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New species *of Plecia* Wiedemann, 1828 (Diptera: Bibionidae) from East Africa, with a key to the Afrotropical species of *Plecia*

JOHN SKARTVEIT
*Museum of Zoology, Museplass 3, N-5007 Bergen, Norway**

ABSTRACT

The imago males of *Plecia comistylus* n. sp., *P. pyralis* n. sp., and *P. tanz.aniensis* n. sp. from East Africa are described and illustrated. A female tentatively associated with *P. tanzaniensis* n. sp. is described, as well as new color varieties of *P. bequaerti* Hardy, *P. ugandaensis* Hardy, and *P. zernyi* Hardy. New records of *Plecia* species from East Africa and a key to males of all the species are given.

INTRODUCTION

Plecia is the most speciose bibionid genus in the tropics, while *Bibio* and *Dilophus* predominate, respectively, in the northern and southern temperate areas (Skartveit, 1997). Afrotropical *Plecia* species have been treated by Hardy (1948, 1949, 1950, 1951, 1952a,b,c, 1961,1962), who described 41of the known 44species; no new species have been described since. Examination of the material that was collected during expeditions to East Africa by entomologists from the Department of Zoology, Tel Aviv University, and the Museum of Zoology, Bergen, revealed three species of *Plecia* not fitting any of Hardy's species descriptions.

Keys to *Plecia* spp. (e.g., Hardy 1952a) usually use color of the thorax as their first character. However, this character should be used cautiously. The finding reported here of specimens of three *Plecia* species that display thorax color strikingly different from that described as typical for the species indicates that this may be a rather variable character and not useful for distinguishing species. In many species of the genera *Bibio* and *Dilophus,* mesonotum color has little if any diagnostic value and this seems to be true for the genus *Plecia* as well. At the present state of knowledge, all identifications of *Plecia* specimens should be based on examination of the male terminalia. As these are generally distorted in dry-mounted specimens, they should be relaxed before examination. Frequently, it may also be necessary to macerate the terminalia in order to correctly identify a specimen. Females of many species have been described, and useful distinguishing characters found. However, the females of many other species, which have not been associated with male specimens, remain undescribed, so that identification of females is not always possible.

E-mail: J.Skartveit@au.sac.ac.uk
*Present address: Department of Ecology &Conservation, J.F. Niven Bldg., SAC Ayr Campus, Auchincruive, Ayr KA6 5HW, Scotland.

MATERIAL AND METHODS

I studied African material from the National Collection of Insects, Department of Zoology, Tel Aviv University (TAU), the Canadian National Collection of Arthropods (CNC), Ottawa, Canada, and the Museum of Zoology, Bergen, Norway (ZMUB). Male terminalia were macerated in hot 8% KOH and studied in glycerol under a microscope. The terminalia were stored in glycerol in micro vials pinned with the specimens. Drawings were made using a Camera Lucida. The already described species were identified using the key by Hardy (1952a), taking into consideration later species descriptions by Hardy (1952b, 1961, 1962). Terminology follows McAlpine (1981).

TAXONOMY

Key to males of Afrotropical *Plecia*

The key is modified from Hardy (1952a, 1962)

1. Cubital cell closed and petiolate (Hardy, 1952a, fig. 1a); thorax all rufous except for velvety black line extending from wing base to postpronotum; very large species 9.5–14.0 mm .... ***Plecia (Pleciodes) ephippium* Speiser**
–. Cubital cell open widely; thorax not as above; body up to 8.0 mm (*Plecia* s. str.) **2**
2. Entirely or mostly black species **3**
–. At least mesonotum entirely or mostly rufous **21**
3. Wing brown fumose along veins and crossveins; remainder of wing membrane yellowish fumose; gonocoxosternite with well-developed lobe on posterior lateral margin and pair of small lobes just mesal to gonostylus (Hardy, 1948, fig. 6a); gonostylus long and slender; epandrium cleft nearly to base (Hardy, 1948, fig. 6b) ..... ***Plecia fuscinervis* Hardy**
–. Wing not darker along veins or crossveins; male genitalia not as above **4**
4. Wing at least partly yellow, especially on anterior margin **5**
–. Wing brown fumose, not marked with yellow **7**
5. Wing mostly yellow, especially along anterior margin and in basal half; posterior margin of epandrium with triangular process (Hardy, 1949, fig. 1a; Hardy, 1951, fig. 1a) **6**
–. Wing marked with yellow only at extreme base, the yellow marking extends approximately to crossvein h; posterior margin of epandrium without triangular process (Hardy, 1962, fig. 2c) ..... ***Plecia flavibasis* Hardy**
6. Lobes of epandrium rounded; mesal process of epandrium long (Hardy, 1949, fig. 1a); gonostylus divided into two lobes on lateral apex (Hardy, 1949, fig. 1b) ..... ***Plecia gilvipennis* Hardy**
–. Lobes of epandrium pointed; mesal process of epandrium short (Hardy, 1951, fig. 1a); gonostylus not divided into two lobes on lateral apex (Hardy, 1951, fig. 1b,c) ..... ***Plecia capitata* Hardy**
7. Legs partly tinged with yellowish to red **8**
–. Legs entirely dark brown to black **10**
8. Lobes of epandrium (as seen from above) apically pointed (Hardy, 1952a, fig 5b; Hardy, 1952b, fig. 1a); lateral lobe of gonocoxosternite (ninth sternum) bilobed (Hardy, 1952a, fig. 5a; Hardy, 1952b, fig. 1c) **9**

–. Lobes of epandrium (as seen from above) apically rounded (Hardy, 1962, fig. 3c); lateral lobe of gonocoxosternite developed into single, slender, inward-pointing projection (Hardy, 1962, fig. 3d) ..... ***Plecia lateodens* Hardy**

9. Gonocoxosternite laterally with bilobed processes; gonostyli large and quadrate (Hardy, 1952a, fig. 5a) ..... ***Plecia insolita* Hardy**

–. Lateral processes of gonocoxosternite not bilobed; gonostyli slender, hook-shaped and pointed. (Hardy, 1952b, fig. 1c) ..... ***Plecia bequaerti* Hardy**

10. Epandrium strongly developed on posterior lateral margins into sharp, pointed, incurved lobes (Hardy, 1949, fig. 2a; Hardy, 1952a, fig. 12a) **11**

–. Epandrium not developed into strong lateral lobes **12**

11. Lobes on hind margin of epandrium rather short, not elongate and slender, shorter than remainder of epandrium (Hardy, 1949, fig. 2a) ..... ***Plecia madagascarensis* Hardy**

–. Lobes of epandrium elongate and slender, longer than remainder of epandrium (Hardy, 1952a, fig. 12a) ..... ***Plecia zernyi* Hardy** (in part)

12. Mesonotum densely grayish pruinose **13**

–. Mesonotum not or faintly grayish pruinose **16**

13. Gonostylus outward-pointing; epandrium obviously cleft mesally and without mesal process **14**

–. Gonostylus large and robust, inward-pointing (Hardy, 1950, fig. 8); epandrium barely cleft mesally and with mesal, bilobed process (Hardy, 1950, fig. 9) ..... ***Plecia wittei* Hardy**

14. Epandrium divided by shallow, V-shaped cleft extending less than half length of sclerite (Hardy, 1961, fig. 1c); male gonocoxosternite posteromesally with pair of fingerlike lobes separated by membranous area (Hardy, 1961, fig. 1b); gonostylus apically very slender with small hook (Hardy, 1961, fig. 1b) ..... ***Plecia paenerubescens* Hardy** (in part)

–. Epandrium divided by deep, U-shaped cleft extending more than half length of sclerite (Hardy, 1962, fig. 2a; Fig. 7); male gonocoxsternite posteromesally without pair of fingerlike lobes separated by membraneous area; gonostylus rather robust (Hardy, 1962, fig. 2b; Fig. 8) **15**

15. Gonostylus large, broad and blunt, apparently two-segmented; gonocoxosternite without mesal process, laterally developed into inward-pointing lobe (Hardy, 1962, fig. 2b) ..... ***Plecia evexa* Hardy**

–. Gonostylus smaller, rather slender, pointed, partially fused to ninth sternum; gonocoxosternite with large, bilobed mesal process, laterally not at all developed (Fig. 8) ..... ***Plecia pyralis* n. sp.**

16. Male hind basitarsus conspicuously swollen, approximately as wide as tibia (Hardy, 1962, fig. 8a); gonostylus pointing mesally (Hardy, 1962, fig. 8c) ..... ***Plecia retusa* Hardy**

–. Male hind basitarsus not conspicuously swollen; gonostylus not pointing mesally **17**

17. Gonostylus without apical, beak-like point; posterior lateral margins of epandrium broadly bilobate; epandrium with broad mesal cleft **18**

–. Gonostylus short and broad, apically with short, beak-like point (Hardy, 1950, fig. 15); epandrium mesally with narrow, U-shaped cleft (Hardy, 1950, fig. 13) ***Plecia robusta* Hardy**

18. Gonocoxosternite laterally developed into two, long, inward-pointing lobes. (Hardy, 1962, figs. 1b, 7c) **19**

–. Gonocoxosternite laterally developed into short and broad lobes. (Hardy, 1951, fig. 1b; Hardy, 1952a, fig. 3b) **20**

19. Gonocoxosternite posteromesally with narrow cleft (Hardy, 1962, fig. 7c); mesal cleft of

epandrium broadly V-shaped, extending only about one third length of epandrium (Hardy, 1962, fig. 7a); gonostylus apically slender (Hardy, 1962, fig. 7b) .... ***Plecia prolixa* Hardy**

–. Gonocoxosternite posteromesally with wide and shallow indentation (Hardy, 1962, fig. 1b); epandrium almost entirely divided mesally, the two lobes joined by narrow bridge only (Hardy, 1962, fig. 1a); gonostylus broad and blunt (Hardy, 1962, fig. 1b) ..... ***Plecia celodens* Hardy, 1962**

20. Gonocoxosternite posteromesally with process (Hardy, 1952a, fig. 3b); epandrium laterally bilobate (Hardy, 1952a, fig. 3a); gonostylus apically slender (Hardy, 1952a, fig. 3b) ..... ***Plecia erubescens* Speiser**

–. Gonocoxosternite posteromesally with wide, V-shaped cleft (Hardy, 1951, fig. 2b); epandrium laterally simply pointed (Hardy, 1951, fig. 2a); gonostylus apically broad, flat-topped (Hardy, 1951, fig. 2c) ..... ***Plecia coronata* Hardy**

21. Thoracic pleuron entirely rufous or orange **22**

–. Thoracic pleuron chiefly brown or black **27**

22. Abdomen yellow pilose; wing pale yellowish fumose; mesonotum entirely orange or with three black vittae. Epandrium deeply divided, lateral lobes blunt, gonocoxosternite posteromesally with conical projection, gonostylus stout (Hardy, 1948, fig. 9a,b) ..... ***Plecia ugandaensis* Hardy**

–. Abdomen usually all black pilose; wing yellow-brown fumose. Terminalia different **23**

23. Inner margin of epandrium, as seen from posterior view, with strong teeth (Hardy, 1948, fig. 7c); gonostylus short and thick, not much longer than wide (Hardy, 1948, fig. 7a) ..... ***Plecia octodentata* Hardy**

–. Inner margin of epandrium without teeth; gonostylus about three times as long as wide **24**

24. Posteromesal margin of epandrium with pair of lobes separated by V-shaped cleft (Hardy, 1948, fig. 1b; Hardy, 1952a, fig. 10a); lateral part of gonocoxosternite undeveloped posteriorly **25**

–. Posteromesal margin of epandrium without pair of lobes (Hardy, 1962, figs. 5c, 7d); lateral part of gonocoxosternite developed posteriorly about as far as length of gonostylus (Hardy, 1962, figs. 5d, 7e) **26**

25. Gonostylus square-tipped (Hardy, 1952a, fig. 10b); median lobes of epandrium broad and rounded (Hardy, 1952a, fig. 10a) ..... ***Plecia scenica* Hardy**

–. Gonostylus pointed at apex (Hardy, 1948, fig. 1a); median lobes of epandrium narrow (Hardy, 1948, fig. 1b) ..... ***Plecia aliena* Hardy**

26. Palp very long, second segment three times as long as first (Hardy, 1962, fig. 5a); femora, basal two-thirds rufous; epandrium, lateral lobes extended, inward-pointing and sharp, mesal part of with numerous teeth (Hardy, 1962, fig. 5c) ..... ***Plecia longipalpus* Hardy**

–. Palp, length normal, second segment about as long as first; femora predominantly brown, tinged with rufous; epandrium, lateral lobes short, rounded and blunt, mesal part without teeth (Hardy, 1962, fig. 7d) ..... ***Plecia reclusa* Hardy**

27. Mesonotum entirely rufous **28**

–. Front margin of mesonotum with large, dark brown to black spot in middle **35**

28. Pleuron light brownish. Terminalia as in Figs. 10–13 ..... ***Plecia tanzaniensis* n. sp.**

–. Pleuron dark brown or black. Terminalia different **29**

29. Epandrium and gonocoxosternite fused laterally, not distinctly divided into two sclerites (Hardy, 1952a, fig. 2c) **30**

–. Epandrium and gonocoxosternite not fused **32**

30. Gonocoxosternite on each side ventrally with strong, curved spine (Hardy, 1948, fig. 10; Hardy, 1952a, fig. 2c); lateral lobes of gonocoxosternite, as seen from below, pointed; gonostylus slender **31**

–. Gonocoxosternite without ventral spine; lateral lobes of gonocoxosternite, as seen from below, square-tipped; gonostylus rather stout (Fig. 4) ..... ***Plecia cornistylus* n. sp.**

31. Lateral lobes of epandrium and gonocoxosternite strongly developed and extended, forcipate (Hardy, 1952a, fig. 2a,b); ventral spine short, extending scarcely to base of lateral lobe (Hardy, 1952a, fig. 2c); gonostylus without conspicuous basal lobe ..... ***Plecia elongata* Hardy**

–. Lateral lobes of epandrium and gonocoxosternite short (Hardy, 1948, fig. 11a,b); ventral spine longer, almost as long as lateral lobes (Hardy, 1948, fig. 10); gonostylus with conspicuous basal lobe (Hardy, 1948, fig. 11b) ..... ***Plecia uncinata* Hardy**

32. Gonocoxosternite laterally with pair of strong lobes, inner lobe is strongly sclerotized and clasper-like (Hardy, 1948, fig. 4b; Hardy, 1952a, fig. 6b) **33**

–. Gonocoxosternite laterally with single lobe **34**

33. Gonocoxosternite, lateral lobe much larger than mesal (Hardy, 1952a, fig. 6b) ..... ***Plecia malkini* Hardy**

–. Mesal lobe of gonocoxosternite about twice as long as lateral (Hardy, 1948, fig. 4b) ..... ***Plecia bilobata* Hardy**

34. Gonostylus slender, bilobed in apical half (Hardy, 1952a, fig. 11b); lobes of epandrium, as seen from above, sharply pointed (Hardy, 1952a, fig. 11a) ..... ***Plecia yabaensis* Hardy**

–. Gonostylus stout, apically with spines but not bilobed (Hardy, 1962, fig. 6b); lobes of epandrium, as seen from above, rounded (Hardy, 1962, fig. 6a) .... ***Plecia odontata* Hardy**

35. Epandrium deeply concave on hind margin, cleft at least half way to base **36**

–. Epandrium not deeply concave on hind margin and cleft less than half way to base **48**

36. Gonocoxosternite at apex on each side with strong spine or with finger-like lobe extending beyond apex of gonostylus **37**

–. Gonocoxosternite apically with pair of variously developed lobes but without strong spine or finger-like lobe extending beyond apex of gonostylus **40**

37. Epandrium with broad, U-shaped concavity on hind margin in middle, laterally developed into slender, inward-pointing lobes (Hardy, 1952a, figs. 7a, 8a, 12a) **38**

–. Epandrium mesally with broad, V-shaped indentation extending approximately half length of sclerite, lateral lobes short and blunt (Hardy, 1962, fig. 3a) ..... ***Plecia keiseri* Hardy**

38. Lateral lobes of epandrium, as seen from above, pointed (Hardy, 1952a, figs. 8a, 12a); gonocoxosternite on each side with sharp, spine-like process, mesally with small process (Hardy, 1952a, figs. 8b, 12b) **39**

–. Lateral lobes of epandrium, as seen from above, square-tipped (Hardy, 1952a, fig. 7a); process on each side of gonocoxosternite blunt, not spine-like, mesally without process (Hardy, 1952a, fig. 7b) ..... ***Plecia quadrata* Hardy**

39. U-shaped concavity of epandrium rather narrow (Hardy, 1952a, fig. 8a) ..... ***Plecia redunca* Hardy**

–. U-shaped concavity of epandrium wide (Hardy, 1952a, fig. 12a) ..... ***Plecia zernyi* Hardy** (in part)

40. Gonostylus divided into two apical lobes (Hardy, 1948, figs. 3a, 4b) **41**

–. Gonostylus not divided apically **42**

41. Lateral lobe of gonocoxosternite more strongly developed than mesal lobe, which is more or less triangular; apical lobes of gonostylus diverging and widely separated (Hardy, 1948, fig. 3a) ..... ***Plecia bidens*** **Hardy**
–. Mesal lobe of gonocoxosternite more strongly developed than lateral lobe; mesal lobe finger-like; apical lobes of gonostylus parallel, not widely separated (Hardy, 1948, fig. 4b) ..... ***Plecia bilobata*** **Hardy**
42. Lateral lobes of epandrium, as seen from above, elongate and pointed (Hardy, 1948, figs. 2b, 8a; Hardy, 1952b, fig. 1a) **43**
–. Lateral lobes of epandrium, as seem from above, not elongate and pointed **45**
43. Posterior margin of epandrium mesally gently curved (Hardy, 1948, fig. 2b; Hardy, 1952b, fig. 1a); mesal lobes of gonocoxosternite not finger-like; gonostylus either long and slender or hook-shaped **44**
–. Epandrium with narrow, U-shaped concavity in middle (Hardy, 1948, fig. 8a); mesal lobes of goncoxosternite finger-like; gonostylus rather short and evenly curved (Hardy, 1948, fig. 8b) ..... ***Plecia sana*** **Hardy**
44. Gonostylus long, rather straight, slender and apically bilobed; posterior indentation of gonocoxosternite does not extend laterally (Hardy, 1948, fig. 2a) .... ***Plecia basalis*** **Hardy**
–. Gonostylus shorter, hook-shaped, apically simple; posterior indentation of gonocoxosternite extends about half way to lateral margin of segment (Hardy, 1952b, fig. 1c) ..... ***Plecia bequaerti*** **Hardy** (in part)
45. Mesonotum with one or three black vittae; apex of epandrial lobes quite rounded (Hardy, 1962, figs. 4a, 8d) **46**
–. Mesonotum without black vittae; apex of epandrial lobes with small apical knob (Hardy, 1962, figs. 1c, 6c) **47**
46. Mesonotum with three black vittae; lateral lobe of gonocoxosternite, as seen from below, sharply pointed (Hardy, 1962, fig. 8e) ..... ***Plecia stuckenbergi*** **Hardy**
–. Mesonotum with one black vitta; lateral lobe of gonocoxosternite, as seen from below, blunt (Hardy, 1962, fig. 4b) ..... ***Plecia laticlavum*** **Hardy**
47. Lateral lobe of gonocoxosternite rather broad, bent inward, blunt; gonostylus slender, inward-pointing (Hardy, 1962, fig. 1d) ..... ***Plecia connata*** **Hardy**
–. Lateral lobe of gonocoxosternite narrow, weakly curved, pointed; gonostylus stout, outward-pointing (Hardy, 1962, fig. 6d) ..... ***Plecia pauliani*** **Hardy**
48. Gonostylus rather slender, attached mesally; epandrium without median process **49**
–. Gonostylus very stout, attached laterally, pointing mesally (Hardy, 1948, fig. 5b); epandrium with large, square mesal process (Hardy, 1948, fig. 5a) ..... ***Plecia curta*** **Hardy**
49. Mesal indentation of epandrium broadly U-shaped (Hardy, 1952a, figs. 4a, 9a); gonocoxosternite mesally with three short protuberances (Hardy, 1952a, figs. 4b, 9b) .. **50**
–. Mesal indentation of epandrium V-shaped, clearly angular (Hardy, 1960, fig. 1c); gonocoxosternite mesally with two slender lobes joined by membranous area (Hardy, 1960, fig. 1b) ..... ***Plecia paenerubescens*** **Hardy** (in part)
50. Epandrium with two lobes on each side (Hardy, 1952a, fig. 4a); lateral part of gonocoxosternite extends much further back than mesal part; gonostylus apically moderately slender (Hardy, 1952a, fig. 4b) ..... ***Plecia freemani*** **Hardy**
–. Epandrium with one lobe on each side (Hardy, 1952a, fig. 9a); lateral part of gonocoxosternite extends barely beyong mesal part; gonostylus apically very slender (Hardy, 1952a, fig. 9b) ..... ***Plecia ruficollis*** **(Fabricius)**

Descriptions of new species

Plecia cornistylus n. sp.
(Figs. 1–4)

Diagnosis

A medium-sized *Plecia*, belonging to the group of species with mesonotum, but not pleuron, reddish or orange. It is characterized by the strong, curved, outwardly-pointing gonostyli and the prominent, square-ended lateral lobes on the ventral surface of the genitalia (Fig. 4). This genital habitus slightly resembles the West African species *Plecia yabaensis* Hardy, but the gonostyli are not bilobed in *P. cornistylus*.

Type material

Holotype: Tanzania: West Usambara Mountains, Mazumbai 27.x.1990, Malaise trap, ZMUB Tanzania Expedition, (ZMUB, Type no. 349). The holotype is in fair condition, stored in alcohol, and the macerated terminalia are in a separate vial.

Description

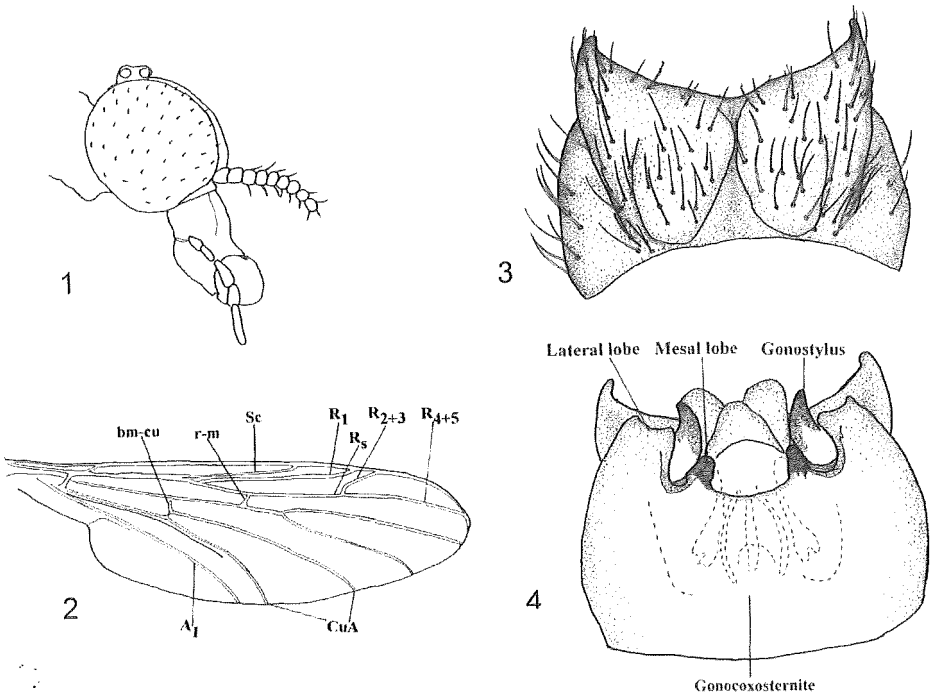
Male (N = 1). Total length 6.0 mm.

Head (Fig. 1): Length (from hind margin of ocellar tubercle to antennal base) 0.83 mm. Rostrum prominent, reaching about 1/2 of eye diameter in front of antennal bases, chestnut-brown with rather dense, light brown pilosity. Occiput rather flat with black setae. Ocellar tubercle prominent with brown setae. Eye with short, brown interfacetal setae. Antenna with scape very short, ring-shaped, flagellum 8-segmented, brown. Flagellomeres decreasing in width from first flagellomere distally, diameter of the first flagellomere twice as much as the diameter of the eighth flagellomere. All flagellomeres distinct and well separated. Pedicel and first two flagellomeres inverted-conical, second to seventh flagellomeres subspherical. Antennal setae brown, length approximately equal to diameter of basal flagellomeres. Palp five segmented, light brown with brown setae, rather slender, fifth segment cylindrical. Labellum basally with rather coarse, dark setae, distally densely covered by light setae, with bare band between the setose areas.

Thorax: Mesonotum length 1.60 mm, width between wing bases 1.10 mm. Pronotum brown. Mesonotum entirely orange, sutures brown. Scutellum with brown median band. Mesonotum very sparsely pilose, setae brown. Pleuron brown, bare. Haltere light brown.

Wing (Fig. 2): Length 6.0 mm, maximum width 1.57 mm. Brown fumose, area between Sc and R_1 lighter. Area of membrane just anterior to R_{4+5} slightly darker than more posterior part. R_{2+3} bent at 1/4 distance between R_{4+5} and Costa. Pterostigma slightly darker than rest of membrane. Crossvein bm–cu twice as long as basal section of CuA. A_1 weak, extending to hind margin of wing.

Legs: All parts slender. Dark brown, densely covered by short, dark brown setae. Tibial spurs black, slender, and straight.



Figs. 1–4. *Plecia cornistylus* n. sp., male. 1–head. 2–wing. 3–epandrium, dorsal view. 4–terminalia, ventral view.

Abdomen: Light brown with dark brown setae. Male terminalia (Figs. 3–4): Epandrium (Fig. 3) with narrow lateral lobes. Gonostyli strong, curved, blunt, outwardly-pointing. Gonocoxosternite (Fig. 4) with broad, square-ended lateral lobes and pair of short lobes mesal to gonostylus bases, hind margin moderately concave.

Distribution

Tanzania.

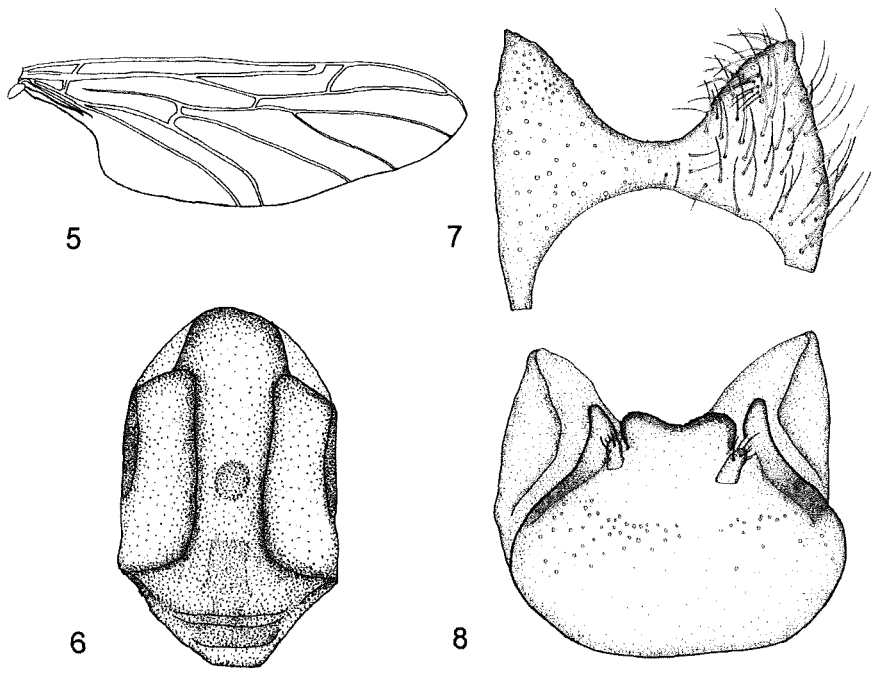
Etymology

From Latin *cornu* = horn, and *stylus* = style. The shape of the gonostyli resembles short cattle or buffalo horns.

Plecia pyralis n. sp.
(Figs. 5–8)

Diagnosis

A medium-sized Plecia belonging to the group with a completely black thorax. Characterized by the densely pruinose, black thorax (Fig. 6), and by the terminalia (Figs. 7–8):



Figs. 5–8. *Plecia pyralis* n. sp., male. 5–wing. 6–thorax, dorsal view. 7–epandrium, dorsal view. 8–terminalia, ventral view.

gonocoxosternite with a broad median lobe, gonostyli fused to this sclerite for much of their length.

Type material

Holotype: Kenya, Kakamega Forest, 20.xi.1986, I. Susman, male (TAU). Paratype: same collecting data as holotype, 1 male (TAU). Both specimens are in good condition, pinned, and the macerated terminalia are in glycerol micro-vials attached to the pin.

Description

Male (N = 2).

Head: Length 1.07–1.18 mm. Entirely black. Rostrum short, not at all protruding. Eye almost bare, few short setae present on lower part. Occiput with short, black setae. Ocellar triangle prominent, densely covered by short, light setae. Gena slightly grayish pruinose with few short, light setae. Pedicel inverted-conical, approximately twice as long as first flagellomere. Flagellum 7-segmented with short dark setae. Seventh flagellomere small, about half diameter of sixth flagellomere. Flagellomeres subspherical, distinct. Palp rather short, five-segmented, with short gray setae, fifth segment slender, cylindrical. Labellum with dark brown setae.

Thorax (Fig. 6): Length of mesonotum1.55–1.69 mm, width between wing bases 0.94–0.95 mm. Postpronotum brownish-yellow, katepisternum brownish on lower part, otherwise black, densely grey pruinose. Pronotum small, almost entirely covered by head. Thorax bare except for two rows of short, appressed dorsocentral setae and some short setae on anterior part of episternum. Lateral parapsidal suture (notaulix) very deep anteriorly but does not extend back to scutellum. Scutellum without setae, with deep cavity in middle. Sides of mesonotum and scutellar cavity with coarse, meshlike sculpture. Haltere yellowish-brown.

Wing (Fig. 5): Length 5.5–5.7 mm, width 1.73–1.80 mm. Brown fumose, veins darker than membrane. Radial veins with few short setae on upper surface. R_{2+3} almost straight, forming an approximately 60° angle with R_s. Costa extending to approximately two-thirds of distance between R_{4+5} and M_1. Pterostigma scarcely visible. Vein bm–cu slightly longer than basal section of CuA. A_1 strong, extending to wing margin.

Legs: Dark brown, slender, densely covered with short, brown setae. Femora slightly clavate, expanding from middle. Tarsomeres slender, cylindrical. Claws slender, evenly curved, dark brown.

Abdomen: Dark brown with light setae.

Terminalia (Figs. 7–8): Epandrium (Fig. 7) divided by wide, U-shaped cleft, lateral part of posterior margin densely covered with setae. Gonocoxosternite (Fig. 8) with broad mesal projection, and a pair of small, setose lobes laterally in front of mesal lobe. Gonostylus fused to gonocoxosternite for most of its length, outwards-pointing, strong and blunt-ended.

Female unknown.

Distribution

Kenya.

Etymology

From Greek *pyralis* = a kind of insect supposed to live in fire. The color and surface structure of the thorax of this species resembles charcoal, and the whole insect has a "burnt" appearance.

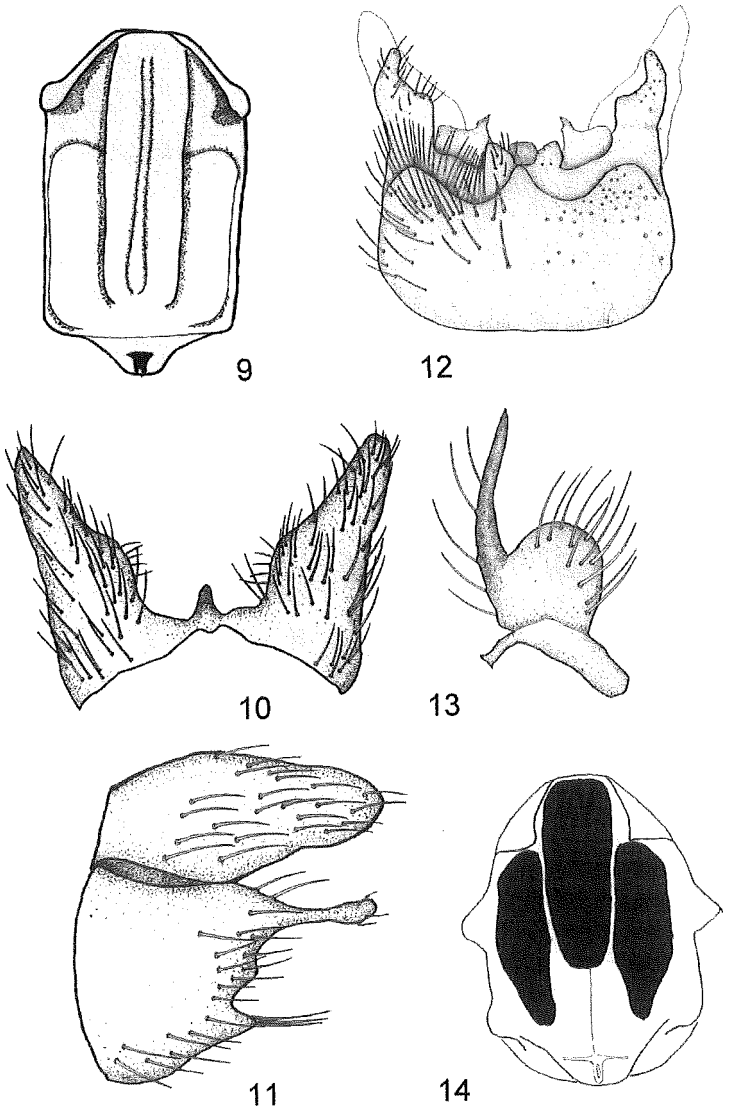
Plecia tanzaniensis n. sp.
(Figs. 9–13)

Diagnosis

A relatively large species with rufous mesonotum and brown pleuron. Male terminalia (Figs. 10–13): epandrium similar to *P. ugandaensis* Hardy, but with a strong mesal process (Fig.10). Epandrium not fused to gonocoxosternite (Fig. 11). Gonocoxosternite with distinct, digitiform dorsolateral lobes, mesally with a pair of rounded lobes (Fig.12). Gonostyli simple, slender (Fig.13).

Type material

Holotype: Tanzania: Mt. Rungwe at Rt A345, altitude 2200 m, 30.viii.1996, A. Freidberg, male (TAU). The holotype is in good condition, pinned, the left hind leg is broken and glued on cardboard under the specimen and the macerated terminalia and in a glycerol micro-vial attached to the specimen.



Figs. 9–14. *Plecia* spp. 9–13. *P. tanzaniensis* n. sp., male. 9–thorax, dorsal view. 10–epandrium, dorsal view. 11–terminalia, lateral view. 12–terminalia, ventral view. 13–gonostylus, caudal view. 14. *P. ugandaensis*, Hardy, color variety, thorax, dorsal view.

Description

Male (N = 1). Total length not possible to measure due to shrinking and distortion of softer portions.

Head: Total length 1.04 mm. Dark brown. Rostrum short, not at all protruding. Eye bare. Occiput with sparse, short, brown setae. Ocellar triangle prominent, with few light, short setae in hind part. Gena densely brownish pruinose with few short, dark setae. Antenna brown with dark setae, pedicel slightly lighter colored, rufous. Pedicel subcylindrical, slightly longer than first flagellomere. Flagellum 7-segmented, first to sixth flagellomeres subspherical, slightly wider than long, seventh flagellomere small, about half diameter of sixth flagellomere. Palp dark brown, palp and labellum more or less sunk into head, more details are invisible.

Thorax (Fig. 9): Length of mesonotum 2.02 mm, width between wing bases 1.52 mm. Pronotum and mesonotum rufous, densely pruinose and matt. Scutellum with wide, black central band. Pleuron brown. Pronotum, mesonotum, and katepisternum with scattered, short, whitish setae, thorax otherwise bare. Lateral parapsidal suture (notaulix) deep. Pronotum prominent with slightly protruding postpronotum, divided from mesonotum by deep suture, laterally by deep, transversely-triangular pit. Pronotum mesally with narrow, indistinct, lighter-colored vitta. Haltere dark brown.

Wing: Length 7.1 mm, width 2.27 mm. Light brown fumose, veins darker than membrane. Radial veins without setae. R_{2+3} gently curved, forming an approximate 60° angle with R_{s}. Costa extending to half distance between R_{4+5} and M_1. Pterostigma brown, distinct. Vein bm–cu slightly longer than basal section of CuA. A_1 relatively weak, extending to wing margin.

Legs: Dark brown, slender, densely clothed with short, dark brown setae. Tibial spurs short, slender, pointed, black. Tarsomeres slender, cylindrical.

Abdomen: Brown with light brownish setae.

Terminalia (Figs. 10–13): Epandrium (Fig. 10) widely and deeply divided, with slender, diverging lobes, mesally with strong, pointed, heavily sclerotized process, laterally entirely separated from gonocoxosternite. Gonocoxosternite (Figs. 11–12) laterally with long, digitiform process. Sternite IX laterally with rounded lobes, mesally with two rounded lobes at hind edge. Gonostylus (Fig. 13) sharp, slender, lightly curved, basally with rounded, setose lobe.

Female (tentatively associated, N =1).

Material examined: Same collecting data as holotype, 1 female (TAU). The holotype and the female specimen are the only ones from the same collecting series. The female's appearance is generally very similar to the male, therefore they are likely to be conspecific. However, the association is based on the occurrence together of just two specimens, which necessarily makes it uncertain, hence, the female is not given a paratype status.

Body length: 6.5 mm (probably somewhat reduced by shrinking).

Head: Total length 0.89 mm, width 1.03 mm. Frons densely pruinose, mesally with prominent wide keel running from ocellar tubercle almost to level of antennal bases, in lower half of the keel with second, narrow keel on top of it. Flagellum slender, 9-segmented. Eye large, prominent with short light setae. Occiput in dorsal view rounded, as long as one half eye diameter. Color and setae as in male.

Thorax: Length 2.25 mm, width between wing bases 1.34 mm. Narrower than in male. Vitta of mesonotum with short, light, biserial setae. Otherwise as in male.

Wing: Length 8.8 mm, width 3.25 mm. Radial veins with short, light setae. Otherwise as in male.

Legs: Color, setae, and spurs as in male.

Abdomen: Brown with light brownish setae.

Etymology

Named after Tanzania, native country of the type specimen.

Additional records of *Plecia* spp. from East Africa

Plecia (Pleciodes) ephippium Speiser, 1909

Kenya: Iten, 40 km NE Eldoret, 12.v.1991, A. Freidberg and F. Kaplan, 2 specimens (TAU); Uplands, 15.i.1996, I. Yarom and A. Freidberg, 3 males, 3 females (TAU). Tanzania: Mdando Forest 30 mi. S Njombe, 2400 m, 8.x.1962, 2 specimens (CNC). Malawi: Zomba Plateau, Mandala Falls, 22.x.1983, A. Freidberg, 4 males, 2 females (TAU).

Widespread over much of Africa. Previously recorded from Tanzania, Kenya, Uganda, Rwanda, Burundi, Zimbabwe, and Democratic Republic of Congo (Hardy 1952a, 1980).

Plecia aliena Hardy, 1948

Kenya: Shimba Hills, 14.viii.1983, A. Freidberg, 1 male (TAU). Uganda: South-West, Buhoma, Burindi NP, 1500 m, 31.xii.1995, I. Yarom and A. Freidberg, 1 male (TAU).

Previously recorded from Uganda and Democratic Republic of Congo (Hardy, 1980).

Plecia bequaerti Hardy, 1952

Tanzania: Usambara Mts. Viewpoint 1500 m, 7.ix.1996, A. Freidberg, 2 males (TAU); Usambara Mts., Lushoto 1300 m, 24.viii.1996, A. Freidberg, 2 males 2 females (TAU).

Previously recorded from Democratic Republic of Congo (Hardy, 1980). The specimens differ from the description by Hardy (1952b) in having the mesonotum rufous, not black. However, the terminalia are very similar to those described and illustrated by Hardy.

Plecia bilobata Hardy, 1948

Kenya: Kakamega Forest, 20–21.xi.1986, A. Freidberg, 2 males (TAU). Uganda: Entebbe, in forest, 17.ix.1971, H. Falke,1 male (CNC); 1.x.1971, H. Falke, 1 male (CNC); Mbarara 1220 m,v.1972, H. Falke, 1 male (CNC).

Widespread in East and Central Africa, also recorded from Sierra Leone (Hardy, 1952a).

***Plecia malkini* Hardy, 1952**

Uganda: Mpigi 40 km SW Kampala, 1400 m, 22.xii.1995, 7 males 4 females; South-West: Fort Portal 5 km NW, 2000 m, 10.i.1996, 1 female; Fort Portal 5 km SE, 10.i. 1996, 3 males, 1 female; Kibale Forest NP, 1400 m, 10.i.1996, 1 male; Semliki Forest, 1250 m, 8.i.1996, 2 males ; Ishaka 25 km N, 1900 m, 5.i.1996, 1 male; Ruwenzori Mts., Ibanda, 1900 m, 4.i.1996, 1 male, 1 female. All collected by I. Yarom and A. Freidberg (TAU).

Previously recorded from Nigeria and Democratic Republic Congo (Hardy, 1980).

***Plecia octodentata* Hardy, 1948**

Kenya: Kakamega Forest, 8–9.xi.1983, A. Freidberg, 2 males, 20.xi.1986, I. Susman, 1 male (TAU). Uganda: Entebbe, in forest, 7.vi.1972, H. Falke, 2 males, 2 females (CNC); West Uganda, Ankole, Kalinzu Forest 1135 m, vi.1972, H. Falke, 1 male (CNC); Bufumbo, Mt. Elgon, iii.1957, 1 male (TAU). SW Uganda, Buhoma, Burindi N.P. 1500 m, 31.xii.1995, I. Yarom and A. Freidberg, 1 male (TAU).

Previously recorded from Uganda and Democratic Republic of Congo (Hardy, 1980).

***Plecia sana* Hardy, 1948**

Uganda: South-West: Ruwenzori Mountains 2450 m, 23.xii.1972, H. Falke, 4 males (CNC) ; Kibale Forest NP, 1400 m, 10.i.1996, I. Yarom and A. Freidberg, 1 male (TAU); Matiri 70 km E Fort Portal, 11.i.1996, I. Yarom and A. Freidberg, 11 males, 1 female (TAU).

Previously recorded from Uganda and Democratic Republic of Congo (Hardy, 1980).

***Plecia ugandaensis* Hardy, 1948**

Tanzania: Usambara Mts., 1800 m, Rt. B 124 Gologolo, 12–13.ix.1992, A. Freidberg, 1 male (TAU); Uluguru Mts. 1500–1800 m, 1 male, 2 females (CNC); West Usambara Mts., Mazumbai, 17.xii.1990, Barber trap, ZMUB Tanzania Expedition, 1 male (ZMUB).

The male from ZMUB differs from typical *P. ugandaensis* in having mesonotum orange with three wide, black vittae (Fig. 14), thoracic pleuron brown with sternopleuron orange in the upper third, not entirely orange as in typical specimens, and antenna rather light brownish yellow, not dark brown. It was compared to specimens from the type series of *P. ugandaensis* (deposited at the Museum of Natural History, London). The terminalia look slightly different from those of the holotype of

P. ugandaensis, as the epandrium is less strongly divided with shorter lateral lobes. However, even within the type series of *P. ugandaensis* is considerable variation in genital morphology and minor differences in the male terminalia probably have no taxonomic value in this group.

Previously recorded from Burundi (Hardy, 1952c), Uganda, Democratic Republic of Congo, Zimbabwe (Hardy, 1980).

Plecia uncinata Hardy, 1948

Uganda: West, Kalinzu Forest Ankole 1135 m, vi.1972, H. Falke, 1 male (CNC).

Previously recorded from Uganda and Democratic Republic of Congo (Hardy, 1980).

Plecia zernyi Hardy, 1952

Uganda: Entebbe, in forest, 1.x.1971, H. Falke, 1 male, 1 female (CNC). These specimens differ from the description by Hardy (1952a) in having the mesonotum red, not black. However, the male genitalia are indistinguishable from the figure in Hardy (1952a), and the rather small size of the specimens further supports this identification.

Previously recorded from Tanzania and Democratic Republic of Congo (Hardy, 1980).

Unassociated females

I was unable to associate the following female specimens with males, therefore their species remained unclear. Tanzania: Rungwe Mountains, 2600 m, 1.xi.1962, 2 females (CNC); West Usambara Mts. , Mazumbai, Malaise trap, 2–6.xi.1990, ZMUB Tanzania expedition, 2 females (Probably two different species), 11.xi.1990, 1 female (ZMUB). Uganda: Entebbe, in forest, 27.iv.1972, 1 female, 10.iii.1972 (Malaise trap), H. Falke, 1 female (CNC).

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