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**A NEW GENUS AND SPECIES *FLORITRICHUS LOUISBOTHAI*
(ACARI, ORIBATIDA, ORIPODOIDEA, ZETOMOTRICHIDAE)
FROM SOUTH AFRICA.**

by

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ABSTRACT

Coetzee, Louise. 2003 A new genus and species *Floritrichus louisbothai* (Acari, Oribatida, Oripodoidea, Zetomotrichidae) from South Africa. *Navors. nas. Mus., Bloemfontein* 19(5): 93-100. A new genus and species *Floritrichus louisbothai* gen. nov., spec. nov. is described from central South Africa. The genus belongs to the subfamily Rohriinae and is characterized by the complete dorsosejugal line, dorsal striae, sub-peripheral pori on notogaster, ten pairs of notogastral setae, five pairs of genital setae, medial epimeral setae *1a*, *2a*, *3a* very long and barbed, custodium absent, posterior tectum of notogaster undivided, legs tridactylous, lyrifissures *ia* and *im* slits, leg IV not adapted for jumping. A revised key for the family Zetomotrichidae is presented. The genus *Pallidacarus* Krivolutsky, 1975 is placed in the subfamily Rohriinae. (Acari, Oribatida, Zetomotrichidae, South Africa, Florisbad).

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INTRODUCTION

The Family Zetomotrichidae presently consists of 12 genera, of which four are represented in South Africa. Specimens collected in natural grassland at the Florisbad Quaternary Research Station near Bloemfontein, central South Africa, belongs to yet another new genus and is closely related to the little-known *Pallidacarus* Krivolutsky, 1975.

Grandjean (1954) created the family Zetomotrichidae for the genus *Zetomotrichus* which he described in 1934, on account of the many peculiarities of the genus, viz. the humeral process with enlarged seta, the divided posterior tectum of the notogaster, enlarged setae on leg IV, the humeral sac and pyriform organ. Subsequently 11 more genera were added to the family, showing all or some of the above-mentioned characters. All genera have a humeral process developed to a greater or lesser degree, but the humeral seta is not necessarily enlarged. Leg IV only has enlarged setae when it is adapted for jumping and the humeral sac and pyriform organ is not present in all genera.

Certain evolutionary trends also became clearer as more representatives of this unique family were discovered, e.g. the transformation of lyrifissures and the changes of leg IV. Grandjean (1954) established that the humeral sac and pyriform organ are homologous structures to lyrifissures *ia* and *im* respectively, which are transformed in some genera and others not. Further, there is evidence of the gradual changing of leg IV, as expressed in the genera in which leg IV is adapted for saltation. In *Demisalto* Coetzee, 1993 leg IV is only slightly dorsally displaced with 2 enlarged setae, in *Zetomotrichus* Grandjean, 1934 and *Keralotrichus* Mahunka, 1985¹ leg IV is further dorsally displaced with 3 enlarged setae

¹ Mahunka (1985) described the legs and chaetotaxy of *Keralotrichus* as "similar to *Zetomotrichus*".

and in *Saltatrichus* Coetzee, 1993 leg IV is far dorsally displaced with 4 enlarged setae (Coetzee 1993; Grandjean 1954; Mahunka 1985).

The discovery of *Rohria* Balogh & Mahunka, 1977 brought some changes to the hitherto accepted conception of the family because of the absence of rostral teeth, presence of the dorsosejugal line and structured cuticle. Balogh & Balogh (1984) created two subfamilies viz. Zetomotrichinae for the genera without a dorsosejugal line, with rostral teeth and humeral seta (c_2 (ta)) with "acuminate" end, and Rohriinae for the genus *Rohria* with dorsosejugal line present, rostral teeth absent and humeral seta with "fusiform" end. At the time, only four genera were considered², viz. *Zetomotrichus* Grandjean, 1934, *Mikizetes* Hammer, 1958, *Ghilarovus* Krivolutsky, 1966 and *Rohria* Balogh & Mahunka, 1977. The differences between these two subfamilies are further accentuated by the absence of a custodium in Rohriinae (Mahunka 1993) and the divided posterior notogastral tectum in Zetomotrichinae. A thorough phylogenetic analysis of this family might prove the elevation of the subfamily Rohriinae to family status, but at present there are too many uncertainties regarding certain characters.

The representatives of the family Zetomotrichidae tend to inhabit mildly arid regions, are relatively rare and do not occur in great numbers, at least not in South Africa.

DIAGNOSES OF THE FAMILY AND SUBFAMILIES

Zetomotrichidae Grandjean, 1954

Porose areas or sacculi absent, pori present on notogaster, sensillus setiform, anteriorly directed humeral projection present.

Zetomotrichinae Balogh & Balogh, 1984

Lamellae short, unobtrusive, dorsosejugal line absent, custodium present (except *Mikizetes*), rostral margin dentate, integument smooth, posterior tectum of notogaster divided, forming two overlapping lobes³.

Rohriinae Balogh & Balogh, 1984

Dorsosejugal line present, posterior tectum of notogaster undivided⁴, custodium absent, cuticle striated or with cerotegument, lamellae unobtrusive, longish.

² *Oglasacarus* Bernini, 1978 and *Pallidacarus* Krivolutsky, 1975 were excluded.

³ This character is not always clearly indicated in the text or figures of the descriptions, but can be inferred from the shape of the posterior border of the notogaster.

⁴ Not certain in *Pallidacarus* Krivolutsky, 1975

DESCRIPTION OF SPECIES

***Floritrichus* gen. nov.**

Type: *Floritrichus louisbothai* gen. nov., spec. nov.

Diagnosis: Dorsosejugal line complete; fine, longitudinal striation on prodorsum, continuing on anterior part of notogaster, becoming fragmented posteriorly; multiple small round pori sub-peripheral on notogaster; ten pairs of notogastral setae; five pairs of genital setae; medial epimeral setae very long, barbed; custodium absent, posterior tectum of notogaster undivided; legs tridactylous; lyrifissures *ia* and *im* slits; leg IV not adapted for jumping.

***Floritrichus louisbothai* spec. nov.**

Dimensions: Length: 347 μm (range 335 – 366); Width: 191 μm (range 178 – 209)

Dorsal side: (Figure 1)

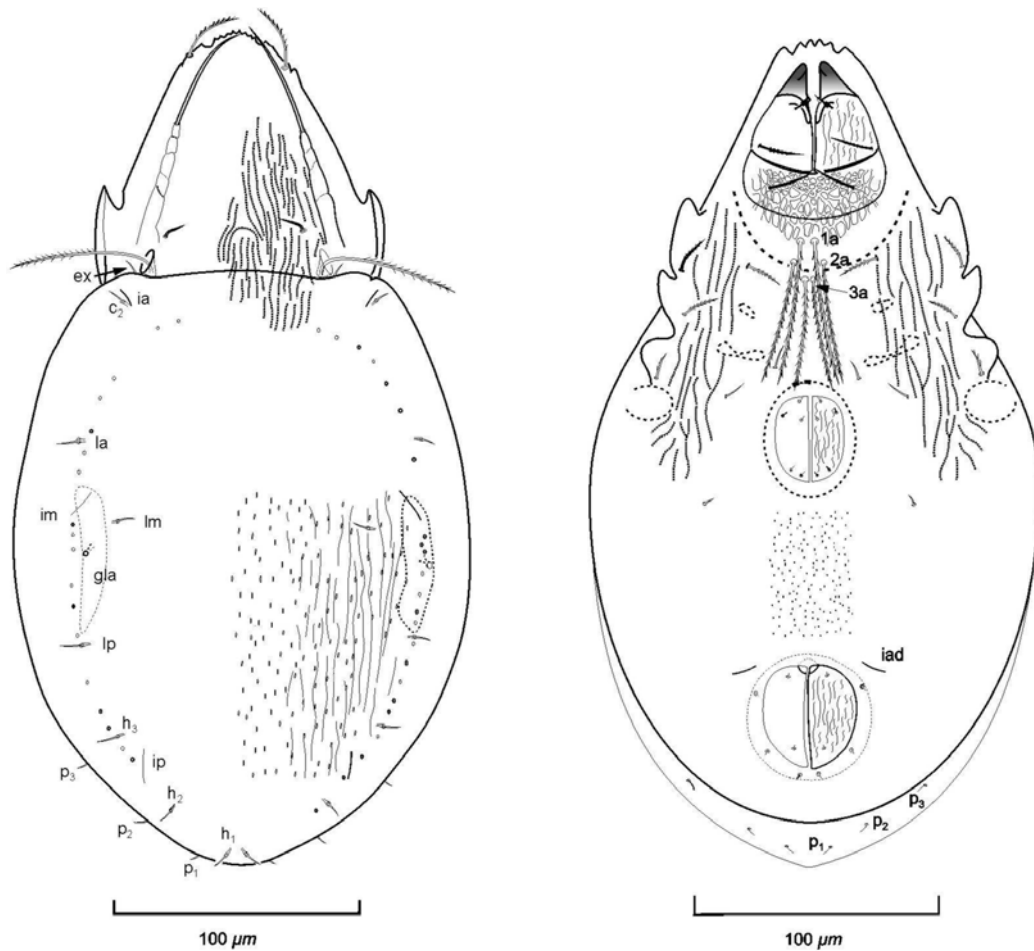
Prodorsum: Rostral border anteriorly dentate; rostral seta *ro* of medium length (31 μm , range 27 – 36), unilaterally finely barbed; lamellar seta *le* long (48 μm range 45 – 51), smooth, reaching at least up to rostral border; interlamellar seta *in* very short (14 μm range 11 – 16), thin, smooth; lamella narrow, indistinct, appearing fragmented (probably due to the presence of underlying refracting pores); prodorsal surface with fine longitudinal striations; bothridium *bo* small, opening wide; sensillus *ss* setiform, long (56 μm , range 47 – 59), bilaterally finely barbed.

Notogaster: Dorsosejugal line complete; humeral process small, rounded, not well developed; ten pairs of notogastral setae present, setae short, thin, all setae more or less of equal length; opisthosomal gland *gla* large, elongated, opening small; lyrifissure *ia* short, situated medially of seta *c*₂; *im* and *ip* long; *ih* and *ips* slightly shorter, visible in lateral view; notogastral surface structure variable (not equally visible in all specimens), anteriorly finely striated, striations becoming fragmented posteriorly, postero-laterally still appearing linear, medially appearing punctate; posterior tectum of notogaster undivided, thus posterior border of notogaster not sharply pointed.

Ventral side: (Figure 2)

Epimeral region: Epimeral setal formula 3-1-2-3; epimeral setae *1a*, *2a* and *3a* inserted far anteriorly close to each other, very long, bilaterally barbed; *1b*, *1c*, *3b* of medium length, finely barbed; *4a*, *4b* short, smooth; *4c* short, barbed; apodemes highly reduced; epimeral surface punctate, with lateral striations; custodium absent.

Ano-genital region: Ano-genital setal formula 5-1-2-3; genital setae minute, genital plates small, finely striated; aggenital setae short; anal setae minute, anal plates finely striated; adanal setae slightly longer than anal and genital setae; lyrifissure *iad* long, oblique; surface of ventral plate punctate.



Figures 1-2: *Floritrichus louisbothai* gen. nov. spec. nov. (1) Dorsal view, (2) Ventral view.

Lateral side: (Figure 3)

Anterior rostral margin dentate, laterally finely dentate; lamella ventrally delimited by row of pori; fine prolamella present; pori present below prolamella; bothridium small, proximal end of sensillus clearly visible; exobothridial seta *ex* fine, short; pedotectum I *pdI* large, striated; pedotectum II *pdII* narrow, finely striated; carina *c* (see Grandjean 1934, p. 245, 246 ($\Gamma=c$)) clearly visible, stretching from below humeral process to a point dorsally of acetabulum IV; opisthosomal gland *gla* large, elongated; notogastral tectum overhangs ventral plate substantially.

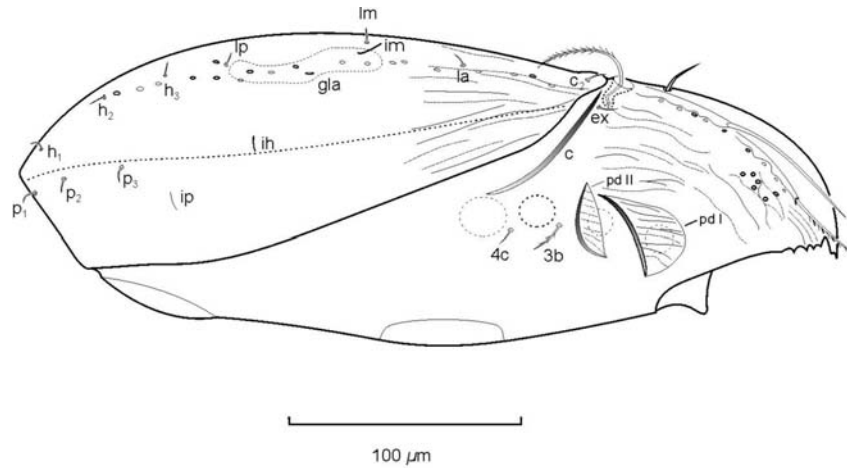


Figure 3: *Floritrichus louisbothai* gen. nov. spec. nov.
Lateral view.

Appendages:

Gnathosoma: Surface of mentum reticulated; cheliceral seta *chb* evenly slightly thickened and well barbed (not leaf-shaped; see Grandjean 1934 fig. 2C).

Legs: Legs long, slender, tridactylous; all normal setae barbed; femora with flanges; leg IV normal (*i.e.* not adapted for jumping, no enlarged spines, acetabulum not dorsally displaced); Tibia I with small anteriorly projecting flange; solenidion ω_2 on Tarsus I inserted near proximal end of tarsus, solenidion ω_1 on Tarsus I about 3X as long as ω_2 ; famulus ε very short; fastigial setae *fi'* and *fi''* more or less equal in length. Chaetotaxy: Leg I: 5-2-4-20; Leg II: 5-2-4-16; Leg III: 2-3-1-3-15; Leg IV: 1-2-2-3-12. Solenidiotaxy: Leg I: 1-2-2; Leg II: 1-1-2; Leg III: 1-1-0; Leg IV: 0-1-0.

Material: Holotype: Florisbad Quaternary Research Station, 45 km NNW of Bloemfontein in central South Africa (28° 46' S, 26° 04' E) from sandy soil in sparsely vegetated grassland. NMB 3915.6.1 (female) (8.ii.2000: L. Coetzee coll.). Paratypes: Same locality and habitat. NMB 3917.4 (one male, one female); NMB 4170.1 (one male) (8.ii.2000: L. Coetzee coll.). The holotype and paratypes are deposited in the Acarology Collection of the National Museum, Bloemfontein, South Africa.

Etymology: The generic name is derived from Florisbad, the only locality so far known for this genus. The species is named in honour of my father Dr. Louis J. Botha.

Discussion: The new genus is a member of the subfamily Rohriinae due to the continuous dorsosejugal line, absence of custodium, undivided posterior notogastral tectum and linear striations on dorsal surface. It is closely related to *Pallidacarus* by the presence of rostral teeth and striae, but differs by the long, barbed sternal epimeral setae (*1a*, *2a*, *3a*), five pairs of genital setae, less pronounced humeral process and notogastral seta *c*₂ the same shape and size as the rest of the notogastral setae.

In 1997 Krivolutsky and Smelyansky provided a redescription of *Pallidacarus tichmomirowi* Krivolutsky, 1975. From this latter work certain characters became known because of which the genus is placed in the subfamily Rohriinae, viz. the presence of the dorsosejugal line, structured integument (linear striae) and the absence of a custodium.

REVISED KEY TO THE GENERA OF THE FAMILY ZETOMOTRICHIDAE

1. - Dorsosejugal line present; posterior notogastral tectum undivided; integument striated or cerotegument present; custodium absent 2
 - Dorsosejugal line absent; posterior notogastral tectum divided, forming two overlapping lobes; integument smooth; custodium present (except *Mikizetes*) 4
2. - Anterior rostral tectum dentate 3
 - Anterior rostral tectum not dentate, but with anteriorly directed point; cerotegument present *Rohria* Balogh & Mahunka, 1977
3. - Notogastral seta c_2 enlarged, 4 pairs of genital setae, epimeral setae *1a*, *2a*, *3a* more or less the same length as notogastral setae *Pallidacarus* Krivolutsky, 1975.
 - Notogastral seta c_2 same length as rest of notogastral setae, 5 pairs of genital setae, epimeral setae *1a*, *2a*, *3a*, very long, barbed, *Floritrichus* **gen. nov.**
4. - Leg IV adapted for jumping *i.e.* acetabulum dorsally displaced, 2 – 4 setae enlarged (spines), leg IV much longer than leg III 5
 - Leg IV not adapted for jumping 8
5. - Pyriform organ present 6
 - Pyriform organ absent 7
6. - 4 Pairs of genital setae *Zetomotrichus* Grandjean, 1934
 - 3 Pairs of genital setae *Keralotrichus* Mahunka, 1985
7. - Epimeral setae *1a* as long as *2a*; leg IV with 2 spines (tarsus with 2 spines)
 - *Demisalto* Coetzee, 1993
 - Epimeral setae *1a* much longer than *2a*; leg IV with 4 spines (tarsus with 2 spines, tibia with 1 spine, genu with 1 spine) *Saltatrichus* Coetzee, 1993
8. - Notogastral seta c_2 not modified (*i.e.* same length as rest of notogastral setae)
 - *Anoplozetes* Lee & Pajak, 1987
 - Notogastral seta c_2 longer, thicker, modified in some way 9
9. - Pyriform organ present *Hungaromotrichus* Mahunka, 1993
 - Pyriform organ absent 10
10. - Custodium absent *Mikizetes* Hammer, 1958
 - Custodium present 11
11. - Epimeral setae *1a* much longer than *2a* *Mabulatrichus* Coetzee, 1993
 - Epimeral setae *1a* same length as *2a* 12
12. - 4 Pairs of genital setae; 3 pairs of adanal setae *Ghilarovus* Krivolutsky, 1966
 - 5 Pairs of genital setae; 2 pairs of adanal setae *Oglasacarus* Bernini, 1978

OPSOMMING

'n Nuwe genus en spesie *Floritrichus louisbothai* **gen. nov.**, **spec. nov.** van sentraal Suid-Afrika word beskryf. Die genus behoort aan die subfamilie Rohriinae en word herken aan die ononderbroke dorso-sejugale lyn, dorsale striae, sub-periferale pori op die notogaster, tien paar notogastrale setas, vyf paar genitale setas, mediale epimerale setas *1a*, *2a*, *3a* baie lank en met stekels, custodium afwesig, posterior tektum van die notogaster onverdeeld, pote met drie kloutjies, lyrifissure *ia* en *im* spleetvormig, die 4e paar pote nie aangepas om te spring nie. 'n Hersiene

sleutel tot die familie Zetomotrichidae word aangebied en die genus *Pallidacarus* Krivolutsky, 1975 word na die subfamilie Rohriinae geskuif.

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