

Taxonomic Notes on the Genus *Morimotozo* (Coleoptera, Curculionidae)

Hiroaki KOJIMA

The Kyushu University Museum, Kyushu University, Fukuoka, 812–8581 Japan

and

Isao MATOBA

Wakayama Prefectural Museum of Natural History, Wakayama, 642–0001 Japan

Abstract A new species of the genus *Morimotozo* ALONSO-ZARAZAGA et LYAL similar to *M. obscurus* (ROELOFS) is described under the name of *M. castaneus* sp. nov. from the Ryukyus, Southwest Japan. The adults are captured on leaves of *Distylium racemosum* (Hamamelidaceae), but the larval host is not yet established. The record of *M. obscurus* from the Ryukyus by KOJIMA and MORIMOTO (1995 a, b) is regarded as a misidentification of the present new species. Two species incorrectly assigned to *Amorphoidea* MOTSCHULSKY (Curculioninae: Acalyptini) are transferred to *Morimotozo* (Curculioninae: Ochyromerini): *M. niger* (MOTSCHULSKY), comb. nov. and *M. pilosus* (FAUST), comb. nov. A revised key to species of the genus is provided.

The so-called lucidophyll or evergreen oak-laurel forest is a unique vegetation restricted to warm temperate regions of East Asia, extending from the Nepal-Himalaya in the west to Japan in the east, and to the mountainous areas of Southeast Asia in the south. This forest possesses a very rich flora, mainly composed of evergreen plants belonging to the families Fagaceae, Lauraceae, Myricaceae, Moraceae, Theaceae, Hamamelidaceae and so on. The insect fauna of this forest, particularly of phytophagous groups, is similarly diverse.

The weevil genus *Morimotozo* is one of the small animals occurring in those forests although the larval host has not yet been confirmed at all. *Morimotozo* is a recent replacement name proposed by ALONSO-ZARAZAGA and LYAL (1999) for *Gryporrhynchus* ROELOFS, 1875 (non CREPLIN, 1839) and belongs to the tribe Ochyromerini or subtribe Ochyromerina of the tribe Tychiini of the subfamily Curculioninae. This genus was relatively recently studied taxonomically by KOJIMA and MORIMOTO (1995 b), and eleven species have been recognized from East Asia: Japan (3 spp., of which one also occurs in Korea), Taiwan (1 sp.), Thailand (1 sp.), Malaysia (4 spp.), Bangladesh (1 sp.) and Nepal (1 sp.).

In 2000 and 2001, Isao MATOBA visited Okinawa-hontô Is., Ryukyus, Southwest

Japan and found an unknown species belonging to this genus on *Distylium racemosum* (Hamamelidaceae). Discovery of this species brings the number of Japanese species to four, which is equal to the number in Borneo.

In this paper, we describe the new species from Japan. At the same time, taxonomic notes on this genus are provided since it has become clear that at least two species described in another genus must be transferred to *Morimotozo*. As the result of the increase of species, the key to the species provided by KOJIMA and MORIMOTO (1995 b) is modified.

Abbreviations used in this study are as follows:— ELKU: Entomological Laboratory, Kyushu University; Fukuoka; IM: I. MATOBA collection, Wakayama; SMTD: Staatliches Museum für Tierkunde, Dresden.

Taxonomy

Description of a New Species

Morimotozo castaneus KOJIMA et MATOBA, sp. nov.

(Figs. 1, 2, 7–13)

Male. Length: 1.1–2.1 mm.

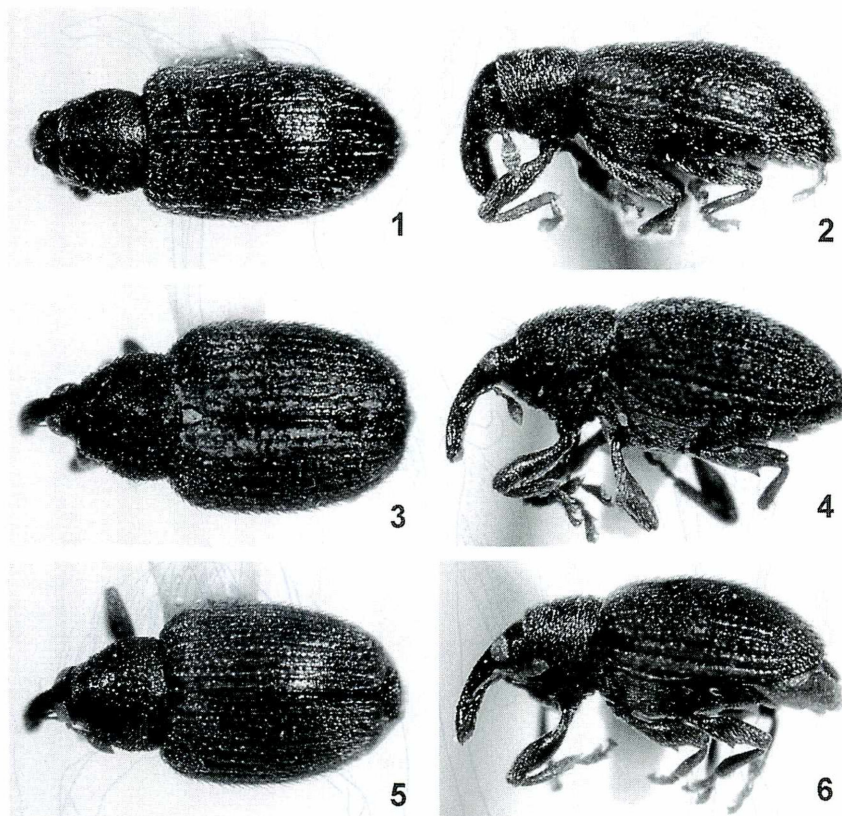
Color and vestiture:— Integument dark brown to dark reddish brown, antennae and tarsi, sometimes rostrum, tibiae and femora lighter, and head and pronotum darker; clothed with fine recumbent pale setae, pronotum and elytral intervals with subrecumbent grayish white stouter scale-like setae, the setae partly and irregularly replaced by brownish ones on elytral intervals.

Head:— Dorsally without constriction behind eyes. Forehead between eyes a little narrower than base of rostrum. Eyes weakly convex from temples. Rostrum relatively robust, shorter than pronotum (3 : 4). Antennae inserted a little beyond middle of rostrum; scape nearly as long as funicle; funicle with first segment $5/3$ times as long as second; club a little shorter than funicle.

Thorax:— Prothorax 1.20–1.25 times as wide as long, widest a little behind middle, rounded laterally, weakly constricted at apex; dorsum with fine punctures mixed with a little larger ones, each fine puncture with fine recumbent seta and a little larger one with subrecumbent scale-like setae. Scutellum tongue-shaped, a little longer than wide, densely pubescent. Elytra 1.5 times as long as wide; intervals each with fine recumbent setae and medially with a row of subrecumbent scale-like setae. Legs with femora each armed with small sharp tooth; tarsal claws each with broad flat basal process.

Abdomen:— Pygidium exposed nearly vertically, clothed with long subrecumbent setae. Ventrites 1 and 2 flattened in middle.

Terminalia:— Aedeagus as illustrated (Figs. 7, 8); endophallus with a pair of spiculate areas and long sclerite. Tergite and sternite VIII and spiculum gastrale as il-



Figs. 1–6. Habitus photographs of *Morimotozo* spp.—1, 2, *M. castaneus* sp. nov.; 3, 4, *M. pilosus* (FAUST), comb. nov.; 5, 6, *M. niger* (MOSTCHULSKY), comb. nov.

lustrated (Figs. 9, 10).

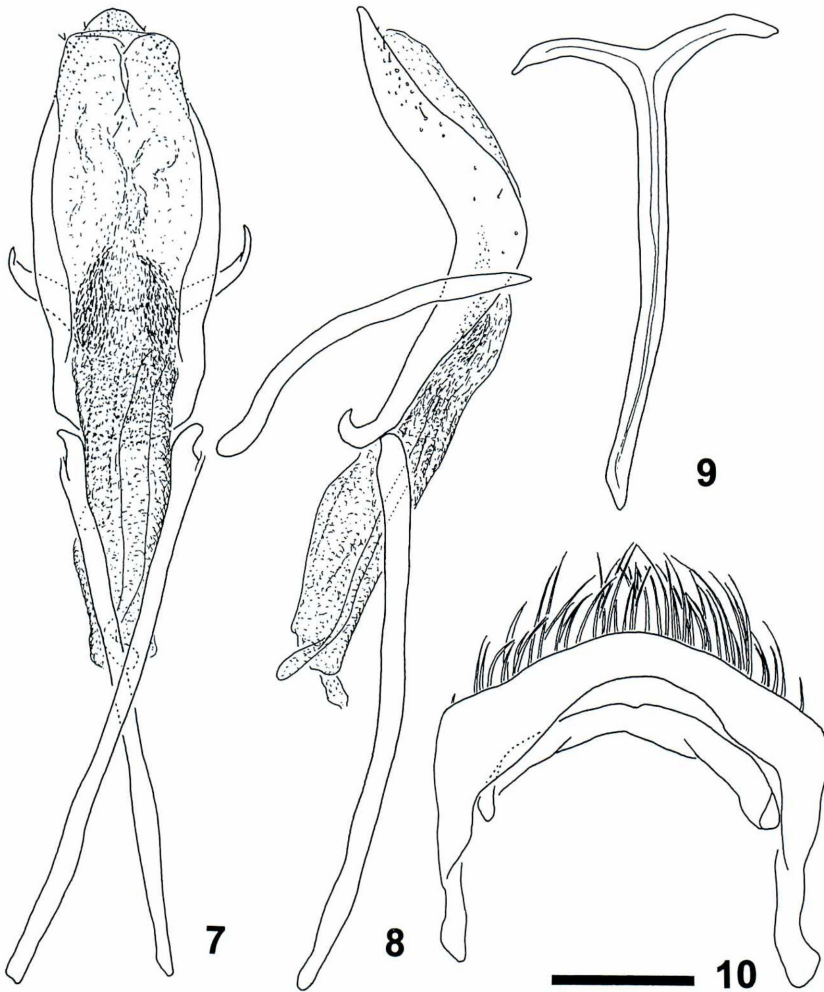
Female. Length: 1.9–2.2 mm. Closely resembles male, except rostrum a little thinner, venter with basal two ventrites weakly convex in middle.

Terminalia:— Ovipositor, spermatheca and sternite VIII as illustrated (Figs. 11–13).

Type materials. Holotype male (Type No. 3145, ELKU), JAPAN: Ryukyus. Okuyona-rindô, nr. Mt. Terukubi, Okinawa-hontô Is., 2~3-VII-2001, I. MATOBA. Paratypes. 1 male, Mt. Terukubi, Okinawa-hontô Is., 15-III-1985, S. NOMURA (ELKU). 1 male and 2 females, same locality as holotype, 24-IV-2000, I. MATOBA (IM); 1 female, 7-IV-2001, I. MATOBA (IM). 7 males and 8 females, 2~3-VII-2001, I. MATOBA (IM & ELKU). 1 male, Mt. Bannadake, Ishigaki-jima Is., 25-XII-1999, I. MATOBA (IM).

Distribution. Japan: Ryukyus (Okinawa-hontô and Ishigaki-jima Isls.).

Biological note. The specimens were collected on leaves of *Distylium racemo-*

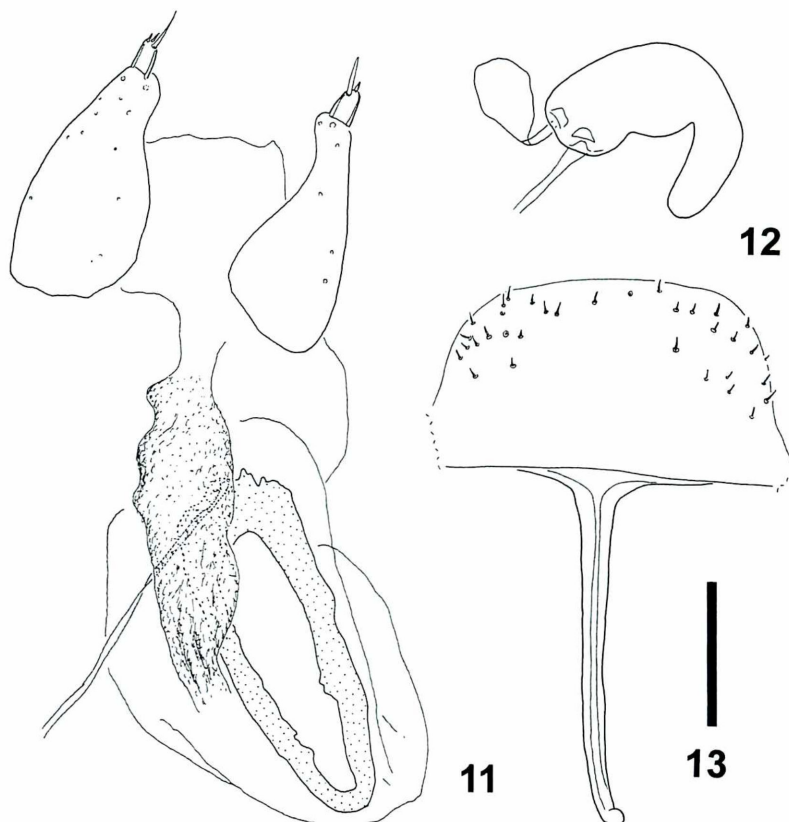


Figs. 7–10. Male terminalia of *Morimotozo castaneus* sp. nov.—7, 8, Aedeagus, dorsal (7), lateral (8); 9, spiculum gastrale; 10, sternite and tergite 8. Scale = 0.1 mm.

sum (Hamamelidaceae) (Isunoki in Japanese). Larval host has not yet been established.

Remarks. This species is very similar to *M. obscurus* (ROELOFS) from Japan and Korea, but differs from it in having the following combination of features: body generally smaller in size: 1.1–2.2 mm (1.9–2.5 mm in *M. obscurus*); color of integument lighter, dark brown to dark reddish brown (dark brown to black in *M. obscurus*); scale-like setae of elytral intervals mostly greyish white (dark brown to black in *M. obscurus*). The aedeagus is also different in the caudal shape seen dorsally and the curvature seen laterally and the shape of a sclerite in the endophallus.

KOJIMA and MORIMOTO (1995 a, b) recorded *M. obscurus* from the Ryukyus: Oki-



Figs. 11–13. Female terminalia of *Morimotozo castaneus* sp. nov. — 11, Genitalia (excluding spermatheca); 12, spermatheca; 13, sternite 8. Scale = 0.1 mm.

nawa-hontô and Ishigaki-jima Isls., but it is a misidentification of the present new species. Thus, *M. obscurus* is restricted in its distribution to the mainland of Japan and Korea, and *M. castaneus* is restricted to the Ryukyus of Southwest Japan.

Species Newly Combined with *Morimotozo*

The following species have been incorrectly assigned to another genus. However, it has become clear that they belong to *Morimotozo* through the examination of the type materials. Thus, they are newly combined with *Morimotozo* and redescriptions of them are also provided as follows:

***Morimotozo pilosus* (FAUST), comb. nov.**

(Figs. 3, 4)

Amorphoidea? pilosa FAUST, 1898, 302.

Female. Length: 2.7 mm.

Color and vestiture:— Integument dark brown, antennae, legs and elytra paler; clothed with fine recumbent pale setae, pronotum and elytral intervals with subrecumbent grayish brown scale-like setae.

Head:— Dorsally with weak constriction behind eyes. Forehead between eyes a little narrower than base of rostrum. Eyes weakly convex from temples. Rostrum arcuate, shorter than pronotum (4 : 5). Antennae inserted a little beyond middle of rostrum; scape as long as funicle and first segment of club combined; funicle with first segment 5/3 times as long as broad; club nearly as long as funicle.

Thorax:— Prothorax 1.2 times as wide as long, widest behind middle, rounded laterally, weakly constricted at apex; dorsum clothed with fine recumbent setae, strongly punctate, each puncture with a subrecumbent scale-like seta. Scutellum longer than wide, with dense grayish white pubescence. Elytra 1.2 times as long as wide; intervals clothed with fine recumbent setae, each with one (even interval) and two (odd interval) rows of subrecumbent to suberect scale-like setae. Legs with femora each with sharp triangular tooth; tarsal claws each with flat basal tooth.

Abdomen:— Pygidium exposed nearly vertically, clothed with subrecumbent grayish brown scale-like setae. Ventrites 1 and 2 weakly convex in middle.

Male. Unknown.

Lectotype, herewith designated, with labels: "Belgaum; Andrews"/"pilosa; Faust"/"Amorphoidea?; pilosa Fst.,"/"Coll J. Faust; Ankauf 1900"/"Type"/"Staatl. Museum für; Tierkunde Dresden".

Specimen examined. 1 female, Belgaum (Lectotype, SMTD).*Distribution.* India (Belgaum).

Remarks. FAUST (1898) assigned this species doubtfully to *Amorphoidea* in his original description, and it is not a member of that genus, but of *Morimotozo*. This species is very similar to *M. senohi*, but is probably separable from it by the characters noted in the key.

FAUST'S description was based on two specimens, of which one examined is in the collection of SMTD.

***Morimotozo niger* (MOTSCHULSKY), comb. nov.**

(Figs. 5, 6)

Amorphoidea nigra MOTSCHULSKY, 1858, 82. — SCHENKLING & MARSHALL, 1939, 10 (Eirirrhinae).

Male. Length: 2.1 mm.

Color and vestiture:— Integument dark brown, apical part of rostrum, elytra and legs paler, antennae and tarsi reddish brown; clothed with fine recumbent pale setae,

pronotum and elytral intervals with subrecumbent grayish brown scale-like setae.

Head:— Dorsally without constriction behind eyes. Forehead between eyes nearly as wide as base of rostrum. Eyes weakly convex from temples. Rostrum weakly arcuate, nearly as long as pronotum. Antennae inserted before middle of rostrum; scape as long as funicle and first segment of club combined; funicle with first segment a little longer than broad; club a little longer than funicle.

Thorax:— Prothorax 1.4 times as wide as long, widest a little behind middle, weakly rounded laterally, weakly constricted at apex; dorsum clothed with fine recumbent setae, moderately strongly punctate, each puncture with subrecumbent scale-like setae. Scutellum subtriangular, moderately pubescent. Elytra 1.2 times as long as wide; intervals clothed with fine recumbent setae, each medially with a row of subrecumbent scale-like setae.

Abdomen:— Pygidium clothed with grayish brown long subrecumbent setae, propygidium visible. Ventrites 1 and 2 flattened in middle, with a pair of tufts of long, curved hairs in middle at posterior margin of ventrite 2.

Female. Unknown.

Lectotype, herewith designated, with labels: "Ind. or.; Mots."/"nigra; Mots."/"Coll J. Faust; Ankauf 1900"/"Type"/"Staatl. Museum für; Tierkunde Dresden".

Specimen examined. 1 male, Ind. or. (Lectotype, SMTD).

Distribution. "Indes orientales".

Remarks. MOTSCHULSKY (1895) erected *Amorphoidea* and described a number of species in it. However, it seems to be rather heterogenous, and some of them have already been transferred to *Imerodes* (MARSHALL, 1926).

KOJIMA found a specimen with type label of *Amorphoidea nigra* in the FAUST collection of SMTD. It is not certain whether his specimen is a syntype or not because MOTSCHUSKY (1895) mentioned no specimen data in his original description. This species is herewith concluded to be a member of *Morimotozo*, and is very similar to *M. bengalensis*, but the male has peculiar tufts of hairs in the middle of the posterior margin of ventrite 2. This feature has not been seen in other species of the genus.

Key to the Species

- 1(20) Head not constricted behind eyes. Elytral intervals each with one or two rows of subrecumbent scale-like setae.
- 2 (7) Rostrum shorter than pronotum in both sexes. Elytra usually 1.5–1.6 times as long as wide; intervals each medially with a row of subrecumbent to suberect scale-like setae. Femora toothed obsoletely.
- 3 (6) Elytra with intervals 5–7 not produced anteriorly at base.
- 4 (5) Integument black to dark brown. Elytral intervals with dark scale-like setae. Length: 1.9–2.5 mm. Japan (Honshu, Shikoku, Kyushu), Korea (Chejudo).
..... *M. obscurus* (ROELOFS)
- 5 (4) Integument dark brown to dark reddish brown. Elytral intervals mostly with

- grayish white scale-like setae. Length: 1.1–2.2 mm. Japan (Ryukyus).
 *M. castaneus* sp. nov.
- 6 (3) Elytra with intervals 5–7 conjointly, triangularly produced anteriorly at base. Integument black. Length: 2.4–2.5 mm. Taiwan.
 *M. obscuroides* (KOJIMA et MORIMOTO)
- 7 (2) Rostrum as long as or longer than pronotum at least in female. Elytra 1.4 times or less as long as wide; intervals each with one or two rows of subrecumbent scale-like setae. Femora toothed variously.
- 8(15) Elytral intervals each medially with a single row of subrecumbent scale-like setae.
- 9(10) Antennae with club shorter than funicle. Prothorax subparallel-sided on basal half. Legs with femora toothed obsoletely. Length: 2.1–2.3 mm. Nepal. . .
 *M. nepalensis* (KOJIMA et MORIMOTO)
- 10 (9) Antennae with club as long as or longer than funicle. Prothorax rounded laterally.
- 11(14) Femora each with triangular tooth.
- 12(13) Pronotum and elytra with grayish brown subrecumbent scale-like setae. Posterior margin of ventrite 2 with a pair of tufts of long, curved hairs in middle in male. Integument dark brown. Length: 2.1 mm. “Indes orientales”. .
 *M. niger* (MOTSCHULSKY), comb. nov.
- 13(12) Pronotum and elytra with dark subrecumbent scale-like setae. Posterior margin of ventrite 2 without tuft of hairs. Integument black, with dark reddish brown antennae and legs. Length: 1.9–2.5 mm. Bangladesh.
 *M. bengalensis* (KOJIMA et MORIMOTO)
- 14(11) Femora each with minute tooth. Integument black, with reddish brown antennae and legs. Length: 2.2 mm. East Malaysia (Sabah).
 *M. borneensis* (KOJIMA et MORIMOTO)
- 15 (8) Elytral intervals each with two, partly one, rows of subrecumbent scale-like setae.
- 16(17) Body broadly ovate; elytra less than 1.2 times as long as wide. Femora each with triangular tooth. Integument black. Largest species, 3.5 mm in length. East Malaysia (Sabah).
 *M. rotundicollis* (KOJIMA et MORIMOTO)
- 17(16) Body not so broadly ovate; elytra 1.2–1.3 times as long as wide. Femora each with small to minute tooth. Body length less than 3.0 mm.
- 18(19) Rostrum as long as (male) or a little longer than (female) pronotum. Integument dark brown, antennae and legs light reddish brown. Length: 2.4 mm. Japan (Ryukyus).
 *M. ryukyuensis* (KOJIMA et MORIMOTO)
- 19(18) Rostrum much longer than pronotum in female. Integument black, antennae and legs dark brown to dark reddish brown. Length: 2.4–2.5 mm. Japan (Honshu).
 *M. shigematsui* (KOJIMA and MORIMOTO)
- 20 (1) Head more or less constricted behind eyes. Elytra with two rows of scale-like

setae on odd intervals.

- 21(24) Prothorax widest at base.
- 22(23) Body broadly ovate; elytra less than 1.1 times as long as wide, rounded laterally. Head weakly constricted behind eyes. Length: 2.2 mm. East Malaysia (Sabah). *M. ovipennis* (KOJIMA et MORIMOTO)
- 23(22) Body not so broadly ovate; elytra more than 1.1 times as long as wide, subparallel-sided in basal halves. Head distinctly constricted behind eyes. Length: 2.9 mm. East Malaysia (Sabah).
. *M. constricticeps* (KOJIMA et MORIMOTO)
- 24(21) Prothorax widest behind middle.
- 25(26) Integument black, with dark subrecumbent scale-like setae on pronotum and elytra. Length: 2.4 mm. Thailand. *M. senohi* (KOJIMA et MORIMOTO)
- 26(25) Integument dark brown, with grayish brown scale-like setae on pronotum and elytra. Length: 2.7 mm. India. *M. pilosus* (FAUST), comb. nov.

Discussion

We now recognize 14 species of *Morimotozo* from East Asia. The discovery of a new species among them brings the total number of the Japanese fauna to four, which is equal to those of Borneo, East Malaysia. The genus is thus shown to be well represented in Japan.

Biology of this genus is almost unknown at present except for some collecting records of adults from *Machilus thunbergii* (Lauraceae), Mango trees (Anacardiaceae) (KOJIMA & MORIMOTO, 1995 b) and *Distylium racemosum* (Hamamelidaceae) (present study). Recently, we captured several specimens of *M. shigematsui* on leaves of *Castanopsis sieboldii*, *Quercus glauca* (Fagaceae), *Eurya japonicus* (Theaceae), *Symplocos glauca* (Symplocaceae) and so on in Honshu, mainland of Japan. These facts will suggest that *Morimotozo* is a weevil genus of evergreen forest, occurring in temperate to warm temperate regions. Therefore, many more species must inhabit the well preserved forests, above all in Southeast Asia.

Acknowledgments

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要 約

小島弘昭・的場 績：Morimotozo属の分類ノート。—— 沖縄本島でイスノキ（マンサク科）より採集されたゾウムシを調べた結果，Morimotozo属（最近まで *Gryporrhynchus* 属として知られていた）のウスグロアシブトゾウムシ *M. obscurus*（以下ウスグロ）に大変よく似た新種であると判明したので，*M. castaneus* と命名し記載した。

KOJIMA & MORIMOTO (1995 a, b) により，琉球列島からウスグロとして記録された種は，本新種の誤同定であることがわかり，ウスグロは日本本土と韓国に，*M. castaneus* は琉球列島（沖縄本島，石垣島）に異所的に分布するものと考えられる。

さらに，これまで別属に含まれていた2種 (*Amorphoidea? pilosa* FAUST, *Amorphoidea nigra* MOTSCHULSKY) は，タイプを調べた結果，本属に含められることが明らかとなったので，それらを本属に統合する分類学的処置を行った。また，これらの種の追加にともない，KOJIMA & MORIMOTO (1995 b) により提出された検索表の改訂を行った。

今回，新たに1新種が発見されたことで，日本産の本属は4種となり，その数は東マレーシア（ボルネオ）に匹敵し，日本での本属の解明度が高いことを示している。本属の幼虫寄主植物についてはいまだによくわかっていないが，成虫のこれまでの採集記録から本属は，照葉樹林帯に生息しており，そのような森林の発達した他地域，とくに，東南アジアからも今後，多数の新種が発見される可能性はきわめて高い。

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