

Three New Species of the Genus *Anthrenus* (Coleoptera, Dermestidae) from Japan

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Abstract Three new species of the genus *Anthrenus* (*Florilinus*) from Japan are described under the names: *A. japonicus*, *A. tanakai* and *A. shikokensis*. Until now, they have been confused with each other and considered to be *Anthrenus museorum* (LINNÉ).

In the present paper, I am going to describe three new species of the genus *Anthrenus*. All of them belong to the subgenus *Florilinus* because of eight-segmented antennae, and are closely related to each other. In Japan, therefore, they were misidentified for a long time with *Anthrenus museorum* (LINNÉ). One of these new species is widely distributed in Japan, from Hokkaido to Kyushu, but the other two are rather limited in distribution to mountainous areas of Honshu and Shikoku, respectively. All these species usually occur on some kind of outdoor floweres and have never been collected in houses.

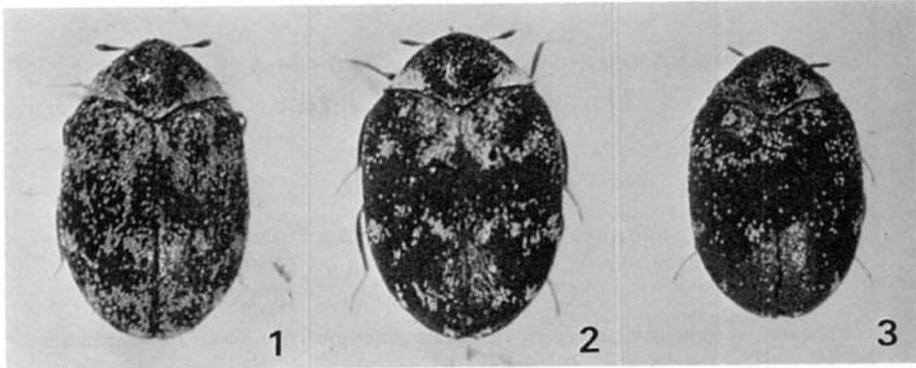
Before going further, I wish to express my deep gratitude in the first place to Prof. M. SATÔ for his constant guidance. I am much indepted to Prof. T. NAKANE, Mr. V. KALÍK and Dr. D. G. H. HALSTEAD for useful advice, and also to Dr. N. NAKAMOTO, Dr. R. D. ZHANTIEV, Dr. M. CHUJÔ, Dr. K. TANAKA, the late Mr. S. NOMURA, Prof. M. MIYATAKE, Messrs. S. HISAMATSU, M. SAKAI, Y. NOTSU, M. TOMOKUNI, H. MAKIHARA, K. TAKAHASHI, N. WATANABE and others for their offer of invaluable specimens used in this study.

Anthrenus (*Florilinus*) *japonicus* N. OHBAYASHI, sp. nov.

(Figs. 1, 5, 9, 13)

Male. Body black, antennae, tibiae and tarsi dark reddish brown. Dorsal surface covered with grayish white and very dark brown scales which are distributed as shown in Fig. 1. Ventral surface covered with whitish scales except for latero-basal regions of each abdominal sternite, which bears dark brown scales.

Body moderately strongly convex and narrowly obovate, 1.66 times as long as wide. Head provided with an ocellus; eye oval, with its inner margin evenly rounded and not emarginate; antennae eight-segmented with a single-segmented club, the length of the last segment ten times as long as the preceding one and also longer than the seven remaining segments combined. Pronotum 1.75 times as wide as long, antennal



Figs. 1–3. Dorsal view of *Anthrenus* spp. — 1. *Anthrenus japonicus* sp. nov. 2. *Anthrenus tanakai* sp. nov. 3. *Anthrenus shikokenensis* sp. nov.

cavity occupying nearly two-thirds of lateral margin, which is sinuate near the end of the cavity when seen from above. Metepisternum narrow; about seven scales can be counted in a transverse line across the narrowest point. Scales near elytral base rather short, gradually expanded apically (Fig. 9). Male genitalia small and less sclerotized; outer angle of parameres widely rounded; median lobe fairly short, its apical portion slender and roundly bent like a hook (Fig. 13).

Length: 2.0–2.7 mm, width: 1.2–2.0 mm.

Female. Externally similar to male except for the following points: body slightly wider, 1.56 times as long as wide; antennal club consisting of two segments, the length of the last segment three times as long as the preceding one.

Length: 2.2–3.2 mm, width: 1.3–2.0 mm.

Holotype: ♂, Miura Peninsula, Kanagawa Pref., 21. V, 1981, N. OHBAYASHI leg. *Paratypes:* 14 ♂♂ 13 ♀♀, Sapporo, Hokkaido, 20. VII, 1976, N. OHBAYASHI leg.; 2 ♂♂ 2 ♀♀, same data, M. SATŌ leg.; 1 ♂, Kawayu, Hokkaido, 22. VII, 1970, M. SAKAI leg.; 4 ♀♀, Hôheikyô, Hokkaido, 30. VI, 1958, M. MIYATAKE leg.; 1 ♂ 1 ♀, Sôunkyô, Hokkaido, 17. VII, 1970, M. SAKAI leg.; 1 ♀, Oshidomari, Rishiri Is., off Hokkaido, 10. VII, 1958, M. MIYATAKE leg.; 1 ♂, Sapporo, Hokkaido, 28. VII, 1942, H. HASEGAWA leg.; 1 ♂, Yunomata, Ohata, Aomori Pref., 14. VII, 1956, K. MORIMOTO leg.; 1 ♂ 1 ♀, Kuzukawa, Hiraka-chô, Aomori Pref., 5–10, VII, 1957, K. SHIMOYAMA leg.; 11 ♂♂ 19 ♀♀, Tateiwa Vill., Fukushima Pref., 29. VI, 1981, Y. NOTSU leg.; 1 ♀, Ozegahara, Gumma Pref., 9–10. VII, 1979, M. TOMOKUNI leg.; 2 ♂♂ 1 ♀, Narashino, Chiba Pref., 12. VI, 1949, K. TANAKA leg.; 1 ♂, Kunitachi, Tokyo, VI, 1962, S. NOMURA leg.; 2 ♂♂ 2 ♀♀, Kibôgaoka, Kanagawa Pref., 27. V, 1972, N. NAKAMOTO leg.; 1 ♂, Irino, Hiratsuka, Kanagawa Pref., 6. VI, 1979, Y. NOTSU leg.; 1 ♂, Mt. Sôunzan, Hakone, Kanagawa Pref., 23. VI, 1979, N. OHBAYASHI leg.; 3 ♂♂, Miura Peninsula, Kanagawa Pref., 7–10. VI, 1977, N. OHBAYASHI leg.; 1 ♂, same locality, 14. V, 1979, N. OHBAYASHI leg.; 85 ♂♂, 88 ♀♀, same locality, 21. V–2. VI, 1981, N. OHBAYASHI leg.; 7 ♂♂ 13 ♀♀, same locality, 16. V, 1982, N. OHBAYASHI leg.;

1 ♂, Kamikôchi, Nagano Pref., 29. VII, 1955, M. SATÔ leg.; 1 ♀, Mt. Togakushi, Nagano Pref., 17. VII, 1967, M. TOMOKUNI leg.; 2 ♀♀, Hirayu, Gifu Pref., 21–22. VII, 1946, K. OHBAYASHI leg.; 1 ♂ 1 ♀, Douhutsu, Toba City, Mie Pref., 6. VI, 1965, T. OHKAWA leg.; 1 ♂, Chuka-mura, Maniwa-gun, Okayama Pref., 7. VII, 1954, M. CHUJÔ leg.; 2 ♀♀, Mt. Daisen, Tottori Pref., 17–19. VII, 1973, Y. NOTSU leg.; 1 ♂ 1 ♀, Mt. Omogo, Ehime Pref., 27. VII, 1955, M. MIYATAKE leg.; 1 ♀, Omogo-kei, Ehime Pref., 12. VI, 1954, S. HISAMATSU leg.; 1 ♀, Namerikawa, Ehime Pref., 29. VI, 1975, Y. NOTSU leg.; 3 ♂♂ 1 ♀, Shigenobu-chô, Ehime Pref., 14. VI, 1984, A. SAKAI leg.; 1 ♀, Mt. Tsurugi, Tokushima Pref., 9. VI, 1959, S. HISAMATSU leg.; 1 ♂, Foot of Mt. Ichibusa, Kumamoto Pref., 8. VI, 1967, S. HISAMATSU leg.; 2 ♂♂, Mt. Ôboshi-yama, Tsushima Is., 17. VI, 1975, H. MAKIHARA leg.; 1 ♀, same locality, 28. VI, 1980, N. OHBAYASHI leg.

Distribution: Hokkaido, Honshu, Shikoku, Kyushu, Is. Tsushima.

Anthrenus (Florilinus) tanakai N. OHBAYASHI, sp. nov.

(Figs. 2, 6, 10, 14)

Male. Body black; antennae, tibiae and tarsi dark reddish brown. Dorsal surface covered with white and black scales which are distributed as shown in Fig. 2. Ventral surface covered with white scales on sternal parts; abdominal sternites mostly covered with black scales intermixed with white ones, which are dense on each apical margin or partly covered with black scales and the apical part with white scales.

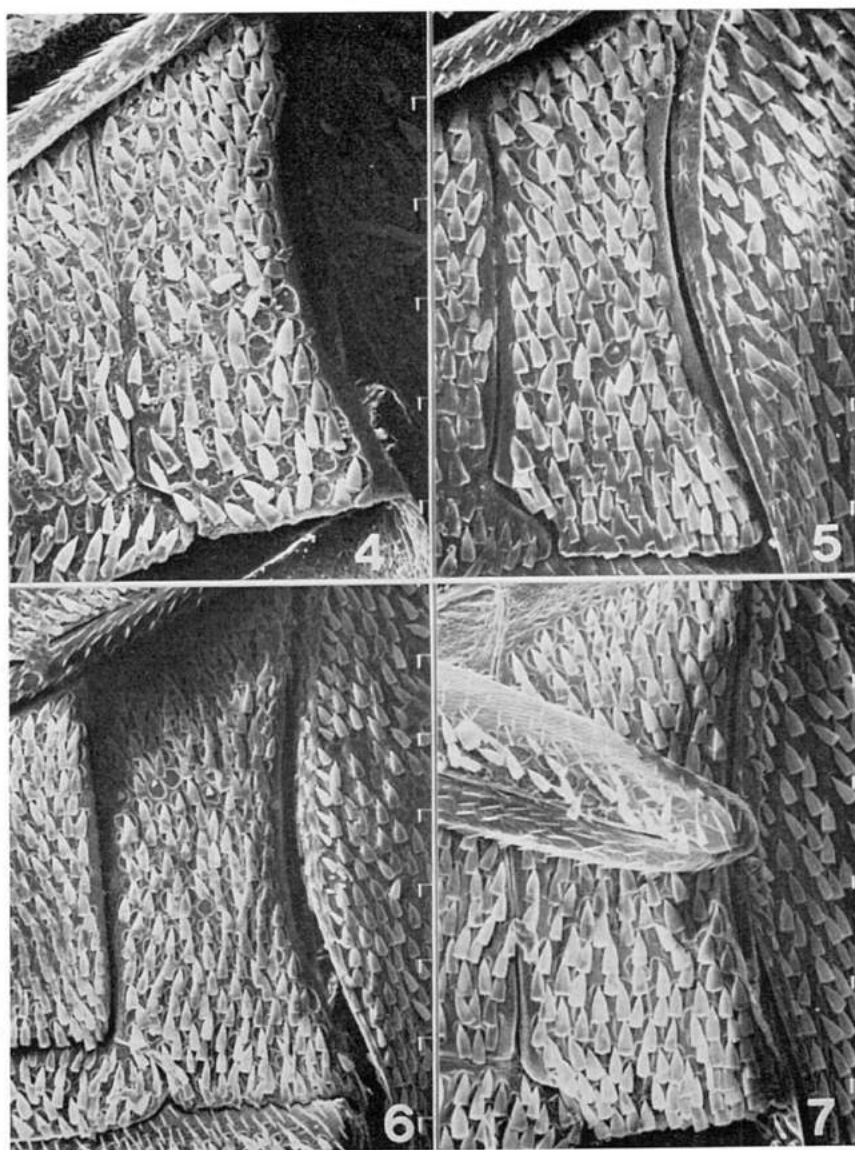
Body moderately convex and obovate, 1.56 times as long as wide. Head provided with an ocellus; eye almost oval though its inner margin is shallowly emarginate; antennae eight-segmented with a two-segmented club, the length of the last segment three times as long as the preceding one and as long as the four following segments combined. Pronotum 1.91 times as wide as long; antennal cavity occupying nearly a half or slightly more than a half of lateral margin, which is not sinuate when seen from above. Metepisternum wide; about 11 scales can be counted in a transverse line across the narrowest point. Scales near elytral base rather long, almost parallel-sided in apical two-thirds (Fig. 10). Male genitalia stout; median lobe rather short and not reaching the apices of parameres, its apical portion obtusely bent (Fig. 14).

Length: 2.7–3.4 mm, width: 1.7–2.2 mm.

Female. Externally similar to male except for the following points: body slightly wider, 1.49 times as long as wide; last antennal segment twice as long as the preceding in length.

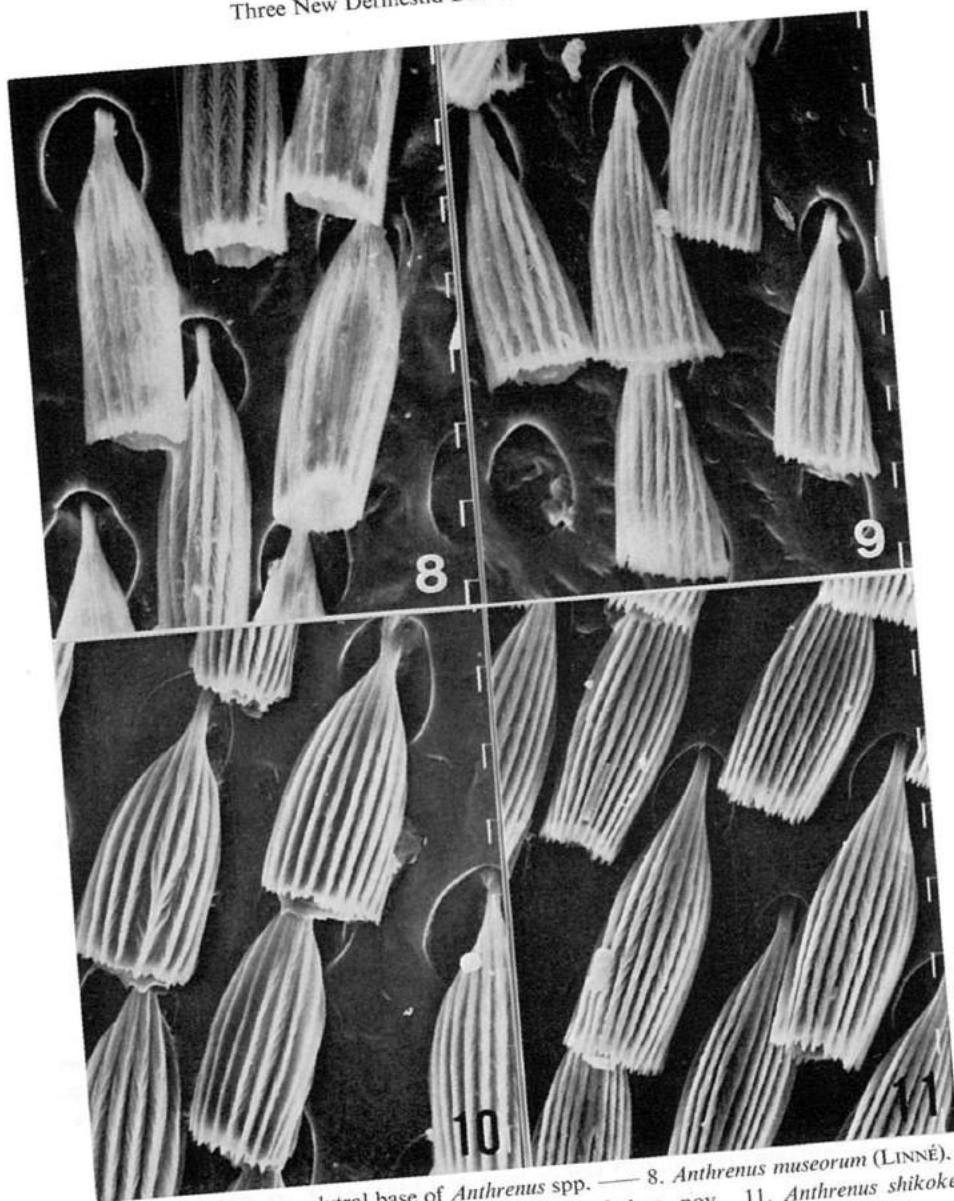
Length: 2.5–3.2 mm, width: 1.7–2.1 mm.

Holotype: ♂, Shimashima, Nagano Pref., 30. VII, 1984, K. TAKAHASHI leg. Paratypes: 2 ♂♂ 13 ♀♀, same data as the holotype; 2 ♂♂ 4 ♀♀, Kitaotari, Nagano Pref., 27. VII, 1969, M. TOMOKUNI leg.; 1 ♂ 2 ♀♀, Tobira Pass, Nagano Pref., 11. VII, 1982, N. OHBAYASHI leg.; 1 ♂, Misuzu-ko, Nagano Pref., 2. VIII, 1973, K. ITÔ leg.; 1 ♂ 2 ♀♀, Kamikôchi, Nagano Pref., 29. VII, 1955, M. SATÔ leg.; 4 ♀♀, Saga-



Figs. 4-7. Metepisterna of *Anthrenus* spp. — 4. *Anthrenus museorum* (LINNÉ). 5. *Anthrenus japonicus* sp. nov. 6. *Anthrenus tanakai* sp. nov. 7. *Anthrenus shikokensis* sp. nov. (Photo by Dr. N. NAKAMOTO.)

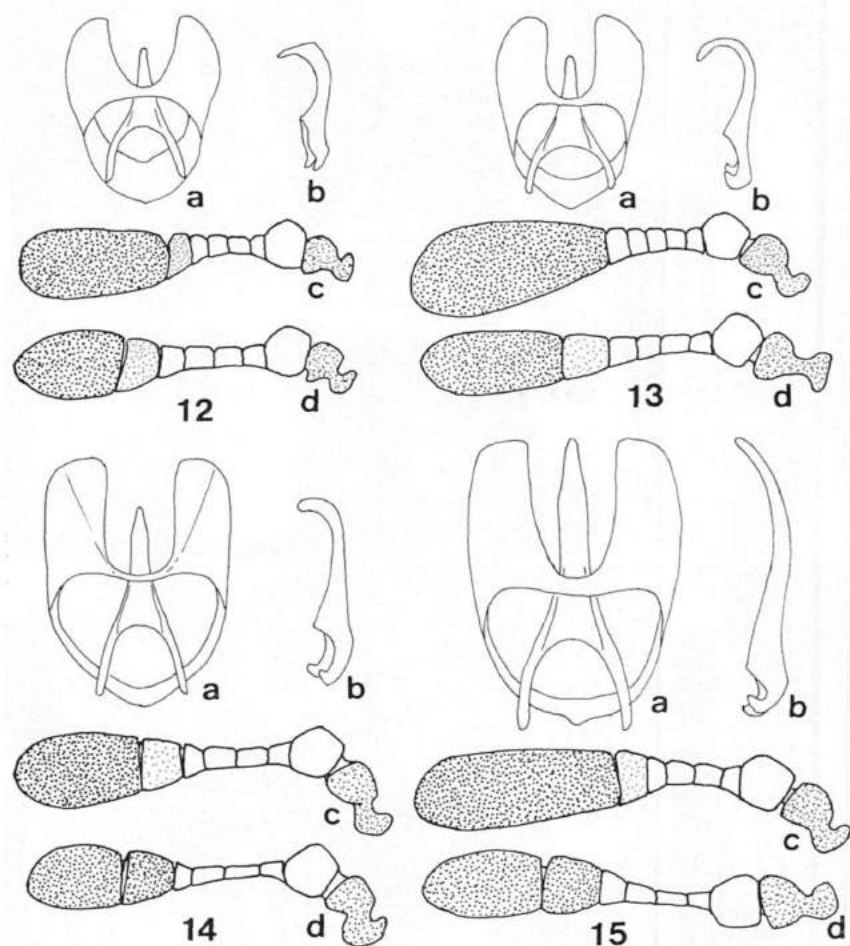
shio, Yamanashi Pref., 7-8. VII, 1956, T. TAGUCHI leg.; 1 ♂, Mt. Daibosatsu, Yamanashi Pref., 27. VI, 1963, K. TANAKA leg.; 2 ♂♂, Makime Pass, Fujino-machi, Kanagawa Pref., 12. V, 1984, K. TAKAHASHI leg.; 5 ♂♂ 3 ♀♀, Mt. Gozen, Okutama, Tokyo, 15. VI, 1957, K. TANAKA leg.; 1 ♂, same locality, 28. VII, 1956, K. TANAKA leg.; 1 ♀,



Figs. 8-11. Scales near elytral base of *Anthrenus* spp. — 8. *Anthrenus museorum* (LINNÉ). 9. *Anthrenus japonicus* sp. nov. 10. *Anthrenus tanakai* sp. nov. 11. *Anthrenus shikokensis* sp. nov. (Photo by Dr. N. NAKAMOTO.)

same locality, 1. VI, 1963, K. TANAKA leg.; 1 ♂, Nikkō-Yumoto, Tochigi Pref., 22. VI, 1963, K. TANAKA leg.; 5 ♂♂ 5 ♀♀, Akaishi Spa, Shizuoka Pref., 22. VI, 1971, K. TANAKA leg.

Distribution: Central Honshu (Nagano, Yamanashi, Kanagawa, Tokyo, Shizuoka).



Figs. 12-15. Male genitalia and antennae of *Anthrenus* spp. — 12. *Anthrenus museorum* (LINNÉ). 13. *Anthrenus japonicus* sp. nov. 14. *Anthrenus tanakai* sp. nov. 15. *Anthrenus shikokensis* sp. nov. (a: Dorsal view of male genitalia, b: lateral view of median lobe, c: antenna of male, d: antenna of female.)

Anthrenus (Florilinus) shikokensis N. OHBAYASHI, sp. nov.

(Figs. 3, 7, 11, 15)

Male. Body black; antennae, tibiae, and tarsi dark reddish brown. Dorsal surface covered with white and blackish brown scales which are distributed as shown in Fig. 3. Ventral surface covered with white scales except for laterobasal regions and the middle part of each abdominal sternite where the scales are almost black.

Body moderately convex and obovate, 1.63 times as long as wide. Head provided with an ocellus; eye almost oval, though its inner margin is shallowly emarginate;

antennae eight-segmented with a two-segmented club, the length of the last segment seven times as long as the preceding one and slightly shorter than the seven remaining segments combined. Pronotum 1.83 times as wide as long, antennal cavity occupying nearly three-fourths of lateral margin, which is slightly sinuate near the end of the cavity when seen from above. Metepisternum wide; about nine scales can be counted in a transverse line across the narrowest point. Scales near elytral base long, broadest at basal third and slightly narrowed towards apex (Fig. 11). Male genitalia stout; median lobe long, reaching the apices of parameres, its apical portion not bent but only slightly curved (Fig. 15).

Length: 2.6–2.9 mm, width: 1.6–1.8 mm.

Female. Externally similar to male except for the following points: body slightly wider, 1.58 times as long as wide, last antennal segment twice as long as the preceding one.

Length: 2.7–3.2 mm, width: 1.7–2.0 mm.

Holotype: ♂, Iwayaji, Ehime Pref., 1. VI, 1967, M. SAKAI leg. Paratypes: 2 ♂♂ 3 ♀♀, same data as the holotype; 1 ♂, Jôjusha, Mt. Ishizuchi, Ehime Pref., 16. VII, 1957, F. TAKECHI leg.; 1 ♀, Jôju-Kurokawa, Mt. Ishizuchi, Ehime Pref., 29. VII, 1955, M. MIYATAKE leg.; 1 ♂ 1 ♀, Omogo-kei, Ehime Pref., 1. VII, 1960, S. HISAMATSU leg.; 1 ♂, Odamiyama, Ehime Pref., 9–10. VII, 1974, Y. NOTSU leg.; 1 ♀, Mt. Kohne, Tokushima Pref., 11. VIII, 1968, M. SAKAI leg.; 1 ♀, Mt. Ôtaki, Kagawa Pref., 11. VI, 1950, M. CHUJÔ leg.

Distribution: Shikoku (Ehime, Kagawa, Tokushima).

Comparative Notes

The three new species described above closely resemble *Anthrenus museorum* (LINNÉ) due to the similar body form and coloration, but can be distinguished from it by the structure of antennae, the male genitalia and the shape of scales as shown in text-figures. On the other hand, *Anthrenus tanakai* sp. nov. has some relationship to *Anthrenus coreanus* MROCKOWSKI in the structure of antennal club, but in the latter species, the scales are short and widely expanded apically, and consist of gray, yellowish brown and dark brown ones intermixed, instead of white and black scales. From the other members of the subgenus *Florilinus*, viz. *A. flavidus* SOLSKIJ, *A. olgae* KALÍK, *A. araxensis* ZHANTIEV, *A. caucasicus* REITTER, etc., the Japanese species can be easily distinguished by the color and shape of scales, and by the structure of antennal club.

The three new species described in the present paper are separated from one another by the following key:

1. Antennal cavity occupying about a half of pronotal lateral margin . . . *A. tanakai*.
- Antennal cavity occupying more than two-thirds of pronotal lateral margin . . . 2.
2. Metepisternum wide, about nine scales can be counted in a transverse line across the narrowest point; last antennal segment of male seven times as long as the preceding one and that of female twice as long as the preceding one . . . *A. shikokensis*.

— Metepisternum narrow, about seven scales can be counted in a transverse line across the narrowest point; last antennal segment of male ten times as long as the preceding one and that of female three times as long as the preceding one. · *A. japonicus*.

Type depository: All the holotypes and some of the paratypes are preserved in the collection of Ehime University. The other paratypes are preserved in the collections of the author, the National Science Museum (Nat. Hist.), Tokyo, and Slough Laboratory in the United Kingdom.

摘 要

従来、わが国から *Anthrenus museorum* (LINNÉ) (シモフリマルカツオブシムシ) として知られている種について検討した結果、その中にはたがいによく似た3種が含まれ、いずれもヨーロッパ産の *A. museorum* とは異なる新種であることが明らかとなったので、この論文に記載した。

1種は、北海道、本州、四国、九州および対馬の主として平地に産するもので、*Anthrenus japonicus* N. OHBAYASHI と命名した。なお、本種の和名には、古くから用いられていたチビマルカツオブシムシを当て、シモフリマルカツオブシムシの和名は、ヨーロッパなどに分布する *A. museoram* にそのまま残したい。別の1種は、本州中部の山地に分布するもので、その存在を指摘された田中和夫氏に献名して、*Anthrenus tanakai* N. OHBAYASHI (ミヤママルカツオブシムシ) とした。また、四国に産する別の1種を *Anthrenus shikokensis* N. OHBAYASHI (シコクマルカツオブシムシ) と命名した。