

ON A NEW SPECIES OF *HETEROLEPISMA* ESCHERICH, 1905 FROM MELANESIA (INSECTA: ZYGENTOMA)

Luis F. Mendes

Instituto de Investigação Científica Tropical. IICT / JBT - Zoologia. R. da Junqueira, 14; P-1300-343 Lisboa. Portugal – czool@iict.pt

Abstract: A new species of the genus *Heterolepisma* (Lepismatidae: Heterolepismatinae) is described from the island of Haveluliku, in the Tongatapu archipelago, Tonga, Melanesia, and compared with the closest known species.

Key words: Zygentoma, Lepismatidae, *Heterolepisma*, new species, Tonga, Tongatapu.

Sobre uma espécie nova de *Heterolepisma* Escherich, 1905 (Insecta: Zygentoma) da Melanésia

Sumário: Descreve-se uma espécie nova do género *Heterolepisma* (Lepismatidae: Heterolepismatinae) da ilha de Haveluliku, do grupo de Tongatapu, Tonga, Melanésia, e compara-se com as espécies conhecidas mais semelhantes.

Palavras-chave: Zygentoma, Lepismatidae, *Heterolepisma*, espécie nova, Tonga, Tongatapu.

Sobre una especie nueva de *Heterolepisma* Escherich, 1905 (Insecta: Zygentoma) de Melanesia

Resumen: Se describe una nueva especie del género *Heterolepisma* (Lepismatidae: Heterolepismatinae) de la isla de Haveluliku, del grupo de Tongatapu, Tonga, Melanesia, y se la compara con las especies conocidas más próximas.

Palabras clave: Zygentoma, Lepismatidae, *Heterolepisma*, especie nueva, Tonga, Tongatapu.

Taxonomy / Taxonomía: *Heterolepisma tonga*, sp. n.

Introduction

Among the material offered by A. van Harten and obtained by himself along the Pacific Islands when working in the German Biological Control Project (South Pacific Commission), one new species of *Heterolepisma* Escherich, 1905 (Zygentoma: Lepismatidae: Heterolepismatinae) from the Haveluliku Island of the Tongatapu group (Tonga, Melanesia, ca 175° 06' W; 21° 12' S) is described. All specimens are deposited in the Instituto de Investigação Científica Tropical / Jardim Botânico Tropical (IICT / JBT) - Zoologia (former Centro de Zoologia, in the text CZ) entomological collection under the registration number CZ-5197. Holotype ♂, allotype ♀ and 2 paratypes (1 ♂, 1 ♀) are dissected and slide-mounted in Tendeiro Liquid (modified Hoyer), being remaining specimens alcohol preserved.

Taxonomy

Heterolepisma tonga sp. n.

Fig. 1-23.

TYPE-MATERIAL: Holotype ♂: Melanesia – Tonga: Tongatapu group, Haveluliku, 28/10/1995, coll. A. van Harten, n. 321. Paratypes: 1 ♀ allotype, 9 ♂♂ 8 ♀♀ paratypes, same data as for the holotype. Non-type material: 7 juv., same data as for the holotype.

DESCRIPTION: Body length: 8.2-8.4 mm (♂♂) 8.5- 8.7 mm (♀♀); thorax length: 2.3-2.4 mm (♂♂) 2.5-2.7 mm (♀♀); thorax width: 1.5-1.6 mm (♂♂) 1.6-1.8 mm (♀♀); antenna length: maximum preserved: 5.2 mm (♂) 5.4 mm (♀); cercus length: maximum preserved: 5.8 mm (♂, always broken). Body elongate the thorax much longer than wide and

not clearly detached from abdomen base. Hypodermal pigment brownish, not very dark and not widely distributed. Scales round to ovoid, typical, macrochaetae smooth and hyaline; scale pattern in living specimens unknown.

Head wider than long, with a row of macrochaetae along its lateral anterior border (median area lacking setae), plus 1+1 lateral short rows more or less normal to the anterior border and 1+1 sub-ocular rows, as usual in the genus. Antennae thin, clearly exceeding posterior border of metanotum when entire, with numerous short, delicate setae, minute isolated “sensorial points” and some (also isolated) sausage-shaped sensilla; distal divisions of flagellum composed by 4 annuli, with one only sausage-shaped sensilla at the apical division of each two chains (Fig. 1). Mandibles and maxillae typical. Maxillary palp as in Fig. 2, its apical article cylindrical, ca 1/3 longer than preceding and almost 6 times longer than wide, lacking apical sensilla and with ca 3 complex sensilla longitudinally arranged (with several points in ♂, bifid in ♀). Labium typical; labial palp terminal article poorly wider than long and with 2+3 compact apical papillae (Fig. 3).

Pronotum (Fig. 4) with anterior and lateral rows of setae, its posterior border slightly concave, with 1+1 macrochaetae; anterior and posterior trichobothrial areas (Figs. 5, 6) typical for the genus. Posterior border of mesonotum and of metanotum (Fig. 7) slightly excavated (more than pronotum), lacking anterior macrochaetae, but with 1+1 posterior macrochaetae also; trichobothrial areas (Figs. 8, 9) without peculiar characteristics. Prosternum (Fig. 10) sub-elliptical, as long as wide at base, with (3-4)+(3-4) sub-apical macrochaetae arranged as one row more or less parallel to the

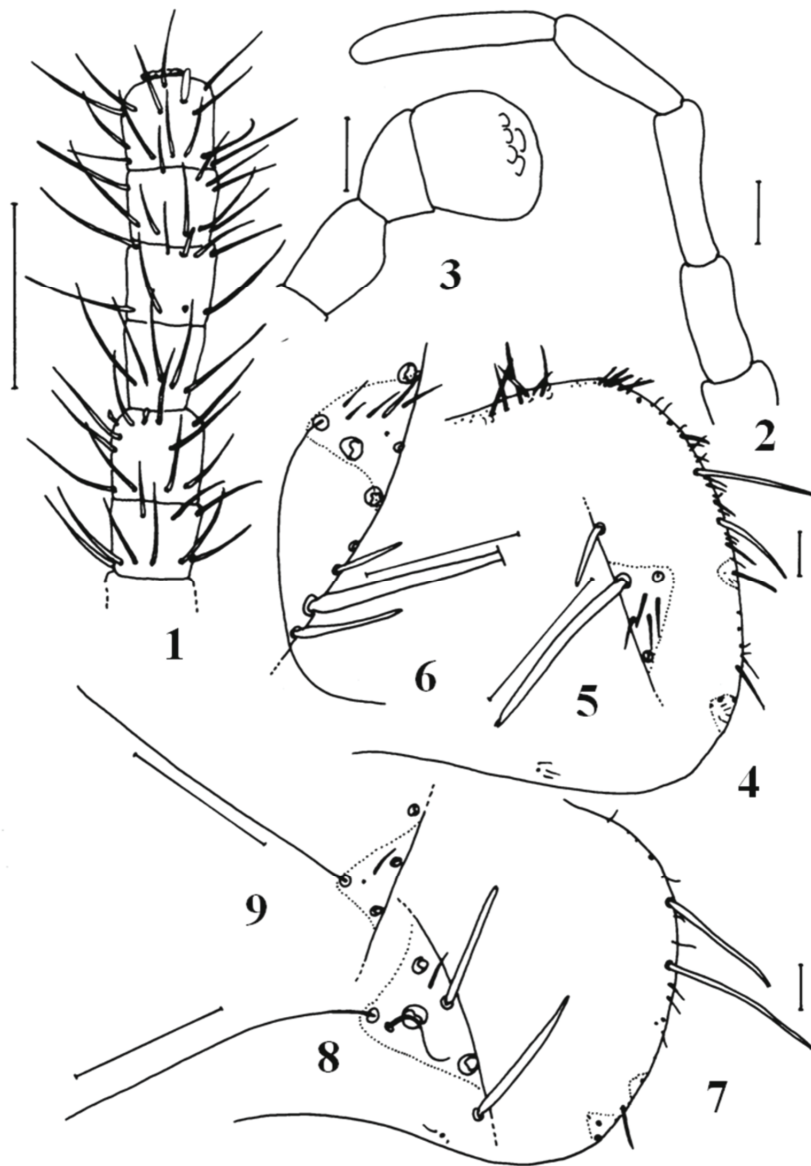


Fig. 1-9. *Heterolepisma tonga* sp. n. **1.** Antennal flagellum: two distal divisions of chain n-1 and chain n; **2.** Maxillary palp; **3.** Labial palp; **4.** Pronotum; **5.** Id, anterior trichobothrial area; **6.** Id, posterior trichobothrial area; **7.** Metanotum; **8.** Id, anterior trichobothrial area; **9.** Id, posterior trichobothrial area. Scales: 0.1 mm.

lateral distal borders of the sclerite. Mesosternum (Fig. 11) with 1+1 apical combs with ca 5 macrochaetae. Metasternum (Fig. 12) more than 1/3 wider at base than long, with 1+1 wide apart apical combs, each one with 2-3 macrochaetae, their distance 10-12 times their width, its apical border straight. Legs robust. Tibia I (Fig. 13) ca 1/4 shorter than tibia II (Fig. 14) and half the length of tibia III (Fig. 15); femur of all legs with numerous lanceolate setiform scales, the tibiae with less numerous similar scales. Tarsi without peculiar features; no pulvilli, the empodium unguiform and smaller than the lateral claws.

Urotergite I (Fig. 16) without submedian macrochaetae, II-VII (Fig. 17) with complete chaetotaxy (2+2 infralateral, 3+3 lateral and 1+1 submedian macrochaetae), VIII (Fig. 18) lacking lateral macrochaetae, IX glabrous. Urotergite X parabolic, short, though longer in ♂ (Fig. 19) than in ♀ (Fig. 20).

Urosternite I without setae, II-VII with 1+1 lateral macrochaetae. Two pairs of stylets (VIII and IX) in both sexes, the IX much more developed and with a longitudinal row of spines. Inner process of coxite IX of ♂ (Fig. 21) ca 1.5 times longer than wide at base and ca 3.5 times longer than the outer process, the ratio stylet/inner process, ca 2.0.

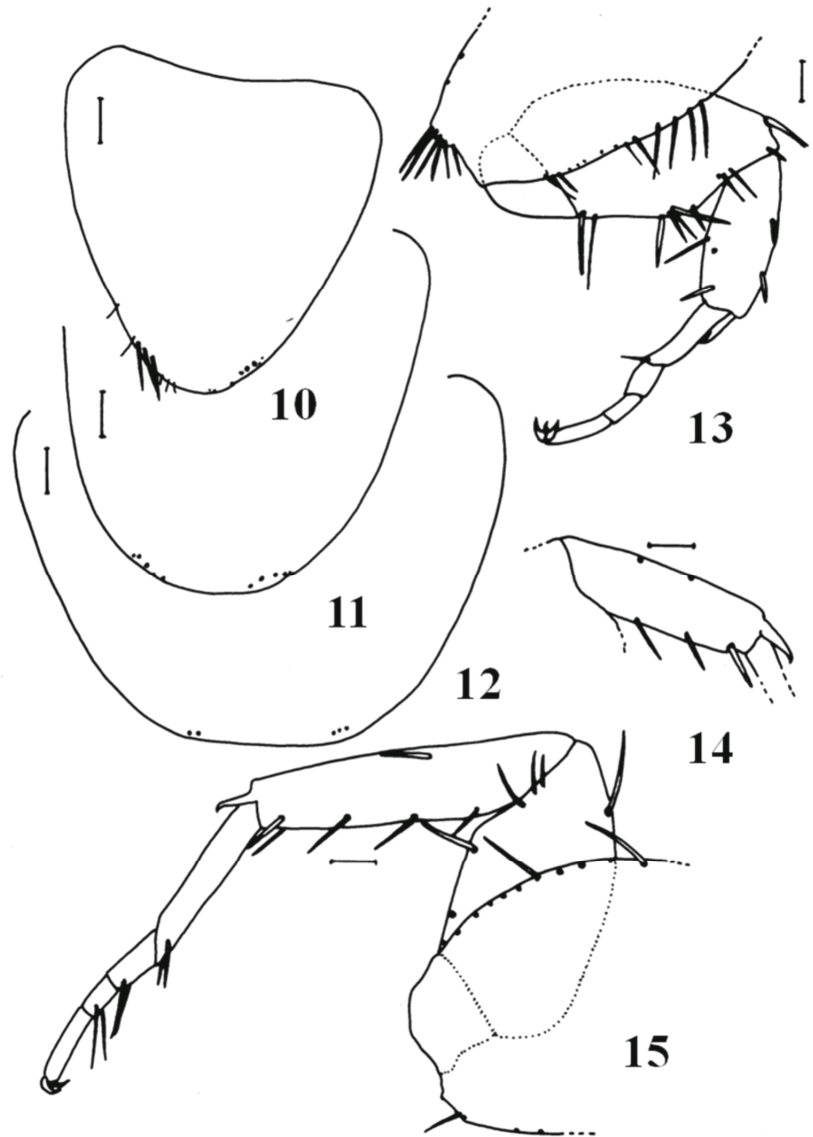
Paramera (Figs. 21, 22) very reduced, with a few tiny setae only. Inner process of coxite IX of ♀ (Fig. 23) ca 2.5 times longer than wide at base and 3 times longer than outer process, the ratio stylet/inner process ca 2.2. Ovipositor elongate, exceeding coxite IX inner process by ca 3.7 times the process length, surpassing stylets IX by once the stylet length. Gonapophyses VIII and IX with the usual setation, both with 34-37 divisions.

ETYMOLOGY: New species is nominated after its geographical origin, the Tonga archipelago in Melanesia.

DISCUSSION: *H. tonga* sp.n. belongs to the *Heterolepisma* group of species with macrochaetae on the posterior border of nota, incomplete setation on urotergites I and VIII, and 1+1 macrochaetae only on urosternites (so, no median setae and I unsetated).

Excluding the species undoubtedly reported as with one median comb, so with 2 or more setae, on urosternite I (a characteristic neglected in several taxa), new species is easily distinguishable from *H. annectans* (Silvestri, 1924), endemic from the Juan Fernandez Islands (off Chile coast), an eccentric species lacking posterior notal macrochaetae and with quite different paramera that doubtfully belongs to

Fig. 10-15. *Heterolepisma tonga* sp. n. **10.** Prosternum; **11.** Mesosternum; **12.** Metasternum. **13.** First pair of legs; **14.** Tibia of the second pair of legs; **15.** Third pair of legs. Scales: 0.1 mm.



the present genus. *H. horni* Stach, 1935 from Antilles and Northern South America, *H. howensis* Womersley, 1942 from the Australian Lord Howe Island, *H. mumfordi* Silvestri, 1935 exclusive from the Marquesas (Polynesia) and *H. insularis* (Banks) (Stach, 1932 for redescription), endemic from Galapagos, are the only other species in the genus that, with no doubts, lack setae on urosternite I; they show, however, several dissimilarities relatively to *H. tonga* sp. n., namely a distinct shape of urotergite X, different number of abdominal stylets, dissimilar number of macrochaetae on urotergites and urosternites, and/or not comparable thoracic sternites. Among these species, *H. mumfordi* (though quite wide apart, in the Eastern Polynesia, more than 4000 km distance) seems more similar to *H. tonga* sp. n., but metasternum is distinct (Marquesas species with more setose setal combs, differently arranged and with much closer combs) and the number of macrochaetae on the urosternites is not the same (3 in *H. mumfordi*, one only in the new species); furthermore, in the Tonga new species, ovipositor is even longer and labial palp papillae are more clearly arranged along two rows (not “*subuniserialis*” as it was described and figured by Silvestri, 1935 to the Marquesas species).

The species known from continental Australia, *H. stilivarians*, *H. michaelseni* and *H. kraepelini* (Silvestri,

1908), eventually devoid also of macrochaetae on urosternite I are all of them impossible to mistake with the Tonga new species; nothing is stated in their original description, neither in the note presented on the former species by Womersley, 1939 relatively to the setation of the first abdominal sternite and we had never studied such species; indeed, they are all distinct because of the number of abdominal stylets or/and due to the different number of urosternal macrochaetae, yonder other features.

H. andina and *H. pampeana* (Silvestri, 1902), exclusively known in Argentina and both in need of revision, differ from *H. tonga* sp. n. by several characteristics, first species mainly according to the number of macrochaetae on urosternites and second one due to the urotergite X shape. At last *H. zelandica* (Tillyard, 1924, sub *Notolepisma*), will approach as Wygodzinsky (1961) judges, *H. howensis*, and shows a quite different urotergite X. As previously reported (Mendes, 1988), *H. trisetosa*, with an inconclusive original and unique description (Escherich, 1905) based on disappeared “type-specimens” from Brazil, Cabinda and Indonesia (Flores Island), so “types” assigned from the Neotropical, Afrotropical and Australian Regions, must be faced as *species inquirenda* and it almost certainly corresponds to several taxa.

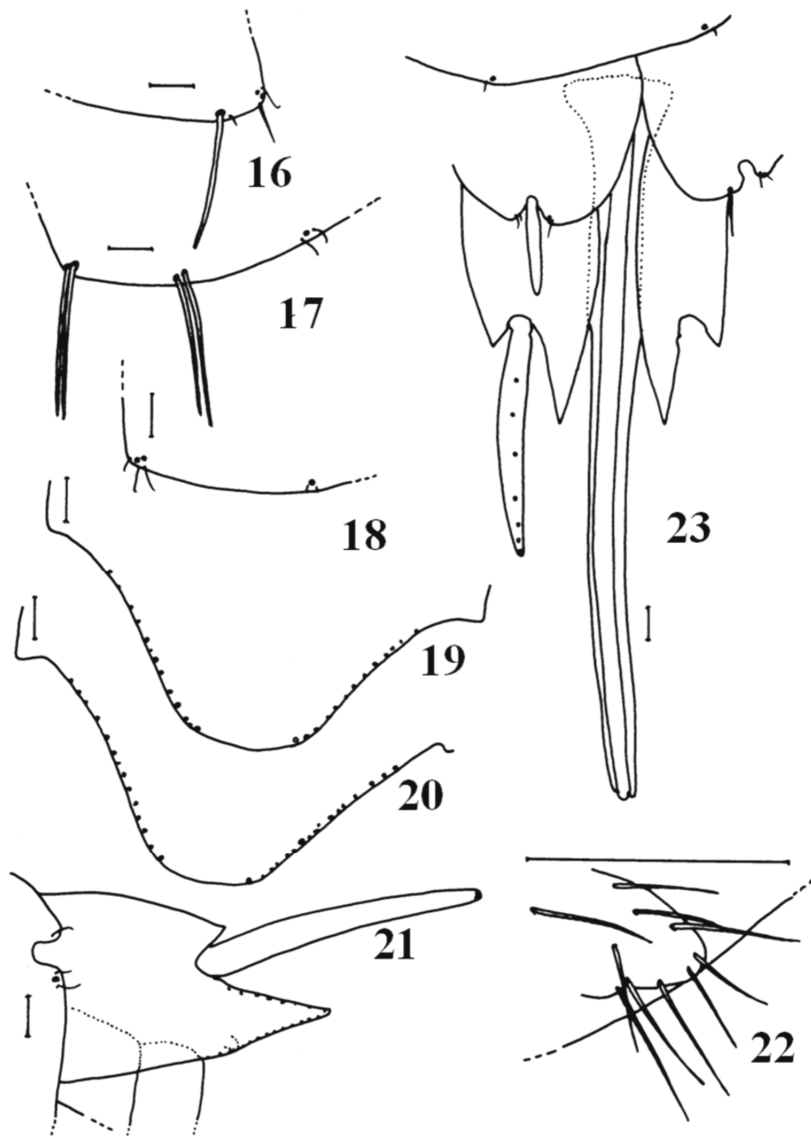


Fig. 16-23. *Heterolepisma tonga* sp. n. **16.** Urotergite I; **17.** Urotergite VI; **18.** Urotergite VIII; **19.** Urotergite X of ♂; **20.** Id. of ♀; **21.** Coxite IX of ♂ and genitalia; **22.** Id. detail of the paramerum; **23.** Urosternite VII, coxites VIII and IX and ovipositor of ♀. Scales: 0.1 mm.

New Caledonian *H. rouxi* (Silvestri, 1915), the closest of all known species in the genus under the geographically point of view relatively to *H. tonga* sp. n., is immediately distinguishable from this one, among further differences, by the presence of a median setal comb on urosternite I.

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