

NOTES ON THE GENUS *PERTORGUNIA* DALENIUS,  
1958 FROM ANTARCTICA AND MACQUARIE  
(Acari: Oribatei)

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*Abstract:* The main characters of the genus *Pertorgunia* are re-defined in the light of information presented on the development of immature forms of *P. colobanthi* Dalenius. The possession of sclerites bearing porose areas on the hysterosoma of immature forms, the presence of a prodorsal-hysterosomal separation at all stages in development and the presence of interlamellar setae at all stages are characters which indicate that the genus *Pertorgunia* belongs in the family Podacaridae Grandj.

The genus *Pertorgunia*, with *P. macquariensis* as type, was described from material collected on Macquarie Island (Dalenius & Wilson 1958). The species *Notaspis belgicae* Mich. 1903, collected at De Gerlache Strait, Graham Land, has also been assigned to this genus. Two species belonging to this genus, namely *P. belgicae* (Mich.) and *P. colobanthi* Dalenius, are present in a collection of oribatid mites sent to me by Dr. J. L. Gressitt of Bishop Museum. The collections of *P. belgicae* consist of 16 adults (10♂♂, 6♀♀) collected at Base Gonzales Videla and Deception I.; the first of these two localities is on De Gerlache Strait, and these collections probably originate from the vicinity of those described by Michael. The collections of *P. colobanthi* consist of 15 adults (11♂♂, 4♀♀), several tritonymphs, deutonymphs, protonymphs and 1 larval specimen; this material was collected by Dr. Gressitt on Macquarie I.

The purposes of the present paper are: (1) to determine the systematic position of this genus in relation to the genera *Podacarus* and *Ameronothrus*; to achieve this it is necessary to describe the immature stages, the species *P. colobanthi* being selected for this purpose, and to re-define the main characters of the genus, (2) to compare the two closely related species, *P. colobanthi* and *P. belgicae*.

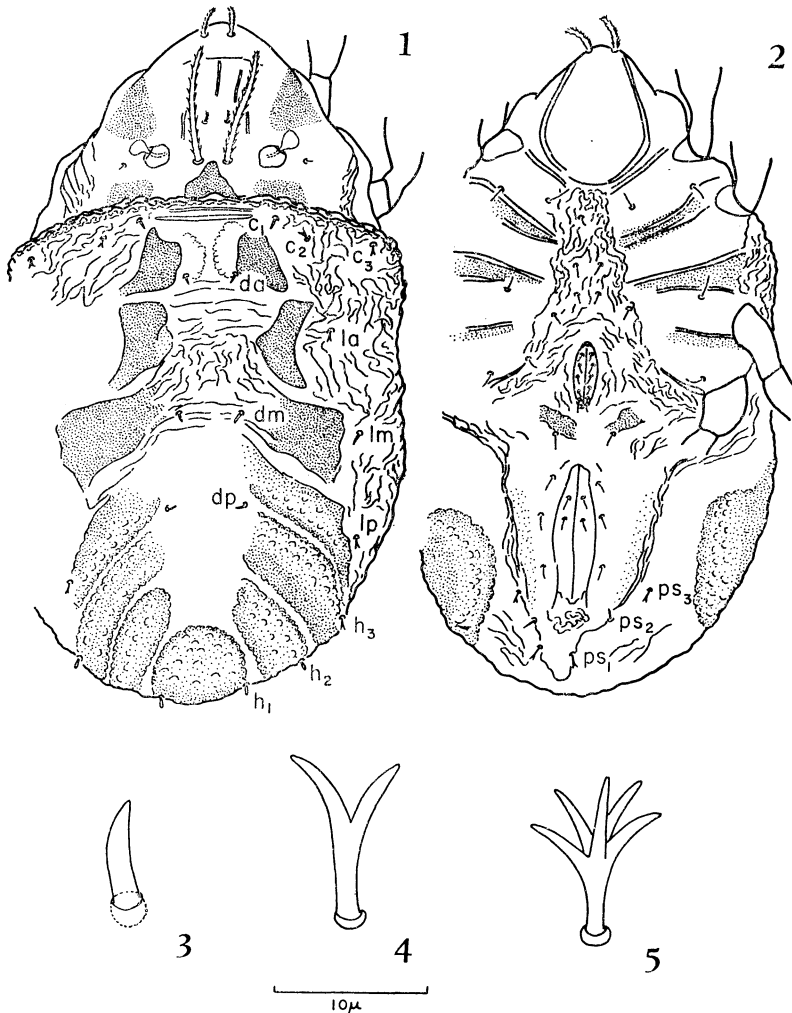
I. THE IMMATURE STAGES OF *P. COLOBANTHI*

The pattern of development is similar in many respects to that of *Podacarus Auberti* Grandj. 1955. The cuticle is strongly pleated in larva and nymphs and there are prodorsal and hysterosomal sclerites bearing porose areas. The prodorsal-hysterosomal separation is distinct throughout development, as it is in the adult. Nymphs are unideficient,

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adults bifid. The developmental changes occurring in the various regions of the body of the immature stages are considered below.

*Cuticle*: The pleated appearance of the cuticle is more pronounced in deuto- and tritonymphal stages than in larval and protonymphal, although the pattern is the same throughout. The pleats are strongly developed on the dorsal and lateral margins of the hysterosoma and ventrally on the sternal region. Large sclerites bearing porose areas are present on the dorsal surface of the hysterosoma; these consist of 6 pairs and a single unpaired sclerite posteriorly in the nymphal stages. The unpaired posterior sclerite may represent 2 fused sclerites, the counter-parts of which are seen separate in *Podacarus Au-*



Figs 1-5. *Pertorgunia colobanathi* Dalenius: 1, Tritonymph, dorsal view; 2, Tritonymph, ventral view; 3, Tritonymph, hysterosomal seta dp; 4, Tritonymph, hysterosomal seta c<sub>2</sub>; 5, Larva, hysterosomal seta lp.

*berti*. The arrangement of these sclerites is shown in fig. 1 which gives a dorsal view of the tritonymph of *P. colobanathi*. The sclerites differ in size and shape from those in *P. Auberti*. Porose areas are present laterally on the prodorsum anterior and posterior to the pseudostigmata; a single triangular porose sclerite is located posterior to the insertions of the inter-lamellar setae. Ventrally, poorly defined porose areas are present in the aggenital region (one pair), lateral to the adanal region (one pair) and associated with the coxisternal ridges. The limits of all porose areas (dorsal and ventral) are indistinct in larval and protonymphal stages, but become distinct in the deutonymphs and tritonymphs.

*Prodorsum*: Rostral setae are curved, thickened structures, conspicuously barbed, slightly longer than their mutual distance. Lamellar setae are very short and strongly barbed. Interlamellar setae are long, thickened, strongly barbed structures; these setae are 3-4× as long as their mutual distance in nymphal stages, relatively shorter in the larva. Exopseudostigmatic setae are very short. Sensillus is developed in all immature stages and consists of a short stem and strongly rounded head which is smooth. The mid-dorsal part of the prodorsum bears several longitudinal ridges; these are present in all immature stages.

*Dorsal region of hysterosoma*: The conspicuous features of this region, the porose sclerites, have been described above. The chaetotaxy of this region is similar to that of *P. Auberti*, the main difference being that the setae are much shorter in *P. colobanathi*. The larva bears 24 setae in this region, the nymphs possess 30. All hysterosomal setae are short; the centro-dorsal setae being swollen, the latero-dorsal setae are forked or strongly branched (figs. 3-5).

*Ventral region*: The details of this region in the tritonymph are shown in fig. 2. There is paraproctal atrichosy at 3 levels, namely the larva, protonymph and deutonymph; anal plates bear 2 setae in tritonymph and adult. Three pairs of adanal setae are present in deutonymph and tritonymph; these setae are lacking in the other immature stages. In the protonymph the pseudoanal setae  $ps_3$  are located lateral to the anus; in the larva 2 pairs of setae,  $h_3$  and  $h_2$  flank the anus, the more anterior of these ( $h_3$ ) being short and smooth as the centrodorsal setae of the hysterosoma, the setae  $h_2$  being strongly thickened and forked resembling setae  $h_1$  and  $lp$  on the postero-lateral margins of the hysterosoma.

A single pair of aggenital setae is present in deutonymphal and tritonymphal stages; these setae are lacking in larva and protonymph. The development of genital setae follows the formula (1-3-5-6) for proto-, deuto-, tritonymphal and adult stages. The tactile genital organs also develop in accordance with the normal rule; a single pair is present in the protonymph, 2 pairs in the deutonymph and 3 pairs in tritonymph and adult.

The development of coxisternal ridges in the tritonymph is shown in fig. 2. The distribution of porose areas associated with these ridges is also shown in this figure. The development of coxisternal setae is normal; neotrichy was not observed. Coxisternal setal formulae are as follows:—larva: (2-1-2); protonymph: (3-1-2-1); deutonymph, tritonymph and adult: (3-1-2-3).

## II. THE SYSTEMATIC POSITION OF PERTORGUNIA

The possession of sclerites bearing porose areas on the hysterosoma, the presence of a prodorsal-hysterosomal separation at all stages of development and the presence of interlamellar setae at all stages are characters which indicate the genus *Pertorgunia* to be a re-

representative of the family Podacaridae as defined by Grandjean (1955). This family differs in these respects, among others, from the family Ameronothridae, although the two families are closely related.

The family Podacaridae is considered to include the following genera: *Podacarus* Grandj., *Alaskozetes* Hammer, *Pertorgunia* Dalenius and *Fortuynia* van der Hammen. The genus *Halozetes* is not included in this list for information concerning the immature stages is not available. Of the four genera considered, *Fortuynia* can be distinguished easily by the contiguity of genital and anal fields and by the possession of 5 pairs of genital setae. *Alaskozetes* can be recognized by the form of the anterior margin of the notogaster which is a broadly rounded tectum; this anterior margin in *Podacarus* and *Pertorgunia* is somewhat pointed. These two last-named genera are closely related, although they can be separated readily on the basis of the form of the interlamellar setae which are very long, thickened and barbed in all stages in *Pertorgunia*, strongly reduced in size in all stages except the larva in *Podacarus*. The contour of the posterior margin of the notogaster may afford a distinction between these two genera also; this margin is broadly rounded in *Podacarus* whereas in *Pertorgunia* it is much narrower. A less obvious, but important, point of distinction involves the condition of the labio-genal articulation on the ventral region of the gnathosoma; this articulation is incomplete in *Podacarus* and *Alaskozetes*, complete and diarthral in *Pertorgunia*. The principal characters of the genus *Pertorgunia* are listed below:

1. Body and legs covered with a granular cerotegument.
2. Notogaster of the adult is ovoid in shape, narrowing anteriorly and posteriorly.
3. Nymphs are unidificent (30 hysterosomal setae); adults are bidificent (28 notogastral setae).
4. Sensillus has a strongly rounded head.
5. Interlamellar setae are long in all stages.
6. Labio-genal articulation of gnathosoma is complete and is diarthral.
7. Coxisternal ridges IV are lacking on ventral surface of podosoma.
8. Complete coxisternal setal formulae are: larva: (2-1-2); protonymph: (3-1-2-1); deutonymph, tritonymph and adult: (3-1-2-3).
9. Development of genital setae is expressed by the formula: (1-3-5-6) for proto-, deuto-, tritonymph and adult.
10. Paraproctal atrichosy at 3 levels.
11. Aggenital neotrichy may be present (restricted to adults?), especially in ♂♂.
12. All tarsi are tridactyle in adults; the median claw is more strongly developed than the laterals. Immature stages are monodactyle.
13. Immature stages possess large sclerites bearing porose areas on prodorsum and hysterosoma.
14. Prodorsal-hysterosomal separation is developed in all stages.
15. The cuticle of immature stages is strongly pleated.

### III. P. COLOBANTHI DALENIUS AND P. BELGICAE (MICH.)

These two species are very similar in many respects, and may be confused at first glance. Comparisons between individuals of both species reveal several constant differences however. Immature forms of *P. belgicae* are not available and consequently the characters

considered briefly below refer to adults.

*Lamellar setae*: These setae are variable in length in *P. belgicae* but they are always appreciably longer than their mutual distance; they are strongly thickened and barbed. Lamellar setae of *P. colobanthi* are inserted close together and are shorter than their mutual distance; they are thickened and barbed.

*Notogastral setae*: All notogastral setae are short and barbed in *P. colobanthi*; the pseudoanal setae (*ps*) are not appreciably longer than the remainder. Pseudoanal setae are appreciably longer than the other notogastral setae in *P. belgicae*. In addition, these setae are thickened and strongly barbed in this species.

*Rostral setae*: These setae are barbed in both species but are rather slender in *colobanthi*, thickened in *belgicae*.

*Neotrichy*: Aggenital neotrichy is strongly developed in ♂♂ of *P. belgicae*, the number of setae varying between 5 and 9 on each side; occasionally the aggenital seta may be duplicated in ♀♀ of this species. Aggenital neotrichy is weak in *P. colobanthi*, being represented by duplication of the seta in ♂♂; it is lacking in ♀♀ in this species.

*Ventral setae*: All ventral setae are slender and smooth in *colobanthi*, the adanal setae are thickened and barbed in *belgicae*.

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