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TWO NEW SPECIES OF DEFECTAMERUS FROM FAGUS AND PICEA FORESTS IN NIPPON (ACARI: ORIBATIDA)

BY T. FUJIKAWA

(Accepted June 2001)

NEW SPECIES SHIRIKAMI HAYACHINE DEFECTAMERUS

SUMMARY: Two new species belonging to the genus Defectamerus of the family Ameridae were described from a Fagus forest sup forest in the Shirakami-sanchi World Heritage Area and a Picea forest of Mt. Hayachine in Nippon.


The genus Defectamerus was erected by Aoki (1984) designating D. crassi setiger. Aoki, 1984 as the type. Until now, 3 species and 2 subspecies are known as the members of the genus from Nippon, Korea and Taiwan by Aoki (1984; 1991), Choi & Aoki (1985) and Choi (1994). Two new species of the genus were found from a natural beech forest in Shirakamisanchi World Heritage Area and a natural pine forest of Mt. Hayachine, the southermost place where Picea glehni Mast. was able to grow wild. Both these species have the following characters of the genus: (1) Body, elongated without dorsosejugar suture, (2) body dark-reddish brown, (3) rostrum with two incisions, (4) lamellar costulae, (5) bothridia situated far from each other, (6) long setiform sensilli, (7) a single pair of exobothridial setae, (8) notogaster with hemeral projection, (9) nine pairs of dorsal setae of which three pairs are longer than the remainder, (10) two pairs of anal, three pairs of adanal, six pairs of genital and one pair of aggenital setae, (11) six pairs of lyrifissures (ia, ih, im, ip, ips and iad), (12) gland-opening, (13) sternal ridge not developed, (14) diarthric subcapitulum, (15) a single pair of each infracapitular setae, a, m and h, (16) solenidiotaxy of legs: I(1-2-2); II(1-1-2); III(1-1-0); IV(0-1-0), (17) a single claw, (18) long setae p on tarsus I and short setae p on tarsi II to IV, (19) famulus inserted between solenidia 1 and 2 on tarsus I.

The holotype and the paratopotypes are deposited in National Science Museum, Tokyo, and toptotypes in World Heritage Conservation Center (Nishimeya), Aomori Prefecture and the Board of Education in Kawai-mura, Iwate Prefecture.

Defectamerus fuscus n.sp.
[Nipponese name: Ukon-erinashidani] (FIGS. 1-3)

Material examined: Holotype (NSMT-Ae 11185): from F, L, H and A layers of soil in a natural Fagus crenata Blume forest (alt: 520 m) in the Shirakami

sanchi World Heritage Area, Aomori Prefecture 3-x-1999, T. Fujikawa leg; 2 paratopotypes (NSMT-Ac 11186 & 11187) and 11 topotypes: the same data as the holotype; 3 paratypes (NSMT-Ac 11188 to 11190), from F, L, H and A layers of soil in the same forest but 620 m above the sea, 2-x-1999; 8 topotypes: the same data as the paratypes.

Measurements (33 exs.): Length, 564 (614) 664 μm; width, 357 (393) 450 μm.

Prodorsum: Lateral sides, especially lamellar, pedotectal and exobothridial region densely granulate. Rostrum with two incisions; anterior margin between incisions not protruding (Fig. 1B). Rostral setae (ro) glabrous setiform, slightly curved, inserted on lateral margins of rostrum, extending in front of the rostrum for a distance equal to about half of their length. Lamellar ridge narrow, extending forwards along prodorsum from the level of pedotectum I (Fig. 1A). In some specimens, lamellar ridge with weakly angular apex at the posterior end; lamellar setae (le) inserted at the anterior end of the ridges. Setae le ensiform, roughened becoming progressively densely from tip of the organ to the base, extending up close to the tip of setae ro. Interlamellar setae (in) ensiform, sparsely barbed, extending just behind the insertions of setae le. Narrow ridge running from

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**FIG. 1:** *Defectamus fuscus n.sp.* — A, Dorsal view; B, Rostrum; C, Ventral view.
**Fig. 2:** *D. fuscus* n.sp. — Prodorsal and dorsal setae. ro (rostral seta), le (lamellar seta), in (interlamellar seta), ex (exobothridial seta), ss (sensillus), ta, te, ti, ms, r1, r2 and p3 (dorsal setae), -ia (lyrifissure).
FIG. 3: *D. fuscus* n.sp. — Ventral and leg setae. *an* (anal seta), *ad* (adanal seta), *g* (genital seta), *ag* (aggenital seta), *a*, *m* and *h* (infracapitular setae), *4a* (epimeral seta), *p* (proral seta) *w*, *s* (solenidion on tarsus, tibia and genu, respectively) *e* (famulus on tarsus I).

insertions of setae into bothridia. Sensilli (*ss*) long setiform with minutely barbs showing a progressive reduction in number from the base to the tip. Exobothridial setae (*ex*) setiform, minutely barbed unilaterally.

Relative lengths and distances of prodorsal setae: *(Bo-Bo)* > *(ro-ro)* > *(le-le)* > *(in-in)*; *ss* > *le* > *ro* > *ex*.

*Notogaster:* Anterior notogastral margin straight, with humeral projection well developed, broadly truncate with pointed apices. Setae *ti*, *ms* and *r* series minutely barbed; setae *ta*, *te* and *p*-series glabrous (Fig. 2). Lyrifissure *ia* invisible because of being located under the humeral projection, aligned transversely posterior to seta *ta*. Lyrifissures *im* located longitudinally posteriorly between insertions of setae *te* and *ti*; *ih* obliquely postero-laterally to *ms*; *ips* obliquely lateral or postero-laterally to gland-opening.

Gland-opening located antero-laterally to the insertion of seta *ms*. Relative lengths and distances of notogastral setae: *(te-te)* > *(ti-ti)* > *(ms-ms)*; *(ta-ta)* > *(r2-r2)* > *(p1-p1)*; *ti* > *r1* > *ms* > *r2* > *te* > *ta* > *p*.

Ventral region: All ventral setae setiform (Fig. 1B); anal (*an*) and genital (*g*) setae glabrous; aggenital setae (*ag*) roughened; infracapitular setae (*a*, *m* and *h*) and epimeral setae sparsely and minutely barbed; adanal setae (*ad*) spinose (Fig. 3). Adanal setae *ad* inserted antero-laterally to the anterior margin of anal aperture; setae *ad1* postero-laterally to anal setae *an1*. Adanal lyrifissure *iad* located antero-laterally to anal setae *an2*. Anal aperture as width as genital aperture. Setal formula of epicera: (3-1-3-3). Relative lengths of principal ventral setae: h > 4a > m > a > ad > g > an > ag.
Legs: Claw without dent. Leg chaetotaxy including famulus, but excluding solenidia: I(1-5-3-4-19); II(1-5-3-4-15); III(2-3-2-3-14); IV(1-2-3-3-13). Solenidion $\omega_1$ on tarsus I bacilliform and other solenidia of legs setiform. On tarsus I, solenidion $\omega_2$ as long as $\omega_1$, and about 2.8 x as long as famulus $e$. On tibia I, solenidion $\varphi_1$ longer than $\varphi_2$.

Remarks: The present species is distinguishable from any other congeners by number of dorsal setae, length of $r_2$, infracapitular and epimeral setae, and location of adanal lyrifissure iad.

**Defectamerus conformis** sp. n.
[Nipponese name: Sakon-erinashidanil
(Figs. 4-6)]

Material examined: Holotype (NSMT-AC III91): from F, L, H and A layers of soil in a natural *Picea glehni* Mast. forest (1,140 m above the sea) at Mt. Hayachine in Iwate Prefecture 16-V-2000, T. FUKIKAWA leg. 3 paratopotypes (NSMT-AC 11192 to 11194) and 24 topotypes: the same data as the holotype.
Measurements: (27 ex.): Length 600 (637) 714 μm; width, 371 (413) 464 μm.

Prodorsum: Pedotectal region densely granulate (Fig. 4A). Rostral anterior margin between incisions protruding (Fig. 5). Setae ro setiform minutely barbed unilaterally, curved, inserted on lateral margins of rostrum, extending in front of the rostrum for a distance equal to about twice-third of their length. Lamellar ridge very distinct extending from the level of pedotectum I to the insertion of lamellar seta, with sharply pointed apex directed posteriorly.

Setae le ensiform, roughened densely at the base inserted at the inner anterior end of the ridges, exten-
Fig. 6: *D. conformis* n.sp.-A. — Leg I; B. — Claw of leg I; C. — Claw of leg II to IV; D — Solenidial region on tarsus I.

Dinging in front of rostrum for a distance equal to half their length. Setae *in* ensiform sparsely and minutely barbed, extending behind the insertions of setae *le*. Interlamellar ridges running from insertions of setae *in* to bothridia. Sensilli minutely barbed; barbs dense at the base of the organ. Setae *ex* setiform; proximal half minutely barbed unilaterally.

Relative lengths and distances of prodorsal setae: (Bo-Bo) > (ro-ro) > (le-le) > (in-in); ss > in > le > ro > ex.

Notogaster: Anterior noto-gastral margin slightly concave, with developed humeral projection extending backward to the level of lyrifissure *ih*. Setae *ta* and *te* glabrous; setae *ta* setiform; setae *te* spiniform; the remainder sparsely minutely and distally roughened. Lyrifissure *ta* aligned transversely posterior to seta *ta*; *im* longitudinally posteriorly to seta *te*; *ih* obliquely lateral or postero-laterally to seta *ms*; *ips* obliquely lateral to gland-opening. Gland-opening located antero-laterally to the insertion of seta *ms*.

Relative lengths and distances of noto-gastral setae: (te-te) > (ti-ti) > (ms-ms) > (ta-ta) > (r2-r2) > (r1-r1) > (p1-p1); ti > r1 > ms > r2 > te > p > ta.

All ventral setae setiform. Setae *ad* spinose; setae *an*, *g* and *ag* glabrous; infracapitular setae *a* minutely barbed distally; setae *m* and *h* glabrous. Anal aperture larger than genital aperture. Setae *ad*3 inserted antero-laterally to the anterior margin of anal aperture; Setae *ad*1 posteriorly between the insertions of setae *an1*. Adanal lyrifissures *iad* located lateral to the level of setae *an1*. Setal formula of epimerata: (3-1-2-3); setae glabrous.

Relative lengths of principal ventral setae: 4a > h > m > a > ad > g > ag > an.

Legs: Claw with a few dent (Fig. 6B). Leg chaetotaxy including famulus, but excluding solenidia: I(1-6-3-4-16); II(1-5-3-4 15); III(2-3-2-3-14); IV(1-2-3-3-13). On tarsus I, solenidion *w1* bacilliform, as long as setiform *w2*; *w2* about 1.2x as long as famulus *e*. Solenidion *q1* as long as *q2* on tibia I.
Remarks: The new species is close to *D. fuscus*, but distinguished from any other congeners by form of rostrum, lamellar ridge and setae, size of anal aperture, number of dorsal, epimeral and leg setae, situation of setae ad and lyrifissures im and iad, and length of epimeral setae, famulus and solenidia of leg I.

**Key to the species of the genus Defectamerus**

1 Notogaster bearing 10 pairs of setae (Korea) .............. *D. sungohi* Choi, 1994
   — Notogaster bearing 8 or 9 pairs of setae .............. 2
2 Notogaster bearing 8 pairs of setae  .............. 3
   — Notogaster bearing 9 pairs of setae .............. 5
3 Dorsal setae *ti* shorter than length of notogaster (Nippon) .............. *D. crassisetiger* Aoki, 1984
   — Dorsal setae *ti* longer than length of notogaster ... 4
4 Dorsal setae barbed (Korea) .................. *D. crassisetiger coreanus* Choi & Aoki, 1985
   — Dorsal setae smooth (Taiwan) .................. *D. crassisetiger australis* Aoki, 1991
5 Interlamellar setae extending beyond the insertions of lamellar setae; gland-opening situated lateral to the insertion of setae *ms* (Korea) .............. *D. soonhii* Choi et Aoki, 1985
   — Interlamellar setae extending just behind the insertions of lamellar setae; gland-opening situated antero-laterally to the insertion of setae *ms* .............. 6
6 Rostral anterior margin between incisions not protruding; anal aperture as width as genital aperture; formula of epimerata: (3-1-3-3); famulus about one-third as long as *w*2 on tarsus I; solenidion *qi* longer than *q2* on tibia I (Nippon-Fagus forest) .............. *D. fuscus* n.sp.
   — Rostral anterior margin between incisions protruding; anal aperture larger than genital aperture; formula of epimerata: (3-1-2-3); famulus as long as *o2* on tarsus I; solenidion *q1* as long as *q2* on tibia I. (Nippon-Picea forest) .............. *D. conformis* n.sp.

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