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REVISION OF THE GENUS *AMYGDALOPS* LAMB, 1914 (DIPTERA, ANTHOMYZIDAE) OF THE ORIENTAL, AUSTRALASIAN AND OCEANIAN REGIONS

J. ROHÁČEK

Department of Entomology, Silesian Museum
Tyršova 1, CZ-746 01 Opava, Czech Republic; E-mail: rohacek@szmo.cz

The Oriental, Australasian and Oceanian species of the genus *Amygdalops* LAMB, 1814 (Diptera, Anthomyzidae) are revised. The genus is re-diagnosed on the basis of the morphological diversity revealed. Fifteen species are recognized, keyed and illustrated. Descriptions of 8 species new to science are given, viz., *A. abnormis* sp. n. (Sri Lanka, India), *A. bisinus* sp. n. (Thailand, Vietnam, Indonesia: Flores I.), *A. curtisi* sp. n. (Thailand, Taiwan), *A. curtistylus* sp. n. (Thailand), *A. cuspidatus* sp. n. (Indonesia: Flores I., Taiwan), *A. pappi* sp. n. (Thailand), *A. silaceus* sp. n. (Mariana Is.), *A. stenopteryx* sp. n. (Thailand). Three species, *A. geniculatus* DE MEIJERE, 1916 (only known from Indonesia: Java), *A. lineola* DE MEIJERE, 1916 (new records from Thailand, Indonesia: Java, Flores I. and Papua New Guinea) and *A. nigrinotum* SUEYOSHI et ROHÁČEK, 2003 (widespread, many new records) are redescribed including revision of available type specimens and remaining 4 species are diagnosed but left unnamed owing to insufficient material. Lectotype of *A. geniculatus* is designated. The relationships of all species are discussed on the basis of newly discovered features of the male and female postabdominal structures and their known distribution is reviewed. Notes on the phylogeny and biogeography of *Amygdalops* species are provided along with 164 original figures.

Key words: Anthomyzidae, *Amygdalops*, new species, relationships, distribution, Oriental, Australasian, Oceanian Regions

INTRODUCTION

The anthomyzid genus *Amygdalops* LAMB, 1914 includes slender acalyptrate flies distinguished by a long-pectinate arista, 2 long and widely spaced orbital setae, the inner vertical setae markedly shorter than outer ones, strongly convex suboval eyes, the fore femur lacking a posteroventral ctenidial spine, and the wing usually with a distinctive preapical dark spot and CuA_1 distinctly shortened.

Amygdalops was originally described as a monotypical genus for *A. thomasseti* LAMB, 1914 from Seychelles. Up to the present, a total of 14 named and several unnamed species have been recognized, the majority of them from the Afrotropical Region (ROHÁČEK 2004). All known species are from the tropical and subtropical areas of the Old World. The Palaearctic species are treated in detail by ROHÁČEK (2006) and those from the Afrotropical Region were revised by ROHÁČEK (2004). However, the genus has not been investigated in the remaining

major biogeographical regions of the Old World, namely, the Oriental, Australasian and Oceanian Regions. Three *Amygdalops* species were described from these areas in the past but except for the most recent addition (SUEYOSHI & ROHÁČEK 2003) they are in a need of a revision. In the Oriental Region, two species were described from Java by DE MEIJERE (1916), viz. *A. geniculatus* DE MEIJERE, 1916 and *A. lineola* DE MEIJERE, 1916 (see also VOCKEROTH 1977); a third species, *A. nigrinotum* SUEYOSHI et ROHÁČEK, 2003 was also recorded from Java on the basis of a specimen misidentified as *A. geniculatus.* The genus has also recently been recorded (unidentified species) from Thailand (PAPP *et al*. 2006). The knowledge of *Amygdalops* is yet poorer in the Australasian Region; no species has been known from Australia or New Zealand, apart from a note about the occurrence of *Amygdalops* sp. in northern Australia in COLLESS and MCALPINE (1970, 1991). In the Oceanian Region only *A. nigrinotum* has been found in Hawaii (SUEYOSHI & ROHÁČEK 2003); it was formerly misreported from these islands as *A. thomasseti* LAMB, 1914 by HARDY and DELFINADO (1980) (see also VOCKEROTH 1989). The aim of this study is not only to revise and redescribe the species discovered by DE MEIJERE (1916) long ago but also to reveal that *Amygdalops* is in fact diverse in these regions (with the possible exception of Australia and New Zealand where the genus is poorly represented).

The genus *Amygdalops* was diagnosed in detail by ROHÁČEK (2004, 2006). Nevertheless, additional information gained from studies of Oriental, Australasian and Oceanian species makes it possible to clarify further the taxonomic limits, diagnosis and relationships of the genus.

MATERIAL AND METHODS

The material examined during this study is deposited in the following collections: AMSA – Australian Museum, Sydney, Australia; BLKU – Biosystematics Laboratory, Graduate Institute of Social and Cultural Studies, Kyushu University, Fukuoka, Japan; BMNH – The Natural History Museum (formerly British Museum of Natural History), London, England, UK; DEBU – Department of Environmental Biology, University of Guelph, Guelph, Ontario, Canada; FBUB – Biologische Sammlung, Fakultät für Biologie, Universität Bielefeld, Bielefeld, Germany; HNHM – Hungarian Natural History Museum, Budapest, Hungary; MHNG – Muséum d'Histoire Naturelle, Genève, Switzerland; NMNS – National Museum of Natural Science, Taichung, Taiwan; SMOC – Silesian Museum, Opava, Czech Republic; USNM – National Museum of Natural History, Smithsonian Institution, Washington, DC, USA; ZMAN – Zoölogische Museum, Instituut voor Taxonomische Zoölogie, Amsterdam, The Netherlands; ZSMC – Zoologische Staatsammlung, München, Germany.

The presentation of label data is strictly verbatim for primary type specimens but standardized for other material examined. Abdomens of a number of specimens were detached and genitalia dissected. After examination, all dissected parts were put into plastic tubes containing glycerine and pinned below the respective specimens; this is indicated by the abbreviation "genit. prep." in the text.

The genus *Amygdalops* is diagnosed following a sequence of characters of ROHÁČEK (2004, 2006). Because species of the *A. nigrinotum* group are externally very similar to *A. nigrinotum*, only this species is described in detail; descriptions of other species of this group are abbreviated, avoiding all features which are not different from those of the latter species or are described in generic diagnosis. Morphological terminology follows that used in my recent monograph (ROHÁČEK 2006) including terms of the male hypopygium. The "hinge" hypothesis of the origin of the eremoneuran hypopygium, re-discovered and documented recently by ZATWARNICKI (1996), has been accepted and, therefore, the following alterations of terms of the male genitalia against my previous papers need to be listed (new term first): ejacapodeme = ejaculatory apodeme, epandrium = periandrium, medandrium = intraperiandrial sclerite, phallapodeme = aedeagal apodeme, transandrium = posterior hypandrial bridge. Morphological terms of the male genitalia are displayed in Figs 2–7, 135, of the female postabdomen and genitalia in Figs 8–13, 20, 44–51.

The cladistic analysis of the phylogenetic relationships has been made manually using the genus *Margdalops* as the sister group of *Amygdalops* (see ROHÁČEK & BARRACLOUGH 2003) with emphasis on the selection of the most parsimonous cladogram. In the following text the species are arranged according to their presupposed phylogenetic relationships.

Abbreviations of morphological terms used in text and/or figures: A_1 – anal vein; ac – acrostichal (seta); afa – aedeagal part of folding apparatus; ag – accessory gland; bm – basal membrane; C – costa; ce – cercus; cp – caudal process of transandrium; cs – connecting sclerite; Cs_3, Cs_4 – 3rd, 4th costal section; CuA_1 – cubitus; dc – dorsocentral (seta); dm – discal medial cell; dm-cu – discal medial-cubital (= posterior, t_p) cross-vein; ea – ejacapodeme; ep – epandrium; f – filum of distiphallus; f_1, f_2, f_3 – fore, mid, hind femur; fc – fulcrum of phallapodeme; gs – gonostylus; hu – humeral (= postpronotal) (seta); hy – hypandrium; is – internal sclerite(s); M – media; ma – medandrium; npl – notopleural (seta); oc – ocellar (seta); ors – orbital (seta); pa – postalar (seta); pg – postgonite; pha – phallapodeme; pp – phallophore; ppl – propleural (= proepisternal) (seta); prg – pregonite; prs – presutural (seta); pvt – postvertical (seta); r_1 – first radial cell; r_{2+3} – second radial cell; R_{2+3} – 2nd branch of radius; R_{4+5} – 3rd branch of radius; r-m – radial-medial (= anterior, t_a) cross-vein; r-m\dm-cu: dm-cu – ratio of length of sector of M between cross-veins and length of posterior cross-vein; s – saccus of distiphallus; S2-S10 – abdominal sterna; sa – supraalar (seta); sc – scutellar (seta); sp – spermatheca; stpl – sternopleural (= katepisternal) (seta); T1-T10 – abdominal terga; t_1, t_2, t_3 – fore, mid, hind tibia; ta – transandrium; vag – vagina; vi – vibrissa; vr – ventral receptacle; vte – outer vertical (seta); vti – inner vertical (seta).

Genus *Amygdalops* LAMB, 1914

Amygdalops LAMB, 1914: 357, Fig. 39, Pl. 21, Figs 48–51 (masculine) [description]; FREY, 1958: 32 [key]; VOCKEROTH, 1977: 241 [catalogue]; HARDY & DELFINADO, 1980: 226 [diagnosis]; SABROSKY, 1980: 650 [catalogue]; ANDERSSON, 1984: 50 [catalogue]; VOCKEROTH, 1989: 548 [catalogue]; ROHÁČEK & FREIDBERG, 1993: 64, Figs 64–93, 119–120 [key]; ROHÁČEK, 1998*a*: 276 [key]; ROHÁČEK, 2004: 159–163 [redescription]; ROHÁČEK, 2006: 39–41 [redescription].

Type species: *Amygdalops thomasseti* LAMB, 1914: 358 (original designation)

Diagnosis – (1) Head slightly higher than long to distinctly longer than high. (2) Eye large, very convex, elongately ellipsoid to rounded quadrangular, with lon-

gest diameter oblique. (3) Occiput strongly concave. (4) Frons very narrow; frontal triangle long, narrow and shining. (5) Frontal lunule reduced, indistinct. (6) Antenna strongly geniculate between pedicel and 1st flagellomere; pedicel overlapping base of 1st flagellomere. (7) Arista very long-pectinate, with longest rays dorsoproximally. (8) Palpus slender, with 1 distinct subapical seta. Cephalic chaetotaxy: (9) pvt small but crossed or strongly convergent; (10) vte and/or posterior ors longest of cephalic setae; (11) vti markedly shorter than vte, about as long as oc; (12) 2 long ors, the posterior in the middle of orbit, the anterior close to fore margin of frons; 2 (less often 1) microsetulae just in front of anterior ors; (13) a single row of minute postocular setulae; (14) 1 long vi and 1 somewhat shorter subvibrissa; (15) peristomal setulae few in number, short, but at least twice as long as postoculars.

(16) Thorax (Fig. 1) distinctly narrower than head. (17) Pleural area with dark, longitudinal band at dorsal margin. Thoracic chaetotaxy: (18) 1 hu, 2 npl (anterior longer); (19) 1 short sa, 1 longer pa; (20) 1 small to minute prs; (21) 2 postsutural dc, both in prescutellar portion of scutum, the posterior very long, the anterior short to very small; (22) ac microsetae in 4–6 rows in front of suture; (23) 2 sc, the apical long, the laterobasal small; (24) 1 minute (to invisible) ppl; (25) 2 stpl, the anterior always shorter and weaker. Legs: (26) Fore leg usually yellow or femur and tibia partly darkened; (27) f_1 without ctenidial spine; (28) t_2 with distinct ventroapical seta; (29) male f_3 with posteroventral row of setae which are shortened and thickened in distal third. (30) Wing (Figs 161–174) long and narrow; (31) wing membrane usually ornamented by dark preapical spot and some whitish areas, rarely unicolourous; (32) C without distinct spinulae; (33) R_{2+3} long, sinuous, ending about twice farther from apex of R_{4+5} than M; (34) R_{4+5} straight to strongly sinuous; (35) R_{4+5} and M slightly to strongly convergent in apical fourth of wing; (36) M usually straight but sometimes sinuous; (37) discal (dm) cell short and narrow, with cross-vein r-m situated near or in front of its middle; (38) CuA_1 short, usually not reaching wing margin; (39) A_1 and anal lobe reduced, anal cell narrow; (40) alula small and very narrow.

Abdomen of male. (41) T1 separate from T2, at least dorsally; (42) T2-T5 large and broad. (43) S1-S5 much narrower and usually paler than associated terga. Male postabdomen: (44) T6 small, transverse, weakly sclerotized and bare; (45) S6-S8 fused dorsolaterally (Fig. 3); (46) S6 strongly asymmetrical and its ventral part very short; (47) S7 asymmetrical, placed laterally; (48) S8 relatively long, less asymmetrical and situated dorsally.

Male genitalia (Figs 2–7, 14–19, 38–43). (49) Epandrium moderately broad, with relatively sparse setae, 1–3 pairs of setae usually longer. (50) Medandrium variable in size, usually relatively high; (51) cercus short to long, weakly sclerot-

ized, finely setose. (52) Gonostylus with longest setae in anterior half of inner side, micropubescence on outer side usually well developed. (53) Hypandrium with internal lobes flat and membranous; (54) transandrium (Figs 7, 17, 30) with caudal process usually represented by a pair of band-like sclerites, sometimes dorsally fused, rarely only single medial sclerite developed. (55) Pregonite fused to hypandrium, only posteriorly separated by narrow notch (Figs 5, 16), either incurved or somewhat projecting ventrally. (56) Postgonite usually simple and slender, more or less flattened and with characteristic basal sclerite attached to its proximal part. (57) Aedeagal part of folding apparatus (Fig. 6) originally dorsally dark and sclerotized (secondarily desclerotized and pale), attached to base of phallapodeme, laterally provided with lenticular or tuberculate armature; (58) connecting sclerite (Figs 3, 6, 135) usually slender and long, pale-pigmented. (59) Basal membrane usually with sclerotized structures (short spines or tubercles). (60) Phallapodeme with distinctly bifurcate base. (61) Aedeagus with short phallophore and (62) distiphallus composed of voluminous membranous saccus and slender sclerotized filum. (63) Membrane of saccus overgrown by rich spines of various lengths and thicknesses; (64) filum formed by 2 long, dark, slender and twisted band-like sclerites, terminating in membranous apex (rarely modified to compact sclerite). (65) Ejacapodeme small, with slender digitiform projection.

(66) Female abdomen with broader terga (T2-T6) and narrower sterna (S2-S5). (67) Postabdomen (Figs 9–10, 45–47) relatively broad and short, terga and sterna (except S6) well sclerotized and dark. (68) T6 and also S6 relatively large. (69) T7 laterally extended and reaching ventral side, usually embedding spiracles; (70) S7 strongly modified, usually narrow and characteristically pigmented, disparate or partly (anteriorly) fused with T7; (71) T8 plate-shaped, small, transversely suboblong; (72) S8 protruding posteromedially, with narrow, postero-(dorso)medial incision. (73) Internal sclerotization of female genital chamber (uterus) developed (Figs 11, 13, 20, 24, 49, 51) but usually weakly sclerotized, formed by fusion of 2 pairs of posterior crooked sclerites and (74) 1 anteroventral, transversely compressed, fine annular sclerite. (75) Anterior part of uterus with membranous pouch-like ventral receptacle (Figs 12, 32) having a digitiform or vermicular terminal projection. (76) Accessory glands of usual form, subterminally with dilated ducts. (77) Spermathecae (1+1) spherical to shortly pyriform (Figs 8, 117), with simple but distinct cervix, and with body surface carrying dark, usually short and blunt spinulae with minute stalked pale globules. (78) T10 small, at least partly dark, with 1 or (rarely) 2 pairs of dorsal setae; (79) S10 slightly larger and longer than T10, simple, densely micropubescent besides fine setulae. (80) Cerci relatively short and broad, with comparatively short setae, those on apex thicker than others, apical seta sometimes reduced to short pale spine.

Discussion – The genus *Amygdalops* can be best diagnosed by the combination of the characters No. 2, 3, 4, 5, 7, 11, 12, 17, 20, 21, 27, 29, 31, 37, 38, 40, 54–57, 60, 70, 72, 75, 77 and 80. However, the Afrotropical genus *Margdalops* ROHÁČEK et BARRACLOUGH 2003 shares some of these features with *Amygdalops*, viz. No. 2–4, 12, 17, 27, 29, 39, 40, 75, 80. These characters are considered synapomorphic and demonstrating close (sister-group) relationships of these genera (for more detail see ROHÁČEK & BARRACLOUGH 2003 and ROHÁČEK 2004). With respect to plesiomorphic character states as found in *Margdalops* the monophyly of *Amygdalops* is supported by the following apomorphies, viz. (5) frontal lunule reduced, (7) arista very long-pectinate, (11) vti markedly shorter than vte, (20) prs reduced, (38) CuA_1 shortened, (54) transandrium medially with (usually paired) caudal process, (55) pregonite fused to hypandrium and posteriorly separated by a narrow notch, (57) aedeagal part of folding apparatus dorsally sclerotized and attached to base of phallapodeme and (70) female S7 strongly modified.

Amygdalops can be practically recognized by the characteristic ellipsoid eyes, position of ors and short vti, combined with long-pectinate arista, short prs, dc macrosetae in prescutellar position, pleura with dark dorsal band, wing with preapical dark spot, short and narrow dm cell and shortened CuA_1. This easily affiliates most species with *Amygdalops*, apart from taxa having wings without dark pattern (as is *A. lineola*) or with pattern modified (as in *A. stenopteryx* and allies, see below). The latter species particularly resemble *Margdalops* but only in similar wing pattern (darkened band along anterior margin of wing) which apparently evolved independently in these groups. In such cases it is advisable to check the whole set of diagnostic features as enumerated above in this paragraph.

Amygdalops is widespread in the tropical to subtropical belts of the Old World; hitherto 14 species have been described but this probably is only a small fragment of the existing species richness. For example, in the Afrotropical fauna there are 11 described species but at least 5 additional were recognized by Roháček (2004) which were left unnamed because of insufficient material. The same is true for the Oriental, Australasian and Oceanian fauna under study. A total of 15 species have been identified in the available material: *A. geniculatus* DE MEIJERE, 1916, *A. lineola* DE MEIJERE, 1916, *A. nigrinotum* SUEYOSHI et ROHÁČEK, 2003 and 12 new species which are described below but only 8 of them are named; the remaining 4 were represented by females only, and, consequently, their naming is postponed pending discovery of male specimens. The species are dealt with below according to the systematic classification arrived at through the cladistic analysis of their relationships.

Amygdalops lineola DE MEIJERE, 1916
(Figs 1–13, 161)

Amygdalops lineola DE MEIJERE, 1916: 208 [description]
Amygdalops lineola: VOCKEROTH, 1977: 241 [catalogue]; Roháček, 1998*b*: 172 [world checklist].

Type material: Holotype male labelled: "Java I.'06, Semarang. Jacobson", "Amygdalops lineola [handwritten by de Meijere], det. de Meijere [printed], type [handritten]", "Amygdalops lineola de Meijere, 1916, ZMAN type DIPT. 0044.1" [red label] (ZMAN, genit. prep., examined).

Other material examined: INDONESIA: Flores I., X859, eastern periphery of village Mataloko, ca 10 km ESE' Badjawa, 200 – 300 m E' mission church and school, 8,49S 121,02E, creek valley, open cultivated land (vegetables, maniok), diverse herbaceous vegetation (–2 m height), grazed by buffaloes, 24.ix.1992, 1 male 3 females (ZSMC, in alcohol; 1 female in SMOC, dried from alcohol); Flores I., X853, Detusoko, 33 road km NE' Ende, 8,45S 121,45E, hot springs, grazed pastures between ponds and stream, swept, eclector, 21.ix.1992, 1 male; Java I., X846, western periphery of village Kaliurang, N' Yogjakarta, eastern edge of canyon, partly grazed, partly cultivated land, moist vegetation, predominantly grass and Carices, 9.ix.1992, swept, eclector, 1 female (ZSMC, in alcohol), all M. v. Tschirnhaus leg. PAPUA NEW GUINEA: Central P., 20 km SE Port Moresby, swept, bushes, 27.xii.1987, 1 male, J. W. Ismay leg. (AMSA). THAILAND: Bangkok, Pratomvan, at light, viii-ix. 1962, 3 males, J. Scanlon leg.; Bangkok, Pratoomvan Dist., at light, 9–10.v.1959, 1 male; Bangkok, Makasan Dist., at light, 11–12.v.1959, 2 males 1 female; Loey Pr., Meung Dist., at light, 1–5.vi.1959, 1 male; Loey Pr., Dan Sai Dist., at light, 6–7.vi.1959, 1 male, all Manop leg. (USNM, 1 male in SMOC).

Redescription – Male. Total body length 1.43–2.06 mm. Body largely yellow (secondarily darkened orange-ochreous in the holotype), only head, scutellum and some markings on thorax and

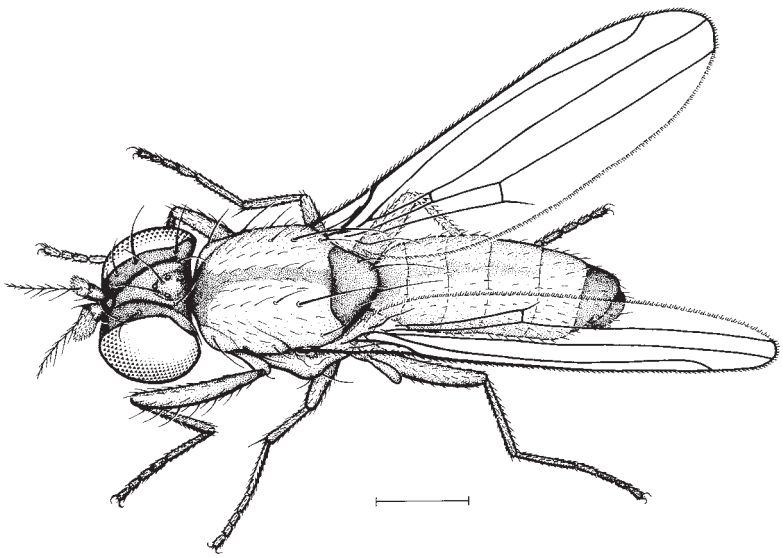
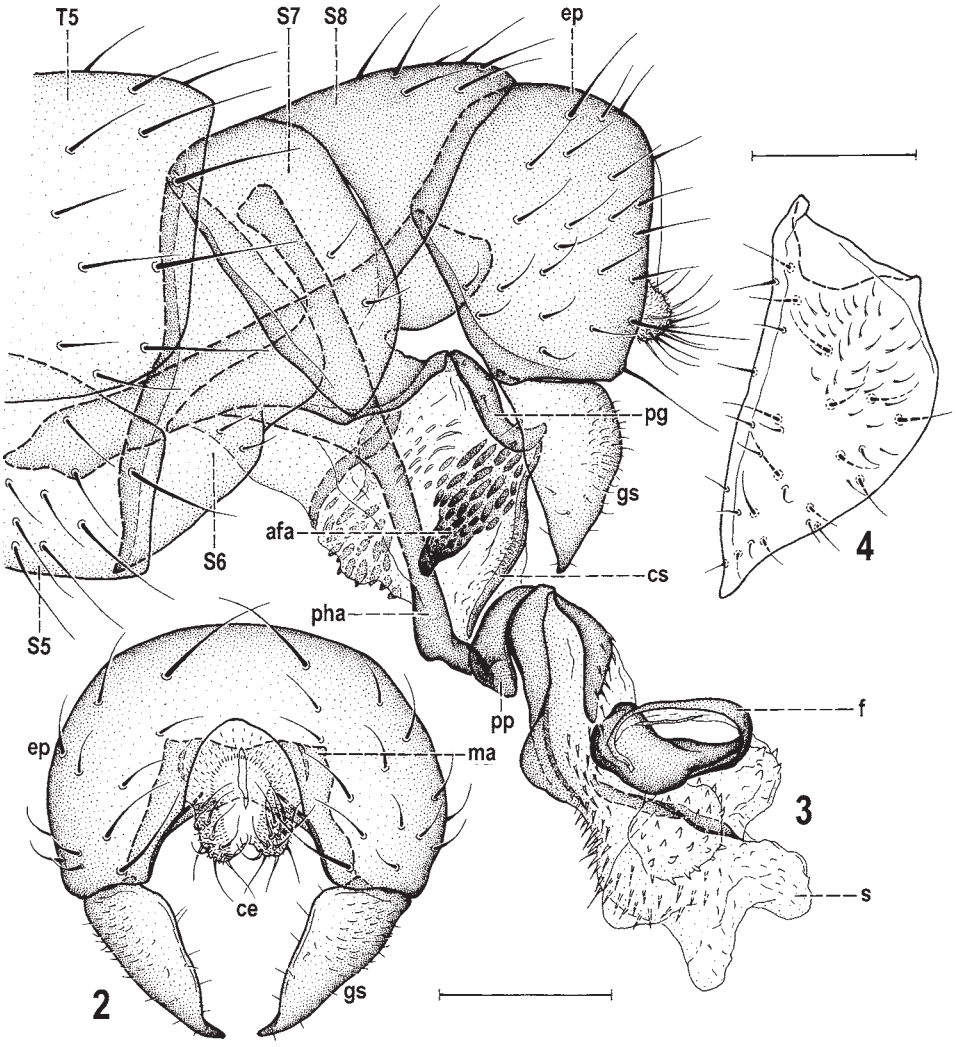


Fig. 1. *Amygdalops lineola* DE MEIJERE, male habitus (Thailand). Scale: 0.5 mm

abdomen dark brown. Head slightly higher than long and (in contrast to most other *Amygdalops* spp.) anteriorly rounded in profile. Occiput dark brown and bare, only postocular stripes and medial area above foramen sparsely greyish microtomentose. Frons relatively narrow, largely shining dark brown. Frontal triangle large, reaching to anterior fifth of frons, entirely (including ocellar triangle) dark brown, glabrous and polished. Anterior fifth to fourth of frons ochreous-yellow. Orbits largely



Figs 2–4. *Amygdalops lineola* DE MEIJERE, male. 2 = external genitalia, caudal view, 3 = postabdomen with genitalia erected, lateral view, 4 = gonostylus, sublateral view (widest extension). Fig. 3 based on holotype, others on males from Thailand. Scales: Fig. 4 = 0.05 mm, others = 0.1 mm. For abbreviations see text

dark brown (ochreous-yellow only anteriorly) and shining; long narrow stripes (darkened and slightly depressed) between frontal triangle and orbits silvery microtomentose and differently glittering. Face very narrow, pale yellow, its margin in front of eye ochreous; gena whitish yellow, sparsely whitish microtomentose. Mouthparts whitish yellow. Cephalic chaetotaxy: pvt small but crossed; vti distinctly shorter and thinner than vte, the latter longest of cephalic setae; oc about as long as vti; 2 long ors (posterior almost as long as vte and anterior markedly shorter) and only 1 small setula in front of anterior ors; no microsetulae in front of frontal triangle; 1 long vi and 1 distinctly shorter subvibrissa (about half to two-thirds of vi); only 3–4 small peristomal setulae; postocular setulae very minute; palpus with 1 subapical seta longer than subvibrissa. Eye convex, elongately ellipsoid; its longest diameter 1.4–1.5 times as long as shortest one. Gena very narrow, somewhat widened posteriorly; its smallest height about 0.05 times as long as shortest eye diameter. Antenna geniculate; pedicel yellow to pale ochreous; 1st flagellomere ochreous around base of arista, otherwise yellowish white and long whitish ciliate on anterior corner. Arista 2.0 times as long as antenna, dorsally very long-pectinate.

Thorax narrower than head, largely yellow or orange-yellow, with brown scutellum and postscutellum. Mesonotum (Fig. 1) yellow to orange, with brown medial longitudinal band being posteriorly and (more so) anteriorly widened. Humeral and notopleural areas pale yellow; a narrow longitudinal stripe at dorsal margin of pleura (from anterior spiracle to haltere) brown; rest of pleura yellow to pale yellow. Thoracic chaetotaxy (see Fig. 1): 1 small prs; 2 dc, posterior very long but anterior short and weak; 4 (rarely 5) rows of ac microsetae on suture; 2 sc, apical slightly shorter than posterior dc, laterobasal small; ppl indistinct; 2 stpl, the anterior weaker; sternopleuron (katepisternum) otherwise with a few minute setulae. Scutellum rounded triangular with convex surface. Legs yellow, coxae and trochanters whitish yellow. f_1 with a row of posteroventral setae (usually 3 of them long) and a row of much shorter posterodorsal setae. f_3 with a short row of 6–7 thickened and shortened posteroventral setae in distal fourth. Wing (Fig. 161) narrow, with almost unicolourous pale yellowish ochreous membrane, only slightly darkened between R_{4+5} and M. R_{2+3} subparallel with C, apically slightly upcurved. R_{4+5} and M close to each other, slightly convergent basally and apically. Cell dm rather short and narrow; r-m situated in its middle. CuA_1 and A_1 not reaching wing margin, the latter very short. Anal lobe and alula reduced. Wing measurements: length 1.42–1.93 mm; width 0.43–0.56 mm, Cs_3: Cs_4 = 2.13–3.10, r-m\dm-cu: dm-cu = 2.89–3.57. Haltere yellowish white to white.

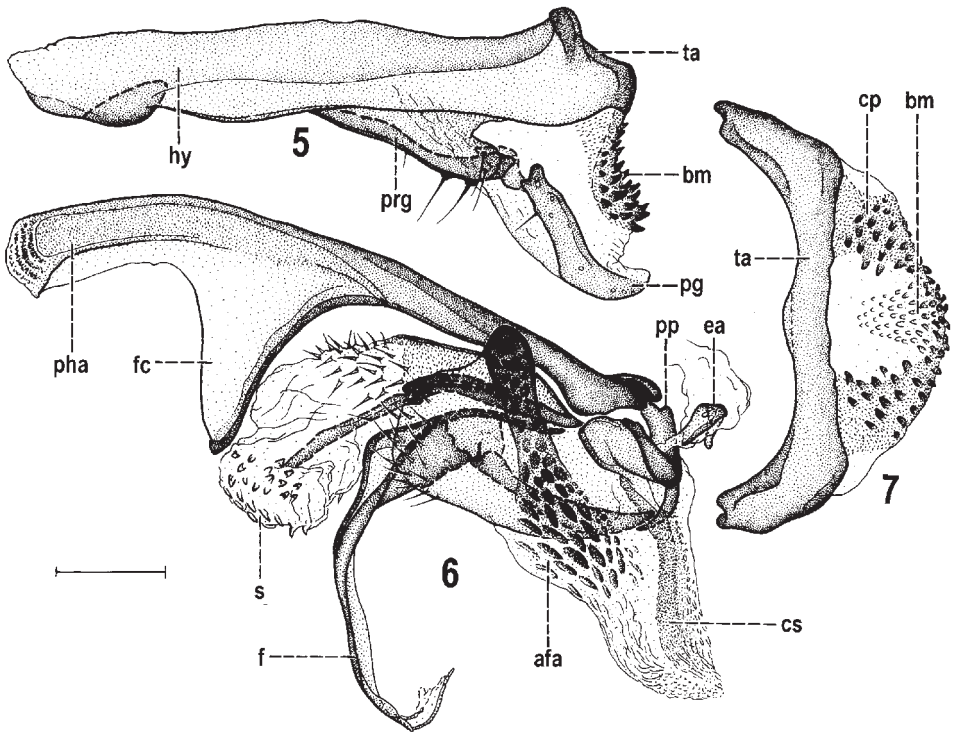
Abdomen. Terga wide, largely yellow, only T1-T3 with lateroventral parts brown and T1-T4 (sometimes also T5) with medial faint spots (sometimes posteriorly widened) ochreous-brown. T1-T5 large, with short setae. T6 reduced, weakly sclerotized and unpigmented, bare. S1-S5 simple, becoming wider posteriorly (S5 largest), pale yellow to whitish, with finer setulae than associated terga. S6-S8 asymmetrical, all dorsally fused (Fig. 3). S6 transverse, pale brown, with thickened dark anterior margin; S7 twice longer than S6, pale brown with very narrow dark anterior margin; both S6 and S7 with 2 setulae; S8 long and dark brown as epandrium, setose as T5.

Genitalia. Epandrium (Figs 2, 3) small compared to internal genitalia, dark brown, sparsely and shortly setose, except for dorsomedial and laterocaudal longer setae. Cercus unusually small and short, with short setae. Medandrium (Fig. 2) also small, very low. Gonostylus (Figs 2–4) simple, proximally wider, distally tapered and apically acutely pointed, with short and sparse setae on inner side; its outer side with scarce setulae and micropubescence restricted to dorsal posterolateral area. Hypandrium relatively robust (Fig. 5), with small membranous internal lobes; transandrium simple, almost straight; caudal process represented by 2 lateral ligulate sclerotizations in basal membrane (Fig. 7). Pregonite (Fig. 5) projecting somewhat posteroventrally forming a distinct lobe, with 5 short setae. Postgonite (Fig. 5) medium-sized, distinctly bent in apical third, with moderately acute apex and bearing 1 anterior setula in basal fourth; basal sclerite of postgonite small. Aedeagal part of fold-

ing apparatus attached to base of phallapodeme (Fig. 6) dorsally darkened, ventrally membranous, provided with elongate sclerotized excrescences; connecting sclerite pale-pigmented, slender, very finely granulose. Basal membrane (Figs 5, 7) and lateral sclerotizations of caudal process with dark short spines (larger laterally and ventrally, smallest posteromedially). Aedeagal complex (Fig. 6) with phallapodeme having widened bifurcate base and long apex. Aedeagus with short phallophore being connected with filum by a long ventral sclerite (Fig. 6). Distiphallus not very large, composed of distally membranous saccus and of slender twisted filum formed by 2 closely attached ribbon-like sclerites. Saccus with slender sharp spines in middle part and with small conical spines on apex. Base of filum widened and strongly sclerotized, apex largely membranous, with stripe-like sclerotization very fine. Ejacapodeme small, with usual digitiform projection.

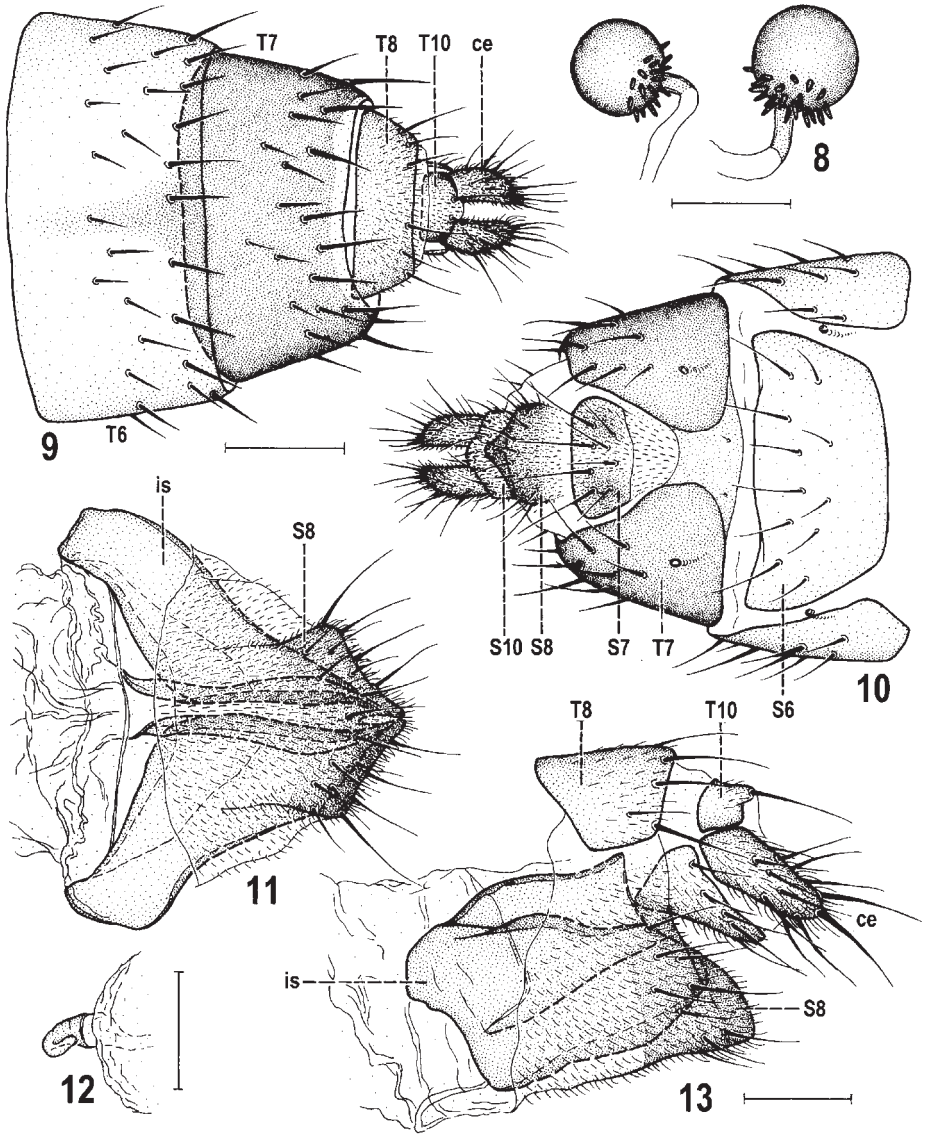
Female (new). Similar to male unless mentioned otherwise. Total body length 1.75–2.40 mm. Antenna with 1st flagellomere more darkened, brown around base of arista. f_3 posteroventrally simply finely setulose. Wing measurements: length 1.71–2.02 mm, width 0.49–0.62 mm, Cs_3: Cs_4 = 2.06–2.69, r-m\dm-cu: dm-cu = 2.50–3.75. Abdomen yellow, with brown lateral spots on T1-T5 and T6 also laterally somewhat darkened. T1-T6 with darkened medial spots (being posteriorly wider and darker). Preabdominal sterna (S1-S5) pale yellow to whitish, becoming wider posteriorly, S5 narrower than S6.

Postabdomen (Figs 9–10) short and wide, sparsely setose. T6 broad, yellow with faintly darkened lateral sides and dorsomedial spot (Fig. 9). S6 transverse, wider than preceding sterna, whitish



Figs 5–7. *Amygdalops lineola* DE MEIJERE, male (Thailand). 5 = hypandrium and associated structures, lateral view, 6 = aedeagal complex, lateral view, 7 = transandrium, caudal view. Scale: 0.05 mm

yellow. T7 long, dark brown, reaching far on ventral side of postabdomen, ventromedially anteriorly connected by pale (in specimens from Thailand – see Fig. 10) to dark brown bridge (in specimens from Java and Flores) and embedding 7th spiracles. S7 short, transversely subtrapezoidal, with bipartite pigmentation (Fig. 10) and only 8 long setae. T8 dark, transverse, plate-shaped, tapered posteri-



Figs 8–13. *Amygdalops lineola* DE MEIJERE, female (Thailand). 8 = spermathecae, 9 = postabdomen, dorsal view, 10 = same, ventral view, 11 = S8 and internal sclerites, ventral view, 12 = ventral receptacle, ventral view, 13 = apex of abdomen with internal sclerites, lateral view. Scales: Figs 9–10 = 0.1 mm, others = 0.05 mm

orly, setose only at posterior margin. S8 dark, small, slightly narrower than S7, with indefinite anterior margin and relatively long fine setae. T10 small, short, paler than T8, with dark sides and with a pair of long setae on protruding (see Fig. 13) posteromedial third. S10 wider and paler than T10, with setulae at posterior margin. Internal sclerotization of genital chamber distinctive (Figs 11, 13), composed of large, wing-like, anterolaterally expanded anterior sclerites and narrower medial sclerites; annular sclerite reduced to indefinite membranous twisted stripe; vaginal area without spinulae. Ventral receptacle (Fig. 12) membranous, short, tapered and strongly ventrally curved, with digitiform, subventrally directed apex. Spermathecae (Fig. 8) ball-shaped, with numerous blunt spines on surface of basal third, and with comparatively long sclerotized cervix. Cerci (Fig. 13) relatively robust, brown, with dense short setosity.

Discussion – *A. lineola* DE MEIJERE, 1916 is an easily recognizable species differing from all congeners by its largely yellow thorax and abdomen combined with dark brown head, anteriorly rounded head profile, almost unicolourous wing, very small male cercus, characteristic modification of the female T7 and S7 and many more features. Interestingly, the extended T7 and shortened S7 resemble somewhat those of the very distantly related Afrotropical species *A. obscurior* ROHÁČEK, 2004. Because of the retention of several plesiomorphic characters, *A. lineola* is considered to be closest to the ancestor of *Amygdalops* thus forming a sister-group to all remaining species from the regions under study.

Biology – New data obtained from material collected by M. v. TSCHIRNHAUS suggest that *A. lineola* is associated with moist (often grazed) vegetation with grasses or sedges and that adults are attracted to light. Collection data are from V–VI, VIII–IX, XII–I.

Distribution – Thailand, Indonesia (Java, Flores), Papua New Guinea.

Amygdalops silaceus sp. n.
(Figs 14–25, 162)

Type material: Holotype male labelled: "Pt. Oca, GUAM, Mariana Is., May 31, 1945, Light Trap, G. E. Bohart, J. L. Gressitt" (intact, USNM). Paratypes: MARIANA Is.: Guam I., same data as for holotype but 28.v.1945, 1 female and 4.vi.1945, 1 female; Guam I., Tumon Bay, iv.1946, 1 male (damaged, abdomen lost), N. L. H. Krause leg.; Guam I., Pt. Ritidian, 1.viii.1945, 1 female, J. L. Gressitt leg.; Rota I., Rota, 20.vi.1946, 1 male, Townes leg.; Saipan I., ex Off.s' mess [= Officer's mess], 7.ix.1944, 4 females (1 damaged), Saipan Med Bn [= Medical Battalion], 2nd Mar. Div. [= 2nd Marine Division] leg. (USNM, 1 female paratype SMOC, 1 male 2 female paratypes with genit. prep.).

Etymology – The species is named for its prevailing colour of thorax (silaceus = Lat. ochreous yellow).

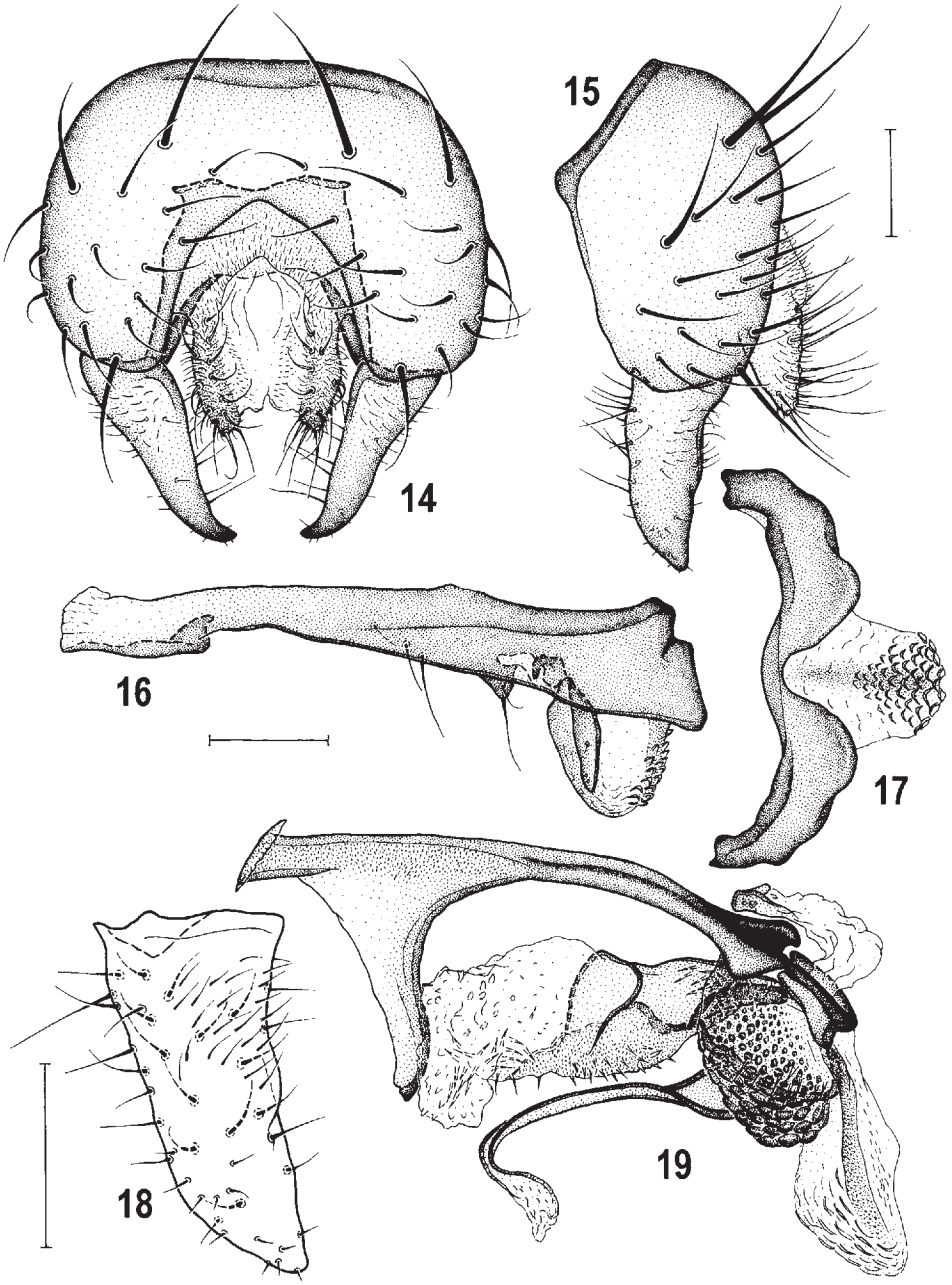
Description – Male. Total body length 1.67–1.75 mm. Body bicolourous, ochreous-yellow and brown. Head about as long as high, distinctly angular in profile. Frons relatively long and narrow, whitish yellow and ochreous-brown. Occiput ochreous-yellow medially and brown laterally, bare,

medial pale area sparsely whitish microtomentose. Frontal triangle narrowly elongate, distinctly depressed, reaching to anterior third of frons, ochreous to ochreous-brown and dull. Ocellar triangle brown between ocelli, ochreous laterally, distinctly shining. Medial stripe in front of frontal triangle dark ochreous-brown, rest of frons including orbits whitish yellow, sparsely whitish microtomentose and subshining. Face narrow, with a pair of brown medial stripes, laterally paler brown; parafacialia, gena and postgena whitish, sparsely silvery white microtomentose. Mouthparts (including palpus) whitish yellow. Cephalic chaetotaxy: pvt small, convergent but not crossed; vti distinctly shorter than vte, the latter and posterior ors longest of cephalic setae; oc about as long as vti; 2 long ors (posterior as long as vte, anterior shorter) and 1 short ors (= enlarged microsetula, inserted close to anterior ors) plus 1 microsetula in front of the latter; 1–2 medial microsetulae in front of frontal triangle; 1 long vi and 1 shorter subvibrissa (about two-thirds of vi); 4–5 weak peristomal setulae; postocular setulae minute; palpus with 1 dark seta as long as subvibrissa. Eye strongly convex, elongately ellipsoid; its longest diameter 1.6 times as long as shortest one. Gena narrow, markedly widened posteriorly; its smallest height about 0.07 times as long as shortest eye diameter. Antenna with pedicel ochreous; 1st flagellomere with large area around base of arista ochreous-brown, rest white and whitish ciliate on anterior corner. Arista only 1.5 times as long as antenna.

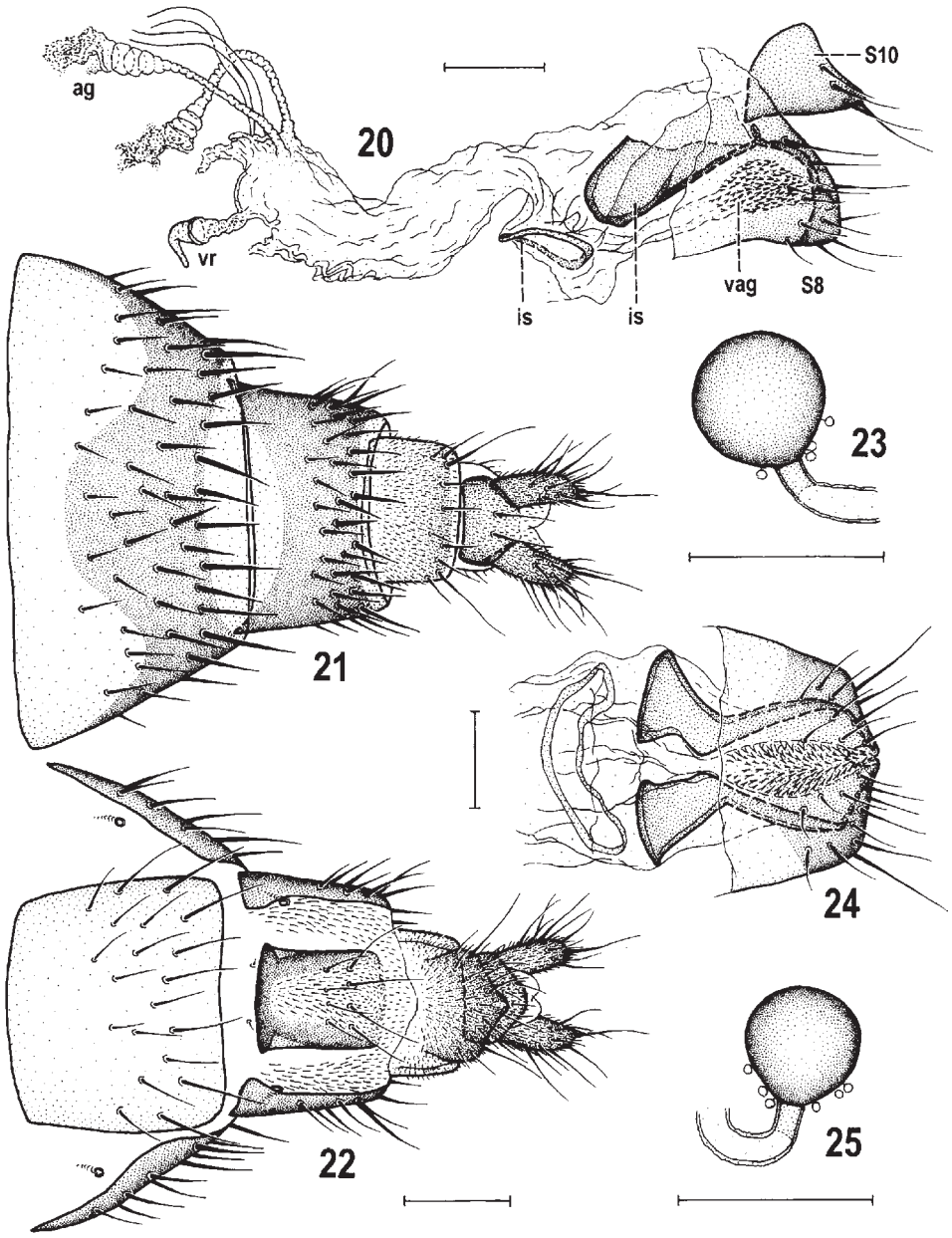
Thorax narrower than head, with distinctive bicolourous pattern. Mesonotum with broad ochreous-yellow medial area (between dc and sc setae) extended from thoracic neck to apex of scutellum; only lateral sides with (dark) brown longitudinal band reaching onto basal corners of scutelum; humeral and notopleural areas narrowly ochreous-yellow. Pleural part with brown longitudinal band along dorsal margin (from anterior spiracle to haltere); rest of pleura yellow to whitish yellow. Thoracic chaetotaxy: 1 prs reduced to microseta; 2 dc (anterior short and weak, posterior very long); 4–5 rows of ac microsetae on suture but only 2 rows behind posterior dc; 2 sc, apical yet longer than posterior dc, laterobasal short; ppl indistinct; 2 stpl, anterior weak and short; ventral part of sternopleuron with about 5 pale hair-like setae. Scutellum ochreous-yellow, with only basal corners brown. Legs yellow, coxae, trochanters and tarsi usually paler. f_3 with posteroventral row of 7–8 densely arranged setae in distal third, the most distal 4–5 thickened and shortened. Wing (Fig. 162) narrow, with almost unicolourous pale ochreous membrane faintly brownish darkened only at Cs_3, more diffuse beyond this. Veins pale brown. R_{2+3} subparallel and running close to C, with slightly upcurved apex terminating far from apex of R_{4+5}. R_{4+5} and M close to each other, subparallel or slightly convergent apically. Cell dm short and narrow; r-m situated near its middle. CuA_1 and A_1 not reaching wing margin, the former less than half length of the latter. Alula strongly reduced but anal lobe distinct. Wing measurements: length 1.47–1.63 mm; width 0.47–0.51 mm, Cs_3: Cs_4 = 2.25–2.90, r-m\dm-cu: dm-cu = 3.71–4.43. Haltere with dark yellow stem and brown knob.

Abdomen. Terga moderately wide, rather sparsely and shortly setose. T1-T3 almost entirely brown (or paler brown at anterior margin of T3); T4 and T5 brown, with large anterolateral semicircular yellow spots (in T5 almost meeting anteromedially). T6 reduced, desclerotized and unpigmented, bare. Sterna (S1-S5) simple, relatively wide, becoming slightly wider posteriorly (S5 largest), pale yellow, with finer setae than on terga. S6-S8 asymmetrical, all partly fused together. S6 most transverse; S7 on left side of postabdomen, 1.5 times as long as S6. Both S6 and S7 ochreous-brown, with anterior darkened marginal strip-like swelling and each with 2 microsetae. S8 longer than S7, dark brown as epandrium and similarly setose as T5. 7th left spiracle large, embedded in S7 near its anterior margin laterodorsally.

Genitalia. Epandrium (Figs 14–15) relatively wide, with strong setae, 1 dorsomedial, 1 dorsolateral and 1 caudal longest; anal opening moderate (Fig. 14). Cercus large, slightly shorter than gonostylus. Medandrium (Fig. 14) small compared to epandrium. Gonostylus (Fig. 18) shorter than epandrium, narrow, suboblong, with tapered but rounded apex slightly bent inside (cf. Fig. 14); its outer side with a few setulae and reduced micropubescence (restricted to posterodorsal area); inner



Figs 14–19. *Amygdalops silaceus* sp. n., male paratype (Rota I.). 14 = external genitalia, caudal view, 15 = same, lateral view, 16 = hypandrium and associated structures, lateral view, 17 = transandrium, caudal view, 18 = gonostylus, laterocaudal view (widest extension), 19 = aedeagal complex, lateral view. Scales: 0.05 mm



Figs 20–25. *Amygdalops silaceus* sp. n., female paratype (Guam I.). 20 = genital chamber with internal sclerites, S8 and S10, lateral view (micropubescence omitted), 21 = postabdomen, dorsal view, 22 = same, ventral view, 23 = spermatheca, 24 = S8 with internal sclerites, ventral view, 25 = spermatheca. Scales: Figs 21–22 = 0.1 mm, others = 0.05 mm

side of gonostylus with longer setae, particularly near anterior margin. Hypandrium (Fig. 16) simple, slender, with weak unpigmented internal lobes; transandrium (Fig. 17) strongly bent medially, with deeply concave ventral margin; caudal process only indicated by medial dark-pigmented stripe. Pregonite (Fig. 16) very low, fused with hypandrium, incurved, posteriorly internally separated from hypandrium by an incision; its posterior part slightly projecting ventrally and with 1 long and 1 short seta, its anterior part with 3 setae. Postgonite (Fig. 16) short, simply tapered, with rounded apex and 1 setula near middle of its outer side; basal sclerite of postgonite small. Aedeagal part of folding apparatus (Fig. 19) not darkened dorsally, externally provided with flat lenticular tubercles (enlarged ventrally) and some fine spines among them. Connecting sclerite slender, elongate, darker pigmented dorsally. Basal membrane overgrown by short broad spines particularly posteroventrally (Figs 16–17). Aedeagal complex (Fig. 19) with slender phallapodeme, having strongly widened forked base, slender ventral fulcrum and short apex. Saccus of distiphallus not large, only basally and ventrally somewhat sclerotized and darker pigmented, otherwise membranous and provided with fine acute spines basally, ventrally and subapically and with small blunt tubercles dorsolaterally preapically. Filum of distiphallus relatively short, formed by 2 dark stripe-like sclerites being closely affixed but diverging in proximal and distal end and terminating in dilated membranous apex (Fig. 19). Ejacapodeme small, pale-pigmented, with digitiform projection.

Female. Similar to male unless mentioned otherwise. Total body length 1.71–2.34 mm. Face with brown pattern composed of 4 more or less distinct longitudinal stripes, lateral pair being as dark as (or darker than) medial pair. f_3 posteroventrally simply finely setulose. Wing measurements: length 1.63–1.87 mm, width 0.52–0.58 mm, Cs_3: Cs_4 = 2.14–2.73, r-m\dm-cu: dm-cu = 3.10–4.00. Preabdominal terga wider and more transverse than in male, brown, with pale yellow spots. T1-T2 with pale yellow medial area, wider on T1, narrower on T2. T3-T5 (and also T6, see below) with large pale yellow anterolateral semicircular spots (smaller on T3, larger on T5). Preabdominal sterna (S1-S5) pale yellow to whitish, S1 shorter and bare; S2-S5 about as long as wide and of almost the same size or S5 slightly wider.

Postabdomen (Figs 21–22). T6 large, markedly broader than T7, densely shortly setose, pale yellow with brown sinuous transverse band (Fig. 21). S6 whitish yellow, as wide as T7, with fine setae in posterior half. T7 narrow, dark brown (darkest of postabdominal sclerites) but with anterior and posterior pale-pigmented marginal area, with dense short setae in posterior half. S7 (Fig. 22) narrow (narrower than S8), with distinctive anterolateral corners, darkened only along anterior and lateral margins, thus, with large unpigmented but microtomentose area, and with 8 fine long setae in posterior half. T8 pale-pigmented, plate-shaped, transversely suboblong, with sparse thin setae along posterior margin. S8 darker posteriorly and paler anteriorly, finely setulose, of usual shape. T10 small, brown like cerci, finely microtomentose in addition to a pair of long medial setae. S10 wider and paler than T10, micropubescent, with setulae at posterior margin. Internal sclerotization of genital chamber (Figs 20, 24) distinctive, pale brown, formed by a pair of elongate, anteriorly wing-like widened sclerites, and by a distinct transversely compressed annular sclerite; vaginal area near genital opening densely finely spinulose. Ventral receptacle (Fig. 20) small, membranous, formed by a pouch projecting in ventrally curved digitiform terminal projection. Accessory gland (Fig. 20) finely granulose, on short, distally widened and ringed duct. Spermathecae almost spherical (Figs 23, 25), without surface spinulae; duct cervix developed but short, pale-pigmented. Cerci (Fig. 21) rather robust, brown, with rich but not long setae.

Discussion – *A. silaceus* sp. n. is distinguished by its largely yellow head, unusually enlarged "microseta" in front of the anterior ors, mesonotum ochreous-yellow between dc lines and dark brown laterally to them, wing faintly brownish only

at Cs_3, R_{4+5} and M close to each other, elongate gonostylus with reduced micropubescence, caudal process of transandrium reduced to darkened medial stripe, short postgonite, saccus of distiphallus short, female S7 very narrow and spermathecae without surface spinulae. Cladistically (see Fig. 175) it represents a sister-group clade to all remaining Oriental and Oceanian species except for *A. lineola*.

Biology – The type specimens were collected in IV-VI, VIII and IX, some of them in a light trap.

Distribution – The species is plausibly endemic to Mariana Is. (Guam I., Rota I., Saipan I.).

Amygdalops bisinus sp. n.
(Figs 26–37, 163)

Type material: Holotype male, labelled: "THAILAND: Bangkok, Huaykwang, Aug.-Sept. 1962, J. Scanlon – light" (USNM, genit. prep.). Paratypes: THAILAND: Mae Fang N. P., No. 14, over & along forest brook, 1.xi.2004, 1 female, L. Papp & M. Földvári leg. (HNHM). INDONESIA: Flores I., X859, eastern periphery of village Mataloko, ca 10 km ESE' Badjawa, 200–300 m E' mission church and school, 8,49S 121,02E, creek valley, open cultivated land (vegetables, maniok), diverse herbaceous vegetation (–2 m height), grazed by buffaloes, 24.ix.1992, 1 male 1 female, M. v. Tschirnhaus leg. (ZSMC, dried from alcohol). VIETNAM: Cuc phuong, Ninh binh, 6–18.v.1966, 1 male, Topál leg. (HMNH, in poor condition – immature, faded, dried from alcohol). All paratypes with genit. prep.

Etymology – The name (bisinus = Lat. double curved) reflects the sinuous lateral outline of gonostylus of the species.

Description – Male. Total body length 1.82–2.06 mm. Colouring resembling that of *A. nigrinotum*. Head slightly longer than high, somewhat quadrangular in profile. Occiput dark brown and microtomentose as in *A. nigrinotum*. Frontal triangle reaching to anterior third to fourth of frons, with very narrowed anterior corner. Stripes between frontal triangle and orbits and also anterior third of frons greyish microtomentose and dull. Orbit more or less shining, with anterior third yellow, posterior two-thirds dark brown. Face dirty yellow; parafacialia and gena narrowly ochreous-margined. Mouthparts bicolourous, brownish dorsally, palpus brownish darkened at least on apex and proboscis yellow. Cephalic chaetotaxy as in *A. nigrinotum* but vti about half to two fifths of length of vte, oc slightly longer than vti; 1 vi (only as long as oc) and 1 subvibrissa, about two-thirds of vi, both relatively weak; peristomal setulae (5–6) weak. Eye of rounded rhomboid shape (thus rather angular), with longest diameter 1.4–1.5 times as long as shortest one. Gena and antenna as in *A. nigrinotum*.

Thorax similarly patterned as in *A. nigrinotum* but darker brown. Thoracic chaetotaxy: 1 prs, reduced to microseta; 2 dc, anterior reduced, only twice longer than dc microsetae; 2 sc, laterobasal weak but distinctly longer than anterior dc. Legs bicolourous as in *A. geniculatus*, thus mostly yellow, only femora with brown distal third (in f_1 usually lighter than in f_2 and f_3) and tibiae with pale brown darkened proximal third except for knees. f_3 with 6–7 short and thickened setae in distal third of posteroventral row. Wing (Fig. 163) with pattern generally paler than in other *Amygdalops* spp., particularly preapical spot and darkened stripe along R_{4+5} usually faded and less distinct; no markedly

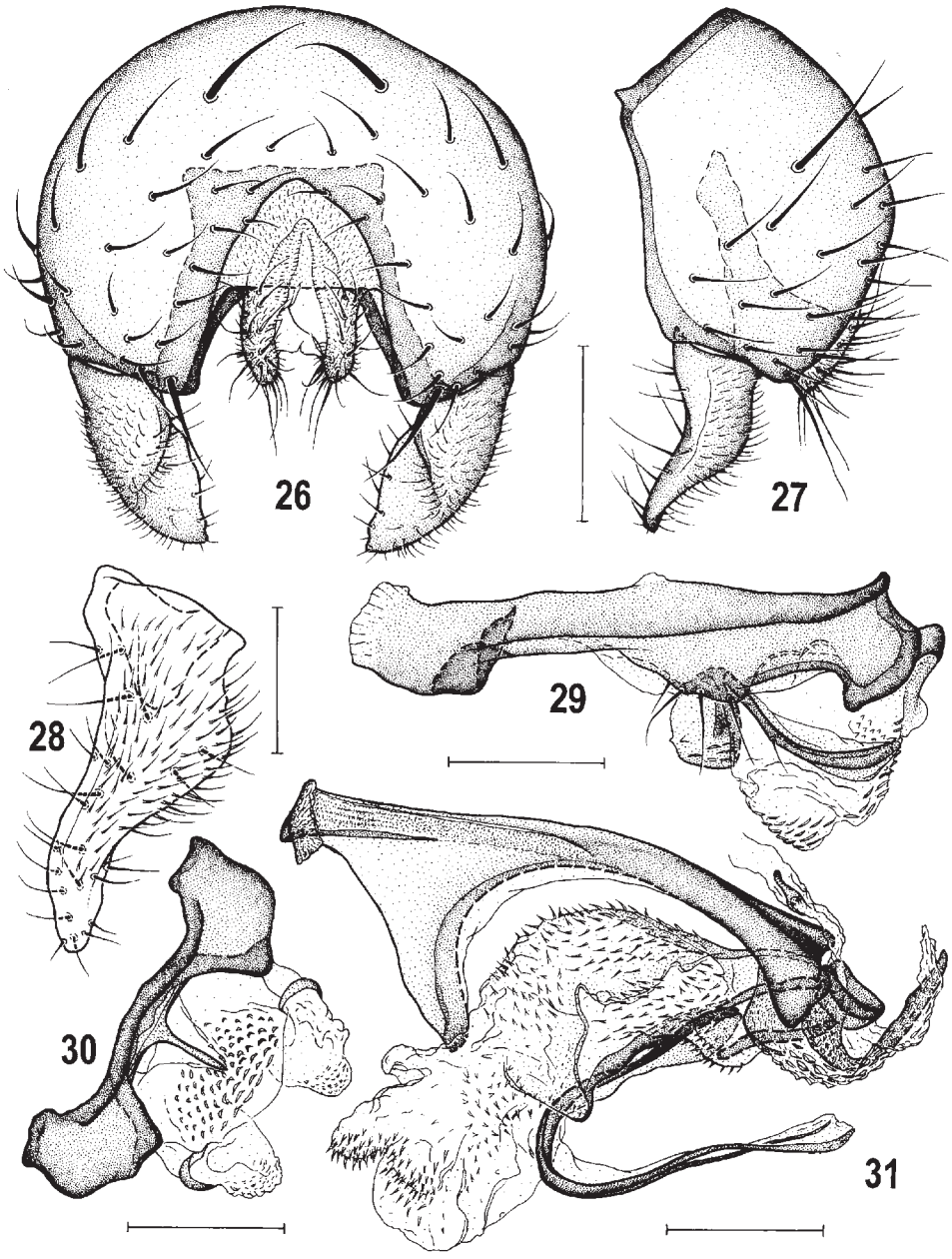
lighter area between R_{2+3} and C. R_{4+5} and M subparallel, the former very slightly sinuate apically; r-m situated near middle (or slightly in front of it) of dm cell. Wing measurements: length 1.71–2.03 mm; width 0.50–0.57 mm, Cs_3: Cs_4 = 1.94–2.23, r-m\dm-cu: dm-cu = 3.56–3.82. Haltere with pale brown stem and dark brown knob.

Abdomen. Preabdominal terga dark brown but T5 with small, short, pale ochreous anterolateral spot on each side (holotype) or uniformly brown (paratype from Flores I.). Preabdominal sterna ochreous (holotype) to pale brown (paratype from Flores I.) and becoming somewhat wider posteriorly, S5 the largest and slightly wider than long. S7 with 2, S6 with 3–4 setulae.

Genitalia. Epandrium hemispherical (Figs 26–27), with 1 dorsomedial and 1 caudal pair of longer and thicker setae; anal opening semi-elipsoid (Fig. 26). Cercus small, not projecting below anal fissure, only half length of gonostylus. Medandrium (Fig. 26) with rectangular dorsal corners. Gonostylus (Figs 26–28) of distinctive shape, twice bent (sinuous) in profile, with tapered but rounded apex; its outer side broadly micropubescent, bare only along anterior margin and on apex; inner side of gonostylus with fine long setae. Hypandrium (Fig. 29) rather robust; transandrium relatively robust, concave ventromedially and protruding lateroventrally (see Fig. 30); caudal process distinctive, formed by single slender sclerite provided with a blade-like keel (see Fig. 29). Pregonite (Fig. 29) fused with hypandrium, lobate but incurved and slightly projecting, with only 4 setae (1 anterior shorter than others). Postgonite (Fig. 29) rather long, slightly bent, its dark part very slender but surrounded by submembranous wide margins, with 1 setula in proximal two-fifths of its outer side; basal sclerite attached to postgonite large, flat, with some tubercles. Aedeagal part of folding apparatus attached to base of phallapodeme (Fig. 31) small, slightly darkened dorsally, armed with some elongate spine-like tubercles; connecting sclerite slender, curved, proximally wider, relatively dark-pigmented. Basal membrane with small tuberculiform spines (larger medially) ventrally to caudal process (Figs 29–30). Aedeagal complex (Fig. 31) with moderate phallapodeme, having deeply forked base and very short apical part with distinct lateral projections. Basal part of distiphallus partly spinulose. Saccus of distiphallus very voluminous, largely shortly spinulose and apart from short ventral sclerite membranous. Filum of distiphallus not very long, slender, curved and formed by 2 stripe-like closely attached and distally attenuated sclerites terminating in dilated membranous apex. Ejacapodeme very small, with slender digitiform projection.

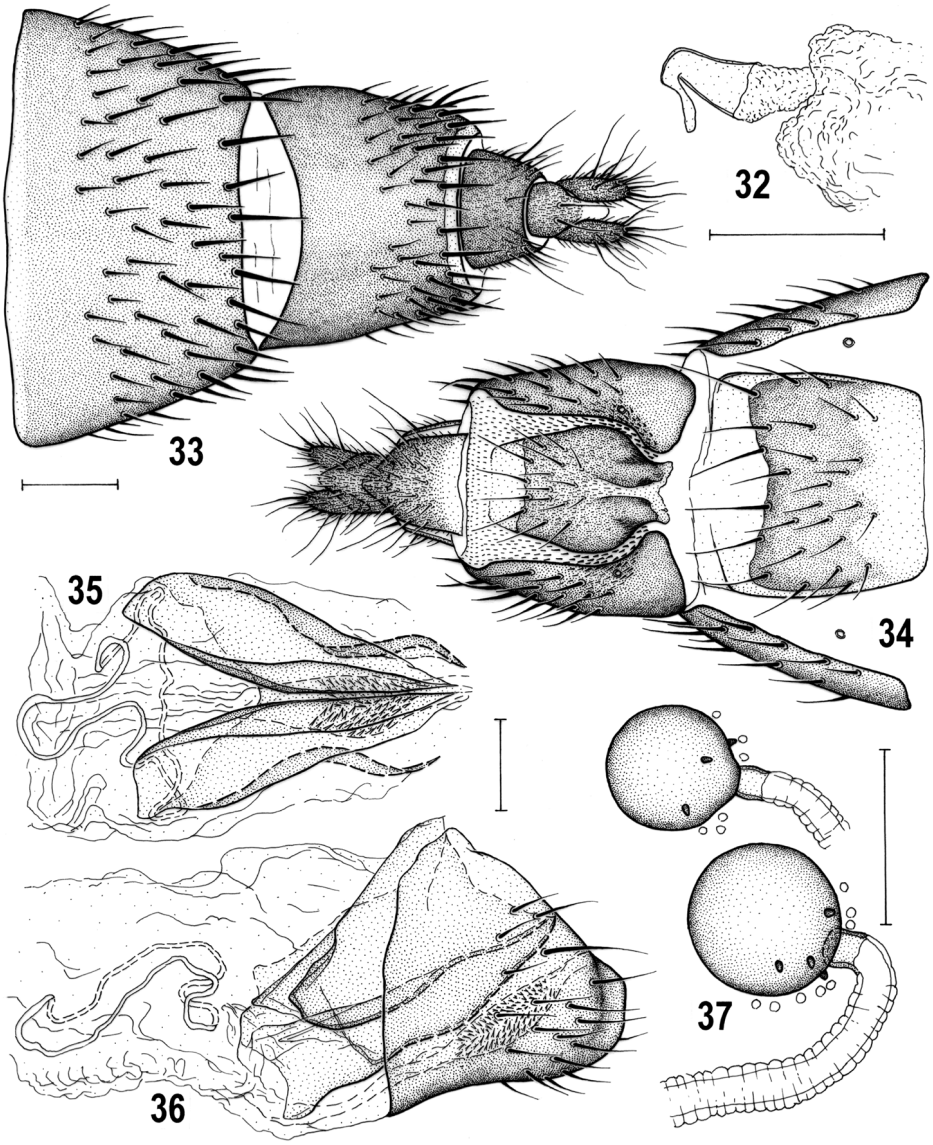
Female. Similar to male unless mentioned otherwise. Total body length 2.50–2.74 mm. Palpus distinctly brownish. f_3 lacking shortened setae. Wing measurements: length 2.36–2.54 mm, width 0.67–0.77 mm, Cs_3: Cs_4 = 1.83–1.95, r-m\dm-cu : dm-cu = 3.71–4.27. Abdomen with preabdominal terga uniformly dark brown. Preabdominal sterna smaller and distinctly narrower than in male, dark ochreous to pale brown, becoming wider and darker posteriorly; S3-S4 distinctly longer than broad; S5 largest but still slightly longer than broad but distinctly narrower and paler than (postabdominal) S6.

Postabdomen (Figs 33–34). T6 markedly wider and slightly longer than T7, tapering posteriorly, with numerous dense short and thick setae, dark brown with pale anterior margin. S6 slightly narrower than T7, pale ochreous anteriorly and posteriorly, darkened brown in the middle, finely setose. T7 dark brown, anteriorly shallowly emarginate, with anterolateral corners extended on ventral side, embedding 7th spiracles (see Fig. 34), densely setose as T6 but only in posterior half. S7 rather small, tapered both anteriorly and posteriorly, characteristically patterned, with anteromedial narrow light area, bordered on both sides by larger brown areas, and with bare and pale-pigmented posterior fourth. T8 brown, unusually narrow and tapered posteriorly because of ventrally bent sides, with few (including 1 long) fine setae posteriorly. S8 brown, also very narrow, with prominent posteromedial bulge (Fig. 36). T10 small and narrow (as long as wide), brownish, with scattered microtomentum and a pair of longer posteromedial setae. S10 also small, slightly larger than T10, brown as S8, micropubescent, posteromedially projecting. Internal sclerotization of genital chamber formed by two pairs of fused flat pale brown sclerites (Figs 35–36) being gradually widened anteri-



Figs 26–31. *Amygdalops bisinus* sp. n., male holotype (Thailand). 26 = external genitalia, caudal view, 27 = same, lateral view, 28 = gonostylus, lateroventral view (widest extension), 29 = hypandrium and associated structures, lateral view, 30 = transandrium, caudal view, 31 = aedeagal complex, lateral view. Scales: Fig. 28 = 0.05 mm, others = 0.1 mm

orly; annular sclerite very thin and twisted several times; vaginal area finely spinulose. Ventral receptacle (Fig. 32) vesiculate, with smooth surface and a digitiform terminal projection. Spermathecae spherical, relatively large (one distinctly larger than other, Fig. 37), each with a few grain-like spines in basal part; duct cervix short. Cerci (Fig. 33) medium-sized, with moderately long fine setae.



Figs 32–37. *Amygdalops bisinus* sp. n., female paratype (Flores). 32 = ventral receptacle, lateral view, 33 = postabdomen, dorsal view, 34 = same, ventral view, 35 = internal sclerites, ventral view, 36 = same plus S8 (micropubescence omitted), lateral view, 37 = spermathecae. Scales: Figs 33–34 = 0.1 mm, others = 0.05 mm

Discussion – *A. bisinus* sp. n. forms together with the following 10 species the *A. nigrinotum* group being characterized by the highly uniform external appearance (largely dark head, dark brown mesonotum, dark halteres, similar wing pattern with brown preapical spot) and also by the synapomorphic elongate gonostylus and finely attenuated annular sclerite of the female genital chamber. *A. bisinus* can be distinguished from other species of the group in having bicolourous femora as in *A. geniculatus* and *A.* sp. n. (c), the gonostylus sinuously margined in profile, a peculiar medial keel-like caudal process of the transandrium, a large basal sclerite of postgonite (similar to that of *A. nigrinotum*), a distinctive shape and pattern of the female S6 and S7 and a narrowed 8th and 10th postabdominal segment of the female. The species is related to *A. cuspidatus* sp. n. and allied species and forms with them the *A. cuspidatus* subgroup (see below, Fig. 175).

Biology – The few known specimens were found on vegetation (partly grazed) at brooks, one male (holotype) was caught at a light, in V, VIII–IX, XI.

Distribution – Thailand, Vietnam, Indonesia (Flores).

Amygdalops cuspidatus sp. n.
(Figs 38–51, 164)

Type material: Holotype male, labelled: "INDONESIA: Isle Flores, 8,49 S 121,02 E, eastern periphery of village Mataloko, ca 10 km ESE' Badjawa, 24.9.1992", "200–300 m E' mission church and school, swept, eclector, X 859, M. v. Tschirnhaus leg.", "creek valley, open cultivated land (vegetables, maniok), diverse herb. vegetation (–2 m height), grazed by buffaloes" (ZSMC, dried from ethanol). Paratypes: same data as for holotype 310 males 235 females (ZSMC, FBUB, SMOC, DEBU, USNM, about 100 specimens dried, others retained in ethanol, a number with genit. prep.); Java I., X846, western periphery of village Kaliurang, N' Yogjakarta, eastern edge of canyon, partly grazed, partly cultivated land, moist vegetation, predominantly grass and Carices, 9.xi.1992, swept, eclector, 1 female, M. v. Tschirnhaus leg. (ZSMC, dried from alcohol). TAIWAN: Taipei, Nanshih Chiao, Han-Lo-Da, No. 21, 450 m, rocky forest undergrowth, 10.x.2000, 1 male, L. Papp & L. Ronkay leg. (HNHM, genit. prep.); Taichung, Ta Keng, sweeping net, 20.ii.1992, 2 males, C. Y. Li leg. (NMNS, Nos 1390–180, 1390–291, genit. prep.).

Etymology – The name is derived from the elongate, apically pointed gonostylus of the species (cuspidatus = Lat. pointed).

Description – Male. Total body length 2.10–2.78 mm. Similar to *A. nigrinotum* but differing as follows. Head about as long as high. Occiput uniformly dark brown or medially (above foramen) somewhat paler. Frons brown with gradually paler anterior fourth or third, from ochreous-brown posterior part to pale yellow foremost margin. Orbit largely brown and shining, only its foremost part (with ors microsetulae) ochreous to yellow. Mouthparts yellowish orange to yellow including palpus, only a small dorsal part (clypeus) pale brownish. Cephalic chaetotaxy: vti about three-fifths of length of vte; oc weak, about as long as vti; 2 long ors, anterior markedly longer than oc; 5–6 small

peristomal setulae. Eye very convex, elongate, with longest diameter 1.7 times as long as shortest one. Gena and antenna as in *A. nigrinotum*.

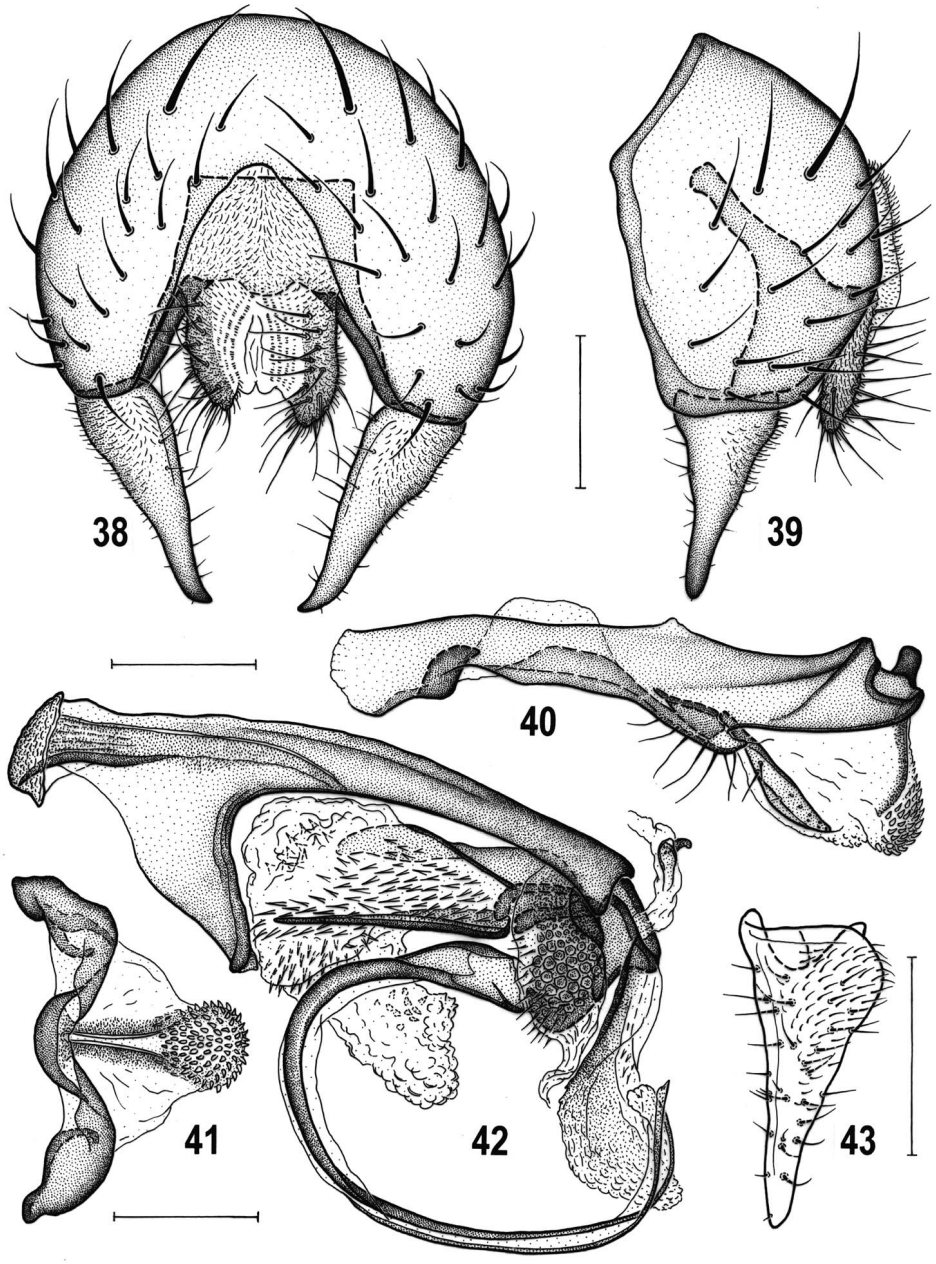
Thorax somewhat darker than in *A. nigrinotum*. Humeral and notopleural areas relatively dark, usually only humeral callus (partly) ochreous-yellow, other parts pale brown. Thoracic chaetotaxy: 1 prs, reduced to microseta; 2 dc, anterior reduced, only twice longer than dc microsetae; 2 sc, laterobasal sightly longer than anterior dc. Legs completely yellow, with whitish yellow coxae and trochanters. f_3 with 8–10 shortened, thickened and dense setae in distal fourth or third of posteroventral row. Wing (Fig. 164) with pattern composed of brown preapical spot confluent with broad brown darkened stripe along R_{4+5}; also whitish hyaline area between C and brown bordered R_{4+5} distinct. R_{4+5} usually slightly bent or sinuous terminally; r-m situated somewhat in front of middle of discal (dm) cell. Wing measurements: length 2.02–2.72 mm; width 0.49–0.79 mm, Cs_3: Cs_4 = 1.72–2.06, r-m\dm-cu: dm-cu = 3.62–4.14. Haltere dark brown, stem sometimes paler.

Abdomen. Preabdominal terga all dark brown, rarely (1 male from Taiwan) T5 with small and short, pale yellow anterolateral spot on each side. Preabdominal sterna pale ochreous-brown and becoming somewhat wider and darker posteriorly, S5 the largest and darkest (slightly wider than long).

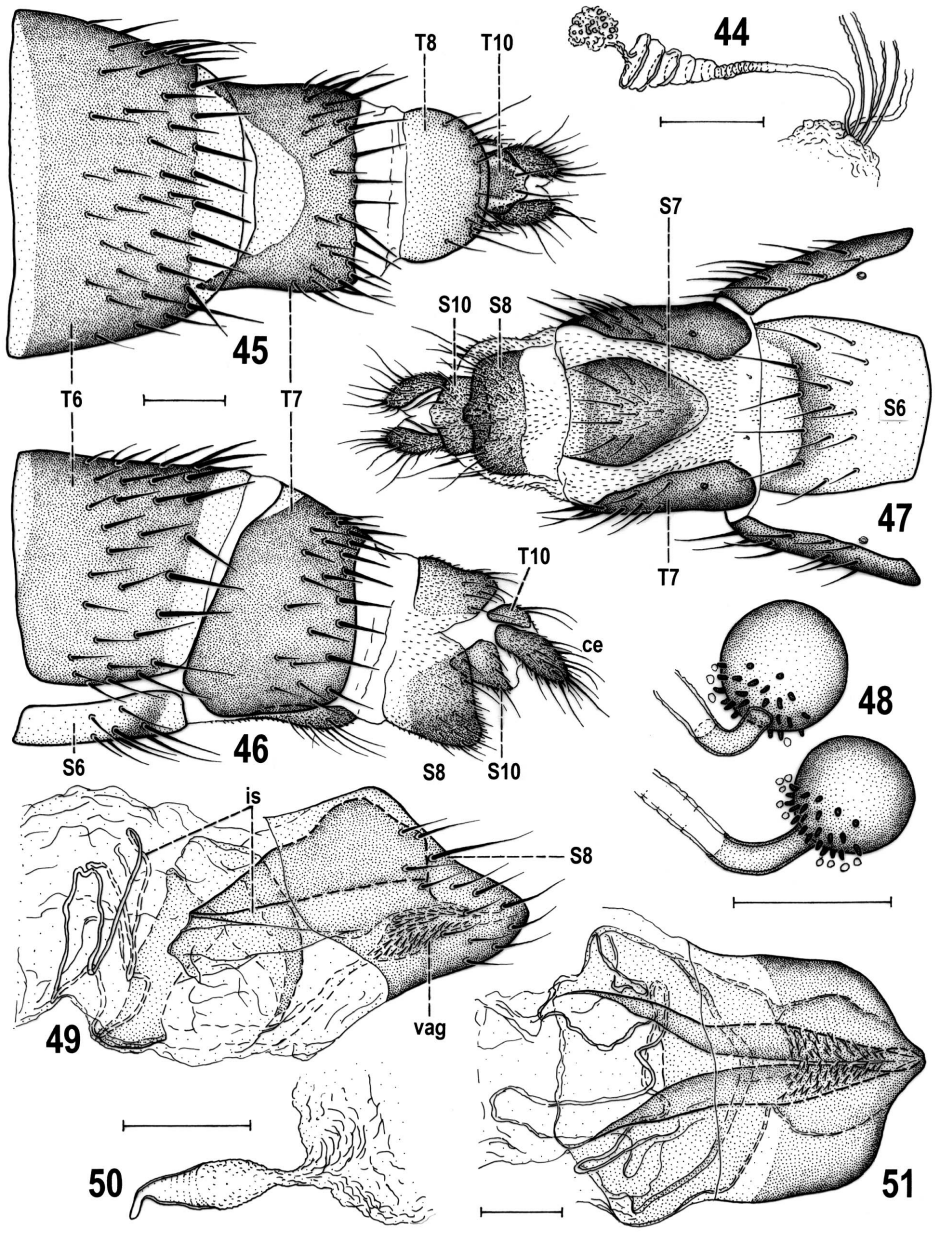
Genitalia. Epandrium (Figs 38–39) with 1 dorsomedial pair of longer and thicker setae; anal opening relatively narrow, rounded triangular (Fig. 38). Cercus slender, relatively short. Medandrium (Fig. 39) comparatively narrow, somewhat tapered dorsally, with corners simply rectangular. Gonostylus (Figs 38–39, 43) elongate, slender, acutely tapered distally; its micropubescence restricted to posterolateral area in wider proximal half, inner side of gonostylus with short and weak setae. Hypandrium (Fig. 40) moderate in size, simple, with somewhat dorsally projecting but unpigmented internal lobes; transandrium (Fig. 41) of distinctive structure, with dark dorsomedial arched sclerite having concave ventral margin; caudal process (Fig. 41) formed by slender, weak, medially divided and ventrally slightly diverged sclerite. Pregonite (Fig. 40) low, incurved and only posteroventrally somewhat projecting and separated from hypandrium by short incision, with 7–8 setae, all on its posterior part. Postgonite (Fig. 40) slender, knife-shaped, apically acutely pointed, with 1–2 setulae in proximal two-fifths and 1 microseta in distal two-fifths; basal sclerite attached to postgonite small. Aedeagal part of folding apparatus short, with dorsal part (Fig. 42) hardly darkened and its outer side with flat tubercles and some spinulae. Connecting sclerite proximally slender but darker, distally strongly dilated, paler and finely tuberculate. Basal membrane with dense short spines posteroventrally to caudal process (Figs 40, 41). Aedeagal complex (Fig. 42) with robust phallapodeme, having flattened but shortly forked base and short apex with distinct lateral projections. Saccus of distiphallus voluminous, with flat sclerites (dorsal, ventral and basal) in its proximal half, otherwise membranous and finely spinose in proximal and central part, tuberculate with some short spines in apical part. Filum of distiphallus long, dark, strongly curved and formed by 2 slender stripe-like, basally affixed and distally separate sclerites ending in membranous shortly lobate apex. Ejacapodeme very small, with slender digitiform projection.

Female. Similar to male unless mentioned otherwise. Total body length 2.46–3.18 mm. Mouthparts somewhat darker: clypeus distinctly brown and palpus with pale brown darkened apex. f_3 without shortened setae. Wing pattern often darker; r-m situated more distinctly in front of middle of dm cell. Wing measurements: length 2.30–2.90 mm, width 0.59–0.79 mm, Cs_3: Cs_4 = 1.81–2.00, r-m\dm-cu: dm-cu = 3.67–4.40. Preabdominal terga all uniformly dark brown. Preabdominal sterna pale ochreous; S2-S5 slightly to distinctly longer than broad, becoming larger and wider posteriorly; S5 largest and markedly longer than (postabdominal) S6.

Postabdomen (Figs 45–47). T6 wider and somewhat longer than T7, dark brown with pale-pigmented anterior (shorter) and posterior (longer) marginal areas. S6 narrower than T7, largely pale yellowish but transversely darkened in front of posterior row of setae. T7 dark brown, anteriorly emarginate and with pale crescent-shaped area (Fig. 45), mainly setose in posterior third, extended on



Figs 38–43. *Amygdalops cuspidatus* sp. n., male paratype (Taiwan). 38 = external genitalia, caudal view, 39 = same, lateral view, 40 = hypandrium and associated structures, lateral view, 41 = transandrium, caudal view, 42 = aedeagal complex, lateral view, 43 = gonostylus, sublateral view (widest extension). Scales: 0.1 mm



Figs 44–51. *Amygdalops cuspidatus* sp. n., female paratype (Flores). 44 = accessory gland, 45 = postabdomen, dorsal view, 46 = same, lateral view, 47 = same, ventral view, 48 = spermathecae, 49 = S8 and internal sclerites, lateral view (micropubescence omitted), 50 = ventral receptacle, lateral view, 51 = S8 and internal sclerites (setosity omitted), ventral view. Scales: Figs 45–47 = 0.1 mm, others = 0.05 mm

ventral side and embedding 7th spiracles but its anterolateral corners not projecting. S7 (Fig. 47) small, narrow and similar to that of *A. curtisi* sp. n., tapered anteriorly, brown except for pale anterior corner and posterior marginal area, finely setose. T8 paler brown (anteriorly more lightened) than T7, plate-shaped, amost semicircular, with a few fine setae along posterior margin. S8 dark brown, somewhat wider than S7 but narrower than T8. T10 very small (yet smaller than that of *A. curtisi*), pale-pigmented, with some microtomentum only posteriorly. S10 also small, paler than S8, somewhat wider than T10, micropubescent in posterior half. Internal sclerotization of genital chamber formed by a fusion of pale-pigmented sclerites (Figs 49, 51) being anteriorly somewhat dilated laterally; annular sclerite extremely fine, manifold twisted and, hence, of variable shape; vaginal area finely spinulose (Fig. 51). Ventral receptacle (Fig. 50) membranous, vesiculate, with a digitiform, relatively short terminal projection; receptacular duct dilated distally. Accessory gland (Fig. 44) with distinct darker granulae and its ringed duct markedly dilated subterminally. Spermathecae spherical, smaller than in *A. curtisi*, one larger than the other (Fig. 48), each with short blunt spines in basal third; duct cervix yet longer than in *A. curtisi*. Cerci (Fig. 45) short, moderate, with short setae.

Discussion – *A. cuspidatus* sp. n. belongs to the *A. nigrinotum* group but forms within it [together with *A. bisinus* sp. n., *A.* sp. n. (a) and *A. curtisi* sp. n.] a separate *A. cuspidatus* subgroup delimited by small, anteriorly tapered female S7. Its closest relative is *A.* sp. n. (a) which has a similarly patterned wing (preapical spot confluent with distinctly darkened stripe along R_{4+5}) but differs from it (in female sex) by the narrow S6 and smaller S7. The latter sclerite is most similar to that of *A. curtisi* sp. n., another member of the *A. cuspidatus* subgroup. In the male sex, *A. cuspidatus* can be best recognized by the slender, acutely tapered gonostylus (this being most similar to those of the Afrotropical species *A. sparsus* ROHÁČEK, 2004 and allies).

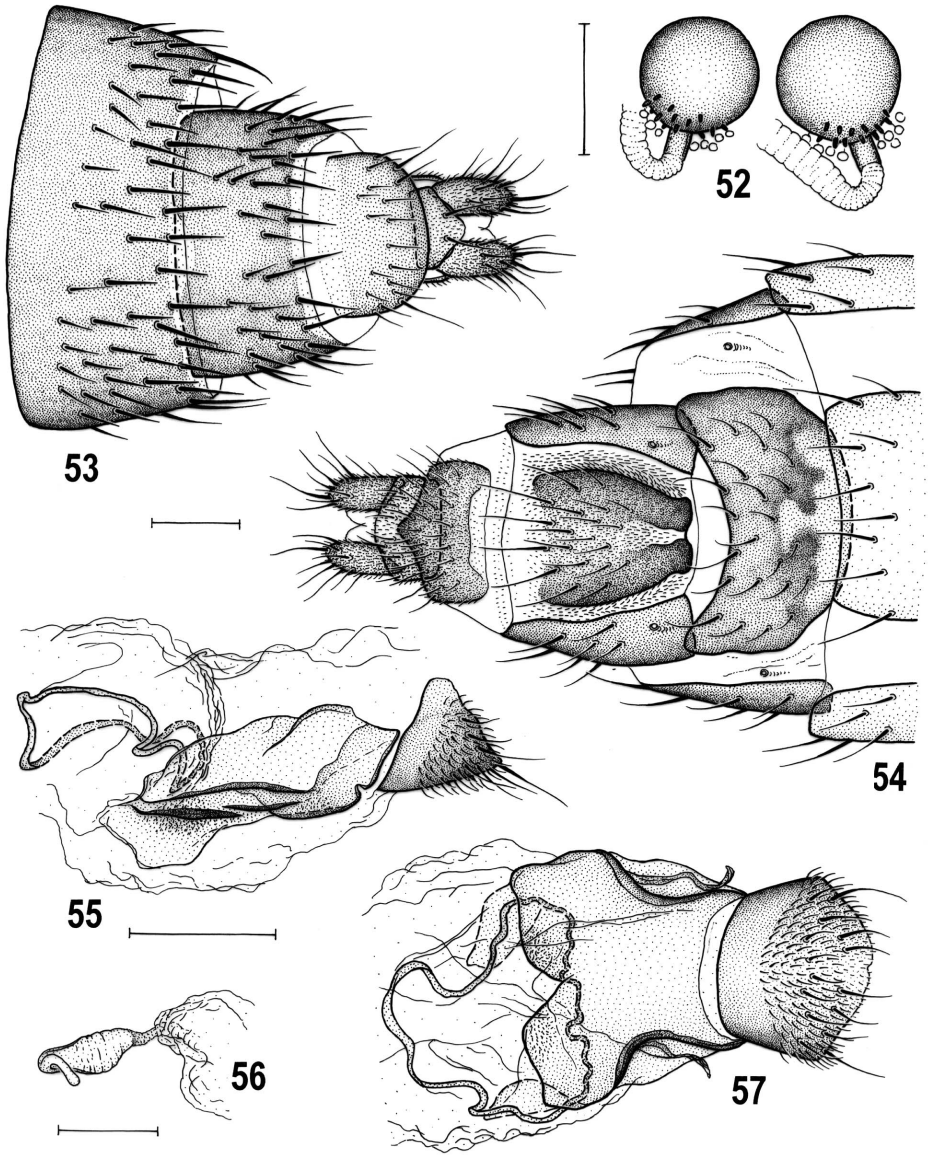
Biology – The majority of specimens (more than 550 = the largest series of *Amygdalops* ever collected) originate from a sweep sample collected by M. v. TSCHIRNHAUS in a creek valley on herbaceous vegetation grazed by buffaloes. The remaining specimens were swept from forest undergrowth. Adults occur in II, IX, X.

Distribution – Taiwan, Indonesia (Flores, Java).

Amygdalops sp. n. (a) near **cuspidatus**
(Figs 52–57, 165)

Material examined: TAIWAN: Taichung Hsien, No. 24, N 24°09'25.2'', E 120°52'9.6'', 585 m, over/along Ma-Chu-Ken river & in river valley, 6.iv.2003, 1 female, L. Papp & M. Földvári leg. (HNHM, genit. prep.).

Description – Male unknown. Female. Total body length 2.78 mm. Body colouring and chaetotaxy similar to those of *A. nigrinotum*. Head about as long as high, quadrangular in profile. Occiput dark brown, with small pale brown spots medially above foramen (? always). Frontal triangle shorter, reaching to half of frons. Frons darker than in related species, dark brown with paler brown anterior third (up to ptilinal suture). Orbit largely brown and shiny, darker posteriorly, paler



Figs 52–57. *Amygdalops* sp. n. (a) near *cuspidatus*, female (Taiwan). 52 = spermathecae, 53 = postabdomen, dorsal view, 54 = postabdomen, ventral view, 55 = S10 and internal sclerites, lateral view, 56 = ventral receptacle, ventrolateral view, 57 = S10 and internal sclerites, ventral view. Scales: Figs 52, 56 = 0.05 mm, others = 0.1 mm

anteriorly, only small foremost part with orbital microsetulae yellowish. Face ochreous to pale brown. Mouthparts dorsally brown, palpus pale brown with darkened apex and proboscis orange-ochreous, lighter distally. Cephalic chaetotaxy: vti weak, slightly more than half length of vte; oc slightly longer than vti; 2 strong ors, anterior only slightly shorter than posterior; 1 vi (only somewhat longer than oc) and 1 subvibrissa, about two-thirds of vi, both weak; 8–9 peristomal setulae. Eye very convex, of rounded rhomboid shape (thus rather angular). Antenna also relatively dark, orange ochreous, with brownish darkened dorsal side of pedicel and anterior half of 1st flagellomere.

Thorax similar to that of *A. nigrinotum* but darker brown. Humeral and notopleural areas relatively dark, largely pale brown, only partly ochreous-yellow. Thoracic chaetotaxy: 1 prs, slightly longer than mesonotal microsetae; 2 dc, anterior short, weak but not reduced, about half length of posterior dc; 2 sc, laterobasal weak and shorter than anterior dc. Legs dark yellow, only coxae and trochanters pale to whitish yellow. Pedal chaetotaxy without peculiarities, f_3 uniformly setulose. Wing (Fig. 165) pattern most similar to that of *A. cuspidatus*, with rather large preapical brown spot confluent with broad darkened stripe along R_{4+5}. R_{4+5} very slightly sinuate or bent apically; r-m situated near middle of dm cell. Wing measurements: length 3.10 mm; width 0.93 mm, Cs_3: Cs_4 = 2.04, r-m\dm-cu: dm-cu = 3.59. Haltere with paler brown stem and dark brown knob.

Abdomen with preabdominal terga entirely dark brown. Preabdominal sterna small, narrow, pale ochreous-brown, becoming wider posteriorly; S2 as long as broad, S3-S4 distinctly longer than broad; S5 largest but slightly longer than broad and markedly narrower and paler than S6 (see below).

Postabdomen (Figs 53–54) very dark (T6 distinctly darker than T5) relatively short and broad. T6 markedly wider than T7, transverse, dark brown, densely shortly setose. S6 transverse, as broad as T7, remarkably dark brown, only anteriorly with irregular paler brown area. T7 dark brown, anteromedially shallowly emarginate and its lateral sides extended on ventral side, embedding 7th spiracles but anterolateral corners not projecting. S7 larger than in *A. cuspidatus*, tapered anteriorly, dark brown except anteromedial narrow area surrounded by darkest parts of S7, this pattern most resembling that of *A. bisinus*. T8 dark brown (anterior margin paler) plate-shaped and similar to that of *A. cuspidatus*, but with more setae in posterior half. S8 dark brown, as wide as S7 and slightly narrower than T8. T10 small, brown, shortly triangular, finely microtomentose apart from medial pair of setae. S10 paler than S8, distinctly transverse and wider than T10, micropubescent in addition to marginal setulae. Internal sclerotization of genital chamber formed by coaslesced complex of brownish sclerites (Figs 55, 57) being anteriorly suddenly dilated laterally; annular sclerite very thin and manifold twisted; vaginal area finely spinulose. Ventral receptacle (Fig. 56) vesiculate, with a digitiform, relatively slender terminal projection; receptacular duct short, dilated distally. Spermathecae subspherical, both of almost same size (Fig. 52), with small blunt spines around duct insertion (less numerous than in *A. cuspidatus*); duct cervix short but longer than in *A. bisinus*. Cerci (Fig. 53) rather robust, longer than in *A. cuspidatus*, shortly setose.

Discussion – This new but unnamed species (known from a single female) is closely allied and most similar (including wing pattern) to *A. cuspidatus* sp. n. but differs from it by its shorter frontal triangle, darker frons, pale brown palpus with darker apex, different female S6 and S7 and markedly shorter cervix of spermatheca.

Biology – The only available female was collected in a river valley, in IV.

Distribution – Taiwan.

Amygdalops curtisi sp. n.
(Figs 58–71, 166)

Type material: Holotype male, labelled: „THAILAND, Thonburi Prov., Mueng Dist, 7 May 1969, Manop, coll.-light" (USNM, genit. prep.). Paratypes: THAILAND: Udrontani Prov., Meung Dist., light, 17.–20.vi.1959, 1 female; Thonburi, 23.xii.1958, 1 female, all Manop leg. (USNM); Chiang Mai, Doi Suthep N.P., No. 26, along forest brook, 9.xi.2004, 1 female, L. Papp & M. Földvári leg. (HNHM); Chiang Mai Prov/24, Mae Hia, 19.05.41N / 98.56.11E, 350 m, 25.xii.2003, 1 male; Sunat Thanai City, 9.07.24N / 99.20.37 E, 10.v.2003, 1 female, both P. Schwedinger leg.; Mae Hong Son Prov., Mae Hong Son, 19.30N / 97.97E, 340 m, 20.x.2000, 1 female, B. Merz leg. (MHNG). TAIWAN: X1157, Tunghsiao, Miaoli, 7.iii.1996, 1 male, Kung-ju Lin leg. (SMOC, dried from alcohol); X943, Distr. Taichung Hsien, Tachia Hsi river, between Tachia (N) and Chingshui (S), 24.21 N, 120.34 E, 6 km E' coast, between costal road no 1 and railway line, river bank, swept, eclector, 12.iii.1994, 1 female, Kung-ju Lin leg. (ZSMC, dried from alcohol). All paratypes with genit prep.

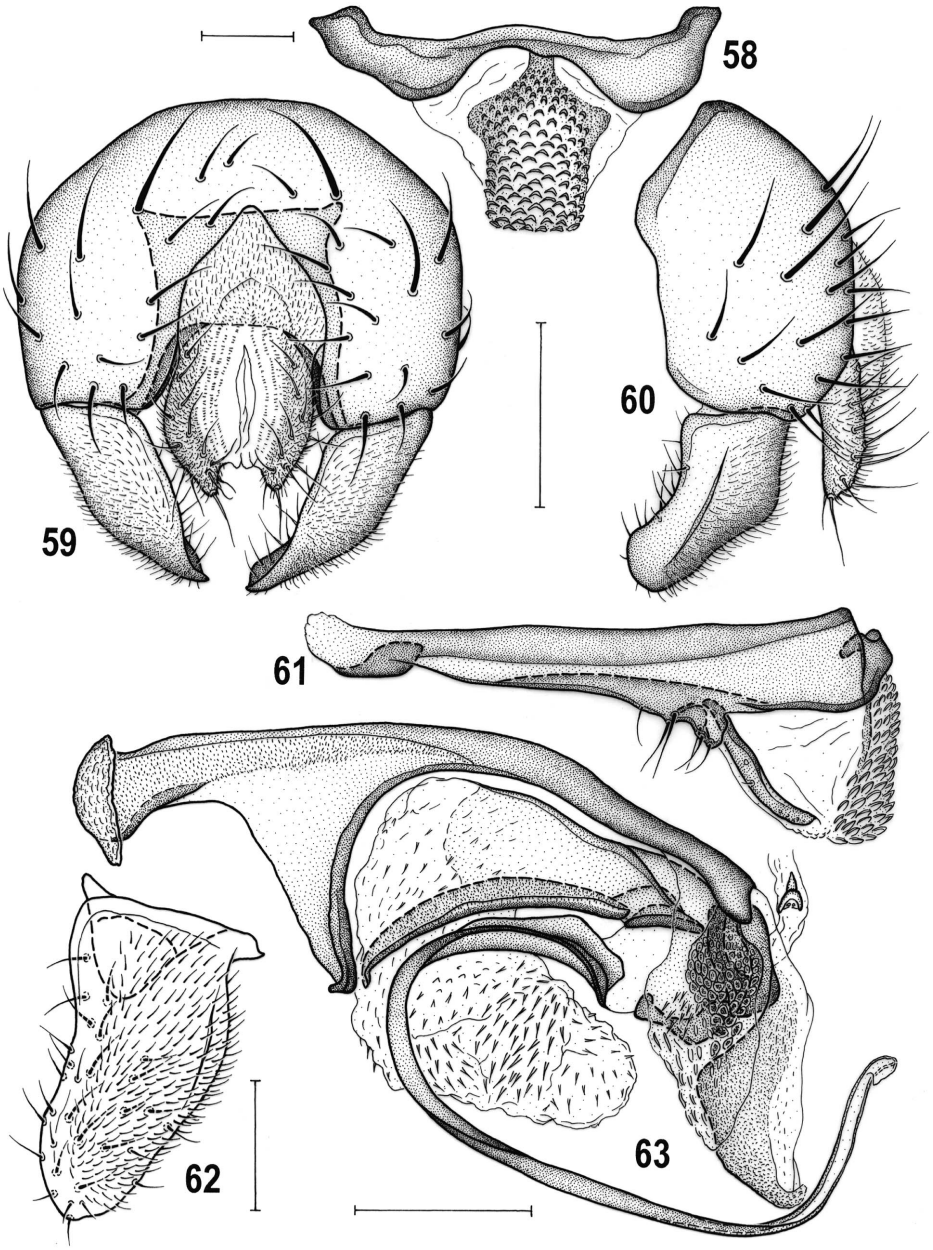
Etymology – The species is named in honour of the late Curtis W. Sabrosky, a renowned dipterist, who had already recognized several unnamed *Amygdalops* species in the USNM collection long ago but did not describe them.

Description – Male. Total body length 1.71–1.83 mm. Resembling *A. nigrinotum* in outer appearance (holotype faded, reddish brown instead dark brown). Head about as high as long. Occiput entirely dark brown, microtomentose as in *A. nigrinotum*. Frontal triangle reaching to anterior third to fourth of frons. Sides of ocellar triangle with some microtomentum. Frons largely brown, only anterior fourth to third ochreous-yellow. Orbit brown, with anterior third paler ochreous-yellow, distinctly shining. Face ochreous-yellow, only slightly darker marginally. Mouthparts (including palpus) yellow. Cephalic chaetotaxy: vti markedly shorter than vte (often less than half of its length); oc weak, slightly longer than vti; 2 long ors, anterior robust but shorter than posterior; subvibrissa less than two-thirds of vi length; 5–7 peristomal setulae. Eye convex, posteriorly rather angular rounded, with longest diameter 1.5 times as long as shortest one. Gena and antenna as in *A. nigrinotum*.

Thorax with colouring and chaetotaxy as *A. nigrinotum* but differing as follows: prs reduced to microseta; 2 dc, anterior reduced to a weak setula (only slightly longer but thicker than dc microsetae) arising just in front of posterior dc; 2 sc, laterobasal finer but slightly longer than anterior dc; 2 relatively weak stpl. Legs yellow (femora, tibiae) to whitish yellow (coxae, trochanters, tarsi). f_3 with 5 short and thickened setae in distal third of posteroventral row. Wing (Fig. 166) with pattern and venation similar to those of *A. nigrinotum*, r-m situated in middle of dm cell or slightly in front of it. Wing measurements: length 1.78–2.02 mm; width 0.61–0.69 mm, Cs_3: Cs_4 = 1.72–1.79, r-m\dm-cu : dm-cu = 3.30–3.55. Haltere pale greyish brown, stem usually more yellowish.

Abdomen as in *A. nigrinotum*. Preabdominal terga dark brown, T4 with small to indistinct, T5 with larger yellow or ochreous anterolateral spot on each side. S6 paler than S7 and strongly ventrally shortened.

Genitalia. Epandrium relatively broad (Figs 59–60), setose as in *A. nigrinotum*; anal opening narrowly pentagonal, acute-angled dorsally (Fig. 59). Cercus rather slender, projecting ventrally, shorter than gonostylus. Medandrium (Fig. 59) comparatively narrow, with slightly projecting corners. Gonostylus (Figs 59–60, 62) relatively large and wide, with hardly tapered and rounded apex and a distinct lateral keel; most of its outer side with dense micropubescence, only along anterior margin bare; inner side of gonostylus with short and weak setae. Hypandrium (Fig. 61) relatively slender, simple, with small unpigmented internal lobes; transandrium (Fig. 58) simple, wide but slen-



Figs 58–63. *Amygdalops curtisi* sp. n., male paratype (Thailand). 58 = transandrium, caudal view, 59 = external genitalia, caudal view, 60 = same, lateral view, 61 = hypandrium and associated structures, lateral view, 62 = gonostylus, laterocaudal view (widest extension), 63 = aedeagal complex, lateral view. Scales: Figs 58, 62 = 0.05 mm, others = 0.1 mm

der, with concave ventral margin; caudal process formed by a weak, ventrally forked sclerite. Pregonite (Fig. 61) low, only posteriorly ventrally bulging, with about 6 setae, 3 of them on posterior bulge. Postgonite (Fig. 61) slender, slightly bent, apically not very acute, with 1 microseta in the middle of its outer side; basal sclerite attached to postgonite small. Aedeagal part of folding apparatus attached to base of phallapodeme (Fig. 63) hardly darkened dorsally, covered by small polygonal tubercles and some spinulae (anteriorly and ventrally); connecting sclerite relatively robust, widest in the middle, but pale-pigmented and finely granulose. Basal membrane with dense tuberculiform spines between arms of caudal process (Figs 58, 61). Aedeagal complex (Fig. 63) with moderately slender but long phallapodeme, having shortly bifurcate base and apex with distinct lateral projections. Base of distiphallus bare. Saccus of distiphallus very voluminous, except for base and ventral sclerite membranous and provided with rich spinulae in distal half. Filum long, dark, very slender and formed by 2 curved stripe-like closely attached and distally attenuated sclerites terminating in slender membranous apex. Ejacapodeme very small, with somewhat pointed projection.

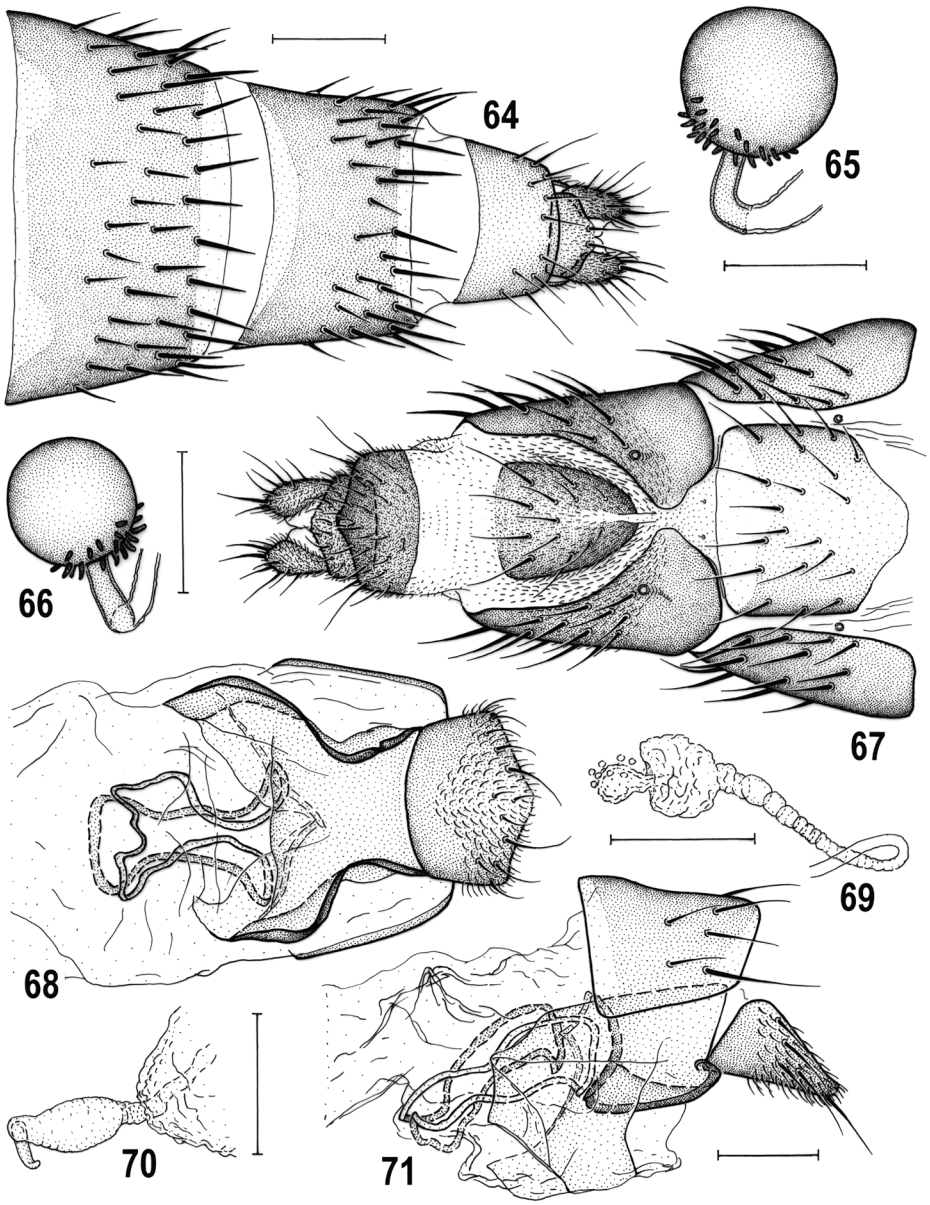
Female. Similar to *A. nigrinotum* unless mentioned otherwise. Total body length 1.98–2.22 mm. Wing narrower than in male on the average. Wing measurements: length 1.98–2.18 mm, width 0.59–0.65 mm, Cs_3: Cs_4 = 1.83–1.94, r-m\dm-cu: dm-cu = 3.30–3.89. Abdomen with T3-T6 with pale yellow anterolateral spot on each side; spots on T3 and T6 smaller, on T4 and T5 larger. Preabdominal sterna S3-S5 of almost the same size and width, also S6 similar, hardly wider than S5.

Postabdomen (Figs 64, 67). T6 only somewhat wider and not longer than T7, with dense short and thick setae, dark brown with ochreous but small anterolateral spots and unpigmented posterior margin. S6 much narrower than T7, whitish yellow anteriorly (on anteromedial lobe) and posteriorly and pale brownish in the middle, with fine setae. T7 dark brown, tapering posteriorly, anteriorly shallowly emarginate, its anterolateral corners extended on ventral side, embedding 7th spiracles and almost meeting medially (see Fig. 67), similarly setose as T6 but only in posterior half. S7 small, narrow and similar to that of *A. cuspidatus* sp. n., tapered anteriorly, brown except for paler anteromedial stripe and posterior submarginal area, with fine setae. T8 paler brown than T7, plate-shaped, with rounded posterior corners and a few fine setae posteriorly. S8 dark brown, somewhat wider than S7, finely setulose, with usual posteromedial bulge and incision. T10 small and relatively short, pale-pigmented, with scattered microtomentum and a pair of longer posteromedial setae. S10 also paler than S8, wider than T10, micropubescent, with setulae at posterior margin. Internal sclerotization of genital chamber formed by a complex of fused pale brown sclerites (Figs 68, 71) being anteriorly dilated laterally; annular sclerite very thin and twisted several times; vaginal area finely spinulose (not visible in Figs 68, 71). Ventral receptacle (Fig. 70) membranous, vesiculate, with a finger-shaped, ventrally directed, terminal projection. Spermathecae spherical, unusually large (markedly larger than in *A. cuspidatus* sp. n.), one larger than the other (Figs 65–66), each with short blunt spines around duct insertion; duct cervix relatively long. Cerci (Fig. 64) short, moderate, with short setae.

Discussion – This new species belongs to the *A. cuspidatus* subgroup but differs from related species in having paler (light greyish brown) halteres, a large and wide gonostylus with a broadly rounded apex and larger spermathecae. Its female S7 and long cervix of the spermathecal duct most resemble those of *A. cuspidatus* sp. n. but *A. curtisi* sp. n. has the female anterolateral corners of T7 extended ventromedially, S7 with unpigmented anteromedial narrow area and pale-pigmented S6.

Biology – Several specimens were collected at a light, another along a forest brook, in III, V–VI, X–XII.

Distribution – Thailand, Taiwan.



Figs 64–71. *Amygdalops curtisi* sp. n., female, paratype (Thailand). 64 = postabdomen, dorsal view, 65–66 = spermathecae, 67 = postabdomen, ventral view, 68 = T8, S10 and internal sclerites, ventral view, 69 = accessory gland, 70 = ventral receptacle, sublateral view, 71 = T8, S10 and internal sclerites, lateral view. Scales: Figs 64, 67 = 0.1 mm, others = 0.05 mm

Amygdalops curtistylus sp. n.
(Figs 72–85, 167)

Type material: Holotype male, labelled: "THAILAND: Mae Fang N.P., over & along a forest brook", "Nov. 1, 2004, No. 14, L. Papp & M. Földvári" (HNHM, genit. prep., left wing lost). Paratype: THAILAND: Nan Prov., Mae Charim waterfall, No. 25, over and along rivulet, 7.–8.xi. 2004, 1 female, L. Papp & Földvári leg. (HNHM, genit. prep.); Kamphaeng Phet Prov., Khlong Lan Dist., nr. Khlong Lan Watf., 16.07.51 N, 99.16.41 E, No. 18, 280 m, secondary forest, 11.–12.xii. 2003, 1 female, P. Schwedinger leg. (MHNG, genit. prep.).

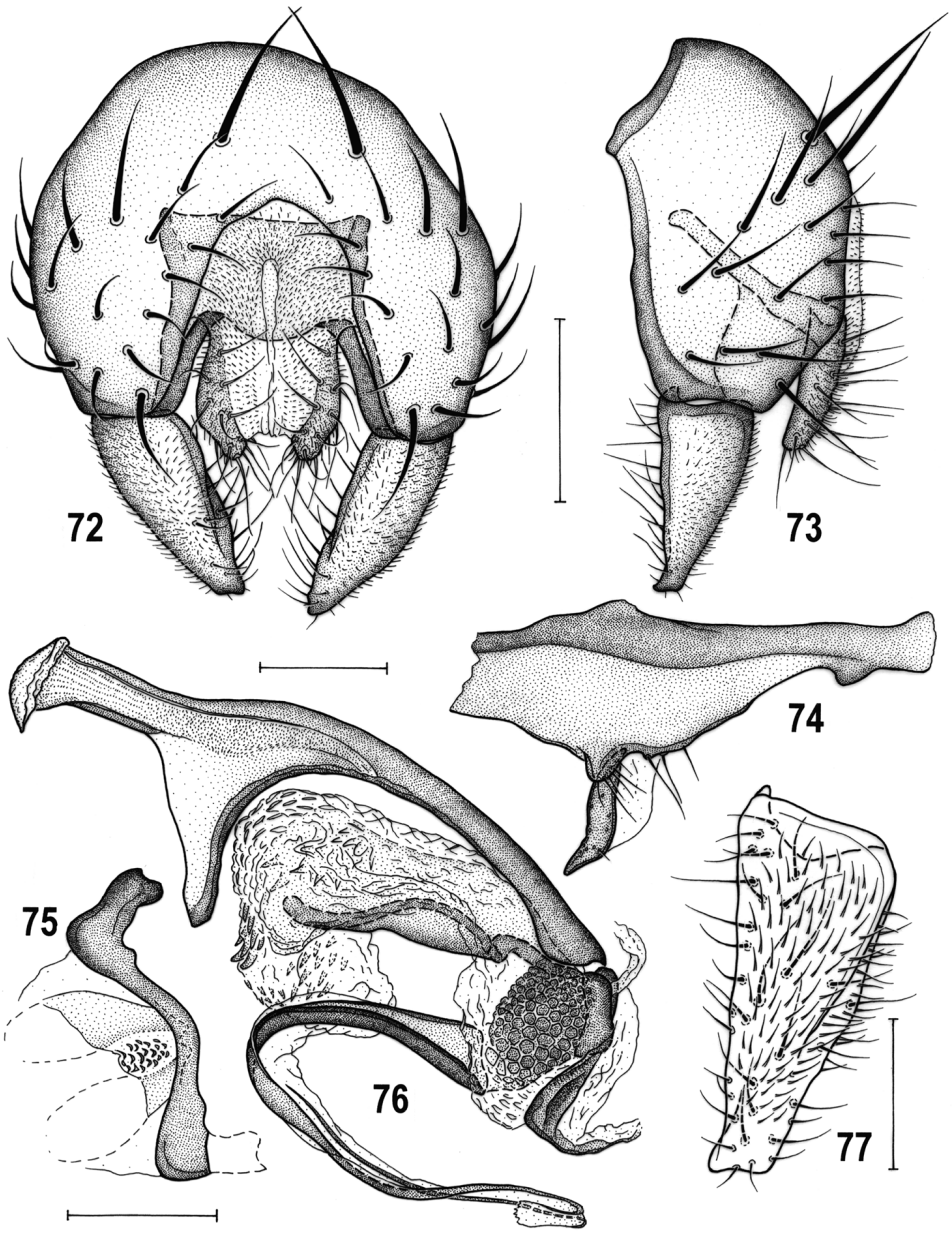
Etymology: The species is named "curtistylus" because of its apically truncated shape of gonostylus.

Description – Male. Total body length 1.87 mm. Body resembling that of *A. nigrinotum*, darker. Occiput brown, sparsely greyish microtomentose except for bare stripes along posterior margin of eyes. Sides of frontal triangle and top of ocellar triangle with sparse microtomentum. Parafacialia and gena very narrowly brown-margined. Mouthparts dorsally brown including palpus, only proboscis yellow. Cephalic chaetotaxy: vti short, slightly longer than half length of vte; oc slightly longer than vti; 1 relatively short vi (shorter and weaker than oc) and 1 yet weaker subvibrissa (two-thirds of vi); 5–6 small peristomal setulae. Eye subovoid, with longest diameter 1.6 times as long as shortest one. Genal smallest height 0.06 times as long as shortest eye diameter. Antenna as in *A. nigrinotum*.

Thorax somewhat darker than in *A. nigrinotum*. Humeral callus yellow, notopleural area ochreous-brown. Thoracic chaetotaxy: 1 prs, reduced to microseta; 2 dc but anterior reduced to a weak setula only twice longer than dc microsetae; laterobasal sc weak but longer than anterior dc. Legs largely dark yellow with pale to whitish yellow coxae and trochanters. f_3 with 6 somewhat thickened and shortened setae in distal third of posteroventral row. Wing (Fig. 167) with pattern as in *A. nigrinotum*. Cross-vein r-m situated slightly in front of middle of discal (dm) cell. Wing measurements: length 2.20 mm; width 0.69 mm, Cs_3: Cs_4 = 2.10, r-m\dm-cu : dm-cu = 3.42. Haltere with ochreous to pale brown stem and dark brown knob.

Abdomen. Preabdominal terga uniformly dark brown, only T5 with short yellowish anterolateral spot on each side. Preabdominal sterna S3 and S4 distinctly longer than broad; S5 the largest and as long as broad.

Genitalia. Epandrium relatively high (Figs 72–73), with 1 dorsomedial and 1 caudal pair of long and robust setae; anal opening relatively narrow (Fig. 72). Cercus slender, shorter than gonostylus. Medandrium (Fig. 72) of moderate width, dorsally as wide as ventrally, with corners simply rectangular. Gonostylus (Figs 72–73, 77) elongate and slender as in *A. cuspidatus* but its apex truncated not pointed and with micropubescence covering most of outer side, inner side of gonostylus with longer but fine setae. Hypandrium damaged in holotype (Fig. 74), relatively slender and simple, with small incurved and unpigmented internal lobes; transandrium (Fig. 75) simple, arched, concave ventrally; caudal process (partly broken off in the holotype, see Fig. 75) formed by a pair of 2 flat, ventrally widened sclerites. Pregonite (Fig. 74) low, fused with hypandrium, with posterior, ventrally projecting but rounded process carrying about 6 small setae, and with 3 longer setae on anterior simple part in addition. Postgonite (Fig. 74) slender, dark, slightly sinuate, apically pointed, with 1 microseta in distal fourth. Aedeagal part of folding apparatus short (Fig. 76) dark-pigmented and provided with flat polygonal to rounded tubercles (larger ventrally) but without spinulae. Connecting sclerite slender, also dark, curved, finely granulose proximally and tapered distally. Armature of basal membrane unrecognized due to damage, probably with transverse flat spines as are those be-



Figs 72–77. *Amygdalops curtistylus* sp. n., male holotype (Thailand). 72 = external genitalia, caudal view, 73 = same, lateral view, 74 = hypandrium and associated structures (damaged), lateral view, 75 = transandrium (damaged), caudal view, 76 = aedeagal complex, lateral view, 77 = gonostylus, sub-lateral view (widest extension). Scales: Fig. 77 = 0.05 mm, others = 0.1 mm

tween sclerites of caudal process (Fig. 75). Aedeagal complex (Fig. 76) with slender phallapodeme, having shortly forked base and long apex with distinct lateral projections. Saccus of distiphallus voluminous but not very long, with distinct ventral sclerite and somewhat pigmented basal and middle parts, otherwise membranous, with spines in central part and apical part. Filum of distiphallus long, strongly curved, formed by 2 dark, very slender stripe-like sclerites (basally wider and coalesced, distally separate) ending in membranous finely denticulate apex (Fig. 76). Ejacapodeme not observed, probably very small.

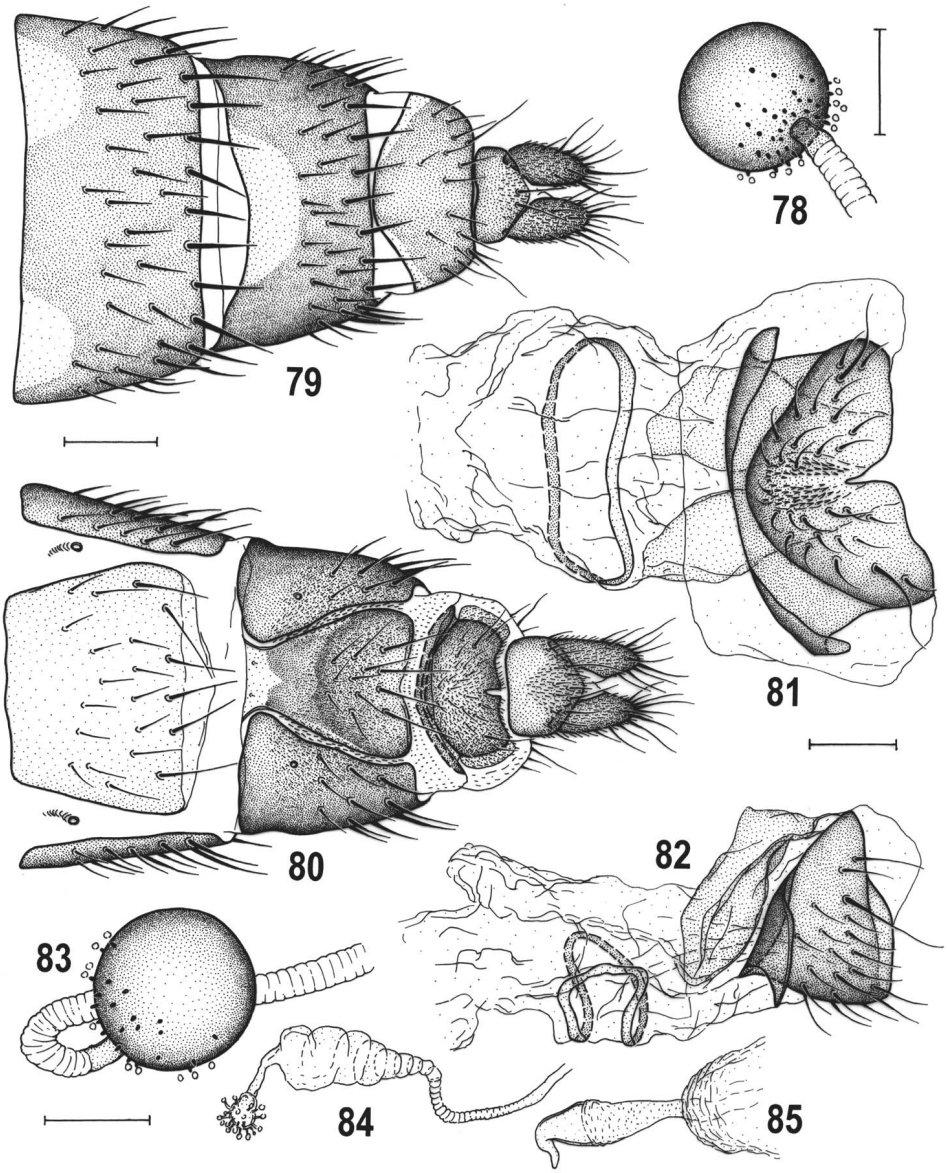
Female. Similar to male unless mentioned otherwise. Total body length 2.14–2.66 mm. f_3 without shortened setae. Cross-vein r-m situated distinctly in front of middle of dm cell. Wing measurements: length 2.42–2.58 mm, width 0.71–0.73 mm, Cs_3: Cs_4 = 1.83–1.90, r-m\dm-cu: dm-cu = 3.62–4.25. Abdomen with T1-T3 completely dark brown, T4-T6 with distinct light yellow anterolateral spot on each side; spots on T4 slightly smaller than those on T5 or T6. S3-S5 about as long as broad but becoming larger and wider posteriorly, consequently S5 larger than S4 but narrower than (postabdominal) S6.

Postabdomen (Figs 79–80). T6 slightly wider than T7, dark brown with distinct yellowish anterolateral spots (Fig. 79). S6 slightly wider than long, of trapezoid shape, pale yellow. T7 dark brown, anteromedially shallowly emarginate, and with semicircular lighter spot and its lateral sides extended on ventral side, reaching up to S7 and embedding 7th spiracles. S7 tapered anteriorly and subcordate, dark brown (darkest in the middle) except for anterior pale area with basal sensillae. T8 dark brown, with only anterolateral margins pale, plate-shaped, relatively broad. S8 dark brown, as wide as S7 but markedly narrower than T8, distinguished by peculiar anterior bare sclerite (= possibly internal sclerites fused to S8) with corners turned up (see Figs 81–82). T10 brown, transversely pentagonal, finely microtomentose only around a pair of posteromedial setae. S10 paler than S8, pentagonal but longer than T10, micropubescent posteromedially and near marginal setulae. Internal sclerotization of genital chamber weakly developed (except anterior part of S8 being probably also modified internal sclerites) and pale-pigmented (Figs 81–82), not dilated anteriorly; annular sclerite distinct, thicker than usual and simply bent; vaginal area finely spinulose. Ventral receptacle (Fig. 85) vesiculate, with bent digitiform rather robust terminal projection; receptacular duct relatively slender. Accessory gland (Fig. 84) small, shortly pyriform and with minute stalked globulae on surface; duct ringed, strongly dilated subterminally. Spermathecae spherical, very large, both of almost same size (Figs 78, 83), with minute (almost grain-like) dark spinulae in basal third; duct cervix short and weakly sclerotized. Cerci (Fig. 79) rather robust, longer than in *A. cuspidatus* or *A. nigrinotum*, shortly setose.

Discussion – This new species can be recognized from similar species of the *A. nigrinotum* subgroup only by its brown palpus, male genitalia (e.g. by the apically truncate gonostylus) and female postabdomen (distinctive S7 and S8 in particular). It is considered to be related to *A. pappi* sp. n. but this cluster is defined by only a single synapomorphy, the denticulate apex of the filum of the distiphallus (Fig. 175). Actually, *A. curtistylus* sp. n. is a rather atypical member of the *A. nigrinotum* subgroup because the armature of its saccus and shape of the female S7 seem to be intermediate between those of other species of this subgroup and those of the *A. cuspidatus* subgroup, not to mention the uniquely modified female S8 and the thickened annular sclerite (cf. Figs 81–82).

Biology – Both type specimens were swept near a forest brook, in XI.

Distribution – Thailand.



Figs 78–85. *Amygdalops curtistylus* sp. n., female paratype (Thailand). 78 = spermatheca, 79 = postabdomen, dorsal view, 80 = postabdomen, ventral view, 81 = S8 and internal sclerites, ventral view, 82 = same, lateral view (micropubescence omitted), 83 = spermatheca, 84 = accessory gland, 85 = ventral receptacle, lateral view. Scales: Figs 79–80 = 0.1 mm, others = 0.05 mm

Amygdalops pappi sp. n.
(Figs 86–98, 168)

Type material: Holotype male, labelled: „THAILAND, Nan Prov., Mae Charim, waterfall, No.25", „over and along rivulet, 7–8.11.2004, L. Papp & Földvári" (HNHM, genit. prep.). Paratypes: same data as for holotype, 4 females; THAILAND: Mae Fang N.P., No. 14, over & along a forest brook, 1.xi.2004, 2 females; Doi Inthanon N.P., Pha Sum Ran Waterfall, No.8, forest & along brook, 30.x.2004, 1 male, all L. Papp & M. Földvári leg. (HNHM, 1 female SMOC, all with genit. prep.).

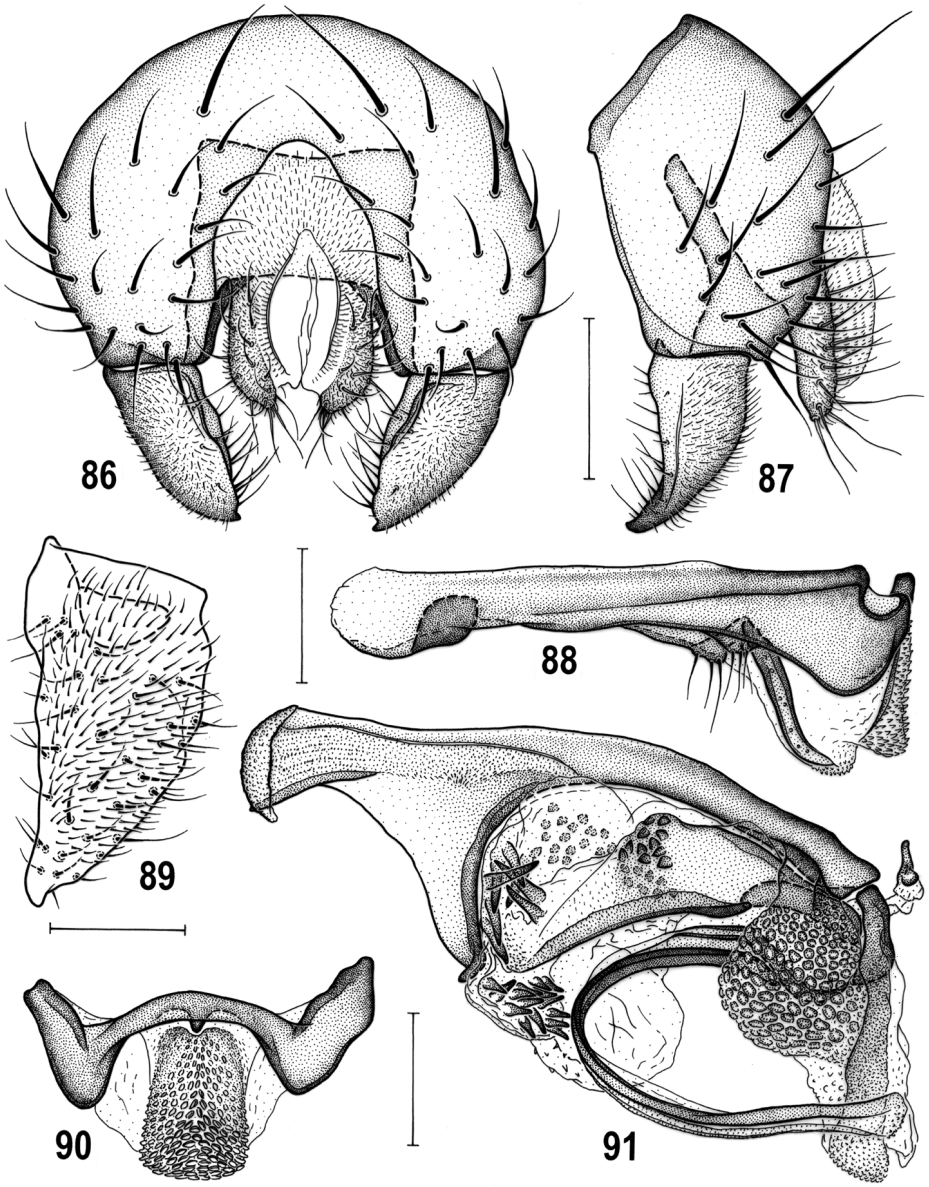
Etymology – The species is named for LÁSZLÓ PAPP, the eminent Hungarian dipterist, in recognition of his tremendous contribution to the knowledge of the Oriental fauna of Diptera (see PAPP *et al.* 2006).

Description – Male. Total body length 2.02–2.26 mm. Very similar to *A. nigrinotum* in outer appearance. Occiput entirely dark brown. Orbit brown, with anterior third paler brown or ochreous-yellow, shining. Gena ventrally pale-brown margined and postgena dark yellow. Mouthparts light brown to dark ochreous including palpus, the latter with brownish darkened apex. Cephalic chaetotaxy as in *A. nigrinotum*. 8–9 small peristomal setulae. Eye broadly subovoid, with longest diameter 1.4 times as long as shortest one. Genal smallest height 0.06 times as long as shortest eye diameter. Arista 1.7–1.8 times as long as antenna.

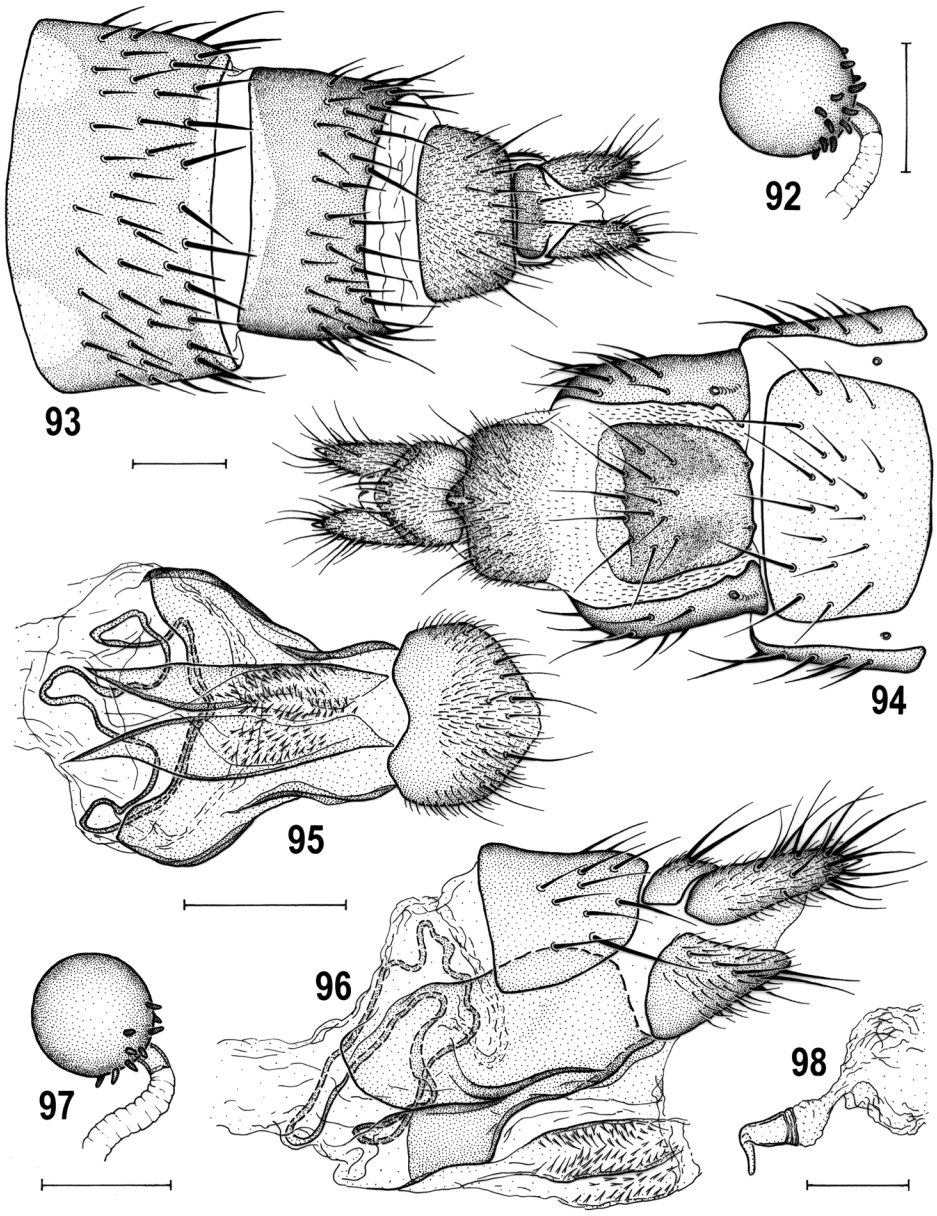
Thorax as in *A. nigrinotum*. Thoracic chaetotaxy: 1 prs, reduced to microseta; anterior dc reduced to a weak setula (only twice longer than dc microsetae); ac microsetae in 4 rows also between posterior dc; 2 sc, laterobasal small but slightly longer than anterior dc. f_3 with 5–6 shortened and thickened posteroventral setae in distal third. Wing (Fig. 168) with pattern and venation very similar to those of *A. nigrinotum*. Cross-vein r-m situated distinctly in front of middle of dm cell. Wing measurements: length 2.06–2.36 mm; width 0.61–0.68 mm, Cs_3: Cs_4 = 1.75–1.90, r-m\dm-cu: dm-cu = 3.38–3.82. Haltere as in *A. nigrinotum*.

Abdomen. Preabdominal terga dark brown, T4 with small to indistinct, T5 with larger yellow or ochreous anterolateral spot on each side. Preabdominal sterna becoming wider posteriorly, S5 the largest.

Genitalia. Epandrium (Figs 86–87) very similar to that of *A. nigrinotum*, with longer dorsomedial (1) and dorsolateral (1–2) setae; anal fissure large, rather parallel-sided in lower half (Fig. 86). Cercus shorter than gonostylus, projecting ventrally less than in *A. nigrinotum*. Gonostylus (Figs 86–87, 89) elongately subtriangular, in lateral view more bent and more pointed apically than in *A. nigrinotum*; most of its outer side (also near apex) with micropubescence; inner side of gonostylus with longer setae, particularly in apical half anteriorly. Hypandrium (Fig. 88) moderate, with small pale-pigmented internal lobes; transandrium (Fig. 90) slender, simply bent (with concave ventral margin) and with small ventromedial process; caudal process formed as a weakly sclerotized, medially depigmented plate. Pregonite (Fig. 88) low, with posterior part doubly projecting ventrally and with only 6–7 setae, 1 of them longer. Postgonite (Fig. 88) longer than in *A. nigrinotum*, slender, almost straight with only apical fourth bent and pointed and with only sensillae on outer side; basal sclerite of postgonite small, hidden behind pregonite. Aedeagal part of folding apparatus attached to base of phallapodeme (Fig. 91) not darkened dorsally, provided with flat tubercles (smaller than in *A. nigrinotum*); connecting sclerite narrow, long, distally widened and finely tuberculate. Basal membrane densely spinulose, particularly ventrally (Figs 88, 90). Aedeagal complex (Fig. 91) with phallapodeme thicker than in *A. nigrinotum*, with widened shortly forked base and robust pale apex with distinct lateral projections. Saccus of distiphallus voluminous, except for basal and ventral sclerites membranous and provided with short thorn-like spines dorsolaterally and with clusters of robust pigmented



Figs 86–91. *Amygdalops pappi* sp. n., male holotype (Thailand). 86 = external genitalia, caudal view, 87 = same, lateral view, 88 = hypandrium and associated structures, lateral view, 89 = gonostylus, ventrocaudal view (widest extension), 90 = transandrium, caudal view, 91 = aedeagal complex, lateral view. Scales: Fig. 89 = 0.05 mm, others = 0.1 mm



Figs 92–98. *Amygdalops pappi* sp. n., female paratype (Thailand). 92 = spermatheca, 93 = postabdomen, dorsal view, 94 = same, ventral view, 95 = S10 and internal sclerites, ventral view, 96 = apex of postabdomen with internal sclerites, lateral view, 97 = spermatheca, 98 = ventral receptacle, lateral view. Scales: Figs 93–96 = 0.1 mm, others = 0.05 mm

spines anteriorly (longer) and preapically (shorter), thus without fine spinulae. Filum of distiphallus formed by 2 stripe-like twisted sclerites (one distinctly darker and thicker) ending in slightly widened membranous and very finely tuberculate apex. Ejacapodeme with digitiform projection.

Female. Similar to male unless mentioned otherwise. Total body length 1.94–2.50 mm. f_3 without shortened setae. Wing measurements: length 2.20–2.48 mm, width 0.63–0.75 mm, Cs_3 : Cs_4 = 1.74–1.90, r-m\dm-cu: dm-cu = 3.28–3.92. Abdomen with preabdominal terga similarly spotted as in *A. nigrinotum*. S3-S5 becoming slightly wider posteriorly, so S5 widest but slightly narrower than S6.

Postabdomen (Figs 93–94). T6 broader than T7, densely setose in posterior two-thirds, brown with pale yellow anterolateral spots. S6 pale yellow, very slightly narrower than T7. T7 dark brown, only anteriorly with paler marginal stripe, on ventral side embedding spiracles and with small marginal incision near them. S7 with simple pattern, brownish except for pale posterior margin, darkest sublaterally and near 4 posterior long setae, with a pair of characteristic small protuberances on anterior margin surrounding the sensory setulae. T8 only slightly paler than T7, plate-shaped, markedly microtomentose and with fine setae in posterior half. S8 also dark, as wide as S7. T10 small and short, dark and bare anteriorly and laterally, otherwise unpigmented and microtomentose, with a pair of longer setae. S10 subcordate, dark, bare anteriorly, micropubescent in posterior two-thirds (see also Fig. 95). Internal sclerotization of genital chamber complex but pale, composed of 2 pairs of fused sclerites (medial pair narrow, lateral pair widened anterolaterally) and of twisted and thin annular sclerite (Figs 95–96); vaginal part with short spinulae (Fig. 96). Ventral receptacle (Fig. 98) membranous, formed by basally strangled pouch and slender digitiform, ventrally directed, terminal projection. Spermathecae spherical (Figs 92, 97), with small blunt spines around duct insertion; duct cervix short and pale-pigmented. Cerci (Fig. 93) characterized by short setae and apical seta modified to a small spine (Fig. 96).

Discussion – *A. pappi* sp. n. is externally very similar to *A. nigrinotum* but is generally darker in colour, resembling the most closely related *A. curtistylus* sp. n. (see above) but differs from the latter in having wider eyes and a light brown palpus with darkened apex. However, its dependable identification is only possible by referring to the form of the gonostylus, the large spines in the saccus of the distiphallus, the subquadrate female S7 and the cercus with a small apical spine. In the latter character it resembles *A. geniculatus* and *A.* sp. n. (c) but this sister-pair differs by its darkened brown distal part of the femora and its (sub)pyriform spermathecae with robust spines on the surface.

Biology – All known specimens were taken in forest by sweeping vegetation along brooks, in X–XI.

Distribution – Thailand.

Amygdalops nigrinotum SUEYOSHI et ROHÁČEK, 2003
(Figs 99–109, 169)

Amygdalops nigrinotum SUEYOSHI et ROHÁČEK, 2003: 18–21, Figs 1a-g, 2a, 3 [description, relationships]; ROHÁČEK, 2004: 189–194, Figs 66–76, 128 [redescription, relationships]; ROHÁČEK, 2006: 54–60, Figs 104–115 [redescription].

Amygdalops thomasseti: HARDY et DELFINADO, 1980: 225–227, Figs 94a-e [misidentification]; VOCKEROTH, 1989: 548 [catalogue].

Type material: Holotype male, labelled: "Sueyoshi Park, Naha City, Ryukyu, Japan, 26.iii. 2000, H. Nakayama leg." (lime green circle), "An 1081" (BLKU). Paratype female, labelled: "Java, Jacobson" (handwritten), "Amygdalops geniculata, det. de Meijere." and "Amygdalops geniculata, det. Dr. O. Duda" (both partly handwritten), "Amygdalops geniculata de Meijere, 1916, ZMAN type DIPT.0043" (red label), "PARATYPUS ♀, Amygdalops nigrinotum sp. n., M. Sueyoshi & J.Roháček det. 2002" (yellow label) (ZMAN, genit. prep.). For other paratypes see SUEYOSHI and ROHÁČEK (2003).

Note: The labelling of the female paratype from Java is listed in extenso because this specimen can be considered to belong to the type series of *A. geniculatus* (cf. SUEYOSHI & ROHÁČEK 2003: 21). However, it is not mentioned in the original description of the latter species (see DE MEIJERE 1916: 207) and was obviously recognized and subsequently appended to the true type specimens by de Meijere himself.

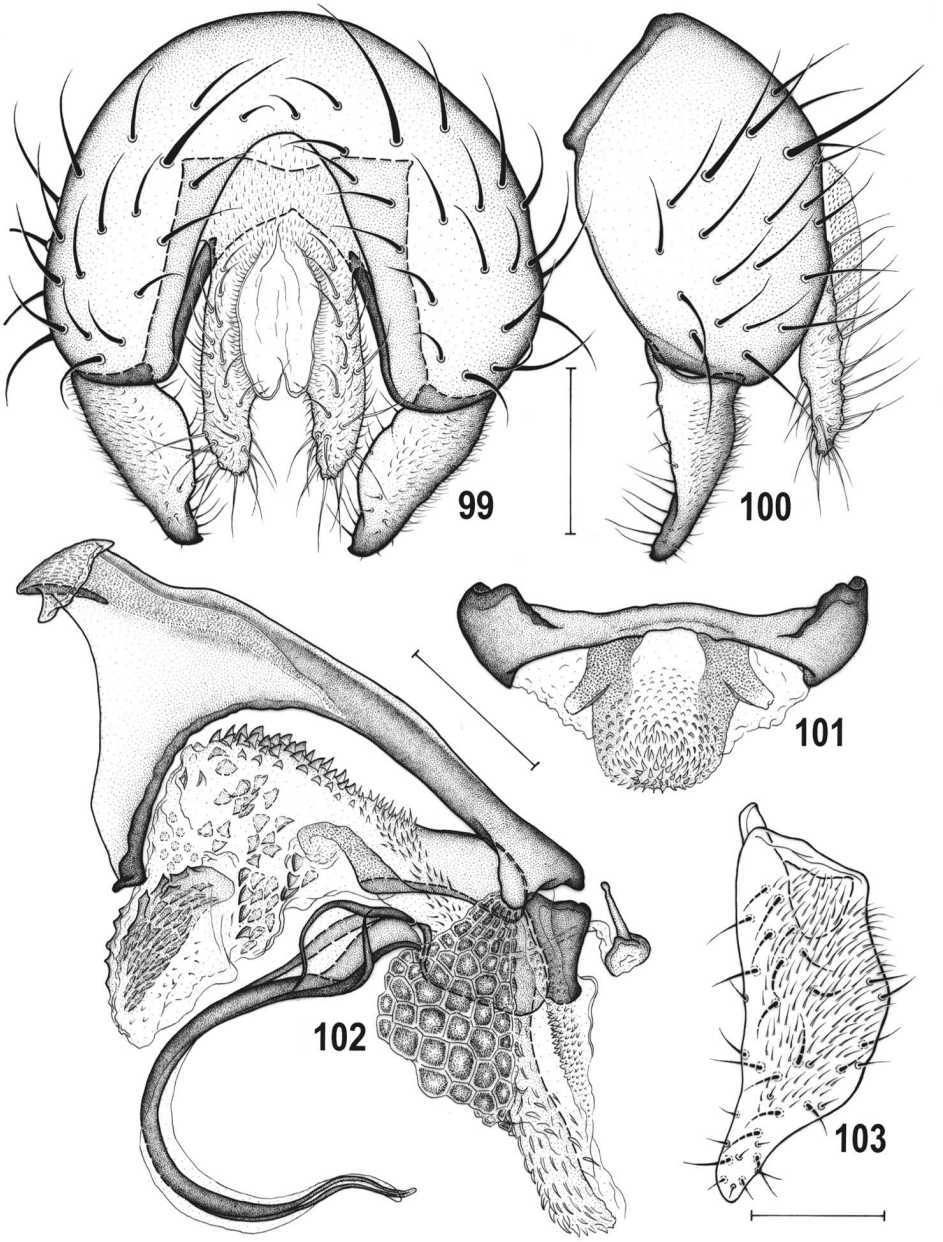
Other material examined: AUSTRALIA: SE Queensland: Mt Glorious, Raiforest Circuit tr., 27.20S / 52.46E, No.20, rainforest. 24.x.2002, 1 female, Merz, Földvári & McNeil leg. (MHNG). INDIA: Assam: 10 mi N Tinsukia, 6.iii.1944, 1 female, D. E. Hardy leg. (USNM). INDONESIA: Flores I., X859, eastern periphery of village Mataloko, ca 10 km ESE' Badjawa, 200–300 m E' mission church and school, 8,49S 121,02E, creek valley, open cultivated land (vegetables, maniok), diverse herbaceous vegetation (–2 m height), grazed by buffaloes, 24.ix.1992, 85 males 70 females (ZSMC, FBUB, SMOC, DEBU, in alcohol or dried from alcohol); same, X858, *Vicia* and *Zea mays* fields, swept, aspirated, 1 male 3 females; same, X857, 2–3 km E' mission church and school, coffee-plantage under high trees, many weeds, swept, eclector, 1 female (ZSMC), all M. v. Tschirnhaus leg.; Sulawesi I., Dumoga, low forest, 200 m, Blue Zone, "Rothamsted 2", Malaise trap, 15.vi.–10.vii.1985, 1 female /with teratologically deformed 7th and 8th postabdominal segment/ (BMNH). JAPAN: Okinawa: Geoku, light trap, xi.1961, 2 males 1 female; Okinawa: Camp-Kae, light trap, iii.1962, 3 males 2 females; Okinawa, no locality, 5.–18.viii.1961, 1 female, all W. F. Pippin leg. (USNM). PHILIPPINES: Mindanao I.: Mt. Apo School, 15 km SW Davao, 500 m, 22.–31.x.1965, 1 male, D. Davis leg. (USNM). TAIWAN: Kaohsiung Hsien, Liukuei, Shan-Ping LTER Site, creek valley, No. 13, 31.iii.–1.iv.2003, 1 male, L. Papp & M. Földvári leg. (HNHM); Changhua, Tatu, X1154, 2.iii.1996, 1 male, Kung-ju Lin leg. (ZSMC). THAILAND: Bangkok, Plukchit, light, viii.-ix.1962, 1 female, J. Scanlon leg.; Bangkok, Pratoomvan Dist., light, 9.–10.v.1959, 3 males 1 female; Thonburi Pr., Bangkoknoi Dist., light, 5.–6.v.1959, 2 males 3 females; Thonburi Pr., Mueng Dist., light, 7.v.1959, 2 males 1 female, all Manop leg. (USNM); Mae Fang N. P., over & along a forest brook, No. 14, 1.xi.2004, 1 male 1 female; 8 km E Doi Anh Kang, over a rocky brook, No. 17, 2.xi.2004, 1 male; Nan Prov., Ban Na Lae nr. Pua, over a rocky forest brook, No. 19, 5.xi.2004, 1 male; Nan Prov., Mae Charim waterfall, over and along rivulet, No. 25, 7.–8.xi.2004, 1 male; Trang Prov., Khao Chong Botanic Garden, rainforest, No. 43, 22.xi.2004, 1 male, all L. Papp & M. Földvári leg. (HNHM); Chiang Mai Prov./24, Mae Hia, 19.05.41N / 98.56.11E, 350 m, 25.xii.2003, 2 males 2 females, P. Schwedinger leg.; Chiang Mai Prov., 4.5 km N Pai, 19.40N / 98.44E, 570 m, 23.x.2000, 1 female, B. Merz leg.; Uttaradit Pr., Nam Pat Dist., Phu Soay Dao N.P., 17.42N / 100.57E, 750 m, evergreen forest, 23.xii.2005, 1 female, P. Schwedinger leg. (MHNG). USA: Hawaii Is.: Oahu I., no locality, light trap, vi.1958, 1 male, J. Rodgers & E. J. Ford, jr. leg.; Oahu I., Kunia, light trap, 18.viii.1945, 1 male, ? leg.; Oahu I., Palolo Valley, light trap, 12.ii.1946, 2 males, Wirth leg.; Oahu I., Hickam Field, light trap, i.1946, 1 male, ? leg.; Oahu I., Ewa, light trap, ix.1945, 1 female, MCAS leg., same, ii.1946, 1 female, W. W. Wirth leg., same, xi.1955, 1 male, J. W. Beardsley leg., same, viii.1958, 1 male, D. E. Hardy leg.; Oahu I., Honolulu, Univ. of Hawaii, light trap, iv.1960, 1 male, H. Toba leg.; Oahu I., Honolulu, at light, i.1951, 1 female, v.1951, 1 male 1 female, x.1951, 1 male, xi.1955, 1 female, all D. E. Hardy leg., same, at light, ii.1945, 2 females, ? leg.; Oahu, Honolulu, T.H., 6.x.1951, 1 male, 7.x.1951, 2 females, same, at light, x.1950, 6

males 4 females, all J. Beardsley leg., same, 12.xi.1929, 1 female, Mangelsdorf leg.; Oahu I., Wahiawa, light trap, 28.iii.1966, 1 male, Public Health Dept. leg.; Oahu I., Kanuku, light trap, 28.iii.1966, 1 female, Public Health Dept. leg.; Oahu I., Lanaki, on window, xii.1950, 1 male, D. Fullaway leg.; Oahu I., Pupukea, 4.ii.1964, 1 female, D. Gubler leg., same, banana thicket, vii.1958, 1 female, D. E. Hardy leg.; Oahu I., Waipio, light trap, 24.i.1946, 3 females, Denison leg.; Hawaii I., Hilo, light trap, xi.1945, 1 female, ? leg.; Hawaii I., Kohala, 26.xii.1950, 1 male, H. Higa leg.; Hawaii I., Wapio Valley, light, i.1956, 1 male, J. Beardsley leg. (all USNM). Most specimens with genit. prep.

Description – Male. Total body length 1.63–2.38 mm. Body bicolourous, brown and yellow. Head somewhat higher than long. Occiput brown to ochreous-brown, usually paler medially and around bases of vte and vti, with a pair of small silvery grey microtomentose spots medially above foramen. Frontal triangle reaching to anterior third of frons, with very narrowed anterior corner, largely bare and shiny, including ocellar triangle. Frons brown with yellow anterior third; stripes between frontal triangle and orbits distinctly darker brown than other parts of frons, greyish microtomentose and dull. Orbit bicolourous, its anterior third yellow and dull, posterior two-thirds brown and more shining. Face yellow to pale ochreous; parafacialia and gena whitish yellow to almost white, with silvery white microtomentum; also postgena pale yellow, contrasting with brown occiput. Mouthparts yellowish orange including palpus. Cephalic chaetotaxy: pvt small but distinct and strongly crossed; vti about two-thirds of length of vte, the latter longest of cephalic setae; oc about as long as vti; 2 long ors, posterior as long as vte or slightly shorter, anterior distinctly shorter but always longer than oc; 2 (rarely only 1) microsetulae in front of anterior ors, anterior orbital microsetula only half length of posterior one; usually 2 pairs of microsetulae medially in front of frontal triangle; 1 long vi and 1 subvibrissa about two-thirds to three-fourths of vi; peristomal setulae distinct, longer anteriorly, shorter posteriorly; postocular setulae very minute; palpus with usual subapical seta. Eye very convex, with longest diameter 1.5 times as long as shortest one. Gena anteriorly very narrow; its smallest height 0.07 times as long as shortest eye diameter. Antenna yellow to yellowish ochreous, more or less darkened on outer dorsal side of pedicel and around base of arista. Arista 1.9 times as long as antenna, long-pectinate.

Thorax narrower than head, bicolourous, brown and yellow. Mesonotum including scutellum brown, more rarely with a pair of pale ochreous spots medially just behind neck. Humeral and notopleural areas yellow or orange yellow; pleural part of thorax with brown dorsal band extending from propleuron to haltere and sharply delimited from pale yellow to whitish yellow ventral portion of pleura. Thoracic chaetotaxy: 1 very small and fine prs; 2 dc, posterior very long (about as long as apical sc), anterior short and weak, less than one-third of posterior dc; ac microsetae in 4 rows on suture, in 2 rows between posterior dc; 2 sc, apical long and strong, laterobasal as long as or shorter than anterior dc; 1 ppl, reduced to fine microsetula; 2 stpl, posterior longer; a few additional setae on ventral part of sternopleuron and also some hair-like setulae close to stpl macrosetae. Scutellum rounded triangular with slightly convex dorsal surface. Legs completely yellow to pale yellow. Pedal chaetotaxy: f_1 with posterodorsal and posteroventral row of longer setae, those posteroventral particularly long (3–4 middle longest); f_2 without peculiarities and t_2 with usual ventroapical seta; f_3 with long posteroventral row of setae, 7–8 of them in distal third shortened and thickened. Wing (Fig. 169) with simplified pattern, thus with only preapical spot brownish, rest of wing membrane almost unicolourous. R_{4+5} and M subparallel, very slightly convergent apically; r-m situated near middle of discal (dm) cell. Wing measurements: length 1.62–2.30 mm; width 0.43–0.66 mm, Cs_3: Cs_4 = 2.12–2.40, r-m\dm-cu: dm-cu = 3.18–3.78. Haltere with ochreous stem and brown knob.

Abdomen. Preabdominal terga large, with short and relatively thick setae, brown to dark brown but T4 with small, T5 with larger yellow or pale ochreous anterolateral spot on each side. T6 weakly sclerotized, short, bare and very pale. Preabdominal sterna small and narrow, finely setose,



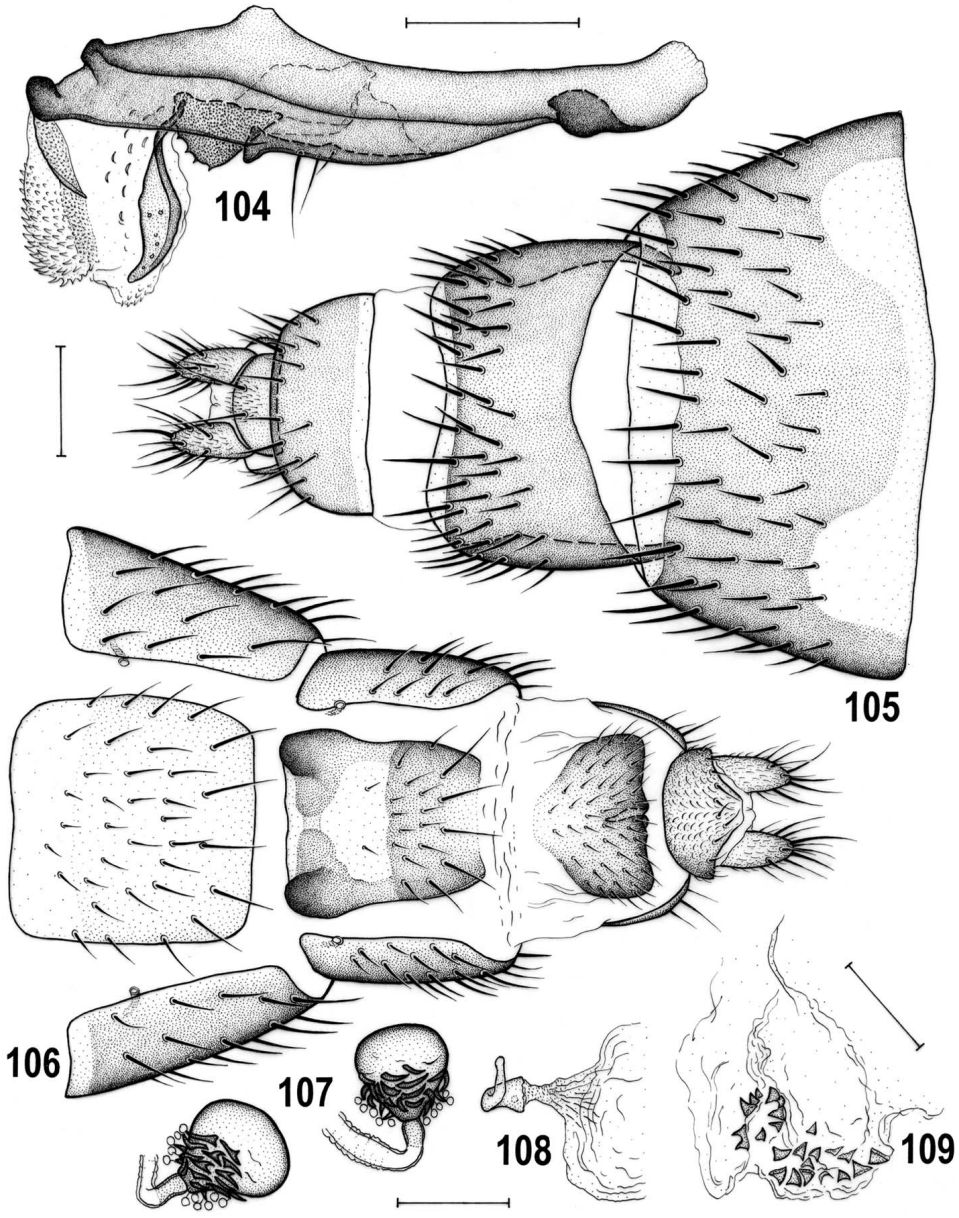
Figs 99–103. *Amygdalops nigrinotum* SUEYOSHI & ROHÁČEK, male (Figs 99, 100, 103 – paratype, Japan; Figs 101, 102 – Seychelles). 99 = external genitalia, caudal view, 100 = same, lateral view, 101 = transandrium, caudal view, 102 = aedeagal complex, lateral view, 103 = gonostylus, sublateral view (widest extension). Scales: Fig. 103 = 0.05 mm, others = 0.1 mm. All according to ROHÁČEK (2004)

pale ochreous and becoming somewhat wider posteriorly; S3-S4 slightly longer than broad; S5 the largest, as long as broad. S6-S8 brown, dorsolaterally fused; S6 ventrally shortened, transversely band-like; S7 almost twice longer than S6, somewhat rectangular; both S6 and S7 with anterior darkened marginal ledge-like stripe (thicker in S6) and each usually with 2 microsetae; S8 relatively long, similarly setose to T5.

Genitalia. Epandrium hemispherical, medium-long (Figs 99–100), moderately setose, with 1 dorsomedial and/or also 1 dorsolateral pair of longer setae; anal opening large, rounded substriangular (Fig. 99). Cercus long, projecting ventrally, almost as long as gonostylus. Medandrium (Fig. 99) comparatively high and wide. Gonostylus (Fig. 99–100, 103) small, suboblong, with tapered but rounded apex; most of its outer side with dense micropubescence, only anterior margin bare; inner side of gonostylus with longer setae, particularly in apical half. Hypandrium (Fig. 104) moderate, with weak unpigmented internal lobes; transandrium (Fig. 101) simple, slender, with nearly straight ventral margin; caudal process represented by a pair of dorsally separate and weak sclerites each of which has small lateral projection. Pregonite (Fig. 104) very low, fused with hypandrium, incurved and only posteriorly slightly ventrally projecting, with only 3–4 setae, 1 of them longer. Postgonite (Fig. 104) slightly sinuous, proximally slender, widened in the middle, apically tapered but not acute, with a few sensillae on outer side; basal sclerite attached to postgonite robust, finely dotted and provided with some small teeth posteroventrally. Aedeagal part of folding apparatus attached to base of phallapodeme (Fig. 102) not darkened dorsally, provided with large flat polygonal tubercles; connecting sclerite very slender, long, pale-pigmented. Basal membrane densely spinulose, particularly ventrally (Figs 101, 104). Aedeagal complex (Fig. 102) with moderate phallapodeme, having bifurcate base and short apex with short lateral projections. Aedeagus with short frame-like phallophore and large distiphallus. Base of distiphallus bare. Saccus of distiphallus large, membranous except for base and provided with rich thorn-like spines dorsally, laterally as well as preapically; fine spinulae are only close to sclerotized base of saccus. Filum of distiphallus formed by 2 dark stripe-like twisted sclerites which are closely affixed except for proximal and distal end and terminate in tapered apex. Ejacapodeme small, with very slender projection.

Female. Similar to male unless mentioned otherwise. Total body length 1.86–2.66 mm. f_3 posteroventrally simply finely setulose, lacking shortened setae. Wing measurements: length 1.84–2.70 mm, width 0.53–0.78 mm, Cs_3: Cs_4 = 2.00–2.39, r-m\dm-cu: dm-cu = 3.27–3.54. Abdomen with preabdominal terga shorter, more transverse. T1 and T2 completely dark brown, T3-T6 with pale yellow anterolateral spot on each side; spots on T3 smallest, on T5 largest (extended over more than basal third of sclerite). Preabdominal sterna smaller and narrower than in male, pale ochreous-yellow; S4 and S5 subequal and as broad as S6.

Postabdomen (Figs 105–106). T6 large, markedly broader than T7, densely shortly setose, brown with pale yellow anterolateral spots which are medially connected by transverse stripe. S6 whitish yellow, distinctly narrower than T7, with fine setae. T7 narrow, dark brown, anteriorly shallowly emarginate and posterior margin narrowly pale, with dense short setae in posterior half. S7 with unpigmented central area, darkest anterolateral rounded corners and setose posterior pigmented part. T8 paler than T7, plate-shaped, with strongly rounded posterior corners and thin dense setae in posterior half. S8 dark, distinctly narrower than T8, finely densely setulose, posteromedially slightly bulging, with narrow mediodorsal incision as usual. T10 small and relatively short, dark and bare except for small posteromedial microtomentose area, and with a pair of longer setae. S10 also dark but wider than T10, micropubescent, with setulae at posterior margin. Internal sclerotization of genital chamber very weak, unpigmented and hardly visible; its vaginal part provided with short thorn-like spines near genital opening (Fig. 109). Ventral receptacle (Fig. 108) membranous, formed by strangled pouch and vermicular, ventrally directed, terminal projection. Spermathecae shortly pear-



Figs 104–109. *Amygdalops nigrinotum* SUEYOSHI & ROHÁČEK, male (Seychelles), paratype female (Hawaii). 104 = hypandrium and associated structures, lateral view, 105 = female postabdomen, dorsal view, 106 = same, ventral view, 107 = spermathecae, 108 = ventral receptacle, ventral view, 109 = spines in vaginal part of female genital chamber. Scales: Figs 104–106 = 0.1 mm, others = 0.05 mm. All according to ROHÁČEK (2004)

shaped (Fig. 107), narrowed at duct insertion, with dense curved spines inserted on basal half of spermatheca; duct cervix developed but short. Cerci (Fig. 105) moderate, with short setae.

Discussion – This widespread species differs from the majority of members of the *A. nigrinotum* group in having an usually paler occiput and spots around the bases of vte and vti setae and a relatively longer anterior dc seta. However, it can be identified with certainty only by the shape of the male gonostylus, the peculiar caudal process of the transandrium with lateral projections, the large basal sclerite of the postgonite, the saccus of the distiphallus with thorn-like spines, the characteristic female S7 and the pyriform spermathecae. It forms together with *A. curtistylus* sp. n., *A. pappi* sp. n., *A.* sp. n. (b), *A. geniculatus* DE MEIJERE, *A.* sp. n. (c) and *A. abnormis* sp. n. the *A. nigrinotum* subgroup characterized by the strongly spinose armature of the saccus of the distiphallus (see Fig. 175). However, inasmuch as the male genitalia are unknown in *A.* sp. n. (b), *A. geniculatus* DE MEIJERE and *A.* sp. n. (c), this character is only assumed to be present in these species. Despite this fact these species are considered the closest relatives of *A. nigrinotum* SUEYOSHI et ROHÁČEK together forming a cluster supported by the distinct synapomorphic character 24 (spermathecae pyriform with robust spines – see Fig. 175).

Biology – SUEYOSHI and ROHÁČEK (2003) recorded adults collected in III–V and VIII–XII. No other biological data have been available. The new material examined yielded data about the occurrence of the species in herbaceous vegetation of a creek valley grazed by buffaloes (over 150 specimens), at brooks and rivers in various forests and in light traps (numerous specimens from Hawaii and Thailand). Adults were found in I–XII.

Distribution – Hitherto, *A. nigrinotum* has only been known from Seychelles (ROHÁČEK 2004), Indonesia (Java – SUEYOSHI & ROHÁČEK 2003), Japan (Izu, Ogasawara, Ryukyu Is. – SUEYOSHI & ROHÁČEK 2003, ROHÁČEK 2006) and Hawaii (Oahu I., Kauai I., Molokai I., Hawaii I. – HARDY & DELFINADO 1980, sub *A. thomasseti*, SUEYOSHI & ROHÁČEK 2003). However, it was originally an Oriental species which (probably recently) has expanded its distribution into the eastern Afrotropical, northern Australasian, eastern Palaearctic and Oceanian Regions. There are new records from India (Assam), Thailand, Taiwan, Japan (Okinawa), Philippines (Mindanao), Indonesia (Flores, Sulawesi) and Australia (Queensland).

Amygdalops sp. n. (b) near **nigrinotum**
(Figs 110–116)

Type material: REPUBLIC OF PALAU: Palau Is: Koror I., M–6317, 31.v.1957, 1 female, J. W. Beardsley leg. (USNM, in poor condition, some extremities including one wing lost, genit. prep.)

Description – Male unknown. Female. Very similar to *A. nigrinotum*, differing as follows. Total body length 1.75 mm. Occiput uniformly brown, with a pair of medial silvery grey microtomentose spots above foramen. Frons as in *A. nigrinotum* but narrowed anterior corner of frontal triangle somewhat microtomentose and duller. Mouthparts yellowish (including palpus) and clypeus pale brown. Cephalic chaetotaxy as in *A. nigrinotum* but pvt smaller (apices not crossed), only 1 (posterior) microsetula in front of anterior ors and 1 pair of microsetulae medially in front of frontal triangle. Antenna with 1st flagelomere lost but plausibly similar to that of *A. nigrinotum*.

Thorax with colouring and chaetotaxy as in *A. nigrinotum* but anterior dc weaker and as long as laterobasal sc. Legs as in *A. nigrinotum* including their chaetotaxies. Wing with pattern and venation very similar to that of *A. nigrinotum*, with only preapical brownish spot. r-m situated slightly in front of middle of discal (dm) cell. Wing measurements: length 1.78 mm; width 0.54 mm, $Cs_3 : Cs_4 = 2.33$, r-m\dm-cu: dm-cu = 3.89. Haltere as that of *A. nigrinotum*.

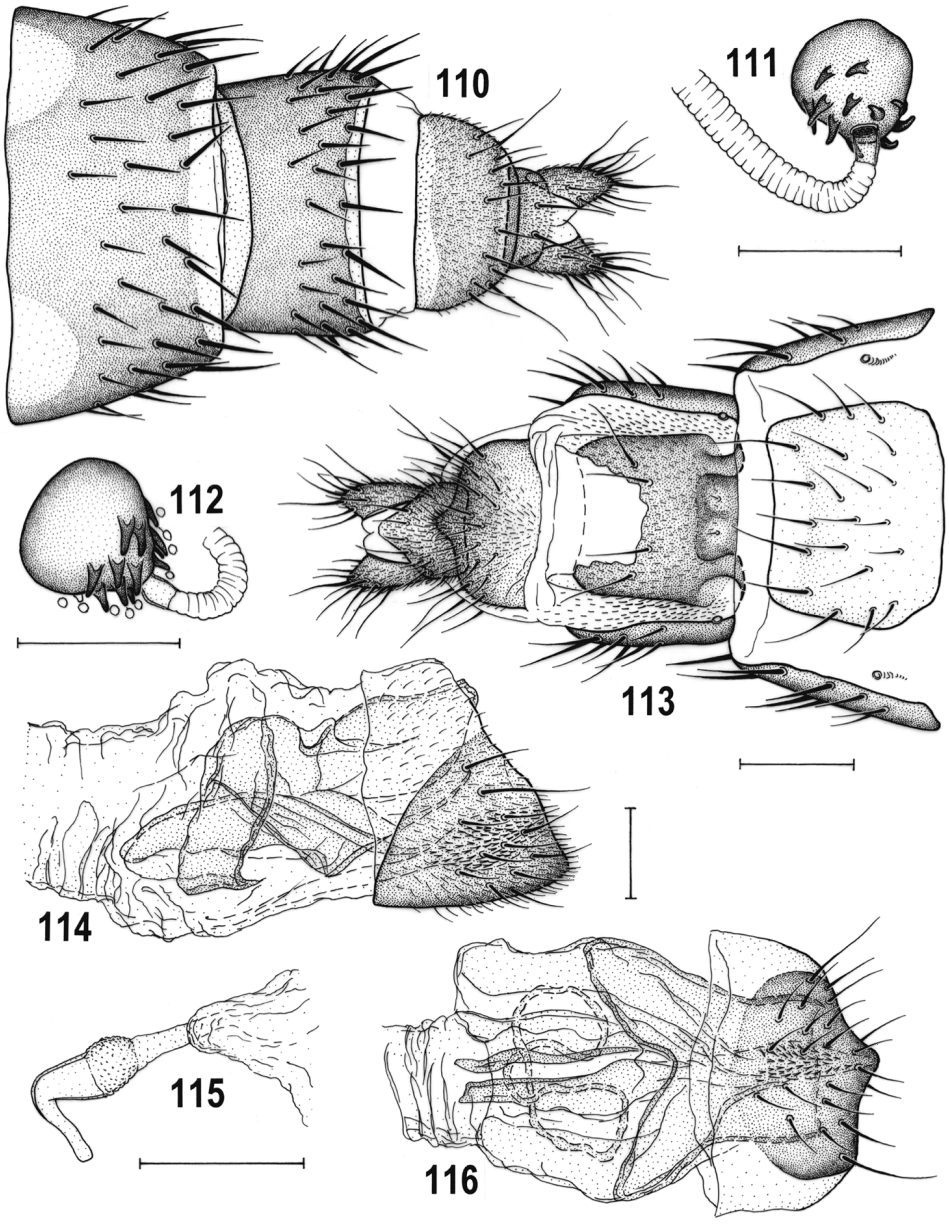
Abdomen with preabdominal terga similarly coloured as those of *A. nigrinotum*, thus T1 and T2 uniformly dark brown, T3-T6 with pale yellow anterolateral spot on each side; spots on T3 smallest, on T4 and T5 largest. Preabdominal sterna pale ochreous-yellow as in *A. nigrinotum* but S3-S5 becoming slightly wider posteriorly and, consequently, S5 largest (as broad as S6).

Postabdomen (Figs 110, 113). T6 large, broader than T7, with short thick setae, brown with pale yellow semicircular anterolateral spots. S6 pale yellow, narrower than T7, slightly wider than long, with fine setae. T7 dark brown but anteriorly and posteriorly pale-margined, setose in posterior half. S7 with pattern and chaetotaxy distinctly different from those in *A. nigrinotum*, larger (almost as broad as S6), with small darkened anterior laterally curved processes (Fig. 113), brown central part, and with long setae situated just behind the latter (posterior part of S7 damaged so that its pigmentation and setosity not visible). T8 very similar to that in *A. nigrinotum*. S8 dark, only slightly narrower than T8, posteromedially more projecting. T10 resembling in shape but with wider microtomentose area. S10 not wider than T10, narrower, elongately pentagonal, projecting posteriorly. Internal sclerotization of genital chamber (Figs 114, 116) weak, pale-pigmented but formed by a long complex of sclerites (anteriorly widened) and a twisted, very fine and poorly visible annular sclerite (Fig. 116); vaginal part finely spinulose near genital opening. Ventral receptacle (Fig. 115) membranous, smooth on surface, with a finger-like, ventrally directed, terminal projection; receptacular duct distally dilated, finely granulose. Spermathecae shortly pyriform (Figs 111–112) as in *A. nigrinotum* but with less dense robust spines on basal half of spermatheca; duct cervix short. Cerci (Fig. 110) somewhat wider and shorter than in *A. nigrinotum*.

Discussion – This species undoubtedly is very closely related to *A. nigrinotum* – a number of external and postabdominal characters of these two species are identical or highly similar. Although the majority of differences from female *A. nigrinotum* are small, the formation and armature of the postabdominal sclerites (S6-S10 in particular) demonstrate that the Palau taxon is a distinct species, most probably endemic to the Palau archipelago.

Biology – Unknown. The only female was colected in V.

Distribution – Republic of Palau (Koror I.)



Figs 110–116. *Amygdalops* sp. n. (b) near *nigrinotum*, female (Palau I.). 110 = postabdomen, dorsal view, 111–112 = spermathecae, 113 = postabdomen (S7 damaged), ventral view, 114 = S8 and internal sclerites, lateral view, 115 = ventral receptacle, lateral view, 116 = S8 and internal sclerites, ventral view (micropubescence omitted). Scales: Figs 110, 113 = 0.1 mm, others = 0.05 mm

Amygdalops geniculatus DE MEIJERE, 1916
(Figs 117–123, 171)

Amygdalops geniculata DE MEIJERE, 1916: 207 [description]; VOCKEROTH, 1977: 241 [catalogue].
Amygdalops geniculatus: ROHÁČEK, 1998*b*: 172 [world checklist].

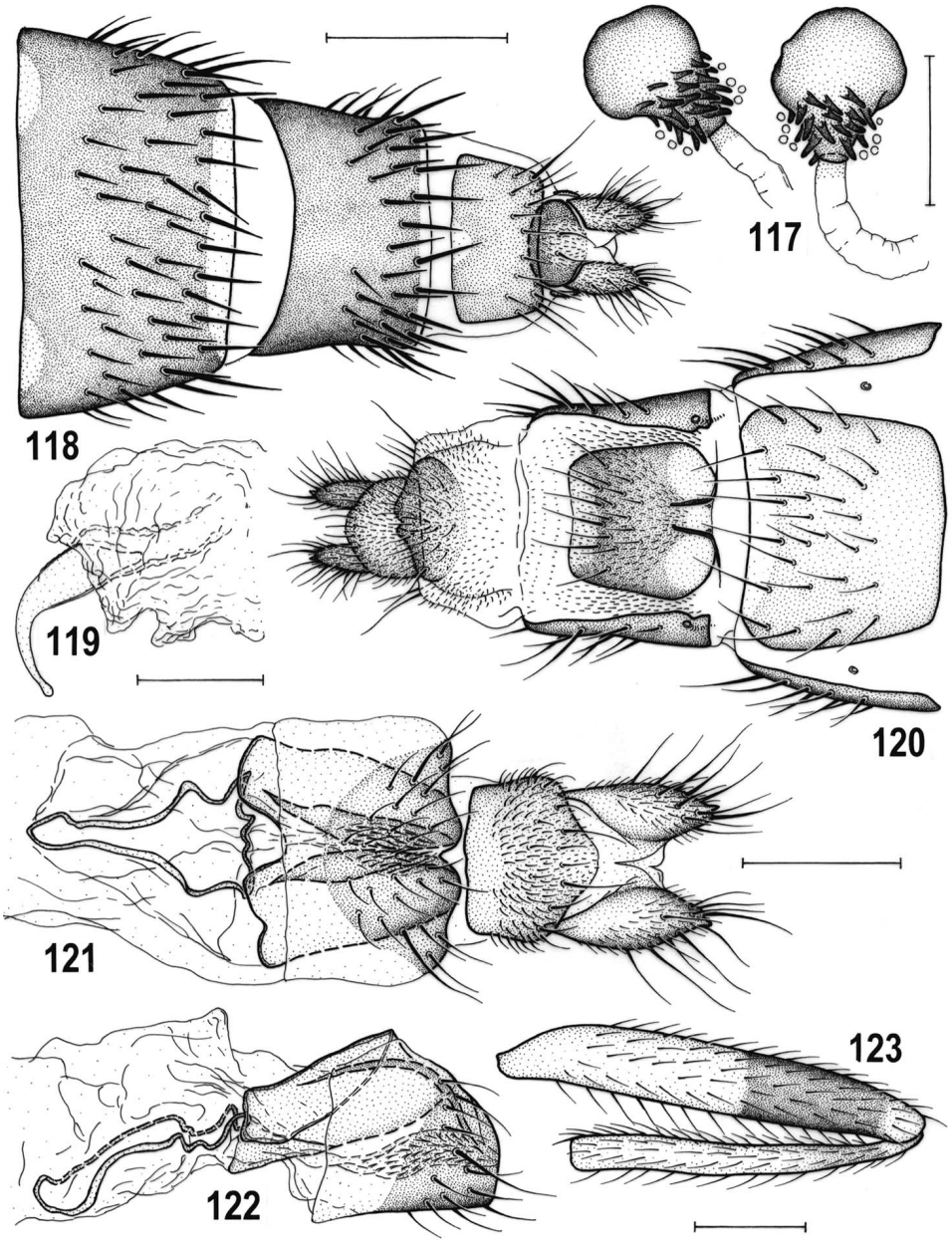
Type material: Lectotype female, labelled: "E. Jacobson, Nongkodjadjar, JAVA Jan 1911" (printed), "Amygdalops geniculata de Meijere, 1916, ZMAN type DIPT.0043.2" (red label), "LECTOTYPUS ♀, Amygdalops geniculatus de Meijere, 1916, J. Roháček des. 2006" (red label) (ZMAN, genit. prep., some legs missing, one wing and hind legs removed and preserved with genit. prep. in glycerine). Paralectotype female, labelled: "Batavia, VIII.07, Jacobson" (handwritten), "Amygdalops geniculata, det. de Meijere., type" (partly handwritten, on black framed label), "Amygdalops geniculata de Meijere, 1916, ZMAN type DIPT.0043.1" (red label) and "PARA-LECTOTYPUS ♀, Amygdalops geniculatus de Meijere, 1916, J. Roháček des. 2006" (yellow label) (ZMAN, genit. prep.).

Note: A third female specimen from Java in ZMAN, identified as *A. geniculata* by DE MEIJERE, but obviously not a member of the type series (because it is not mentioned in the original description and was probably identified and added subsequently), belongs to *A. nigrinotum* and was designated as a paratype of the latter species by SUEYOSHI and ROHÁČEK (2003) – see also under *A. nigrinotum*.

Description – Male unknown. Female. Total body length 2.14–2.70 mm. Similar to *A. nigrinotum* but larger and darker. Head about as high as long. Occiput dark brown, sometimes paler brown around bases of vte. Orbit with anterior third yellow and microtomentose (besides shiny spots around bases of ors), rest brown and shining. Face yellow with ochreous medial and marginal stripes. Mouthparts dorsally (including palpus) brown, strikingly contrasting with orange-yellow proboscis. Cephalic chaetotaxy: vti about two-thirds of length of vte; anterior ors distinctly shorter than posterior, only as long as oc but thicker; 5 peristomal setulae. Eye with longest diameter 1.4 times as long as shortest one. Genal smallest height 0.05–0.06 times as long as shortest eye diameter. Antenna dark yellow to orange, partly darkened on pedicel and around base of arista.

Thorax as in *A. nigrinotum* but darker brown. Thoracic chaetotaxy: hu and npl setae relatively long; anterior dc reduced, slightly longer and thicker than dc microsetae; ac microsetae in 4 to 6 (in lectotype) rows on suture, in 2–4 rows between posterior dc; laterobasal sc small but markedly longer than anterior dc. Legs bicolourous, yellow to pale yellow, but all femora brown to dark brown (paler in f_1) in distal third to two-fifths (except for knees, see Fig. 123) and also t_2 and t_3 proximally somewhat darkened (ochreous-brown). f_1 with rather long setae in posteroventral row; f_3 uniformly finely setulose. Wing (Fig. 171) with pattern and venation of *A. thomasseti* type, thus with preapical brown spot, darkened also between R_{4+5} and M, and with pale area between C and R_{4+5}. R_{4+5} very slightly sinuate apically, M amost straight; r-m situated in front of middle of discal (dm) cell; terminal section of CuA_1 relatively long, 2.5 times as long as dm-cu. Wing measurements: length 2.00–2.68 mm; width 0.71–0.85 mm, Cs_3: Cs_4 = 1.89–1.94, r-m\dm-cu: dm-cu = 3.06–3.36. Haltere with ochreous to pale brown stem and dark brown knob.

Abdomen. Preabdominal terga uniformly dark brown coloured and shortly setose. Preabdominal sterna small and very narrow, distinctly brown (but paler than terga), all longer than broad (S4 most markedly) and becoming somewhat wider posteriorly, S5 the widest but still slightly longer than broad and narrower than S6.



Figs 117–123. *Amygdalops geniculatus* DE MEIJERE, female lectotype (Java). 117 = spermathecae, 118 = postabdomen, dorsal view, 119 = ventral receptacle, lateral view, 120 = postabdomen, ventral view, 121 = apex of postabdomen with internal sclerites, ventral view, 122 = S8 and internal sclerites (micropubescence of S8 omitted), lateral view, 123 = hind femur and tibia, anterior view. Scales: Figs 117, 119 = 0.05 mm, Figs 121–122 = 0.1 mm, others = 0.2 mm

Postabdomen (Figs 118, 120). T6 large, broader than T7, densely shortly setose in posterior three-fourths, largely brown, only posterior marginal stripe yellow and small anterolateral spots paler brown. S6 pale brown with posterior unpigmented marginal area, hardly narrower than T7. T7 dark brown, posteriorly with paler marginal stripe, anteriorly shallowly emarginate, on ventral side embedding spiracles and with small marginal emargination near them. S7 relatively small, markedly shorter than T7, brown except for pale posterior marginal area, with lighter anterior third provided medially with a pair of blackish convergent stripes (small area between them pale-pigmented) and with darker middle part finely setose and distinctly microtomentose. T8 brown, plate-shaped, with small anteromedial unpigmented subtriangular area (Fig. 118). S8 dark (particularly posteriorly), small, only as wide as S7, shortly setulose, with only posterolateral seta longer. T10 small and short, dark and bare laterally, pale-pigmented and microtomentose medially, with a pair of longer setae in central part. S10 pale brown, distinctly larger than T10, micropubescent except for anterior marginal area (see also Fig. 121). Internal sclerotization of genital chamber formed by 2 pairs of coalesced sclerites (medial pair narrow, lateral pair broad, wider anteriorly) and of twisted and thin annular sclerite (secondarily prolonged due to condition of postabdomen in the lectotype – see Figs 121–122); vaginal part densely spinulose (Fig. 122). Ventral receptacle (Fig. 119) simple, membranous, smooth, proximally broader, distally gradually tapered and curved ventrally to form digitiform projection. Spermathecae distinctly pyriform (Fig. 117), narrowed at duct insertion, with dense curved but blunt spines inserted on narrowed part of spermatheca; duct cervix weakly developed and pale-pigmented. Cerci (Fig. 118) moderately long but rather robust, with a number of short setae and apical seta reduced to a small spine (Fig. 121).

Discussion – *A. geniculatus* DE MEIJERE belongs together with its closest relative *A.* sp. n. (c) to the *A. nigrinotum* subgroup. With its sister-species it shares not only a brown distal annulus on the femora (this colouring is otherwise also known in *A. bisinus* sp. n.) but the chiefly similarly formed and pigmented female S7 and the cerci with a short apical spine. Unfortunately, males of both these species remain unknown, so that their affinities to other relatives cannot be tested more rigourously. The differences between *A. geniculatus* and *A.* sp. n. (c) are given in the description and discussion of the latter species below.

Biology – The two type females were captured in I and VIII.

Distribution – Only known from type specimens from Indonesia (Java).

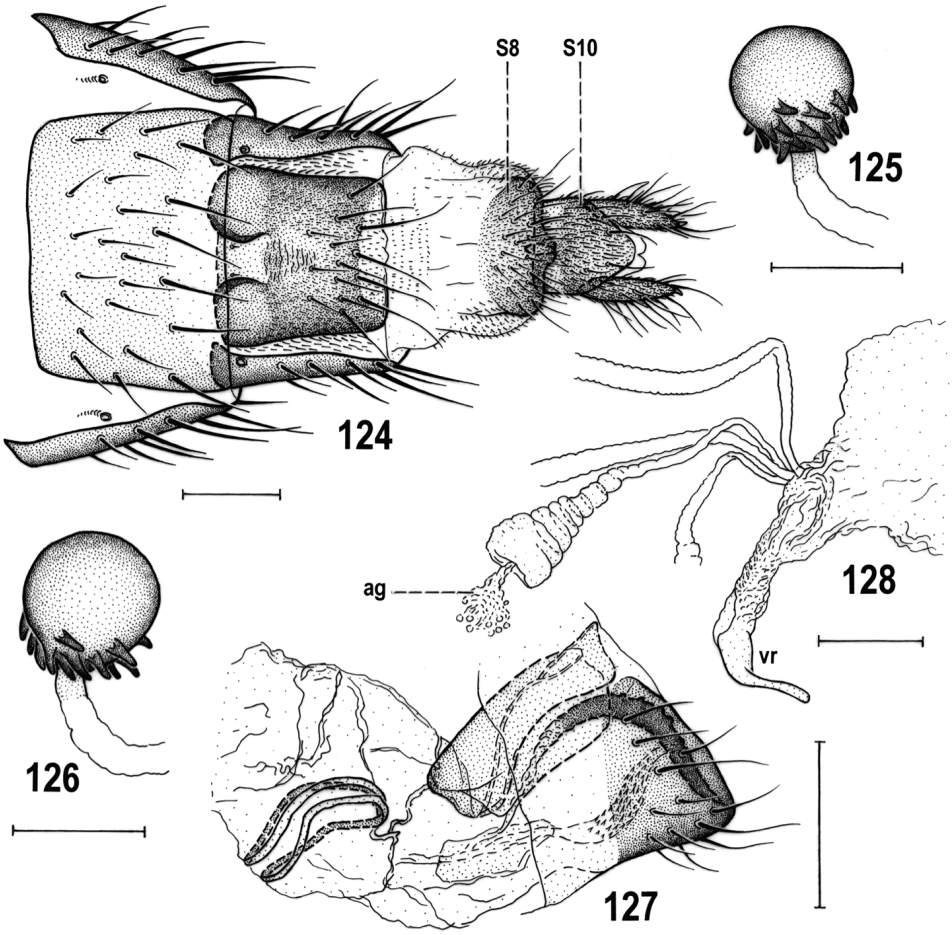
Amygdalops sp. n. (c) near **geniculatus**
(Figs 124–128, 172)

Material examimed: MALAYSIA: Sabah: Kinabalu National Park, Poring, 570 m, 8.ix.1983, 1 female; Sabah: 1 km S Kundasang, 1530 m, Malaise trap, 24.viii.1983, 1 female, all G. F. Hevel & W. E. Steiner leg. (USNM, genit. prep.)

Description – Male unknown. Female. Closely resembling *A. geniculatus* but differing as follows. Darker and larger, total body length 2.81–2.94 mm. Occiput blackish brown, with some greyish microtomentum, particularly medially. Frons less shining because frontal triangle also somewhat greyish microtomentose (only ocellar triangle bare in the middle). Anterior fourth to third of frons

darker ochreous. Marginal stripes of face, parafacialia and gena pale brown. Mouthparts with dorsal part and palpus brown as in *A. geniculatus* but proboscis proximally pale ochreous-brown, only distally yellow. Cephalic chaetotaxy as in *A. geniculatus*, subvibrissa somewhat weaker and palpus with a distinct ventral seta in the middle, in addition to a series of shorter ventral setulae proximally to it and 1 usual subapical seta. Eye convex, with longest diameter only 1.3 times as long as shortest one. Arista about 2.0 times as long as antenna.

Thoracic chaetotaxy and colouring as in *A. geniculatus*, the latter somewhat darker, particularly as regards the pale notopleural area and ventral part of pleuron. Legs similarly bicolourous as in *A. geniculatus* but all pale parts darker yellow and last segment of hind tarsus distinctly brownish dark-



Figs 124–128. *Amygdalops* sp. n. (c) near *geniculatus*, female (Malaysia: Sabah). 124 = postabdomen, ventral view, 125–126 = spermathecae, 127 = S8 and internal sclerites, lateral view, 128 = ventral receptacle and accessory gland, lateral view. Scales: Figs 124, 127 = 0.1 mm, others = 0.05 mm

ened. Wing (Fig. 172) pattern similar to that of *A. geniculatus* but yet darker and preapical spot larger. Discal (dm) cell narrower. Wing measurements: length 2.78–2.84 mm; width 0.79–0.82 mm, Cs_3: Cs_4 = 1.92–1.93, r-m\dm-cu: dm-cu = 3.84–3.90. Haltere with brown stem and blackish brown knob.

Abdomen. Preabdominal terga dark brown as in *A. geniculatus* but T4-T5 (and also T6) with whitish yellow shortly lunette-shaped anterolateral spots. Preabdominal sterna also similar but less narrow (S5 as long as broad) and distinctly lighter coloured than those of *A. geniculatus*.

Postabdomen (Fig. 124) very similar to that of *A. geniculatus*. T6 with small anterolateral spots more distinct, whitish yellow. S6 slightly wider, with larger posterior unpigmented marginal area, less densely setose than in *A. geniculatus*. T7 yet narrower than in *A. geniculatus*, with 7th spiracle inside its anteroventral (simple) margin. S7 larger than that of *A. geniculatus*, with similar pattern, only anteriorly with somewhat different medial structure formed by a pair of blackish sickle-shaped markings and unpigmented area between them. T8 uniformly darker brown, more transverse. S8 similar to that of *A. geniculatus*. T10 similar in shape but darker pigmented laterally as well as anteriorly. S10 markedly narrower and more acute posteriorly than that of *A. geniculatus*. Internal sclerotization of genital chamber with 2 pairs of fused sclerites (medial pair narrow, dark, bent and provided with several posterodorsal tubercles (Fig. 127) in contrast to that of *A. geniculatus*); annular sclerite slender and twisted and vaginal part densely spinulose. Ventral receptacle (Fig. 128) also similar to that of *A. geniculatus* but its proximal part shorter. Accessory gland granulose, on a slender petiole arising from a distally dilated and ringed duct (Fig. 128). Spermathecae very shortly pyriform or rather subspherical (Fig. 125–126), larger than those of *A. geniculatus* and with more robust blunt spines; duct cervix small and weakly sclerotized. Cerci (Fig. 124) distinctly longer and more slender than in *A. geniculatus*, shortly setose, with apical seta reduced to a small spine as in *A. geniculatus*.

Discussion – This new species is very similar and closely allied to *A. geniculatus* DE MEIJERE but differs from the latter in having the terminal segment of the hind tarsus brownish, the female T4-T6 with whitish yellow anterolateral spots, the S7 larger, the spermathecae very shortly pyriform and the cerci longer and more slender. It is left unnamed because only females are known.

Biology – Only two females were caught by means of Malaise traps, in VIII–IX.

Distribution – Malaysia (Sabah = N Borneo).

Amygdalops abnormis sp. n.
(Figs 129–143, 170)

Type material: Holotype male, labelled: "SRI LANKA: Bad. Dist., Ela, black light, 25 November 1976", "Collectors: G. F. Hevel, R. E. Dietz IV, PB & S Karunaratne, D. W. Balasooriya" (USNM, genit. prep.). Paratypes: SRI LANKA: Kan. Dist., Udawattakele, 1800 ft, black light, 19.xi.1976, 1 female, G. F. Hevel, R. E. Dietz IV, S. Karunaratne & D. W. Balasooriya leg. (USNM, genit. prep.). INDIA: Mysore, Bangalore, viii.1957, 1 female, N. L. H. Kraus leg. (USNM, in poor condition, genit. prep.).

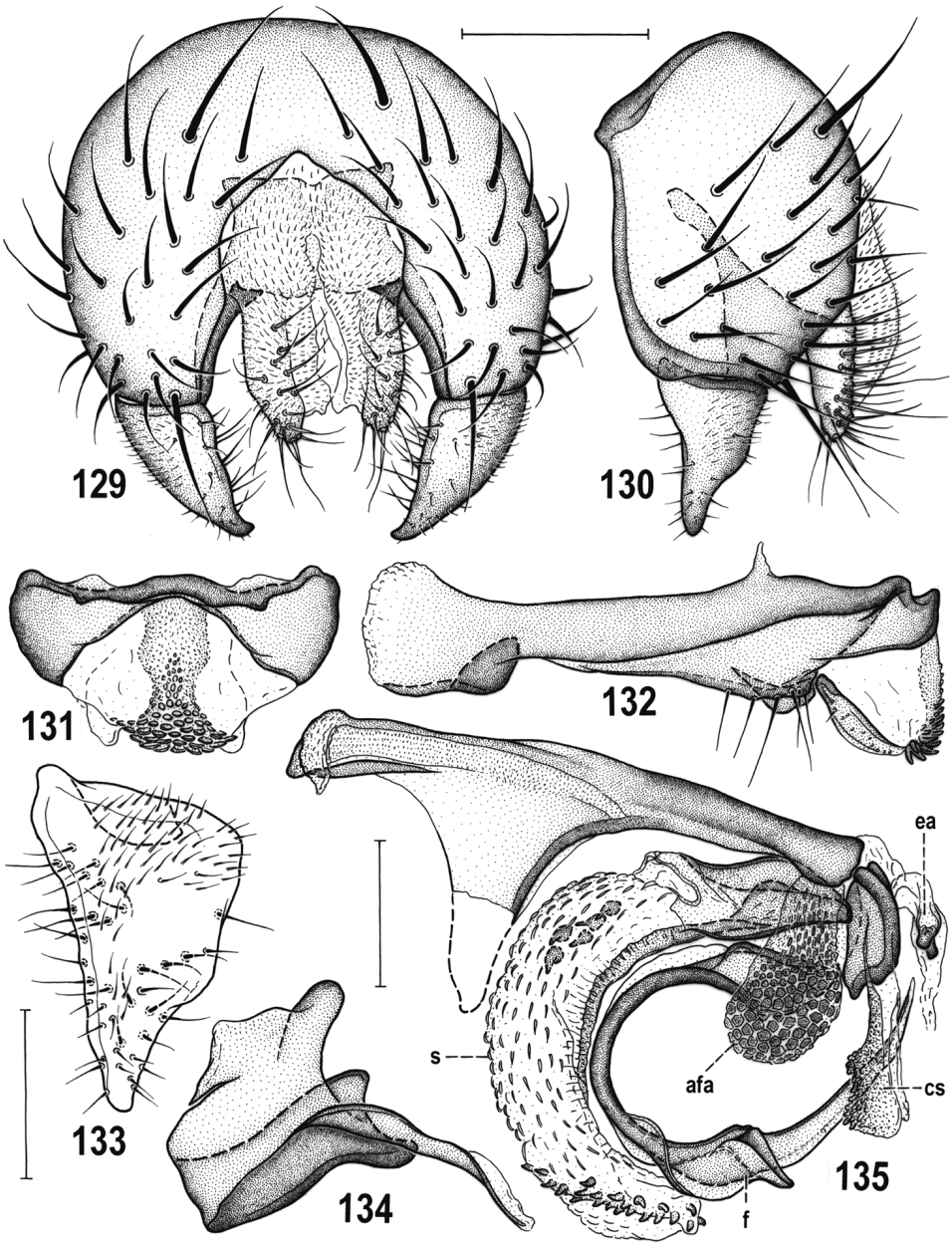
Etymology: The species is named "abnormis" owing to the abnormally modified filum of distiphallus.

Description – Male. Total body length 2.42 mm. Externally similar to *A. nigrinotum* but differing as follows. Occiput brown, slightly paler medially, sparsely greyish microtomentose. Frontal triangle very narrow. Frons with ochreous to yellow anterior third; stripes between frontal triangle and orbits narrow, silvery grey microtomentose and dull. Orbit with anterior third pale brown to yellow and largely dull (shining around base of anterior ors), rest dark brown and shining. Face ochreous-yellow; parafacialia and gena narrowly ochreous margined. Mouthparts as in *A. nigrinotum* but clypeus pale brown. Cephalic chaetotaxy as in *A. nigrinotum* but vi relatively weak (as long as oc but thinner) and subvibrissa about two-thirds of vi; peristomal setulae (8–9) smaller. Eye subovoid as in *A. nigrinotum*. Genal smallest height 0.08 times as long as shortest eye diameter. Antenna yellow to light yellow, somewhat darker around base of arista. Arista 2.0 times as long as antenna.

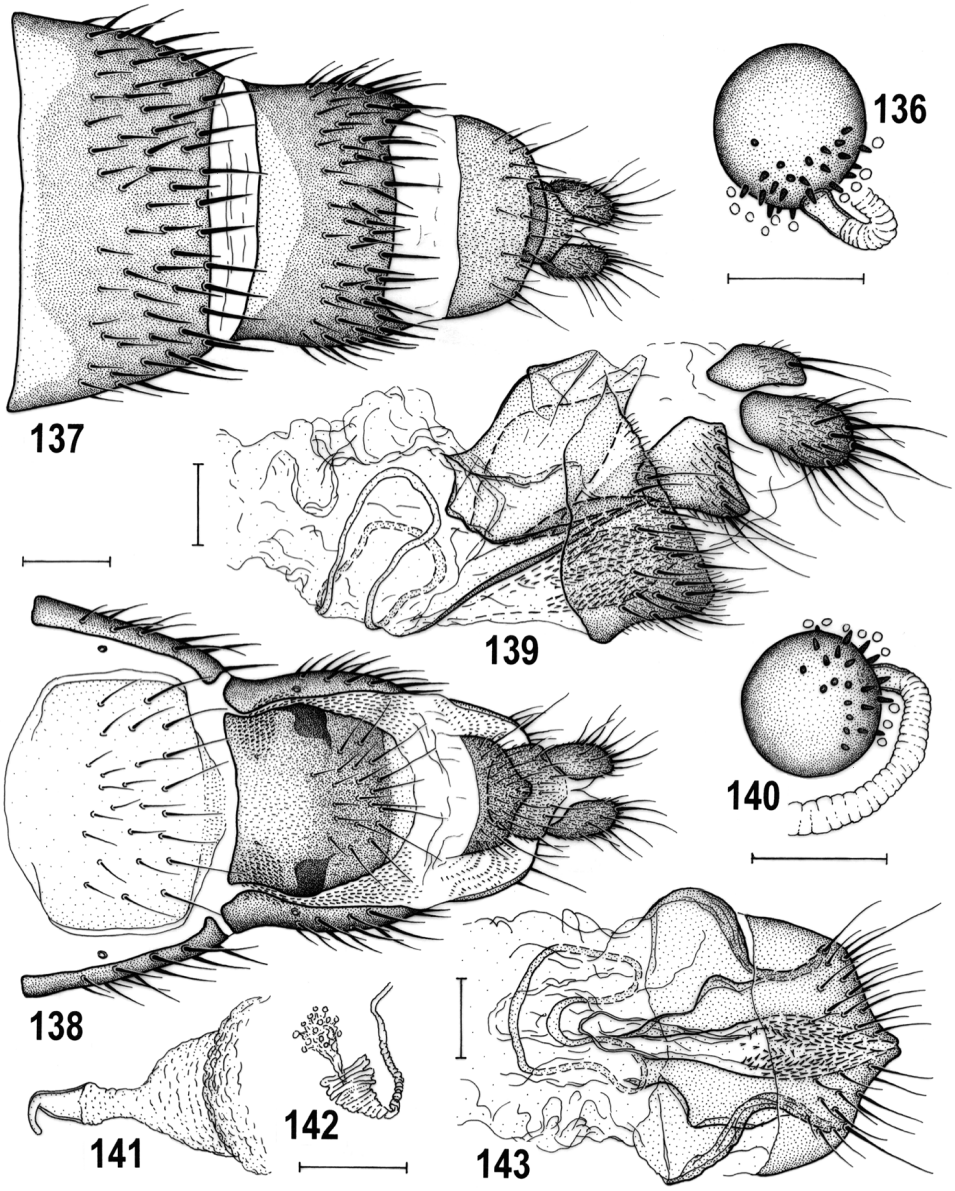
Thorax slightly narrower than head. Mesonotum including scutellum uniformly dark brown. Humeral callus dorsally partly yellowish ochreous, otherwise pale brown to brown as also is notopleural area. Thoracic chaetotaxy: 1 prs, reduced to microseta; 2 dc, anterior only twice longer than dc microsetae; 2 sc, apical long and strong (lost in holotype, length deduced from that of female paratype), laterobasal weak but longer than anterior dc. Legs dark yellow, with light yellow coxae and trochanters; mid and hind femora and tibiae somewhat darkened in pre/post-genual third. Pedal chaetotay as in *A. nigrinotum*; both hind legs missing in male holotype but f_3 supposedly with some shortened and thickened setae in distal part of posteroventral row of setae. Wing (Fig. 170) with pattern and venation similar to those of *A. nigrinotum* but pale area in front of preapical spot more distinct. R_{4+5} slightly sinuate apically; r-m situated slightly in front of middle of discal (dm) cell. Wing measurements: length 2.26 mm; width 0.61 mm, Cs_3: Cs_4 = 2.17, r-m\dm-cu: dm-cu = 3.23. Haltere brown with darker knob.

Abdomen. Preabdominal terga large, dark brown, T4 with very small (poorly visible), T5 with large pale ochreous anterolateral spot. Preabdominal sterna small but larger than in most relatives, S2-S4 as long as broad but S2 smaller than S3 or S4. S5 distinctly broader, large, 1.5 times as broad as long. S6-S8 dark brown. S6 and S7 similarly formed as in *A. nigrinotum* but each carrying 2 distinct setae being as long as those on T5 or S8.

Genitalia. Epandrium hemispherical, relatively long (Figs 129–130), with dense and thick setae, 1 dorsomedial and 1 ventrocaudal longest; anal opening dorsally subcordate, ventrally widened (Fig. 129). Cercus as long as gonostylus, bare anteriorly and laterally, setose and micropubescent posteriorly. Medandrium (Fig. 129) comparatively small and narrow dorsally. Gonostylus (Figs 129, 133) rather small, subtriangular, with tapered but apically rounded tip; micropubescence restricted to posterodorsal part of outer side; inner side of gonostylus with relatively short setae. Hypandrium (Fig. 132) rather robust but not broad and pale-pigmented, with weak internal lobes; transandrium (Fig. 131) simple, with concave ventral margin; caudal process single, flat, arising from this concavity, weakly sclerotized and finely granulose. Pregonite (Fig. 132) very low, fused with hypandrium, incurved, not projecting ventrally, with only 6 setae. Postgonite (Fig. 132) small, slightly bent, proximally darker, distally lighter, tapered and acutely pointed, with 1 microseta in proximal third; basal sclerite attached to postgonite well-developed, slightly smaller than postgonite (Fig. 132). Aedeagal part of folding apparatus (Fig. 135) somewhat darkened dorsally, externally provided with flat polygonal tubercles; connecting sclerite slender proximally, dilated and finely tuberculate distally. Basal membrane armed by flattened spines, particularly posteroventrally (Figs 131, 132). Aedeagal complex (Fig. 135) with rather robust phallapodeme, having shortly forked base and apex with short lateral projections. Aedeagus with short frame-like phallophore and very large distiphallus. Distiphallus peculiarly modified. Base of distiphallus almost bare. Saccus of distiphallus long, curved, except for basal and ventral sclerites membranous and provided with about 5 thorn-like spines in the middle, a series of short spines on apex and a number of scattered spinulae adherent to surface. Filum of distiphallus unusual, formed by single compact sclerite being expanded in



Figs 129–135. *Amygdalops abnormis* sp. n., male holotype (Sri Lanka). 129 = external genitalia, caudal view, 130 = same, lateral view, 131 = transandrium, caudal view, 132 = hypandrium and associated structures, lateral view, 133 = gonostylus, sublateral view (widest extension), 134 = filum of distiphallus, ventral view, 135 = aedeagal complex, lateral view. Scales: Fig. 133 = 0.05 mm, others = 0.1 mm



Figs 136–143. *Amygdalops abnormis* sp. n., female paratype (Sri Lanka). 136 = spermatheca, 137 = postabdomen, dorsal view, 138 = same, ventral view, 139 = apex of postabdomen with internal sclerites, lateral view, 140 = spermatheca, 141 = ventral receptacle, lateral view, 142 = accessory gland, 143 = S8 and internal sclerites (micropubescence omitted), ventral view. Scales: Figs 137–138 = 0.1 mm, others = 0.05 mm

a flat crooked process in the middle and terminating in very tapered apex (Figs 134, 135). Ejacapodeme small, with a thicker digitiform projection.

Female. Similar to *A. nigrinotum* unless mentioned otherwise. Total body length 2.34–2.50 mm. Wing measurements: length 2.38–2.46 mm, width 0.65–0.73 mm, Cs_3: Cs_4 = 1.90–2.00, r-m\dm-cu: dm-cu = 3.53. Abdomen with T1-T3 completely dark brown; T4-T6 with distinct pale yellowish anterolateral spot on each side; spots on T4 and T6 smaller than those on T5. Preabdominal sterna S3-S4 longer than broad; S5 as long as broad and distinctly wider than S4 but narrower than (postabdominal) S6.

Postabdomen (Figs 137–138). T6 somewhat wider but not longer than T7, slightly tapered posteriorly, with numerous dense short and thick setae, dark brown with pale ochreous anterolateral spots and anterior margin. S6 largest sternum, as wide as T7, pale yellow and finely setose. T7 blackish brown with paler brown anterior marginal area, posteriorly emarginate, ventrolaterally embedding 7th spiracles (see Fig. 138). S7 large, unusually broad, with characteristic lateral blackish spots in the middle and fine setae restricted to posterior half. T8 brown but paler than T7, broad and transverse, with fine setae posteriorly, micropubescent except for bare lateral and posterior marginal areas. S8 brown, very small in comparison with S7 or T8, finely setulose, with distinctive posteromedial bulge. T10 very small, transverse, brownish, with striking transverse row of stronger microtomentum and a pair of longer posteromedial setae. S10 rounded pentagonal, larger than T10, brownish, micropubescent. Internal sclerotization of genital chamber not large, formed by two pairs of fused twisted pale brown sclerites (Figs 139, 143) being suddenly widened in front of S8; annular sclerite fine, twisted, highly visible; vaginal area finely spinulose. There is also some secondary sclerotization near insertion of spermathecal and accesory gland ducts. Accessory gland (Fig. 142) formed by a bunch of microglobulae on a short, distally dilated duct. Ventral receptacle (Fig. 141) membranous, vesiculate, with smooth surface and a slender digitiform, ventrally directed terminal projection, set on short, proximally dilated, duct. Spermathecae spherical, relatively large (Figs 136, 140), each with small subconical spines in basal half; duct cervix of medium size. Cerci (Figs 137, 139) short and robust, dark brown, with relatively short fine setae.

Discussion – This is the most peculiar species of the *A. nigrinotum* subgroup distinguished by the uniquely modified filum of the distiphallus (original ribbon-shaped sclerites fused to form single compact sclerite with lobe-like processes – see Fig. 134). Otherwise it can be separated from related and similarly coloured species by the darker humeral and notopleural areas (only dorsal side of humeral callus yellowish), the distinct setae on the male S6 and S7, the shape of the gonostylus (resembling somewhat that of *A. simplicior* ROHÁČEK, 2004 or *A. thomasseti* LAMB, 1914 – see ROHÁČEK 2004: Figs 39, 47), the female S7 large with blackish lateral spots, the S8 small and the cerci short and robust.

Biology – Two of the three type specimens were caught in light traps (on black light). Occurrence dates: VIII, XI.

Distribution – Sri Lanka, southern India.

Amygdalops sp. n. (d) near **stenopteryx**
(Figs 144–148, 173)

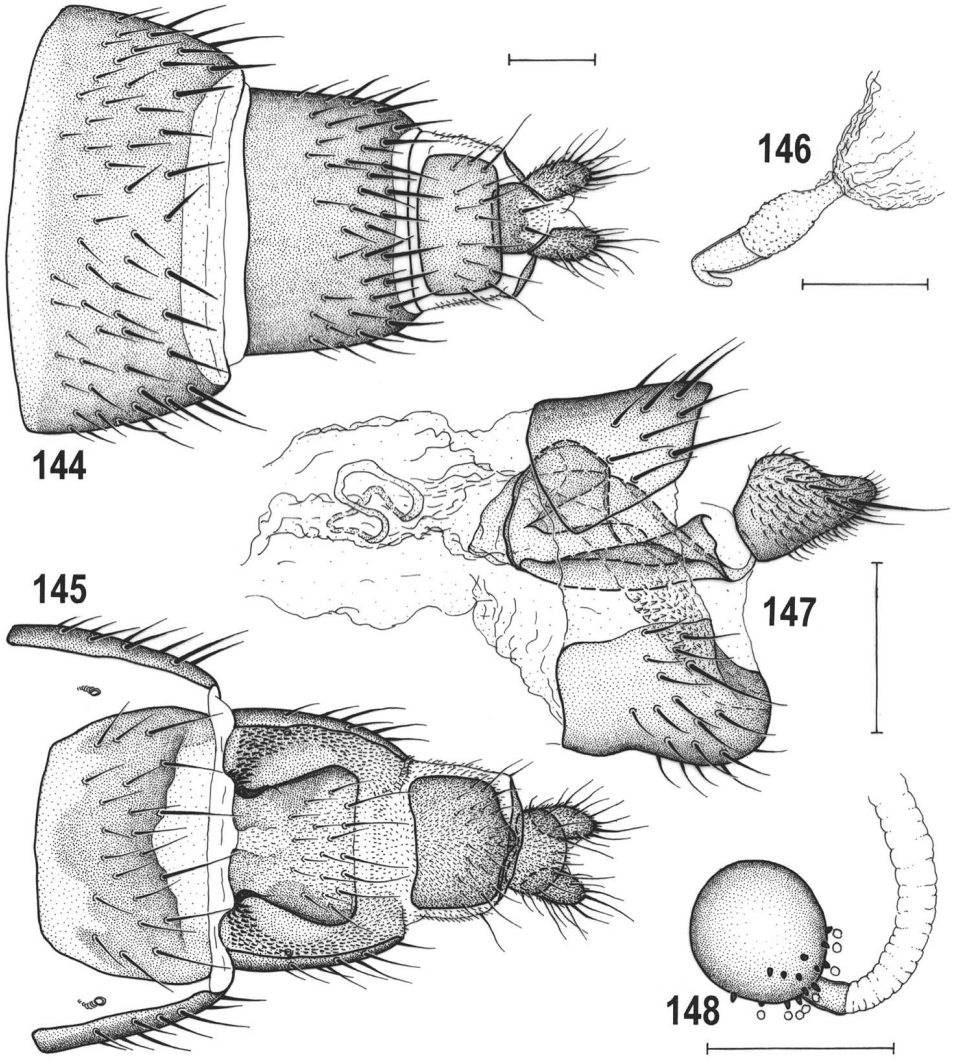
Material examined: POHNPEI (= formerly Ponape): SE. Nanponmal, 70 m, 12.i.1953, 1 female, J. L. Gressitt leg. (USNM, in very poor condition, damaged, wings and some legs broken and preserved in coalesced plastic tube with glycerine pinned below specimen, genit. prep.).

Description – Male unknown. Female. Resembling *A. stenopteryx* sp. n. in some external features, e.g. flattened head and wing pattern. Total body length 2.58 mm. Body bicolourous, brown and yellow. Head about 1.3 times as long as high, quadrangular in profile and dorsally somewhat flattened. Occiput brown, with pale brown areas behind eyes and insertion of pvt, vti and vte setae, with sparsely grey microtomentose medial spots above foramen. Frontal triangle reaching to anterior two-fifths of frons, with narrowed anterior corner, bare and polished, including ocellar triangle. Frons paler than in most relatives, brown with ochreous-brown to ochreous-yellow anterior half; stripes between frontal triangle and orbits depressed, meeting medially in front of frontal triangle and reaching to ptilinal suture, darker brown and dull due greyish microtomentum. Orbit pale brown to ochreous-yellow (paler in anterior half and around vte and ors bases), largely shiny. Face ochreous-brown; parafacialia, gena and postgena whitish yellow to almost white, with silvery white microtomentum, narrowly brown margined. Mouthparts with clypeus dark brown; palpus reduced (? broken), very slender and yellow; proboscis also small, orange-brown. Cephalic chaetotaxy: pvt small, convergent but apices not meeting; vti weak, slightly more than two-thirds of length of vte, the latter (probably) longest of cephalic setae; oc weak, shorter and thinner than vti; 2 strong ors, posterior missing on both sides (so not measurable), anterior distinctly longer than vti but smaller than vte; 2 microsetulae in front of anterior ors, anterior hardly discernible but posterior unusually long (almost as long as subvibrissa); only 1 pair of microsetulae medially in front of frontal triangle visible; 1 vi very weak (somewhat shorter than oc) and 1 subvibrissa, only slightly shorter than vi; peristomal setulae not observed (reduced or lost). Eye very convex, of elongately ovoid shape, with longest diameter almost 1.7 times as long as shortest one. Gena anteriorly very narrow; its smallest height 0.05 times as long as shortest eye diameter. Antenna relatively dark; pedicel brown with only distal part of inner side orange; 1st flagellomere also largely brown, only ventroapical part yellowish orange. Arista of unknown length (partly or completely broken off on antennae), long-pectinate, particularly dorsally.

Thorax markedly narrower than broad head. Mesonotum dark brown posteriorly but becoming lighter in anterior third and its anterior sixth yellowish ochreous; scutellum uniformly dark brown. Humeral callus ochreous-yellow but notopleural area pale brown; pleural part of thorax with usual brown dorsal band somewhat narrower than in relatives (incl. *A. stenopteryx*); ventral portion of pleura yellow to orange-ochreous. Thoracic chaetotaxy: 1 prs, reduced to microseta; 2 dc, posterior lost, not measurable (probably long), anterior reduced, less than three times as long as dc microsetae; ac microsetae in 6 irregular rows on suture; 2 sc, apical very long but rather fine, laterobasal weak, as long as anterior dc; 2 stpl, posterior lost but surely longer and thicker than anterior; a few additional paler setae on sternopleuron ventral to stpl. Legs dark orange-yellow, coxae and trochanters paler, hind femur and tibia darkest. Pedal chaetotaxy probably without peculiarities, f_3 uniformly setulose. Wing (Fig. 173) rather short compared to body length; wing pattern somewhat resembling that of *A. stenopteryx*, with preapical brown spot extended proximally but covering only most of cell r_1. R_{4+5} and M subparallel, distally somewhat convergent, the former very slightly sinuate; r-m situated near middle of dm cell; CuA_1 long, almost reaching wing margin. Wing measurements: length 2.06 mm; width 0.66 mm, Cs_3: Cs_4 = 1.84, r-m\dm-cu: dm-cu = 3.60. Halteres lost (undescribed).

Abdomen with preabdominal terga broad, transverse and entirely dark brown. Preabdominal sterna small, narrow, very pale ochreous, becoming wider posteriorly; S5 largest, as long as broad but markedly narrower and paler than darkened brown S6 (see below).

Postabdomen (Figs 144–145) relatively dark, largely brown. T6 large, nearly twice broader than T7, dark brown except for pale anterior and posterior margins (Fig. 144), with short and thick



Figs 144–148. *Amygdalops* sp. n. (d) near *stenopteryx*, female (Pohnpei). 144 = postabdomen, dorsal view, 145 = same, ventral view, 146 = ventral receptacle, lateral view, 147 = T8, S8, S10 and internal sclerites (micropubescence partly omitted), lateral view, 148 = spermatheca. Scales: Figs 146, 148 = 0.05 mm, others = 0.1 mm

setae (also in anterior half). S6 broad, transverse, hardly wider than T7, with brown middle part and pale to unpigmented anterior and posterior marginal areas. T7 narrow but wider than long, dark brown with posterior margin pale-pigmented and with short setae laterally reaching to anterior third. S7 (Fig. 145) brown (darker laterally), setose in posterior half, rounded trapezoid (tapered anteriorly), anteromedially with small pale-pigmented area and its anterolateral corners darkened and laterally projecting. Pleural membrane between S7 and T7 strikingly sclerotized and darkened, bare near S7 but strikingly micropubescent along T7 and anterolaterally with microsetulae modified to dark curved spinulae. T8 small, brown, transversely oblong, sparsely finely setose. S8 dark brown, finely setulose, with small posteromedial bulge. T10 small, brown in anterior half, pale and microtomentose in posterior half and with a pair of unusually short medial setae. S10 wider than T10, transversely oval, brown and micropubescent (Fig. 145). Internal sclerotization of genital chamber with a complex of crooked sclerites, including a ventral one protruding (? always) behind 8th segment (see Figs 145, 147); annular sclerite curved, small and narrow (Fig. 147) as in *A. stenopteryx*; vaginal area finely tuberculate rather than spinulose. Ventral receptacle (Fig. 146) hyaline, membranous, elongately pouch-shaped, simple and with curved terminal digitiform projection. Spermathecae broadly ovoid-subspherical (Fig. 148), with (not numerous) very short, blunt spines around duct insertion; duct cervix short. Cerci (Fig. 144) robust compared to T10 but not long, brown, with short fine setae.

Discussion – This distinctive new species somewhat resembles *A. stenopteryx* sp. n. in having the wing darkened (but more narrowly) along the anterior margin and the elongate, somewhat dorsally flattened head but can easily be recognized from it by its shorter head, bare orbit, enlarged microseta in front of anterior ors, the anterior sixth of the mesonotum yellowish ochreous, the wing broad with normal R_{2+3} etc. (see also key). Also the female postabdominal features distinguish it distinctly (shape and pattern of S6, S7, internal sclerites, T10 with short setae) from all known *Amygdalops* species. Despite its distinctiveness I did not name this new species because of the insufficient material (single damaged female).

Biology – Unknown. The only specimen was found in I.

Distribution – Probably endemic to Pohnpei (= Ponape).

Amygdalops stenopteryx sp. n.
(Figs 149–160, 174)

Type material: Holotype male, labelled: „THAILAND, Bangkok, Pratomvan, Aug.-Sept. 1962, J. Scanlon-light" (USNM, intact). Paratypes: THAILAND: same data as for holotype, 7 males 7 females; Bangkok, Plukchit, at light, viii-ix.1962, 1 male 2 females, J. Scanlon leg.; Bangkok, Thonglo, at light, viii-ix.1962, 1 male, J. Scanlon leg.; Bangkok, Makasan Dist., at light, 11–12.v.1959, 1 male, Manop leg. (USNM, 2 males 2 females with genit. prep.; 1 male 1 female in SMOC).

Etymology – The species is named acccording to its strikingly narrowed wings.

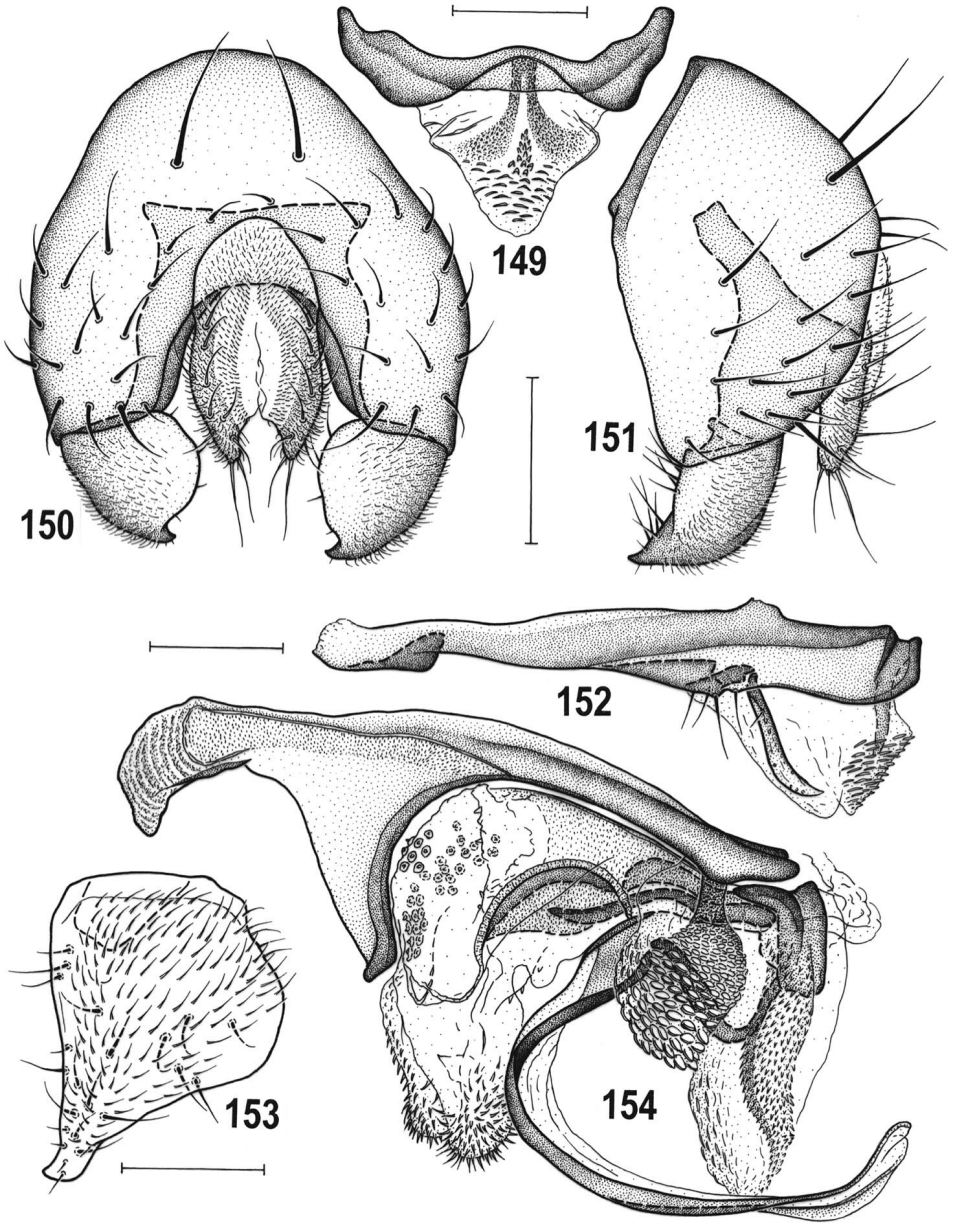
Description – Male. Total body length 2.22–2.65 mm. Body bicolourous, dorsally dark brown, ventrally whitish yellow. Head elongate, subtriangular in dorsal outline, about 1.5 times as long as high, rectangular in profile anteriorly, with frons distinctly projecting in front of eye. Occiput

strongly concave, brown with some parts darker or paler pigmented, except lateral areas sparsely greyish microtomentose. Frons very narrow and long, brown, medially in front of ocellar triangle depressed. Frontal triangle narrow, reaching to anterior third of frons, with strongly tapered anterior corner; its sides margined by blackish brown, dull and densely grey microtomentose stripes. Ocellar triangle paler to reddish brown, bare and shiny. Orbit wide, largely shining brown, but with a narrow (anteriorly widened), strikingly silvery white microtomentose, lateromarginal stripe. Face ochreous, dull; parafacialia (very narrowed) and gena yellowish white, with silvery white microtomentum; also postgena light yellow. Mouthparts pale yellow, palpus usually darker. Cephalic chaetotaxy: pvt minute but with apices meeting or crossed; vti very slightly shorter than vte, the latter and/or posterior ors longest of cephalic setae; oc weak, only half length and thickness of vte; 2 strong ors, posterior sometimes longer than vte, anterior also robust, as long as vti; 1 short setula and 1 (sometimes absent) microsetula in front of anterior ors; 2 pairs of microsetulae medially in front of frontal triangle; 1 vi and 1 shorter (at most two-thirds of vi) subvibrissa, both relatively weak; peristomal setulae (6–7) small and fine; palpus with 1 subapical seta as long as subvibrissa and 1 shorter ventrobasal seta. Eye strongly convex, of rounded tetragonal outline, with longest diameter 1.7 times as long as shortest one. Genal smallest height 0.08 times as long as shortest eye diameter. Antenna bicolourous, dark brown and whitish; scape, pedicel and dorsal (proximal) half to two-thirds of 1st flagellomere dark brown, only apical half or third of 1st flagellomere whitish and white ciliate on apex. Arista 1.6–1.7 times as long as antenna, long-pectinate, including 2–3 long rays ventrally.

Thorax narrower than head, with dorsal half dark brown and ventral half whitish yellow. Mesonotum and scutellum dark brown. Humeral and notopleural areas paler brown to ochreous and with denser whitish grey microtomentum. Pleural part of thorax with dark brown dorsal half (extending down to dorsal apex of fore coxa) including also postscutellum; ventral half of pleura yellowish white. Thoracic chaetotaxy: 1 small prs, hardly discernible from thoracic microsetae; 2 dc, posterior about as long as apical sc, anterior weak, less than one-third of posterior dc; 2 sc, apical long and strong, laterobasal as long as anterior dc; 2 stpl, both rather strong but posterior longer; a few dark additional setulae on sternopleuron ventral to stpl. Scutellum rounded triangular, slightly convex dorsally. Legs pale to whitish yellow (coxae). f_1 with 2 (or 3) very long setae in posteroventral row. t_2 with ventroapical seta rather robust. f_3 with posteroventral row of 7–8 short, slightly thickened, setae. Wing (Fig. 174) extremely narrowed, with modified pattern: apical dark spot extended over anterior half of wing length covering large area between R_{4+5} and C. R_{2+3} running very closely to C (almost touching it in its middle) and ending far from apex. R_{4+5} and M convergent both basally and (yet more) apically; discal (dm) cell very narrow and r-m situated near its middle. Basal (and also apical) end of wing narrowed; alula and anal lobe strongly reduced. CuA_1 and A_1 not reaching wing margin; A_1 very shortened. Wing measurements: length 2.10–2.54 mm; width 0.47–0.56 mm, Cs_3: Cs_4 = 3.20–3.85, r-m\dm-cu: dm-cu = 3.33–4.44. Haltere brown, knob often darker.

Abdomen with all sclerites uniformly brown to dark brown. Preabdominal terga large, reaching far onto ventral side of abdomen. T1 shorter and less setose than following terga (T2-T5). T6 non-sclerotized, short, pale and bare. Preabdominal sterna brown, elongate, very narrow (S3 twice longer than wide) and finely setose, only S1 short, bare, wider than long and paler than others. S2-S5 becoming somewhat wider posteriorly, S5 the largest, widened and shallowly emarginate posteriorly. S6 short and transverse; S7 1.5 times as long as S6; both S6 and S7 with blackish brown anterior marginal stripe and each with 2 minute setulae. S8 long, more than twice longer than S7, shortly setose as are T2-T5.

Genitalia. Epandrium (Figs 150–151) moderate, not very wide but high and dorsally narrowed, with relatively short setae, only 1 dorsomedial pair long; anal opening small (Fig. 150). Cercus slender and about as long as gonostylus. Medandrium (Fig. 150) moderately sized, with protruding dorsolateral corners. Gonostylus (Figs 150–151, 153) unusually short, broad proximally,



Figs 149–154. *Amygdalops stenopteryx* sp. n., male paratype (Thailand). 149 = transandrium, caudal view, 150 = external genitalia, caudal view, 151 = same, lateral view, 152 = hypandrium and associated structures, lateral view, 153 = gonostylus, ventrolaterocaudal view (widest extension), 154 = aedeagal complex, lateral view. Scales: Fig. 153 = 0.05 mm, others = 0.1 mm

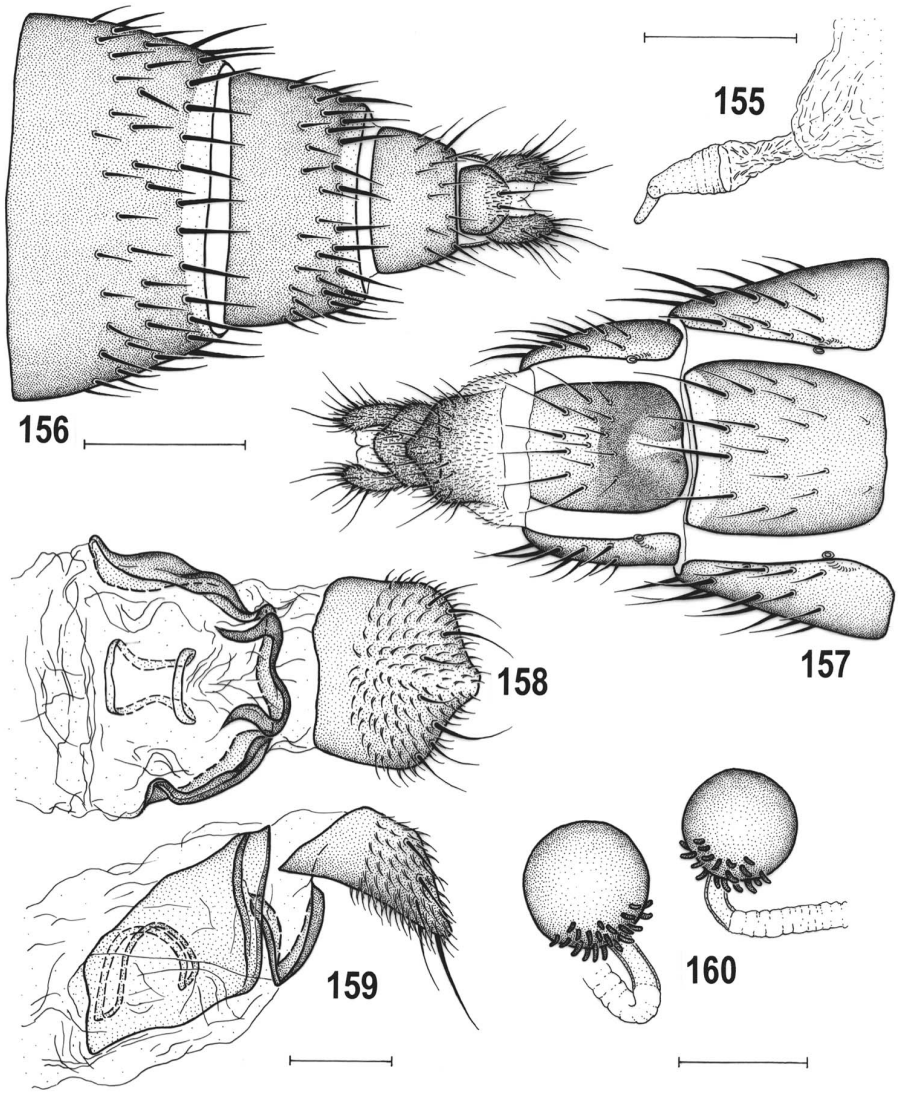
strongly narrowed distally, with subacute apex bent anteromedially (cf. Fig. 150); its outer side with rich and dense micropubescence (except for anterior and posterior margins); inner side of gonostylus with several setae. Hypandrium (Fig. 152) simple, slender, with small unpigmented internal lobes; transandrium (Fig. 149) with arched dorsal medial ledge, but with straight ventral margin; caudal process arising on inner side of transandrium (cf. Fig. 152), slender dorsally but formed by a pair of diverging pigmented stripes ventrally. Pregonite (Fig. 152) reduced, very low, incurved and hardly protruding ventrally, usually with 4 setae in one group. Postgonite (Fig. 152) slender, slightly sinuous, with pointed pale apex and 1 setula in proximal fourth to third of outer side; basal sclerite of postgonite small. Aedeagal part of folding apparatus (Fig. 154) narrowed and darkened dorsally, and externally provided with lenticular tubercles (larger ventrally). Connecting sclerite slender, long, sinuous; its membranous vicinity finely densely spinulose. Basal membrane with transverse short spines and with a small group of smaller spines posteromedially (Figs 149, 152). Aedeagal complex (Fig. 154) with robust phallapodeme, having widened, asymmetrical basal fork, robust but pale ventral fulcrum and longer apex with projecting corners. Phallophore short, dorsally with anterior process. Distiphallus voluminous, composed of largely membranous saccus and slender sclerotized filum. Saccus of distiphallus basally provided with slender ventral sclerites reaching to its middle, otherwise membranous and its armature formed by two types of spines – dense fine acute spines on apex and short drawing-pin like spines on anterodorsal surface. Filum of distiphallus (Fig. 154) long, curved, composed of 2 stripe-like closely attached sclerites (one darker and wider) terminating in slender membranous apex. Ejacapodeme not observed.

Female. Similar to male unless mentioned otherwise. Total body length 2.42–2.86 mm. f_3 posteroventrally lacking shortened setae. Wing measurements: length 2.34–2.78 mm, width 0.47–0.62 mm, Cs_3: Cs_4 = 3.12–3.86, r-m\dm-cu: dm-cu = 3.45–4.50. Abdomen. Preabdominal terga entirely dark brown, more transverse than in male, T3-T5 the widest. Preabdominal sterna pale brown (S1, S2) to brown (S3-S5); S1 short as in male; not only S2-S4 but also S5 elongate and very narrow, the latter very slightly wider than S4 (almost twice longer than wide) and markedly narrower than S6 (largest abdominal sternum).

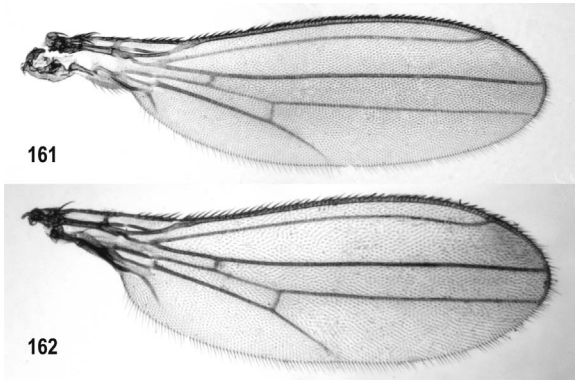
Postabdomen (Figs 156–157) with all sclerites dark brown. T6 large, longer and broader than T7, dark brown except for pale posterior margin (Fig. 156), with short and thick setae. S6 brown with paler posterior margin, slightly longer than wide, sparsely setose (posterior setae longest). T7 narrow but wider than long, dark brown with posterior pale-pigmented margin. S7 (Fig. 157) narrower than S8, with distinctive pattern (anteromedially with small narrow unpigmented area, also its posterior part pale-pigmented) and with fine setae in posterior half. T8 small, brown, transversely trapezoidal, with sparse setae including long ones in posterior corners. S8 dark brown posteriorly and paler anteriorly, of usual shape but rather elongate. T10 small, brown, finely microtomentose in posterior half around a pair of medial setae. S10 wider and paler than T10, micropubescent except for anterior margin (Fig. 158). Internal sclerotization of genital chamber with 2 pairs of sclerites, larger anterior on lateral sides of chamber (Fig. 159), smaller posterior being fused posteromedially (cf. Fig. 158) and with unusually small and narrow, bent in lateral view, annular sclerite (Fig. 158); vaginal area near genital opening simple. Ventral receptacle (Fig. 155) hyaline, membranous, elongately pouch-shaped with finely ringed base and ventrally directed terminal finger-like projection. Accessory gland hyaline, on ringed duct dilated distally. Spermathecae spherical (Fig. 160), with numerous short, blunt surface spines around duct insertion; duct cervix well developed, somewhat shorter than body of spermatheca. Cerci (Fig. 156) medium sized, brown, with rich but fine setae.

Discussion – *A. stenopteryx* sp. n. is a peculiar species differing from all known congeners by the most elongate and dorsally flattened head and strikingly narrowed wings with modified venation and dark pattern (see Fig. 174). Two of

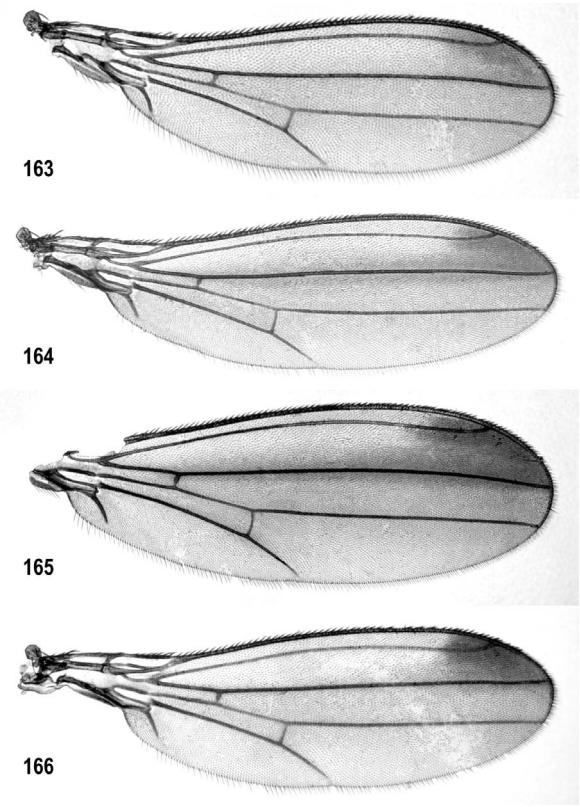
these characters (11C and 17 in Fig. 175) are shared with *A.* sp. n. (d) and are considered synapomorphic for these two species forming together the *A. stenopteryx* group. *A. stenopteryx* sp. n. is the more modified of this pair and differs from *A.* sp. n. (d) by the markedly narrow wing having a larger dark area, its orbit with a latero-



Figs 155–160. *Amygdalops stenopteryx* sp. n., female paratype (Thailand). 155 = ventral receptacle, lateral view, 156 = postabdomen, dorsal view, 157 = same, ventral view, 158 = S10 and internal sclerites, ventral view, 159 = same, lateral view, 160 = spermathecae. Scales: Figs 156–157 = 0.2 mm, others = 0.05 mm



Figs 161–162. Wings of *Amygdalops* species. 161 = *A. lineola* DE MEIJERE, female (Java), length 1.9 mm, 162 = *A. silaceus* sp. n., female paratype (Guam I.), length 1.7 mm

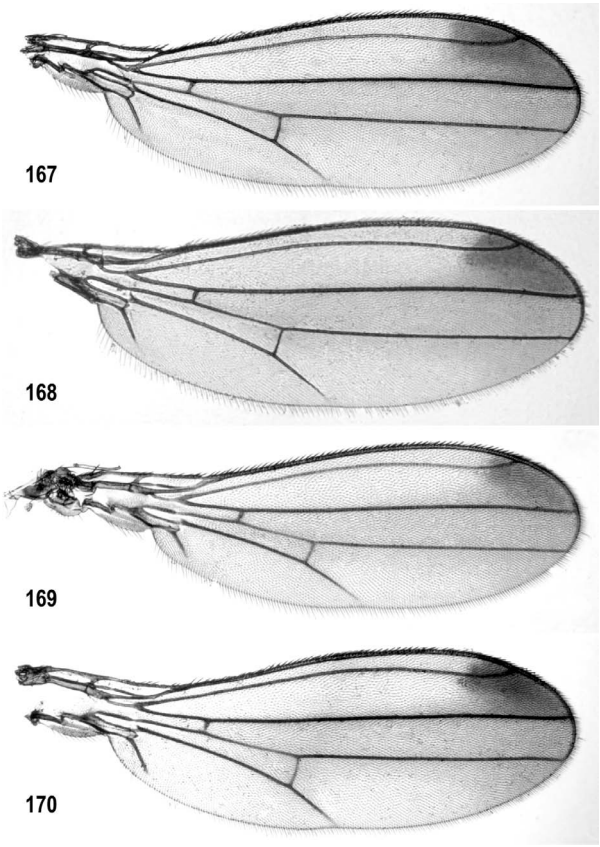


Figs 163–166. Wings of *Amygdalops* species. 163 = *A. bisinus* sp. n., male paratype (Flores), length 2.0 mm, 164 = *A. cuspidatus* sp. n., male paratype (Flores), length 2.5 mm, 165 = *A.* sp. n. (a) near *cuspidatus*, female (Taiwan), length 2.8 mm, 166 = *A. curtisi* sp. n., male paratype (Taiwan), length 2.3 mm

marginal silvery stripe, its longer vti and preabdominal sterna elongate and brown, not to mention its distinctive male genitalia (dorsally narrowed epandrium, short gonostylus, armature of saccus of distiphallus) and its female postabdomen (elongate S6, S7 and S8, small annular sclerite and distinctive internal sclerites). Interestingly, the anterior marginal dark area on the wing of both species of the *A. stenopteryx* group somewhat resembles those of *Margdalops* species (see ROHÁČEK & BARRACLOUGH 2003: Figs 66–71) but it surely evolved independently in these *Amygdalops* species by secondary expansion of the preapical dark spot into cells r_1 and (in *A. stenopteryx* sp. n.) r_{2+3}.

Biology – All available specimens were collected at light, in V, VIII–IX.

Distribution – Thailand.



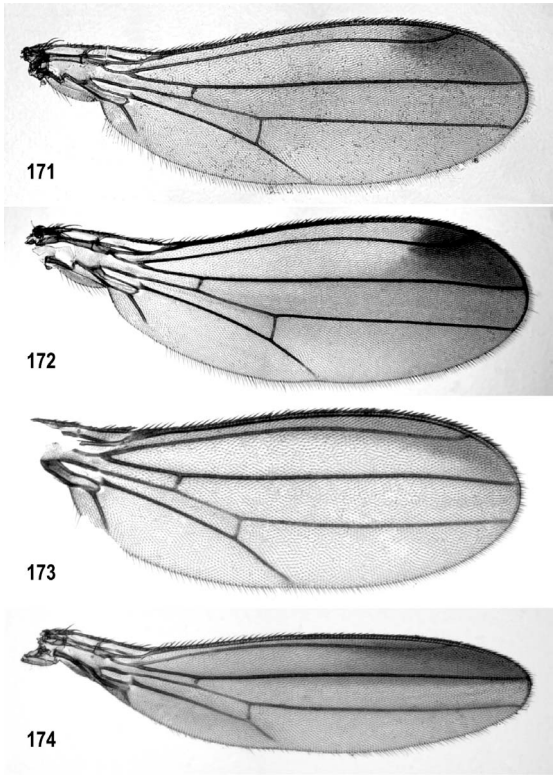
Figs 167–170. Wings of *Amygdalops* species. 167 = *A. curtistylus* sp. n., female paratype (Thailand), length 2.4 mm, 168 = *A. pappi* sp. n., female paratype (Thailand), length 2.3 mm, 169 = *A. nigrinotum* SUEYOSHI & Roháček, male (Flores), length 2.2 mm, 170 = *A. abnormis* sp. n., female paratype (Sri Lanka), length = 2.5 mm

KEY TO ORIENTAL, AUSTRALASIAN AND OCEANIAN SPECIES OF *AMYGDALOPS*

1 Mesonotum largely yellow (Fig. 1), at most with longitudinal bands outside dc setae brown. Wing unicolourous hyaline, or only faintly darkened at Cs_3 (Figs 161–162), i.e. without distinct brownish preapical spot 2

– Mesonotum largely brown to dark brown, only humeral and notopleural areas sometimes yellow. Wing with at least preapical brownish spot (sometimes elongately extended or sing with additional darkened areas, Figs 163–174) 3

2(1) Head anteriorly rounded in profile; frons and occiput largely dark brown. Mesonotum yellow to orange, with only narrow medial stripe brown;



Figs 171–174. Wings of *Amygdalops* species. 171 = *A. geniculatus* DE MEIJERE, female lectotype (Java), length 2.8 mm, 172 = *A.* sp. n. (c) near *geniculatus*, female (Malaysia: Sabah), length 2.7 mm, 173 = *A.* sp. n. (d) near *stenopteryx*, female (Pohnpei), length 2.0 mm, 174 = *A. stenopteryx* sp. n., male paratype (Thailand), length = 2.2 mm

scutellum brown (Fig. 1). Wing unicolourous hyaline (Fig. 161). Preabdominal terga largely yellow, with only small brown darkened spots. Male cercus very small (Figs 2, 3); gonostylus subtriangular, apically pointed (Fig. 4). Female T7 extended on ventral side and anteromedially connected by a ventral "bridge" (Fig. 10) and S7 shortened. Spermathecae with blunt spinulae on surface (Fig. 8) *A. lineola* DE MEIJERE

– Head anteriorly rectangular in profile; frons and occiput pale, yellow with some ochreous to ochreous-brown markings. Mesonotum ochreous-yellow medially (between dc lines) and dark brown laterally (except for yellow humeral and notopleural areas); scutellum ochreous yellow with only basal corners brown. Wing (Fig. 162) faintly clouded at Cs_3. Prebdominal terga largely brown, some with anterolateral yellow spots. Male cercus large (Fig. 15); gonostylus narrow, suboblong, with apex incurved (Figs 14, 18). Female T7 not extended ventrally and S7 narrow, elongate (Fig. 22). Spermathecae without spinulae (Fig. 23) **A. silaceus** sp. n.

3(1) Wing (Figs 173–174) with preapical brown spot extended to cover large area between R_{2+3} (or also R_{4+5}) and C. Head elongate (at least 1.3 times as long as high) and dorsally (frons) flattened 4

– Wing (Figs 163–172) with preapical brown spot short. Head at most slightly longer than high, usually as long as high 5

4(3) Wing (Fig. 174) extremely elongate and narrowed, darkened in both cells r_1 and r_{2+3} and with R_{2+3} close to C, almost touching it in its middle. Head longer, 1.5 times as long as high; orbit with lateromarginal silvery-white stripe; vti only slightly shorter than vte. Preabdominal sterna brown, elongate. Male epandrium dorsally narrowed (Fig. 150); gonostylus short, with tapered and incurved apex (Fig. 153). Female S6 and S7 narrow, longer than broad (Fig. 157); pleural membrane non-sclerotized in 7th segment. Spermathecae with numerous blunt curved spines (Fig. 160)
A. stenopteryx sp. n.

– Wing (Fig. 173) of normal shape, dark in cell r_1 and preapically, with usually formed R_{2+3}. Head shorter, 1.3 times as long as high; orbit without microtomentose stripe, bare; vti distinctly shorter than vte. Preabdominal sterna very pale ochreous and less narrow (female S5 as long as broad). Male unknown. Female S6 broad and transverse; S7 as long as broad, widened posteriorly (Fig. 145); pleural membrane between T7 and S7 secondarily sclerotized. Spermathecae with a few small, short and simple spines (Fig. 148) **A.** sp. n. (d) near **stenopteryx**

5(3) Femora yellow with brown to dark brown (paler on f_1) annulus covering distal third or two-fifths (Fig. 123) except for knees; also t_2 and t_3 often somewhat darkened proximally 6

– Legs with femora and tibiae unicolourous yellow to ochreous-yellow 8

6(5) Wing (Fig. 163) with dark pattern (preapical spot) paler and without distinct light area in cell r_1. Male gonostylus elongate, of sinuous outline (Fig. 28) and male cercus short (Fig. 27); caudal process of transandrium formed by a keel-like medial sclerite (Figs 29–30); postgonite with distinctive basal sclerite (Fig. 29). Female postabdomen with darkened middle part of S6 and narrow S7, T8, S8, T10 and S10 (Figs 33–34). Spermathecae spherical, with reduced number and size of surface spines (Fig. 37). Cercus with long fine setae only **A. bisinus** sp. n.

– Wing (Figs 171–172) with dark pattern as well as whitish area in cell r_1 well developed. Male unknown. Female postabdomen with S6 simply pigmented and S7, T8, S8, T10 and S10 markedly wider (Figs 118, 120, 124). Spermathecae shortly pyriform, with numerous robust spines (Fig. 117). Cercus with a short apical spine besides fine setae (Fig. 121) 7

7(6) Terminal segment of hind tarsus yellow. All preabdominal terga uniformly dark brown. Female T6 with anterolateral spots small and pale brown. Postabdomen with S6 and S7 smaller; S10 wider, rounded posteriorly (Fig. 120). Spermathecae more pyriform (Fig. 117); cercus shorter and robust (Fig. 121) *A. geniculatus* DE MEIJERE

– Terminal segment of hind tarsus brownish. Abdominal terga T4-T6 with whitish yellow lunette-shaped anterolateral spots. Postabdomen with S6 and S7 larger; S10 narrow, more acute posteriorly (Fig. 124). Spermathecae shortly pyriform to subspherical (Fig. 125); cercus longer and slender (Fig. 124) **A.** sp. n. (c) near **geniculatus**

8(5) Wing with preapical brown spot confluent with distinct darkened stripe along R_{4+5} (Figs 164–165) 9

– Wing with only preapical brown spot, otherwise uniformly pale-pigmented (Figs 166–170) 10

9(8) Frons anteriorly (at ptilinal suture) pale yellow; frontal triangle reaching to anterior third of frons. Palpus yellow. Anterior dc reduced, only twice longer than dc microsetae. Male with elongate, slender and apically tapered gonostylus (Fig. 43) and distinctive transandrium (Fig. 41) with dorso-

medial arched sclerite. Female S6 narrow (Fig. 47), T7 anteriorly with pale-pigmented crescent-shaped area (Fig. 45) and S7 small, tapered anteriorly and simply pigmented (Fig. 47) **A. cuspidatus** sp. n.

– Frons anteriorly pale brown; frontal triangle short, reaching only to half of frons. Palpus pale brown with darkened apex. Anterior dc distinct, about half length of posterior dc. Male unknown. Female S6 broad, transverse and largely brown (Fig. 54), T7 simply dark-pigmented (Fig. 53) and S7 larger, having dark anterior tapered part with narrow unpigmented medial area (Fig. 54) **A.** sp. n. (a) near **cuspidatus**

10(8) Palpus brown or pale brown with darker apex 11

– Palpus yellow to orange 12

11(10) Palpus brown. Eye more elongate, 1.6 times as long as broad. Only T5 in male and T4-T6 in female abdomen with short anterolateral yellow spots. Gonostylus slender, with truncated apex (Fig. 77); saccus of distiphallus with smaller and pale spines (Fig. 76). Female S7 strongly tapered and pale-pigmented anteriorly (Fig. 80); S8 with peculiar anterior upturned sclerite (Fig. 81); spermathecae very large but with reduced grain-like spinulae (Fig. 83) **A. curtistylus** sp. n.

– Palpus light brown with darkened apex. Eye broader, 1.4 times as long as broad. Male T4 with small, T5 with distinct and female T3-T6 with pale anterolateral spots. Gonostylus wider, with pointed, anteriorly bent apex (Figs 87, 89); saccus armed with strong pigmented spines (Fig. 91). Female S7 anteriorly broad, with a pair of small protuberances (Fig. 94); S8 anteriorly simple; spermathecae smaller, with larger but less numerous spines (Fig. 92) **A. pappi** sp. n.

12(10) Humeral and notopleural areas largely pale brown to brown, only dorsal part of humeral callus yellowish ochreous. Female T4-T6 with pale yellow anterolateral spots. Male S6 and S7 with 2 distinct setae. Gonostylus subtriangular (Fig. 133); filum of distiphallus modified to compact sclerite with distinctive crooked process in the middle (Figs 134, 135). Female S7 large, with blackish lateral spots near middle and S8 small (Fig. 138) **A. abnormis** sp. n.

– Humeral and notopleural areas yellow to ochreous. Female T3-T6 with pale yellow anterolateral spots. Male S6 and S7 with (usually 2–3) microsetulae. Gonostylus, filum and female S7 and S8 differently formed 13

13(12) vti markedly shorter and weaker than (often less than half of length of) vte. Male f_3 with only 5 thickened and shortened setae in posteroventral row. Gonostylus large and broad also apically (Figs 60, 62). Basal sclerite of postgonite small; caudal process broad, ventrally forked (Fig. 58). Anterolateral corners of female T7 extended on ventral side and almost meeting medially; S7 small, anteriorly tapered (Fig. 67); spermathecae spherical, large (Fig. 65) **A. curtisi** sp. n.

– vti longer, about two-thirds of vte length. Male f_3 with 7–8 thickened and shortened setae in posteroventral row (at least in *A. nigrinotum*). Male genitalia with above structures different. Anterolateral corners of female T7 not extended ventromedially and S7 anteriorly wider than posteriorly; spermathecae shortly pyriform and small 14

14(13) Gonostylus (Figs 100, 103) distally tapered; caudal process formed by 2 sclerites, each having a lateral projection (Fig. 101); postgonite with large basal sclerite (Fig. 104); saccus of distiphallus with numerous short thick spines (Fig. 102). Female S7 smaller, dark on rounded anterolateral corners and with pale central area (Fig. 106); S10 wider than long *A. nigrinotum* SUEYOSHI et ROHÁČEK

– Male unknown. Female S7 larger, with small, anterior, laterally curved processes and its central part brown (Fig. 113); S10 narrow, elongately pentagonal, as long as broad, projecting posteromedially **A.** sp. n. (b) near **nigrinotum**

NOTES ON THE PHYLOGENY AND BIOGEOGRAPHY

Phylogeny – The phylogenetic relationships of Oriental, Australasian and Oceanian species of *Amygdalops* have been studied on the basis of cladistic principles. Over 100 characters have been used in the generic diagnosis and in the descriptions of species but the majority of them appeared to be inapplicable for cladistic analysis either because they occur only in plesiomorphic states in *Amygdalops* or owing to a high degree of homoplasy within the genus and/or the family Anthomyzidae. Moreover, the selection was further reduced by the absence of knowledge of male postabdominal structures in 5 (4 unnamed) species. As a result, only 27 characters were selected for the analysis (see Fig. 175).

The genus *Amygdalops* undoubtedly is a monophyletic group. ROHÁČEK (2004) listed 9 apomorphic characters (with respect to its presupposed sister-group, the genus *Margdalops* ROHÁČEK et BARRACLOUGH, 2003) supporting its

monophyly (see Fig. 175), but some them (e.g. shortened vti, long-pectinate arista, small prs) cannot be considered very strong synapomorphies because they also occur in some unrelated genera. The sister-group relationship of *Amygdalops* and *Margdalops* was demonstrated by ROHÁČEK & BARRACLOUGH (2003) but besides the Afrotropical *Margdalops* there is an undescribed Neotropical genus (BARBER & ROHÁČEK, in prep.) which may well be a yet closer relative of *Amygdalops*. If this proves to be true the array of synapomorphies of *Amygdalops* could be somewhat modified.

The cladistic analysis of the *Amygdalops* species in the area of study resulted in finding that *A. lineola* obviously represents the sister-group to all other congeners under study owing to its retention of some distinct plesiomorphic characters (viz. anteriorly rounded head, unmarked wing, very short male cercus). The remaining species form a monophyletic group supported by characters 10–12 (see Fig. 175). However, *A. silaceus* proved to be markedly different from other species of this clade, not only because of its striking colouring but also in possessing a (more) plesiomorphic wing pattern (cf. Fig. 162) and two other features of the male genitalia (13, 14), and is, therefore, placed in a clade forming the sister-group to the cluster of the remaining 13 species (supported by synapomorphies 11b, 13–14).

These 13 species can be divided in two distinct clades, one containing the externally highly uniform *A. nigrinotum* group (supported by characters 15, 16), the other containing the aberrant *A. stenopteryx* group (see characters 11C and 17 – modified wing pattern and prolonged head). Clustering of species within the *A. nigrinotum* group seems not to be fully explicit because particular clades are usually supported by a only single synapomorphic character. Despite this, the splitting of this group into two major clades seems to be clear: one branch with the *A. cuspidatus* subgroup is characterized by the reduced and anteriorly tapered female S7 (character 18), the other branch with the *A. nigrinotum* subgroup characterized by the saccus armed with robust spines (character 19). However, the *A. cuspidatus* subgroup is not very homogeneous, particularly because of the inclusion of *A. bisinus*, a rather aberrant species differing from other members of the subgroup by the caudal process of the transandrium modified into a medial keel-like sclerite and by the brown annulus on the femora (resembling in this respect *A. geniculatus* and its sister-species which belong to the *A. nigrinotum* subgroup). A similar situation was found within the *A. nigrinotum* subgroup where the species are clustered into three clades but remain as an unresolved trichotomy. *A. curtistylus* (placed in the *A. nigrinotum* subgroup after interpreting its thickened and simple annular sclerite to be a reversal of the apomorphic state = attenuated annular sclerite of all other species of the *A. nigrinotum* group) is somewhat intermediate between the *A. cuspidatus* subgroup and the *A. nigrinotum* subgroup in having spines in the saccus of the

distiphallus not very enlarged and the female S7 anteriorly tapered. In addition, it has an uniquely shaped female S8, with an anterior upturned sclerite which is possibly derived from the modified internal sclerites of the genital chamber. It is also noted that the reduction of the apical seta of the female cercus to a short spine

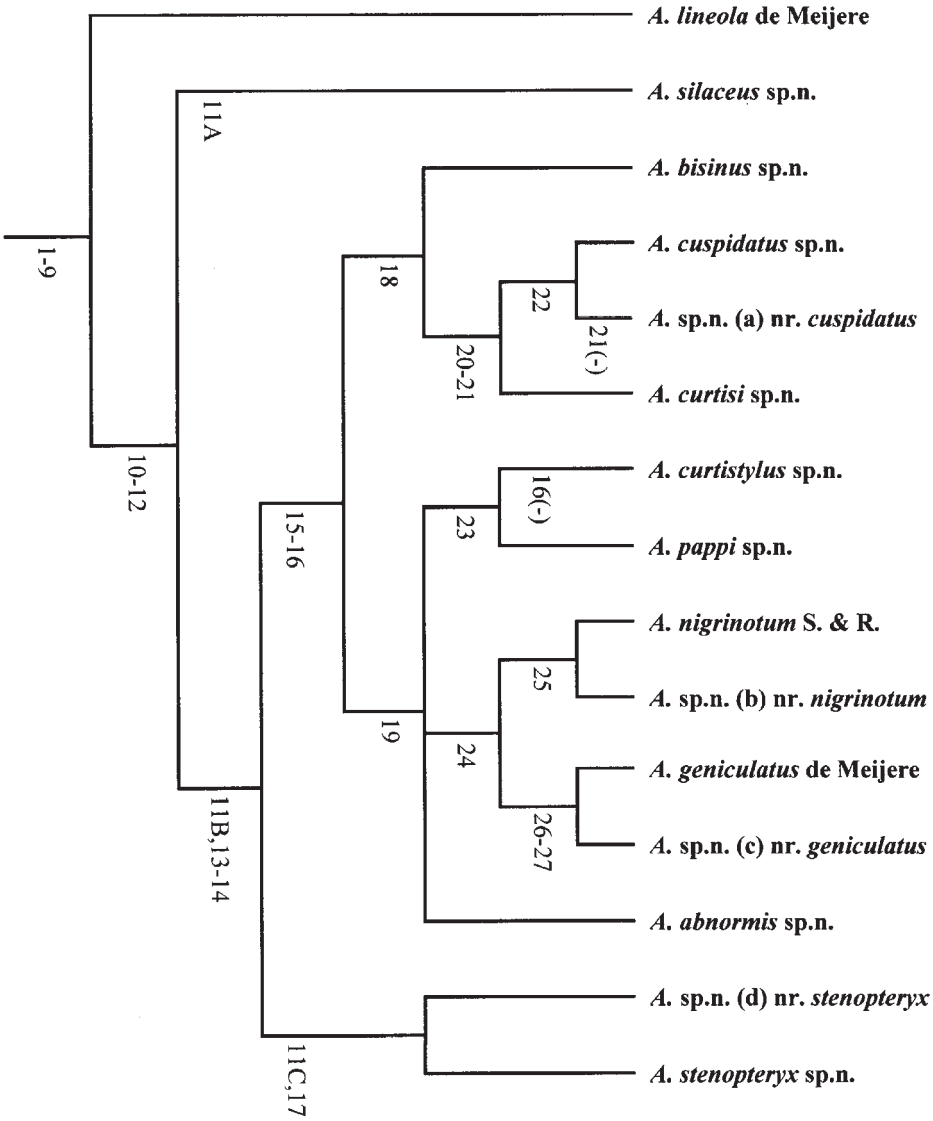


Fig. 175 (opposite page). Cladogram showing the inferred relationships of the Afrotropical species of *Amygdalops*. Characters mentioned in the cladogram [apomorphic state = (A), plesiomorphic = (P), reversal of character = (-)]:

(synapomorphy 27) was also found in *A. pappi* but this species appears in a different clade of the *A. nigrinotum* subgroup (see Fig. 175). The remaining 4 species of the subgroup are grouped together on the basis of the modified spermathecae (pear-shaped, with enlarged spines on surface – character 24). Interestingly, some New World species of *Stiphrosoma* CZERNY, 1928 have seemingly similar sperma-

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1. frontal lunule indistinct (A) – frontal lunule distinct (P)
2. vti distinctly longer than vte (A) – vti as long as or longer than vte (P)
3. arista long-pectinate (A) – arista never pectinate (P)
4. prs small, reduced, less than twice as long as ac setulae (A) – prs long, 3–5 times as long as ac setulae (P)
5. CuA_1 shortened, usually less than twice as long as dm-cu (A) – CuA_1 long, more than 3 times as long as dm-cu (P)
6. transandrium with (often paired) caudal process (A) – transandrium simple (P)
7. pregonite separated from hypandrium by posterior notch (A) – pregonite fused with hypandrium also posteriorly (P)
8. aedeagal part of folding apparatus proximally sclerotized (secondarily desclerotized in some species) (A) – aedeagal part of folding apparatus proximally membranous (P)
9. female S7 modified (A) – female S7 relatively simple (P)
10. head profile anteriorly rectangular (A) – head profile anteriorly rounded (P)
11. wing preapically darkened (A) – wing membrane unmarked (P). Character 11 is a postulated transformation series of the dark wing pattern: 11A) only faint darkening at Cs_3; 11B) preapical spot distinct, dark but short; 11C) preapical spot extended along anterior wing margin proximally.
12. male cercus large, elongate (A) – male cercus small, short (P)
13. saccus of distiphallus voluminous and largely membranous (A) – saccus relatively small and more sclerotized (P)
14. gonostylus with dense micropubescence covering most of its outer side (A) – gonostylus with sparse, limited micropubescence (P)
15. gonostylus elongate (A) – gonostylus short (P)
16. annular sclerite very attenuated, wide, manifold twisted (A) – annular sclerite thicker, short, narrow (P)
17. head prolonged, markedly longer than high (A) – head short, at most slightly longer than high (P)
18. female S7 small and anteriorly tapered (A) – female S7 larger and broad (P)
19. saccus of distiphallus with robust spines (A) – saccus finely spinulose (P)
20. aedeagal part of folding apparatus with fine spines in addition to lenticular tubercles (A) – aedeagal part of folding apparatus without fine spines (P)
21. spermatheca with duct cervix prolonged (A) – spermatheca with cervix short (P)
22. wing membrane dark clouded along R_{4+5} (A) – wing membrane not clouded along R_{4+5} (P)
23. apex of filum of distiphallus finely denticulate (A) – apex of filum simple (P)
24. spermatheca more or less pyriform and with robust spines (A) – spermatheca spherical and with small spines (P)
25. internal sclerites of female genital chamber large, long but very weakly sclerotized (A) – internal sclerites shorter and more sclerotized (P)
26. femora with brown distal third (A) – femora unicolourous yellow (P)
27. female cercus with short apical spine (A) – female cercus with only fine setae apically (P)

thecae including their armature (see ROHÁČEK & Barber 2005: Figs 34, 46) but these similar structures surely evolved independently in *Stiphrosoma* (indicated e.g. by spines also on the top of spermatheca). Unfortunately, 3 of these 4 *Amygdalops* species have the male sex unknown so that it is not possible to test their relationships with features of the male genitalia. *A. geniculatus* and *A.* sp. n. (c) are undoubtedly closely allied species (besides characters 26 and 27 see also their very similar female S7); this is, however, not as certain for the remaining pair, *A. nigrinotum* and *A*. sp. n. (b).

Biogeography – Following the evaluation of species richness and morphological diversity, ROHÁČEK (2004) considered *Amygdalops* to be of Afrotropical origin. However, this statement seems not to be so unambiguous at present, when Oriental, Australasian and Oceanian species are better known. At least the Oriental fauna (with 12 known species) can rival the Afrotropical fauna (16 species recognized) in species richness. Also the morphological variability of the *Amygdalops* in the Oriental and Australasian/Oceanian Regions proved to be at least as large as in the Afrotropical Region because besides the externally uniform *A. nigrinotum* group there are also taxa markedly modified in this area, viz. *A. lineola*, *A. silaceus* and *A. stenopteryx* group. Only one species, the widespread *A. nigrinotum*, penetrated (maybe recently) into the easternmost area of the Afrotropical Region (Seychelles) but, as ROHÁČEK (2004) already stated, it has no distinct relative in the native Afrotropical fauna of *Amygdalops*. The distinct dissimilarity of the Afrotropical and Oriental faunas and the presence of ancestrally looking species in both of them demonstrate that there are two Old World centres of evolution of *Amygdalops*. In summary, it now becomes apparent that *Amygdalops* is of Gondwana origin and that the Oriental evolutionary centre evolved after the separation of the Indian subcontinent.

The knowledge of distribution of *Amygdalops* species in the Oriental and Australasian/Oceanian Regions is rather fragmentary, and, consequently, it is not easy to associate them with definite areas. Nevertheless, the available data revealed that there are widespread species, such as *A. nigrinotum*, which was apparently of Oriental origin but has recently been spread to far-away territories (Seychelles in Afrotropical, Queensland in Australasian, Japan in Palaearctic, Hawaii in Oceanian Regions) or the most "ancestral" *A. lineola* whose large distribution (from Thailand, through Java and Flores to Papua New Guinea) may be natural, judging from differences between populations in Thailand and Java/Flores. Other Oriental species having wider distributions are: *A. bisinus* (Thailand, Vietnam, Indonesia: Flores), *A. cuspidatus* (Taiwan, Indonesia: Flores) and *A. curtisi* (Thailand, Taiwan). The remaining Oriental species are only known from restricted areas: *A. abnormis* (Sri Lanka and southern India), *A.* sp. n. (a) (Taiwan), *A. curtistylus*, *A.*

pappi and *A. stenopteryx* (all only known from Thailand), *A. geniculatus* (Indonesia: Java) and *A.* sp. n. (c) (Malaysia: Sabah in Borneo). A few Oceanian species seem to be restricted to particular islands of Micronesia: *A. silaceus* to Mariana Is., *A.* sp. n. (b) to Palau and *A.* sp. n. (d) to Pohnpei (= Ponape I.).

Indochina probably hosts the richest species spectrum of *Amygdalops* as is indicated by the 7 species recorded from Thailand. However, the latter country is by far the best explored in terms of dipterology in the whole of the area under study. Four species of *Amygdalops* were found both in Taiwan and Flores, but the paucity or lack of records from other countries/islands seem only to demonstrate that the dipterous fauna is poorly known in most territories of the Oriental Region. On the other hand, the paucity of *Amygdalops* fauna in the Oceanian and Australasian Regions (Australia in particular) is probably natural, resulting from subsequent colonization from the Oriental Region which may be old in Micronesia (cf. the occurrence of old-clade species *A. silaceus* in Mariana Is. and *A.* sp. n. (d) nr. *stenopteryx* in Pohnpei) but quite recent in Australia where only *A. nigrinotum* was recorded.

*

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