

Occurrence of a New *Hyphalus* (Coleoptera, Limnichidae)
from the Ryukyu Archipelago, Japan

Masataka SATO

Biological Laboratory, Nagoya Women's University,
Mizuho-ku, Nagoya, 467 Japan

Abstract A new intertidal limnichid beetle of the genus *Hyphalus* is described from the Ryukyu Archipelago under the name of *H. taekoa*. The occurrence of this new species in the Ryukyus is very interesting from the zoogeographical viewpoint, since its nearest relative *H. insularis* BRITTON was discovered on the Great Barrier Reef, Australia.

In the course of his researches of the Ryukyuan homopterans, Dr. Masami HAYASHI collected a remarkable small limnichid beetle, and submitted the specimens to me for taxonomic study in 1992. It was found at low tide on the coral reef of the Island of Okinawa-hontô together with another limnichid, *Babalimnichus masamii* described by me in 1994. The habitus of this species was clearly impressed in my memory, because a species having the same facies has already been described by BRITTON (1971) from the Great Barrier Reef, Australia under the name of *Hyphalus insularis*. It did not only belong to a new genus, but to a new subfamily, Hyphalinae of the Limnichidae.

Since then, Dr. M. HAYASHI and I visited the Ryukyu Archipelago many times and were able to collect additional specimens of the same species on the rocky shores at several localities, which consisted of coral reefs.

A careful examination of these material has revealed that the limnichid is a second representative of the genus *Hyphalus* as will be described in the present paper.

In 1993, I attended at the 2nd Asia-Pacific Conference of Entomology held at Okinawa together with my wife, Taeko. On that occasion, we went to one of the localities, Bise-zaki, and collected only one specimen of the species in question in the strong sunshine. Why only one specimen was collected at that opportunity? It will be explained in the biological notes following the description of the new species. It is deeply regretted that this was the final trip with my wife. Already then, she had to rely on a wheelchair having suffered from brain hemorrhage, and she never had other opportunities to make a trip with me till January 21, 1996, when she passed away. During her lifetime, she always supported me not only in keeping our home life splendidly and bringing up four children of ours in spite of my frequent absence for collecting trips, but also in helping my studies in various ways. I therefore dedicate this paper to her memory.

I wish to express my hearty thanks to Dr. Shun-Ichi UENO for his kindness in

reading the original manuscript, and also to Mr. Hiroyuki YOSHITOMI for drawing text-figures and to Dr. Masami HAYASHI for supplying material.

Hyphalus taekoa M. SATÔ, sp. nov.

(Figs. 1-5)

Small in size. Body ovate, well convex, subopaque, closely covered with fine silvery pubescence. Dorsal surface black with brownish tinge. Ventral surface and appendages brown to dark brown, though 3 basal segments of tarsi and claws are yellowish brown.

Head deflexed, moderately convex, but somewhat flattened between antennal insertions, disc closely microreticulate; labrum shining; front clypeal suture emarginate; eyes moderate, lateral, and separated by about 5 times the diameter of each one; antennae clavate, medial in length, closely pubescent, 6th to 10th segments somewhat angulate at the inner sides; terminal segment of each maxillary palpus longer than three basal segments taken together. Pronotum about 1.8 times as broad as long, broadest just before hind angles, the distance between which is about 1.4 times as broad as anterior breadth; sides gently narrowed anteriorly; lateral margins rimmed; disc closely microreticulate. Elytra about 1.2 times as broad as pronotum, about 1.3 times as long as broad, broadest at basal third, thence slightly narrowed anteriorly and moderately so posteriorly; lateral margins rimmed; disc scattered with minute punctures. Hind wings absent.

Ventral surface distinctly microreticulate. Prosternal process wide with rounded apex. Abdominal sternites furnished with sparse stiff hairs in addition to primary pubescence. Legs simple, closely covered with pubescence; femora stout; tibiae slender; tarsi short, 4th segment stout and longer than 1st to 3rd taken together; claws simple.

Male genitalia short; lateral lobe subtriangular with rounded apex; median lobe with rounded apex. Female genitalia more or less sclerotized and symmetrical.

Sexual dimorphism not pronounced.

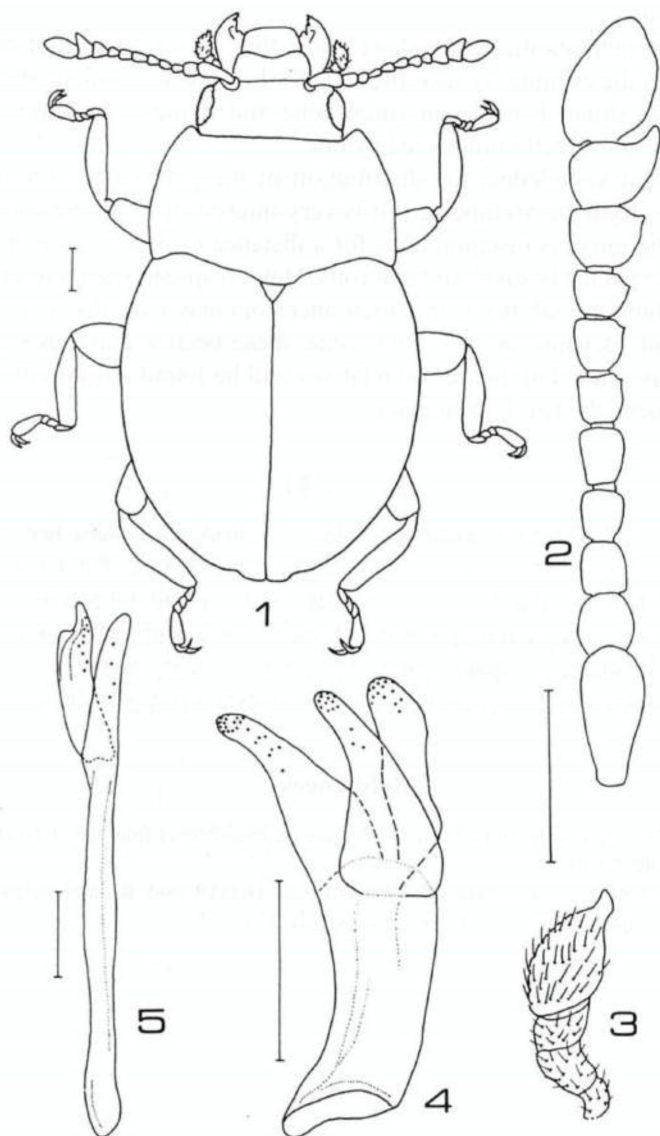
Length: 1.0-1.2 mm; breadth: 0.6-0.7 mm.

Holotype: ♂, Bise-zaki, Okinawa-hontô, Ryukyus, 30-VII-1993, M. & T. SATÔ leg. Paratypes: 101 exs., same locality as for the holotype, 14-IV-1992, 17-V-1993, 23-III-1994, M. HAYASHI *et al.* and M. SATÔ leg.

Further specimens examined. 4 exs., Sumiyoshi, Is. Iriomote-jima, Ryukyus, 6-VII-1993, M. HAYASHI leg.; 12 exs., Nobaru-zaki, Is. Ishigaki-jima, Ryukyus, 9-VII-1993, M. HAYASHI leg.; 2 exs., same locality, 23-III-1996, M. SATÔ leg.; 75 exs., Dannu-hama, Is. Yonaguni-jima, 26-VIII-1994, 21-III-1995, M. SATÔ leg.

The holotype and some paratypes are preserved in the collection of the National Science Museum (Nat. Hist.), Tokyo. Most paratypes are deposited now in the collection of the Biological Laboratory, Nagoya Women's University.

Distribution. Ryukyu Islands (Okinawa-hontô, Ishigaki-jima, Iriomote-jima and Yonaguni-jima).



Figs. 1-5. *Hyphalus taekoae* M. SATO, sp. nov. — 1, Habitus; 2, antenna; 3, maxillary palpus; 4, male genitalia in latero-ventral aspect; 5, female genitalia in lateral aspect. (Each scale indicates 0.1 mm.)

Notes. The present new species is almost identical in general appearance with *H. insularis*, though it is differentiated from the latter by having the following characteristics: terminal segment of maxillary palpus somewhat pointed at the tip, the 9th and 10th antennal segments each angulate at a corner, the male genitalia stout, and the

body a little smaller.

This species inhabits the rocky shore consisting of coral reef and emerges from narrow fissures in the evening, or near the sunset when the air temperature is moderate. Most habitats are situated in the intertidal zone and immersed at high tide, though some of them are not directly influenced by tide.

In our present knowledge, the distribution of the genus *Hyphalus* is limited to Australia and the Ryukyu Archipelago. It is very interesting from the zoogeographical viewpoint that the range is discontinuous for a distance of more than 6,000 km. Moreover, the present species is small and apterous. How to spread such a long way is difficult to explain, but a possibility is that their ancestors may have dispersed step by step with tidal current. Because of very small size, these beetles may have escaped from our eyes for a long time, but their close relatives will be found in future in a wide intervening area between the two known places.

要 約

佐藤正孝：琉球列島における *Hyphalus* 属の発見。—— *Hyphalus insularis* BRITTON は、オーストラリアのグレート・バリアー・リーフで得られた標本に基づいて、チビドロムシ科の新亜科を形成する特異な種として記載された。ここに記載した別の1新種（サンゴチビドロムシ, *Hyphalus taekoa* M. SATO）が、6,000 km も離れた琉球列島のサンゴ礁で発見されたことは、生物地理学的にきわめて興味深い。後翅の退化していることからみて、海流によって分布を拡げたことが想定されるので、将来、南西太平洋の島じまでも発見されることと期待される。

References

- BRITTON, E. B., 1971. A new intertidal beetle (Coleoptera: Limnichidae) from the Great Barrier Reef. *J. Entomol.*, (B), **40**: 83-91.
- SATO, M., 1994. Notes on the genus *Pseudoeuchinetus* HELLER and its new relative (Coleoptera, Limnichidae). *Spec. Bull. Essa ent. Soc., Niigata*, (2): 173-177.