Studies in Afrotropical Cleomenini (Coleoptera, Cerambycidae, Cerambycinae). VII. Revision of the genus Zosterius Thomson, 1864 with description of a new species

ANDERS BJØRNSTAD


The South African genus Zosterius Thomson, 1864 is revised. The genus till now has only been represented by its type species, Zosterius laetus Thomson, 1864. New material from Eastern and Western Cape Provinces, South Africa shows that another, closely related species occurs. The new species, Z. tsitsikamma sp. n., apparently seems confined to the isolated Tsitsikamma Forest, and is hereby described.

Key words: Coleoptera, Cerambycidae, Cleomenini, Zosterius, revision, Z. tsitsikamma, new species, South Africa.

Anders Bjørnstad, Høyåsstien 12, NO-3727 Skien, Norway. E-mail: andbjo4@online.no

Introduction

The genus Zosterius was described by Thomson (1864) with Z. laetus Thomson, 1864 from South Africa as the type species. The genus was placed by Thomson in his “Callichromitæ Veræ”: a mixture of what is now considered true Callichromatini and Cleomenini. In fact Thomson related Zosterius to Euporus Audinet-Serville, 1834, a typical Callichromatini genus. Later Lacordaire (1869) created the group Cleomenides to where Zosterius was transferred.

Thomson’s generic description (1864) is rather short (see below). A more comprehensive redescription will be given.

During the author’s study of Afrotropical Cleomenini (Bjørnstad 2013 a,b,c, 2014 a,b,c) requests were forwarded to different museums and collectors for material of this tribe. The genus Zosterius has till now been considered as a monotypic genus. Among the material received for study there were however, several specimens which exhibited deviating characters compared to Z. laetus Thomson, 1864. All these specimens came from the Tsitsikamma Forest in the Eastern/Western Cape provinces in South Africa and seem to constitute a species of its own. A description of the new species is given below.

Material and methods

The study has been based on material examined in the collections at the Iziko Museums of South Africa in Cape Town (SAMC) as well as museum specimens borrowed from Pretoria (SANC, TMSA), Brussels (IRSNB), Paris (MNHN) and London (NHM). Including material in the author’s own collection (ABS) altogether some 150 specimens of Zosterius have been examined for this study.

Excluded specimens. In the collection of TMSA there are two specimens marked as ‘Holotype’ resp. ‘Paratype’ of ‘Zosterius
rubrobrunneus F. Tippmann’ both collected in Matetsi, S.Rhodesia in 1933 and 1934. This must be a manuscript name because there is no record of this taxon ever having been validly published. The two specimens do not however, belong to Zosterius, but are typical Cordylomera filicornis Duffy, 1952.


The genus *Zosterius* Thomson, 1864

Zosterius Thomson, 1864: 181

= Eutactus Fåhraeus 1872: 68

= Agnoristus Fåhraeus 1872a: 194

Type species: *Zosterius laetus* Thomson, 1864

**Original description.** Genus Eupori affinis, sed frons vix concava, ♂ antennae corpore longiores graciles, ♀ paulo breviores et articulis 3-10 extus spiniformibus; prothorax sat elongatum; femora paulo, (haud valde et abrupte) clavata, postica corporis extrematatem vix transiet; corpus non depressum, parallelum, vix elongatum.

**Redescription of the genus Zosterius.**

**Head.** Mandibles with broad base and slightly hooked apex. Ultimate segment of palpi terete with rounded apices. Frons rectangular, concave, punctate and with raised lateral margins. Eyes emarginated with narrow superior lobes set wide apart. Inferior lobes reniform, strongly convex, fine-faceted. Antennal tubercles only weakly raised, rounded. Vertex densely punctate.

**Antennas.** Long and slender, 11-jointed reaching well beyond elytra apices in males, slightly shorter in females. Scapus relatively long, reaching well beyond anterior margin of pronotum. Further the scapus has a narrow base, gradually thickened towards the rounded apex. Basal four or five antennomeres terete, but from then onwards each joint faintly dilated apically thus appearing weakly dentate (‘spiniformibus’ in original diagnosis), more so in females.

**Pronotum.** Unarmed, longer than wide; L/W ratio 1.1 to 1.2, the smaller ratio pertaining to females. Anterior margin slightly wider than the posterior. Laterally the pronotum is bumped just behind the middle. There are weak constrictions both in front of and behind these bumps.

**Scutellum.** Small, ligulate with fine adpressed tomentum.

**Elytra.** Elongate, nearly parallel-sided, densely punctate, weakly unicostate and with rounded apices.

**Legs.** Long and slender with pedicellate, weakly clavate femora; the clavation strongest in the profemora, only weak in meso- and metafemora. Tibiae straight, slightly widened apically. Tarsi with first joint longer than the second, most pronounced in the metatarsi where first joint is twice as long as the second.

**Ventral surface.** Gula transversally, but irregularly folded. Prosternum glabrous in anterior part, posteriorly pubescent towards the prominent procoxae. These procoxae are situated very close together, thus leaving only a very narrow slit for the prosternal process. This process however, is very strongly widened towards its truncate apex. The mesosternum only sparsely tomented in the middle, but densely covered with matted silvery tomentum laterally. The mesosternal process has a bifid apex. Metasterum is shallowly punctate and with scattered and short tomentum and a narrow median fissure. Metacoxae hardly raised at all, but with some silvery bristles. The visible abdominal sternites 1-5 practically without indumentum – or only sparsely so – and faintly punctate.

**Diagnostic characters and related genera.** The members of the genus *Zosterius* show similarity to *Dere, Hexarrhopala, Brachysarthron* and *Apiogaster*, but can be separated by the following diagnostic characters: (1) antennae long and filiform, reaching well beyong elytra apices, at least in males (short and more or less incrassate in distal part in *Dere, Apiogaster* and *Hexarrhopala*; (2) scutellum longitudinally ligulate (bifid in *Apiogaster*, broadly transversal in *Hexarrhopala*, sharply triangular in
Brachysarthron; (3) scutellum tomentose (glabrous in Brachysarthron); (4) pronotum without lateral bands of silky tomentum (present in Dere); (5) pronotum acarinate (carinate in Hexarrhopala and Apiogaster collare); (6) elytra apices rounded (excavate or truncate in Dere and Apiogaster); and (7) femora only weakly clavate (strongly clavate in Brachysarthron)

The bicolorous elytra with one yellow/orange/rufous longitudinal band on each elytron against a more or less metallic green to blue background, easily distinguishes the species of Zosterius from all the other Cleomenini genera mentioned.

**Description of the species**

**Zosterius laetus** Thomson, 1864 (Figures 1–2)

Zosterius laetus Thomson, 1864: 181
Zosterius laetus Gahan 1904: 125
Zosterius laetus Aurivillius 1912: 427
Zosterius laetus Ferreira & Veiga Ferreira 1957: 154
=Eutactus lineatus Fåhraeus 1872: 68

**Examined specimens.** Holotype: ♂ Th. TYPE/Lætus Thoms. Type. Cap/Zosterius lætus T.z./Ex Musæo James Thomson/TYPE (red label) in Coll. MNHN.

**Other material.** 1♂2♀

Original description. Long. 12 Mill. Lat. 3 Mill. Brunneus; caput prothoraxque quasi lævia; elytra viridi-metallica, fasciis mediis longitudinalibus flavis 2 basim et extremitatem haud capientibus ornata, confertim punctata et 2 carinata; corpus subtus læve, subalbopubescens; pedes nigri, læves. Cap.

Redescription of *Zosterius laetus*

*Length.* 8.2–13.0mm.

*Habitus.* Dark, slender, shiny metallic with long legs.

*Coloration.* Mandibular apices, antennas and legs black, head and pronotum very dark purplish brown. Elytra basically metallic green with a shiny blue lustre and with yellow to orange stripes along costae.

*Surface and integument.* All surfaces punctate, especially the elytra which have deep and heavy sculpture, nearly rugose. Genae, pronotum, antennae and legs with a mixture of short, silvery adpressed tomentum and long, stiffly erect hyaline bristles. Also elytra with erect bristles scattered over most of the surface, but denser in apical part. In fresh specimens the ventral surface has patches of a densely matted silvery tomentum, especially on prosternum in front of procoxae, on mesepisternum and on metepisternum. Other ventral parts, including the abdominal sternites with only scattered, short bristles.

*Antennas.* More or less filiform in males, dentate and somewhat flattened in females (Figures 1–2). Antennomere 3 the longest, no. 4 shorter than no. 5.

*Elytra.* Thick and opaque even in posterior part.

*Distribution.* Zimbabwe, South Africa, Swaziland

*Diagnostic characters:* see under *Z. tsitsikamma* sp.n.

**Zosterius tsitsikamma** sp. n. (Figures 3–4)


*Description*

*Length.* 6.5–9.3mm

*Habitus.* Small and pale, with slender body and long legs with weakly clavate femora.

*Coloration.* Eyes and apical part of mandibles black, head and pronotum rusty brown (pale sepia), mandibles, antennas and legs beige. Also elytra basically beige, but with a slightly metallic, pale greenish stripe along the margins both sutrurally and laterally.

*Surface structure and integument.* Most surfaces punctate, coarsely and densely so on elytra, more finely on other parts. Tomentum generally rather poorly developed. The frons of the head and pronotum with few and scattered bristles. Elytra practically glabrous except for a few stiff and short bristles along lateral margin of apical fifth. Legs with little tomentum on femora, but tibiae and tarsi rather densely covered with yellowish adpressed bristles. Ventral surface generally with only reduced integment, but there is a patch of densely matted silvery white tomentum laterally on either side of the mesosternum just in front of the mesocoxae.

*Antennas.* Nearly filiform, but with...
antennomeres 5 or 6–10 faintly dilated apically thus appearing weakly dentate. In the male antennomere 4 is of the same length as the scapus, while joints 3, 5 and 6 are 1.5 times this length and from then onwards gradually shortening towards apex. In the female antennomere 4 is shorter than scapus, while joints 3, 5 and 6 have the same length as the scapus, then gradually shortening.

**Elytra.** Very thin, especially in posterior half, nearly translucent.

**Diagnostic characters.** Smaller, more slender and more pale than *Z. laetus*. Its size, based on the 8 known specimens of the type series, varies from 6.5–9.3 mm (vs. 8.2–13.0 mm in *laetus*) and more slender (ratio L/W = 4.7 vs. 4.4 in *laetus*). Pronotum with less bulging sides (more bulging in *laetus*). Antennas more slender and only weakly dentate. Elytra practically without bristles (scattered yellowish erect bristles all over in *laetus*), and with only weak sculpturation of elytra surface (deeply sculptured in *laetus*). Ventrally there is the difference in colour (dark reddish brown in *Z. laetus*, beige in *Z. tsitsikamma*), but there appears to be no structural difference between the two.

**Distribution.** Only known from the Tsitsikamma Forest, Western/ Eastern Cape Prov., RSA

**Etymology:** *tsitsikamma* referring to the type locality in the Tsitsikamma Forest.

**Discussion**

**Biology.** Judging from label information from SANC the larvae of *Zosterius* are polyphagous.
Z. laetus has been bred from a wide variety of tree species from a wide variety of families like *Strychnos decussata* (Loganiaceae / Strychnaceae), *Eugenia zeyheri* (Myrtaceae), *Peltophorum africanum* and *Schotia latifolia* (Caesalpiniaceae), *Curtisia dentata* (Cornaceae), *Pterocelastrus echinatus* and *Elaeodendron zeyheri* (Celastraceae), and *Zanthoxylum capense* (Rutaceae).

Similarly, *Zosterius tsitsikamma* has been bred from unbarked logs of *Platylophus trifoliatus* (Cunoniaceae), *Pterocelastrus trifoliatus* (Celastraceae), and *Ocotea bullata* (Lauraceae).

Both species appear to be both nocturnal and diurnal in activity pattern since they have been caught both at daytime walking on dead tree trunks as well as in light traps.

**Geographical distribution.** Z. laetus has a relatively large distribution with records from Zimbabwe, RSA and Swaziland. The only published Zimbabwean record is from Penkridge (Ferreira & Ferreira 1957) which is near present-day Mutare in eastern Zimbabwe. Examined specimens (n = 136) are from the northeastern and eastern South Africa from Limpopo and Mpumalanga Provinces, then continuing further south through Swaziland into KwaZulu-Natal and following the coast into Eastern Cape Province as far west as Port Elizabeth and Uitenhage. To the author’s knowledge there are no confirmed records from Western Cape Province.

On the other hand Z. tsitsikamma seems to be limited to the relict Tsitsikamma Forest. This is situated on the border between Eastern and Western Cape with parts in both provinces. According to Renzo Perissinotto (pers. comm.) the Tsitsikamma “is a very isolated environment with its own vegetation and climate. The insect diversity here is relatively low, but most species found appears to be endemic to this forest.” The ecogeographical isolation is due to the Tsitsikamma Mountains causing a rainshadow for the areas immediately to the north, resulting in a climate too dry to maintain a forest.

The two species of *Zosterius* hence are allopatric with Z. laetus occupying the southeastern part of what White (1983) termed the Zambezian Regional Centre of Endemism and then into the Tongaland-Pondoland Regional Mosaic. It is therefore a species of the Savanna Biomes and reaching into the Albany Thicket Biome of Mucina & Rutherford (2006). Z. tsitsikamma on the other hand is a forest species with its only known occurrence in the Southern Afrotemperate Forest, FOz 1, vegetation unit (Mucina & Rutherford l.c.). The reduced tomentum and generally more delicate body of Z. tsitsikamma may be a result of it living in sheltered forest condition, as opposed to the more exposed conditions of the savanna environment of Z. laetus.

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