.1989, C. van Achterberg & J. Warouw, RMNH’89”; 1 ♀ (RMNH), “Indonesia: C. Sulawesi, nr Luwuk, Bunga, c. 300 m, 21-31.x.1989, Mal. trap 16, C. van Achterberg, RMNH’89”; 3 ♂♂ (RMNH, MZB), id., but trap 15; 1 ♀ (RMN), id., but 1-14.xi.1989, trap 14; 1 ♀ (RMNH), id., but trap 15; 3 ♂♂ (RMNH, ZMB),



Figs 197-199, *Euagathis punctata* Szépligeti, ♀, lectotype. 197, head, dorsal aspect; 198, pronotum and mesoscutum, dorsal aspect; 199, stemmaticum, lateral aspect. 197: 1.0 × scale-line; 198: 0.6 ×; 199: 2.0 ×. After Simbolotti & van Achterberg (1990).

"Indonesia: SE. Sulawesi, nr Sanggona, Base Camp, Gn. Watuwila, c. 200 m, 15.x-5.xi.1989, Mal. trap 5, C. van Achterberg, RMNH'89"; 4 ♀♀ (RMNH, MZB), id., but trap 6; 1 ♀ (RMNH), id., but c. 225 m, and trap 1; 1 ♀ (RMNH), id., but 12-15.x.1989, trap 5; 1 ♀ (RMNH), id., but trap 12; 2 ♂♂ (RMNH, MZB), "Indonesia: Sulawesi, N.P., nr entrance, 23.iv.1991, c. 30 m, C. v. Achterberg, RMNH'91"; 2 ♂♂ (RMNH), "Indonesia: Sulawesi, nr Bantimurung, Ciaker Alam (Laya), c. 450 m, 20.iv.1991, C. v. Achterberg, RMNH'91"; 1 ♀ (RMNH), "Indonesia: Sulawesi, nr Bantimurung, Patttunuang Asue, 17-20.iv.1991, c. 60 m, C. v. Achterberg, RMNH"; 1 ♀ (RMNH), "Indonesia: Sulawesi, nr Bantaeng, Borong Rappoa, Gn. Daulu, c. 700 m, 4-24.iv.1991, Mal. trap 17, C. v. Achterberg, RMNH'91"; 3 ♂♂ (RMNH, MZB), "Indonesia: SW Sulawesi, Gn. Bulusaraung, nr Camba, Malawa, Mal. trap 2, c. 750 m, 7.ii-28.iii.1995, C. v. Achterberg & Y. Yasir, RMNH'95"; 3 ♀♀ (RMNH), id., but trap 1; 5 ♀♀ (RMNH), id., but trap 3; 1 ♀ + 2 ♂♂ (RMNH, MZB), "Indonesia: SW Sulawesi, Gn. Bulusaraung, nr Camba, Malawa, Mal. trap 1, c. 800 m, 21.ii-25.iii.1997, C. v. Achterberg & R. de Vries, RMNH'97"; 3 ♀♀ + 2 ♂♂ (RMNH, MZB), id., but trap 2; 4 ♀♀ + 2 ♂♂ (RMNH), id., but trap 3.

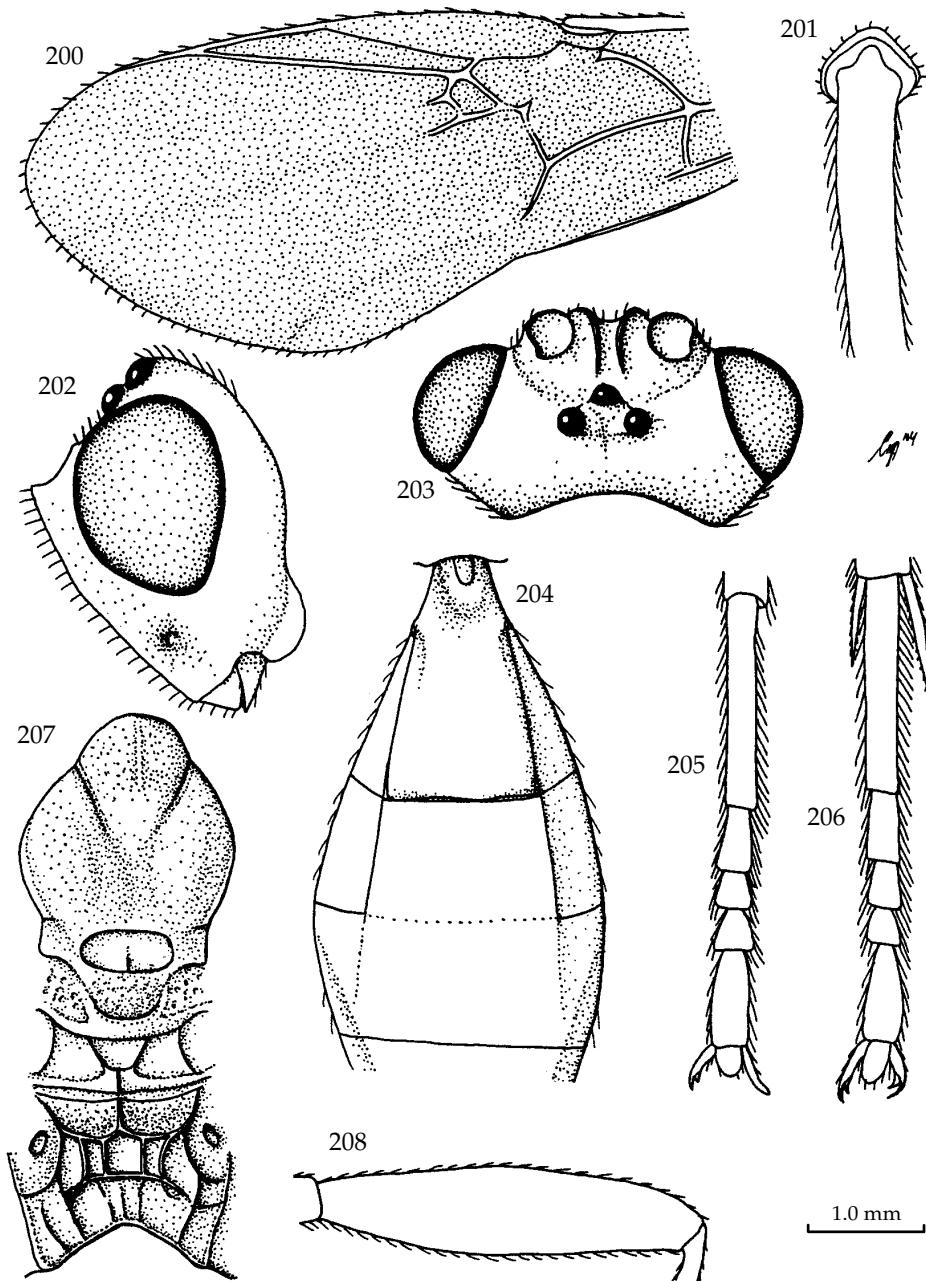
Note.— The stemmaticum and the mesosoma may be blackish. The first listed five males from C. Sulawesi were collected by hand when flying fast at a sunny spot inside the forest.

Distribution.— Indonesia (Sulawesi).

Euagathis raymondi spec. nov.
(figs 200-208)

Material.— Holotype, ♀ (RMNH), "Indonesia: Irian Jaya], 11 km S. Bupul; 20 m, 7°39'S 140°53'E, 9.iv.1988, R. Hensen".

Holotype, ♀, length of body 7.7 mm, of fore wing 8.3 mm.



Figs 200-208, *Euagathis raymondi* spec. nov., ♀, holotype. 200, fore wing; 201, base of hind tibia, dorsal aspect; 202, head, lateral aspect; 203, head, dorsal aspect; 204, first-third metasomal tergites, dorsal aspect; 205, fore tarsus, dorsal aspect; 206, middle tarsus, dorsal aspect; 207, mesosoma, dorsal aspect; 208, hind femur, lateral aspect. 200: 1.0 × scale-line; 201: 2.0 ×; 202, 205, 206: 2.3 ×; 203: 1.7 ×; 204, 207: 1.5 ×; 208: 1.1 ×.

Head.— Antenna incomplete, 45 segments remaining; length of third antennal segment 1.3 times fourth segment; length of third and fourth segments 2.9 and 2.3 times their width, respectively; length of maxillary palp 0.6 times height of head, palpi rather slender; length of eye in dorsal view 2.2 times temple; temples straight laterally and directly narrowed behind eyes (fig. 203), in anterior view directly narrowed; OOL:diameter of ocellus:POL = 10:5:6; face rather densely punctulate; clypeus rather sparsely punctate, medially flattened and hardly differentiated from face; stemmaticum not protruding; vertex distinctly but sparsely punctulate; crests between antennal sockets subparallel, strong, short and rather widely separated; frons nearly flat; occipital flange large, lamelliform, wide, its ventral margin curved (fig. 202); length of malar space 2.7 times basal width of mandible; malar space long and densely setose.

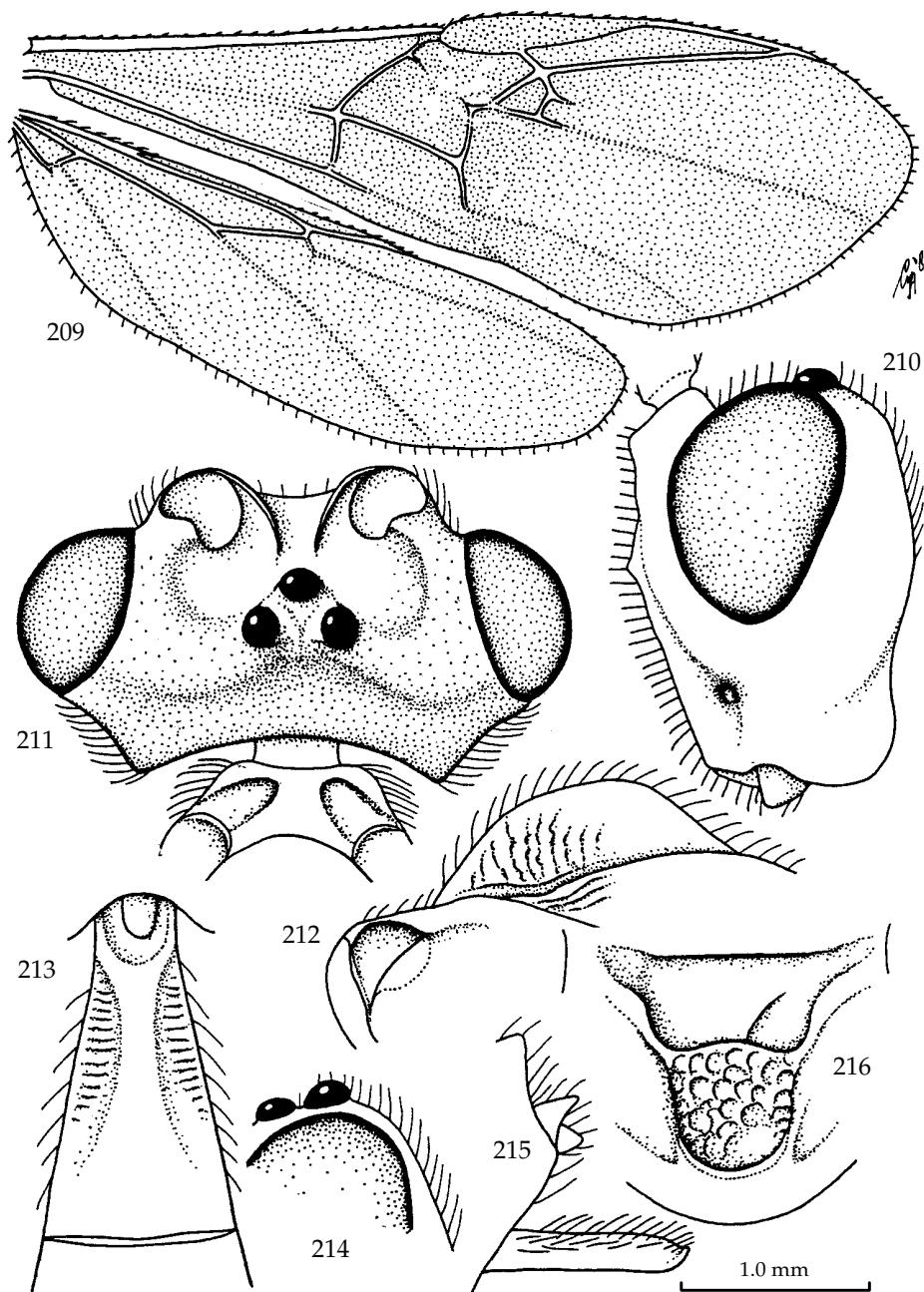
Mesosoma.— Length of mesosoma 1.4 times its height; laterally pronotum sparsely punctulate dorsally and remainder smooth; subpronope deep, large; epomia single, short; mesoscutum rather densely punctate with interspaces mostly wider than diameter of punctures, medio-posterior third depressed medially and lateral lobes posteriorly rather convex and laterally flattened, its middle lobe distinctly convex, smooth posteriorly, with a weak median elevation anteriorly; notauli rather distinctly impressed, complete but posteriorly shallow and largely smooth; scutellar sulcus only with one rather weak carina; scutellum weakly convex, coarsely and densely punctate, rather steep and rounded anteriorly, with weak lateral carina, and subposteriorly with strong curved, crest-like carina (fig. 207); mesopleuron below precoxal sulcus densely and coarsely punctate with interspaces about equal to diameter of punctures, this area moderately yellowish pilose, above sulcus largely smooth, punctulate; precoxal sulcus with short and rather strong crenulae, rather deep; metapleural flange wide, obtuse; metapleuron mainly finely and sparsely punctate (but posteriorly coarsely punctate), not obscured by long yellowish setae; propodeum coarsely areolate medially, anteriorly punctate-rugose, areola medium-sized and with a transverse carina, with oblique costulae in front of middle of propodeum (fig. 207); spiracles large and elliptical.

Wings.— Fore wing: second submarginal cell pentangular, with short ramellus (fig. 200); r:3-SR:SR1 = 5:4:115; 2-SR:3-SR:r-m = 19:4:16. Hind wing: M+CU:1-M = 1:2; surroundings of cu-a glabrous.

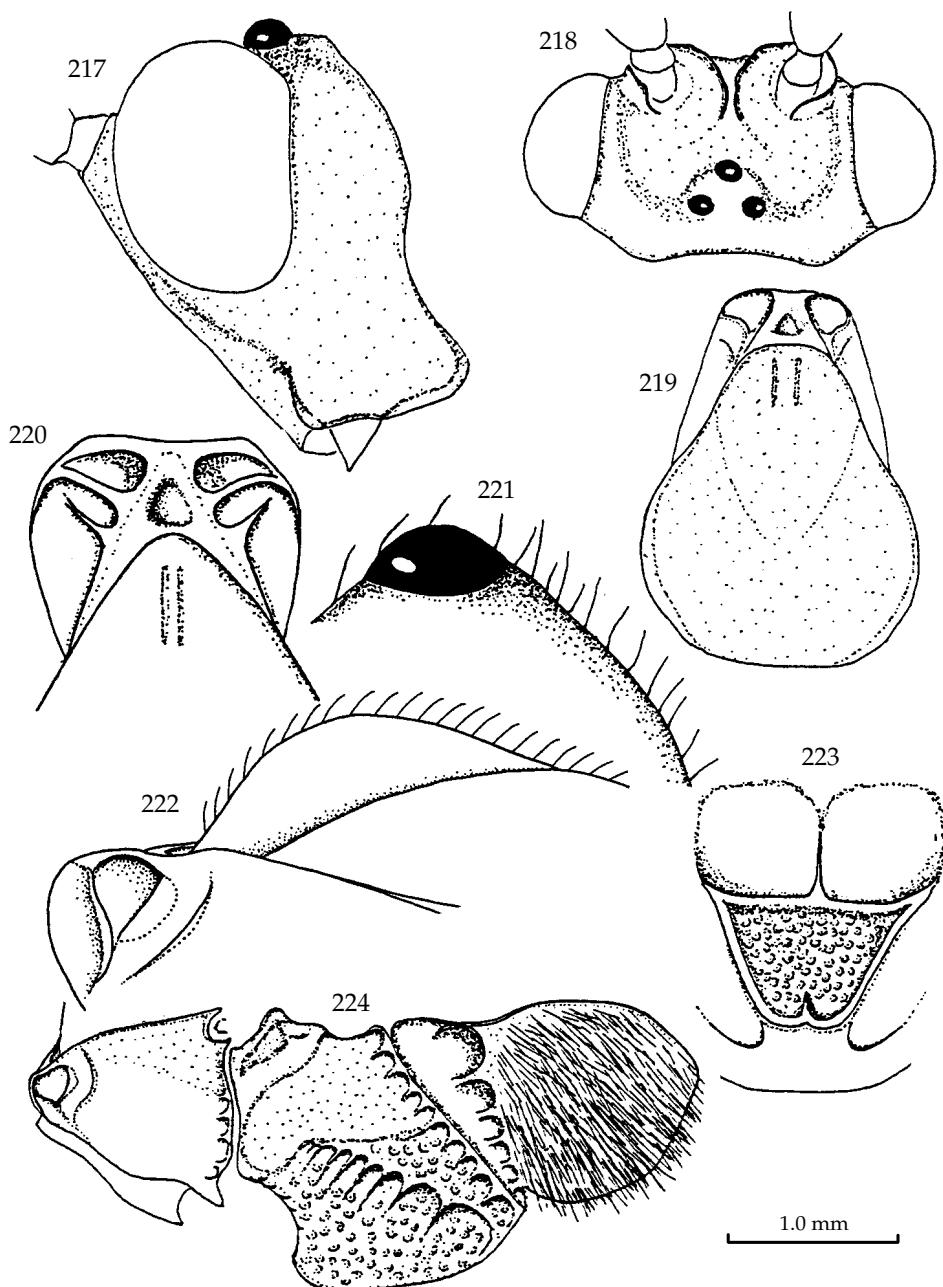
Legs.— Length of hind femur, tibia and basitarsus 4.7, 10.0 and 9.8 times their width, respectively; hind femur densely and rather superficially punctate, with moderately long and dense yellowish setosity, more bristly and setae of tibia and tarsus dark brown; hind tibia slender subbasally in dorsal view and flattened apically; length of outer and inner spur of middle tibia 0.25 and 0.35 times their basitarsus, slender; length of outer and inner spur of hind tibia 0.35 and 0.50 times hind basitarsus, respectively, rather slender; fore and middle tarsi rather slender (figs 205, 206).

Metasoma.— Rather slender, smooth; length of first tergite 1.5 times its apical width, with a few setae subapically, without depression sublaterally and medially flattened (fig. 204); second tergite without transverse groove; second metasomal suture shallow and narrow; third tergite with few setae subapically; ovipositor sheath invisible, length of exerted ovipositor 0.07 times fore wing.

Colour.— Yellowish-brown; head (except occipital flange), antenna, metasoma (but first tergite narrowly brown basally, and basal half ventrally and laterally ivory) and hind femur largely black or blackish; hind tibia (but apical half ventrally and



Figs 209-216, *Euagathis rufoscapa* Simbolotti & van Achterberg, ♀, holotype. 209, wings; 210, head, lateral aspect; 211, head, dorsal aspect; 212, pronotum and mesoscutum, lateral aspect; 213, first metasomal tergite, dorsal aspect; 214, stemmaticum, lateral aspect; 215, ovipositor sheath, lateral aspect; 216, scutellum, dorsal aspect. 209: 0.3 × scale-line; 210-212, 214-216: 2.0 ×; 213: 1.0 ×.



Figs 217-224, *Euagathis subpilosa* Simbolotti & van Achterberg, ♀, holotype. 217, head, lateral aspect; 218, head, dorsal aspect; 219, pronotum and mesoscutum, dorsal aspect; 220, pronotum, dorsal aspect; 221, stematicum, lateral aspect; 222, pronotum and mesoscutum, lateral aspect; 223, scutellum, dorsal aspect; 224, pronotum, mesopleuron and metapleuron, lateral aspect. 217: 1.4 × scale-line; 218, 223, 224: 1.6 ×; 220, 221: 2.0 ×; 222: 2.3 ×. After Simbolotti & van Achterberg (1990).

laterally largely brown), hind tarsus (but basally narrowly yellowish), wing veins (but vein C+SC+R basally and M+CU1 of fore wing yellowish, and veins 1-R1 and 2-R1 of fore wing pale brown with dark brown setae), parastigma and pterostigma (including setae) dark brown; and ovipositor sheath dark brown or blackish; basal 0.4 of fore wing membrane and of hind wing pale brownish, area below parastigma completely dark brown (fig. 200), without distinct stigmal spot and remainder of fore wing more or less dark brown.

Distribution.— Indonesia (Papua).

Note.— It is a pleasure to name this species after its collector, the hymenopterist Raymond Hensen (Amsterdam).

Euagathis rufoscapa Simbolotti & van Achterberg, 1990
(figs 209-216)

Euagathis rufoscapa Simbolotti & van Achterberg, 1990: 20-21, figs 24-31 (description).

Material.— Holotype, ♀ (RMNH), "Indonesia: SE. Sulawesi, nr Sanggona, c. 100 m, sandy river bank, 11.x.1989, C. van Achterberg, RMNH". Paratypes: 3 ♀♀ (RMNH, MZB); 2 ♀♀, "Indonesia: SE. Sulawesi, nr Sanggona, Mt. Watuwila Base Camp, c. 200 m, 15.x.1989, RMNH'89, C. van Achterberg"; 1 ♀, "Indonesia: C. Sulawesi, nr Luwuk, Salodik, c. 400 m, 19.x.1989, C. van Achterberg & J. Warouw, RMNH'89"; 3 ♀♀ (RMNH, ZMB), "Indonesia: SE. Sulawesi, nr Sanggona, Base Camp, Gn. Watuwila, c. 200 m, 15.x-5.xi.1989, Mal. trap 5, C. van Achterberg, RMNH'89"; 1 ♀ (RMNH), id., but 19.x.-5.xi.1989, trap 12; 1 ♀ (RMNH), "Indonesia: SW Sulawesi, Gn. Bulusaraung, nr Camba, Mallawa, Mal. trap 2, c. 800 m, 21.ii-25.iii.1997, C. v. Achterberg & R. de Vries, RMNH'97".

Note.— The holotype and the paratype from Salodik were collected flying at the border of rainforest; both other paratypes were collected inside a somewhat distorted part of evergreen rainforest.

Distribution.— Indonesia (Sulawesi).

Euagathis subpilosa Simbolotti & van Achterberg, 1990
(figs 217-224)

Euagathis subpilosa Simbolotti & van Achterberg, 1990: 21-22, figs 16-23 (description).

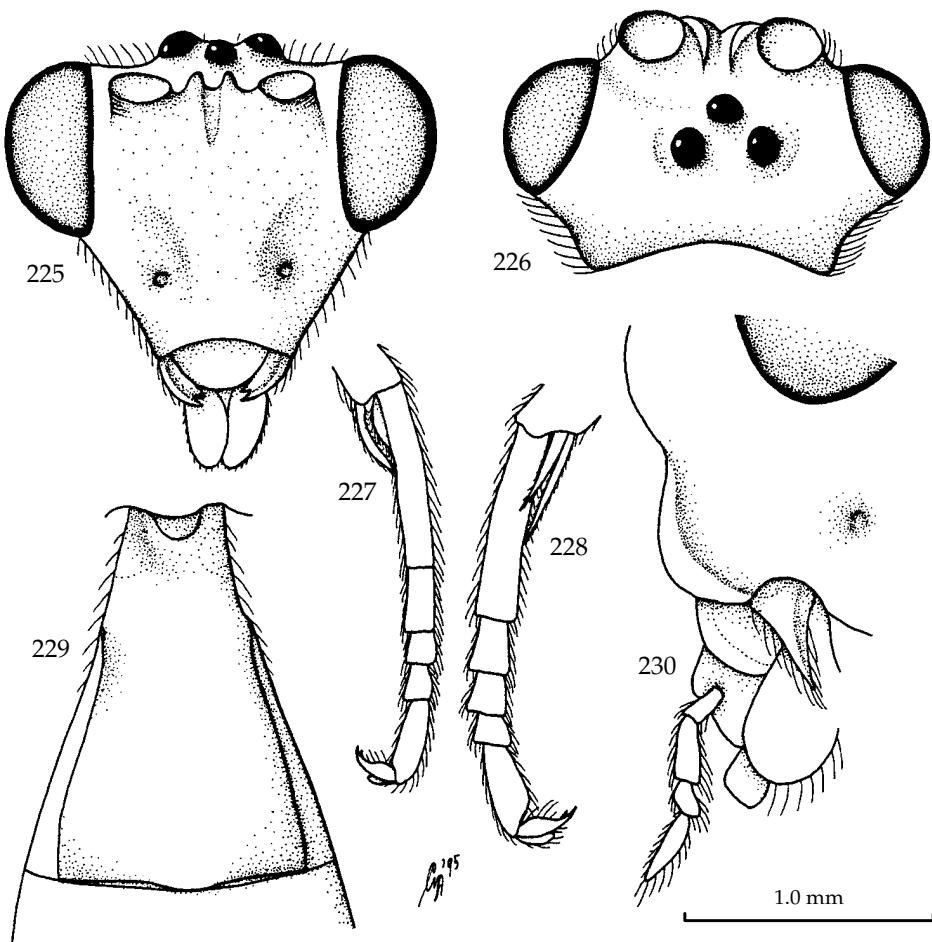
Material.— Holotype, ♀ (RMNH), "Indonesia: N. Sulawesi, ca 100 m, Tangkoko-Dua Saudara N.R., 1°30'N 125°10'E, 28.xi.1985, C. v. Achterberg, RMNH'86". Paratypes: 2 ♀♀ (RMNH, MZB), "Indonesia: N. Sulawesi, 20 km N. Bitung: Tangkoko N.P., 200 m, 1°34'N 125°12'E, 19.iv.1988, R. Hensen".

Distribution.— Indonesia (Sulawesi).

Euagathis tambora Simbolotti & van Achterberg, 1995
(figs 225-230)

Material.— Holotype, ♀ (RMNH), "Indonesia: Sumbawa, Gn. [= Mountain] Tambora, nr Pancasila, 700-800 m, 23.ix.1993, R. de Jong, RMNH'93".

Distribution.— Indonesia (Sumbawa).



Figs 225-230, *Euagathis tambora* Simbolotti & van Achterberg, ♀, holotype. 225, head, anterior aspect; 226, head, dorsal aspect; 227, fore tarsus, dorsal aspect; 228, middle tarsus, dorsal aspect; 229, first metasomal tergite, dorsal aspect; 230, detail of malar space, lateral aspect. 225, 226, 229: 1.0 × scale-line; 227, 228, 230: 1.4 ×.

Euagathis tobiasi van Achterberg, 2004
(figs 231-238)

Euagathis tobiasi van Achterberg, 2004: 103-105, figs 1-8.

Material.—Holotype, ♂ (RMNH), “Indonesia: N Sulaw[esi], 20 km N Bitung, Tangkoko N.P., 0-200 m, 1°34'N 125°12'E, 19.iv.1988, R. Hensen”.

Holotype, ♂, length of body 15.1 mm, of fore wing 15.1 mm.

Head.—Antenna incomplete, 30 segments remaining; length of third antennal

segment 1.1 times fourth segment; length of third and fourth segments 3.4 and 3.0 times their width, respectively; length of maxillary palp 0.8 times height of head, palpi rather slender; length of eye in dorsal view 1.2 times temple; temples slightly concave laterally and gradually narrowed behind eyes (fig. 236), in lateral view behind eye angulated posteriorly, in anterior view gradually narrowed; OOL:diameter of ocellus:POL = 18:4:7; face rather densely and finely punctate, and medially punctulate and with shallow longitudinal depression; clypeus rather sparsely finely punctate, medially flattened and not differentiated from face; stemmaticum not protruding; vertex sparsely punctulate; crests between antennal sockets somewhat converging, strong; occipital flange large, lamelliform, wide, its ventral margin oblique (fig. 234); length of malar space 1.8 times basal width of mandible; malar space long and densely setose.

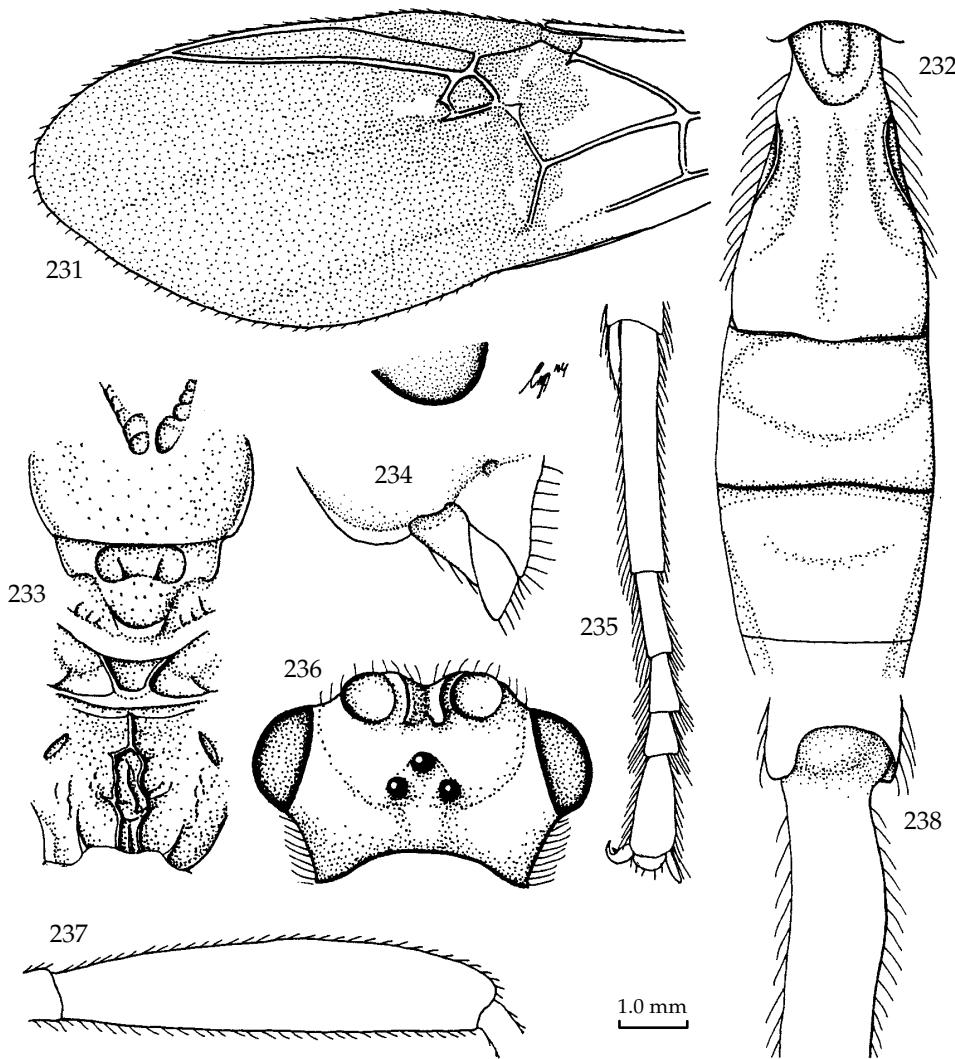
Mesosoma.— Length of mesosoma 1.4 times its height; laterally pronotum sparsely punctulate dorsally, with some crenulae anteriorly and postero-ventrally and remainder smooth; subpronope deep, large; epomia single; mesoscutum sparsely punctate with interspaces much wider than diameter of punctures, medio-posterior third flat and lateral lobes flattened and laterally smooth, its middle lobe distinctly convex, smooth posteriorly, with a shallow median groove anteriorly; notauli distinctly impressed, complete and coarsely crenulate; scutellar sulcus only with 2 sublateral strong carinae; scutellum flattened, partly smooth and partly coarsely and rather densely punctate, steep and angulate anteriorly, no lateral carina, and subposteriorly with strong curved, crest-like carina (fig. 233); mesopleuron below precoxal sulcus sparsely and finely punctate with interspaces mostly much more than diameter of punctures, this area moderately yellowish pilose, above sulcus similarly punctate (interspaces more than diameter of punctures) or smooth; precoxal sulcus with medium-sized and very strong crenulae, deep; metapleural flange absent; metapleuron finely and sparsely punctate, not obscured by long yellowish setae and anteriorly with some coarse rugae; propodeum coarsely areolate medially, areola narrow and with coarse irregular rugae, without costulae in front of middle of propodeum (fig. 233); spiracles large and elliptical.

Wings.— Fore wing: second submarginal cell quadrangular, without ramellus (fig. 231); r:3-SR:SR1 = 3:2:63; 2-SR:3-SR:r-m = 11:2:10. Hind wing: M+CU:1-M = 1:2; surroundings of cu-a normally setose.

Legs.— Length of hind femur, tibia and basitarsus 4.4, 8.8 and 10.4 times their width, respectively; hind femur densely and moderately punctate, with moderately long and dense yellowish setosity, tibia and tarsus with shorter (and of tarsus dark brown) setae; hind tibia robust, hardly narrowed subbasally (fig. 238) and rather convex apically; length of outer and inner spur of middle tibia 0.35 and 0.60 times their basitarsus, slender; length of outer and inner spur of hind tibia 0.25 and 0.40 times hind basitarsus, respectively, rather slender; fore and middle tarsi slender (fig. 235).

Metasoma.— Slender, smooth; length of first tergite 1.5 times its apical width, distinctly depressed sublaterally behind spiracles and with a median crest near it (fig. 232); second tergite with shallow transverse curved groove; second metasomal suture deep and rather narrow (fig. 232); third tergite with sparsely setose apical band; parameres long and densely yellowish setose.

Colour.— Yellowish-brown; antenna, head, patch on second epipleuron, third-sixth tergites, seventh tergite basally and hind tarsus black; mesosternum, middle lobe



Figs 231-238, *Euagathis tobiasi* van Achterberg, ♂, holotype. 231, fore wing; 232, first-third metasomal tergites, dorsal aspect; 233, mesosoma (except anterior part), dorsal aspect; 234, detail of malar space, lateral aspect; 235, fore tarsus, dorsal aspect; 236, head, dorsal aspect; 237, hind femur, lateral aspect; 238, base of hind tibia, dorsal aspect. 231: 1.0 × scale-line; 232, 233, 237: 1.5 ×; 234-236, 238: 1.9 ×.

of mesoscutum, lateral lobes anteriorly, inner and dorsal side of apex of hind femur, hind tibia (but outer side basally brownish), veins of apical half of wings, vein C+SC+R apically and pterostigma (including setae) dark brown; parastigma brown; basal half of wing membrane yellow (including vein 1-M), without stigmal spot (fig. 231); vein 1-R1 of fore wing and its setae dark brown.

Distribution.—Indonesia (Sulawesi).

Euagathis toxopeusi spec. nov.
(figs 239-248)

Material.— Holotype, ♂ (RMNH), “[Indonesia: Papua], Neth. Ind. Amer. New Guinea Exp. 1938-39, Hollandia, vii.[19]38, - m, L.J. Toxopeus”.

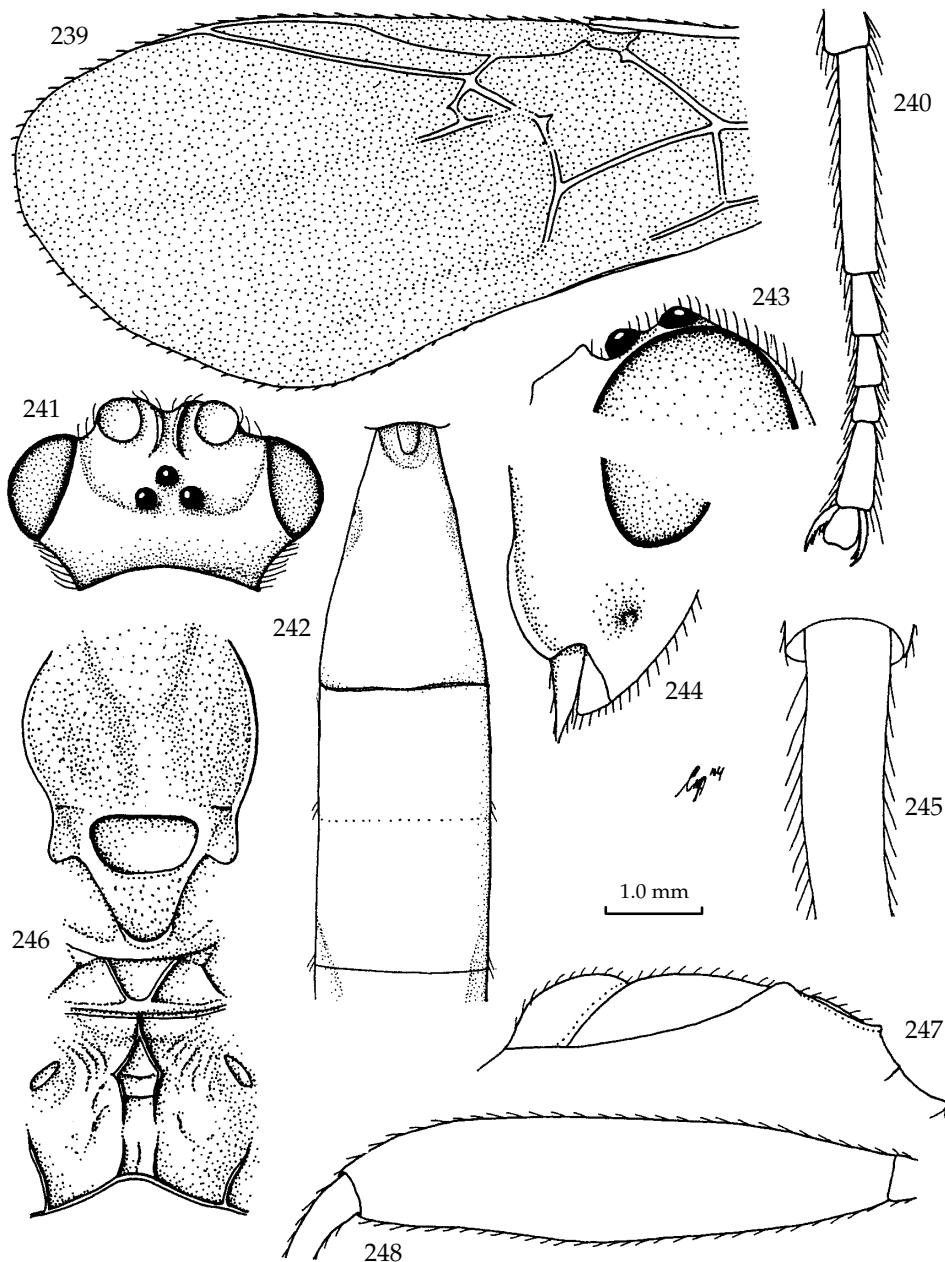
Holotype, ♂, length of body 12.6 mm, of fore wing 12.3 mm.

Head.— Antenna with 58 segments; length of third antennal segment as long as fourth segment; length of third and of fourth segments 3.2 times their width; length of maxillary palp 0.7 times height of head, palpi rather robust basally and slender apically; length of eye in dorsal view 1.9 times temple; temples nearly straight laterally and narrowed behind eyes (fig. 241), in lateral view behind eye rounded posteriorly, in anterior view gradually narrowed; OOL:diameter of ocellus:POL = 118:4:5; face and clypeus sparsely punctulate, and medially without longitudinal depression; clypeus medially convex and not differentiated from face; stemmaticum not protruding (fig. 243); vertex sparsely punctulate; crests between antennal sockets subparallel-sided, strong; occipital flange long, lamelliform, comparatively narrow, its ventral margin subhorizontal (fig. 244); length of malar space 2.5 times basal width of mandible; malar space rather short and sparsely setose.

Mesosoma.— Length of mesosoma 1.5 times its height; side of pronotum sparsely punctate dorsally and medially, with some crenulae anteriorly, punctate-crenulate posteriorly; subpronope deep, large; epomia coarse, single; mesoscutum erect setose, rather densely punctate with interspaces slightly wider than diameter of punctures but medio-posteriorly less densely punctate and nearly flat, lateral lobes flattened sublaterally, its middle lobe distinctly convex, largely smooth posteriorly, with a weak median elevation anteriorly; notauli distinctly impressed, complete and smooth; scutellar sulcus with one carina; scutellum flattened, largely coarsely and rather densely punctate, steep and angulate anteriorly, with lateral carina, and subposteriorly with strong curved, crest-like carina (fig. 246); mesopleuron below precoxal sulcus densely and coarsely punctate with interspaces mostly equal to diameter of punctures or less, this area moderately yellowish pilose, above sulcus mostly finely punctate (interspaces more than diameter of punctures) or smooth; precoxal sulcus with rather short and strong crenulae, rather deep; metapleural flange present as a medium-sized carina; metapleuron rather coarsely and sparsely punctate, not obscured by long yellowish setae and anteriorly with some very coarse carinae in deep groove; propodeum coarsely areolate medially, areola narrow and with some rather coarse irregular rugae, but largely smooth or nearly so, without costulae in front of middle of propodeum, but area somewhat elevated (fig. 246); spiracles large and elliptical.

Wings.— Fore wing: second submarginal cell nearly triangular, without ramellus (fig. 239); r:3-SR:SR1 = 6:1:69; 2-SR:3-SR:r-m = 11:1:19. Hind wing: M+CU:1-M = 20:57; surroundings of cu-a largely normally setose.

Legs.— Length of hind femur, tibia and basitarsus 5.1, 8.8 and 11.8 times their width, respectively; hind femur densely and finely punctate, with moderately short and dense yellowish setosity, tibia and tarsus with slightly shorter (and of tarsus dark brown) setae; hind tibia rather slender, distinctly narrowed subbasally in dorsal view and hardly convex apically; length of outer and inner spur of middle tibia 0.35 and



Figs 239-248, *Euagathis toxopeusi* spec. nov., ♂, holotype. 239, fore wing; 240, fore tarsus, dorsal aspect; 241, head, dorsal aspect; 242, first-third metasomal tergites, dorsal aspect; 243, stemmaticum, lateral aspect; 244, detail of malar space, lateral aspect; 245, base of hind tibia, dorsal aspect; 246, mesosoma (except anterior part), dorsal aspect; 247, mesonotum, lateral aspect; 248, hind femur, lateral aspect. 239: 1.0 × scale-line; 240: 2.7 ×; 241, 246-248: 1.9 ×; 242: 1.3 ×; 243: 3.7 ×; 244: 2.4 ×; 245: 3.2 ×.

0.45 times their basitarsus, slender; length of outer and inner spur of hind tibia 0.30 and 0.40 times hind basitarsus, respectively, rather slender; fore and middle tarsi rather long setose and rather robust (fig. 240).

Metasoma.— Slender, smooth; length of first tergite 1.4 times its apical width, hardly depressed sublaterally behind spiracles and without a median crest (fig. 242); second tergite without transverse groove; second metasomal suture absent; third tergite with apical row of setae; parameres largely retracted.

Colour.— Yellowish-brown; scapus, head and hind tarsus black; humeral plate, hind trochanter and trochantellus, base and apex of hind tibia, apex of metasoma narrowly, wing membrane completely, veins, parastigma and pterostigma (including setae) dark brown; remainder of antenna brown.

Distribution.— Indonesia (Papua).

Note.— This species is named after Prof. Dr L.J. Toxopeus (1894-1951) in recognition of his important contribution to our knowledge of the Indonesian fauna.

Euagathis vermiculata Simbolotti & van Achterberg, 1990
(figs 249-256)

Euagathis vermiculata Simbolotti & van Achterberg, 1990: 22-23: figs 32-39 (description).

Material.— Holotype, ♂ (RMNH), "Indonesia: N. Sulawesi, Dumoga-Bone N.P., ca 220 m, nr Base Camp, Toraut R., 0°34'N 123°54'E, 2.xi.1985, C.v.Achterberg, RMNH'85".

Distribution.— Indonesia (Sulawesi).

Note on *Eugathis sentosa* Chen & Yang, 1995

Euagathis sentosus Chen & Yang (in Chen et al.), 1995: 28-31, figs 1A-E.

Euagathis sentosa; van Achterberg & Chen, 2002: 331.

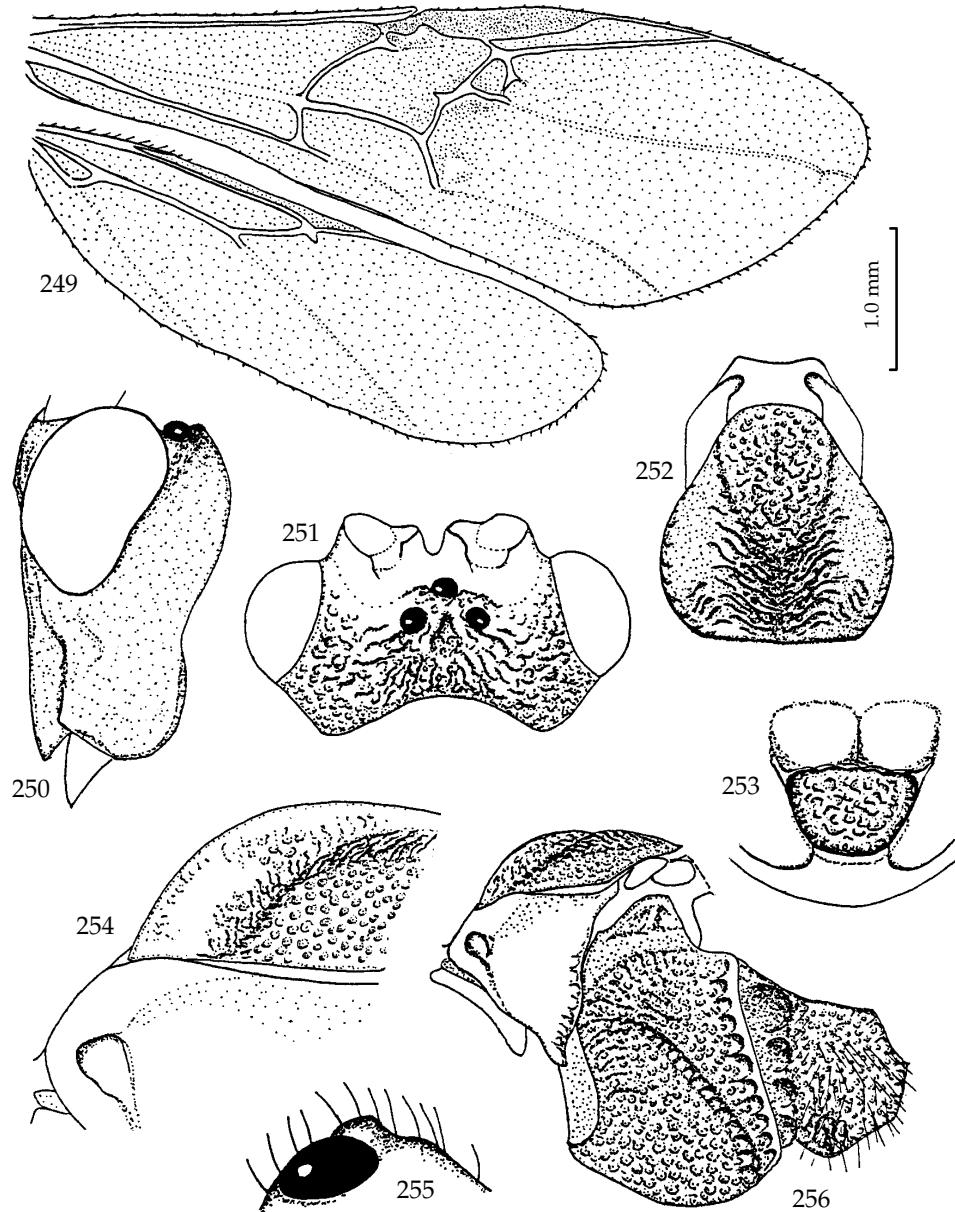
The holotype of *Euagathis sentosa* Chen & Yang, 1995, from Mt Meihua in southern Fujian (China) has been examined and proved to be a valid species near *E. chinensis* (Holmgren, 1868). Van Achterberg & Chen (2002) placed it (without examination of the holotype) with a question mark under *E. forticarinata* (Cameron, 1899) because of the comparatively long head and its sculpture. The head is black dorsally, the outer side of the temple concave in dorsal view and in anterior view the head is elongate. It differs from *E. chinensis* by having the second metasomal suture narrowly impressed and the vein 1-R1 (and its setae) of the fore wing dark brown.

Excluded species

Euagathis variceps Cameron, 1907

Euagathis variceps Cameron, 1907: 32-33; Shenefelt, 1970: 416; van Achterberg, 1980: 213 (lectotype designation).

Agathis etnaella Cameron, 1907: 33; Shenefelt, 1970: 332; van Achterberg, 1980: 211. **Syn. nov.**



Figs 249-256, *Euagathis vermiculata* Simbolotti & van Achterberg, ♀, holotype. 249, wings; 250, head, lateral aspect; 251, head, dorsal aspect; 252, pronotum and mesoscutum, dorsal aspect; 253, scutellum, dorsal aspect; 254, pronotum and mesoscutum, lateral aspect; 255, stemmaticum, lateral aspect; 256, pronotum, mesopleuron and metapleuron, lateral aspect. 249: 0.2 × scale-line; 250: 1.4 ×; 251, 253, 254: 1.0 ×; 252, 256: 0.5 ×; 255: 3.3 ×. After Simbolotti & van Achterberg (1990).

Material.— Lectotype of *E. variceps*, ♀ (ZMA), “[Indonesia], Nieuw-Guinea. Expeditie 1904/5, Etna-baai”, “*Euagathis variceps* Cam., Type, New Guinea”, and my lectotype label; holotype of *E. etnaella*, “[Indonesia], Nieuw-Guinea. Expeditie 1904/5, Etna-baai”, “*Agathis etnaella* Cam., Type, New Guinea”.

The lectotype of *E. variceps* belongs to the genus *Cremnops* Foerster, 1862 (*Cremnops variceps* (Cameron, 1907) **comb. nov.**); the holotype of *A. etnaella* Cameron, 1907, is conspecific and differs by having the hind leg and the propodeum largely darkened. Both type series originate from the Etna Bay in Papua (Indonesia).

Euagathis cameroni Enderlein, 1920

Euagathis fuscipennis Cameron, 1906: 45-46 (not Brullé, 1846); Shenefelt, 1970: 140; van Achterberg, 1980: 211 (lectotype designation).

Euagathis cameroni Enderlein, 1920: 169; Shenefelt, 1970: 410.

Material.— Lectotype, ♂ (ZMA), “[Indonesia], Manokwari, 8.vi.[19]03”, “*Euagathis fuscipennis* Cam., Type, New Guinea”.

Belongs to the genus *Biroia* Szépligeti, 1900 (*Biroia cameroni* (Enderlein, 1920) **comb. nov.**) and differs from *B. elegans* Szépligeti, 1900, mainly by the yellowish metapleuron, the robust first metasomal tergite (about as long as wide apically), the moderately infuscate wing membrane, pale yellowish metasoma baso-ventrally, the yellowish-brown hind coxa and the comparatively wide propodeal areola.

Euagathis maculipes Cameron, 1911

Euagathis maculipes Cameron, 1911: 245-246; Shenefelt, 1970: 413; van Achterberg, 1980: 212.

Material.— Holotype, ♂ (ZMA), “[Indonesia], Z. Nieuw Guinea, Lorentz 1909-10, Noord Rivier, ix.[19]09”, “*Euagathis maculipes* Cam. Type”.

Belongs to the genus *Zelomorpha* Ashmead, 1900 s.s. (*Zelomorpha maculipes* (Cameron, 1911) **comb. nov.**) with normal fore tibial spurs, metasoma (except for brownish first tergite), base and apex of hind tibia narrowly, hind tibial spurs and hind tarsus dark brown; mesopleuron rather coarsely punctate; areola of propodeum wider; hind coxa, trochanter and trochantellus and femur (except apically) yellowish-brown.

Agathis papuana Cameron, 1907

Agathis papuana Cameron, 1907: 34-35; Shenefelt, 1970: 348 (lectotype designation); van Achterberg, 1980: 212 (invalid lectotype designation).

Material.— Paralectotype [by accident designated and labelled as lectotype; the lectotype is in BMNH, 3.c.924], ♀ (ZMA), “[Indonesia], Nieuw-Guinea. Expeditie 1904/5, Etna-bay”, “*Agathis papuana* Cam., Type, New Guinea”.

Belongs to the genus *Cremnops* Foerster, 1862 (**comb. nov.**). Similar to *Cremnops varipilosella* (Cameron, 1911) **comb. nov.**, but it has the basal 0.4 of the fore wing pale yellowish.

Agathis varipilosella Cameron, 1911

Agathis varipilosella Cameron, 1911: 244; Shenefelt, 1970: 366; van Achterberg, 1980: 213-214.

Material.— Holotype, ♂ (ZMA), “[Indonesia], Z. Nieuw Guinea, Lorentz 1909-10, Bivak Eiland, i.[19]10”, “*Agathis nigropilosella* [sic!] Cam. Type, New Guinea”.

Belongs to the genus *Cremonops* Foerster, 1862 (*Cremonops varipilosella* (Cameron, 1911) **comb. nov.**). Similar to *Cremonops papuana* (Cameron, 1907) **comb. nov.**, but it has the fore wing and the metasoma nearly completely dark brown.

Acknowledgements and abbreviations of depositories

I wish to thank Prof. Dr Jinhua Chen (Beneficial Insects Laboratory, Fujian Agriculture and Forestry University, Fuzhou), Dr I. Naumann and Mrs J. Cardale (Australian National Insect Collection (ANIC), Canberra, Mr W. Hogenes (Zoological Museum, University of Amsterdam (ZMA), Amsterdam), Mr C. O'Toole (Hope Entomological Collections, University Museum (OUM), Oxford), Dr J. Papp (Zoological Museum (TMA), Budapest), and Dr W.J. Pulawski (California Academy of Sciences (CAS), San Francisco) for making (type-)specimens available. RMNH stands for the Nationaal Natuurhistorisch Museum (formerly Rijksmuseum van Natuurlijke Historie), Leiden, and MZB for Museum Bogoriense, Cibinong (Bogor).

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