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New mites of *Holonothrus* from Tasmania
(Oribatida: Crotoniidae)

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ABSTRACT. Two new oribatid mites, *Holonothrus mitis* n. sp., and *H. robustus* n. sp. (*Crotoniidae*) are described from Tasmania.

INTRODUCTION

Only four species of the oribatid mite genus *Holonothrus* have been described, but the world distribution of this genus is relatively wide, from the Neotropical Region, across Africa to the Australasian islands (NORTON and OLSZANOWSKI, 1989). Thanks to the kindness of Dr. R. B. HALLIDAY (CSIRO, Division of Entomology, Canberra, Australia), I had the opportunity to study rich soil samples from Tasmania, that contained members of this genus. Two new species are described below, which are consistent in all characters with the generic definition of WALLWORK (1978). A detailed study of leg chaetotaxy will be discussed in a separate article (TRAVÉ and OLSZANOWSKI, 1991.).

Holonothrus mitis n. sp.

ADULT

Body length: 700-850 μm ; maximum body width: 375-396 μm .

Colour brown.

Surface covered by fine porose microsculpture.

Prodorsum (fig. 1)

Tip of rostrum rounded. Rostral setae (ro) not situated on apophyses; thin and smooth, slightly curved. Lamellar (le) setae serrated, curved, on strong, sclerotized

apophyses clearly shorter than their mutual distance. Interlamellar setae (in) short and smooth, not situated on apophyses, inserted near bothridium (as in *H. concavus* WALLWORK, 1966). Two pairs of longitudinal ridges appear present in dorsal aspect. One runs from bothridia, distinctly curved medially and bears lamellar apophyses; the other surrounds the bothridia and effaces postero-medially. Sensilli round and completely immersed in bothridia. Elongate lobed sclerotization in the center of prodorsum more or less visible.

Notogaster (fig. 1, 3)

Sometimes covered by dirt or debris. Notogaster broadest at level of setae e_2 . The upper edges appear as lateral ridges in dorsal aspect, merge posteriorly with pair of broad, shallow lobes which delimit truncate region. Central part of notogaster with pair of longitudinal ridges, connected posteriorly with the lobes. Notogaster with 16 pairs of smooth, similar setae. Three pairs of setae (row c) on anterior border, 3 pairs (e_2 , f_1 , f_2 , h_1 , and h_2) along lateral ridges and on posterior lobes (fig. 3), and 3 pairs (d_1 , d_2 , e_1) in central part, lateral of ridges, 7 pairs (row ps) in more ventral position. All setae without tubercles. Five pairs of lyrifissures in normal position for genus (im and ip visible only in lateral view). Opisthosomal gland opening (gla) behind seta f_2 .

Ventral region (fig. 2)

Coxisternal pairs fully fused medially, setation: 4-1-3-3; setae short and thickened. Genital setae all near medial margin, setation variable, between 6-8 pairs. Two pairs of aggenital setae inserted on median edge of aggenital plates. Preanal plate typical of genus. Anal and adanal plates long, narrow, bearing 2 and 3 pairs of setae respectively. Neither genital nor anal plates with medial, longitudinal ridges.

Gnathosoma

Subcapitulum stenarthric, medial lobe of rutellum completely covering adoral region. Two pairs of genal setae simple in form, setae a longer than m. Three pairs of adoral setae: or_1 brushed posteriorly, the other two pairs smooth, ciliate. Palp setation: 0-1-1-1-8(1) (fig. 4). Chelicerae with normal two setae.

Legs

Tarsi tridactylous. Lateral claws with dorsal fringe of hyaline teeth. Setae inserted on tubercles. Leg chaetotaxy - see Tab. I.

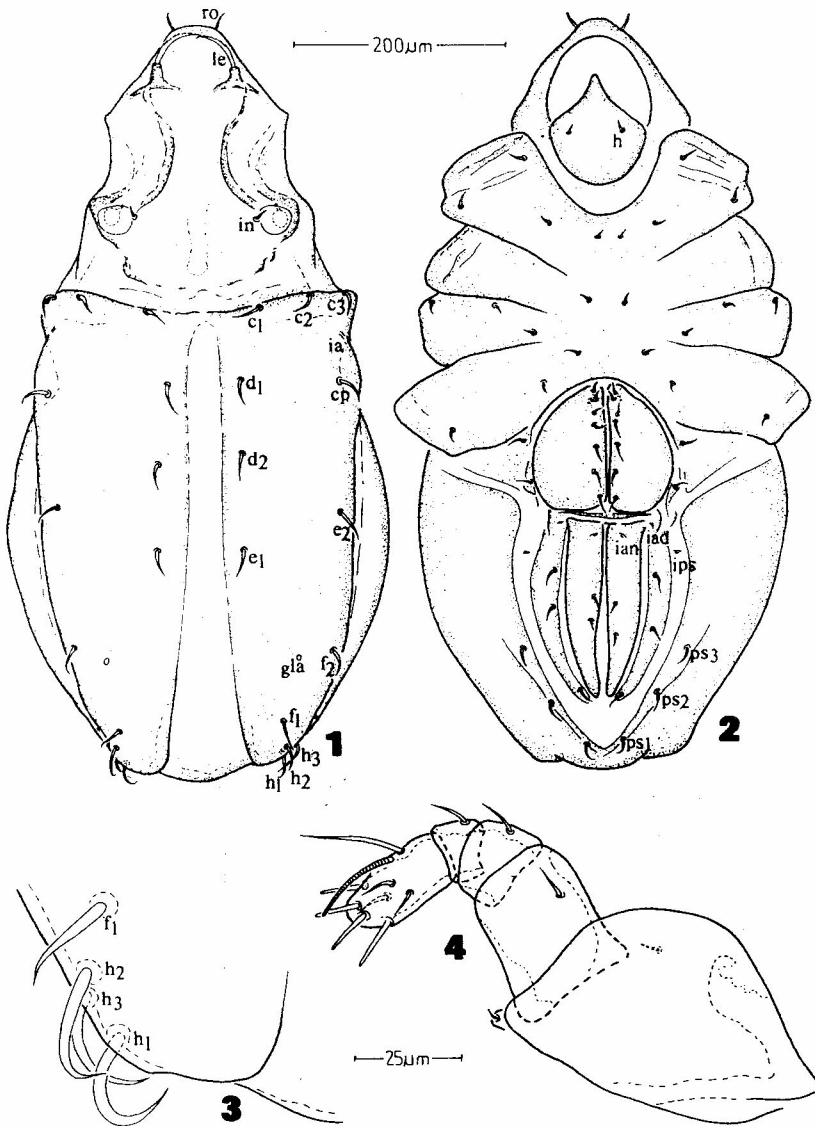
IMMATURES

Dimensions - see Tab. II.

Colour white to light brown; darker where sclerotized.

Larva and protonymph unknown.

Deuto- and tritonymph (fig. 14, 15) generally very similar to respective stases of *H. robustus* n. sp. (see descriptions) can be distinguished by the following diagnostic features:



1-4. *Holonothrus mitis* n. sp., adult: 1 - dorsal aspect, 2 - ventral aspect, 3 - enlargement of left posterior notogastral lobe, 4 - palp (antiaxial aspect)

1. Smaller dimensions (see Tab. II).
2. Hysterosoma less bilobed posteriorly than in *H. robustus* n. sp., setae h_1 and h_2 smooth, similar to other notogastral setae (fig. 14, 16).
3. Seta f_2 situated more anteriorly on the plate than in *H. robustus* although not always anterior to glandular opening as in adult (fig. 17).
4. Different leg setation, especially deficient (comparing with *H. robustus*) chaetotaxy on tarsi (Tab. I).

MATERIAL EXAMINED

The holotype and 7 paratypes were collected from: Pirates Road, Tasman Peninsula, 2.5 km SW of Eaglehawk Neck. 43°03'S 147°55'E. 21 III 89. South track. *Nothofagus cunninghamii*. Pyrethrum knock-down. J. DIGGLE and P. GREENSLADE coll. (TAS-048).

Other findings: Rivaux Creek. 43°11'S 146°11'E. 20 XII 88. Huon Pine. Pyrethrum knock-down. P. GREENSLADE coll. (TAS-060); Big Sassy Creek. 21 km NNW of Little Swanport. 42°09'S 147°55'E. 12 V 89. Site 1. Sassafras. Pyrethrum knock-down. H. MITCHELL coll. (TAS-103); Mount Victoria. 41°20'S 147°50'E. 25 XI 89. Tree 1 and 2. Pyrethrum knock-down. R. COY coll. (TAS-179 and TAS-180).

The holotype is deposited in CSIRO, Division of Entomology, Canberra, Australia. Paratypes in the collection of Z. OLSZANOWSKI.

Table I. Development of leg setation in *Holonothrus mitis* n. sp. and *H. robustus*

	<i>H. mitis</i>	<i>H. robustus</i>	Solenidia
LEG I			
Protonymph	?	0-4-4-17	1-1-1
Deutonymph	0-7-5-5-19	0-7-5-5-20	1-2-2
Tritonymph	1-9-5-6-25	1-9-5-6-26	1-2-2
Adult	1-11-5-6-29	1-11-5-6-30	1-2-2
LEG II			
Protonymph	?	0- 3-3-4-14	1-1-1
Deutonymph	0-5-4-4-16	0- 5-4-5-17	1-1-2
Tritonymph	1-8-4-6-22	1- 8-4-6-23	1-1-2
Adult	1-10-4-6-26	1-10-4-6-27	1-1-2
LEG III			
Protonymph	?	2-2-2-3-13	1-1-0
Deutonymph	3-3-3-3-14	3-4-3-3-15	1-1-0
Tritonymph	4-5-3-3-20	4-6-4-3-21	1-1-0
Adult	5-7-4-3-24	5-8-4-4-25	1-1-0
LEG IV			
Protonymph	?	0-0-0-0-7	0-0-0
Deutonymph	1-2-2-3-14	1-2-3-3-15	0-1-0
Tritonymph	1-3-3-3-20	1-3-4-4-21	0-1-0
Adult	1-4-4-3-21	1-5-4-4-25	0-1-0

Holonothrus robustus n. sp.

ADULT

Body length: 950-1100 μm ; maximum body width: 480-600 μm .

Colour light brown to brown.

Surface covered by fine porose microsculpture.

Prodorsum (fig. 5)

Rostral setae (ro) without apophyses, situated on rounded rostrum, thin and smooth. Lamellar (le) setae serrated, pn strong apophyses, the latter shorter than their mutual distance. Interlamellar (in) setae relatively short, smooth, not situated on apophyses, inserted near bothridium. Two pairs of ridges present dorsally: one, distinctly curved medially, runs from bothridia towards lamellar apophyses, the other surrounds bothridia laterally and effaces postero-medially (ends fuse in some specimens). Bothridia - like *H. mitis*, typical for family. Elongate lobed sclerotization in the center of prodorsum more or less visible.

Notogaster (fig. 5)

Surface of most specimens covered with dirt and debris. Notogaster broadest at level of setae e_2 , medial convexity more distinct than in *H. mitis*. The upper edges of notogaster appear as lateral ridges in dorsal aspect, merge posteriorly with pair of broad lobes. Central part of notogaster with pair of longitudinal ridges (connected posteriorly with the lobes) effaced anteriorly. Notogaster with 16 pairs of setae distributed as in previous species. Setae h_1 and h_2 foliate in shape, covered by cerotegument, the other - smooth and ciliate. All setae without tubercles. Opisthosomal gland opening (gla) more anterior in position than seta f_2 .

Ventral region (fig. 6)

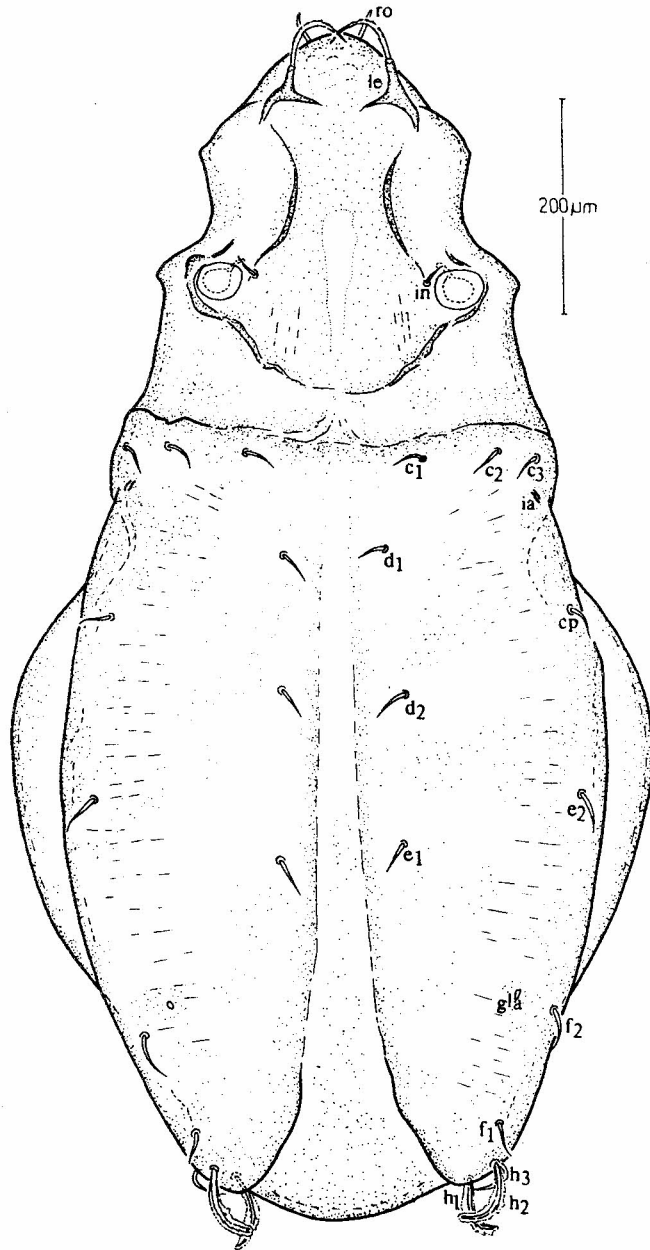
Coxisternal pairs fused medially; setation: 4-1-3-3, setae short and thickened. Genital setae near medial margin, setation variable, between 7-8 pairs. two pairs of aggenital setae. Preanal plate distinct. Anal and adanal plates long, narrow, bearing 2 (or 3 in some rare cases) and 3 pairs of setae respectively.

Gnathosoma (fig. 7)

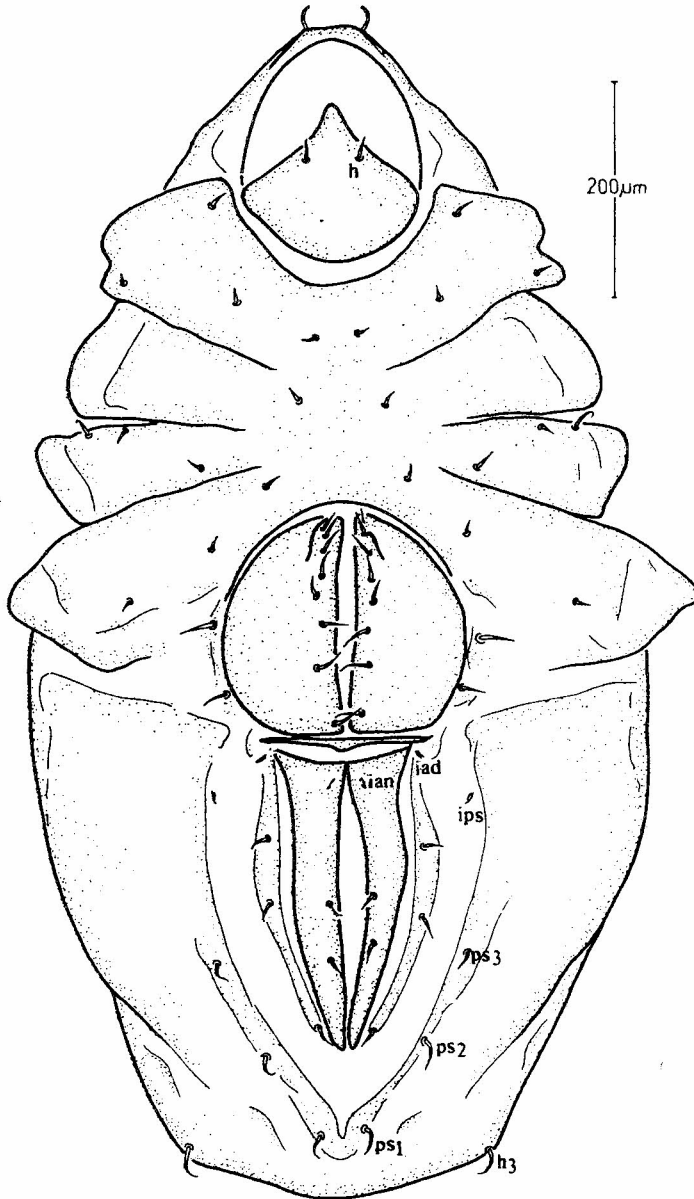
Similar to previous species. Adoral region covered by medial lobe of rutellum, medial setae lanceolate, two pairs of ciliate genal setae. Palps and chelicerae (fig. 8) as in previous species.

Legs

Tarsi tridactylous. Lateral claws with dorsal fringe of hyaline teeth. Setae inserted on small tubercles. Leg chaetotaxy - see Tab. I.



5. *Holonothrus robustus* n. sp., dorsal aspect



6. *Holonothrus robustus* n. sp., ventral aspect

IMMATURES

Dimensions - see Tab. II.

Colour white to light brown.

Larva unknown.

Table II. Body length of immatures of *Holonothus mitis* n. sp. and *H. robustus* n. sp. (in μm)

Stage	<i>H. mitis</i>	<i>H. robustus</i>
Protonymph	?	400-520
Deutonymph	520-600	600-750
Tritonymph	580-700	760-1010

Protonymph (fig. 9, 10, 11, 12)

Prodorsum elongate, comparatively longer than in adult. Lamellar setae on massive apophyses; their tips extending beyond rostrum. Prodorsal setae and bothridia as in adult. Hysterosoma strongly bilobed posteriorly. Notogaster with 16 pairs of setae, f_1 and h row inserted on lobes. Setae c_p , e_2 and f_2 on large, porose plates; c_1 and c_2 on small, separate plates; the other notogastral setae on small tubercles rising from the plates. Setae h_1 and h_2 clearly longer than others, serrated posteriorly and covered by cerotegument. Cuticle irregularly striate (except for plates). Coxisternal formula: 3-1-2-1. Genital region with one pair of setae. Tarsi monodactylous, leg chaetotaxy as in Tab. I.

Deutonymph

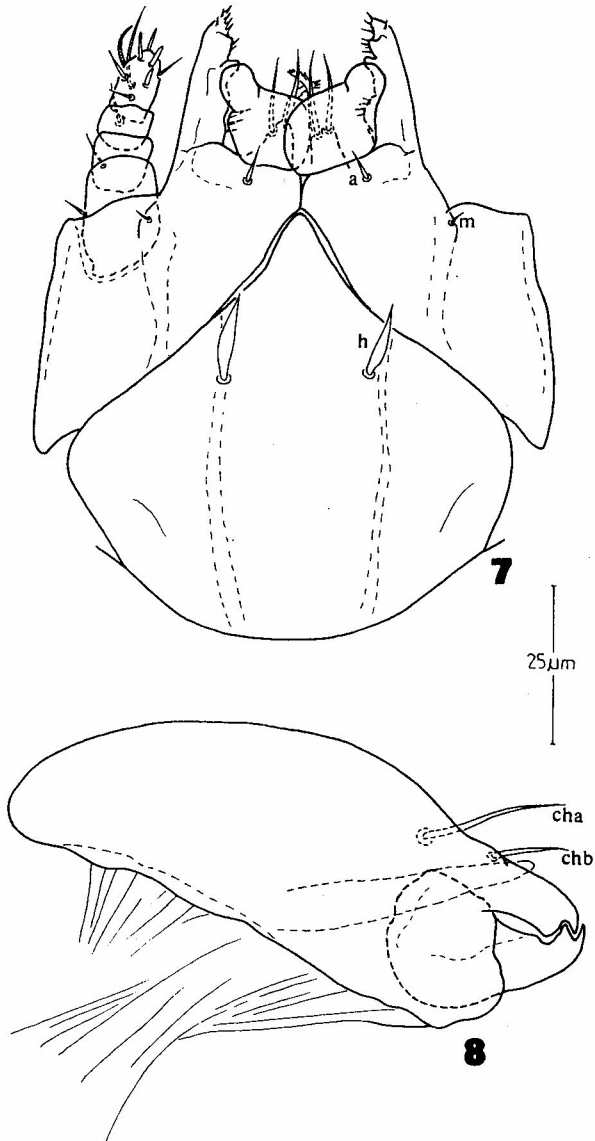
Prodorsum comparatively shorter than in protonymph. Shape of hysterosoma and distribution of plates similar to that of protonymph. Coxisternal formula: 4-1-3-3. Two to three pairs of genital setae, one pair of aggenitals. Three adanal setae, inserted on small tubercles. Leg chaetotaxy in Tab. I.

Tritonymph

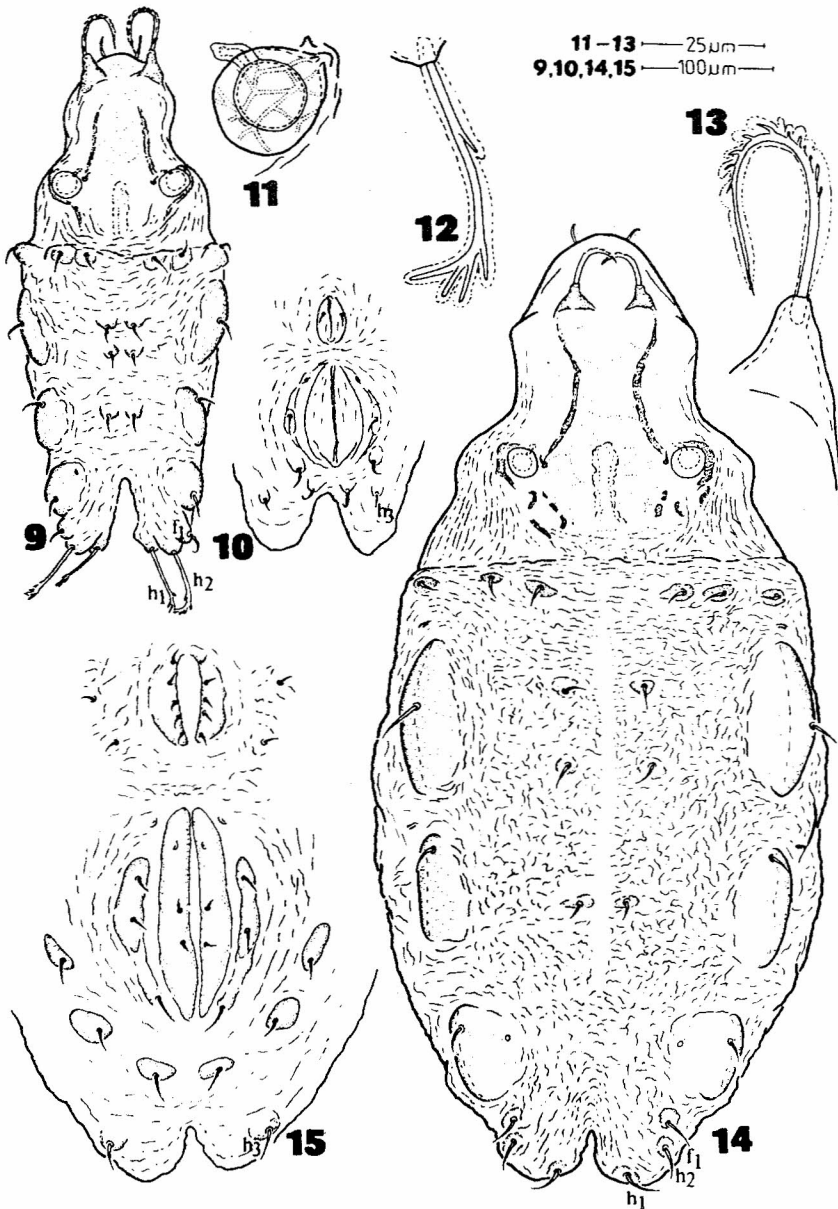
Prodorsum generally similar to that of adult. Posterior hysterosomal lobes relatively shorter than in proto- and deutonymph (fig. 16). Coxisternal formula: 4-1-3-3; number of genital setae varies from 4 to 7. Full adult complement of aggenital, adanal, and anal setae (2, 3 and 2 respectively). Leg chaetotaxy in Tab. I.

MATERIAL EXAMINED

The holotype and 5 paratypes were collected from: Big Sassy Creek, 21 km NNW of Little Swanport. 42°09'S 147°55'E. 12 V 89. Site 1. Sassafras. Pyrethrum knock-down J. DIGGLE coll. (TAS-102).



7, 8, *Holonothrus robustus* n. sp., adult: subcapitulum (ventral aspect), chelicera (paraxial aspect)



9-13. *Holonothrus robustus* n. sp., protonymph: 9 - dorsal aspect, 10 - ventral aspect (genito-anal region), 11 - bothridium and sensillus (dorsal aspect), 12 - seta h_1 , 13 - seta le . 14-15. *H. mitis* n. sp., tritonymph: 14 - dorsal aspect, 15 - ventral aspect (genito-anal region)

Other findings: TAS-060, TAS-103 (the same data as *H. mitis*); Sandspit River. Forestry Reserve. 42°42'S 147°52'E. 2 VI 89, Sassafras. Pyrethrum knock-down. J. DIGGLE and P. GREENSLADE coll. (TAS-132).

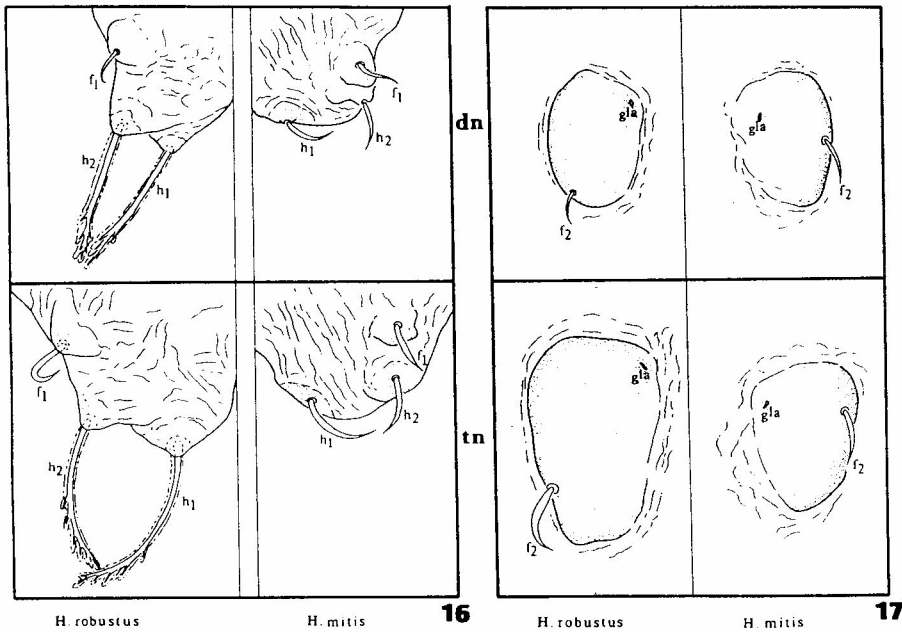
DISCUSSION

The two new species are very similar in shape of the body and many other characters, but can be easily distinguished basing on the following features:

	<i>H. mitis</i>	<i>H. robustus</i>
Body length	700-850 μm	950-1100 μm
Setae h_1 and h_2	ciliate	foliate
Position of setae f_2	anterior to gla	posterior to gla

Both species may be distinguished from the most closely related species, *Holonothrus concavus* WALLWORK, 1966 by the following adult characters:

1. Dorsal part of notogaster flat rather than depressed, deepened only in posterior part between longitudinal rows (in *H. concavus* strongly flattened and depressed, forming a concavity).
2. Different distribution of notogastral rows.
3. Setae h_1 and h_2 : smooth in *H. mitis*, both foliate in *H. robustus*, and only h_2 foliate in *H. concavus*.
4. Fewer genital setae.



16-17. *Holonothrus robustus* n. sp. and *H. mitis* n. sp., deutonymph (dn) and tritonymph (tn): 16 - comparison between the shape of posterior parts of notogaster, 17 - comparison between sclerites bearing seta f_2 (all dorsal aspect)

ACKNOWLEDGEMENTS

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