

Melolonthidae (Coleoptera) from Thailand, III

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Abstract Three species of the melolonthine genus *Brahmina* are reported from Thailand and Laos. Two new species including one new subspecies, *B. mikado mikado*, *B. mikado mikoto* and *B. miyako* are described.

In the present study, I am going to report 3 species including 2 new species of the genus *Brahmina*. The genus *Brahmina* was established by BLANCHARD in 1850 with a brief description and at the same time 2 new species, *calva* and *comata* were introduced from northern India. REITTER (1902) diagnosed the genus and applied the generic name to the rhizotrogine group with hairy dorsal surface and cleft claw, and newly established 3 subgenera of *Brahmina*. On the contrary, BRENSKE (1892) applied the name to many heterogeneous groups with a combination of common characters of 10-segmented antenna and cleft claws. MOSER still extended interpretation of the genus and described many new species of *Brahmina*. Three species introduced herein belong to one of the groups which were mainly attributed by MOSER to *Brahmina*. Abbreviations used herein are shown in the first and second parts of this series. The following abbreviations are added for length of each character and for others: AC—length of antennal club, FT—length of antennal footstalk; FTX—total length of apical X segments of antennal footstalk; EW—elytral width; COS—width of sutural costa on elytron; TIS—length of longer metatibial spur; Ta-X—length of Xth metatarsal segment; MNHA—collection of the Museum of Nature and Human Activities, Hyôgo.

1. *Brahmina parvula* MOSER, 1915

(Figs. 1, 4, 8, 12, 14, 17(a–b), 19, 22, 27, 30)

Brahmina parvula MOSER, 1915, 137–138 (Yunnan).

Diagnosis. Length: 8.6–9.5 mm.

Male:— Head and pronotum rather reddish yellow as compared with elytra. CW/CL 3.6–4.4 (A 3.8, n=20). Frons more or less concave on posterior half, not tuberculate. Vertex not carinate, but remarkable. IN/HW 0.57–0.63 (A 0.61, n=20). AC > FT6, but AC < FT. Mentum more or less convex.

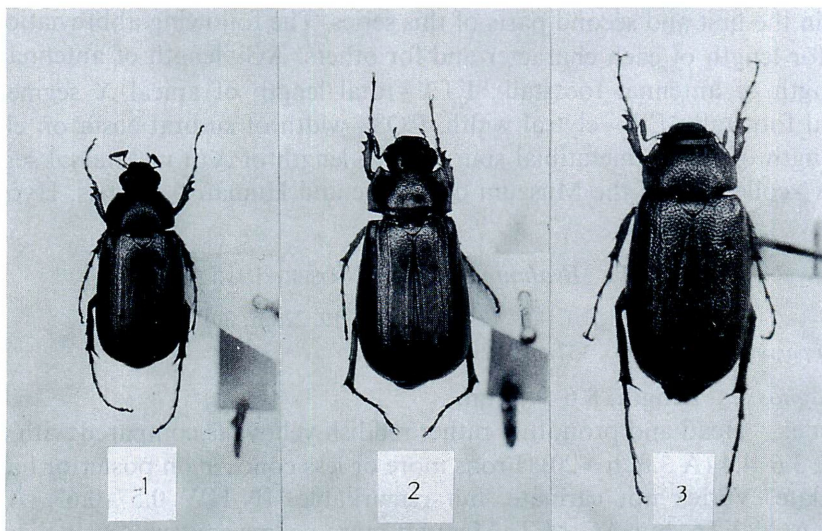
Pronotum somewhat sparsely and coarsely punctate, PL/PW 0.57–0.63 (A

0.60, $n=20$); anterior angles rectangular or subrectangularly obtuse, posterior ones obtuse; hairs on the anterior margin not so long; both antero-lateral and postero-lateral margins straight and not reflexed. Each elytron with a gradually widened, weak sutural costa and a very inconspicuous one near it, COS/EW 0.19–0.23 (A 0.21, $n=20$); epipleuron visible at most until the level of metacoxa in dorso-lateral view and thence vanished; marginal membrane conspicuous. Abdominal central area without pubescence.

Metacoxa without a furrow along the inner side of lateral margin. Metafemur rather stout; FW/FL 0.30–0.35 (A 0.33, $n=20$); bristles on the surface of metafemur about $2/13$ – $1/4$ times as long as its width. Metatibia rather stout. $TIS \leq Ta-I$, $Ta-I < Ta-II$. Claw with a very slender apical tooth and a very stout and truncate inner one, the former often shorter than the latter. Male genitalia as shown in Fig. 22; internal sac of male genitalia with a band of minute bristles.

Female:— CW/CL 3.4–4.4 (A 4.0, $n=20$). Frons slightly or hardly concave before vertex. IN/HW 0.60–0.66 (A 0.63, $n=20$). $AC > FT6$ or $AC < FT6$ in Chinese specimens ($AC < FT6$ in the holotype), but $AC \geq FT6$ in both Siamese and Vietnamese specimens. PL/PW 0.54–0.61 (A 0.59, $n=20$), but this parameter is smaller in Chinese specimens than in others. COS/EW 0.17–0.25 (A 0.21, $n=20$). Metafemur and metatibia very stout, FW/FL 0.35–0.41 (A 0.38, $n=20$); bristles on the surface of metafemur about $2/11$ – $1/3$ times as long as its width. Female genitalia as shown in Fig. 27; a fused coxite subtrapezoidal in shape and devoid of any remarkable projections along the anterior margin.

Distribution. China (Yunnan), Thailand [new record], Vietnam [new record].



Figs. 1–3. — 1, *Brahmina parvula* MOSER; 2, *B. mikado* sp. nov.; 3, *B. miyako* sp. nov.

Specimens examined. 2 ♂♂, Doi Pui, near CM, N. Thailand, 11-V-1985, I. MATOBA leg.; 22 ♀♀, sl., 3-VI-1986, HH leg.; 1 ♀, Doi Suthep, CM, 29-V-1983, MS leg.; 1 ♀, Doi Sang, Thailand, 10~13-V-1990, K. KUME leg.; 1 ♂, CM, N. Thailand, V-1985, NK leg.; 14 ♂♂, 16 ♀♀, Doi Chiang Khian, CM, 27~29-V-1983 [OPU]; 10 ♂♂, 5 ♀♀, Sapa, Hoang Lien Son, N. Vietnam, 3~28-V-1993, N. KATSURA leg.; 1 ♀, near Sapa, N. Vietnam, VI-1994; 1 ♂, "China Yunnan", "*parvula* Mos", "Zool. Mus. Berlin"; 1 ♀, sl., "Zool. Mus. Berlin"; 1 ♀, sl., "*Brahmina parvula* Type ♀ Mos.", "Zool. Mus. Berlin".

2. *Brahmina mikado* T. ITOH, sp. nov.

(Figs. 2, 5, 9, 11, 15, 18(a-b), 21(a), 23(a-b), 28, 31)

Description. Length: 8.7–13.2 mm.

Male:— Head dark blackish brown, antenna, ventral surface and legs brown, pronotum reddish brown to brown, elytra light brown. Both dorsal and ventral surfaces moderately shining.

Clypeus subtrapezoidal, somewhat finely and somewhat densely punctate, CW/CL 3.3–4.4 (A 3.8, n=15); anterior angles fully rounded and anterior margin not emarginate, fronto-clypeal suture well biarcuate. Frons with short erect hairs, transversely carinate close to fronto-clypeal suture, whose carina is medially interrupted; the area before the carina much sparsely punctate on the greater part and impunctate partly, but the intermediate area between the carina and vertex is seemingly much concave and punctate coarsely and densely as on clypeus. IN/HW 0.53–0.60 (A 0.58, n=15). AC ≅ FT. Mentum slightly convex.

Pronotum somewhat sparsely and finely punctate, but the punctures are seemingly coarse because of deep concavity of their surroundings; PL/PW 0.54–0.57 (A 0.56, n=15); anterior margin not hairy; anterior angles almost rectangular and posterior ones subrectangularly obtuse; both antero-lateral and postero-lateral margins reflexed and not serrate, the former sinuate but the latter sinuate or almost straight; disc with a conspicuous depression at the inner side of each antero-lateral margin near each anterior angle. Scutellum somewhat sparsely punctate. Each elytron with a sutural costa gradually widened posteriorly, a weak 1st costa close to the sutural one posteriorly and an obsolete narrow 2nd costa parallel to the 1st, sometimes almost vanished, COS/EW 0.15–0.18 (A 0.16, n=15); epipleuron visible over the level of metacoxa in dorso-lateral view; marginal membrane not constantly visible, sometimes invisible. Pygidium coarsely punctate. Abdominal central area slightly or hardly with short pubescence.

Metacoxa without a furrow along the inner side of lateral margin. Metafemur somewhat stout, shining and sparsely punctate, FW/FL 0.30–0.33 (A 0.32, n=15); bristles on the surface of metafemur about 1/6–1/4 times as long as its width. TIS < Ta-I, Ta-I < Ta-II. Claw with a moderately slender apical tooth and a very stout and truncate inner one. Male genitalia as shown in Fig. 23; internal sac with

several arranged cilia and a crescent spicule apically and with a wirely long, U-shaped spicule basically, and in addition bearing a few patches of conspicuously thick, recumbent setae dorsally and ventrally.

Female:— CW/CL 3.1–4.3 (A 3.7, n = 15), IN/HW 0.55–0.62 (A 0.59, n = 15), AC > FT6. Pronotum with a widely rimmed anterior margin; both antero-lateral and postero-lateral margins reflexed and almost straight, PL/PW 0.53–0.57 (A 0.55, n = 15). COS/EW 0.13–0.17 (A 0.15, n = 15). FW/FL 0.35–0.40 (A 0.37, n = 15); bristles on the surface of metafemur about 2/11–3/10 times as long as its width. TIS = Ta-I, Ta-I < Ta-II. Female genitalia as shown in Fig. 28; a fused coxite subtrapezoidal and devoid of any remarkable projections along the anterior margin.

Distribution. Northern to Central Thailand.

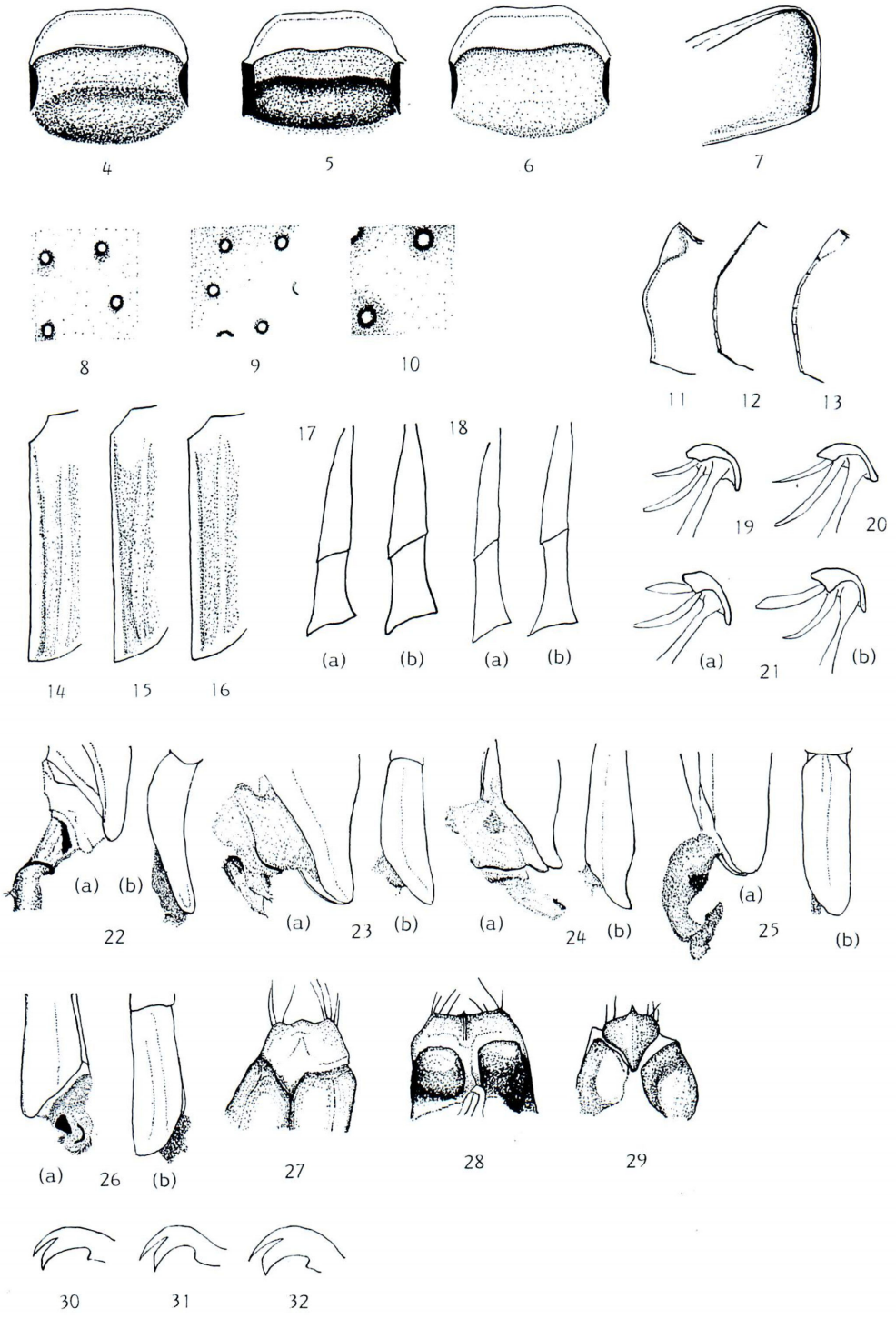
Holotype: ♂, Doi Suthep, CM, N. Thailand, 23–V–1983, MS leg. Allotype: ♀, same data as for the holotype. Paratypes: 5 ♂♂, 4 ♀♀, same data as for the holotype; 6 ♂♂, 6 ♀♀, sl., 29–V–1983, MS leg.; 2 ♂♂, 1 ♀, sl., 23–V–1980, MT leg.; 2 ♂♂, 5 ♀♀, sl., 1~4–VI–1980, MT leg.; 3 ♂♂, 5 ♀♀, sl., 26~28–V–1982, AN leg.; 1 ♂, Phuping Palace, CM, 25–V–1983, MS leg.; 50 ♂♂, 35 ♀♀, CM, N. Thailand, V~VI–1985; 4 ♂♂, 9 ♀♀, sl., VI–1986, NK leg.; 3 ♂♂, 3 ♀♀, Doi Chiang Khian, CM, 27–V–1983 [OPU]; 1 ♂, Fang, CM, 14–V–1983 [OPU]; 1 ♀, Sanean Salai, Nan, N. Thailand, 17–V–1993, S. OHMOMO leg.; 1 ♀, Maeta Teak-replantation Forest, Lang Phrae Prov., N. Thailand, 18–V–1985, MS leg.; 2 ♀♀, Doi Pa Muang, Hang Chat, Lampang, N. Thailand, 19–V–1985, MS leg.; 1 ♀, Pukhieo, Chiayaphum, NE. Thailand, 5–VI–1986, P. EK-AMNUAY leg.; 3 ♀♀, Khao Yai, C. Thailand, 15–VI–1983 [OPU]. Holo-, allo- and 2 paratypes are deposited in MNHA, 4 paratypes in ZMHU, 9 in OPU and the remaining 138 in the author's collection.

Brahmina mikado mikoto T. ITOH, subsp. nov.

(Figs. 21(b), 24(a–b))

Length: 9.8–13.9 mm.

Figs. 4–32. — 4–6. Frons (♂); 4, *B. parvula*; 5, *B. mikado* sp. nov.; 6, *B. miyako* sp. nov. — 7. Metacoxa [*B. miyako* sp. nov.]. — 8–10. Punctures on pronotum; 8, *B. parvula*; 9, *B. mikado* sp. nov.; 10, *B. miyako* sp. nov. — 11–13. Lateral margin of pronotum; 11, *B. mikado* sp. nov.; 12, *B. parvula*; 13, *B. miyako* sp. nov. — 14–16. Elytron; 14, *B. parvula*; 15, *B. mikado* sp. nov.; 16, *B. miyako* sp. nov. — 17–18. Left metatibia in ventral view [(a) ♂, (b) ♀]; 17, *B. parvula*; 18, *B. mikado* sp. nov. — 19–21. Metatibial apical spurs (♂); 19, *B. parvula*; 20, *B. miyako* sp. nov.; 21(a), *B. mikado mikado* sp. nov., (b), *B. mikado mikoto* subsp. nov. — 22–26. Male genitalia [(a) dorso-lateral view, (b) lateral view]; 22, *B. parvula*; 23, *B. mikado mikado* sp. nov.; 24, *B. mikado mikoto* subsp. nov.; 25, *B. miyako* sp. nov.; 26, *B. brevopilosa* [holotype]. — 27–29. Female genitalia; 27, *B. parvula*; 28, *B. mikado* sp. nov.; 29, *B. miyako* sp. nov. — 30–32. Claw of protarsus; 30, *B. parvula*; 31, *B. mikado* sp. nov.; 32, *B. miyako* sp. nov.



The present subspecies is distinguishable from the nominotypical one by the following points: 1) distinctly larger parameres of male genitalia and their structure; 2) structure of internal sac of male genitalia [which basically resembles that of the nominotypical one, but is armed with 2 completely separated, wirely long spicules instead of a U-shaped spicule]; 3) in male, the usually shorter one of metatibial apical spurs more developed than the longer one and becoming spatulate. Arithmetic data are as follows: ♂ (n=10)–CW/CL 3.5–4.1 (A 3.8); IN/HW 0.53–0.58 (A 0.55); PL/PW 0.53–0.58 (A 0.56); COS/EW 0.13–0.17 (A 0.16); bristle length of metafemur/FW about 2/11–1/4. ♀ (n=10)–CW/CL 3.5–4.3 (A 3.9); IN/HW 0.55–0.59 (A 0.57); PL/PW 0.54–0.57 (A 0.55); COS/EW 0.13–0.17 (A 0.15); FW/FL 0.36–0.38 (A 0.37); bristle length of metafemur/FW about 2/11–3/10.

Distribution. Laos.

Holotype: ♂, Vang Vieng, P. Vientiane, 25~26-V-1994, K. MIURA leg. Allotype: ♀, same data as for the holotype. Paratypes: 106 ♂♂, 94 ♀♀, same data as for the holotype; 3 ♂♂, sl., V-1991; 4 ♂♂, 11 ♀♀, sl., 1-V-1994, WAKAHARA leg.; 3 ♂♂, 2 ♀♀, Xieng Khouang, Laos, V-1993, WAKAHARA leg. Holo-, allo- and 2 paratypes are deposited in MNHA, 4 paratypes in ZMHU, and the remaining 217 in the author's collection.

Notes. In female, the shorter one of the metatibial apical spurs is somewhat spatulate, but is not so long as in the male.

3. *Brahmina miyako* T. ITOH, sp. nov.

(Figs. 3, 6, 7, 10, 13, 16, 20, 25(a-b), 29, 32)

Description. Length: 11.5–15.7 mm.

Male:— Head, pronotum and legs reddish brown, antenna and elytra brown, ventral surface dark brown, but the abdomen is sometimes light brown. Pygidium brown to dark brown. Both dorsal and ventral surfaces dully shining and entirely pubescent.

Clypeus subtrapezoidal, somewhat finely and somewhat densely punctate. CW/CL 3.3–4.1 (A 3.8, n=8); anterior angles fully rounded, anterior margin not emarginate and fronto-clypeal suture well biarcuate. Frons flat, coarsely and densely punctate. Vertex not carinate, though remarkable. IN/HW 0.58–0.65 (A 0.62, n=8), AC ≤ FT. Mentum slightly convex.

Pronotum somewhat sparsely and coarsely punctate, the punctures seemingly coarse because of deep concavity of their surroundings, PL/PW 0.55–0.58 (A 0.57, n=8); anterior margin with somewhat long, erect hairs; anterior angles rectangular and posterior ones obtuse; both antero-lateral and postero-lateral margins straight, the former widely reflexed and the latter normally reflexed narrowly. Scutellum sparsely punctate. Each elytron with a sutural costa gradually widened posteriorly and a weak 1st costa somewhat parallel to the sutural one and vanished before

the apical knob, COS/EW 0.18–0.20 (A 0.19, n=8); epipleuron almost invisible in dorso-lateral view; marginal membrane almost invisible, but sometimes visible partly. Pygidium much coarsely and slightly rugosely punctate. Abdomen entirely covered with short pubescence.

Metacoxa with a furrow along the inner side of lateral margin. Metafemur somewhat stout, shining, sparsely punctate and entirely pubescent, FW/FL 0.30–0.33 (A 0.31, n=4); bristles on the surface of metafemur about 3/10–9/25 times as long as its width. TIS < Ta-I, Ta-I < Ta-II. Claw with a moderately slender apical tooth and a very stout and truncate inner one. Male genitalia as shown in Fig. 24; internal sac with a patch of short bristles in the basal area and a group of very minute granular bristles in the subapical area.

Female:— CW/CL 3.4–4.1 (A 3.8, n=3). Frons flat or feebly convex, IN/HW 0.61–0.64 (A 0.6, n=3), AC = FT6. PL/PW 0.54–0.56 (A 0.55, n=3), COS/EW 0.15–0.19 (A 0.17, n=3), FW/FL 0.37–0.38 (A 0.37, n=3); bristles on the surface of metafemur about 3/10–2/5 times as long as its width, TIS ≤ Ta-I, Ta-I < Ta-II. Female genitalia as shown in Fig. 29; a fused coxite with a remarkable projection along the anterior margin.

Distribution. Northern Thailand.

Holotype: ♂, Doi Pui, CM, N. Thailand, 9–V–1985 H. NARA leg. Allotype: ♀, same data as for the holotype. Paratype: 1 ♂, same data as for the holotype; 4 ♂♂, CM, V–1985, NK leg.; 2 ♂♂, 2 ♀♀, Doi Chiang Khian, CM, N. Thailand, 27–V–1983 [OPU]. Holo- and allotypes are deposited in MNHA, 3 paratypes in OPU, 1 in ZMHU and the remaining 5 in the author's collection.

Table 1. Differences between *Brahmina miyako* sp. nov. and *B. brevipilosa*.

	<i>B. miyako</i> sp. nov.	<i>B. brevipilosa</i>
Fronto-clypeal suture	distinctly biarcuate	feebly biarcuate
Pronotal antero-lateral margin	widely reflexed near the anterior angle	normally reflexed narrowly near the anterior angle
PL/PW (♂)	0.55–0.58 (A 0.57)	0.54
(♀)	0.54–0.56 (A 0.55)	0.51
Sutural costa	distinct and wide	weak and narrow
Width of sutural costa / elytral width	♂—ca. 0.18–0.20 (A 0.19) ♀—ca. 0.15–0.19 (A 0.17)	♀—ca. 0.12 ♀—ca. 0.13
Inner side of metacoxal lateral margin	with a furrow	without a furrow
Parameres of male genitalia	slender	stout

Notes. This new species is closely allied to *B. brevopilosa* MOSER, 1918, but is distinguishable from the latter by the diagnoses given in Table 1.

要 約

伊藤 武：タイのコフキコガネ科の研究，III。——本橋においては，アカチャコガネ *Brahmina* 属3種を取り扱った。*B. parvula* MOSERをタイおよびベトナムから初めて記録し，1新亜種を含む2新種，*B. mikado mikado* (タイ)，*B. mikado mikoto* (ラオス) および *B. miyako* (タイ) の記載を行った。

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- Literature shown in Parts I and II of this series is omitted.