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Morphological Variations of the Female Genus *Trachyrhinus* SHARP from Gifu Pref., Central Japan (Coleoptera, Curculionidae)

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岐阜県産 *Trachyrhinus* 属における♀の形態変異について
（鞘翅目，ゾウムシ科）

鈴　木　　功

Abstract Correlation between the length of body and the number of the facets, between the length of pronotum and its width, and the characteristics of spermatheca can be used in the classification of the female genus *Trachyrhinus*.

The first report on the genus *Trachyrhinus* was made by D. SHARP in 1896, based on the species that were collected by G. LEWIS at Nagasaki. This species was given the name, *T. sordidus*, as new genus and new species. The species was secondly reported by K. MORIMOTO in 1956, and it was named *T. troglodytes*, based on the two male species collected by S. UÉNO at Yamaguchi. After that, using a male specimen in the collection of K. SAWADA at Tottori, T. NAKANE classified *T. t. daisenicus* as a subspecies of *T. troglodytes* in 1963, for the form of its body and penis are different from those of *T. troglodytes*. For the time being, only the three species mentioned above are known in the world. But these species cannot fly, because they have no wings and their elytra are glued with an exudation and dirt. From this, it follows that some variations are seen at different areas. These considered, the weevils belonging to this genus, which will be found in future, will be varied according to its finding place.

During one year from September in 1985, the author took part in a research project made by the Gifu Prefectural Museum, and was, fortunately, able to collect 50 weevils. In this, the

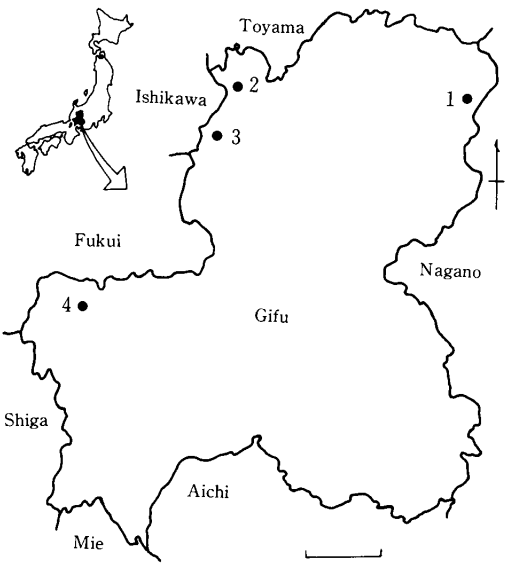

Fig. 1. Map shows the places of investigation in Gifu Pref., Central Japan. (Scale : 20Km)
Black markings indicate the names of investigated places.
1 : Nabe-daira, Kamitakara-mura, alt. 1,260m
2 : Ôkubo, Shirakawa-mura, alt. 720m
3 : Ôshirakawa, Shirakawa-mura, alt. 1,450m
4 : around Iso-dani, Tokuyama-mura, alt. 320m

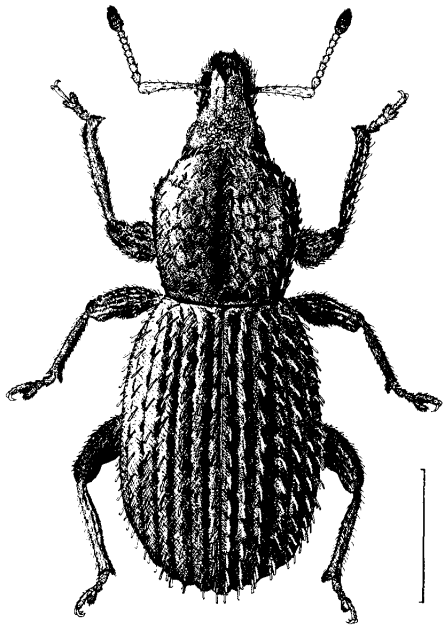

Fig. 2. *Trachyrhinus* sp., from Tokuyama-mura (Scale : 1.0mm)

author is going to report on morphological variations of the female *Trachyrhinus* collected in some regions of Gifu Prefecture.

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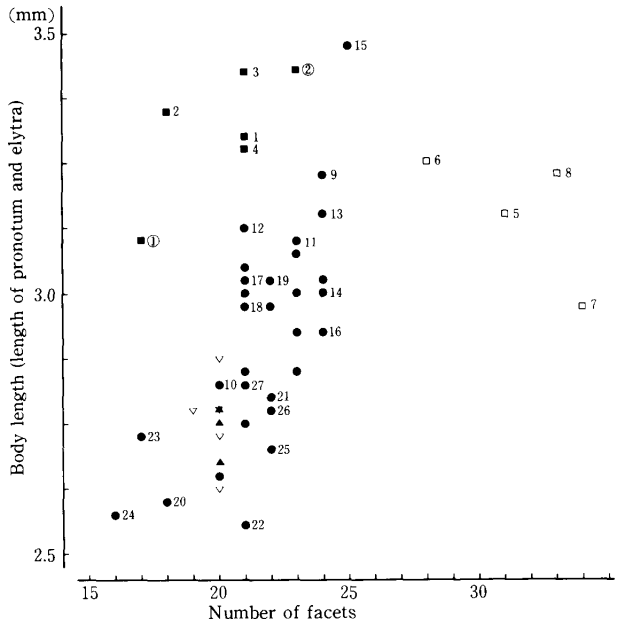

Fig. 3. Correlation between the length of body and the number of the facets. The same numbers on this figure, Fig. 5 and Fig. 6 indicate the same the weevils.

Correlation between the length of body and the number of the facets

In the correlation between the length of body and the number of the facets, the tendency is seen that, as the number of the facets is greater, the length of body becomes longer. But this is not always true. The specimens examined this time can be classified into two types on Fig. 3. One is a type marked with ●. The longer the length of body is, the greater the number of the facets becomes. The weevils from Ôshirakawa (▽) and Nabe-daira (▲) belong to this type. This type is indicated with Type 1. The other type is marked with ■ and □. Even if the number of the facets is large, the length of body does not change. The author is afraid that the latter is not always true, because the number of the specimens is so small. Only the weevils from Tokuyama-mura belong to the second type. The second type is indicated with Type 2.

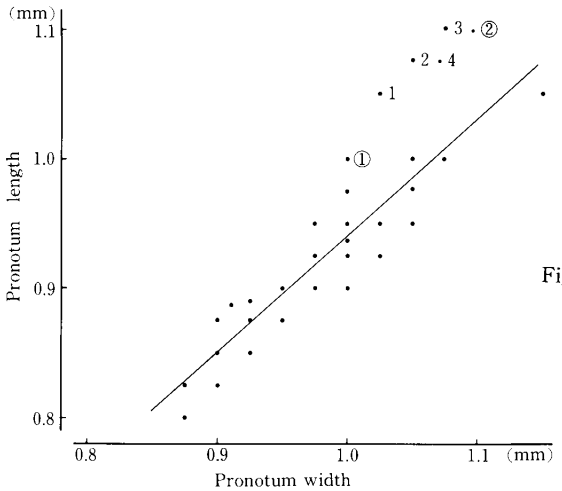

Fig. 4. Correlation between the length of pronotum and its width. The same numbers on this figure and Fig. 5 indicate the same the weevils.

Correlation between the length of pronotum and the width

When a regression line is drawn on the basis of the data except those of 1-4, ① and ② on Fig. 4, a comparatively strong correlation can be seen in this group. See an explanation of spermatheca and Discussion on ① and ② (P. 38).

Spermatheca

The spermatheca of specimens from Tokuyama-mura can be classified into two types.

Type A (Fig. 5. 1-4)

The spermatheca included in this type are the largest in size, Distal lobe is J-shaped : comparatively elongate and nearly parallel-sided. Lateral lobe tends to be found alongside with distal lobe. Basal lobe is slightly geniculate.

Type B (Fig. 5. 5-8)

The spermatheca are of middle-size. Distal lobe is V-shaped : not parallel-sided or elongate, and is like ones from Ôkubo (Fig. 5. 9-15) in the form. Lateral lobe is usually alongside with distal lobe, but not always the case. The form of basal lobe is not stable.

The spermatheca of specimens from Ôkubo can be classified into two types.

Type C (Fig. 5. 9-15)

Those belonging to Type C are of middle-size. The point of distal lobe is likely to be sharply narrow. Distal lobe of Type C is like that of Type B from Tokuyama-mura (Fig. 5. 5-8). The form of lateral lobe is not stable. Basal lobe is strongly geniculate.

Type D (Fig. 6. 16-27)

Those belonging to this group are the smallest of all. Distal lobe is thick and short. Lateral lobe is not alongside with distal lobe. Basal lobe is very short and straight.

Spermatheca of the specimens from Nabe-daira and Ôshirakawa are almost the same as those of Type D in the form.

It can be supposed that the longer the body is, the bigger the spermatheca are, and that the spermatheca, consequently, move from Type D to Type C. This conclusion, however, can not be formed so hastily, because no individuals of the intermidiate size between Type C and Type D are still found.

Discussion

Judging from the fact that the dots (1-4) are off from the regression line on Fig. 4, that the spermatheca numbered with 1-4 are peculiar in the form, and that the correlation between the number of facets and the length of body is evidently different from that of the others seen on Fig. 3, ones numbered with 1-4 can be classified as another species. These taken into consideration, ones marked with ① and ② can be regarded as the same species numbered with 1-4 on Fig. 4. All the specimens except ■ of Type 2 can be thought as the same with ones dotted almost on the regression line on Fig. 4, but ones belonging to Type B can be regarded as a subspecies or a category under the subspecies, because of the characteristics shown on Fig. 3, and the peculiar from of basal lobe of spermatheca. The weevils belonging to the genus *Trachyrhinus* collected at the places this time may be parthenogenetic ones, because all of them are female. If they are parthenogenetic, and male ones of the genus *T*. can not be found at these places in the future, it may be concluded that Type C is to Type D as ordinary species is to sibling species, and vice versa. Because the weevils collected this time are only fifty ones, the number is a little too small to be treated statistically. But it can be thought that these data mentioned above can be used in classifying spcies of the female *Trachyrhinus*.

摘　　要

日本固有属である *Trachyrhinus* 属に含まれるゾウムシは，後翅が退化し，上翅は合着しているため，飛翔活動は不可能である。このため地理的隔離による種分化が進み，形態的変異が多様であると考えられるが，現在までに2種1亜種が知られるのみである。そこで筆者は，岐阜県の4地域で採集した *Trachyrhinus* 属に含まれる♀50個体の前胸背長とその幅の相関関係，小眼の数と体長（前胸背長＋上翅長）の相関関係，及び，各受精嚢の形態的変異に着目して調べたところ，若干の興味深い結果を得ることができた。それによると，この50個体は既知種とは別の2種類とそれ以下のカテゴリーに含まれると思われる区分が見られ，*T*. 属ゾウリムシを区分する上で，これらの形態的特徴の活用が可能であると推測できた。

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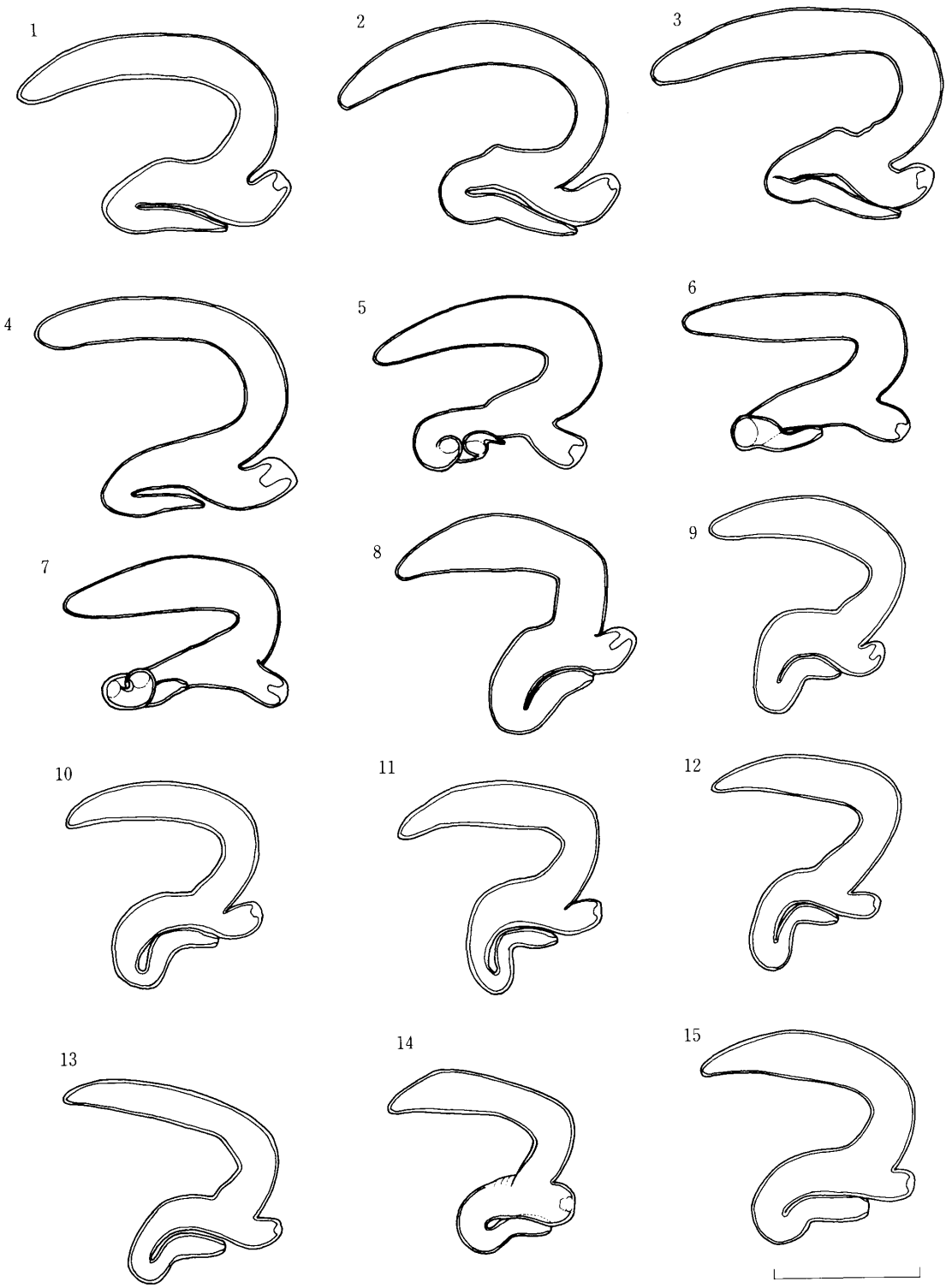

Fig. 5. Lateral view of spermatheca; 1-8, from Tokuyama-mura; 9-15. from Ôkubo, Shirakawa-mura. (Scale : 0.2mm)

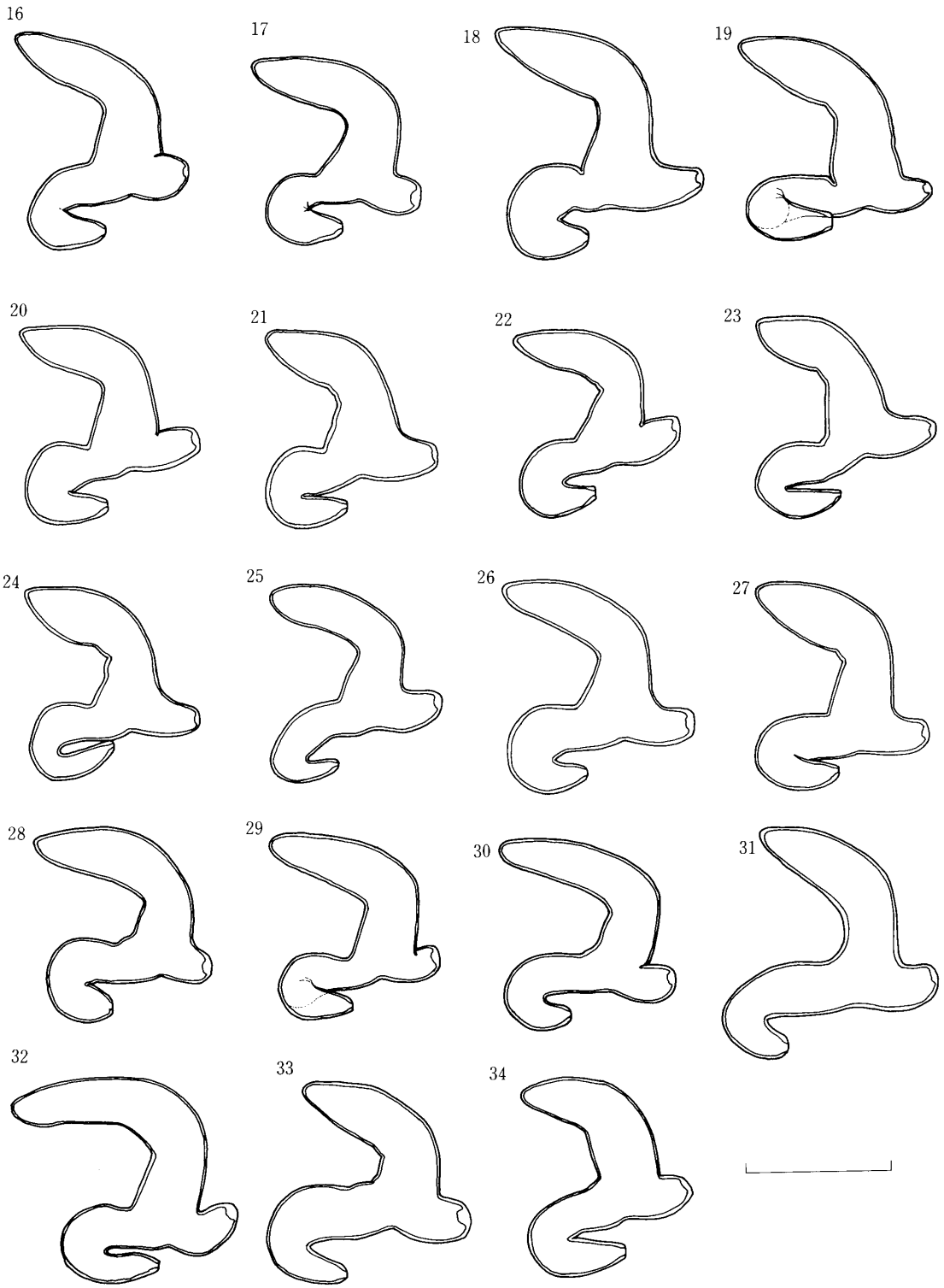

Fig. 6. Lateral view of spermatheca ; 16-17. from Ôkubo, Shirakawa-mura; 28-30. Nabe-daira, Kamitakara-mura; 31-34. from Ôshirakawa, Shirakawa-mura. (Scale : 0.2mm)