

## Occurrence of *Proparholaspulus* (Acarina, Parholaspidae) in the Philippines<sup>1)</sup>

By

**Kazuo ISHIKAWA**

Biological Laboratory, Matsuyama Shinonome Junior College, Matsuyama

**Abstract** Two new mites of the genus *Proparholaspulus* belonging to the gamasid family Parholaspidae are described under the names of *P. montanus* and *P. angustatus*. They were found in the litter layer or sometimes moss in northern Luzon and northern Palawan, the Philippines.

In the summer of 1985, the author was given an opportunity to participate in a zoological expedition to the Philippines and to investigate the fauna of free-living or phoretic gamasid mites. The collectings were made either by hand sorting or by using Tullgren apparatus. Many gamasid mites were found in the samples thus obtained.

No parholaspid mites have hitherto been recorded from the Philippines. In the present paper, the author will give descriptions of two new species of the genus *Proparholaspulus*. The type series used for this study are deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo. Some duplicate specimens are retained in the collection of the Biological Laboratory, Matsuyama Shinonome Junior College, Matsuyama, and the National Museum of the Philippines, Manila.

Before going further, the author wishes to express his hearty thanks to Dr. Hiroyuki MORIOKA, under whose leadership the expedition was carried out, to Mr. Masaaki TOMOKUNI, Dr. Mamoru OWADA, Prof. Yoshiaki NISHIKAWA and Mr. Masahiro SAKAI, who participated in the expedition, and to the staff of the National Museum of the Philippines for conducting the research. Deep gratitude is also due to Prof. Dr. Kuniyasu MORIKAWA and Dr. Shun-Ichi UENO for giving him valuable suggestions and criticism. He is also indebted to Miss Mika SHIRAIISHI for her help in the course of this study.

### *Proparholaspulus montanus* sp. nov.

[Japanese name: Luzon-darumahokodani]

(Figs. 1, 2)

*Type series.* Holotype ♀ (NSMT-Ac 9804: ex litter of warm temperate forest,

1) This study is supported by the Grants-in-aid for Overseas Scientific Survey Nos. 60041078 and 61043074 from the Ministry of Education, Science and Culture, Japan.

Mt. Data, 2,300 m alt., Mountain Prov., Luzon Is., 25-VII-1985, K. ISHIKAWA. Paratypes: 6♀♀, 5♂♂, same data as holotype; 1♀, 1♂, under banana traps for collecting beetles, Mt. Data, 2,250 m alt., 13-VII-1985, M. SAKAI; 1♀, *ex* litter, Mt. Pangao, 2,350 m alt., near Mt. Data, Mountain Prov., 14-VII-1985, K. ISHIKAWA; 5♀♀, 1♂, *ex* litter, Mt. Puguis, 2,000 m alt., Mountain Prov., Luzon Is., 18-VII-1985, K. ISHIKAWA; 4♀♀, 5♂♂, *ex* moss on rotten trees, Mt. Pangao, 2,340 m alt., 26-VII-1985, K. ISHIKAWA; 2♀♀, 1♂, *ex* litter, Asin Spa, 500 m alt., nr. Baguio, Benguet Prov., 29-VII-1985, K. ISHIKAWA.

*Female*. Length of idiosoma av. 729  $\mu\text{m}$ ; length of dorsal shield with a range of 625–683  $\mu\text{m}$ , av. 650  $\mu\text{m}$ ; width of idiosoma av. 451  $\mu\text{m}$ ; width of dorsal shield at the level of coxae IV with a range of 408–460  $\mu\text{m}$ , av. 434  $\mu\text{m}$ .

*Dorsum*. Dorsal shield entire, anterior margin slightly rounded, without reticulation on the surface, and provided with forty-nine pair (sometimes fifty pair) of simple setae and fourteen pair of pores. Dorsal setae *j1* slightly shorter than setae *z1*. Length of setae (holotype): verticals 37.5  $\mu\text{m}$ , *z1* 48.9  $\mu\text{m}$ , *j2* 58.4  $\mu\text{m}$ , *j5* 57.0  $\mu\text{m}$ , *J1* 49.5  $\mu\text{m}$ , *J5* 53.0  $\mu\text{m}$  and humerals 60.5  $\mu\text{m}$ . The distribution of setae and pores are as shown in Fig. 1.

*Venter*. Tritosternum well developed, a pair of pilose laciniae longer than tritosternal base. Presternal shields consisting of a pair of large platelets. Sternal shield reticulated, fused with metasternal and endopodal shields, bearing four pair of simple setae and two pair of lyrifissures. Sternal setae IV located lateral to coxae IV. Epigynial shield completely fused with ventri-anal shield. Geniti-ventri-anal shield large, slightly longer than width, and weakly reticulated in the anterior margin, being provided with a pair of genital and five pair of preanal setae, and three perianal setae. Metapodal shields small and located lateral to the first preanal setae. Spermathecal apparatus absent. Stigmata situated at a position antero-lateral to coxae IV. Peritremes extending beyond coxae II; peritrematal shields fused with the exopodal, and rounded at the posterior edge.

*Gnathosoma*. Epistome with an anteriorly divided median extension and several short spines on either side, and a pair of elongate projections divided distally. Palpal apotele bearing three tines, two of which are distally spatulate. Fixed digit of chelicera provided with two large and a small teeth and a pilus dentilis, while movable digit (94  $\mu\text{m}$ ) is bidentate and slightly shorter than corniculus (98  $\mu\text{m}$ ). Dorsal seta on chelicera simple. Length of anterior hypostomatic seta 71.3  $\mu\text{m}$ , internal posterior hypostomatic seta 53.6  $\mu\text{m}$ , external posterior hypostomatic seta 34.5  $\mu\text{m}$  and deutosternal seta 37.0  $\mu\text{m}$ .

*Legs*. Tarsus I with small claws and pulvilli; tarsus I (excluding pretarsus 230  $\mu\text{m}$ ) much longer than tibia I (153  $\mu\text{m}$ ). Tarsi II to IV each with well developed claws and pulvilli; tarsus II with a pair of stout spines apically. Lengths of legs in the holotype I 846  $\mu\text{m}$ , II 585  $\mu\text{m}$ , III 521  $\mu\text{m}$  and IV 748  $\mu\text{m}$ .

*Male*. Length of dorsal shield (=idiosoma) with a range of 585–661  $\mu\text{m}$ , av. 621  $\mu\text{m}$ ; width of dorsal shield (=idiosoma) at a level of coxae IV with a range of

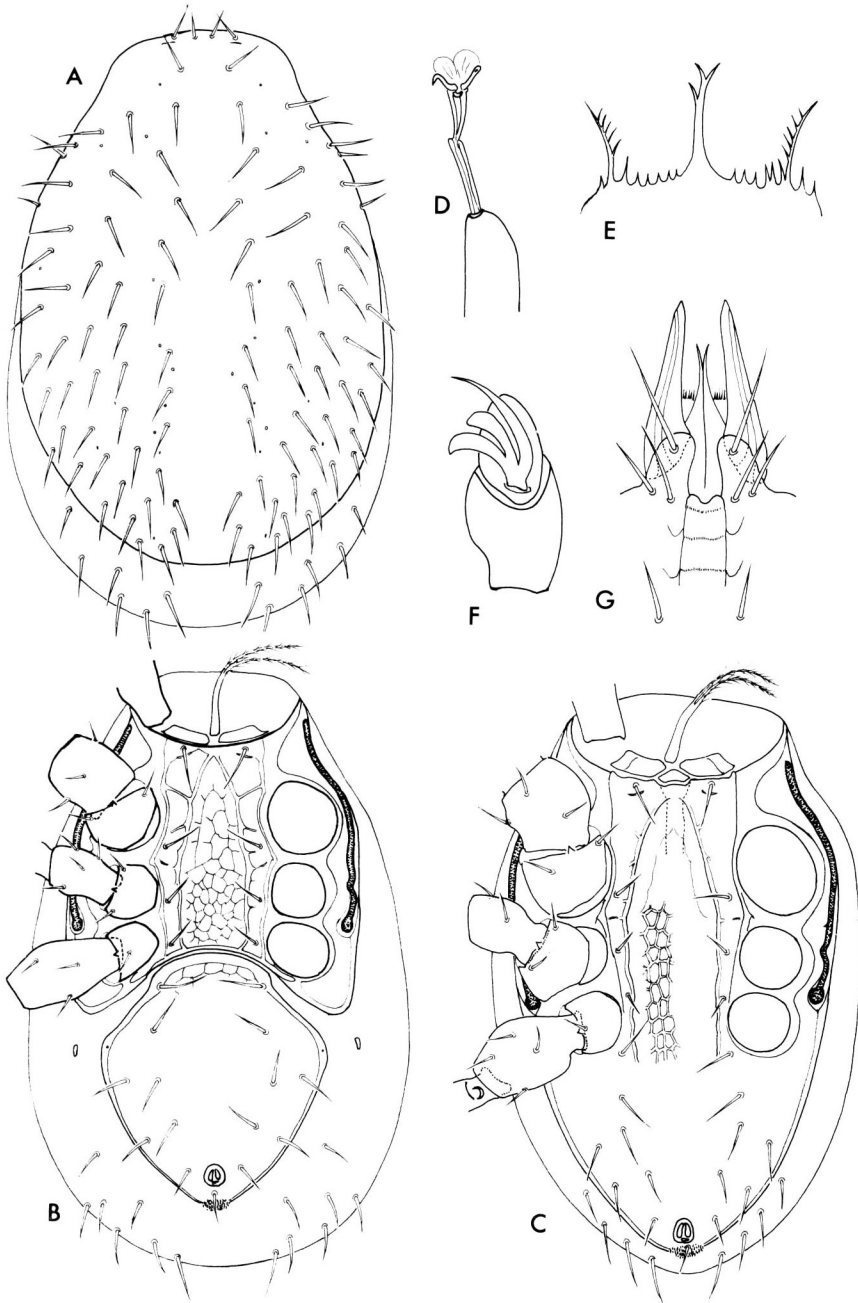


Fig. 1. *Proparholaspulus montanus* sp. nov. (A, B, D-G, female; C, male). — A, Dorsum; B, C, venter; D, claws and pulvilli of pretarsus I; E, epistome; F, palpal apotele; G, venter of gnathosoma.

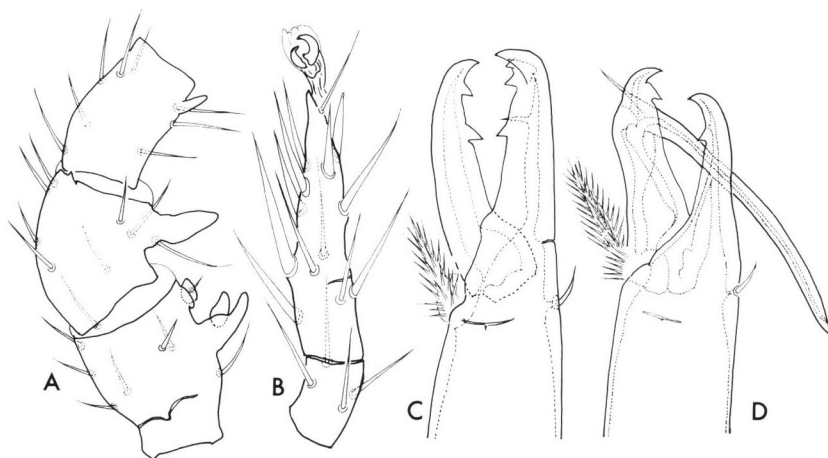


Fig. 2. *Proparholaspulus montanus* sp. nov. (A, D, male; B, C, female). — A, Tibia, genu and femur of leg II; B, tarsus II; C, D, chelicera.

367–417  $\mu\text{m}$ , av. 389  $\mu\text{m}$ . Dorsal chaetotaxy and ornamentation essentially similar to those of female. Genital orifice located on the anterior margin of sternal portion. Holoventral shield reticulated, with ten pair of simple setae and three perianal setae. Fixed digit of chelicera provided with a tooth and a pilus dentilis; movable digit (105  $\mu\text{m}$ ) unidentate, with a well developed spermatodactyl (140  $\mu\text{m}$ ). Tibia II with a spur; genu II with a large stout thumb-like spur; femur II with a stout bifurcate thumb-like spur and a small spur bearing a short simple seta. Trochanter IV with a stout apophysis. Length of legs in the allotype I 713  $\mu\text{m}$ , II 538  $\mu\text{m}$ , III 448  $\mu\text{m}$  and IV 672  $\mu\text{m}$ .

*Notes.* The present species can be readily discriminated from *Proparholaspulus suzukii* ISHIKAWA, 1980, from Shikoku, Japan, by the following characteristics: the dorsal shield is provided with forty-nine pair of simple setae, instead of forty-four; the ventral portion of the geniti-ventri-anal shield is provided with five pair of preanal setae, instead of four.

***Proparholaspulus angustatus* sp. nov.**

[Japanese name: Hosodarumahokodani]

(Fig. 3)

*Type series.* Holotype ♀ (NSMT-Ac 9805): *ex* litter of tropical rain forest, Olanguan Valley, 50 m alt., between Puerto Princesa and Roxas, Palawan Is., 1-IX-1985, K. ISHIKAWA. Paratype: 1♀, same data as holotype.

*Female.* Length of idiosoma 529  $\mu\text{m}$ , 518  $\mu\text{m}$ ; length of dorsal shield 510  $\mu\text{m}$ , 507  $\mu\text{m}$ ; width of idiosoma 273  $\mu\text{m}$ , 269  $\mu\text{m}$ ; width of dorsal shield at the level of humerals 270  $\mu\text{m}$ , 267  $\mu\text{m}$ ; width of dorsal shield at the level of coxae IV 208  $\mu\text{m}$ ,

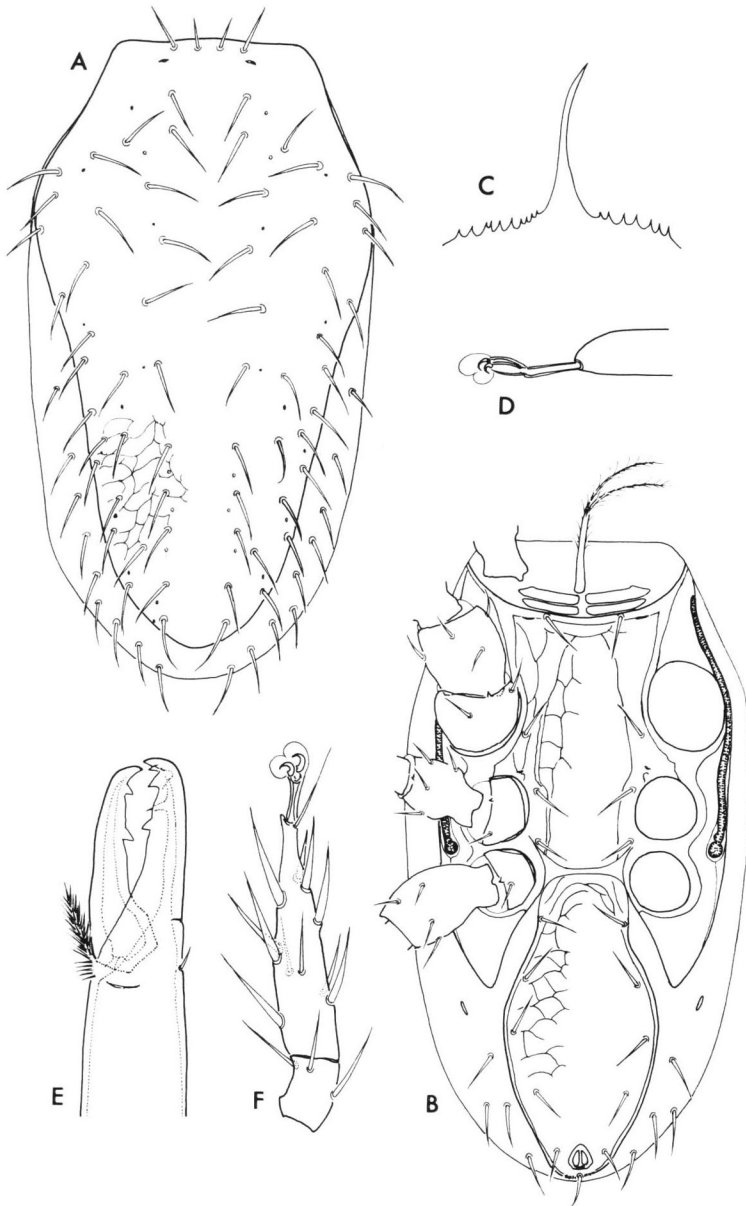


Fig. 3. *Proparholaspulus angustatus* sp. nov., female. — A, Dorsum; B, venter; C, epistome; D, claws and pulvilli of pretarsus I; E, chelicera; F, tarsus II.

203  $\mu$ m.

**Dorsum.** Dorsal shield entire, weakly reticulated, especially in the lateral and posterior areas, and almost truncated at the anterior margin, bearing thirty-two pair

of simple setae and sixteen pair of pores. Dorsal setae *j1* shorter than setae *z1*. Length of setae (holotype): verticals 27.5  $\mu\text{m}$ , *z1* 40.5  $\mu\text{m}$ , *j2* 39.6  $\mu\text{m}$ , *j3* 42.5  $\mu\text{m}$ , *J1* 43.0  $\mu\text{m}$ , *J6* 44.5  $\mu\text{m}$ , and humerals 46.2  $\mu\text{m}$ . The distribution of setae and pores are as shown in Fig. 3.

Venter. Tritosternum consisting of rectangular base and a pair of long pilose laciniae. Presternal shields composed of two pair of platelets. Sternal shield distinctly reticulated and provided with four pair of simple setae and two pair of lyrifissures. Sternal setae IV situated at a level between coxae III and IV. Epigynial shield coalesced with ventri-anal shield. Geniti-ventri-anal shield about twice longer than width, the portion of genital shield being elongate and weakly reticulated, bearing a pair of genital and three pair of preanal setae, and three perianal ones. Metapodal shields elongate, lying at a level between preanal setae I and II. Spermathecal apparatus absent. Stigmata situated between and lateral to coxae III to IV. Peritremes extending beyond coxae II, peritrematal shields well developed, posterior edge sharply pointed and fused with exopodal shield.

Gnathosoma. Epistome with elongate median extension and several short spines on either side, and without lateral elongate projections. Fixed digit of chelicera bearing two large and a small teeth and a pilus dentilis; dorsal seta on chelicera simple. Movable digit of chelicera (95  $\mu\text{m}$ ) bidentate and slightly shorter than corniculus (102  $\mu\text{m}$ ). Length of anterior hypostomatic seta 57.5  $\mu\text{m}$ , internal posterior hypostomatic seta 38.8  $\mu\text{m}$ , external posterior hypostomatic seta 30.7  $\mu\text{m}$  and deutosternal seta 25.3  $\mu\text{m}$ .

Legs. Tarsus I (excluding pretarsus 158  $\mu\text{m}$ ) much longer than tibia I (98  $\mu\text{m}$ ). Tarsi II to IV each with well developed claws and pulvilli. Lengths of legs in the holotype I 615  $\mu\text{m}$ , II 498  $\mu\text{m}$ , III 374  $\mu\text{m}$  and IV 566  $\mu\text{m}$ .

*Male.* Unknown.

*Notes.* Of all the species of the genus *Proparholaspulus* hitherto known, only the present species has two pair of presternal shields, instead of a single pair. It resembles *P. pasohensis* (ISHIKAWA, 1976) from Pasoh Forest Reserve, Malay Peninsula, in the shape of geniti-ventri-anal shield and posterior edge of peritrematal shield, but is readily distinguished from that species by the following points; dorsal shield with thirty-two pair of simple setae, instead of forty-four; the ventral portion of geniti-ventri-anal shield with three pair of preanal setae, instead of five.

## References

- EVANS, G. O., 1956. On the classification of the family Macrochelidae with particular reference to the subfamily Parholaspiinae (Acarina-Mesostigmata). *Proc. zool. Soc. Lond.*, **127**: 345-377.
- ISHIKAWA, K., 1976. Taxonomic investigations on mesostigmatid mites (Acarina) from Pasoh Forest Reserve, Malay Peninsula. *Nature Life SE Asia*, (7): 231-252.
- 1980. Taxonomic and ecological studies in the family Parholaspididae (Acari, Mesostigmata) from Japan (Part 3). *Bull. natn. Sci. Mus., Tokyo*, **6**: 153-174.
- KRANTZ, G. W., 1960. A re-evaluation of the Parholaspiinae EVANS 1956 (Acarina: Mesostigmata: Macrochelidae). *Acarologia*, **2**: 393-433.