Miyatrombicula (Miyacarus) kumadai n. sp.
found on the Japanese dormouse, *Glirulus japonicus*
(Prostigmata ; Trombiculidae)

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Abstract : *Miyatrombicula kumadai* n. sp. is described from the Japanese dormouse, *Glirulus japonicus*, in the northern part of Honshu, Japan. The new species resembles *M. tokyoensis* and *M. jonesae*, but is distinguished from them by the different characters of palpal, scutal and body setae, and host relationships.

A *Miyatrombicula* species was found on a Japanese dormouse, *Glirulus japonicus*, originally captured in a woods near Wakinosawa Village, Shimokita Peninsula, in the northern part of Japan, and reared by Prof. S. Hirata from January to March, 1978. The species resembles but different from *M. tokyoensis* (Kumada, 1954) and *M. jonesae* (Brennan, 1952).

***Miyatrombicula (Miyacarus)*
kumadai n. sp.**

(Japanese name : Kumada-tsutsugamushi)

Larva. Color in life yellow or faint orange. Ranges of length (BL) and width (BW) of partially engorged specimens 360–465 by 211–299 μ m smaller than *M. tokyoensis*. Eyes 2/2.

Gnathosoma (Fig. 1-C). Characteristics similar to “*cynos*” group of Brennan (1952). Palpal setal formula B-B-BNb, palpogenua and palpotibial dorsal setae with fewer branches than palpofemoral seta, palpotibial ventral seta and galeal seta with 1–3 branches, palpotibial lateral seta nude (two specimens with a minute branch on one side). Blade of chelicera with tricuspid cap. Palpal claw trifurcate. Palpotarsus with 7 branched setae and a spur, subterminala lacking.

Scutum (Fig. 1-D and Table 1). Pentan-

gulate, obtuse posterior end forming an angle of approximately 100°. Sensillary bases about on level of posterolateral setae. Sensillae 44–53 μ m long, with comparatively long lateral branches on apical two-thirds, and spike-like barbs on basal one third. Other scutal setae typical for genus. Length of scutum (ASB+PSB) 42–53 μ m width (PW) 64–72 μ m (range of 9–15 specimens), scutal shape resembles *M. tokyoensis*, but significantly smaller, especially close to size of *M. jonesae*.

Body setae (Fig. 1-A, B, G and Table 1). Dorsal setal formula 2, 9–12, 8–12, 7–8, 6–8, 5–7, 2–4, 2 (ranged 44 to 53 in total), second and third rows irregular. Humeral seta well separated from second row, longer than other dorsal setae, with short spikes. Ventral surface with 2 pairs of sternal setae, 34–42 anteroanal setae, 15–21 posteroanal setae, and the latter similar to dorsal setae. In general, body setae fewer and shorter than those of *M. tokyoensis*.

Legs (Fig. 1-A, E and F). Each leg with 7 segments, tarsi terminate with a pair of claws and claw-like empodium. Posterior margins of all coxae concave and poorly chitinized. Coxa I and II with a single branched seta, coxa III with 3 setae as in *M. tokyoensis* and *M. jonesae*, the inner seta longest (one specimen with 2 setae on one side). Specialized setal formula as follows :

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Fig. 1 *Miyatrombicula (Miyacarus) kumadai* n. sp., larva

(A) ventral and (B) dorsal view of engorged larva; (C) right half of gnathosoma; (D) scutum; (E) coxa III; (F) leg I, II and III with specialized setae; (G) humeral seta

Table 1 Standard measurements of *Miyatrombicula (Miyacarus) kumadai* n. sp. (in microns)

	Holotype	Mean (range) of 9-15 specimens	<i>M. tokyoensis</i> *
BL	430	418(360-465)	—
BW	281	250(211-299)	—
AW	52	53(48-56)	61.05
PW	68	67(64-72)	77.23
ASB	18	20(18-24)	23.55
PSB	29	27(24-29)	32.45
SB	20	20(18-24)	21.77
AP	18	19(15-22)	25.68
AS	23	23(20-26)	28.32
PS	24	24(22-26)	28.00
pp-ss	0	-0.3(-3.5-+2.2)	+4.00
am	35	34(33-40)	33.36
al	33	30(29-33)	35.91
pl	45	44(40-48)	51.91
s	50	48(44-53)	60.32
hm	46	44(40-46)	52.27
dsa	39	36(33-40)	38.09
DS	48	49(44-53)	56.22
VS	50	55(50-63)	64.70

* Mean of 11 type specimens (Kumada, 1954)

DS and VS: Total of the dorsal and ventral body setae, respectively

Leg I: 3 genualae, 1 microgenuala; 2 tibial spurs, 1 microtibiala; 1 tarsal spur, 1 microtarsala, 1 subterminala, 1 parasubterminala, 1 pretarsala. Leg II: 1 genuala; 1 tibial spur, 1 tibiala; 1 tarsal spur, 1 microtarsala, 1 pretarsala. Leg III: 1 genuala; 1 tibiala; 1 mastitarsala.

Type data. Fifteen specimens were collected from an adult *Glirulus japonicus* Schinz, 1845, on 20 March 1978. The host was captured by Prof. S. Hirata in Wakinosawa, Shimokita-Gun, Aomori Prefecture, Japan, in January 1978. Holotype and 7 paratypes were deposited in the Department of Parasitology, Hirosaki University School of Medicine, Hirosaki, Japan. The species is named in honor of Prof. N. Kumada.

Diagnosis and discussion. The genus *Miyatrombicula* Sasa, Kawashima and Egashira, 1952, includes the following species in Japan: *M. kochiensis* (Sasa *et al.*, 1952) in the southwest, *M. esoensis* (Sasa and Ogata, 1953) in the far north, *M. tokyoensis* (Kumada, 1954) in the middle, and *M. okadai* (Suzuki, 1976) in the far south. *M. esoensis* (= *Trombicula reesi* Allred, 1958) also occurs in North America (Brennan and Jones, 1959). Coxa III has two or more setae in the new species, *M. tokyoensis* and the "cynos" group. Hosts of *cynos* are mostly rodents (Brennan, 1952). Therefore, the author supports the view of Sasa and Ogata (1953) and Kumada (1954) that Japanese and North American species of the genus *Miyatrombicula* are related.

The new species is very close to *M. tokyoensis*. Both species are included in the subgenus *Miyacarus* Vercammen-Grandjean, 1968, on the basis of their lacking a subterminala on palpotarsus. An examination of two paratypes of *M. tokyoensis* indicates that the new species differs in having a significantly smaller scutum with the posterior angle somewhat obtuse, sensillae with long branches and bases more or less level with the posterolateral setae, all palpal and galeal setae sparsely branched except palpotibial lateral seta which is usually nude, and body setae shorter and fewer in number. It is interesting that the type host of the new species is the Japanese dormouse (Myomorphia; Gliridae) and of *M. tokyoensis* the

giant flying squirrel (Sciuromorpha; Sciuridae), both arboreal animals that may share the similar habitat. It should be noted that Tamiya (1962) recorded three larvae of *M. tokyoensis* from *G. japonicus* in Fukushima Pref., central Japan (at Oze?).

The new species is differentiated from the North American species, *M. jonesae*, by scutal and palpal characters, the smaller number of body setae, and the host. The type host of *M. jonesae* is *Peromyscus* sp. (Cricetidae).

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摘 要

ヤマネに見いだされたツツガムシの1新種 *Miyatrombicula kumadai* の記載

青森県下北半島の山林で捕獲されたヤマネから、ツツガムシの1新種 *Miyatrombicula* (*Miyacarus*) *kumadai* クマダツツガムシを記載する。本種は *M. tokyoensis* (Kumada) および北米産の *M. jonesae* (Brennan) に似るが、背甲板が小さく、感覚毛は後側毛とほぼ同一線上にあって、その側枝が長いこと、触肢の毛やガレア毛の側枝は少なく触肢脛節側縁毛が通常単条であること、胴部の背腹毛はやや短かくて数が少ないことによって容易に区別でき、また宿主も異なる。本種名は、*M. tokyoensis* の副模式標本参照に際して御配慮いただいた熊田信夫教授に奉献したものである。