

Dung Beetles (Coleoptera, Scarabaeidae) of Thailand

Part 3. Genus *Sisyphus*

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Abstract In the third part of the this study on the Thai dung beetles, the genus *Sisyphus* is taken up. Seven forms are identified from Thailand, one of them being described as a new subspecies of *S.* (s. str.) *thoracicus* SHARP, *chaiyaphumensis* subsp. nov. A key to all the species distributed in Thailand is given, and explanatory photographs, i.e., habitus, male genitalia and legs, are provided.

This is the third part of the study on the dung beetles from Thailand and deals with a ball-rolling genus, *Sisyphus*, which is one of the most distinctive and unmistakable of all the genera of the Coprinae by the possession of the spider-like body with exceedingly long and slender legs.

Before MASUMOTO (1988), records were scarce of the occurrence of this genus in Thailand. He recorded two species, *Sisyphus longipes* (OLIVIER, 1789) and *S. neglectus* GORY, 1833, and described one species, *S. maniti*, from North Thailand. HANBOONSONG *et al.* (1999) recorded three species from Northeast Thailand, *Sisyphus longipes*, *S. maniti* and one indetermined species. The present authors have been studying the members of this genus in the whole parts of Thailand for several years and recognized seven forms.

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Natural History Museum, London, for permission to examine the type specimens under their care. Appreciation should be expressed to Mr. Teruo OCHI of Osaka and Dr. David KRÁL, Charles University, Praha, Dr. Wolfgang SCHAWALLER, Staatliches Museum für Naturkunde, Stuttgart, for providing with many invaluable materials and also to Dr. Makoto KIUCHI, National Institute of Sericultural and Entomological Science, for giving useful comment and taking highly qualified photographs inserted in this paper.

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Systematic Position of the Genus *Sisyphus*

LATREILLE (1807) erected this genus for “*Sisyphus schaefferi* LINNÉ” in the order 1, Family XV, Coprophagi. ARROW (1931) placed the genus *Sisyphus* LATREILLE in the tribe Sisyphini of the subfamily Coprinae and mentioned that only the genus belonged to the tribe. PAULIAN (1945) regarded it as a member of the subfamily Scarabaeinae. BALTHASAR (1963) regarded this genus as a member of the tribe Sisyphini in the subfamily Scarabaeinae and included four genera in it. OCHI, KON and KIKUTA (1996) placed this genus in the tribe Sisyphini of the subfamily Coprinae. In the mean time, MÜLLER (1942) erected the subgenus *Neosisyphus* for *S. atratus* KLUG. Later, CAMBEFORT (1984) proposed to raise it to the generic level.

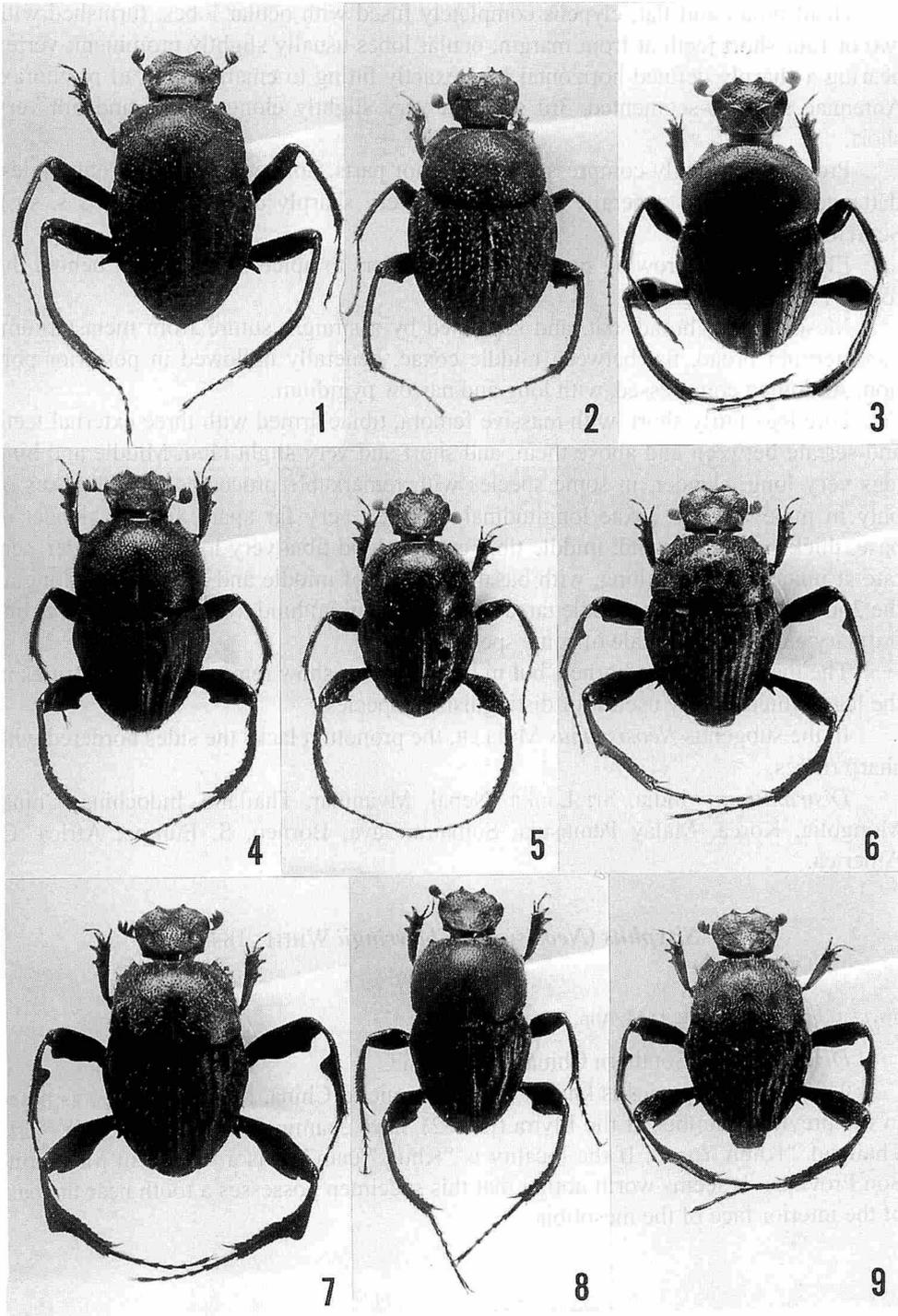
GORY (1833) published “Monographie du Genre *Sisyphus*”. Later, ARROW (1927) published a note on this genus and clarified some historical confusion by examining old types of FABRICIUS, OLIVIER, HOPE, GORY, etc. His work could be highly appreciated. HAAF (1955) also published a review of the genus and BALTHASAR (1963) followed his treatment. There occurred a new confusion in the Asian species, viz., *S. denticrus* FAIRMAIRE and *S. laoticus* ARROW were regarded as junior synonyms of *S. neglectus* GORY. Recently, KABAKOV and NAPOLOV (1999) clarified this confusion by proving each to be a good species.

Genus *Sisyphus* LATREILLE, 1807

Sisyphus LATREILLE, 1807, Gen. Crust. Ins., 2: 79. Type species: *Scarabaeus schaefferi* LINNÉ.

General features. Body rather short amygdaloid, clothed with short, erect, hooked setae on dorsal surface, more or less smooth on ventral surface, with very long and loosely articulated posterior legs.

Figs. 1–9. Habitus of *Sisyphus* spp. from Thailand. — 1, *S. (Neosisyphus) bowringii* WHITE, ♂; 2, *S. (s. str.) maniti* MASUMOTO, ♂; 3, *S. (s. str.) longipes* (OLIVIER), ♂; 4, *S. (s. str.) denticrus* FAIRMAIRE, ♂; 5, *S. (s. str.) laoticus* ARROW, ♂; 6, *S. (s. str.) thoracicus thoracicus* SHARP, ♂ (S. Thailand); 7, *S. (s. str.) thoracicus chaiyaphumensis* subsp. nov., holotype, ♂; 8, *S. (s. str.) neglectus* GORY, ♂ (N. India); 9, *S. (s. str.) thoracicus thoracicus* SHARP, ♂ (Borneo).



Head broad and flat; clypeus completely fused with ocular lobes, furnished with two or four short teeth at front margin; ocular lobes usually slightly prominent; vertex bearing a sharply defined horizontal lobe exactly fitting to emargination of prothorax. Antennae short, 8-segmented, 3rd segment very slightly elongate, 4th and 5th very short.

Pronotum strongly compressed in posterior parts, hollowed beneath front angles; flattened lateral area generally hollowed and very sharply defined (*Sisyphus* s. str.). Scutellum not visible.

Elytra short, narrowing rapidly from shoulders to apices, not excised behind the former; epipleura lacking.

Mesosternum broad, flat, and separated by a straight suture from metasternum; metasternum broad, flat between middle coxae, generally hollowed in posterior portion. Abdomen compressed, with long and narrow pygidium.

Fore legs fairly short, with massive femora, tibiae armed with three external teeth and serrate between and above them, and short and very slight tarsi. Middle and hind legs very long, slender, in some species with remarkable processes in both sexes or only in male; middle coxae longitudinal, parallel, very far apart; femora slender at base, thickened before end; middle tibia curved; hind tibia very long and slender, serrate at inner edge; tarsi long, with basal segments of middle and hind tarsi as long as the 2nd and 3rd together, middle tarsus longer than tibia; hind trochanter with an extraordinary elongation in male of some species.

The males are never horned, but in many species show remarkable peculiarities in the legs, which is very useful for distinguishing species.

In the subgenus *Neosisyphus* MÜLLER, the pronotum lacks the sides bordered with sharp ridges.

Distribution. India, Sri Lanka, Nepal, Myanmar, Thailand, Indochina, China, Mongolia, Korea, Malay Peninsula, Sumatra, Java, Borneo, S. Europe, Africa, C. America.

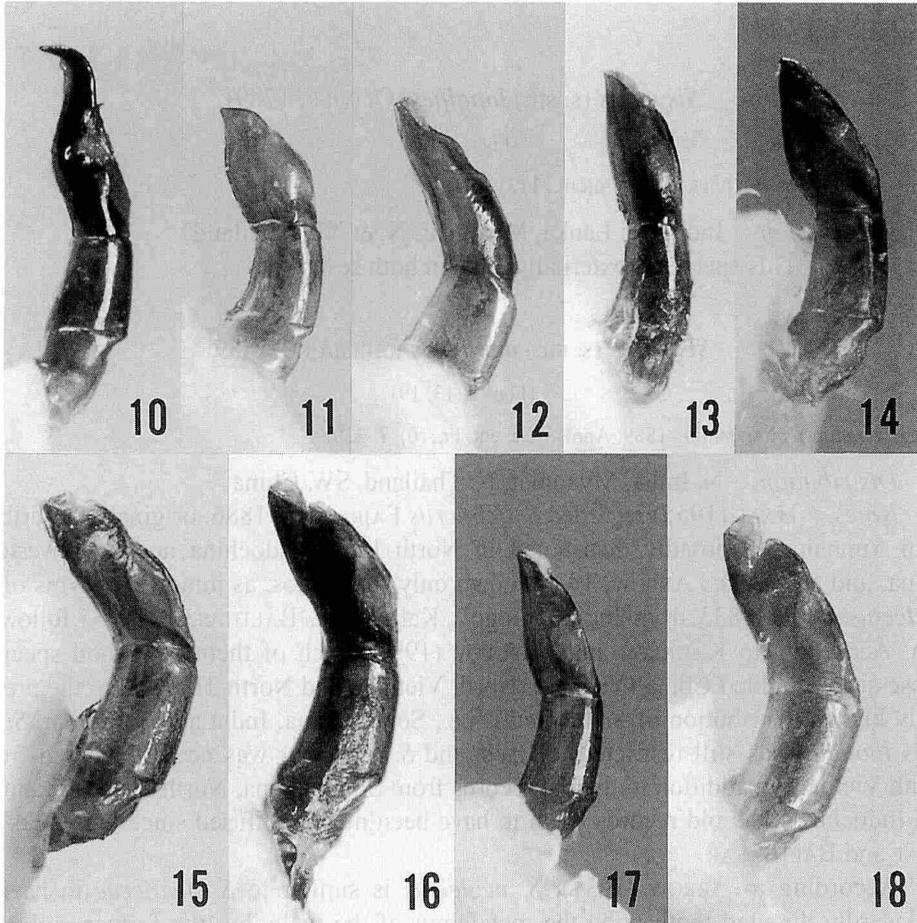
Sisyphus (Neosisyphus) bowringii WHITE, 1844

(Figs. 1, 10)

Sisyphus bowringii WHITE, 1844, Ann. Mag. nat. Hist., **14**: 423.

Distribution. Southern China; N. Thailand.

Notes. This species is known to be endemic to China, but the authors, as noted in the previous number of the Elytra (p. 162), have examined a specimen from North Thailand, "Khun Yuan". If the locality is "Khun Yuam", it is a village in Mae Hong Son Province. It seems worth noting that this specimen possesses a tooth near the base of the interior face of the mesotibia.



Figs. 10–18. Male genitalia. — 10, *S. (Neosisyphus) bowringii* WHITE; 11, *S. (s. str.) maniti* MASUMOTO; 12, *S. (s. str.) longipes* (OLIVIER); 13, *S. (s. str.) denticrus* FAIRMAIRE; 14, *S. (s. str.) laoticus* ARROW; 15, *S. (s. str.) thoracicus thoracicus* SHARP (S. Thailand); 16, *S. (s. str.) thoracicus chaiyaphumensis* subsp. nov.; 17, *S. (s. str.) neglectus* GORY (N. India); 18, *S. (s. str.) thoracicus thoracicus* SHARP (Borneo).

***Sisyphus* (s. str.) *maniti* MASUMOTO, 1988**

(Figs. 2, 11)

Sisyphus maniti MASUMOTO, 1988, Ent. Rev. Japan, Osaka, **45**: 135.

Distribution. N. & NE. Thailand.

Notes. This species is characterized by the small and not strongly convex body with clypeus armed with two pairs of sharp teeth. Dr. CAMBEFORT has suggested that this species somewhat resembles African members, e.g., *S. desaegeri* HAAF. *Sisyphus maniti* is differentiated from the latter by the hairs obviously sparser on the dorsal sur-

face.

***Sisyphus* (s. str.) *longipes* (OLIVIER, 1789)**

(Figs. 3, 12)

Scarabaeus longipes OLIVIER, 1789, Entom., 1 (3): 164.

Distribution. India, Sri Lanka, Myanmar, N. & NE. Thailand.

Notes. This species is externally alike in both sexes.

***Sisyphus* (s. str.) *denticrus* FAIRMAIRE, 1889**

(Figs. 4, 13, 19)

Sisyphus denticrus FAIRMAIRE, 1889, Anns. Soc. ent. Fr., (6), 7: 320.

Distribution. N. India, Myanmar, N. Thailand, SW. China.

Notes. HAAF (1955) regarded *S. denticrus* FAIRMAIRE, 1886, originally described from Yunnan and broadly distributed in North India, Indochina and southwestern China, and *S. laoticus* ARROW, 1927 known only from Laos, as junior synonyms of *S. neglectus* GORY, 1833 from India ("Gogo", Kathiawar). BALTHASAR (1963) followed him. According to KABAKOV and NAPOLOV (1999), each of them is a good species. These authors added China (Yunnan), North Vietnam and North Thailand to the previously known distribution of *S. neglectus*, i.e., South China, India and Myanmar. *Sisyphus laoticus* was still restricted to Laos, and *S. denticrus* was newly recorded from South Vietnam in addition to the old records from South China, North India, Myanmar and Indochina. The old records seem to have been much confused since the works by HAAF and BALTHASAR.

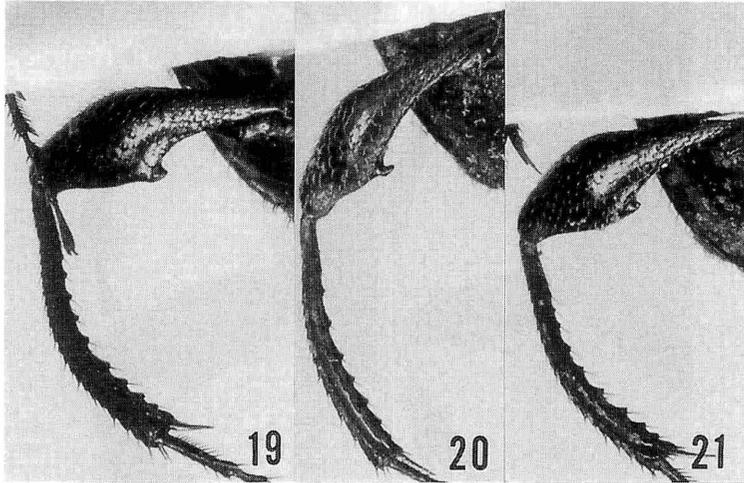
According to ARROW (1931), *S. neglectus* is similar to *S. denticrus* in having backwardly directed tooth upon the metafemur of the male, but the former is distinguishable from the latter by the body more closely covered with setae, the pronotum less deeply and closely punctured, and the male metafemur slenderer at the base.

One of the authors (K. M.) had an opportunity of examining the type specimens of both *S. denticrus* and *S. laoticus*, in the Muséum National d'Histoire Naturelle, Paris and the Natural History Museum, London, respectively, in March of 2000. The former possesses the metafemur with a sharp tooth on the posterior edge, whereas the latter bears a narrow truncate tubercle. He also examined Indian specimens determined as *S. neglectus* (Figs. 8, 17, 21), and concluded that the species distributed in North Thailand, so far as they are aware, is not *S. neglectus* but *S. denticrus*.

***Sisyphus* (s. str.) *laoticus* ARROW, 1927**

(Figs. 5, 14, 20)

Sisyphus laoticus ARROW, 1927, Ann. Mag. nat. Hist., (9), 19: 463.



Figs. 19–21. Male hind legs (ventral view). — 19, *S. (s. str.) denticrus* FAIRMAIRE; 20, *S. (s. str.) laoticus* ARROW; 21, *S. (s. str.) neglectus* GORY (N. India).

Distribution. Laos, West Thailand (new record).

Notes. As mentioned above, this species is easily distinguishable from *S. neglectus* and *S. denticrus* by the male metafemur with a narrow truncate tubercle on the posterior edge. One of the authors (Y. H.) collected this species at Kanchanaburi and Petchaburi, West Thailand, and this is the first record of the species from Thailand.

Collecting data. 2 exs., Ban Chang, Tongphaphum, Kanchanaburi Prov., W. Thailand, 4–IV–2000, Y. HANBOONSONG leg.; 2 exs., Tongphaphum, Kanchanaburi Prov., 4–IV–2000, Y. HANBOONSONG leg.; 1 ex., Wat Khoa Kling, Petchaburi Prov., W. Thailand, 7–IV–2000, Y. HANBOONSONG leg.

Sisyphus (s. str.) thoracicus SHARP, 1875

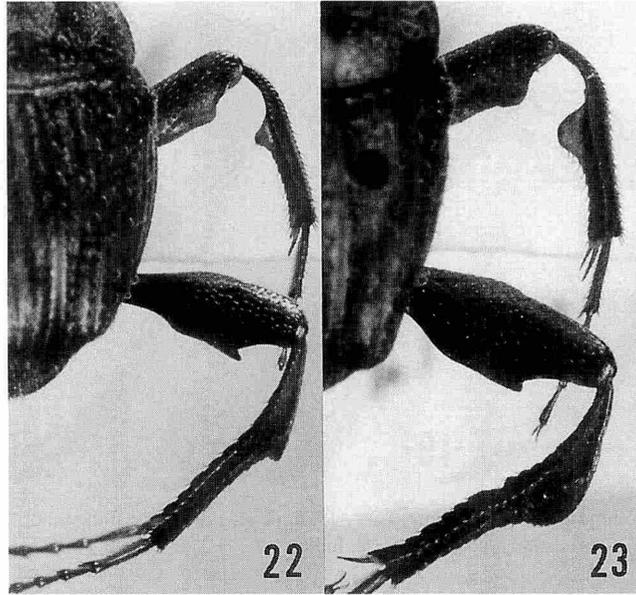
(Figs. 6, 15)

Sisyphus thoracicus SHARP, 1875, Coleopt. Hefte, **13**: 39.

Distribution. Malay Peninsula, Southern Thailand, Sunda Is. (Java, Borneo, Sumatra), Philippines.

Notes. The type specimen preserved in the Muséum National d'Histoire Naturelle, Paris, is a rather small dusty brownish male, with the mesofemur gently produced and obtusely rectangular apicad on the posterior edge, the mesotibia roundly produced at basal 2/5 on the interior edge, the metafemur produced and toothed at apical 2/5 on the posterior edge, the metatibia gently angulate at basal 3/7 on the exterior edge, and the metatrochanter sharply pointed.

A short series of specimens collected in the southern part of Thailand (Peninsular region) possess the above characteristics. Figures 9, 18 and 22 show features of *S. (s.*



Figs. 22–23. Male middle and hind legs. — 22, *S. (s. str.) thoracicus thoracicus* SHARP (Borneo); 23, *S. (s. str.) thoracicus chaiyaphumensis* subsp. nov.

str.) *thoracicus thoracicus* from Borneo.

***Sisypus* (s. str.) *thoracicus chaiyaphumensis* subsp. nov.**

(Figs. 7, 16, 23)

As compared with the male of the nominotypical subspecies of *S. thoracicus* SHARP, the new subspecies possesses a larger, stouter and darker body with the male mesofemur more strongly produced and further roundly produced at apical 1/4 on the posterior edge, the male mesotibia more strongly, roundly produced at basal 2/5 on the interior edge, the male metafemur more strongly produced and toothed at apical 1/3 on the posterior edge, the tooth being pointed posteriad (postero-laterad in *S. thoracicus thoracicus*), and the male metatibia more noticeably lobed on the exterior edge (rather triangularly so in *S. thoracicus thoracicus*); metatrochanter bluntly pointed.

Body length: 6.3–7.4 mm.

Holotype: ♂, Phukheio, Chaiyaphum Prov., NE. Thailand, 21–II–1998, C. DICKINSON leg. (DEZ). Paratypes: 11 exs., same data as for the holotype; 3 exs., Phukheio, 21–I–1998, Y. HANBOONSONG leg.; 8 exs., Phukheio, 21–I–1998, Y. HANBOONSONG leg.

Notes. As mentioned above, *S. thoracicus* SHARP is widely distributed from the Malay Peninsula through the Sunda Islands to the Philippines. The Northeast Thai population is distributed at the northernmost of its distributional range, and possesses

noticeable characteristics.

Key to the Species of the Genus *Sisyphus* from Thailand

- 1 (2) Pronotum not bordered at the sides with sharp ridges (Subgenus *Neosisyphus* MÜLLER). Male mesofemur with a rather sharp tooth in apical part on posterior edge; male mesotibia with a triangular tooth on interior edge near basal part; male metafemur gently produced and moderately angulate in apical part on interior edge; male metatrochanter prolonged at the level of basal 1/3 of metafemur; 10.3 mm; S. China, N. Thailand (Figs. 1, 10)
 *S. (N.) bowringii* WHITE.
- 2 (1) Pronotum bordered at the sides with sharp ridges (Subgenus *Sisyphus* LATREILLE).
- 3 (4) Clypeus very feebly produced at the middle of front emargination, which is armed with a projection on each side, also with an acute angulation outside of it; body not so convex; dorsal surface not shining but micro-shagreened, closely covered with annular punctures, rather densely clothed with scale-like setae; mesofemur not modified in both sexes; metafemur gently produced, in male with a narrow truncate tubercle on posterior edge, whose apex is directed basad; male metatibia rather noticeably dilated at its extremity; 2.8–3.2 mm; N. & NE. Thailand (Figs. 2, 11)
 *S. (s. str.) maniti* MASUMOTO.
- 4 (3) Clypeus simply emarginate in front, the emargination only angulate on each side, outer sides of the angulation more or less forming further angulations or lobes; body larger and more convex, more or less shining.
- 5 (6) Meso- and metafemora somewhat clavate (strongly widened behind the middle, noticeably narrowed towards base); dorsal surface shiny, pronotum with impunctate areas on each side; metatrochanter prominent at the end; two sexes alike externally; 4–6.5 mm; India, Sri Lanka, Myanmar, N. & NE. Thailand (Figs. 3, 12)
 *S. (s. str.) longipes* (OLIVIER).
- 6 (5) Meso- and metafemora not clavate but more or less produced, in male angulate or toothed or tuberculate on posterior edge; dorsal surface mostly coarser.
- 7(10) Mesofemora gently produced on posterior edge, without angulation; mesotibia without lobe on interior edge; metatibia without angulation on exterior edge.
- 8 (9) Dorsal surface more noticeably micro-shagreened; pronotum covered with larger and deeper annular punctures; male metafemur with a minute sharp tooth just beyond the middle on posterior edge; 6.5–7.5 mm; N. India, Myanmar, SW. China, N. & NE. Thailand (Figs. 4, 13, 19)
 *S. (s. str.) denticrus* FAIRMAIRE.
- 9 (8) Dorsal surface less noticeably micro-shagreened, pronotum covered with smaller and shallower annular punctures; male metafemur with a narrow truncate tubercle on posterior edge; 6–7 mm; Laos, W. Thailand (Figs. 5, 14,

- 20) *S.* (s. str.) *laoticus* ARROW.
- 10 (7) Mesofemora rather strongly produced on posterior edge, with a noticeable angulation in male; male mesotibia lobed on interior edge; male metatibia with an angulation on exterior edge.
- 11(12) Body more ovate; male mesofemur simply produced and angulate on posterior edge; male mesotibia roundly produced at basal 2/5 on interior edge; male metafemur less strongly produced and toothed postero-apicad at apical 2/5 on posterior edge; male metatibia less noticeably angulate at basal 3/7 on exterior edge; metatrochanter sharply pointed; 5–7 mm; S. Thailand, Malay Peninsula, Sunda Isls., Philippines (Figs. 6, 15 from S. Thailand; Figs. 9, 18, 22 from Borneo) *S.* (s. str.) *thoracicus thoracicus* SHARP.
- 10 (9) Body larger, more elongate and darker; male mesofemur produced and further lobed at apical 1/4 on posterior edge; male mesotibia strongly lobed at basal 2/5 on interior edge; male metafemur more strongly produced and toothed postero-apicad at apical 1/3 on posterior edge; male metatibia more noticeably lobed at the middle on posterior edge; metatrochanter bluntly pointed; 6.3–7.4 mm; NE. Thailand (Figs. 7, 16, 22)
 *S.* (s. str.) *thoracicus chaiyaphumensis* subsp. nov.

要 約

Y. HANBOONSONG · 益本仁雄：タイ産の食糞コガネムシ類。III. *Sisyphus* 属について。—— タイ産の食糞コガネムシ(Scarabaeidae)研究の第3回として、ダイコクコガネ亜科(Coprinae)アシナガタマオシコガネ族(Sisyphini)のアシナガタマオシコガネ属(*Sisyphus*)を検討した。この地域には、7つの種または型が認められた。すなわち、*S.* (*Neosisyphus*) *bowringii* WHITE, 1844, *S.* (s. str.) *maniti* MASUMOTO, 1988, *S.* (s. str.) *longipes* (OLIVIER, 1789), *S.* (s. str.) *denticrus* FAIRMAIRE, 1889, *S.* (s. str.) *laoticus* ARROW, 1927, *S.* (s. str.) *thoracicus thoracicus* SHARP, 1875, および今回小論で新亜種として記載した *S.* (s. str.) *thoracicus chaiyaphumensis* subsp. nov. である。また、*S.* (s. str.) *laoticus* ARROW は、この地域から初めて記録された。なお、これまで *S.* (s. str.) *neglectus* GORY, 1833 としていたものは、*S.* (s. str.) *denticrus* FAIRMAIRE, 1889 であることがわかった。

References

- ARROW, G. J., 1927. Notes on the coleopterous genus *Sisyphus* (Scarabaeidae). *Ann. Mag. nat. Hist.*, (9), **19**: 456–465.
- CAMBEFORT, Y., 1984. Étude écologique des Coléoptères Scarabaeidae de Côte d'Ivoire. *Trav. Cherchers Lamto*, **3**: i–viii+1–297+1–13.
- GORY, M., 1833. Monogr. Gen. Sisyphus. 15 pp., 1 pl. Méquignon-Marvis Père et Fils, Paris.
- HAAF, E., 1955. Über die Gattung *Sisyphus* LATR. (Col. Scarab.). *Ent. Arb. Mus. Frey*, **6**: 341–381.
- HANBOONSONG, Y., & K. MASUMOTO, 2000. Occurrence of two *Sisyphus* (Coleoptera, Scarabaeidae) in Thailand. *Elytra, Tokyo*, **28**: 162.
- KABAKOV, O. N., & A. NAPOLOV, 1999. Fauna and ecology of Lamellicornia of subfamily Scarabaeinae (Coleoptera, Scarabaeidae) of Vietnam and some parts of adjacent countries: South China, Laos and

- Thailand. *Latvijas Ent.*, **37**: 58–96.
- LATREILLE, P. A., 1807. Genera Crust. Ins., II., 1–280. Amand Kœnig, Parisiis & Argentorati.
- MASUMOTO, K., 1988. Coprophagid-beetles from Northwest Thailand. *Ent. Rev. Japan, Osaka*, **43**: 135–143.
- MÜLLER, G., 1942. Nuovi Coleotteri dell’Africa orientale (Seconda serie). *Atti Mus. civ. Stor. nat. Trieste*, **15**: 63–86.
- OLIVIER, M., 1789. Ent. Hist. nat. Ins., **1** (3): 1–190. Baudouin, Paris.
- SHARP, D., 1875. Descriptions of some new genera and species of Scarabacidae from tropical Asia and Malasia. *Coleopt. Hefte*, **8**: 33–54.
- WHITE, A., 1844. Description of some new species of Coleoptera and Homoptera from China. *Ann. Mag. nat. Hist.*, **14**: 422–427.

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A New Genus of the Trechinae (Coleoptera) from Sichuan, Southwest China

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In this short paper, I am going to erect a new genus of the carabid subfamily Trechinae to make the new generic name available for the prospective “Catalogue of the Order Coleoptera of the Palaearctic Region.” The type species of this new genus, from Sichuan, Southwest China, was originally regarded as a new species of the genus *Kozlovites* JEANNEL (1935, p. 279; type species: *Kozlovites caviceps* JEANNEL, 1935, from the easternmost part of Tibet). It is true that the Sichuanese species, *K. tronqueti* DEUVE (1995, p. 9, figs. 2, 5), looks similar to the Tibetan, but a careful examination of topotypical specimens of the former has proved that it had better be regarded as a member of the *Trechiamia* group. I have examined the type of *K. caviceps* twice at Sankt-Peterburg, and though I was unable to make a direct comparison of the two species, I am confident of the true affinity of *K. tronqueti* mentioned above.

Since all the important character states of *K. tronqueti* were described by the original author, the following account of the new genus will be confined to its diagnostic characters.

Genus *Sinotrechiamia* S. UENO, nov.

Type species: *Kozlovites tronqueti* DEUVE, 1995.

Discriminated from *Kozlovites* by the following points: right mandible with a distinct pre-