

TWO NEW AFRICAN SPECIES OF
MEGISTHANUS THORELL
(MESOSTIGMATA: MEGISTHANIDAE)¹

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ABSTRACT

The female of *Megisthanus remilleti* n. sp. and the female and male of *M. berlesei* n. sp. are described and illustrated. Both species were taken from passalid beetles, *Erionomus* sp., from Africa.

Twenty-five species have been listed in the genus *Megisthanus* Thorell 1882 (Butler 1966). Males are known for 12 of these species, but only 7 species are based on both sexes. Species such as *floridanus* Banks, *papuanus* Womersley, and *doreianus* Thorell show very little sexual dimorphism, the sexes being similar in shape of the body and ventral plates. In contrast, Warburton (1926) described extreme sexual dimorphism for *M. jacobsoni* in which the male is oval whereas the female is elongate with the dorsal plate prolonged posteriorly, very similar to the female of *M. caudatus* Thorell. *M. jacobsoni* is the only reported case of such extreme differences between the sexes and it seems likely that Warburton's material represented 2 species.

Through the kindness of Dr. M. Remillet (O.R.S.T.O.M. Centre d'Adiopodume, Ivory Coast), we have received specimens of 2 new species (male and female of 1, female only of the second) of *Megisthanus* from Africa. Four species of *Megisthanus* have been described from Africa. These are: *M. grandis* Berlese 1903—no habitat data given; *medius* Berlese 1903—no habitat data given; *obtusus* Kramer 1895—no habitat data given; and *lamellicornium* Kramer 1898 (redescribed and illustrated by Oudemans, 1926) from a large lamellicorn beetle. Both sexes were reported for *grandis* and *obtusus*, the female only for *medius*, and the male only for *lamellicornium*. The descriptions of these species, except for Oudemans (1926), are short, very general in nature, and do not include illustrations. Based on the comments above, we feel that sexual dimorphism is not pronounced in *Megisthanus* and that the unknown sex of *medius* and *lamellicornium* would resemble the described sex.

Although our material differs from published descriptions of all *Megisthanus* species, specimen comparison may show similarities not inferred from the short general descriptions of the known species.

Megisthanus remilleti new species

FEMALE: Shape oval. *Dorsum*: (Fig. 1) Dorsal shield elongate oval, narrowest posteriorly, extending to anterior and posterior margins but

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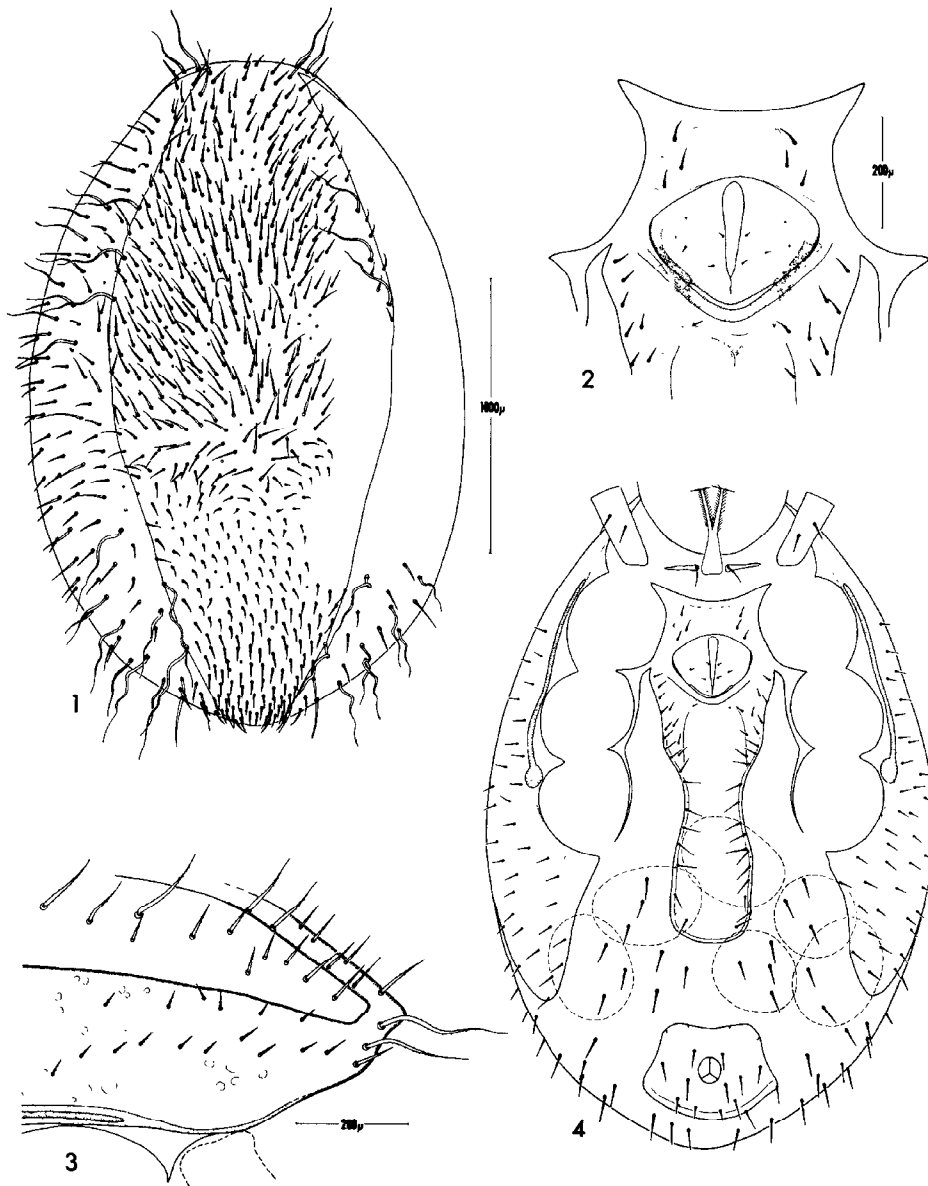


Fig. 1-4: *Megisthanus remilleti* n. sp. (Female) 1. Dorsum. 2. Sternito-genital area. 3. Anterolateral view. 4. Venter.

not to lateral margins of body; with indistinct striations. Dorsum densely clothed with setae of varying length; 3 pairs of long, minutely pilose sinuous setae arising from dorsal shield above coxae III, 1-2 pairs of sinuous setae arising from shield above anal shield; other setae on shield pectinate, those on opisthotal area shortest, both sinuous and pectinate setae arising from integument. *Venter*: (Fig. 4). Presternal setae arising from separate platelets. Sterno-genito-ventral shield present and encircling genital opening, shield widest at level of coxae II, behind coxae IV

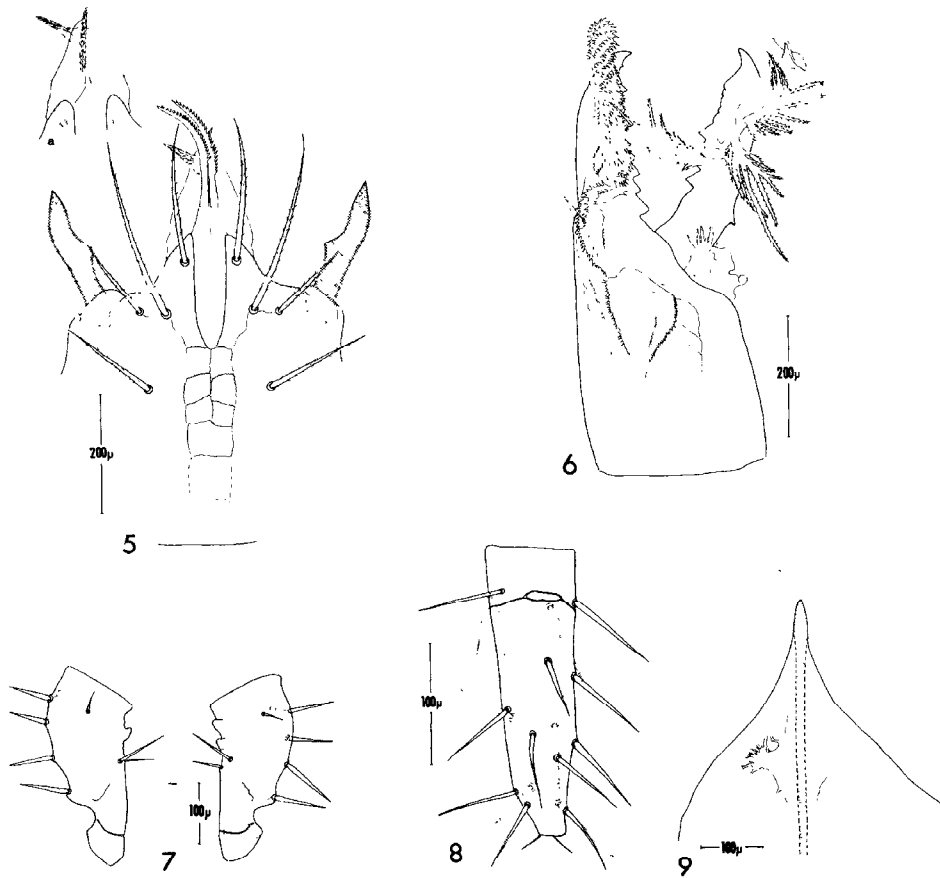


Fig. 5-9: *Megisthanus remilleti* n. sp. Female: 5. Gnathosome, ventral view. 6. Chelicera. 7. Femur IV, lateral view. 8. Tarsus II, ventral view. 9. Tectum.

parallel sided, truncate posteriorly and removed from anal shield. Endopodal shields II fused to sternal shield, endopodals III and IV free in integument but fused to each other. Sternal setae of approximately equal length, shorter than longitudinal distance between bases, setae minutely pilose; metasternal setae and remaining setae on sterno-genito-ventral shield approximately equal to or slightly longer than sternals I-III, all setae minutely pilose. Sternogynial shields separate, each shield bearing 3, apparently smooth, setae shorter in length than sternal setae. Genital apodemes and fused latigynial shields apparent under integument at posterior margin of genital opening (Fig. 2). Tritosternum consisting of base and 2 feathered lacinae. Metapodal, endopodal and peritremal shields fused, bearing numerous minutely pilose setae; peritremal shield fused to dorsal shield at anterior margin of body (Fig. 3), setae in this area as illustrated; peritreme extending anteriorly to level of anterior margin of coxae II. Anal shield quadrate shape, rounded posteriorly, slightly concave on anterior and lateral margins; bearing 4 minute setae along anterior border, relative lengths and positions of other setae as shown, longer setae minutely pilose. Setae arising from integument as shown, all

setae minutely pilose. *Gnathosoma*: Tectum with smooth margin; striation pattern and ventral keel distinct (Fig. 9). Hypostomal and capitular setae pectinate, positions and relative lengths as illustrated (Fig. 5); corniculi strongly sclerotized, median margin toothed; hypostomal process (= internal malae of Evans and Till, 1966) consisting of paired fingerlike structures serrated along dorsal margin; hypopharyngeal process ciliated terminally (Fig. 5a); presternal and deutosternal grooves as illustrated. Chelicerae strongly chelate, toothed (Fig. 6). Medial surface of fixed digit bearing a delicate sclerotized structure which projects beyond distal tip of digit and posteriorly to the basel segment, this delicate structure is covered with thick toothlike papillae along the anterior surface and serrated posteriorly; dorsal seta present. Movable digit with three treelike excrescences and a distal membranous sheath over ventral surface of digit, sheath delicately serrated along distal margin; ventral surface bearing a posteriorly directed spine proximal of dorsal teeth. Palpal femur with medial and lateral spine on distal margin of segment; apotele 3-tined, proximal tine very small; setae on trachanter pectinate; dorsal setae on femur and tibia pectinate, ventral setae minutely pilose, tarsal setae minutely pilose or simple. *Legs*: Tarsi II-IV with paired claws, tarsus I without claws; femur IV with 1-2 ventral knobs (Fig. 7); coxa and femur I with spine on distal anterolateral and posterolateral margin of segment, posterolateral spine largest. Tarsus II without heavy spine-like setae (Fig. 8). Following segments with one dorsal seta equal to or longer than segment: leg IV, femur, genu, tibia and tarsus; leg III: genu and tarsus. Leg setae spined, degree of spinosus varying from pectinate condition of dorsal femoral setae to setae bearing only few spines such as on tarsi.

Described from 9 females. Holotype data: from *Erionomus* sp. (Pasalidae); near Abidjan, Ivory Coast, Africa; coll. M. Remillet; 1969. Paratype data same as holotype. Holotype deposited in the United States National Museum, Washington, D. C.; paratypes deposited in the Acarina Collection, Department of Entomology, University of Georgia, Athens.

Megisthanus berlesei new species

FEMALE. *Dorsum*: (Fig. 10) Dorsal plate not extending to lateral margins of body, shape as shown. Dorsal setae of various types; long sinuous setae bearing few minute specules; short pectinate setae (Fig. 10a) and setae intermediate between these two types in length and pectination; short pectinate setae most abundant on the opisthonotal region of shield; distribution of setae type as illustrated. *Venter*: (Fig. 11) Presternal setae arising from single shield extending between coxae I. Endopodal plates II fused to the sterno-genito-ventral shield, endopodals III and IV fused lengthwise, free from sterno-genito-ventral shield; ventral shield more or less parallel sided, extending anteriorly to level of genital opening. Sternal setae I and II subequal in length, approximately twice length of sternal setae III, slightly longer than metasternal setae (Fig. 14); sternals setae I and II, setae on ventral shield area and setae arising from integument minutely pilose; setae on sternogynial shields simple. Relative lengths of ventral setae as shown. Large triangular shaped metapodal shield fused to periternal and exopodal shields; peri-

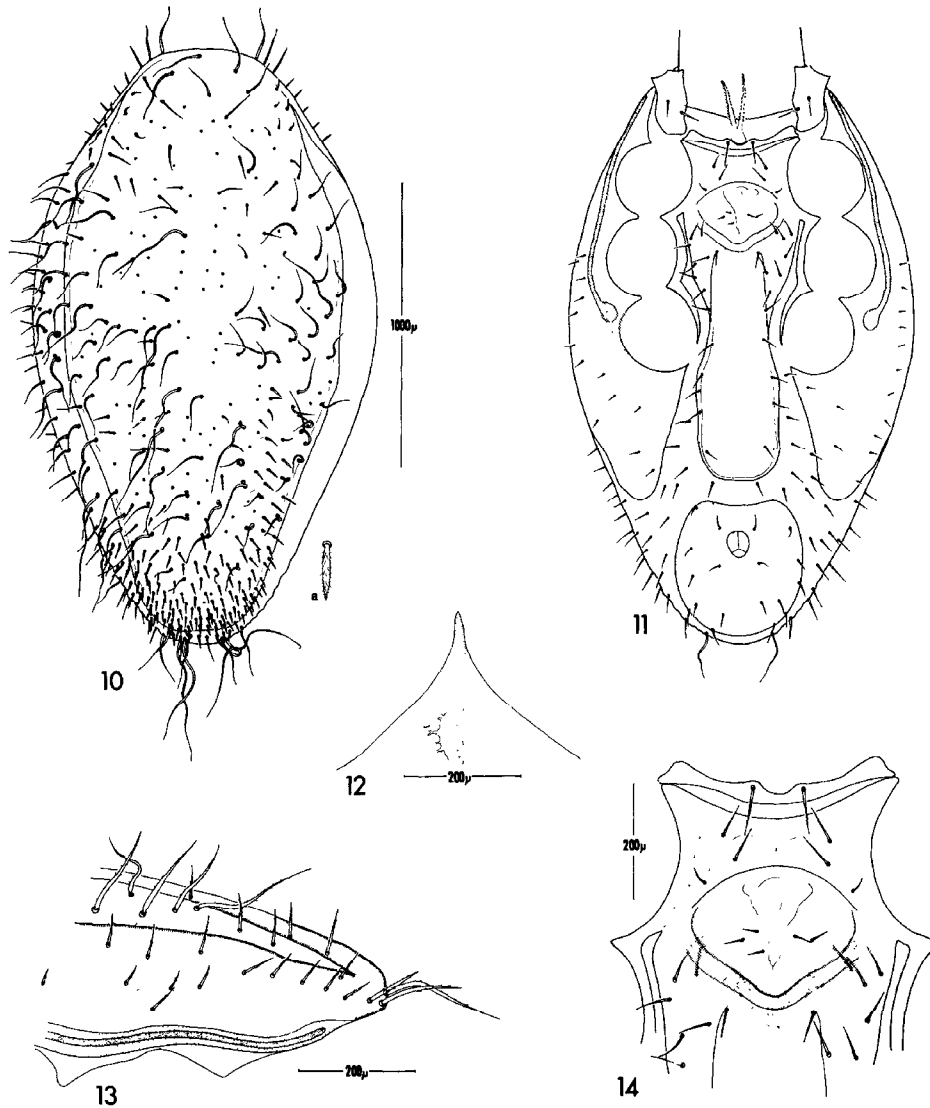


Fig. 10-14: *Megisthanus berlesei* n. sp. Female: 10. Dorsum. 11. Venter. 12. Tectum. 13. Anterolateral view. 14. Sternito-genital area.

tremal shield joining dorsal shield anteriorly (Fig. 13); peritreme extending anteriorly of coxa I. Genital opening at level of posterior half of coxae II; genital apodemens and fused latigynial shields apparent beneath integument. Anal shield longer than wide, bearing short, lightly pilose setae; anterior margin of plate concave, lateral and posterior margins rounded. Tritosternum consisting of base and paired feathered lacinae. *Gnathosoma*: Capitular and hypostomal setae minutely pilose (Fig. 16); relative lengths and positions as illustrated. Corniculi strongly sclerotized, terminal 1/3 abruptly reduced in size by decrease along inner margin. Internal malae prolonged into fingerlike, pectinate process; hypopharyngeal process large, each terminating in ciliated fingerlike process.

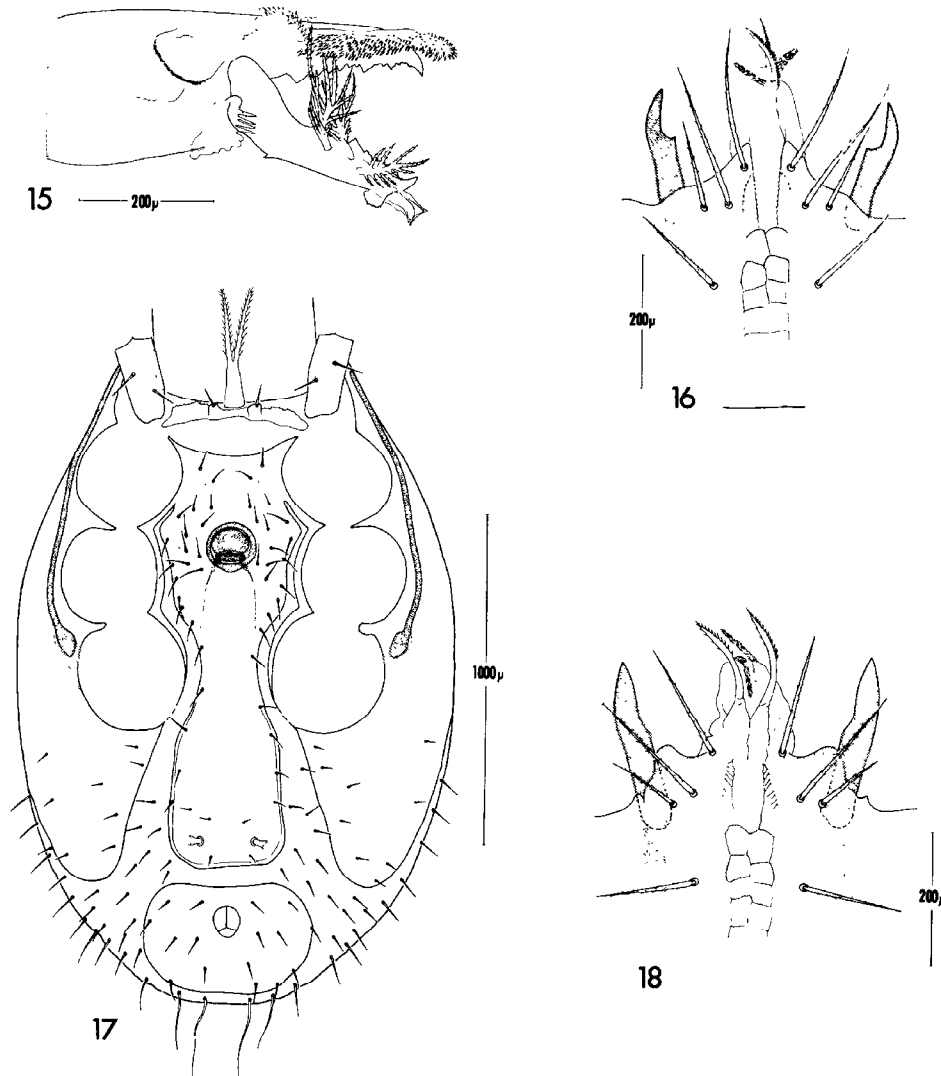


Fig. 15-18: *Megisthanus berlesei* n. sp. Female: 15. Chelicera. 16. Gnathosome, ventral view. Male: 17. Venter. 18. Gnathosome, ventral view.

Lateral margins of prosternal grooves serrated along proximal 2/3 their length; deutosternum with finely serrated ridges and markings as illustrated. Tectum with distinct median ventral keel; margins smooth (Fig. 12). Chelicerae (Fig. 15) chelate-denate; movable digit with 3 separate treelike excrescences arising from medial surface, membranous sheath fitting over venter of distal part of digit; movable digit bearing a ventral posteriorly directed tooth proximal to level of first dorsal tooth; fixed digit with delicate, poorly sclerotized, papillated structure extending full length of and beyond tip of digit; arthrodial membrane bearing 4-5 setiform process. Palpal tarsal setae smooth, other setae pectinate; genu with medial projection on distal margin of segment; apotele 3-tined,

proximal tine less than 1/2 size of other tines. *Legs*: Tarsi II to IV with sclerotized claws and membranes pulvillus, tarsi I without claws or pulvillus. Leg setae bearing spines, degree of spinuous conditions varies with position, those of tarsi bearing very few spines, dorsal setae of femur more pectinate. Femur IV with 2 distal ventral knobs. A single dorsal seta equal or greater than length of segment on following segments: leg III—genu and tarsus; leg IV—femur, tibia and tarsus. Genu IV with 2 long seta.

MALE: Body shape as in female. *Dorsum*: Chaetotaxy and shape of dorsal shield similar to female; dorsal shield not extending to lateral margins of body. Dorsal setae of two main types—one type consisting of short, pectinate setae (more prominent on posterior half of dorsal plate), second type consisting of minutely pilose sinuous setae (scattered over plate and integument); posteriorly 2 pairs of long sinuous setae slightly shorter in length than those of female. *Venter*: (Fig. 17) Pre-sternal shields not heavily sclerotized, fused medially. Sterno-genito-ventral shield present, separated from anal plate; setae asymmetrical in arrangement, setal lengths and distribution as shown; larger setae minutely pilose; 2 small suckers on posterolateral corners of ventral shields. Endopodal shields fused with sternal along anterior half of coxa II, remaining endopodal plates free. Circular genital opening as illustrated. Anal shield wider than long; with truncate or slightly concave anterior and posterior margins; shape and setal distribution as illustrated; setae minutely pilose. Peritremal, exopodal and metapodal shields fused, forming single shield lateral of coxae and extending posterior of coxa IV; metapodal shield setae minutely pilose. Peritremal plate joining dorsal plate anteriorly as in female; peritreme extending to area above coxa I. Relative lengths and position of setae arising from ventral integument as shown, setae minutely pilose. *Gnathosoma*: Capitular and hypostomal setae minutely pilose (Fig. 18) relative lengths as illustrated. Corniculi strongly sclerotized, without prominent medial reduction in width as in female. Internal mali prolonged into fingerlike projection, pectinate on dorsal surface; structures of hypopharyngeal process terminating in celliated fingerlike process. Prosternal groove with serrated margins; deuto-sternal groove with finely serrated ridges and markings as illustrated. Chelicerae chelate, strongly sclerotized; general shape and excrescences as in female. *Legs*: Tarsi II to IV with paired claws and membranous pulvillus, tarsi I without claws or pulvillus. Setal type (smooth or pectinate) as in female. Following segments with a single sinuous dorsal seta equal to or longer than length of segment: leg III—genu and tarsus; leg IV—femur, tibia and tarsus. Genu IV with 2 long sinuous setae. Femur IV with 2 distal, ventral knobs. Dorsal setae of femur I-IV spinelike, pectinate.

Described from 2 females and 1 male. *Holotype* (female) data: from *Erionomus* sp. (Passalidae); near Abidyan, Ivory Coast, Africa; coll. M. Remillet; 1969. *Paratype* data same as holotype. *Holotype* and male *paratype* deposited in United States National Museum, Washington, D. C.; remaining female *paratype* deposited in Acarina Collection, Department of Entomology, University of Georgia, Athens.

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