

Notes on mites associated with Myriapoda II.

Four new species of the genus *Julolaelaps* Berlese, 1916 (Acari, Laelapidae)

by A. FAIN

Abstract

Four new species of genus *Julolaelaps* BERLESE, 1916 (Acari, Laelapidae) are described from unidentified Afrotropical Julids. A key is given to the known species in this genus.

Key-words: *Julolaelaps* (Laelapidae, Acari), Afrotropical Myriapoda.

Résumé

Quatre nouvelles espèces sont décrites dans le genre *Julolaelaps* BERLESE, 1916 (Acari, Laelapidae), elles provenaient de Julides non identifiés originaires d'Afrique Centrale. Une clé est donnée de toutes les espèces connues dans ce genre.

Mots-clés: *Julolaelaps* (Laelapidae, Acari), Afrotropical Myriapoda.

Titre: Acariens associés à des Myriapodes II.

Introduction

In a previous paper (in press) we have described several new astigmatic mites found on Afrotropical Myriapoda. The present paper is devoted to the description of four new species of genus *Julolaelaps* (Mesostigmata) that we collected on unidentified julids from Zaïre and Rwanda.

HUNTER and ROSARIO (1986) have redefined the genus *Julolaelaps* BERLESE and described a new species from a millipede from Trinidad.

Including the four new species described herein, the genus *Julolaelaps* contains now 15 species, most of them being collected from Afrotropical areas. A key is given herein to these species.

All our measurements are in micrometers (μm). The length of the sternal shield is taken in the midline, the width at the level of the second pair of sternal setae. The width of the genital shield is the maximum width in its posterior half.

Length of the anal shield: from anterior margin to the base of the posterior anal seta.

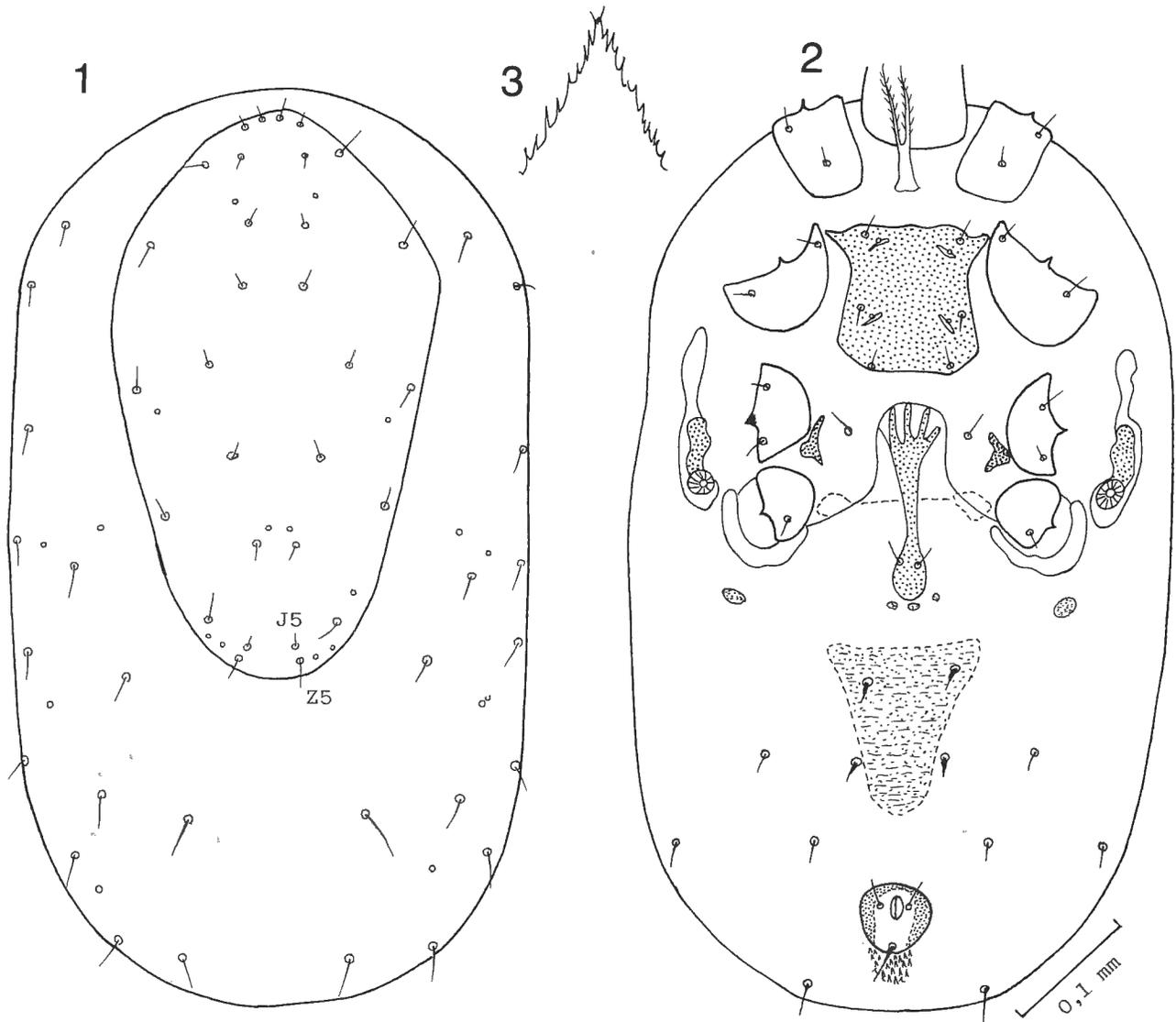
The holotypes of the new species described herein are deposited in the Museum of Tervuren, Belgium.

Key to the genus *Julolaelaps* (females) (Partly after Ryke, 1959)

1. – Genital shield wider than anal shield. Large species (idiosoma 1100 to 1500 long) 2.
 - Genital shield narrower than anal shield. Smaller species except *J. luctator* which is 1280 long 5.
2. – Anal shield approximately twice as long as wide. Para-anal setae situated at the level of anterior margin of anus. Body 1500 \times 1000 . *J. dispar* BERLESE, 1916.
 - Anal shield either as long as wide or only slightly longer than wide. Para-anal setae situated at the level of posterior margin of anus 3.
3. – Anal shield as long as wide. Dorsal shield 1394 long, bearing 36 pairs of setae
 - *J. moseri* HUNTER & ROSARIO, 1986.
 - Anal shield longer than wide. Dorsal shield 1000-1012 long, bearing either 30 or 40 pairs of setae 4.
4. – The three anal setae approximately equal in length. Dorsal shield with 30 pairs of setae . *J. spirostrepti* (OUDEMANS, 1914) (= *J. rotundatus*, BERLESE, 1916).
 - The three anal setae unequal, the posterior seta longer and thicker than the anterior setae. Dorsal shield with 40 pairs of setae . *J. pararotundatus* RYKE, 1959.
5. – Idiosoma 1280 \times 820. Metapodal shields relatively large, broadly oval and as long as the width of genital shield *J. luctator* BERLESE, 1916 (= *J. indicus* VITZTHUM, 1921)
 - Idiosoma 514 to 930 long and 315 to 528 wide. Metapodal shields either oval and very small or elongate and very narrow, their small diameter always much smaller than the width of the genital shield 6.

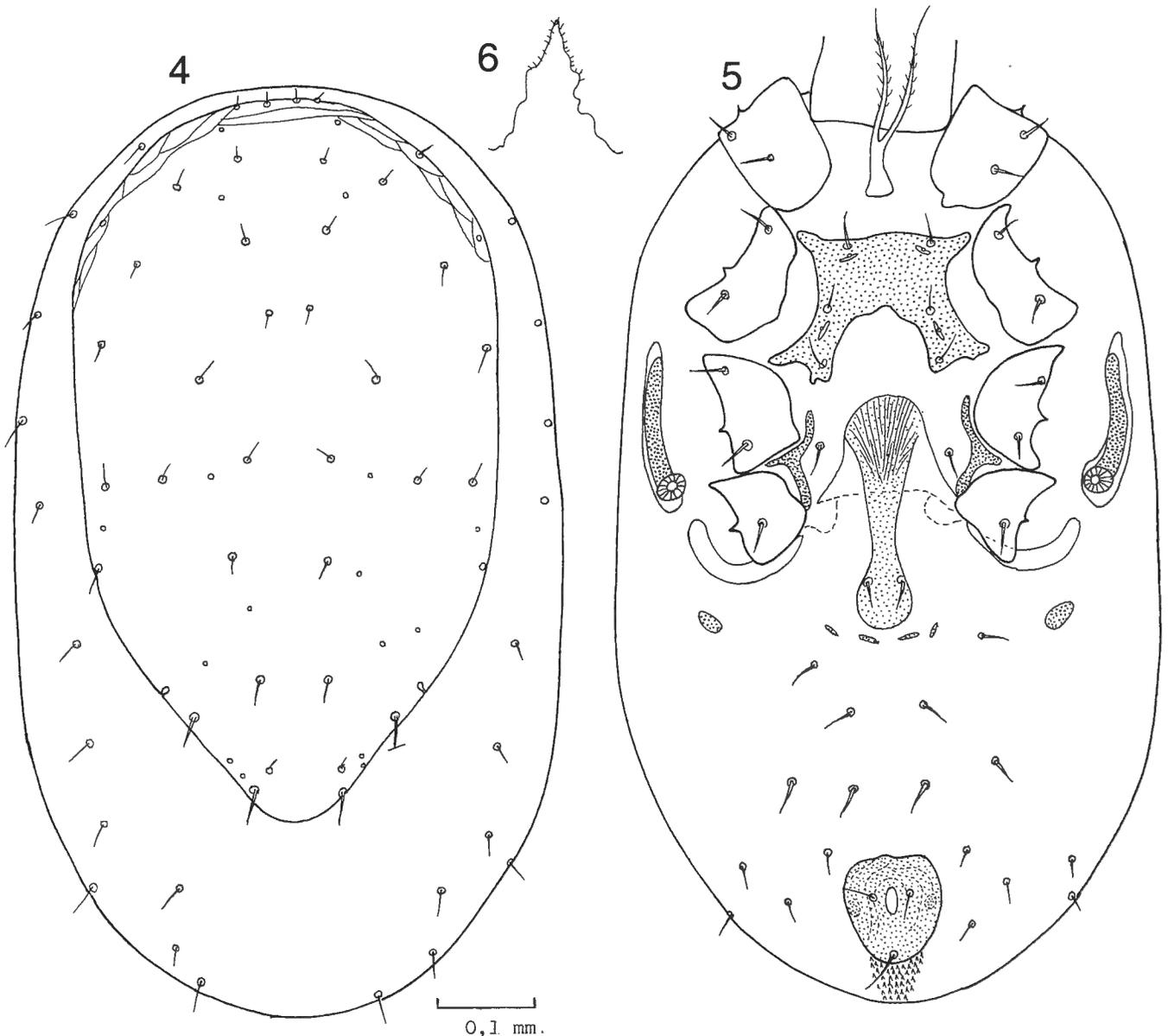
6. – Sternal shield deeply excavated posteriorly *J. excavatus* n.sp.
 – Sternal shield not excavated posteriorly 7.
7. – Peritreme not extending beyond anterior margin of coxa III 8.
 – Peritreme extending beyond posterior margin of coxa II 12.
8. – Peritreme extending to anterior margin of coxa III *J. peritremalis* RYKE, 1959.
 – Peritreme extending to the middle of coxa III 9.
9. – With a triangular punctate shield between genital and anal shields. Sternal shield without lateral prolongations in its posterior half *J. idjwiensis* n.sp.
 – Without a punctate shield on opisthogaster. Sternal shield with well-developed postero-lateral prolongations 10.
10. – Metapodal shields long (32 to 36) and very narrow (4). Endopodal shields reduced. Dorsal shield 435×270 , bearing 13 pairs of very unequal setae, the longest 50 long. Soft cuticle of body with 39 setae. Tectum tridentate and serrate *J. serratus* MAES, 1983.
 – Metapodal shields much shorter (15×6 or 25×5). Endopodal shields normal. Dorsal shield smaller ($360-381 \times 200-204$) and bearing less unequal setae. Soft cuticle with 26 to 31 setae 11.
11. – Sternal shield 129 long and 124 wide. Genital shield 44 wide, rounded posteriorly. Soft cuticle of body with 31 setae. Pre-anal setae thin *J. madiakokoensis* n.sp.
 – Sternal shield 117 long and 87 wide. Genital shield very narrow (15 wide)

Figs. 1-3. *Julolaelaps idjwiensis* n. sp. Female, in dorsal view (1) and ventral view (2); tectum (3).



- and tapering posteriorly into a triangular sclerotized area. Soft cuticle of body bearing 27 setae, the preanal setae being spinous . . . *J. paucipilis* n.sp.
12. - Peritreme long, reaching the anterior margin of coxa II or the posterior margin of coxa I. Larger species (idiosoma 630 to 924 long) 13.
 - Peritreme shorter, ending between the posterior margin and the middle of coxa II. Smaller species (idiosoma 519 to 540 long) 14.
13. - Idiosoma 924 long and 583 wide. Anal shield 110 long, 100 wide. Genital shield 66 wide . . . *J. myriapodalis* RYKE, 1959.
- Idiosoma 630 long and 365 wide. Anal shield 60 long, 54 wide (this shield was erroneously depicted very narrow by Maes) Genital shield 38 wide *J. buensis* MAES, 1983.
14. Genital shield normally rounded posteriorly, 21 wide. Anal shield 52 wide and 48 long. Cuticle of opisthogaster soft and striated *J. vandaelensis* MAES, 1983.
 - Genital shield 33 wide, abruptly narrowed and strongly sclerotized posteriorly, this narrow part is 30 long and 10 wide. Anal shields 45 wide and 39 long. Cuticle between genital and anal shields punctate and sclerotized *J. cameroonensis* MAES, 1983.

Figs. 4-6. *Julolaelaps excavatus* n. sp. Female, in dorsal view (4) and ventral view (5); tectum (6).



1. *Julolaelaps idjwiensis* nov. spec.

Female, holotype (Figs. 1-3):

Idiosoma 675 long and 375 wide. Length and width of a paratype: 660 × 360. Dorsal shield oval, 425 long and 245 wide, bearing 15 pairs of setae, the central setae being 8 to 15 long, the lateral 18 to 25 long. The cuticle behind the dorsal shield is distinctly punctate. Cuticle outside of the shields bearing 38 setae, the dorsal slightly longer (15-30) than the ventral (12-15). Tectum triangular, serrate. *Venter*: Sternal shield trapezoidal 105 long and 90 wide, without the usual postero-lateral prolongations. Genital shield 27 wide in its posterior half. Cuticle between genital and anal shields with a triangular punctate and striated shield 107 long and 105 wide. Anal shield 60 long and 61 wide; the anterior pair of anal setae are slightly shorter (21) than the posterior seta (27) Metapodal shields very small (15 × 9). Endopodal shields reduced.

Tritosternum with short lacinae. Peritreme short, ending at the level of the middle of coxa III. Peritremal plate extending to the posterior margin of coxa II. *Legs*: claws reduced and poorly sclerotized; femora II to IV with a small dorsal spine.

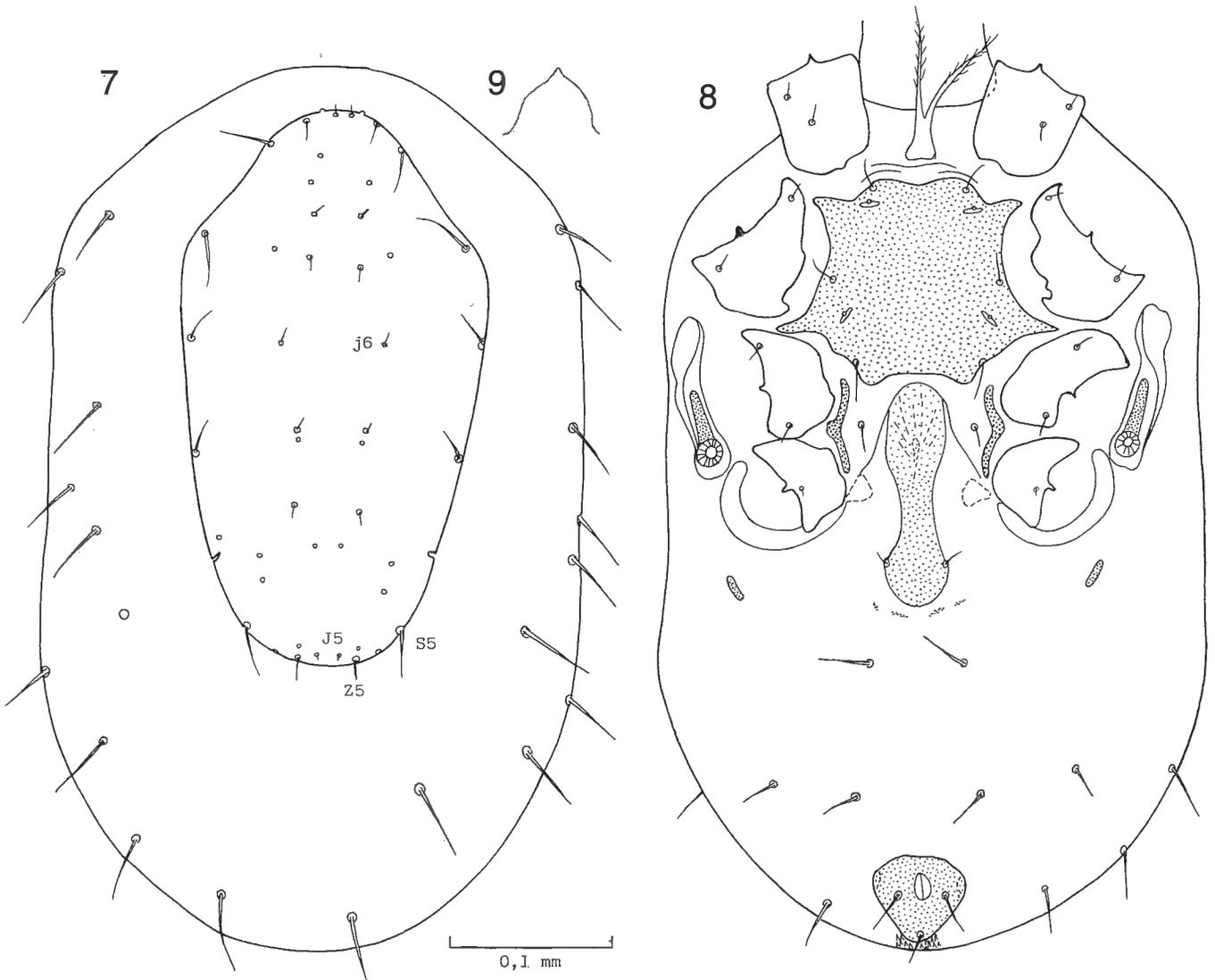
Habitat:

Holotype and 3 paratypes females from a large julid (Diplopoda), from Idjwi Island, Kivu Lake, Rwanda. (Coll. A. FAIN, 29 April 1964).

Remark:

This species belongs to a small group of four species characterized by the narrow shape of the genital shield combined to very short length of the peritreme. It differs from the other species of this group by the presence of a large opisthogastric punctate shield and the aspect of the sternal shield devoid of postero-lateral prolongations.

Figs. 7-9. *Julolaelaps madiakokoensis* n. sp. *Female*, in dorsal view (7) and ventral view (8); tectum (9).



2. *Julolaelaps excavatus* nov.spec.

Female, holotype (Figs. 4-6):

Idiosoma 930 long and 528 wide. In the paratype 900 × 540. Cuticle finely striated and bare ventrally, slightly punctate and striated dorsally. Dorsal shield 720 long and 420 wide, tapering posteriorly and bearing 39 setae (19 + 20), the central ones shorter (7-20) than the lateral ones (20 to 35 long). Cuticle outside of the shields bearing 40 setae 17 to 35 long. Tectum soft, irregular, roughly triangular and bearing very small denticulations in apical third. *Venter*: Sternal shield very deeply excavated posteriorly, it is wider (147) than long (75). Genital shield 60 wide and bearing a pair of strong setae 26 long. Endopodal shields normally developed. Anal shield 105 long, 90 wide; posterior anal seta longer and stronger (36) than the anterior pair of setae (24). Metapodal plate 30 long and 15 wide. Peritreme ending at the level of the anterior margin of coxa III, it is situated on a

short peritremal plate. *Legs*: claws poorly developed; femora III-IV with a long dorsal spine, femur II with a thinner dorsal spine.

Habitat:

Holotype and one paratype females from a large julid (Diplopoda) collected in the Mayumbe Forest, in Madiakoko (Coll. A. FAIN, March 1964).

Remark:

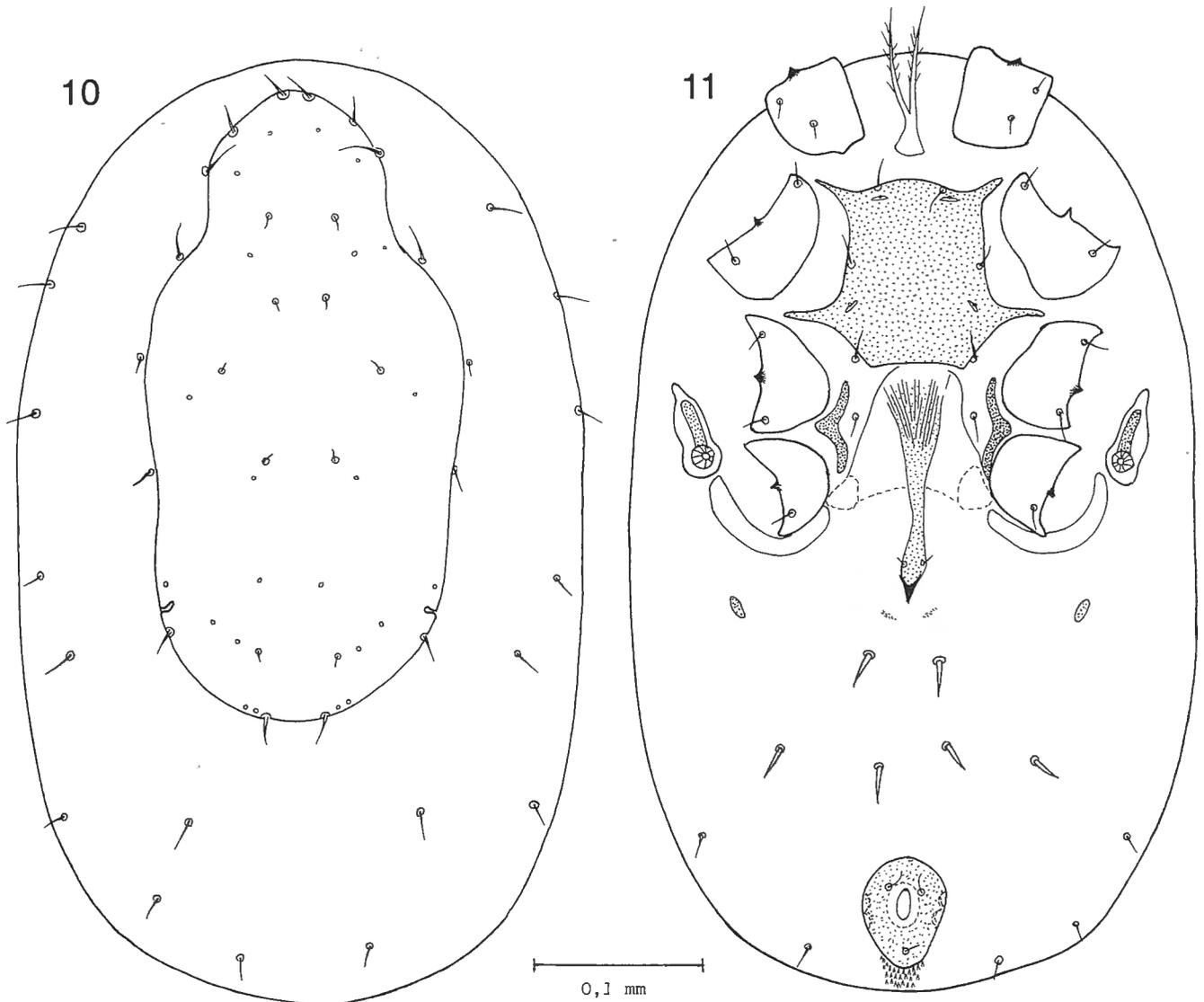
This species differs from all the other species in the genus by the shape of the posterior border of the sternal shield which is strongly excavated.

3. *Julolaelaps madiakokoensis* nov. spec.

Female, holotype (Figs. 7-9):

Idiosoma 561 long and 345 wide. Cuticle punctate behind the dorsal shield. Dorsum with a dorsal shield

Figs. 10-11. *Julolaelaps paucipilis* n. sp. *Female*, in dorsal view (10) and ventral view (11).



360 long and 204 wide bearing 14 pairs of setae of which the central ones are very short (2 to 6 long) whilst the lateral ones are much longer (30 to 40 long). Cuticle of body outside of shields with 31 setae, those of the dorsum longer (40-50) than those of the venter (25-30 long). Tectum rounded, very slightly produced in the midline. *Venter*: Sternal shield slightly longer (129) than wide (124). Genital shield 44 wide in its posterior third, bearing a pair of small setae. Anal shield 48 long and 60 wide; posterior anal seta thinner and shorter (21) than the anterior pair of anal setae (30). Metapodal plate 25 long and 5 wide. Endopodal plates normally developed. Peritreme short, ending at the level of the middle of the coxa III, the perimetral shield extends to the posterior margin of coxa II. Claws poorly developed. Femora III-IV with a strong dorsal spine.

Habitat:

Holotype and only known specimen, from an unidentified julid (Diplopoda) from the Mayumbe Forest at Madiakoko, Zaïre. (Coll. A. FAIN, March 1964).

Remark:

This species belongs to the same group as *J. idjwiensis* (see the key). It differs from that species by the absence of a shield between anal and genital shields. It is distinguished from *J. serratus* by the shape of the tectum (not trifid and not serrate), the smaller number of setae on the soft cuticle, the smaller size of the scutum, the shape less unequal of the scutal setae.

4. *Julolaelaps paucipilis* nov. spec.

Female, holotype (Figs. 10-11):

Idiosoma 555 long and 342 wide. Cuticle strongly punctate in all the area around dorsal shield. Dorsal shield 381 long and 200 wide, it is abruptly narrowed in its anterior third and bears 9 pairs of setae. In addition

to these setae situated on the shield there are 4 pairs of setae situated on the cuticle very close to the margins of the shield. The central setae are 2-5 long, the marginal setae are longer (15 to 27). The cuticle outside of the shield and of the parascutal setae, bears 28 setae 15 to 27 long. The 6 setae situated between the genital and the anal shields are spinous. *Venter*: Sternal shield 117 long and 87 wide. Genital shield 15 wide, tapering posteriorly into a sclerotized point. Metapodal shield 15 long, 6 wide. Endopodal plate normally developed. Anal shield oval, 65 long and 55 wide; the 2 anterior setae are longer (15) than the posterior anal seta (8); these anterior setae are situated at the level of the anterior margin of anus. Peritreme ending at the level of the middle of coxa III; peritremal shield very short. *Legs*: claws poorly developed; femora II-IV with a small dorsal spine.

Habitat:

Holotype and only known specimen, from a large julid (Diplopoda) from Madiakoko, in the Mayumbe Forest (S.W. of Zaïre) (Coll. A. FAIN, March 1964).

Remark:

This species belongs to the same group as *J. idjwiensis*. It is distinguished from the other species of this group by the aspect of the dorsal shield, abruptly narrowed in its anterior third, the shape of the genital shield very narrow and sclerotized in its posterior part, the presence of only 9 pairs of setae on the scutum, the spinous aspect of the pre-anal setae and the small number of setae on the cuticle of the body.

Acknowledgements

We thank Mr. F. PUYLAERT, Musée royal de l'Afrique Centrale, Tervuren, for the loan of the typical material described by K. MAES.

References

- BERLESE, A., 1916. Centuria prima di Acari nuovi. *Redia*, 12: 19-67.
- FAIN, A., 1987. Notes on mites associated with Myriapoda. I. Three new astigmatic mites from Afrotropical Myriapoda (Acari, Astigmata). *Bulletin de l'Institut royal des Sciences naturelles de Belgique*. Entomologie, 57 (sous presse).
- HUNTER, P.E. & ROSARIO, R.-M., T., 1986. A new species of *Julolaelaps* BERLESE (Acari: Laelapidae). *International Journal of Acarology*, 12: 63-67.
- MAES, K., 1983. Scientific Report of the Belgian Mt Cameroun Expedition 1981. VIII. Description of four species of the genus *Julolaelaps* BERLESE (Acarina: Laelapidae). *Revue de Zoologie africaine*, 97: 211-220.

- RYKE, P.A.J., 1959. A revision of the hypoaspid mites associated with Myriapoda, with descriptions of three new species of the subgenus *Julolaelaps* BERLESE (Acarina: Laelapidae). *Parasitology*, 49: 6-22.

Institut royal
des Sciences naturelles
de Belgique,
Rue Vautier, 29, B-1040 Brussels
Belgium.