

Some New Sericid and Melolonthid Beetles (Coleoptera, Scarabaeidae) from Central Taiwan

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Abstract Six new sericid and melolonthid beetles are described from Taiwan. They are: *Trichomaladera yui*, *Maladera spinifemorata*, *Taiwanoserica yui*, *T. anma-shana*, *Brahmina monticola* and *B. pubiventris*. Key to the Taiwanese species are provided for the genus *Trichomaladera*.

Six new sericid and melolonthid beetles are described from Mt. An-ma Shan lying in Taichung County in central Taiwan. There was little record before the present time for collecting beetles on Mt. An-ma Shan. Fortunately, the author had many specimens offered from Mr. Ching-Kin YU, all captured by himself on the mountain in July of 1992.

Before going further, the author wishes to express his sincere appreciation to Dr. Shun-Ichi UENO of the National Science Museum (Nat. Hist.), Tokyo, for his critical reading of the original manuscript, and also to Mr. Ching-Kin YU for his kindness in entrusting those valuable specimens to the author for investigation. The holotypes designated in this study are deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo. Other specimens are preserved in the author's collection.

Genus *Trichomaladera* NOMURA, 1974

This genus was established by NOMURA in 1974 for *Trichomaladera elongata* NOMURA, 1974. After that, the author added *T. rufocastanea* KOBAYASHI et NOMURA, 1979 and *T. yasutoshii* H. KOBAYASHI, 1991. Thus, three species of this genus have been known from Taiwan until now. These and the single new species may be distinguished by the following key:

1. Form elongate, ventral surface light brown, dorsal surface reddish brown, head blackish brown. Surface of body opaque. Eyes rather large and protruding, two-thirds as broad as frons between them. Antennal club 2.2 times as long as footstalk in male. *T. yasutoshii* H. KOBAYASHI
- Form elongate oval, ventral surface reddish brown to yellowish brown, head of the same color as pronotum. 2
2. Lateral margins of pronotum most broadly distant at base, gradually convergent to front. Antennal club 1.8 times as long as footstalk in male. Abdominal

- sternites each with a row of short hairs, 4th of them rather long at the sides.
 *T. yui* sp. nov.
- Lateral margins of pronotum most broadly distant at base, weakly curved before the middle, gradually convergent to front, nearly straight behind. 3
3. Pronotum moderately convex. Antennal club 1.7 times as long as footstalk in male. Posterior tibia slender, 4.3 times as long as its breadth.
 *T. elongata* NOMURA
- Pronotum rather convex. Antennal club twice as long as footstalk in male. Posterior tibia slender, 3.6 times as long as its breadth.
 *T. rufofusca* KOBAYASHI et NOMURA

Trichomaladera yui H. KOBAYASHI, sp. nov.

[Japanese name: Miyama-ubuge-biroudo-kogane]

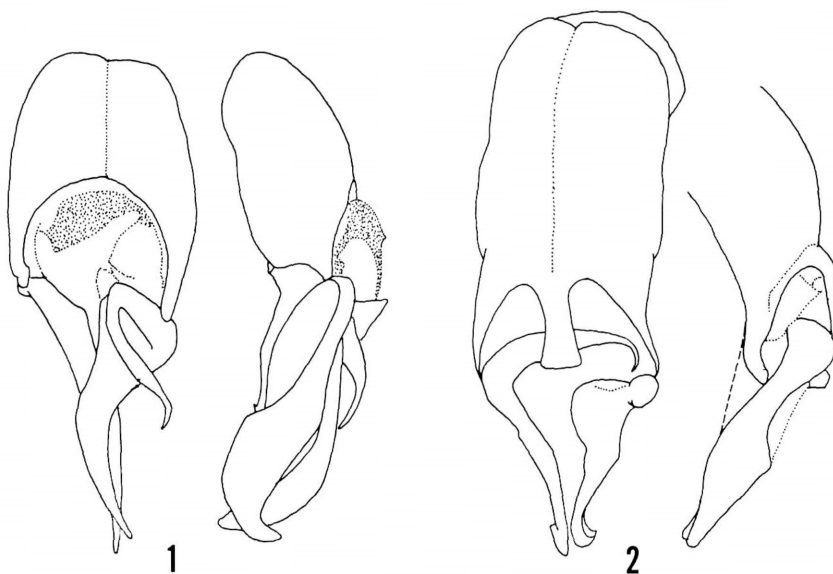
(Figs. 1, 7, 8)

Elongate oval, light reddish brown, with antennal club more reddish brown than the ventral surface, tibiae and tarsi reddish brown, dorsal surface light reddish brown or dark reddish brown. Surface of body opaque, with clypeus, antennae, tibiae and tarsi shining.

Clypeus subparallel-sided in basal half and convergent to front in male, subtrapezoidal in female, covered with erect hairs, with anterior margin reflexed and gently emarginate; fronto-clypeal suture angulate at the middle. Frons faintly, sparsely punctate, rather densely covered with erect hairs. Eyes rather small, less than one-fourth as broad as frons between them in both sexes. Antennae 10-segmented, with club 1.8 times as long as footstalk in male, a little longer than that in female.

Pronotum rather densely, finely punctate, covered with sparse erect hairs, fringed with long sparse hairs on anterior margin and along the lateral ones; lateral margins most broadly distant at base, gradually convergent to front, anterior angles protruding but not acute, posterior ones subrectangular. Scutellum of the same length as its breadth, rather densely punctate on each side, almost impunctate in the middle. Elytra bearing scattered subrecumbent and erect hairs, with sulci rather densely punctate, the punctures somewhat forming a row in each sulcus; intervals moderately convex, very sparsely and faintly punctate. Pygidium almost flattened in male, feebly convex in female, faintly and sparsely punctate, bearing rather sparse hairs, fringed with scattered erect hairs near apical margin.

Propleuron deeply sulcate behind. Abdominal sternites sparsely punctate, each with a transverse row of hairs, of which the one on the 4th is rather long. Posterior femur elliptical, 3.0 times as long as its breadth, sparsely punctate, with two transverse rows of hairs near anterior and posterior margins; posterior margin weakly sinuate near apex and finely serrate. Posterior tibia slender, 4.1 times as long as its breadth, sparsely covered with somewhat longitudinal punctures, with longer terminal spur 0.8 times as long as basal tarsal segment. Posterior tarsi punctate, without



Figs. 1-2. Male genitalia. — 1, *Trichomaladera yui* sp. nov.; 2, *Maladera spinifemorata* sp. nov.; left, dorsal view; right, lateral view.

setae on ventral side.

Length: 13.0–13.5 mm; breadth: 7.0 mm.

Holotype: ♂, Mt. An-ma Shan, Taichung Hsien, 12-VII-1992, C. YU leg.

Paratypes: 2 ♀♀, same data as for the holotype.

***Maladera (Maladera) spinifemorata* H. KOBAYASHI, sp. nov.**

[Japanese name: Togeashi-ôbiroudo-kogane]

(Figs. 2, 9)

Oval, reddish brown to dark reddish brown, with antennal club yellowish brown, dorsal surface uniformly reddish brown. Surface of body opaque, with slight iridescence under certain light; clypeus, antennae and legs (except for posterior four-fifths of middle femur) shining, posterior femur and tibia with rather strong iridescence.

Clypeus trapezoidal, rather densely punctate in the middle, coarsely and somewhat rugosely punctate on each side, feebly elevated in the middle, with several, rather long, erect hairs on apical half, with anterior margin broadly and weakly emarginate; fronto-clypeal suture somewhat angulate in the middle. Frons faintly, sparsely punctate, bearing a few erect hairs near eyes. Antennae 10-segmented, with club 1.3 times as long as footstalk in male.

Pronotum sparsely, finely punctate, fringed with sparse hairs on each side of anterior margin and along the lateral ones; lateral margins most broadly distant at base,

weakly and roundly convergent to front, anterior angles protruding but not acute, posterior ones subrectangular but not angulate. Scutellum very sparsely punctate. Elytral intervals feebly convex, very sparsely and finely punctate. Pygidium feebly convex, rather sparsely punctate, bearing scattered erect hairs near apical margin.

Abdominal sternites sparsely punctate, each with a transverse row of setae, 4th and anal sternites with a few long hairs on each side. Posterior femur sparsely punctate, 2.8 times as broad as its length, with two transverse rows of hairs near anterior and posterior margins; anterior margin finely serrate on its posterior side, posterior margin weakly sinuate near apex, posterior angle spinose, protruding backwardly. Posterior tibia stout, somewhat dilated, 3.3 times as long as its breadth, coarsely, sparsely punctate on basal half, almost impunctate on apical half; longer terminal spur just shorter than basal tarsal segment. Posterior tarsi of normal form, 2nd tarsal segment 0.6 times as long as basal tarsal one.

Length: 12.0–12.5 mm; breadth: 9.0 mm.

Holotype: ♂, Mt. An-ma Shan, Taichung Hsien, 12–VII–1992, C. YU leg. Paratypes: 5 ♂♂, same data as for the holotype.

This species is closely allied to *Maladera secreta horaiana* NOMURA, 1974, but may be separated from the latter by the following points: long antennal club; posterior femur with spinose apex of posterior margin; punctuation of posterior tibia; 2nd tarsal segment 0.6 times as long as basal tarsal one.

Taiwanoserica yui H. KOBAYASHI, sp. nov.

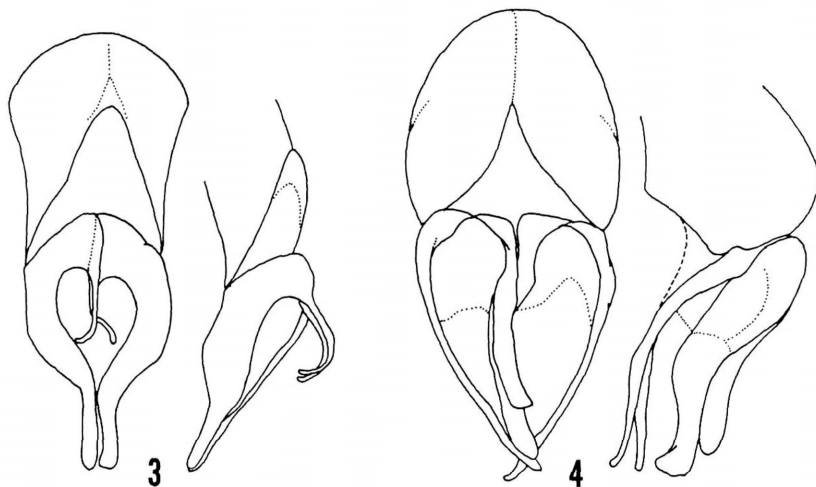
[Japanese name: Mokusei-taiwan-biroudo-kogane]

(Figs. 3, 10)

Elongate oval, light reddish brown or reddish brown, with clypeus, tibiae and tarsi reddish brown, posterior part of head blackish brown to dark reddish brown, antennae yellowish brown, dorsal surface mottled with blackish patches, metasternum and abdomen darker. Surface of body opaque, with clypeus, antennae and legs (except for middle femora) shining.

Clypeus subtrapezoidal, rather densely punctate, bearing dense erect hairs, with a feeble transverse groove just behind anterior margin, anterior margin rather deeply emarginate; fronto-clypeal suture distinct, angulate at the middle. Frons sparsely and faintly punctate, bearing scattered erect or semierect hairs. Eyes one-third as broad as frons between them in male, smaller in female. Antennae 10-segmented, with club 1.2 times as long as footstalk in male, subequal in length to that in female.

Pronotum somewhat sparsely punctate, bearing scattered slender scale-like setae and short hairs, lateral margins most widely separated near base, gradually convergent to front, anterior angles acutely protruding though rounded at the tips. Elytra bearing scattered slender scale-like setae, with intervals very feebly convex, sparsely punctate, several punctures each with a microscopic hair. Pygidium convex, somewhat coriaceous, very sparsely punctate, with a smooth median line in basal



Figs. 3-4. Male genitalia of *Taiwanoserica* spp. — 3, *Taiwanoserica yui* sp. nov.; 4, *T. anmashana* sp. nov.; left, dorsal view; right, lateral view.

half, bearing rather long hairs near posterior margin.

Abdomen with 2nd to 4th sternites bearing a row of hairs on each side and scattered hairs at the middle. Posterior femur narrow, 3.5 times as long as its breadth, sparsely punctate. Posterior tibia slender, 5.0 times as long as its breadth, longitudinally rugose. Each segment of posterior tarsi with one or two short setae on ventral side.

Length: 10.0 mm; breadth: 5.5 mm.

Holotype: ♂, Mt. An-ma Shan, Taichung Hsien, 12-VII-1992, C. YU leg. Paratypes: 3 ♂♂, 3 ♀♀, same data as for the holotype.

***Taiwanoserica anmashana* H. KOBAYASHI, sp. nov.**

[Japanese name: Anmasan-taiwan-biroudo-kogane]

(Figs. 4, 11)

This species resembles very closely the preceding species, but differs from the latter in the following points: antennal club of the same length as the footstalk in male, shorter than that in female; pronotum broadest at basal two-thirds, lateral margins gently rounded, anterior angles produced, subrectangular; posterior femora more sparsely punctate than in the preceding species; pygidium most highly convex near apical margin, rather densely punctate, with a clear longitudinal line at the middle.

Length: 10.0 mm; breadth: 5.5 mm.

Holotype: ♂, Mt. An-ma Shan, Taichung Hsien, 12-VII-1992, C. YU leg. Paratypes: 10 ♂♂, 8 ♀♀, same data as for the holotype.

Brahmina monticola H. KOBAYASHI, sp. nov.

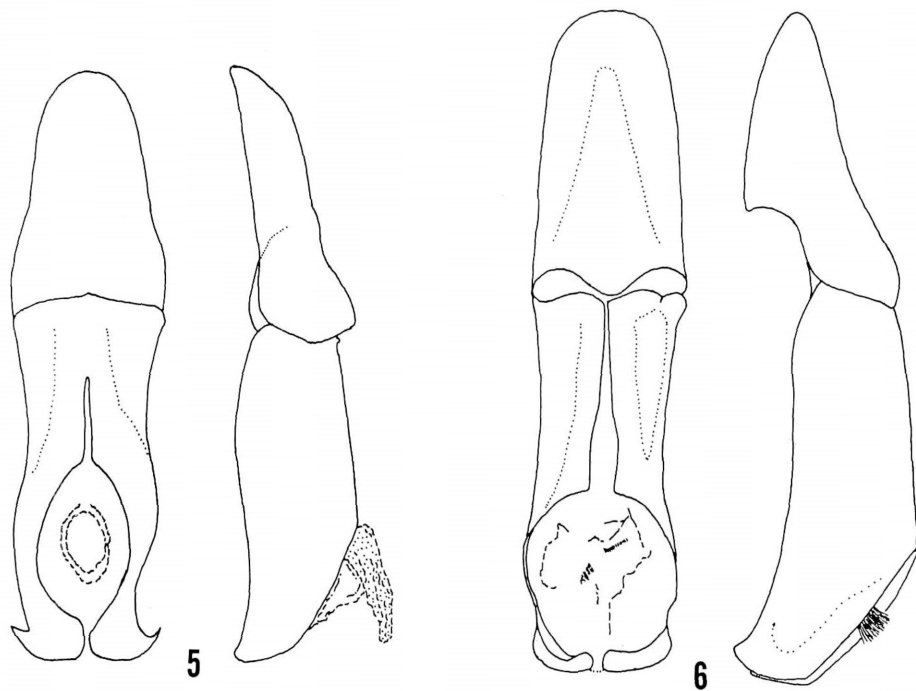
[Japanese name: Yama-akacha-kogane]

(Figs. 5, 12, 13)

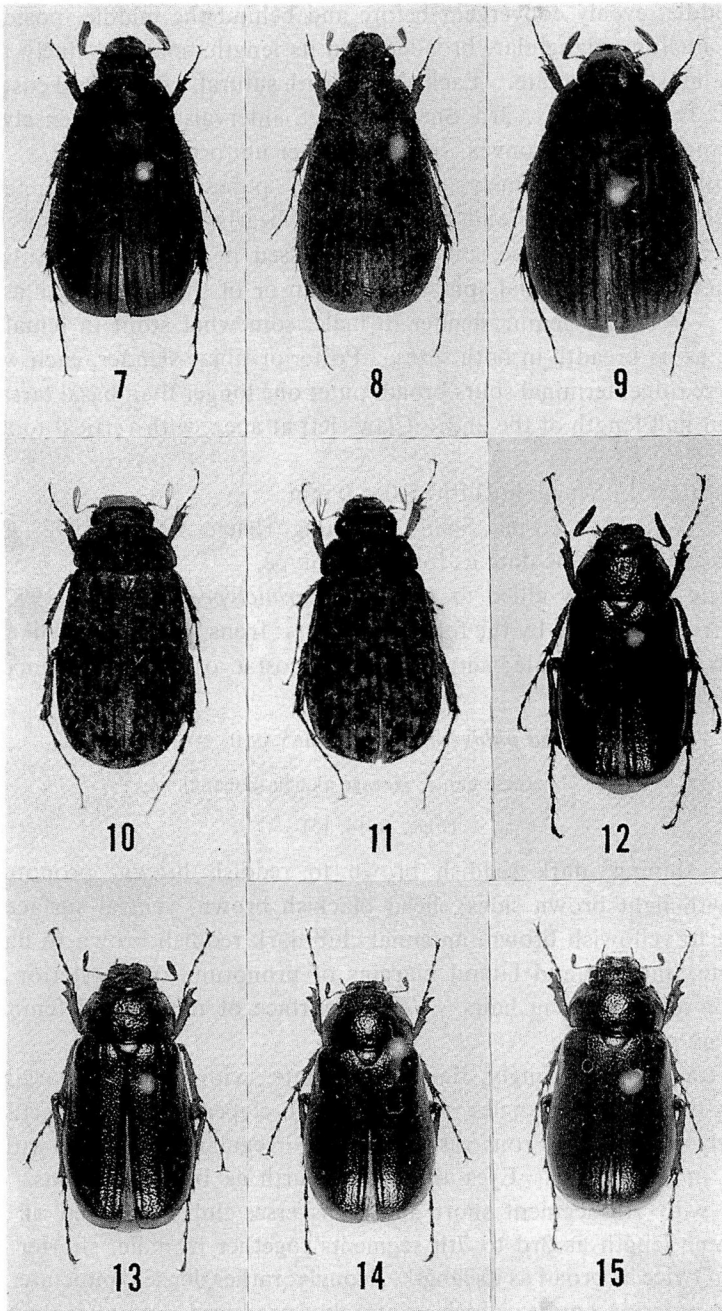
Elongate, shining, dark reddish brown to reddish brown, pronotum darker (sometimes with light brown sides), head blackish brown, ventral surface light yellowish brown, antennae light brown. Clypeus, genae, anterior and lateral margins of pronotum, sides of elytra and posterior margin of pygidium with scattered long hairs. Ventral surface of thorax and femora clothed with long tawny pubescence.

Clypeus transverse, bilobate, convergent to front, with anterior margin roundly, deeply emarginate, surface strongly, densely punctate, with a wide boss-like carina behind the middle, fronto-clypeal suture distinct, sulcate, slightly bisinuate or very weakly arcuate. Frons rather coarsely, irregularly punctate, with a longitudinal smooth line in the middle (sometimes indistinct). Eyes three-sevenths as broad as frons. Antennae 10-segmented, with 7th segment short and transverse, club composed of 3 lamellae, 1.4 times as long as footstalk and almost straight in male, 0.8 times as long as that in female.

Pronotum twice as broad as its length, strongly, rather densely punctate, somewhat flattened near anterior angles, which are obtuse, lateral margins feebly crenate, roundly



Figs. 5-6. Male genitalia of *Brahmina* spp. — 5, *Brahmina monticola* sp. nov.; 6, *B. pubiventris* sp. nov.; left, dorsal view; right, lateral view.



Figs. 7-15. — 7-8, *Trichomaladera yui* sp. nov.; 9, *Maladera spinifemorata* sp. nov.; 10, *Taiwanoserica yui* sp. nov.; 11, *T. anmashana* sp. nov.; 12-13, *Brahmina monticola* sp. nov.; 14-15, *B. pubiventris* sp. nov.; 7, 12 & 14, male; 8, 13 & 15, female.

curved at middle, evenly convergent before and behind the middle, posterior angles rounded. Scutellum triangular, broader than its length, sparsely, finely punctate at the sides, or almost impunctate. Each elytron with sutural, 1st and 2nd costae sparsely punctate and feebly convex, 3rd one indistinct, intervals rather densely punctate. Pygidium triangular, feebly convex, sparsely, rather uniformly punctate.

Metasternum densely, finely punctate and pubescent. Abdominal sternites sparsely, finely punctate, 5th and anal sternites bearing scattered long hairs, anal sternite rather convex, 5th one somewhat depressed in basal half. Anterior tibiae tridentate, each with a terminal spur shorter than or of the same length as the neighbouring hair. Posterior femur slender in male, somewhat stout in female, about 3 times as long as its breadth in both sexes. Posterior tibiae slender, each with a complete transverse ridge, terminal spurs broad, outer one longer than basal tarsal segment, which is about half length of the 2nd. Claw cleft at apex, with vertical tooth oblique, not vertical.

Length: 12.5–15.5 mm; breadth: 7.0–8.0 mm.

Holotype: ♂, Mt. An-ma Shan, Taichung Hsien, 12–VII–1992, C. YU leg. Paratypes: 1 ♂, 5 ♀♀, same data as for the holotype.

This species is closely allied to *Brahmina carinicypea* NOMURA, 1977, but may be separated from the latter by the following points: frons without boss-like elevation; antennal club shorter in male; sutural and 1st costae of elytron distinctly convex.

***Brahmina pubiventris* H. KOBAYASHI, sp. nov.**

[Japanese name: Harage-akacha-kogane]

(Figs. 6, 14, 15)

Elongate, shining, dark reddish brown to reddish brown, pronotum darker (sometimes with light brown sides), head blackish brown, ventral surface light yellowish brown to yellowish brown, antennal club dark reddish brown to dark brown. Clypeus, genae, anterior and lateral margins of pronotum and posterior margin of pygidium with scattered long hairs. Ventral surface of thorax and femora clothed with long tawny pubescence.

Clypeus transverse, strongly, densely punctate, with anterior margin reflexed, slightly emarginate, anterior angles rounded, fronto-clypeal suture distinct, somewhat sulcate, slightly bisinuate. Frons rather densely, irregularly punctate, without boss-like elevation in the middle. Eyes about one-fourth as broad as frons. Antennae 10-segmented with 7th segment short and transverse, club composed of 3 lamellae and of the same length as 3rd to 7th segments together in male, shorter in female.

Pronotum twice as broad as its length, strongly, rather densely punctate, somewhat flattened near anterior angles, which are weakly produced, lateral margins coarsely crenate, roundly curved just behind the middle, evenly convergent before and behind the middle, posterior angles rounded. Scutellum triangular, round at apex, clearly broader than its length, sparsely, finely punctate. Each elytron with sutural and 1st

costae rather broad, sparsely punctate and rather convex, 2nd fine but evident, 3rd indistinct, intervals rather densely punctate. Pygidium triangular, feebly convex, longitudinally rugose at the middle, rather finely and sparsely so at the sides.

Metasternum densely, finely punctate and pubescent. Abdominal sternites sparsely, finely punctate, 1st and 2nd sternites rather densely bearing hairs at the sides, 5th and anal sternites bearing scattered long hairs, anal sternite rather convex. Anterior tibiae tridentate, each with a terminal spur shorter than or of the same length as the neighbouring hairs. Posterior femur slender in male, somewhat stout in female, about 3.1 times as long as its breadth in both sexes. Posterior tibiae slender, each with a complete transverse ridge, terminal spurs broad, outer one longer than basal tarsal segment, which is 0.7 times as long as the 2nd. Claw cleft at apex, with vertical tooth oblique, not vertical.

Length: 12.0–14.0 mm; breadth: 7.0–7.5 mm.

Holotype: ♂, Mt. An-ma Shan, Taichung Hsien, 12–VII–1992, C. YU leg. Paratypes: 4 ♂♂, 3 ♀♀, same data as for the holotype.

This species is very closely allied to *Brahmina shibatai* H. KOBAYASHI, 1987, but may be separated from the latter by the following points: frons without boss-like elevation; short antennal club; 3rd costa of elytron fine but distinct; 1st and 2nd abdominal sternites rather densely bearing hairs at the sides; terminal spurs of posterior tibia broad.

要 約

小林裕和：中部台湾産ピロウドコガネおよびコフキコガネの数新種。——ピロウドコガネ類およびコフキコガネ類に含まれる6種のコガネムシの新種を、台湾中部の鞍馬山から記載するとともに、台湾に分布している *Trichomaladera* 属の検索表を作成した。また、それぞれの新種を次のように命名した：*Trichomaladera yui*, *Maladera spinifemorata*, *Taiwanoserica yui*, *T. anmashana*, *Brahmina monticola*, *B. pubiventris*。

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