Acarologia is proudly non-profit, with no page charges and free open access

Please help us maintain this system by encouraging your institutes to subscribe to the print version of the journal and by sending us your high quality research on the Acari.

Subscriptions: Year 2019 (Volume 59): 450 €
http://www1.montpellier.inra.fr/CBGP/acarologia/subscribe.php
Previous volumes (2010-2017): 250 € / year (4 issues)
Acarologia, CBGP, CS 30016, 34988 MONTFERRIER-sur-LEZ Cedex, France

The digitalization of Acarologia papers prior to 2000 was supported by Agropolis Fondation under the reference ID 1500-024 through the « Investissements d’avenir » programme (Labex Agro: ANR-10-LABX-0001-01)

Acarologia is under free license and distributed under the terms of the Creative Commons-BY-NC-ND which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original author and source are credited.
TWO NEW SPECIES OF THE GENUS HOLASPULUS
(ACARI : GAMASIDA : PARHOLASPIDAE) FROM JAPAN

by Kazuo ISHIKAWA *

TAXONOMY
HOLASPULUS
JAPAN

ABSTRACT: Two new mites belonging to the genus Holaspulus of the gamasid family Parholaspidae are described under the names H. omogoensis n.sp. and H. montanus n. sp. They were found in forest litter in Japan.

TAXONOMIE
HOLASPULUS
JAPON

RÉSUMÉ: Deux nouvelles espèces d'Holaspulus, H. omogoensis sp. nov. et H. montanus sp. nov., de la famille Parholaspidae, originaires du Japon, sont décrites.

The members of the Parholaspidae, which includes the genus Holaspulus, form a dominant group among the free-living predatory gamasid mites in Japan.

The genus Holaspulus was proposed by Berlese in 1904 for Holostaspis (Holaspulus) tenuipes from Italy, and was later dealt with by Evans (1956), Krantz (1960) and Ishikawa (1969, 1979). Up to now, two species have been recorded in Japan, these are H. tenuipes Berlese, and H. serratus Ishikawa. In this paper, the author describes two new species, Holaspulus omogoensis sp. nov. and H. montanus sp. nov.

The holotype, allotype and a part of paratypes of the new species are deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo. A set of paratypes of H. omogoensis sp. nov. are retained in the collection of Omogo Mountain Museum, Ehime, and the remaining paratypes are retained in the collection of the Laboratory of Biology, Matsuyama Shinonome College, Matsuyama.

Litter and soil samples were brought back to the laboratory in cotton bags, and extraction of mites from the samples was done by using a modified Tullgren apparatus. The mites were preserved in 70 % ethanol, cleared in lactophenol, and mounted in Hoyer's medium.

Holaspulus omogoensis sp. nov.

[Japanese name : Omogo-heragehokodani]
(Fig. 1 A-G)

Female. Length of idiosoma : av. 668 μm; width of idiosoma : av. 462 μm; length of dorsal shield with a range of 605-690 μm, av. 640 μm; width of dorsal shield at the level of coxae IV with a range of 400-475 μm, av. 429 μm; light brown in colour.

Dorsum. Dorsal shield entire, ornamented with punctations and reticulations, especially on the posterior portion. Dorsal shield bearing 30 pairs of setae and 22 pairs of pores; setae spatulate distally, with the exception of simple minute setae z1. Extramarginal setae spatulate distally and increasing in length from anterior to posterior. Length of setae (holotype) : verticals 66 μm, j2 45 μm, j3 47 μm, j4 38 μm, j5 42 μm, j6 46 μm, J1 42 μm, J2 43 μm, J6 59 μm, z1 5 μm and humerals 83 μm. The

* Laboratory of Biology, Matsuyama Shinonome College, Matsuyama 790, Japan.

FIG. 1: Holaspulus omogoensis sp. nov., (A-B, D, F-G, female; C, E, male).

distribution of setae and pores are as shown in Fig. 1A.

**Venter.** Tritosternum well developed, with a pair of pilose laciniae more than twice as long as tritosternal base. Presternal shields composed of a pair of platelets. Sternal shield strongly sclerotized, heavily ornamented with a network of ridges, and fused with endopodal shields. Sternal setae I longer than setae II and III, setae III lying well inside the bases of setae II. Metasternal shields free; provided with a pair of simple setae and pores. Epigynal shield fused posteriorly with ventrianal shield and with a pair of simple setae. Ventrianal shield fused with epigynal, podal and peritrematal shields, and with four pairs of preanal and three perianal setae. Expulsory vesicles of ventrianal shield absent. Interscutal membrane between dorsal and ventral shields provided with 14 pairs of spatulate setae. Metapodal shields present. Stigmata situated at a position anterolateral to coxae IV. Peritremes extending to coxae I.

**Gnathosoma.** Epistome with spinose median projection, with several short spines on either side and a pair of elongate lateral extensions. Apotele of palpal tarsus bearing three tines, two of which are spatulate distally. Fixed digit of chelicera provided with one large and three small teeth and a pilus dentilis, while movable digit (169 \(\mu\)m) is bidentate and longer than corniculus (130 \(\mu\)m). Salivary stylus (128 \(\mu\)m) well developed. Length of anterior hypostomatic setae 85 \(\mu\)m, internal posterior hypostomatic setae 49 \(\mu\)m, external posterior hypostomatic setae 46 \(\mu\)m and deutosternal setae 42 \(\mu\)m.

**Legs.** Tarsus I without claws or pulvilli; tarsus I (193 \(\mu\)m) more than twice the length of tibia I (85 \(\mu\)m). Tarsi II-IV each with well developed claws and pulvilli. Length of legs in the holotype: I (excl. sensory setae) 662 \(\mu\)m, II 563 \(\mu\)m, III 468 \(\mu\)m and IV 570 \(\mu\)m.

**Male.** Length of idiosoma av. 602 \(\mu\)m; length of dorsal shield with a range of 553-658 \(\mu\)m, av. 589 \(\mu\)m; width of dorsal shield at a level of coxae IV with a range of 385-462 \(\mu\)m, av. 449 \(\mu\)m.

Dorsal chaetotaxy and ornamentation similar to those of female. Sternitigenital portion ornamented with a network of punctae, with five pairs of simple setae. Ventrianal portion reticulated, provided with four pairs of simple setae and three perianal setae. Fixed digit of chelicera bidentate; movable digit (136 \(\mu\)m) unidentate and much longer than spermato-duct (73 \(\mu\)m). Tarsus I with neither claws nor pulvilli. Femur II with a large thumb-like spur, and genu, tibia and tarsus II each with a small spur. Length of legs in the holotype: I (excl. sensory setae) 618 \(\mu\)m, II 535 \(\mu\)m, III 430 \(\mu\)m and IV 517 \(\mu\)m.

**Type series.** Holotype \(\varphi\) (NSMT-Ac 10425) and allotype \(\delta\) (NSMT-Ac 10426), ex litter of Japanese cypress, *Chamaecyparis obtusa* Endlicher, Omogo Valley, Ehime Pref., 17 Aug., 1970, K. Ishikawa. Paratypes: 5 \(\varphi\), 5 \(\delta\), same data as for the holotype; 1 \(\varphi\), 2 \(\delta\), ex litter of *Camellia japonica* Linn., Cape Ashizurimisaki, Kochi Pref., 1 March 1977, F. Matsubara; 3 \(\varphi\), 3 \(\delta\), ex litter of *Fagus crenata* Blume, Tsuchigoya, Mt. Ishizuchi, 2 Oct. 1988, K. Ishikawa.

**Remarks.** The chaetotaxy and ornamentation of the dorsal shield of the present species resemble those of *Holaspulus montanus* sp. nov., described from litter layer under *Betula ermani* Cham., in the Shiga Heights, Nagano Pref., but is distinguished from the latter species by the following characteristics: movable digit of male chelicera much longer than spermato-duct, instead of approximately the same length; interscutal membrane between dorsal and ventral shields provided with 14 pairs of spatulate setae, instead of 12 pairs. *H. omogoensis* also differs from *H. tweediei* Evans, 1956, described from a rotting tree in Singapore, in the following characteristic features: dorsal setae 1 simple and minute, instead of simple and long; sternal shield ornamented with a network of fine punctae, rather than coarse punctae.

**Holaspulus montanus** sp. nov.

[Japanese name: Shigayama-heragehokodani]

(Fig. 2 A-G)

**Female.** Length of idiosoma: av. 580 \(\mu\)m; width of idiosoma: av. 432 \(\mu\)m; length of dorsal shield with a range of 560-592 \(\mu\)m, av. 575 \(\mu\)m; width of dorsal shield at the level of coxae IV with a range of 406-428 \(\mu\)m, av. 417 \(\mu\)m.
FIG. 2: Holaspulus montanus sp. nov., (A-B, D, F-G, female; C, E, male).
**Dorsum.** Dorsal shield entire, ornamented with punctations and reticulations, especially on the posterior portion. Dorsal shield provided with 30 pairs of setae, which are spatulate distally with the exception of simple minute setae z1, and 22 pairs of pores. Extramarginal setae spatulate distally, lying on strongly striated lateral interscutal membrane. Length of setae (holotype): verticals 57 \( \mu m \), j2 44 \( \mu m \), j3 43 \( \mu m \), j4 36 \( \mu m \), j5 37 \( \mu m \), j6 39 \( \mu m \), J1 38 \( \mu m \), J2 40 \( \mu m \), J6 55 \( \mu m \), z1 5 \( \mu m \), z2 59 \( \mu m \) and humerals 80 \( \mu m \). The distribution of setae and pores are as shown in Fig 2A.

**Venter.** Tritosternum well developed, with a pair of pilose laciniae more than twice as long as tritosternal base. Presternal shields consisting of a pair of platelets. Sternal shield sclerotized and ornamented with a network of ridges, provided with three pairs of simple setae and two pairs of lyrifissures. Metasternal shield free, with a pair of simple setae and pores. Epignyal shield fused posteriorly with ventrianal shield and with a pair of simple setae. Ventrianal shield fused with epignyal, podal and peritrematal shields, with four pairs of preanal setae and three perianal setae. Expulsive vesicles of ventrianal shield absent. Interscutal membrane between dorsal and ventral shields provided with 12 pairs of setae, four pairs of which are especially spatulate. Metapodal shields conspicuous, located lateral to preanal setae II. Stig mata situated at a position anterolateral to coxae IV. Peritremes extending to coxae I.

**Gnathosoma.** Epistome with spinose median projection and several short spines and elongate lateral projections on either side of the median projection. Palpal apotele bearing three tines, two of which are spatulate distally. Fixed digit of chelicera provided with one large and three small teeth and a pilus dentilis, while movable digit (132 \( \mu m \)) is bidentate and longer than corniculus (105 \( \mu m \)). Salivary stylus (102 \( \mu m \)) well developed. Length of anterior hypostomatic setae 75 \( \mu m \), internal posterior hypostomatic setae 42 \( \mu m \), external posterior hypostomatic setae 39 \( \mu m \) and deutosternal setae 32 \( \mu m \).

**Legs.** Tarsus I without claws or pulvilli; tarsus I (180 \( \mu m \)) more than twice the length of tibia I (77 \( \mu m \)). Tarsi II-IV each with well developed claws and pulvilli. Length of legs in the holotype: I (excl. sensory setae) 595 \( \mu m \), II 490 \( \mu m \), III 450 \( \mu m \) and IV 499 \( \mu m \).

**Male.** Length of idiosoma av. 520 \( \mu m \); width of idiosoma av. 416 \( \mu m \); length of dorsal shield with a range of 497-552 \( \mu m \), av. 509 \( \mu m \); width of dorsal shield at a level of coxae IV with a range of 371-410 \( \mu m \), av. 391 \( \mu m \).

Dorsal chaetotaxy and ornamentation similar to those of female. Sternitigenital portion strongly sclerotized and with a network of ridges. Ventrianal portion reticulated and bearing four pairs of simple preanal setae and three perianals. Fixed digit of chelicera bidentate; movable digit (96 \( \mu m \)) unidentate and approximately as long as spermatodactyl (95 \( \mu m \)). Tarsus I without claws or pulvilli. Femur II with a large thumb-like spur, and genu, tibia and tarsus II each with a small spur. Length of legs in the allotype: I (excl. sensory setae) 550 \( \mu m \), II 423 \( \mu m \), III 365 \( \mu m \) and IV 468 \( \mu m \).

**Type series.** Holotype \( \varphi \) (NSMT-Ac 10427) and allotype \( \delta \) (NSMT-Ac 10428), ex litter of *Betula ermanii* Cham., Maruike, Shiga Heights, Nagano Pref., 26 Aug. 1979, K. Ishikawa. Paratypes: 5 \( \varphi \), 3 \( \delta \), same date as the holotype; 2 \( \varphi \), 1 \( \delta \), Nagiso, Nagano Pref., 27 Aug. 1979, K. Ishikawa.

**Remarks.** *H. montanus* can be readily distinguished from *Holaspulus omogoensis* sp. nov. by the following characteristic features: movable digit of chelicera approximately the same length as spermatodactyl, instead of being much longer; interscutal membrane between dorsal and ventral shields provided with 12 pairs of spatulate setae, instead of 14 pairs.

**Acknowledgements**

The author wishes to express his hearty thanks to Dr. Shun-Ichi Ueno for his advice and criticism. Deep gratitude is also due to Dr. Kuniyasu Morikawa, President of Matsuyama Shinonome Junior College, for giving him valuable suggestions. He is also indebted to Miss Yumiko Nishino for her help in the course of this study.
REFERENCES


EVANS (G. O.), 1956. — On the classification of the family Macrochelidae with particular reference to the sub-

