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New species, new records and taxonomic updates on *Microdytes* BALFOUR-BROWNE, 1946 (Coleoptera: Dytiscidae)

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Abstract

Seven new species of the genus *Microdytes* BALFOUR-BROWNE, 1946 (Coleoptera: Dytiscidae) are described: *M. feryi* sp.n., *M. helenae* sp.n. and *M. shaverdoae* sp.n. from Myanmar, *M. heineri* sp.n. from Thailand and China, *M. paoloi* sp.n., *M. pederzantii* sp.n. from Thailand, and *M. rocchii* sp.n. from Laos. *Microdytes holzmanni* WEWALKA & WANG, 1998 is synonymized with *M. shunichii* SATÔ, 1995. New records of other species of *Microdytes* are provided.

Key words: Coleoptera, Dytiscidae, *Microdytes*, taxonomy, new species, new synonymy, first record.

Introduction

Microdytes BALFOUR-BROWNE is a speciose genus occurring throughout southern and south-eastern Asia from Nepal to southern India, from southern China to southern Japan, the Philippines, Malaysia and western Indonesia. The genus was revised by WEWALKA (1997), who added 21 new species to the nine known ones. Four additional new species were described by WEWALKA (1998) and WEWALKA & WANG (1998). Recently, WEWALKA, RIBERA & BALKE (2007), BIAN & JI (2009) and MILLER & WEWALKA (2010) added five other new species.

Further hydro-entomological expeditions by the China Water Beetle Survey (CWBS) yielded new study material. Additional specimens were collected by Harald Schillhammer in Myanmar and Laos, by Helena Shaverdo in Myanmar, as well as by numerous other coleopterists, e.g. Jiří Hájek, Michel Brancucci, Paolo Mazzoldi, in various SE Asian countries. One new species was detected among old museum material.

With the seven new species described in the present paper and regarding the new synonymy presented herein, the genus comprises now 45 species.

Material and methods

The study material which consists of about 1,000 specimens comes from a number of institutions and private collections. The following abbreviations are used for the collections, where material is located:

CASS	Chinese Academy of Sciences, Institute of Applied Ecology, Shenyang, China
CGW	Coll. Günther Wewalka, Wien, Austria
CJS	Coll. Jaroslav Štátný, Liberec, Czech Republic
CPM	Coll. Paolo Mazzoldi, Brescia, Italy
IMRL	Institut und Museum für Regenwaldökologie, Leipzig, Germany
NHML	Natural History Museum London, UK
NMB	Naturhistorisches Museum, Basel, Switzerland
NMP	National Museum, Museum of Natural History, Prague, Czech Republic
NMW	Naturhistorisches Museum Wien, Vienna, Austria

The beetles were studied with a Wild M3 binocular at 6.4–80 ×. Male and female genitalia were studied in dry condition and drawn with the help of a drawing tube, Wild # 308700. The terminology to denote the orientation of the genitalia follows MILLER & NILSSON (2003).

Label data of type specimens are cited in quotation marks; author's comments are given in square brackets.

New species

Microdytes feryi sp.n.

TYPE LOCALITY: Myanmar, Tenasserim.

TYPE MATERIAL: **Holotype** ♂ (NMP): "TENASSERIM, Birma Coll. V. Helfer National Museum Prague", "♂", "HOLOTYPE *Microdytes feryi* Wewalka 2010" [red printed label]. **Paratypes**: 1 ♂, 3 ♀♀: same data as holotype (NMP, CGW); all specimens are provided with red paratype labels.

DESCRIPTION: Habitus: regularly oval, moderately convex (Fig. 1).

Length of body: 1.85–1.95 mm; width: 1.20–1.35 mm.

Head: reddish-brown, sometimes with darker spots near eyes; clypeus regularly rounded, not bordered; finely, sparsely and regularly punctured, somewhat stronger posteriorly, with fine rows of punctures alongside eyes; finely microreticulate. Antennae reddish-brown, slim and rather long.

Pronotum: light reddish-brown, dark-brown along anterior margin and broadly along posterior margin, especially medially; lateral margins very finely bordered, regularly rounded; punctures quite regular in size and distribution, slightly stronger along posterior margin; without microreticulation.

Elytron: reddish-brown to dark-brown with yellowish-brown spots: one transverse basal spot not reaching base, a round median spot near suture, a transverse post-median lateral spot and a transverse spot near apex (Fig. 1); punctures almost regular, medium fine and medium sparse with one longitudinal row of fine punctures; shining; without microreticulation.

Ventral side: head and prothorax yellowish-brown, epipleura, and rest of ventral side reddish-brown to dark brown; metaventre and metacoxae in centre regularly, sparsely and coarsely punctured; abdomen almost without punctation; without microreticulation. Legs reddish-brown.

Male: aedeagal median lobe consisting of four difficult to separate parts; not dissected (Fig. 10a–b), lateral lobe (Fig. 17); without secondary sexual characters.

AFFINITIES: *Microdytes feryi* belongs to the group of species with coarse punctures on metacoxae and predominantly reddish-brown pronotum and is very similar to *M. maculatus* MOTSCHULSKY in coloration and punctation but it differs from this species by more regular oval habitus and the male genitalia.

ETYMOLOGY: This species is dedicated to Dr. Hans Fery, Berlin, Germany.

DISTRIBUTION: Southern Myanmar.

Microdytes helenae sp.n.

TYPE LOCALITY: Myanmar, Shan State, SW Kalaw.

TYPE MATERIAL: **Holotype** ♂ (NMW): "Myanmar (143c) Shan State, ca. 5km SW Kalaw, ca. 300 m below Ye Ayegan reservoir, 20°36.274'N 96°32.055'E, stream, 8.06.2004 leg. Shaverdo & Schillhammer", "♂",

“HOLOTYPE *Microdytes helenae* Wewalka 2010” [red printed label]. **Paratypes:** 1 ♂, 5 ♀♀: same data as holotype (CGW, NMW); all specimens are provided with red paratype labels.

DESCRIPTION: Habitus: body regularly oval, attenuate apically, distinctly convex (Fig. 2).

Length of body: 1.65–1.80 mm, width: 1.20–1.30 mm.

Head: reddish-brown; clypeus slightly modified in male, not bordered; punctures moderately strong, moderately dense and regular, with fine rows of punctures alongside eyes; almost completely and very finely microreticulate, missing on vertex. Antennae reddish-brown, rather long.

Pronotum: reddish-brown to dark-brown, somewhat paler laterally; lateral margins distinctly bordered, regularly rounded; punctures moderately strong and sparse, irregular in size and distribution, with coarser, navel-like punctures in posterior half; without microreticulation.

Elytron: dark-brown to reddish-brown, with three indistinct, sometimes missing small yellowish-brown spots: one lateral spot near base, a round post-median spot at the lateral side and a more distinct transverse spot near apex (Fig. 2); punctures almost regular, fine and sparse; two longitudinal rows of punctures, particularly inner one quite distinct; highly polished and shining; without microreticulation.

Ventral side: epipleura, prothorax and head reddish-brown, rest of ventral side dark brown; metacoxae and metaventrite quite strongly, sparsely and regularly and abdomen very sparsely and finely punctured; without microreticulation. Legs reddish-brown.

Male: aedeagal median lobe (Fig. 11a–b), lateral lobe (Fig. 18); clypeus slightly produced and truncate in middle (Fig. 8); third to eighth antennal segments slightly enlarged; legs not sexually dimorphic.

Female: clypeus regularly rounded; antennae not modified.

AFFINITIES: *Microdytes helenae* resembles *M. heineri* and *M. shepardi* WEWALKA in habitus, coloration and male genitalia, but it differs from these species by slightly smaller size and male secondary sexual characters.

ETYMOLOGY: This species is dedicated to Dr. Helena Shaverdo, Vienna, who collected the type specimens.

DISTRIBUTION: Myanmar: Shan State.

Microdytes heineri sp.n.

TYPE LOCALITY: China, Yunnan Province, Simao Pref.

TYPE MATERIAL: **Holotype** ♂ (NMW): “N-Thailand, Doi Phu Ka N.P. Stream near Huai Nam, 1400 m 3.1.1999, leg. Mazzoldi (26)”, “♂”, “HOLOTYPE *Microdytes heineri* Wewalka 2010” [red printed label]. **Paratypes:** 3 ♂♂, 4 ♀♀: “CHINA: Yunnan, Simao Pref. 25 km SW Simao, Zhu Shan 17.11.1999, ca. 1000 m Schönmann & Wang (CWBS 393)” (CASS, CGW, NMW); 1 ♀: “CHINA: Yunnan, Simao Pref. 35 km SW Mojiang 19.11.1999, ca. 1000 m Schönmann & Wang (CWBS 395)” (NMW); 1 ♂, 1 ♀: “CHINA: Yunnan, Xishuangbanna ca. 15 km W Menglun 5.11.1999, ca. 700–800 m leg. Jäch et al. (CWBS 354)” (CGW, NMW); 2 ♂♂, 4 ♀♀: “CHINA: Yunnan, Xishuangbanna ca. 3 km S Menglun 6.11.1999, ca. 500 m leg. Jäch et al. (CWBS 357)” (CPM, CGW, NMW); 1 ♂: “CHINA: Yunnan, Xishuangbanna ca. 10 km NW Menglun 7.11.1999, ca. 700 m leg. Jäch, et al. (CWBS 359)” (NMW); 1 ♀: “CHINA: Yunnan, Xishuangbanna ca. 10 km NW Menglun 7.11.1999, ca. 700–800 m leg. Jäch, et al. (CWBS 360)” (NMW); 1 ♂, 1 ♀: “CHINA: Yunnan, Xishuangbanna ca. 20 km NW Mengla 9.11.1999, ca. 1000 m leg. Jäch, et al. (CWBS 368)” (CGW, NMW); 1 ♀: “CHINA: Yunnan, Xishuangbanna ca. 6 km NW Mengla 9.11.1999, ca. 700 m leg. Jäch, et al. (CWBS 367)” (NMW); 3 ♀♀: “CHINA: Yunnan, Xishuangbanna ca. 11 km N Menyung 12.11.1999, ca. 700 m leg. Jäch, et al. (CWBS 378)” (CGW, NMW); all specimens are provided with red paratype labels.

ADDITIONAL MATERIAL: LAOS: 1 ♀: Luang Nam Tha Prov., ca. 20 km SE Muang Sing 950 m, 12.–13.VI.1996, leg. Schillhammer “(25)” (NMW); 2 ♀♀: Louangphrabang Prov., 20°33–4’N 102°14’E, Ban Sang Cha (5 km W), 1200 m, 1.–16.V.1999, leg. Kubán (NMP).

These specimens were determined as *M. heineri* but not included in the series of paratypes because no male specimens were available.

DESCRIPTION: Habitus: body regularly oval, distinctly convex (Fig. 3).

Length of body: ♂: 1.85–1.95 mm, ♀: 1.65–1.90 mm; width: ♂: 1.35–1.40 mm, ♀: 1.20–1.30 mm.

Head: reddish-brown; clypeus not bordered; punctures moderately strong, moderately dense and regular, with fine rows of punctures alongside eyes; completely and finely microreticulate. Antennae reddish-brown, rather long.

Pronotum: reddish-brown, along anterior and posterior margin dark-brown, somewhat paler laterally; lateral margins distinctly bordered, regularly rounded; punctures moderately strong and sparse, irregular in size and distribution, with coarser, navel-like punctures in posterior third; without microreticulation.

Elytron: dark-brown to reddish-brown, with three small yellowish-brown spots: one indistinct lateral spot near base, a more distinct round post-median spot at side and a transverse spot near apex (Fig. 3); punctures almost regular, fine and sparse; two longitudinal rows of punctures, particularly inner one quite distinct; highly polished and shining; without microreticulation.

Ventral side: epipleura, prothorax and head yellowish-brown, rest of ventral side dark brown; metacoxae, metaventrite and abdomen quite strongly, sparsely and regularly punctured; without microreticulation. Legs reddish-brown.

Male: aedeagal median lobe (Fig. 12a–b), lateral lobes fused (Fig. 19a–b); average size larger, body form significantly broader; clypeus strongly produced, truncate in middle and border curved inward (Fig. 9a); second and third antennal segments characteristically enlarged (Fig. 25); protarsal segments and protibiae slightly enlarged, mesotibiae distinctly modified (Fig. 26).

Female: clypeus slightly produced and truncate (Fig. 9b); antennae not modified; mesotibiae slightly enlarged.

AFFINITIES: *Microdytes heineri* resembles *M. shepardi* in habitus, size, coloration and male genitalia but it differs in the stronger and more regular punctures of the elytra, less distinct elytral markings and the distinct secondary sexual characters in male. Female specimens of these two species are very difficult to distinguish but the clypeus of *M. heineri* is slightly truncate and its sides are straight.

Microdytes heineri also resembles *M. helenae* in habitus, coloration and male genitalia but it differs from this species in larger size and male secondary sexual characters.

ETYMOLOGY: This species is dedicated to Dr. Heiner Schönmann, Vienna, Austria.

DISTRIBUTION: China: Yunnan; Thailand; ? Laos.

Microdytes paoloi sp.n.

TYPE LOCALITY: Central Thailand, Phu Hin, Rongkla N.P.

TYPE MATERIAL: **Holotype** ♂ (NMW): “Thailand, Phu Hin Rongkla NP, small stream, 1250 m (4) leg. Mazzoldi, 25.12.[19]99“, “♂”, “HOLOTYPUS *Microdytes paoloi* Wewalka 2010” [red printed label]. **Paratypes**: 8 ♂♂, 11 ♀♀: same data as holotype (CGW, CPM, NMW); 1 ♀: “Thailand, Phu Hin Rongkla NP, small stream, (5) 25.12.[19]99 leg. Mazzoldi” (CPM); 2 ♂♂, 6 ♀♀: “Thailand, Phu Kradung NP, stream, 1250 m, (15) 28.12.[19]99

leg. Mazzoldi" (CPM, CGW); 1 ♀: "THAILAND: Petchabun Phu Hin Rongkla NP 27.3.1994 leg. W. Shepard", "WDS A 1047" (NMW); all specimens are provided with red paratype labels.

DESCRIPTION: Habitus: body regularly oval, moderately convex (Fig. 4).

Length of body: 1.90–2.00 mm; width: 1.30–1.40 mm.

Head: yellowish-brown, darker posteriorly; clypeus almost regularly rounded, slightly truncate, not bordered; finely and regularly punctured, with fine rows of punctures alongside eyes; very finely microreticulate. Antennae reddish-brown, rather long.

Pronotum: dark-brown to black; lateral margins distinctly bordered, regularly rounded; punctures dense, consisting of two kinds, the coarser ones navel-like and stronger mainly in posterior half; without microreticulation.

Elytron: yellowish-brown, dark-brown to black along suture, along base and at apex, with two longitudinal dark-brown bands connected with sutural band (Fig. 4); punctures quite dense and of two kinds in size, without distinct longitudinal rows of punctures; highly polished and shining; without microreticulation.

Ventral side: head yellowish-brown, epipleura, prothorax and rest of ventral side dark brown; metacoxae, metaventrite and first ventrite regularly and coarsely punctured, second ventrite less strongly punctured, rest of abdomen almost without punctation; without microreticulation. Legs reddish-brown.

Male: aedeagal median lobe (Fig. 13a–b), lateral lobe (Fig. 20); without secondary sexual characters.

AFFINITIES: *Microdytes paoloi* belongs to the group of species with coarse punctures on metacoxae and predominantly dark brown pronotum. From *M. belli* BALFOUR-BROWNE and *M. satoi* WEWALKA it differs in elytral markings and male genitalia. The elytral markings resemble those of *M. sabitae* VAZIRANI.

ETYMOLOGY: This species is dedicated to Paolo Mazzoldi, Brescia, Italy, who collected most of the type material.

DISTRIBUTION: Central Thailand.

Microdytes pederzanii sp.n.

TYPE LOCALITY: Central Thailand, Phu Hin, Rongkla N.P.

TYPE MATERIAL: **Holotype** ♂ (NMW): "Thailand, Phu Hin Rongkla NP, small stream, 1250 m (4) leg. Mazzoldi, 25.12.[19]99", "♂", "HOLOTYPUS *Microdytes pederzanii* Wewalka 2010" [red printed label].

Paratypes: 10 ♂♂, 4 ♀♀: same data as holotype (CPM, CGW, NMW); 7 ♂♂, 11 ♀♀: "Thailand, Phu Hin Rongkla NP, small stream, 1250 m (5) leg. Mazzoldi, 25.12.[19]99" (CPM, CGW, NMW); all specimens are provided with red paratype labels.

DESCRIPTION: Habitus: body regularly oval, moderately convex (Fig. 5).

Length of body: 1.60–1.75 mm; width: 1.10–1.20 mm.

Head: light reddish-brown to brown, often darker posteriorly; clypeus regularly rounded, not bordered; finely, sparsely and regularly punctured, with fine rows of punctures alongside eyes; finely microreticulate. Antennae reddish-brown, of medium length.

Pronotum: light reddish-brown, more or less dark-brown in centre and along posterior border; lateral margins distinctly bordered, regularly rounded; punctures irregular in size and distribution, finer at lateral sides and stronger along posterior margin; without microreticulation.

Elytron: reddish-brown to dark-brown with yellowish-brown spots: one basal spot not reaching base, sometimes connected with anterior lateral spot, a round median spot near suture, a post-median lateral spot and a transverse spot near apex (Fig. 5); punctures almost regular, medium fine and medium sparse with one indistinct longitudinal row of fine punctures; shining; without microreticulation.

Ventral side: head yellowish-brown, epipleura, prothorax and rest of ventral side dark brown; metacoxae, metaventrite, first and second abdominal ventrite distinctly but very sparsely punctured, rest of abdomen almost without punctation; without microreticulation. Legs reddish-brown.

Male: aedeagal median lobe (Fig. 14a–b); lateral lobe (Fig. 21); without secondary sexual characters.

AFFINITIES: *Microdytes pederzanii* belongs to the group of species with moderately coarse punctures on metacoxae and is similar to *M. elgae* HENDRICH, BALKE & WEWALKA in habitus, size, and coloration. It differs from the latter by the finer and more regular elytral punctures, finer punctures on metacoxae and metaventrite, and the male genitalia. The aedeagus and the coloration of *M. pederzanii* resemble very much those of *M. gabrielae* WEWALKA, from which it can be distinguished by the bigger size and stronger punctures on metacoxae and metaventrite.

ETYMOLOGY: This species is dedicated to Ing. Fernando Pederzani, Ravenna, Italy.

DISTRIBUTION: Central Thailand.

Microdytes rocchii sp.n.

TYPE LOCALITY: Central Laos, Kham Mouan Prov.

TYPE MATERIAL: **Holotype** ♂ (NMB): “LAOS-C; KHAM MOUAN pr. Ban Khoun Ngeun; ~200 m; 18°07'N 104°29'E; Pacholátko leg., 19.-31.v.2001”, “♂”, “HOLOTYPUS *Microdytes rocchii* Wewalka 2010” [red printed label]. **Paratype** ♀: same data as holotype (CGW); the specimen is provided with a red paratype label.

DESCRIPTION: Habitus: body broad oval, strongly convex (Fig. 6).

Length of body: 1.80–1.85 mm; width: 1.25–1.30 mm.

Head: reddish-brown, sometimes with darker spots near eyes; clypeus regularly rounded, not bordered; very finely, quite densely and regularly punctured; very finely microreticulate anteriorly. Antennae reddish-brown, of medium length.

Pronotum: reddish-brown, dark-brown along the posterior margin; lateral margins very finely bordered, regularly rounded; punctures sparse, quite irregular in size and distribution, much stronger along posterior margin; without microreticulation.

Elytron: dark-brown with yellowish-brown spots: one transverse basal spot not reaching base, a round median spot near suture, a post-median transverse lateral spot and a transverse spot near apex (Fig. 6); punctures moderately dense, of two kinds, coarser punctures about as frequent as fine ones, progressively more fine and sparse towards lateral sides; two longitudinal rows of punctures rudimentary; highly polished and shining; without microreticulation.

Ventral side: head and prothorax yellowish-brown, epipleura, and rest of ventral side reddish-brown to dark-brown; metaventrite and metacoxae coarsely and sparsely punctured, abdomen almost without punctation; without microreticulation. Legs reddish-brown.

Male: aedeagus: median lobe (Fig. 15a–b); lateral lobe (Fig. 22); almost without secondary sexual characters.

Female: fine microreticulation on head more extended.

AFFINITIES: *Microdytes rocchii* belongs to the group of species with coarse punctures on metacoxae and predominantly reddish-brown pronotum. It is similar to *M. elgae* and *M. mariannae* WEWALKA in habitus, elytral punctation, elytral coloration and male genitalia. It differs from *M. mariannae* in the smaller size and darker head and from *M. elgae* in the shape of the male genitalia. *Microdytes rocchii* can be separated from *M. pederzanii* by the broader oval habitus, coarser elytral punctation and by the shape of the male genitalia.

ETYMOLOGY: This species is dedicated to Saverio Rocchi, Florence, Italy.

DISTRIBUTION: Central Laos.

Microdytes shaverdoae sp.n.

TYPE LOCALITY: Myanmar, Shan State.

TYPE MATERIAL: **Holotype** ♂ (NMW): “MYANMAR (150) Shan State NE Mintaingbin Forest Camp 20°55.640'N 96°33.634'E ca. 1290 m, puddles, 14/15/17/19/20.06.2004, leg Shaverdo”, “♂”, “HOLOTYPE *Microdytes shaverdoae* Wewalka 2010” [red printed label]. **Paratypes:** 2 ♂♂, 2 ♀♀: “MYANMAR (145A) Shan State N Aungban, halfway between Pindaya and Ye'ngan, 20°58.271'N 96°32.488'E, ca. 1241 m, stream 10.06.2004, leg Shaverdo” (CGW, NMW); 1 ♀: “MYANMAR (151) Shan State NE Mintaingbin Forest Camp forest pools and in leaf litter near stream, 17.06.2004 leg Shaverdo & Schillhammer” (NMW); all specimens are provided with red paratype labels.

DESCRIPTION: Habitus: body regularly oval, moderately convex (Fig. 7).

Length of body: 1.80–1.90 mm; width: 1.25–1.30 mm.

Head: dark-brown to black; clypeus regularly rounded, not bordered; finely, sparsely and irregularly punctured, with fine rows of punctures alongside eyes; very finely microreticulate in anterior half. Antennae reddish-brown, rather short.

Pronotum: dark-brown to black, somewhat paler laterally; lateral margins distinctly bordered, regularly rounded; punctures sparse, irregular in size and distribution, with coarser punctures along posterior margin; without microreticulation.

Elytron: yellowish-brown, dark-brown to black along suture and base and at apex, with three longitudinal dark-brown to black bands sometimes confluent or interrupted and three dark-brown to black spots along lateral margin (Fig. 7); punctures fine, sparse, slightly irregular; one longitudinal row of punctures quite distinct; highly polished and shining; without microreticulation.

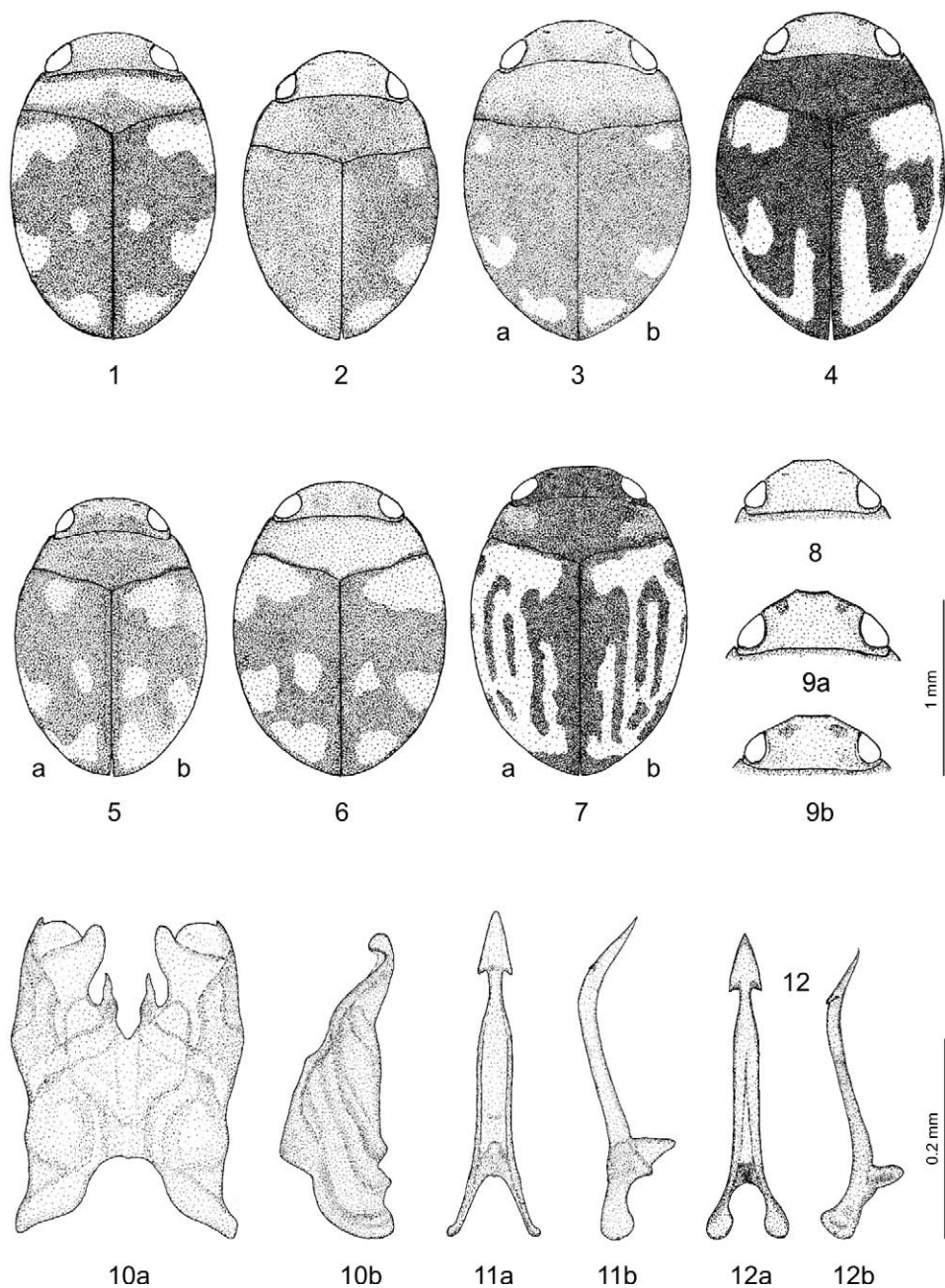
Ventral side: prothorax and head yellowish-brown, epipleura and rest of ventral side dark brown; metacoxae and metaventrite finely, very sparsely and irregularly punctured; abdomen almost without punctation; without microreticulation. Legs reddish-brown.

Male: aedeagal median lobe (Fig. 16a–b), lateral lobe (Fig. 23); without secondary sexual characters.

AFFINITIES: *Microdytes shaverdoae* belongs to the group of species with missing or very fine punctures on metacoxae, predominantly dark brown pronotum and dark brown head (e.g. *M. franzi* WEWALKA & WANG, *M. tomokunii* SATÔ, *M. zetteli* WEWALKA, *M. uenoi* SATÔ and *M. bistroemi* WEWALKA). From all these species it can be distinguished by the distinct longitudinal elytral markings and larger size.

ETYMOLOGY: This species is dedicated to Dr. Helena Shaverdo, Vienna, who collected the type specimens and recognised them as new species.

DISTRIBUTION: Myanmar: Shan State.



Figs. 1–7: Habitus and variation of colour patterns (a, b): 1) *Microdytes feryi*; 2) *M. helenae*; 3) *M. heineri*; 4) *M. paoloi*; 5) *M. pederzani*; 6) *M. rocchii*; 7) *M. shaverdoae*.

Figs. 8–9: Shape of clypeus: 8) *Microdytes helenae*, ♂; 9) *M. heineri*, a) ♂, b) ♀.

Figs. 10–12: Median lobe of aedeagus, a) dorsal aspect, b) lateral aspect: 10) *Microdytes feryi*; 11) *M. helenae*; 12) *M. heineri*.

New faunistic records and new synonymy

Microdytes balkei WEWALKA

MATERIAL EXAMINED:

THAILAND: 15 exs.: Mukdahan – Phu Pha Thoep National Park, small pools, 1.I.2000, leg. Mazzoldi “(23)” (CPM, CGW).

DISTRIBUTION: Thailand.

Microdytes elgae HENDRICH, BALKE & WEWALKA

MATERIAL EXAMINED:

MYANMAR: 1 ♂: Sagaing Division, Alaungdaw Katthapa NP, Khaung Din stream, 11.V.2003, ca. 450 m, between 22°18.360'N 94°25.937'E and 22°19.650'N 94°25.768'E, leg. Boukal et al. (119), (NMW); 1 ♂, 1 ♀: Tenasserim, Coll. V. Helfer (NMP, CGW); 4 ♂♂, 7 ♀♀: Chin State, W Saw, 21°10'35.6"N 94°06'05.8"E, ca. 940 m, 9.VI.2010, leg. Schillhammer “(MBS 190)” (NMW, CGW); 3 ♂♂, 1 ♀: Chin State, W Saw, 21°10'56.3"N 94°06'54.3"E, ca. 730 m, 7./9.VI.2010, leg. Schillhammer et al. “(MBS 186)” (NMW, CGW).

MALAYSIA: 29 exs.: Sarawak, Bako NP, 27.–28.V.2003, leg. Štátný (CJS, CGW).

INDONESIA: 4 exs.: West Kalimantan, basin of Riv. Kahayan, Riv. Rowo, left tributary of Panau, smalls pools in primary forest, 24.VII.2004, leg. Mazzoldi “(18)” (CPM).

COMMENTS: Specimens from different regions vary significantly in the elytral punctation but do not differ significantly in male genitalia. Future studies have to proof if the different morphs belong to a single species.

DISTRIBUTION: Bhutan; India: Arunachal Pradesh; Myanmar (first record); Malaysia: Sarawak, Malaya; Singapore; Indonesia: West Kalimantan (Borneo), Bali, Lombok.

Microdytes gabrielae WEWALKA

MATERIAL EXAMINED:

THAILAND: 8 exs.: Phu Hin Rongkla National Park, small stream, 25.XII.1999, leg. Mazzoldi “(7)” (CGW, CPM).

DISTRIBUTION: Thailand.

Microdytes maculatus (MOTSCHULSKY)

MATERIAL EXAMINED:

MYANMAR: 1 ex.: Sagaing Division, Chatthin Wildlife Sanctuary, 23°31.481'N 95°38.804'E, ca. 260 m, 9.X.1998, leg. Schillhammer “(9)” (NMW); 1 ex.: Sagaing Division, Chatthin Wildlife Sanctuary, ca. 200 m, 5.–17.X.1998, leg. Schillhammer “(4)” (NMW); 9 exs.: Shan State, road Kalaw – Thazi, km 23, 20°42.378'N 96°30.218'E, 720 m, 24.X.1998, leg. Schillhammer “(30)” (NMW); 6 exs.: Sagaing Division, Alaungdaw Katthapa NP, 22°19.113'N 94°28.518'E, 13.V.2003, ca. 350 m, leg. Schillhammer et al. “(122)” (NMW, CGW); 28 exs.: Sagaing Division, Chatthin Wildlife Sanctuary above San Myaung Camp, spring, 18.VI.2002, leg. Schillhammer et al. “(90a)” (NMW, CGW); 29 exs.: Sagaing Division, Alaungdaw Katthapa NP, 22°19.094'N 94°28.823'E, 9.–10.V.2003, ca. 350 m, leg. Schillhammer et al. “(118)” (NMW, CGW); 1 ♀: Sagaing Division, Alaungdaw Katthapa NP, 22°19.084'N 94°28.744'E, 7.V.2003, ca. 360 m, leg. Boukal et al. “(113)” (NMW); 1 ex.: Sagaing Division, Alaungdaw Katthapa NP, 22°19.094'N 94°28.823'E, 6.V.2003, ca. 350 m, leg. Boukal et al. “(110)” (NMW); 1 ex.: Sagaing Division, Alaungdaw Katthapa NP, 22°19.094'N 94°28.823'E, 5.V.2003, ca. 350 m, leg. Boukal et al. “(107)” (NMW); 24 exs.: Sagaing Division, Alaungdaw Katthapa NP, Khaung Din stream, between 22°18.360'N 94°25.937'E and 22°19.650'N 94°25.768'E, 11.V.2003, ca. 450 m, leg. Boukal et al. “(119)” (NMW, CGW); 10 exs.: Shan State, Shweudaung Wildlife Sanctuary, 23°05.129'N 96°13.527'E,

19.XII.2002, ca. 360 m, Myint Hlaing & Aung Moe “(91b)” (NMW, CGW); 2 ♂♂, 3 ♀♀: Chin State, W Saw, 21°10'56.3"N 94°06'54.3"E, ca. 730 m, 7./9.VI.2010, leg. Schillhammer et al. “(MBS 186)” (NMW, CGW).
 THAILAND: 1 ♂, 2 ♀♀: N Thailand, Road Mae Chem – Mae Hong Son, 4 km from Ban Huai Boing, 1000 m, 29.XII.1998, leg. Mazzoldi “(15)” (CPM); 1 ♂: Mukdahan – Phu Pha Thoep National Park, small pools, 1.I.2000, leg. Mazzoldi “(23)” (CPM).
 LAOS: 1 ♂: Khammouan Prov., Ban Khoun Ngeun, 200 m, 18°07'N 104°29'E, 24.–29.IV.2001, leg. Kubán (NMB); 202 exs.: Khammouan Prov., Ban Khoun Ngeun, 250 m, 18°07'N 104°29'E, 4.–16., 25.–30.XI.2000, leg. Jendek & Pacholátko (CGW, NMB, NMW); 26 exs.: Khammouan Prov., Ban Khoun Ngeun env., 18°0'N 104°29'E, 4.–16., 25.–30.XI.2000, alt 250 m, leg. Jendek & Pacholátko (NMW, CGW); 1 ♂, 1 ♀: Vientiane Prov., Phou Khao Khouay, ca. 46 km N Vientiane, 18°22.4'N 102°42.4'E, 270 m, 18.V.2010, leg. Hájek (NMP).
 CHINA: 1 ♂: Yünnan, Xishuangbanna, Menglun, Bot. Garden, 6.XI.1999, ca. 500 m, leg. Jäch et al. (CWBS 358) (NMW); 1 ♀: Yünnan, Xishuangbanna, ca. 35 km NW Menglun, 19.XI.1999, ca. 1100 m, leg. Jäch et al. (CWBS 371) (NMW).

DISTRIBUTION: India: Andaman Islands; Myanmar (first record); Thailand; Laos (first record); China: Yünnan (first record).

Microdytes mariannae WEWALKA

MATERIAL EXAMINED:

THAILAND: 2 ♂♂: Phu Hin Rongkla National Park, small stream, 1250 m, 25.XII.1999, leg. Mazzoldi “(4)” (CGW, CPM); 1 ♀: Phu Kradung National Park, Ano Dard Pond, 1250 m, 28.XII.1999, leg. Mazzoldi “(13)” (CPM); 1 ♀: Phu Kradung National Park, stream, between Ano Dard Pond and Tham Sor Noe Waterfall, 1250 m, 28.XII.1999, leg. Mazzoldi “(15)” (CPM).

DISTRIBUTION: Thailand.

Microdytes menopausis WEWALKA

MATERIAL EXAMINED:

LAOS: 16 exs.: Central Laos, Khammouan Prov. Ban Khoun Ngeun env., 18°07'N 104°29'E, alt. 250 m, 4.–16.XI., 25.–30.XI.2000, leg. Jendek & Pacholátko (NMW, CGW); 1 ♂: Sekong Prov., ca. 51 km N Sekong, Ho Chi Minh trail, ca. 410 m, 15°49.6'N 106°39.8'E, 14.–15.V.2010, leg. Hájek (NMP).

COMMENT: Specimens from Laos have less coarse punctures on metacoxae and on elytra than specimens from Thailand.

DISTRIBUTION: Central and southern Laos (first record); Thailand.

Microdytes nilssoni WEWALKA

MATERIAL EXAMINED:

CHINA: 1 ♂: SE Hubei, Mufu Shan, Jiugongshan, 5.–6.V.2004, 29°4'N 114°7'E, leg. Turna (CPM).

DISTRIBUTION: China: Anhui, Hubai (first record), Hunan, Guangxi.

Microdytes pasiricus (CSIKI)

MATERIAL EXAMINED:

PHILIPPINES: 2 ♂♂: Philippines, Palawan, Taytay, Poblacion, Manguao SW bay, Malibongbong creek, 20 m, 10°44'29"N 119°31'25"E, 7.V.1995, leg. Freitag “(72a)” (NMW).

DISTRIBUTION: Thailand; Philippines: Palawan, Luzon; Singapore; Indonesia: Java.

Microdytes satoi* WEWALKA*MATERIAL EXAMINED:**

CHINA: 1 ♂: Guizhou, Leishan Co., SE Kaili, NE Leishan, Leigong Shan, E-slope, 26°22.56'N 108°13.40'E, ca. 300 m, S of pass, 14.VI.2001, ca. 1700 m, leg. Schillhammer & Wang (CWBS 433) (NMW).

DISTRIBUTION: China: Guangxi, Guizhou (first record).

Microdytes schoedli* WEWALKA*MATERIAL EXAMINED:**

THAILAND: 3 ♂♂: Mukdahan – Phu Pha Thoep National Park, small pools, 1.I.2000, leg. Mazzoldi (23) (CPM, CGW); 1 ♀: W Thailand, Tak Prov., Umphang Distr., Thung Yai Wildlife Sanctuary, Song Bea stream, 15°28'N 98°48'E, 300 m, 18.–27.IV.1988, leg. Brendell “B. M. 1988-183” (NHML).

LAOS: 1 ♂: Sekong Prov., ca. 51 km N Sekong, Ho Chi Min trail, 15°49.6'N 106°39.8'E, ca. 410 m, 14.–15.V.2010, leg. Hájek (NMP).

DISTRIBUTION: Thailand; Laos (first record).

Microdytes schoenmanni* WEWALKA*MATERIAL EXAMINED:**

INDIA: 7 exs.: Darjeeling, D. Ch. Rai, Saruk, 700 m, Baghi Tar, 19.XII.1985 (NMB, CGW).

MYANMAR: 11 exs.: Shan State, Main Thouk Forest Monastery 20°34.617'N 96°57.851'E, ca. 1160 m, pools, 4.VI.2004 leg. Shaverdo & Schillhammer “(136A)” (NMW, CGW); 23 exs.: Shan State, km 23 on road Kalaw – Thazi, 20°42.378'N 96°30.218'E, ca. 730 m, rock puddles 25.–26.VI.2004, leg. Shaverdo “(154A)” (NMW, CGW); 57 exs.: Shan State, road Kalaw – Thazi, km 23, 20°42.378'N 96°30.218'E, ca. 720 m, 24.X.1998, leg. Schillhammer “(30)” (NMW, CGW); 4 exs.: Sagaing Division, Alaungdaw Katthapa NP, 22°19.094'N 94°28.823'E, ca. 350 m, 9./10.V.2003, leg. Boukal et al. “(118)” (NMW, CGW); 1 ex.: Sagaing Division, Alaungdaw Katthapa NP, Khaung Din stream, between 22°18.360'N 94°25.937'E and 22°19.650'N 94°25.768'E, ca. 450 m, 11.V.2003, leg. Boukal et al. “(119)” (NMW); 2 exs.: Sagaing Division, Alaungdaw Katthapa NP, 22°19.113'N 94°28.518'E, ca. 350 m, 13.V.2003, leg. Schillhammer “(122)” (NMW); 3 exs.: Tenasserim, Coll. V. Helfer (NMP); 29 exs.: Chin State, W Saw, 21°10'56.3"N 94°06'54.3"E, ca. 730 m, 7./9.VI.2010, leg. Schillhammer et al. “(MBS 186)” (NMW, CGW); 1 ♂, 4 ♀♀: Chin State, W Saw, 21°10'35.6"N 94°06'05.8"E, ca. 940 m, 9.VI.2010, leg. Schillhammer “(MBS 190)” (NMW).

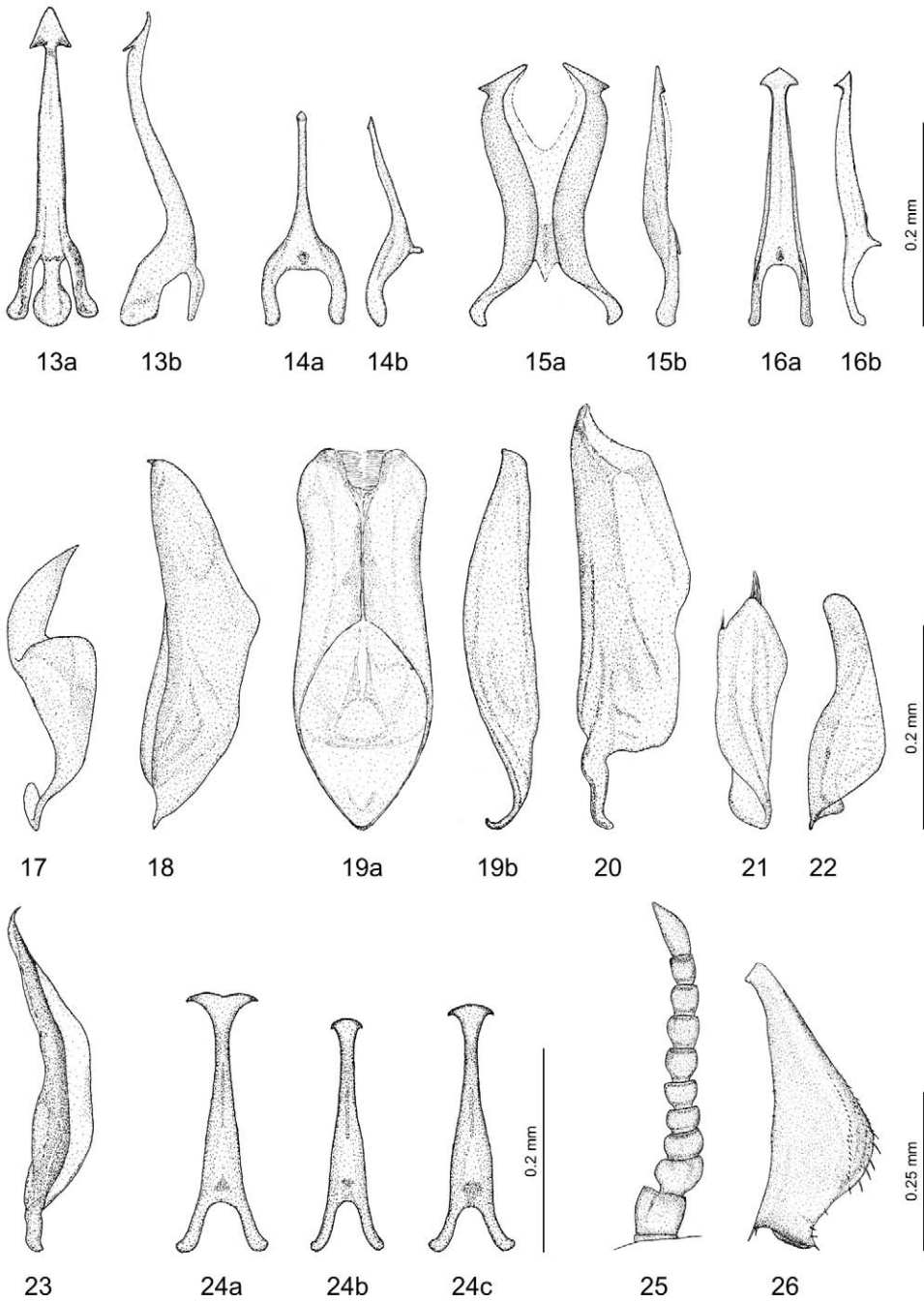
CHINA: 6 ♂♂, 3 ♀♀: Yunnan, Xishuangbanna ca. 20 km NW Mengla 9.XI.1999, ca. 1000 m, leg. Jäch et al. (CWBS 368) (CASS, CGW, NMW); 1 ♀: Yunnan, Xishuangbanna, ca. 15 km W Menglun, ca. 700–800 m, 5.XI.1999, leg. Jäch et al. (CWBS 354) (NMW); 1 ♂: Yunnan, Simao Pref., 35 km SW Mojiang, ca. 1000 m, 19.XI.1999, leg. Schönmann & Wang (CWBS 394) (NMW).

LAOS: 1 ♂: Attapeu Prov., Annam Highlands Mts., Dong Amphan NBCA, Nong Fa env. (crater lake), 15°05.9'N 107°25.6'E, ca. 1160 m, 30.IV.–6.V.2010, leg. Hájek (NMP).

COMMENTS: There is a significant variation in the tip of the median lobe of the male genitalia, but these differences do not follow a clear geographical pattern. Specimens from India, Darjeeling have a broader tip (Fig. 24a) like that of the type specimens from eastern Thailand.

The tip of the median lobes of specimens from western Myanmar is much smaller (Fig. 24b) and that of specimens from China, Yunnan, and Myanmar is intermediate (Fig. 24c). However, as long as no other characters can be found they are treated as belonging to the same species.

DISTRIBUTION: India: Darjeeling; Nepal; Myanmar (first record); Thailand; Laos (first record); China: Yunnan (first record).



Microdytes shepardi WEWALKA

MATERIAL EXAMINED:

THAILAND: 5 exs.: Chaiyaphum, Phu Kieo Wildlife Sanctuary, tributary to Huai Prom Mai, 5.IV.1994, leg. Shepard “(WDS A 1054)” (NMW, CGW); 1 ♀: Sakon Nakhon, Phu Pan NP, 480–520 m, 7.–8.XII.1995, leg. Schwendinger (NMW); 4 ♀♀: N Thailand, Road Mae Chem – Mae Hong Son, 4 km from Ban Huai Boing, 1000 m, 29.XII.1998, leg. Mazzoldi “(15)” (CPM, CGW).

LAOS: 1 ♂: Louang Phrabang Prov., Ban Song Cha (5 km W), 20°33′4″N 102°14′E, ± 1200 m, 24.IV.–16.V.1999, leg. Kubán (NMB).

CHINA: 6 exs.: Yunnan, Xishuangbanna, Menglun, Bot. Garden, 6.XI.1999, ca. 500 m, leg. Jäch et al. (CWBS 358) (CASS, NMW, CGW); 15 exs.: Yunnan, Xishuangbanna, ca. 11 km N Mengyang, 12.XI.1999, ca. 700 m, leg. Jäch et al. (CWBS 378) (NMW, CGW).

DISTRIBUTION: Thailand; Laos (first record); China: Yunnan (first record).

Microdytes shunichii SATÔ

Microdytes shunichii SATÔ 1995: 313; WEWALKA 1997: 38; NILSSON 2001: 229.

Microdytes holzmanni WEWALKA & WANG 1998: 66 (syn.n.); NILSSON 2001: 228; NILSSON 2010: 46.

Microdytes holzmannorum: NILSSON 2007: 51 (unjustified emendation).

The study of extensive material (see below) showed that differences in the male genitalia and the abdominal punctation in *M. shunichii* and *M. holzmanni* are not significantly different. Therefore, *M. holzmanni* is here synonymized with *M. shunichii*.

MATERIAL EXAMINED:

CHINA: 2 exs.: Yunnan, Xishuangbanna, ca. 10 km NW Menglun, 7.XI.1999, ca. 700 m, leg. Jäch et al. (CWBS 359) (NMW); 9 exs.: Yunnan, Xishuangbanna, ca. 15 km W Menglun, 5.XI.1999, ca. 700–800 m, leg. Jäch et al. (CWBS 354) (NMW, CGW); 6 exs.: Yunnan, Xishuangbanna, ca. 10 km NW Menglun, 7.XI.1999, ca. 700–800 m, leg. Jäch et al. (CWBS 360) (NMW, CGW); 20 exs.: Yunnan, Xishuangbanna, ca. 20 km NW Mengla, 9.XI.1999, ca. 1000 m, leg. Jäch et al. (CWBS 368) (NMW, CGW); 1 ex.: Yunnan, Xishuangbanna, ca. 13 km N Mengyang, 10.XI.1999, ca. 700 m, leg. Jäch et al. (CWBS 373) (NMW); 1 ex.: Yunnan, Xishuangbanna, ca. 50 km NW Mengla, 9.XI.1999, ca. 800 m, leg. Jäch et al. (CWBS 369) (NMW); 1 ex.: Yunnan, Xishuangbanna, ca. 35 km NW Menglun, 10.XI.1999, ca. 1100 m, leg. Jäch et al. (CWBS 371) (NMW); 1 ex.: Yunnan, Xishuangbanna, ca. 13 km N Mengyang, 10.XI.1999, ca. 700 m, leg. Jäch et al. (CWBS 373) (NMW); 16 exs.: Yunnan, Simao Pref., 25 km SW Simao, Zhu Shan, 17.XI.1999, ca. 1000 m, leg. Schönmann & Wang (CWBS 393) (NMW, CGW); 2 exs.: Yunnan, Simao Pref., 35 km SW Mojiang, 19.XI.1999, ca. 1000 m, leg. Schönmann & Wang (CWBS 394) (NMW); 2 exs.: Yunnan, Simao Pref., 36 km SW Simao, Jian Shan riv., 15.XI.1999, ca. 1000 m, leg. Schönmann & Wang (CWBS 388) (NMW); 1 ♀: Yunnan, Simao Pref., 35 km S Simao, Caiyang Riv. NP, 16.XI.1999, ca. 1000 m, leg. Schönmann & Wang (CWBS 390) (NMW); 4 ♂♂: Yunnan, 100 km W Kunmin, Diaolin Nat. Res., 22.V.–2.VI.1993, leg. Jendek & Sauša (NMW, CGW); 20 exs.: Hong Kong, Lantau Isl., Ngong Ping Vill., 26.–28.VI.2007, Po Lin monastery env., 480–590 m, 22°15′2″N 113°54′6″E, leg. Hájek & Růžicka (CMP, CGW).

◀ Figs. 13–16 (opposite page): Median lobe of aedeagus, a) dorsal aspect, b) lateral aspect: 13) *Microdytes paoloi*; 14) *M. pederzani*; 15) *M. rocchii*; 16) *M. shaverdoae*.

◀ Figs. 17–23 (opposite page): Lateral lobe of aedeagus: 17) *Microdytes feryi*; 18) *M. helenae*; 19) *M. heineri*, a) dorsal aspect, b) lateral aspect; 20) *M. paoloi*; 21) *M. pederzani*; 22) *M. rocchii*; 23) *M. shaverdoae*.

◀ Fig. 24a–c (opposite page): *Microdytes schoenmanni*, aedeagal median lobes, dorsal aspect; a: India, Darjeeling; b: West Myanmar; c: China, Yunnan.

◀ Figs. 25–26 (opposite page): *Microdytes heineri*, secondary male sexual characters: 25) right antenna, 26) right mesotibia.

THAILAND: 1 ♂, 3 ♀: N Thailand, Doi Phu Ka N.P., Stream near Huai Nam, 1400 m, 3.I.1999, leg. Mazzoldi “(26)” (CPM, CGW); 1 ♂, 2 ♀: N Thailand, Doi Phu Ka N.P., 1 km from Park Hq., 1400 m, 2.I.1999, leg. Mazzoldi “(24)” (CPM); 1 ♀: N Thailand, Chiang Dao env. 21.V.–4.VI.1995, leg. Snizek (IMRL).

LAOS: 4 exs.: N Laos, 17 km NNE Oudom Xai, 20°45'N 102°09'E, ca. 1100 m, 1.–9.V.2002, leg. Kubán (NMB); 14 exs.: Phongsaly Prov., Phongsaly env., 21°41'–2'N 102°06'–8'E, ca. 1500 m, 28.V.–20.VI.2003, leg. Brancucci (NMB); 1 ♀: Central Laos, Khammouan Prov., Ban Khoun Ngeun env., 18°07'N 104°29'E, alt 250 m, 4.–16., 25.–30.XI.2000, leg. Jendek & Pacholátko (NMW).

DISTRIBUTION: Thailand (first record); Laos; China: Yunnan (first record), Hong Kong (first record); Vietnam.

Microdytes sinensis WEWALKA

MATERIAL EXAMINED:

CHINA: 3 exs.: Jiangxi, 30 km NW Xiushui, Huangmengyuan, ca. 250 m, 114°24'18"E 29°14'30"N, 23.III.2003, leg. Schönmann, Komarek & Wang (CWBS 506) (NMW, CGW); 1 ♂: NW Hunan, Tianzishan Nat. Res., 800 m, 16.–18.VI.1997, leg. Bolm (NMB).

DISTRIBUTION: China: Anhui, Jiangxi, Hunan (first record).

Microdytes uenoi SATÔ

MATERIAL EXAMINED:

CHINA: 68 exs.: E Guizhou, Fodingshan, Ganshi, 25 km S of Shiquian, 1300 m, 5.–9.VI.1997, leg. Bolm (NMB, CGW); 1 ♂: Guizhou, Leishan Co., SE Kaili, NE Leigong Shan, SE slope, 26°21.42'N 108°09.36'E, 21.VI.2001, ca. 1200 m, nr. Park gate, leg. Wang (CWBS 441) (NMW); 2 ♀: Sichuan, ca. 4 km E Ya'an City, 600 m, 7.VI.1996, leg. Ji & Wang (CWBS 216) (NMW); 1 ♂: Zhejiang, Lishui City Reg., 30 km S Longquan, 11.IV.2001, 500 m, leg. Wang (CWBS 429) (NMW); 1 ♀: Hunan, ca. 25 km N Pingjiang City, 113°38'05"E 28°50'10"N, ca. 200 m, 20.III.2003, leg. Schönmann, Komarek & Wang (CWBS 500) (NMW); 1 ♀: Hunan, ca. 25 km N Pingjiang City, 113°38'05"E 28°50'10"N, ca. 200 m, 20.III.2003, leg. Schönmann, Komarek & Wang (CWBS 501) (NMW).

DISTRIBUTION: China: Anhui, Fujian, Zhejiang (first record), Hunan, Guizhou (first record), Sichuan (first record); Japan: Ryukyu Islands; Taiwan.

Microdytes zetteli WEWALKA

MATERIAL EXAMINED:

MYANMAR: 1 ♂: Shan State, road Kalaw – Thazi, km 23, 20°42.378'N 96°30.218'E, 720 m, 24.X.1998, leg. Schillhammer “(30)” (NMW); 1 ♂: Shan State, NE Mintaingbin Forest Camp, 20°55.640'N 96°33.634'E, ca. 1290 m, puddles, 14/15/17/19/20.VI.2004, leg. Shaverdo “(150)” (NMW); 31 exs.: Shan State, Main Thauk Forest Monastery, 20°34.617'N 96°57.851'E, ca. 1160 m, pools, 4.VI.2004, leg. Shaverdo & Schillhammer “(136A)” (NMW, CGW).

THAILAND: 105 exs.: N Thailand, Road Mae Chem – Mae Hong Son, 4 km from Ban Huai Boing, 1000 m, 29.XII.1998, leg. Mazzoldi “(15)” (CPM, CGW, NMW).

LAOS: 1 ♂: Louangphrabang Prov., 5 km W Ban Song Cha, 20°33'–4'N 102°14'E, 1200 m, 1.–16.V.1999, leg. Kubán (NMB); 1 ♂: Louangphrabang Prov., Thong Khan, 19°35'N 101°58'E, ca. 750 m, 11.–21.V.2002, leg. Kubán (NMB).

DISTRIBUTION: Myanmar (first record); Thailand; Laos (first record).

Check list of the species of *Microdytes*

1	<i>akitai</i> WEWALKA, 1997	Laos
2	<i>balkei</i> WEWALKA, 1997	Thailand
3	<i>belli</i> BALFOUR-BROWNE, 1946	India
4	<i>bistroemi</i> WEWALKA, 1997	China
5	<i>boukali</i> WEWALKA, 1997	India, Nepal
6	<i>cameroni</i> MILLER & WEWALKA, 2010	India
7	<i>championi</i> BALFOUR-BROWNE, 1946	India, Nepal
8	<i>dimorphus</i> WEWALKA, 1997	Thailand
9	<i>elgae</i> HENDRICH, BALKE & WEWALKA, 1995	Bhutan, India, Myanmar, Malaysia, Singapore, Indonesia
10	<i>feryi</i> WEWALKA, 2011	Myanmar
11	<i>franzi</i> WEWALKA & WANG, 1998	Laos
12	<i>gabrielae</i> WEWALKA, 1997	Thailand
13	<i>hainanensis</i> WEWALKA, 1997	China
14	<i>heineri</i> WEWALKA, 2011	Thailand, China, ? Laos
15	<i>hendrichi</i> WEWALKA, 1997	Malaysia
16	<i>helenae</i> WEWALKA, 2011	Myanmar
17	<i>jaechi</i> WEWALKA, 1997	Indonesia
18	<i>lotteae</i> WEWALKA, 1998	China
19	<i>maculatus</i> (MOTSCHULSKY, 1859)	India, Myanmar, Thailand, Laos, China
20	<i>mariannae</i> WEWALKA, 1997	Thailand
21	<i>mazzoldii</i> WEWALKA & WANG, 1998	Indonesia
22	<i>menopausis</i> WEWALKA, 1997	Laos, Thailand
23	<i>nilssoni</i> WEWALKA, 1997	China
24	<i>paoloi</i> WEWALKA, 2011	Thailand
25	<i>pasiricus</i> (CSIKI, 1937)	Thailand, Philippines, Singapore, Indonesia
26	<i>pederzanii</i> WEWALKA, 2011	Thailand
27	<i>rocchii</i> WEWALKA, 2011	Laos
28	<i>sabitae</i> VAZIRANI, 1969	India
29	<i>sarawakensis</i> WEWALKA, 1997	Indonesia
30	<i>satoi</i> WEWALKA, 1997	China
31	<i>schoedli</i> WEWALKA, 1997	Thailand, Laos
32	<i>schoenmanni</i> WEWALKA, 1997	India, Nepal, Myanmar, Thailand, Laos, China
33	<i>schuhi</i> WEWALKA, 1997	Indonesia
34	<i>schwendingeri</i> WEWALKA, 1997	Thailand
35	<i>shaverdoae</i> WEWALKA, 2011	Myanmar
36	<i>shepardii</i> WEWALKA, 1997	Thailand, Laos, China
37	<i>shunichii</i> SATÔ, 1995	Thailand, Laos, Vietnam, China
38	<i>sinensis</i> WEWALKA, 1997	China
39	<i>svensoni</i> MILLER & WEWALKA, 2010	India
40	<i>tomukunii</i> SATÔ 1981	Nepal
41	<i>trontelji</i> WEWALKA, RIBERA & BALKE, 2007	China
42	<i>uenoi</i> SATÔ, 1972	China, Japan, Taiwan
43	<i>wewalkai</i> BIAN & JI, 2009	China
44	<i>whitingi</i> MILLER & WEWALKA, 2010	India
45	<i>zetteli</i> WEWALKA, 1997	Myanmar, Thailand, Laos

Key to the species of *Microdytes*

- 1 Body dorsoventrally depressed; eyes strongly reduced; integument hardly pigmented, translucent; subterranean species; size: 1.90–2.20 mm *trontelji*
- Body dorsoventrally distinctly convex; eyes not reduced; integument distinctly pigmented 2
- 2 Elytral punctures very coarse and dense and distinctly of two kinds; head dark brown to black 3
- Elytral punctures very fine to moderately coarse, very sparse to moderately sparse. If punctuation of two kinds, difference in size less obvious 5
- 3 Pronotum entirely black; size: 1.90–2.0 mm *sarawakensis*
- Pronotum dark brown to black with a transverse reddish-brown band on each lateral side 4
- 4 Elytron with two longitudinal rows of punctures on disk, median lobe of aedeagus wider in lateral view; size: 2.10–2.20 mm *jaechi*
- Elytron without two longitudinal rows of punctures on disk, median lobe of aedeagus slimmer in lateral view; size: 1.90–2.10 mm *wewalkai*
- 5 Pronotum and elytron almost entirely dark brown to black without distinct elytral markings 6
- Pronotum and elytron reddish-brown to dark brown with more or less distinct elytral markings 8
- 6 Head, pronotum and elytron dark brown to black; size: 1.40–1.65 mm *tomukunii*
- Head reddish-brown, pronotum and elytron dark brown to black; size: 1.70–1.90 mm 7
- 7 Elytron entirely dark brown to black; size: 1.80–1.90 mm *hendrichi*
- Elytron with two indistinct reddish-brown lateral spots; size: 1.70–1.90 mm *schuhi*
- 8 Punctures on metacoxae moderately coarse to very coarse 9
- Punctures on metacoxae missing or very fine 30
- 9 Pronotum predominantly dark brown 10
- Pronotum predominantly reddish brown 13
- 10 Elytron with distinct yellowish-brown markings without a post-median spot near suture 11
- Elytron with distinct yellowish-brown markings including a post-median spot near suture 12
- 11 Markings on elytron consisting of a transverse band at base and an indistinct triangular spot near apex; size: 1.60–1.80 mm *satoi*
- Markings on elytron consisting of a transverse band at base and two postmedian longitudinal bands; size: 1.90–2.00 mm *paoloi*
- 12 Elytral punctuation consisting of one kind of coarse punctures; size: 1.70–1.90 mm *belli*
- Elytral punctuation consisting of coarse and fine punctures; size: 1.55–1.80 mm *svensoni*
- 13 Elytron predominantly dark brown with more or less distinct yellowish-brown markings including a post-median spot near suture 14
- Elytron predominantly reddish-brown to brown with yellowish-brown markings without a post-median spot near suture 22
- 14 Elytral punctures consisting of two kinds 15
- Elytral punctures consisting of one kind 20
- 15 Body oblong-oval; size: 1.90–2.15 mm *schoedli*
- Body regularly oval 16
- 16 Bigger punctures on elytra coarser 17
- Bigger punctures on elytra less coarse 19

17	Size: 1.80–1.85 mm	<i>rochii</i>
–	Size: 1.90–2.25 mm	18
18	Yellowish-brown markings on elytron less extended laterally and at suture; size: 2.10–2.25 mm	<i>mariannae</i>
–	Yellowish-brown markings on elytron more extended laterally and at suture; size: 1.90–2.15 mm	<i>sabitae</i>
19	Punctures of elytra and metacoxae coarser; size: 1.55–1.90 mm	<i>elgae</i>
–	Punctures of elytra and metacoxae finer; size: 1.60–1.75 mm	<i>pederzanii</i>
20	Size: 1.90–2.30 mm	<i>championi</i>
–	Size: 1.60–1.95 mm	21
21	Body oblong-oval, dilated at shoulders, slightly rhomboid; size: 1.60–1.90 mm	<i>maculatus</i>
–	Body regularly oval; size: 1.85–1.95 mm	<i>feryi</i>
22	Body regularly oval	23
–	Body oblong-oval, dilated at shoulders, slightly rhomboid	27
23	Size: 1.65–2.00 mm	24
–	Size: 1.30–1.60 mm	26
24	Clypeus in male regularly rounded; size: 1.70–2.00 mm	<i>shepardi</i>
–	Clypeus in male truncate in the middle	25
25	Clypeus in male strongly produced and truncate; mesotibia in male distinctly modified; size: 1.85–1.95 mm	<i>heineri</i>
–	Clypeus in male slightly truncate; mesotibia in male not modified; size: 1.65–1.80 mm	<i>helenae</i>
26	Clypeus bordered; size: 1.30–1.40 mm	<i>schwendingeri</i>
–	Clypeus not bordered; size: 1.30–1.60 mm	<i>hainanensis</i>
27	Apical three sternites distinctly punctured; size: 1.75–1.85 mm	<i>dimorphus</i>
–	Apical three sternites without punctures	28
28	Size: 1.40–1.70 mm	29
–	Size: 1.30–1.40 mm	<i>mazzoldii</i>
29	Elytral punctures of two kinds; size: 1.40–1.70 mm	<i>menopausis</i>
–	Elytral punctures of one kind; size: 1.40–1.60 mm	<i>pasiricus</i>
30	Pronotum predominantly reddish-brown	31
–	Pronotum predominantly dark brown to black	37
31	Size: 1.55–1.90 mm	34
–	Size: 1.15–1.60 mm	32
32	Body regularly oval; size: 1.40–1.65 mm	<i>schoenmanni</i>
–	Body oblong-oval	33
33	Elytron with four distinct markings; size: 1.45–1.55 mm	<i>gabrielae</i>
–	Markings on elytron indistinct; size: 1.15–1.30 mm	<i>cameroni</i>
34	Body oblong-oval; size: 1.70–1.80 mm	<i>balkei</i>
–	Body regularly oval	35
35	Pronotal disc also with coarser punctures; elytral markings indistinct; size: 1.60–1.70 mm	<i>akitai</i>

–	Pronotal disc only with fine punctures; elytral markings distinct	36
36	Elytral punctures very fine and very sparse; size: 1.55–1.70 mm	<i>zetteli</i>
–	Elytral punctures fine but distinct; size: 1.65–1.90 mm	<i>shunichii</i>
37	Elytron yellowish-brown with three longitudinal dark brown to black bands; size: 1.80–1.90 mm	<i>shaverdoae</i>
–	Elytron predominantly dark brown without longitudinal bands	38
38	Pronotum dark brown, broadly reddish-brown along lateral margins	39
–	Pronotum almost completely dark brown to black	40
39	Body dorsoventrally compressed, elytron predominantly yellowish-brown; size: 1.30–1.55 mm	<i>whitingi</i>
–	Body moderately convex, elytron predominantly dark-brown; size: 1.30–1.45 mm	<i>boukali</i>
40	Elytron dark brown to black with distinct yellowish-brown markings; size: 1.40–1.60 mm	<i>franzi</i>
–	Elytron reddish-brown to dark brown with indistinct markings	41
41	Head and pronotum dark reddish-brown to dark brown; size: 1.40–1.70 mm	<i>uenoi</i>
–	Head reddish-brown, pronotum dark brown to black	42
42	Elytron dark brown with indistinct reddish-brown markings including a post-median spot near suture	43
–	Elytron dark brown with indistinct reddish-brown markings without a post-median spot near suture	44
43	Reddish-brown elytral markings more extended and indistinct; size: 1.50–1.70 mm	<i>sinensis</i>
–	Reddish-brown elytral markings less extended and more distinct; size: 1.60–1.80 mm	<i>nilssoni</i>
44	Size: 1.50–1.60 mm	<i>bistroemi</i>
–	Size: 1.30–1.50 mm	<i>lotteae</i>

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