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TERMITOPHILOUS PLEASING FUNGUS BEETLES: *CHASMATODERA* ARROW AND *RHAMPHIDERA* SKELLEY, GEN. NOV. (COLEOPTERA: EROTYLIDAE: TRITOMINAE)

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Abstract. — The **new genus** *Rhamphidera* Skelley (type species: *Chasmatodera perplexa* Skelley) is described. **New species** described are *Rhamphidera eureka* Skelley and *Chasmatodera mystica* Skelley. A key to, and descriptions of, the members of *Rhamphidera* Skelley and *Chasmatodera* Arrow are presented. Label data indicate that *Rhamphidera eureka* lives with fungus growing termites, *Protermes prorepens* (Sjöstedt) (Isoptera: Termitidae). Similarly modified structures of other species in these genera indicate they are also termitophilous.

Key words. — Termite, Coleoptera, Erotylidae, *Chasmatodera*, *Rhamphidera*.

INTRODUCTION

In 1994, I gave an accounting of the short history of *Chasmatodera* Arrow (Skelley 1994). Since then six additional specimens representing two new species have come to my attention. These specimens, and their label data, confirmed my suspicions that *C. perplexa* Skelley actually represented a new genus, and that these species live with social insects.

Species included in *Rhamphidera* Skelley, gen. nov., and *Chasmatodera* Arrow share many characters that indicate they belong in the Tritominae, tribe Tritomini: postmandibular lobes projecting laterally; maxillary palp terminal segment triangular, swollen; lacinia unarmed, without teeth; tarsi pseudotetramerous. Some of the unusual characters shared by these genera could imply a close phylogenetic relationship: reduced antennal club; depression and basal notches on the pronotum; and broadly dilated femora and tibiae. Within the Erotylidae, the basal notch near each hind angle of the pronotum and the reduced antennal club distinguish these genera from all known members of the family. Similarly modified pronota are present on other beetles and may imply structural adaptations related to termitophily: *Stenotarsus* spp. (e. g. *S. secticollis* Strohecker, 1974; Endomychidae), and an undetermined heteromerous beetle, identical to *Rhamphidera perplexa* (Skelley) in dorsal view, that was collected with fungus growing termites in the genus *Macrotermes* Holmgren (D. H. Kistner collection).

The only phylogenetic study on the Erotylidae is an unpublished study by J. V. McHugh that was based on larval characters and did not include many African taxa. The relationships of the genera within the Tritomini are problematic until a study on the entire tribe is done. The status of these two as distinct genera is based on numerous differences other than the unusually modified characters mentioned above. Some of the characters which differ include: number of antennal club segments, lateral development of the pronotal margin, prosternal development, genitalic modifications, relative length of tarsi, presence (or absence) of porous patches on the second abdominal sternite, length of the elytral epipleural fold, etc. These genera may ultimately prove to be sisters. However, their differences (defined in more detail in the generic descriptions) are adequate to consider the them as distinct.

MATERIALS AND METHODS

Material studied is deposited in the following collections: Bernice P. Bishop Museum (BPBM); Field Museum of Natural History (FMNH); Florida State Collection of Arthropods (FSCA); Natural History Museum, London (NHML); P. E. Skelley collection (PESC); Carnegie Museum of Natural History (ICCM).

TAXONOMY

Key to genera and species

The following key can be placed at the beginning of any existing generic key (e.g. Deelder 1942, Kuhnt 1909) and will separate these taxa from all known Erotylidae.

1. Pronotum with posterior margin complete, straight or sinuate; hind angle approximately 90°; disc evenly convex; antennal club usually well defined; size variable ..... [Remainder of the key]
–. Pronotal posterior margin with deep notch near each hind angle; hind angle acute; disc with a deep depression leading to each basal notch (Figs 1–4); antennal club poorly defined; length 3.2–4.0 mm 2
2. Pronotal lateral margin entire, evenly arched (Figs 1, 2); tarsi longer than apical width of tibia (Figs 9, 10); abdominal ventrite II lacking lateral porous spots (Figs 11, 12) *Chasmatodera* Arrow 3
–. Pronotal lateral margin constricted at middle (Figs 3, 4); tarsi as long as apical width of tibia (Figs 19, 20); abdominal ventrite II with a porous spot at each side (Fig. 21) *Rhamphidera* Skelley, gen. nov 4
3. Depression leading to basal notch circular (Fig. 1), notch deep, lobe on inner margin well developed; Africa ..... *C. aenigma* Arrow
–. Depression leading to basal notch elongate (Fig. 2), notch shallow, lobe on inner margin weakly developed; continental SE Asia ..... *C. mystica* Skelley, sp. nov.
4. Antenna brown, contrasting with maxillary palp, same color as body; elytral setae long, can reach next puncture; pronotal depressions weakly defined (Fig. 3) ..... *R. perplexa* (Skelley)
–. Antenna entirely pale, same color as maxillary palp, contrasting with body; elytral setae relatively short, not reaching next puncture; pronotal depressions strongly defined (Fig. 4) ..... *R. eureka* Skelley, sp. nov.

Figure 1. *Chasmatodera aenigma*. Line = 1.0 mm.

Chasmatodera Arrow, 1943

Chasmatodera Arrow, 1943: 388–389. Type species *Chasmatodera aenigma* Arrow, 1943: 389–390, by monotypy.

Diagnosis. Recognized by the pronotal depression leading to the basal notch at each hind angle; hind angle acute; the evenly arched lateral margin of the pronotum, lacking a constriction; and the poorly defined antennal club.

Description. Length: 3.5–4.0 mm. Body broadly elongate, parallel-sided; surface nitidous with setiferous punctures; brown-black, lacking color pattern.

Head with ocular striae reaching lateral epistomal angles; epistoma broadly concave; mandibles sharp, appearing sickle-shaped in front; post-mandibular lobes present, projecting laterally; maxillary palp terminal segment triangular, swollen; lacinia unarmed, without teeth; labial palp terminal segment elongate, parallel-sided; mentum broader than long, wider anteriorly, laterally curved away from palp base.

Antennal club weakly developed, 4-segmented; antennomere III length < 2 × width. Pronotum with anterior edge completely margined, margin fine; lateral edge evenly arched, with complete margin; base notched near each hind angle; disc with a depression leading to each posterior notch, making the acute hind angle. Elytral epipleural fold gradually decreasing in size toward apex, corresponding dorsolateral groove along margin nearly reaching apex.

Prosternal keel arched, with a strong medial anterior projection (Fig. 6); prosternum narrow between procoxae; posterior process with procoxal lines meeting at middle, forming a small prosternal plate; prosternal process not fitting tightly with the mesosternum; procoxal cavities closed. First visible abdominal ventrite with coxal lines complete, extending from anterior margin near metacoxa to posterior margin. Second visible abdominal ventrite without porous patch on each side near the lateral edge.

Figure 2. *Chasmatodera mystica*. Line = 1.0 mm.

Femora broad, parallel-sided, plate-like; tibiae triangularly dilated; tarsi longer than apical width of tibia; tarsi pseudotetramerous (Figs 9–10).

Chasmatodera aenigma Arrow, 1943
(Figs 1, 5–7, 9–11)

Chasmatodera aenigma Arrow, 1943: 390–391.

Diagnosis. Recognized by the circular depression on the pronotum leading to each basal notch (Fig. 1); basal notch deep, lobe on inner margin well developed; known from central Africa.

Description. Length = 3.6 mm, width = 1.7 mm. Body broadly elongate, parallel-sided; entirely dark brown; antenna, palps, and tarsi pale tan.

Head with 2 weak epistomal impressions giving head a sinuate appearance from above, dorsal distance between eyes = 8 × eye width; epistomal anterior edge broadly, deeply concave; vertex with few setiferous punctures, setae length = dorsal eye width; punctures fine, size = 1 × eye facet, separated by 8–10 × puncture diameter. Eye surface smooth; facets faint, indicated by ommatidia beneath.

Figure 3. *Rhamphidera perplexa*. Line = 1.0 mm.

Antennae almost reaching pronotal base; antennomere I = 2 × antennomere III in length; antennomere II length = antennomere III length; antennomere III width = length; antennomeres IV–VII gradually increasing in length and width; antennomeres VIII–XI equal in length, slightly wider and longer than antennomere VII; antennomeres IX–X triangular with arched sides; antennomere XI elongate, width = 0.5 × length, apex with small tip (Fig. 5). Maxillary palp terminal segment width = 1.5 × length, width = 6 × labial palp terminal segment width. Labial palp terminal segment flattened, length = 4 × width. Mentum widest anteriorly, width = 2 × length, lateral angles curved ventrally away from head (Fig. 7).

Pronotal disc with few large setiferous punctures = 2 × eye facet diameter, widely separated; lateral margin complete, thickening anteriorly; lobe-like front angle with margin thickness = 3 × margin thickness at middle of pronotum; lateral margin with evenly spaced pores along entire length;

Figure 4. *Rhamphidera eureka*. Line = 1.0 mm.

single large front angle pore not located; posterior edge sinuate, deep notch at each hind angle becomes a circular depression encroaching on disc; lobe on inner margin of each notch well developed; single hind angle pore not located; base not margined (Fig. 6). Scutellum elongate, rounded, length = 1.5 × width. Elytral striae not impressed; puncture size = 2–3 × posterior pronotal puncture size, decreasing in size apically; intervals impunctate; base with strong margin; setae long, reaching to neighboring puncture, recumbent. Wings present, fully developed.

Prosternum narrow, keel-like, weakly sloped anteriorly, then projecting and constricted at anterior edge (Fig. 6), anterior edge marginate; sternal plate narrow, 0.25 × diameter of procoxa, not depressed nor expanded behind coxae. Mesosternum narrow, rounded posteriorly; coxal lines connecting posteriorly, following coxae in front. Metasternal coxal line continuous around mesocoxae and across suture with mesosternum; scattered punctures setiferous, size = vertex puncture size. Abdominal ventrites with numerous strong setiferous punctures, size = vertex puncture size, separated by 2–3 × puncture diameter; secondary line at base of visible ventrites II–V; first visible abdominal ventrite with coxal lines long, arching from inner edge of metacoxa to outer posterior angle of ventrite (Fig. 11).

Genitalia not dissected, apparently female.

Types. The holotype of *Chasmatodera aenigma* Arrow remains the only known specimen of this species. Label data: "/ [red rimmed circle] Type / N. W. Rhodesia: Mwengwa, 27°40'E, 13°S, 11-vii-1914, H. C. Dollman / H. C. Dollman Coll. 1919-79 / *Chasmatodera aenigma* Type Arrow /" [NHML].

Chasmatodera mystica sp. nov.
(Figs 2, 8, 12–15)

Diagnosis. Recognized by the elongate pronotal depressions (Fig. 2) leading to a shallow basal notch, with a lobe on the inner margin weakly developed.

Description. Length = 3.5–4.0 mm, width = 1.6–1.8 mm. Body elongate, broad, parallel-sided; red brown with dark brown elytra and palps.

Head rounded and smooth, dorsally flat, dorsal distance between eyes = 8 × eye width; vertex with few setiferous punctures, setae longer than dorsal eye width; puncture size = 1 × eye facet, separated by 8–10 × puncture diameter; epistomal apex weakly concave. Eye surface smooth; facets faint, indicated by ommatidia beneath.

Antennae almost reaching pronotal base; antennomere I = antennomere III in length; antennomere II length = 0.5 × antennomere III length; antennomere III width = 0.5 × length; antennomeres IV–VII gradually increasing in length and width; antennomeres VIII–X equal in length, slightly wider and longer than antennomere VII; antennomeres VIII–X triangular with rounded sides; antennomere XI elongate, width = 0.5 × length, apex with small tip. Maxillary palp terminal segment width = 1.5 × length, width = 6 × labial palp terminal segment width. Labial palp terminal segment flattened, length = 4 × width. Mentum widest anteriorly, trapezoidal, flat (Fig. 8), anterior edge concave.

Pronotal disc with few large setiferous punctures = 1 × eye facet diameter, widely separated; lateral margin fine

entire length, evenly spaced pores along entire length; front angle not lobe-like, pore present; posterior edge sinuate, weak notch near each hind angle, associated depression groove-like, inner margin of notch weakly developed; hind angle with pore at apex; base not marginate. Scutellum elongate, rounded, length = 1.5 × width. Elytral striae not impressed; puncture size = 2–3 × posterior pronotal puncture size, decreasing in size apically; intervals impunctate; base with strong margin; setae long, reaching to neighboring puncture, recumbent. Wings present, fully developed.

Prosternum narrow, keel-like, strongly sloped anteriorly then projecting and constricted at anterior edge, anterior edge marginate; sternal plate narrow, 0.25 × diameter of procoxa, weakly depressed behind coxae, slightly widened behind procoxae, lateral margin thick. Mesosternum narrow, truncate posteriorly; coxal lines not connecting posteriorly, following coxae in front. Metasternal coxal line continuous around coxae and across suture with mesosternum forming deep groove; scattered punctures setiferous, size = vertex puncture size. Visible abdominal ventrites with few scattered setiferous punctures, size = vertex puncture size, separated by 3–4 × their diameter; secondary line at base of ventrites II–V not visible; coxal line on ventrite I continuing straight back to posterior margin from inner margin of metacoxae (Fig. 12).

Male genitalia (Figs 14, 15) with median lobe with a narrow apex; flagellum hair-like; sclerite at anterior end of internal sac not studied (apparently lost during dissection); spiculum gastrale narrow. Female genitalia typical for a tritomine: abdominal sternite VIII with a long anterior apodeme; abdominal segment IX long; apical segments of coxites cylindrical, each bearing an obvious stylus (Fig. 13).

Types. Male holotype of *Chasmatodera mystica*: "/THAILAND. CHIANG MAI: Doi Inthanon NP, 1300 m, 7–12 May 1990, E.Fuller, open second growth /" [FSCA]. Female allotype: "/THAILAND. CHIANG MAI: Doi Inthanon NP, 1300 m, yellow pitfalls: pine forest; 28 APR–11 MAY 1990; 90055B, E.Fuller/" [FSCA]. Female paratype: "/LAOS: Khammouane Prov., Phon Tiou /11–12.VI.1965/ J.A.Rondon Collection BISHOP MUS./ [yellow] BBM/" [BPBM].

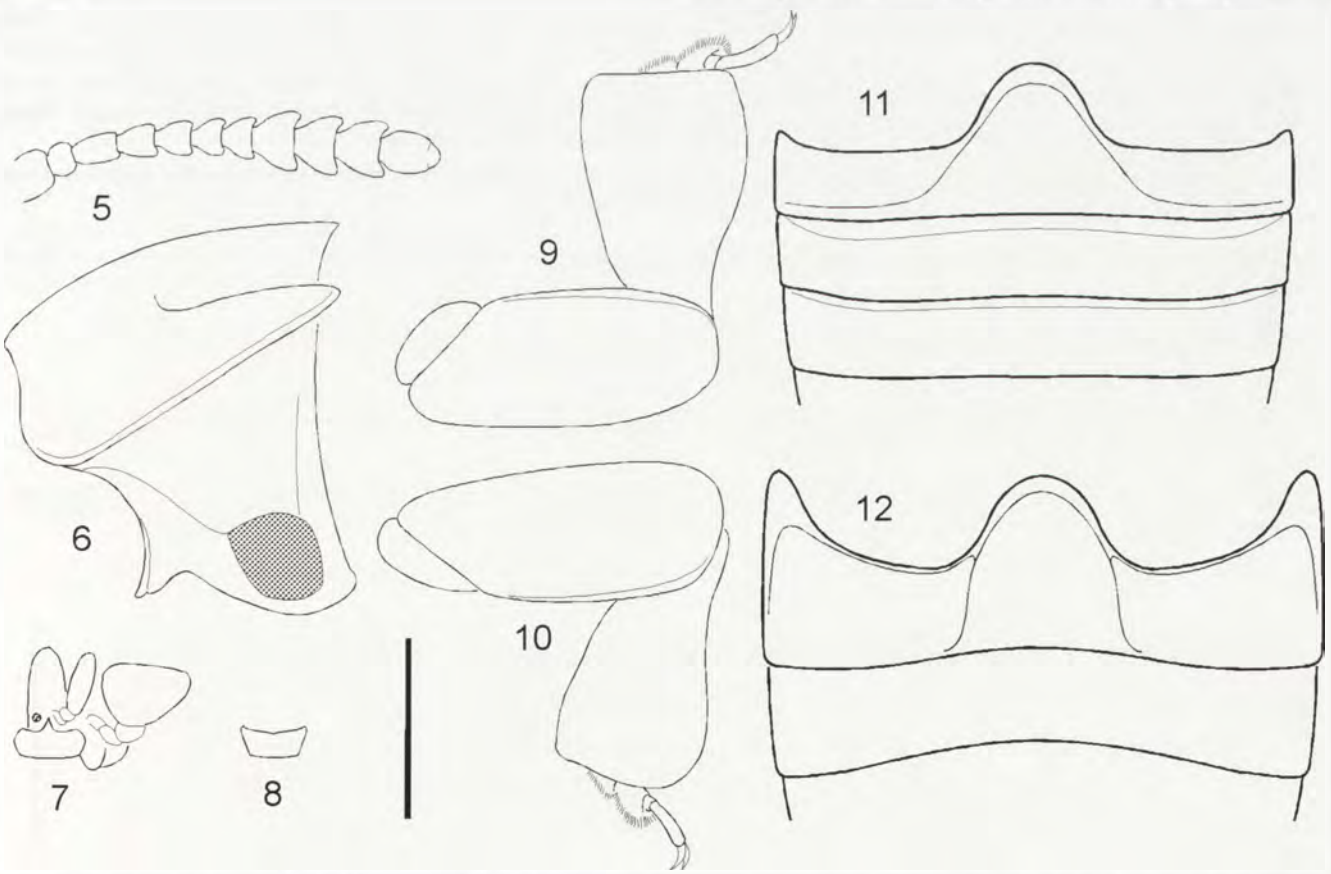
Etymology. The name is based on the root word "mystical"; as related to magic, or unsolved mysteries.

Remarks. The Laos paratype is teneral.

Rhamphidera gen. nov.

Type species. *Chasmatodera perplexa* Skelley, 1994: 235–240, present designation.

Diagnosis. Recognized by the pronotal depression leading to the basal notch at each hind angle; hind angle acute; pronotum laterally constricted; poorly defined



Figures 5–12. *Chasmatodera* spp. 5, 7, 9–11. *C. aenigma*; 6, 8, 12. *C. mystica*. (5) antenna; (6) pronotum, left lateral; (7) labium and maxillary palp; (8) mentum; (9) left fore leg, posterior; (10) left middle leg, anterior; (11) abdominal ventrites I–III; (12) abdominal ventrites I–II. Line = 0.5 mm .

antennal club; porous spot at each side of second visible abdominal ventrite.

Description. Length: 3.2–3.7 mm. Body narrowly elongate, parallel-sided; surface nitidous with setiferous punctures; brown-black, lacking color pattern.

Head with ocular stria reaching lateral angles of epistoma; epistoma broadly concave; mandibles sharp, appearing sickle-shaped in front; post-mandibular lobes present, projecting laterally; maxillary palp terminal segment triangular, swollen; lacinia unarmed, without teeth; labial palp terminal segment elongate, parallel-sided; mentum longer than broad, wider anteriorly, flat.

Antennal club poorly defined, 3-segmented; antennomere III length > 2 × width. Pronotum with anterior edge margined only behind eye; lateral edge strongly sinuate, constricted at middle, margin lacking; base notched near each hind angle; disc with a depression leading to each posterior notch, making the acute hind angle appear thorn-like. Elytral epipleural fold and corresponding dorso-lateral groove along margin both ending abruptly where metacoxa meets elytron; elytron sharply edged from metacoxae to apex.

Prosternal keel strongly arched dorsally to anterior margin, lacking a medial anterior projection (Fig. 17); prosternum narrow between coxae, strongly curved inward and not projecting behind procoxae, not fitting tightly with mesosternum; procoxal lines not meeting posteriorly; prosternal plate lacking; procoxal cavities closed. First visible abdominal ventrite with coxal lines continuous around coxae, not extending onto surface of ventrite. Second visible abdominal ventrite with porous patch on each side near the lateral edge (Fig. 21).

Femora broad, club-like; ventral margin with an indentation near the apex bearing a small patch of setae; tibiae triangularly dilated; tarsal length ≤ apical tibial width; tarsi pseudotetramerous (Figs 19, 20).

Male unknown. Female genitalia (Fig. 22) reduced, barely able to extend beyond abdominal segment VIII; lacking anterior apodeme of abdominal sternite VIII; abdominal segment IX extremely short, apparently vestigal; apical segments of coxites flattened, triangular, each bearing a greatly reduced stylus that is shorter than nearby setae, visible only under high magnification (inset of Fig. 22).

Etymology. Rhamphis = (Greek) hook; deros = (Greek) skin. The name was chosen to mean "hooked-skin" in reference to the shape of the pronotum. The posterior angles are modified and hook-like.

Remarks. Only females are known for this genus.

Rhamphidera perplexa (Skelley, 1994), comb. nov.
(Fig. 3)

Chasmatodera perplexa Skelley, 1994: 235–240.

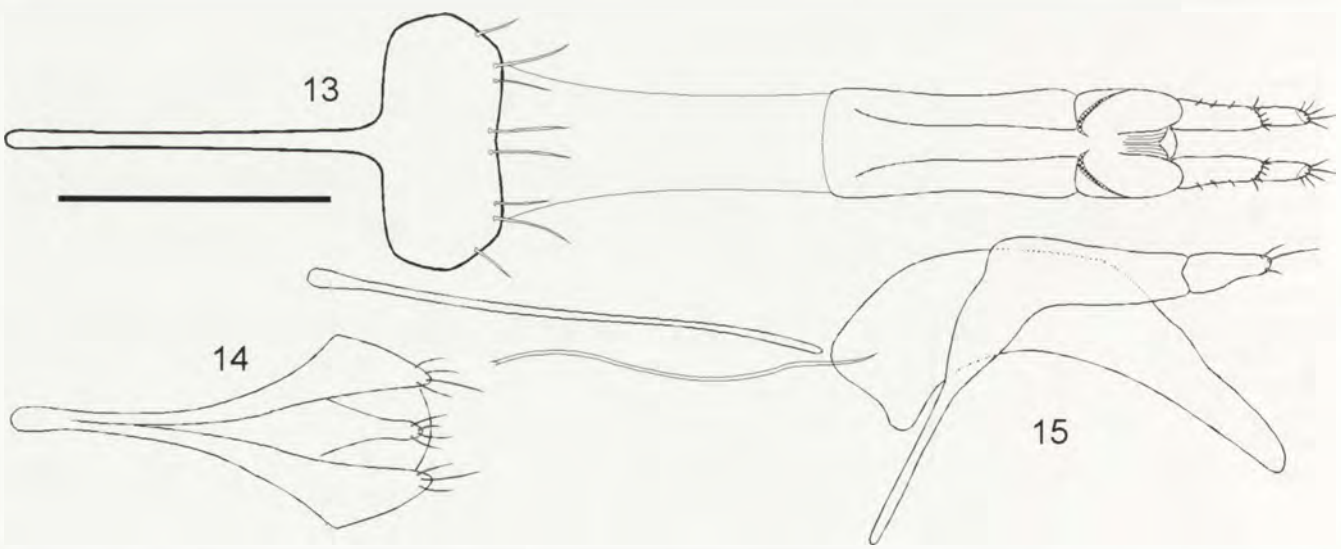
Diagnosis. Recognized by the weakly arched pronotal hind angles; presence of wings; antenna mostly brown; dorsal elytral setae long; pronotal impressions weakly defined.

Description. Length = 3.7–3.9 mm, width = 1.5–1.6 mm. Body elongate, narrow, parallel-sided; brown; antennomeres I–II, palps, and tarsi pale tan. The following characters are presented to supplement the description in Skelley (1994).

Pronotal hind angles weakly arched (Fig. 3); lobe on inner side of basal notch well developed. Elytral setae long, each seta reaching into or beyond the neighboring puncture. Abdominal punctation and setation weak, difficult to observe, punctures separated by 3–4 × their diameter. Wings present, fully developed.

Male unknown. Female genitalia greatly reduced, short (as in Fig. 22).

Material examined. Female holotype (not male, see Remarks): "/ ZAMBIA [vertical on left side of label] COPPERBELT Chanti, 15.12.1983, K. Löyttyniemi leg/ Window traps baited with *Pterocarpus angolensis* log/ 75



Figures 13–15. *Chasmatodera mystica*, terminalia. (13) female, ventral; (14) male genital capsule, ventral; (15) male aedeagus, lateral. Line = 0.5 mm .

/ C. I. E. A18877 / ? Erotylidae det. R. G. Booth, 1987 / Pres by Comm Inst Ent B. M. 1987-1 / [red paper] HOLOTYPE *Chasmatodera perplexa* P. E. Skelley /" [NHML]. A second specimen: CAMEROON: Southwest Prov., 25km.W. Limbe, Bakingili, Malaise trap, 12-VII-1984, James DiGiulo [ICCM].

Remarks. In the original description (Skelley 1994), I considered the holotype a male because the genitalia were reminiscent of male erotylids but with the aedeagus and tegmen missing. After more specimens of *Rhamphidera* became available, it was obvious that I misinterpreted the structures. Closer examination of the genitalia revealed the greatly reduced styli (see inset of Fig. 22), and the realization that the specimens were female. Genitalic modification of this sort was not previously known within the Erotylidae, but it is known in other cucujoids (Laemophloeidae, pers. comm. M. C. Thomas).

Rhamphidera eureka sp. nov.
(Figs 4, 16–22)

Diagnosis. Recognized by the strongly arched pronotal hind angles; absence of wings; antenna entirely pale; dorsal elytral setae short; pronotal impressions well defined.

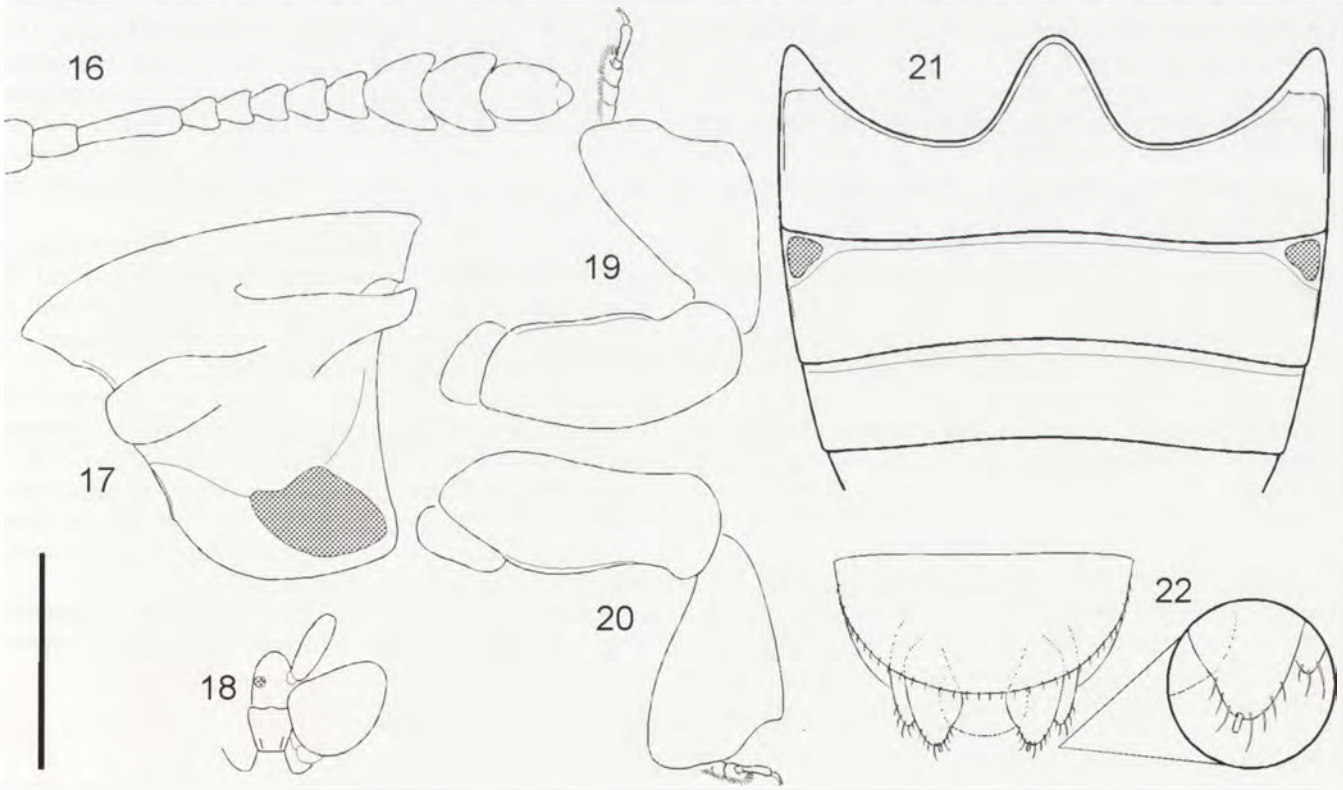
Description. Length = 3.2–3.3 mm, width = 1.2–1.3 mm. Body elongate, narrow, parallel-sided; brown; entire antennae, palps, and tarsi pale tan.

Head rounded and smooth, dorsal distance between eyes = 8 × eye width; vertex with numerous setiferous punctures, setae longer than dorsal eye width; puncture size = 1 × eye facet, separated by 4–6 × puncture diameter. Eye surface smooth; facets faint, indicated by ommatidia beneath.

Antennae (Fig. 16) almost reaching pronotal base; antennomere I = antennomere III in length; antennomere II length = 0.5 × antennomere III length; antennomere III width = 0.33 × length; antennomeres IV–VIII gradually increasing in length and width; antennomeres IX–XI equal in length, slightly wider and longer than antennomere VIII; antennomeres IX–X triangular with straight sides; antennomere XI elongate, width = 0.5 × length, apex with small tip. Maxillary palp terminal segment width = 1.5 × length, width = 6 × labial palp terminal segment width. Labial palp terminal segment flattened, length = 4 × width. Mentum widest anteriorly, length = width, trapezoidal, flat (Fig. 18).

Pronotal disc with large setiferous punctures = 3 × eye facet diameter, separated by 2–5 × puncture diameter; anterior punctures decreasing in size, size = vertex puncture size; front angle pore not found; impressions on disc well defined; lobe on inside edge of notch well developed; hind angle strongly arched, pore present at apex; base not margined. Scutellum elongate, rounded, length = 1.5 × width. Elytral striae not impressed; puncture size = posterior pronotal puncture size, decreasing in size laterally, absent at apex; intervals not punctate; base finely marginate near scutellum; setae short, not reaching into neighboring puncture. Wings absent.

Prosternum narrow, 0.25 × diameter of procoxa. Mesosternum narrow, truncate posteriorly; coxal lines not connecting posteriorly, following coxae in front. Metasternal coxal line continuous around coxae and across suture with



Figures 16–22. *Rhamphidera eureka*. (16) antenna; (17) pronotum, left lateral; (18) labium and maxillary palp; (19) left fore leg, posterior; (20) left middle leg, anterior; (21) abdominal ventrites I–III; (22) female terminalia, with magnified inset, ventral. Line = 0.5 mm .

mesosternum; sternum bulging, anteriorly and posteriorly depressed; few scattered setiferous punctures, size = 0.5 × vertex puncture size. Visible abdominal ventrites with few scattered setiferous punctures, size = 0.5 × vertex puncture size, separated by 3–4 × their diameter; secondary line at base of ventrites II–V.

Male unknown. Female genitalia greatly reduced, short (Fig. 22).

Types. Female holotype of *Rhamphidera eureka*: "/ Yangambi, BELG. CONGO., May 30:1948, AE Emerson leg. / Host: Protermes prorepens Sjöstedt Det. A. E. Emerson / [red paper] HOLOTYPE *Rhamphidera eureka* P. E. Skelley /" [FMNH]. Two paratypes, same data as holotype [FMNH, PESC].

Etymology. "Eureka" is a joyful expression of discovery. It was chosen because of the excitement caused when seeing the host of this taxon was indeed a termite.

Remarks. The specimens of this species were collected in association with *Protermes prorepens* (Sjöstedt) (Isoptera: Termitidae: Macrotermitinae), a fungus growing termite. Arrow (1943) and Skelley (1994) postulated that this group of erotylids might be associated with fungus growing social insects. Members of the Macrotermitinae grow fungi of the genus *Termitomyces* Heim (Basidiomycetes: Amanitaceae) (Batra and Batra 1977, Heim 1977, Sands 1969). Some of these fungi have sporocarps that push through the termite nest to the surface, and are eaten by humans. It is not known if these beetles feed on the sporocarp on the surface or on the fungal gardens within the nest. The label data "Host: Protermes...", indicates the beetles were collected in the nest.

The fact that the known specimens of this species all lack wings raises some intriguing questions related to its biology. Many erotylids are known to lack wings but are typically found in higher elevation habitats that are constantly moist and stable, where host fungi are very abundant.

Typical hosts for erotylids are the reproductive structures of basidiomycete fungi (sporocarps) which are formed from mycelial mats that grow within a substrate. The sporocarp is formed under certain environmental conditions. Many fungi do not produce a sporocarp regularly, in fact, it might be years between fruiting. This is the case with the known fungal hosts for many erotylid genera, and with the genus *Termitomyces* (pers. comm. J. W. Kimbrough). If *Rhamphidera* spp. feed only on the sporocarps of a *Termitomyces*, then the lack of wings in *R. eureka* would make it difficult to find food.

Within the nests, the fungus growing termites form special cavities and create special structures called "combs" (because they resemble honey combs) on which the fungus grows. The mycelium of *Termitomyces* permeates these combs and, on the older parts, produces special structures, called "mycotêtes" by Grassé (1982) and Heim (1977) or "spherules" by Batra (1975), which are eaten by the termites. Under certain conditions these spherules will produce the sporocarp (Batra and Batra 1977). It seems plausible that *Rhamphidera* spp. actually feed on the mycelium or spherules of the fungus grown by the termites. If this is true, then it is the first evidence that an erotylid feeds on something other than a sporocarp.

Another puzzling question is dispersal from one termite colony to another. The longevity of fungus growing termite colonies provides a stable resource that could be utilized by erotylids for years. Yet, these colonies don't last forever. Beetles in a declining colony would have to disperse or die. Being flightless, *R. eureka* could walk, be phoretic, or find another means of dispersal to another established colony. One highly speculative possibility is that *R. eureka* has a winged morph that is expressed when dispersal is needed. Migratory locusts (*Schistocerca gregaria* Forskal; Orthoptera, Acrididae) have long been known to have a dispersal morph. In Coleoptera, *Callosobruchus maculatus* (Fabricius) (Bruchidae) has a dispersal morph that is expressed in a colony when the population density is too high, or the food source is too small (Spirina 1974; pers. comm. J. M. Kingsolver). If *Rhamphidera* has this trait, then it is possible that *R. perplexa* is the winged morph and *R. eureka* the sedentary morph of the same species. Since this is a speculative possibility, for which I have no direct evidence, the two are considered distinct species.

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