

and Agri-Food Canada, Research Branch, Ottawa, commented on the original draft of the manuscript. Mr. Go SATO from the same establishment carefully finished the line drawings.

### 要 約

A. SMETANA : 中国産ツヤムネハネカクシ亜族に関する知見. 16. ツヤムネハネカクシ属 *Microsaurus* 亜属の10. — 中国の四川省および陝西省から, *Microsaurus* 亜属のツヤムネハネカクシの5新種を記載し, それらに *Q. myau*, *Q. faang*, *Q. yaoqi*, *Q. koei* および *Q. songpan* の新名を与えた. いずれも *Q. erythras* と同じ系列のものだと考えられる.

### References

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## A New Type of Sexual Dimorphism in the Silphinae (Coleoptera, Silphidae)

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It is fundamentally important for identification of beetles to determine if a given specimen of a certain species is a male or a female. In silphine beetles, some external characters have already been known to show sexual dimorphism, that is, shape of the elytral apices, basal segments of the fore tarsi, emargination of the apical sternite of abdomen and excurvature of the hind tibiae. Since they are more or less subtle, however, sexual dimorphism in other parts of their body has been searched for to make accurate determination of the sex.

In the course of my study on geographical variation of *Silpha longicornis* PORTEVIN, a silphine beetle endemic to Japan, I became aware of previously unknown sexual dimorphism in terminal structure of the hind tibiae; in the male, the inner angle is distinctly produced in dorsal view, tuberculate in inner lateral view, and glabrous at the round apex of the projection, though the inner apical portion of each hind tibia is densely setiferous, whereas they are simple in the female. Shape of the projection is variable according to local populations.

I have searched for similar dimorphism in other silphine specimens of my collection, and found three types of terminal structure in the male hind tibiae, as summarized below:

1) Inner angle is distinctly projected with the inner apical portion densely setiferous: *Dendroxena sexcarinata* MOTSCHULSKY; *Diamesus osculans* (VIGORS); *Necrodes littoralis* (LINNAEUS); *N. nigricornis* HAROLD; *N. surinamensis* (FABRICIUS); *Silpha longicornis* PORTEVIN.

2) Inner angle is simple with the inner apical portion densely setiferous: *Aclypea opaca* (LINNAEUS); *Chrysosilpha formosa* (CASTELNAU)\*; *C. viridis* (MOTSCHULSKY)\*; *Eusilpha japonica* (MOTSCHULSKY); *E. (Calosilpha) bicolor* (FAIRMAIRE); *E. (C.) brunnicollis* (KRAATZ); *E. (C.) cyaniventris* (MOTSCHULSKY); *Oiceoptoma inaequale* (FABRICIUS)\*; *O. nigropunctatum* (LEWIS)\*; *Oxelytrum discicollis* (BRULLÉ); *Silpha perforata venatoria* HAROLD. (\*Not so densely setiferous in these species.)

3) Inner angle and inner apical portion are almost the same as in the female: *Chrysosilpha runatae* (PORTEVIN); *Eusilpha jakowlewi* SEMENOW; *Necrophila americana* (LINNAEUS); *Oiceoptoma subrufum* (LEWIS); *O. thoracicum* (LINNAEUS); *Phosphuga atrata* (LINNAEUS); *Thanatophilus lapponicus* (HERBST); *T. sinuatus* (FABRICIUS).

The present observation suggests that the terminal structure of the hind tibiae may furnish a secondary sexual character in many species of silphines, though it does not appear in some species. If the modification occurs, it is almost uniform in congeneric species. Behavioral function is unknown of the projection and the dense setiferous field, though they are probably related to mating, as was speculated by TANAKA (1986) on the modification of the male hind trochanters of several endomychid beetles and was referred by HANSEN (1997) to the relation between the mating and modification of legs in the Staphyliniformia. Further observation is needed for confirming this.

In closing the present brief note, I wish to express my hearty thanks to Dr. Shun-Ichi UÉNO, Emeritus Curator of the National Science Museum (Nat. Hist.), Tokyo, for his kindness in critically reading the original manuscript.

## References

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