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Author: Hemp, Claudia

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A new *Plagiotriptus* species (Orthoptera: Eumastacoidea, Thericleidae, Plagiotriptinae) from the Eastern Arc mountains of East Africa

Claudia Hemp

University of Würzburg, Dept. Animal Ecology and Tropical Biology (Zoology III), Am Hubland , 97974 Würzburg, Germany.
Email: claudia.hemp@uni-wuerzburg.de

Abstract

A new species of *Plagiotriptus* is described from the Taita Hills of Kenya, East Africa. Data on habitat and co-occurring Saltatoria species are given and an updated key provided to the species of *Plagiotriptus*.

Key words

new species, Kenya, Kilimanjaro, endemism

Introduction

The Plagiotriptinae are a subfamily of tiny eumastacoid insects, of which most species show a high degree of regional endemism. The tribe Plagiotriptini contains two genera, the monotypic genus *Cymatopsygma* and *Plagiotriptus* with nine species. *Plagiotriptus* has its center of diversity in East Africa.

Plagiotriptus are laterally compressed small insects. The wings are either minute ovate appendages, completely hidden under the pronotum, reduced or well-developed. Most species are uniformly green with some yellow, red or blue color on the abdomen, tibiae, wings or the eyes. The genus was revised by Descamps (1977). Two additional species were described by Johnsen (1986) from southern Tanzania and by Baccetti (1990) from Somalia.

Descamps (1977) noted a *Plagiotriptus* species from the Taita Hills. A last instar nymph was collected in Wundanyi at 1450 m. It is probably conspecific with the species newly described in this paper.

The present paper describes a new *Plagiotriptus* species from the Taita Hills of Kenya and offers an updated key to species of the genus *Plagiotriptus*.

Material and Methods

Samples.—Plagiotriptus specimens were collected on Mt Vuria at the lower margin of the montane forest at an altitude of 1950 m and also in the Ngangao forest reserve at an altitude of 1800 m. Total body length refers to the midline length of the insect.

Identification.—Plagiotriptus was identified with Descamps (1977). The material was checked again in the entomological collection of the National Museums of Kenya, Nairobi, at the Natural History Museum, London.

Depositories.—ZMHB: Museum für Naturkunde, Zentralinstitut der Humboldt-Universität zu Berlin; NMKE: Entomological Department National Museums of Kenya, Nairobi. All other material remains in the collection of C. Hemp.

Key to males and females of *Plagiotriptus* (adapted from Descamps 1977).

1 Tegmina protruding beyond posterior margin of pronotum 5
1` Alae and tegmina small lobes fully hidden under pronotum, alae not longer than tegmina 2
2. Fastigium verticis strongly elongated, pronotal crest almost straight; Kenya, Taita Hills . . . . . *P. discolor* n. sp.
2´ Fastigium verticis not markedly elongated, pronotal crest arcuate 3
3 Prontotal crest strongly declined at posterior and anterior margin; tegmina striped brown; Tanzania, Uluguru . . . . . *P. loricatus* (Rehn & Rehn, 1945)
3´ Pronotal crest evenly arcuate, not strongly declining at anterior and posterior margin 4
4 Dorsal area of posterior femur strongly expanded over whole length; margin of tegmina and alae red or bluish and white; East Africa . . . . . *P. hippiscus* (Gerstäcker, 1869)
4´ Dorsal area of posterior femur not as strongly expanded, strongest expansion at posterior area of dorsal part of hind femur; Somalia . . . . . *P. somalicus* Baccetti, 1990
5 Protruding tegmina fully covering alae 9
5´Tegmina much reduced, level with or little protruding beyond posterior margin of pronotum, alae longer than tegmina; facial carinae parallel below eyes; pronotal crest not or little arcuate 6
6 Fastigium of vertex short as seen from above and as long or only little longer as broad at base, apex rounded; alae red or not 7
6´ Fastigium verticis elongated; alae red 8
7 Fastigium verticis projecting when seen laterally; alae not red (maybe blue when alive?), reaching first abdominal tergite; apical part of ectophallus strongly sinuate when seen laterally; Malawi . . . . . *P. leei* Descamps, 1997
7´ Fastigium verticis not as much projecting when seen laterally; alae red and reaching to first abdominal tergite; apical part of ectophallus not strongly sinuate in profile; Malawi . . . . . *P. pinivorus* Descamps, 1977
8 Dorsally seen fastigium verticis strongly curved backwards; posterior femora very broad, dorsal part strongly expanded; length/width of femur maximally 2.7.; southern Tanzania . . . . . *P. alca* (C. Bolivar, 1914)
8´ Fastigium of vertex not curved backwards, posterior femora not as broad, dorsal parts not as much expanded; length/width of femur maximally 3.5; Tanzania; Mt. Rungwe . . . . . *P. parvulus* Descamps, 1977
9 Tegmina reaching posterior femur; lateral carinulae of face diverging to bottom of face; pronotal crest very arcu-

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Fig. 1. *Plagiotriptus discolor* n.sp. A. Male holotype, forest edge of lower border of montane forest on Mt. Vuria, 1950 m in the Taita Hills of Kenya. B. Face and elongated fastigium verticis, holotype male; C. Detail of apex with upturned subgenital plate and cerci, paratype. D. Male cerci, dorsal-lateral view. Scale bar: 1 mm. For color version, see Plate VI.

ate; alae red; Tanzania, East Usambara, Uluguru . . . . . *P. carli* (C. Bolivar, 1914)

9 ´ Tegmina reduced but wing-like and reaching past posterior edge of 2nd abdominal tergite; tegmina and alae bluish white of mat mildew appearance; Tanzania, Udzungwa Mts . . . . . *P. peterseni* Johnsen, 1986

Results

Plagiotriptus discolor n. sp.

Holotype.— Male: Kenya, Taita Hills, Mt. Vuria, on shrubs at lower border of montane forest, 1950 m, UTM zone 37M 0421916E, 9623436S, November 2010, C. Hemp coll.; depository ZMHB.

Paratypes.—Kenya, Taita Hills, 1 female, Ngangao forest, 1800 m, February 2011 depository ZMHB; one male, depository NMKE.

Additional paratype material examined.— 1 male, 2 female nymphs, all Kenya, same collection data as holotype.

Description.—**Male.** General coloration (Fig. 1 A). Head and antennae. Head narrow and deep, greatest width across genae, face flat. Fastigium verticis elongated, about 1/3 shorter than antennae, consisting of two fused parts; tips separated in some individuals (Fig. 1 A, B). Sulcation of fastigium verticis continued on face; upper part between antennae lamellate and laterally compressed, becoming shallow on disk of face (Fig. 2). This shallow furrow continuing to labrum and dividing face into two almost triangularly shaped parts (Fig. 1 B). Eyes elongate, reniform; bluish with white patches in the living animal (Fig. 1 A), brown to reddish-brown when preserved (Fig. 1 B). Antennae with 12 segments, of which the apical two segments are fused. Scapus and second antennal segment green, remaining segments deep brown to black. Thorax. Pronotum laterally compressed, pronotal ridge almost straight. On lateral lobe medially a small yellow patch, crest granulate. Median pronotal crest colored black with granules cream-white; below black line orange colored longish granules (Fig. 1 A). Tegmina. Tegmina minute lobes deeply

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hidden under pronotum, alae absent. Margin of pro-, meso- and metasternum broadly colored black (Fig. 1. B). Legs. Fore and mid legs unarmed. The dorsal part of the femur expanded and strongly arcuate with fine serration, tips of spinules black; knee of hind femur also outlined black, with a pair of stout black spurs. Hind tibiae dirty orange to dull red with two rows of numerous deep black spines dorsally. Abdomen. Laterally compressed with median black patches dorsally on first segments; subgenital plate enlarged, upbent and compressed, posterior margin black (Fig. 1 C); supra-anal plate small, compressed, lanceolate-triangular. Cerci large, much longer than supra-anal plate and protruding over margin of subgenital plate, apical parts compressed-lamellate, brown (Fig. 1 D).

Female: Similar to male, but much larger and more robust and without conspicuous color pattern (Fig. 3 A). Fastigium verticis not as elongated as in male (Fig. 3 A, B); pronotal sterna without black margin. Ovipositor valves relatively stout (Fig. 3 A), moderately deep and compressed, without any serration, tips black. Subgenital plate laterally compressed, comparatively small and not markedly distinct from as other abdominal tergites, with small median indentation at posterior margin. Supra-anal plate small, lanceolate. Cerci very small, conical.

Measurements, male.— (mm) (N = 2). Body length: 9.5-10.2. Length of hind femur: 8.5-9.0. Length of pronotum: 3.7-4.8.

Measurements, female.— (mm) (N = 1). Body length: 26. Length of hind femur: 12. Length of pronotum: 11.2.

Habitat.— On bushes and small trees along the lower border of the montane forest at 1950 m on Mt. Vuria and in fringe vegetation at the Ngangao forest reserve at about 1800. A last instar nymph was collected at submontane elevation at 1450 m near the village Wundanyi 1957 by Roos & Leech (Descamps, 1977). Due to habitat loss today this species is probably endangered.

Etymology.— Lat. *discolor* = colorful, because of the conspicuous color pattern of blue eyes and the yellow patch on the pronotum, the orange-black marked pronotal crest and hind tibiae.

Diagnosis.—*P. discolor* n. sp. has its wings fully hidden under the pronotum and thus differs from the species *P. carli*, *P. leei*, *P. pinivorus*, *P. peterseni* and *P. parvulus* that have wings clearly protruding from under the pronotum. Easily distinguished from those species with wings covered fully by the pronotum by the fastigium verticis which is much elongated. *P. discolor* has no wings and the tegmina are reduced to minute scales. In *P. hippiscus* the wings (tegmina and alae) are visible at the margin of the pronotum, conspicuously colored with a red margin and a white center or white with a blue base (Fig. 4 B, C). The pronota in both sexes of *P. hippiscus* (Fig. 4 A-D) and *P. loricatus* are strongly arcuate, while in *P. discolor* the pronotal crest is almost straight in the males when seen laterally, and only slightly arcuate in the female. The fastigium verticis is elongated and sometimes bifurcate in *P. discolor* while it is acute but never elongated in *P. hippiscus*, *P. loricatus* and *P. somalicus*.

Co-occurring Saltatoria species.— *Rhainopomma montanum* (Kevan, 1950), *Parasphena teitensis* Kevan, 1948, *Aerotegmina* sp., *Melanoscirtes taitensis* Hemp, 2010, *Ixalidium haematoscelis* Gerstaecker, 1869, and *Gymnobothroides pullus montanus* (Kevan, 1950).



Fig. 2. Dorsal view on part of face and elongate sulcate fastigium verticis of male *Plagiotriptus discolor* n. sp. For color version, see Plate VI.

Discussion

The genus *Plagiotriptus* has its center of diversity in eastern Africa and here in Tanzania, where six of the nine species occur. Two species are known from Malawi and one from Somalia. Most species are recorded only from a restricted area. The largest area of occurrence shows *P. hippiscus* being collected from many localities of mountainous Uganda, Kenya and Tanzania. Although not themselves montane elements, most *Plagiotriptus* species seem to prefer habitats in the vicinity of mountains, *e.g.*, *P. hippiscus* occurring on Mt Kilimanjaro mostly in colline and submontane habitats, not being found higher than about 1600 m (Hemp 2009). This species was also found in similar habitats on the East Usambara mountains and North Pare mountains in Tanzania, and on Mt Sabuk in Kenya.

The wings of most *Plagiotriptus* species are much reduced; in *P. discolor* the alae are completely absent and the tegmina tiny lobes. *P. carli* is the only *Plagiotriptus* species with tegmina reaching to the femora; it occurs in the East Usambara mountains, part of the very ancient Eastern Arc mountains.

Information on the biology of *Plagiotriptus* species is scarce. Johnsen (1974) recorded that *P. alca* became a pest in southern Tanzania on an introduced *Pinus* species. Johnsen further noted, that also two other *Plagiotriptus* species, *P. pinivorus* and *P. leei* were seen attacking *Pinus* species in Malawi.

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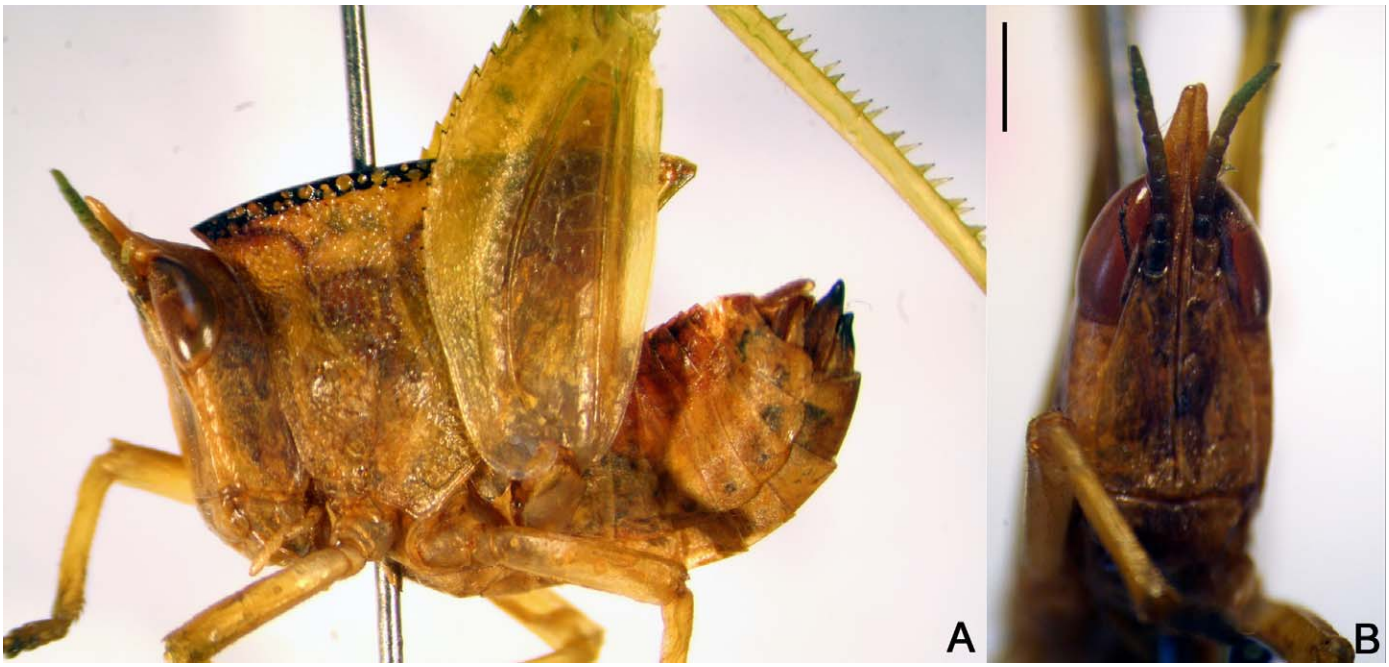


Fig. 3. Female paratype (last instar) of *Plagiotriptus discolor* n.sp.; A. Habitus, lateral view; B. Face. Scale bar: 1 mm. For color version, see Plate VI.

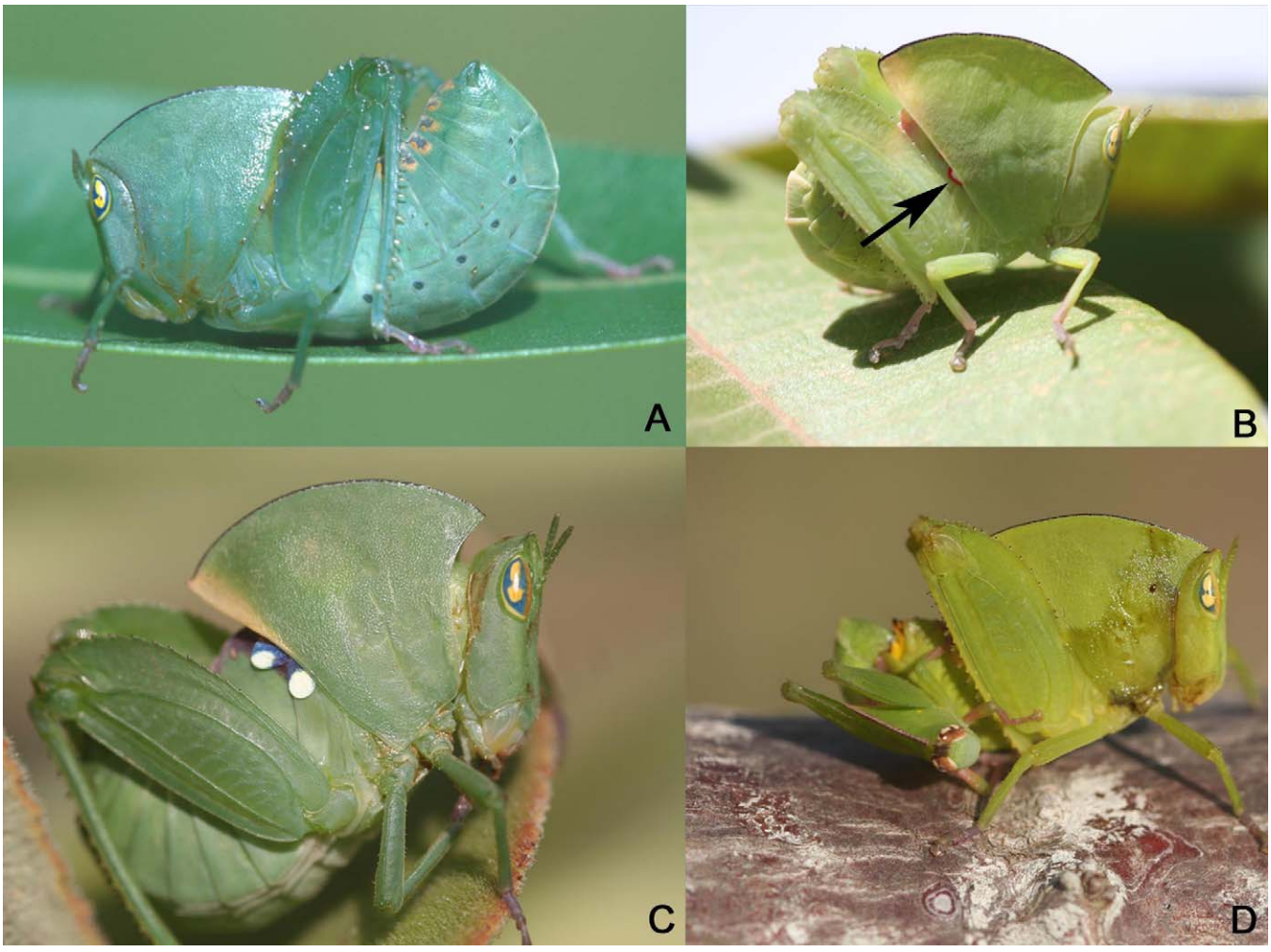


Fig. 4. *Plagiotriptus hippiscus*. A. Female, Tanzania, East Kilimanjaro. B. Male, Tanzania, East Kilimanjaro; arrow indicates tegmina protruding minutely under posterior margin of pronotum.; C. Female, North Pare mountains with protruding white tegmina; D. Mating pair, North Pare mountains. For color version, see Plate VII.

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