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A REVISION OF *METRIORRHYNCHUS* (COLEOPTERA: LYCIDAE) FROM THE GREATER SUNDA ISLANDS AND CONTINENTAL ASIA

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***ABSTRACT.* –** The *Metriorrhynchus* fauna of continental Asia and the Greater Sunda Islands is revised herein. *Metriorrhynchus laosensis*, new species, is described from Laos; *M. lineatus* Kirsch, 1875, is removed from the synonymy with *M. inaequalis* Fabricius, 1801; *M. dives* Pic, 1921, *M. enganicus* Kleine, 1939, *M. kirschii* Waterhouse, 1879, and *M. regularis* Pic, 1921, are synonyms of *M. lineatus* Kirsch, 1875. *Metriorrhynchus enganoensis* Pic, 1921, is transferred from the synonymy of *M. inaequalis* to *M. lineatus*. *Metriorrhynchus atrofuscus* Waterhouse, 1879, *M. simulans* Waterhouse, 1879, and *M. vagans* Waterhouse, 1879, are transferred to *Cautires* Waterhouse, 1879. The distribution, ecology and mimicry polymorphism of this genus are also discussed.

***KEY WORDS.* –** Coleoptera, Lycidae, revision, key, mimicry polymorphism, Oriental Region.

INTRODUCTION

The Metriorrhynchinae fauna of the eastern part of the Oriental Region represents a mixture of genera of Afrotropical origin (e.g. *Cautires* Waterhouse, 1879, *Xylobanus* Waterhouse, 1879, and *Bulenides* Waterhouse, 1879) as well as genera recently dispersed from the Australian Region (e.g. *Metriorrhynchus* Gemminger & Harold, 1869, *Microtrichalus* Pic, 1921, and *Leptotrichalus* Kleine, 1925) as noted in Bocak (2002) and Bocak et al. (2006). They can be used as model groups not only for phylogeographic studies but also to study the evolution of mimicry. The present state of taxonomic knowledge of the group (with a general absence of modern taxonomic studies and only a few published, geographically restricted revisions of metriorrhynchine genera) makes their use as a model group very difficult (Bocak, 1998; 2000; Bocak & Matsuda, 1998).

Here, I present a revision of the genus *Metriorrhynchus* from continental Asia and the Greater Sunda Islands. In his world catalogue, Kleine (1933) listed 16 species of *Metriorrhynchus* from the area and later added another species (Kleine, 1939). Most of the original descriptions lack clear differential diagnoses and the genitalia were not studied. The historical species that authors have been working with are based on a largely typological species concept and they were often misled by similarities produced by mimicry. Therefore, the correct identification of Oriental *Metriorrhynchus* was impossible without extensive study of the type material. The goal of this study is to provide a clear taxonomic basis for further studies of this group.

MATERIAL AND METHODS

Male and female genitalia of all available type specimens were dissected and the membranous parts were stained lightly with chlorazol black. Important characters were either drawn using an ocular grid-screen or illustrations were prepared from photographs taken with a digital camera attached to an Olympus™ SZX-12 stereoscopic microscope.

Depositories: BMNH, Natural History Museum, London, England; MNHN, Muséum national d'Histoire naturelle, Paris; SMTD, Staatliches Museum für Tierkunde, Dresden, Germany; MIZW, Instytut Zoologii PAN, Warsaw, Poland; ZMUC, Zoological Museum of the University of Copenhagen, Copenhagen, Denmark and LMBC, author's collection.

TAXONOMY

Metriorrhynchus Gemminger & Harold, 1869

***Type species.* –** *Lycus parallelus* Guérin-Méneville, 1835.

***Differential diagnosis.* –** Most species of Metriorrhynchinae share a characteristic pattern of pronotal carinae, which form a median lanceolate areole, four areolae at the frontal margin and two posterior to them. *Metriorrhynchus* differ from other Oriental genera with seven pronotal areolae in the short and stout rostrum, serrate antennae in both sexes, the characteristic shape of the internal sac in the male genitalia and the shape of the ovipositor (Figs. 1–11). Bocak (2002)

revised the Metriorrhynchinae where a key to genera was given.

***Redescription.* –** Body small- to medium-sized, parallel-sided. All species brightly coloured at least in humeral part of elytra. Head small, partly-hidden by pronotum, with short, stout rostrum. Labrum about as long as wide, simply-rounded frontally. Mandibles small, slightly curved, without any teeth. Maxillary palpi 4-segmented, labial palpi 3-segmented, apical palpomeres parallel-sided in both palpi. Pronotum wider than long, with seven distinct areolae. Elytra parallel-sided, 3.6–4.9 times longer than their combined width at humeri. Each elytron with four primary costae and five secondary longitudinal costae, which differ slightly in strength. Transverse costae dense, elytral areolae strongly transverse. Ventral part of body regularly with blue metallic shine. Male genitalia with sclerotized phallobasal membrane, strong straight phallus, which is widened in middle part and with sclerotized, spiral internal sac (Figs. 1–8, 10). Ovipositor small, slightly sclerotized and firmly attached to terminal abdominal sclerites. Vagina membranous in Oriental species (Figs. 9, 11).

***Distribution.* –** *Metriorrhynchus* is a genus of Australian origin (Bocak, 2002; Bocak et al., 2006) and reaches its northwestern limit of distribution in the eastern part of the Oriental region. The northernmost records are available from northern Vietnam, northern Laos and northern Thailand; the range reaches to eastern India in the northwest. Although several old specimens were found with the locality "India" in the collection of the Natural History Museum in London, all precisely given records are from Manipur, Nagaland (Patkai Mountains) or Bangladesh (Sylhet). No records are available from areas west of these localities. Bocak et al. (2006) showed the close relationship of the Oriental and Sulawesi *Metriorrhynchus* faunae and hypothesized that speciation occurred after dispersal across the Wallace line. There is no modern revision of *Metriorrhynchus* in the Australian Region, so we can only estimate from the material in collections that more than two hundred species occur in New Guinea and Australia. The Oriental fauna is much poorer with five species in the Greater Sunda Islands and continental Asia and 12 species in the Philippines.

***Ecology.* –** Larvae live under bark and in rotten wood with an estimated length of development of two to four years. Unlike most Oriental lycids they are able to colonize large dead tree trunks in sunny places, which can become considerably desiccated in the dry season. This fact supports the hypothesis of invasion from the Australian region, which is characterized by strong seasonality of precipitation. The larval morphology of several *Metriorrhynchus* species was described by Bocak & Matsuda (2003). Adults are free-living and commonly rest on leaves or visit flowers. They can even be collected on carrot flowers (*Daucus* spp. L.) in recently established fields, where few other species of Metriorrhynchinae occur. All *Metriorrhynchus* species resemble in colour pattern and body shape sympatrically occurring species from other lycid genera as well as various beetles from other families and even other insect orders. Lycidae have distasteful and foul smelling compounds in their bodies (Moore & Brown, 1981) and their similarity to unrelated insects is ascribed to the evolution of Muellerian mimicry. Details about mimicry patterns are discussed further under individual species treatments.

A key to identification of *Metriorrhynchus* species in the Greater Sunda Islands and continental Asia

1. Bright parts of pronotum and elytra orange, red or reddish-brown. Sumatra, Peninsular Malaysia, Borneo 2
– Bright parts of pronotum and elytra bright yellow or cinnamon-brown. Continental Asia north of the Isthmus of Kra and Java 3

2. Male genitalia with short slender apical part which forms about a quarter of phallic length (Figs. 1, 2), ovipositor with fused coxites and valvifers, basal stem of vagina short, reaching midlength of valvifers (Fig. 9) ..... *M. inaequalis* (Fabricius)
– Male genitalia with long slender apical part which forms more than one-third of phallic length (Fig. 10), ovipositor with freely connected coxites and valvifers, basal stem of vagina long, surpassing midlength of valvifers (Fig. 11) ..... *M. lineatus* (Kirsch)

3. Male genitalia flattened laterally, apical part of phallus symmetrical (Figs. 7, 8) ..... *M. sericans* Waterhouse
– Male genitalia with apical asymmetrical lobe as in Figs. 3–6 4

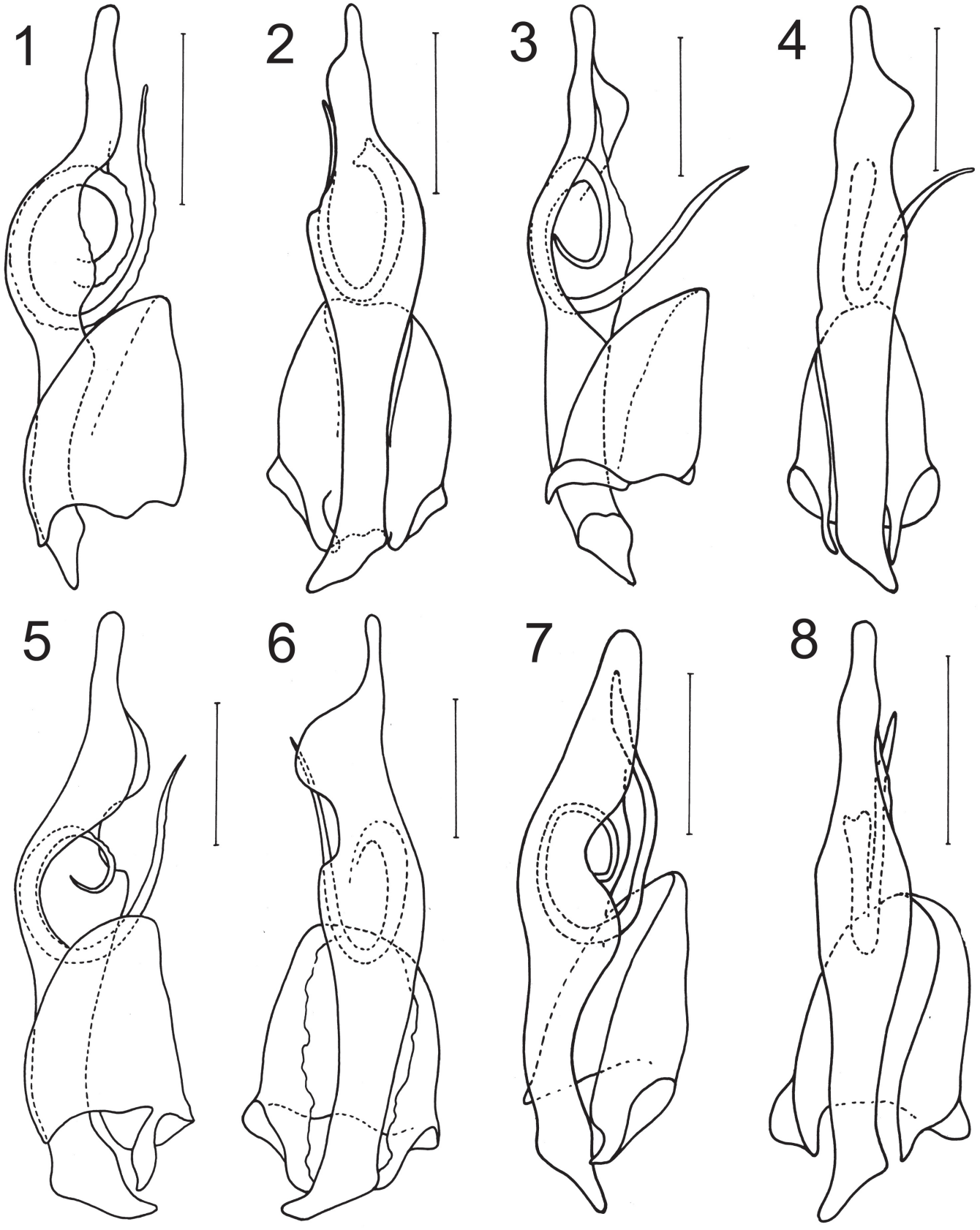
4. Phallus with small apical lobe, apex of phallus moderately wide (Figs. 3–4), Java ..... *M. sericeus* Waterhouse
– Phallus with extensive apical lobe, apex of phallus very slender (Figs. 5–6), Laos ..... *M. laosensis* new species

Metriorrhynchus inaequalis Fabricius, 1801
(Figs. 1–2, 9)

Lycus inaequalis Fabricius, 1801: 112.
Metriorrhynchus inaequalis – Waterhouse, 1879: 51.
Metriorrhynchus notaticollis Pic, 1921: 11; Kleine, 1933: 81.

***Material examined.* –** Female, holotype of *M. inaequalis* (ZMUC), Sumatra, Daldorff; female, holotype of *M. notaticollis* (MHNP), Corporaal, Lau Rakit, Feb.1918.

Others: 1 male (LMBC), Thailand, Chumphon Prov., Pha To env., 9°48'N 98°47'E, P. Prudek coll., 14–21 Mar.1999; 2 males (LMBC), S. Thailand, Prachvap khirikan, native coll., Feb.1989; 2 males (LMBC), S. Thailand, Ranong, native coll., Feb.1989; 1 male, 5 females (LMBC), Malaysia, Pahang distr., 30 km NE Raub, Lata Lembik, 3°56'N 101°38'E, 200–400 m, coll. E. Jendek and O. Sausa, 22 Apr.–15 May.2002; 2 males (LMBC), Sumatra, SW coast of Ranau lake, 1,200 m, coll. Bolm, 1–4 Jun.2001; 1 female (LMBC), Sumatra, Liwa, coll. L. Dembicky, 2003; 5 males, 1 female (LMBC), S. Kalimantan Prov., 10 km E of Loksado, 600–1,100 m, 2°43'57"S 115°32'50"E, coll. Bolm, 18–23 Jun.2001; 2 males (LMBC), C Kalimantan Prov., 60 km SE Muara Teweh, 150 m, 1°20'25"S 115°20'16"E, coll. Bolm, 24–28 Jun.2001; 1 male (BMNH), Quop, W. Sarawak, G. E. Bryant, Mar.–Apr.1914.



Figs. 1–8. Male genitalia: 1, 2: *M. inaequalis*; 3, 4: *M. sericeus*; 5, 6: *M. laosensis*; 7, 8: *M. sericans*. Scale bars = 0.5 mm.

Differential diagnosis. – *Metriorrhynchus inaequalis* is very similar to *M. lineatus* and these species cannot be identified by colouration or external morphological characters. They differ substantially in the shape of male genitalia (Figs. 1–2, 10) and shape of ovipositor (Figs. 9, 11).

Redescription. – Male: Body medium- to large-sized, parallel-sided. Body black, ventral part of thorax and abdomen with light metallic-blue shine. Pronotum black, orange-red or black with lighter pronotal costae. Elytra bright orange to red at least in humeral parts of elytral costae or in opposite extreme elytra brightly coloured except apical tenth of their length. Head small with short rostrum, frontal distance between eyes 1.3 times maximum eye diameter. Antennae acutely serrate, reaching slightly behind middle of elytra. Pronotum at base 1.1 times length at midline. Elytra flat, parallel-sided. Primary costae considerably stronger than secondary ones. Transverse costae dense, regular, cells tiny, transverse. Male genitalia as in Figs. 1–2.

Female: Body usually larger, without any apparent sexual polymorphism. Frontal distance between eyes 1.65 times their maximum diameter. Female genitalia as in Fig. 9.

Measurements. – Body length 7.6–17.0 mm, width at humeri 2.1–4.0 mm.

Distribution. – Peninsular Malaysia, Thailand south of the Isthmus of Kra, Sumatra and Borneo.

Variability. – *Metriorrhynchus inaequalis* and *M. lineatus* form mimicry rings with several species from the genera *Bulenides*, *Xylobanus* and *Cautires* (Metriorrhynchinae). Therefore different colour forms occur in various localities. The pronotum is black in Borneo, but red in Sumatra and Malaysia. The extension of the bright humeral part of the elytra varies between having only red basal quarters of the longitudinal elytral costae to having about 90 percent of the elytra bright orange-red. The body sizes reflect the size of mimics and fluctuate between 7.6 and 17.0 mm.

Remarks. – Only *M. notaticollis* remains from the extensive list of synonyms given by Kleine (1933). The remaining synonyms are transferred to the synonymy of *M. lineatus*, which was removed from synonymy and is considered to be a valid species.

Metriorrhynchus lineatus Kirsch, 1875
(Figs. 10–11)

Dictyopterus lineatus Kirsch, 1875: 35.
Metriorrhynchus lineatus – Waterhouse, 1879: 50; Kleine, 1933: 81.
Metriorrhynchus kirschii Waterhouse, 1879: 50 (a junior objective synonym).
Metriorrhynchus enganoensis Pic, 1921: 11; Kleine, 1933: 81; transferred from the synonymy of *M. inaequalis*.
Metriorrhynchus enganicus Kleine, 1939: 5, new synonym.
Metriorrhynchus regularis Pic, 1921: 11, new synonym.
Metriorrhynchus dives Kleine, 1926: 310, new synonym.

Material examined. – *Metriorrhynchus lineatus*: male, holotype (SMTD), Malacca.
Metriorrhynchus enganoensis: female, holotype (MHNP), Engano, Kila-juc. V. Modigliani, 1891.
Metriorrhynchus regularis: female, holotype (MHNP), Ins. Nias.
Metriorrhynchus dives: male, holotype (BMNH), Quop, W. Sarawak, G. E. Bryant, G. E. Bryant coll. 1919–147, Mar.–Apr.1914.
Metriorrhynchus enganicus: female, paratype (MIZW), Enggano.

Others: 1 male, 1 female (LMBC), S. Thailand, Ranong, native coll., Feb.1989; 1 male (LMBC), Sumatra, Aceh, 15 km SSE Takengon, 1,600 m, L. Bocak coll., 26 Feb.–13 Mar.1998; 1 male (BMNH), [Sumatra] Marang, Res. Bengkoelen (coll. Doherty); 1 female (BMNH), Siberut Island, West Sumatra, C. B. K. and N. S coll., Sep.1924; 1 male (BMNH), Ins. Engano, Res. Bengkoelen (coll. Doherty); 1 male (LMBC), Sumatra, SW coast of Ranau lake, 1,200 m, coll. Bolm, 1–4 Jun.2001; 1 male, 1 female (LMBC), Sumatra, Liwa, coll. L. Dembicky, 2003; 4 males, 1 female (LMBC), S. Kalimantan Prov., 10 km E of Loksado, 600–1,100 m, 2°43'57"S 115°32'50"E, coll. Bolm, 18–23 Jun.2001; 1 male (LMBC), C Kalimantan Prov., 60 km SE Muara Teweh, 150 m, 1°20'25"S 115°20'16"E, coll. Bolm, 24–28 Jun.2001; 1 female (LMBC), Malaysia, W Johor, 20 km S of Mersing, Jemaluang, coll. P. Cechovsky, 1–14 Feb.2003; 1 male (LMBC), Perak, coll. Doherty; 1 male (the specimen identified by C. O. Waterhouse as *M. kirschii*) (BMNH), Sing.; 1 male (BMNH), Malay States, Bukit Kutu, 3,300 feet (ca. 1,006 m), A. R. Sanderson, Apr.1929; 1 male, 8 females (BMNH), Sumatra, Engano Is., coll. Doherty.

Differential diagnosis. – *Metriorrhynchus lineatus* is very similar to *M. inaequalis* and these species cannot be distinguished by colouration and external morphology. Only male and female genitalia provide sufficient diagnostic characters (Figs. 1–2, 9–11).

Redescription. – For external morphology and colouration see the above description of *M. inaequalis*. Male and female genitalia as in Figs. 10, 11.

Measurements. – Body length 7.6–14.1 mm, width at humeri 2.1–3.3 mm.

Distribution. – Peninsular Malaysia, Thailand south of the Isthmus of Kra, Sumatra, Borneo, Enggano, Siberut and Nias Islands.

Variability. – *Metriorrhynchus lineatus* forms mimicry rings with *M. inaequalis* as stated above. Only *M. lineatus* occurs in the Siberut and Enggano Islands and it has a black pronotum similar to specimens from Borneo but unlike the populations from the adjacent coast of Sumatra. A specimen from the Nias Island resembled the Sumatran populations in colour pattern.

Remarks. – Waterhouse (1879) proposed *Metriorrhynchus kirschii* as a new name for *Dictyopterus lineatus* Kirsch, 1875. He classified *Omalysus lineatus* Hope, 1831 in *Metriorrhynchus* and therefore considered *D. lineatus* to be a junior secondary homonym in the genus *Metriorrhynchus*. Kleine (1933) classified *O. lineatus* in *Cautires* and he considered both *M. lineatus* and *M. kirschii* to be junior synonyms of *M. inaequalis*. The two sympatrically occurring *Metriorrhynchus* species in the Greater Sunda Islands are

now recognized as valid and *M. lineatus* is removed from the synonymy.

I have also found that *M. dives*, *M. enganicus* and *M. regularis* are conspecific with *M. lineatus*. *Metriorrhynchus enganoensis* was put in synonymy of *M. inaequalis* by Kleine (1933), but it is in fact a junior subjective synonym of *M. lineatus*.

The extensive synonymy in the *M. inaequalis* group is a consequence of the geographically dependent polymorphism of both *M. lineatus and M. inaequalis*. The populations of both species from different islands and mountain ranges differ in the colouration of the pronotum or the extent of bright colouration of the elytra (e. g. both species have black pronotum in Borneo and red pronotum in Sumatra). The older authors defined their species typologically and described the various mimicry types as species. Waterhouse (1879) speculated on the difference in the strength of elytral costae between *M. inaequalis* and *M. lineatus*, but this character is partly dependent on mimicry ring membership and also on the size of the individual. Only Kleine included male genitalia in his species definitions, but he usually dissected only the holotypes and he did not discover the presence of two species in the same area and considered most of them to be synonyms of *M. inaequalis*. These species are so similar that only specimens collected *in copula* enabled the association of conspecific males and females.

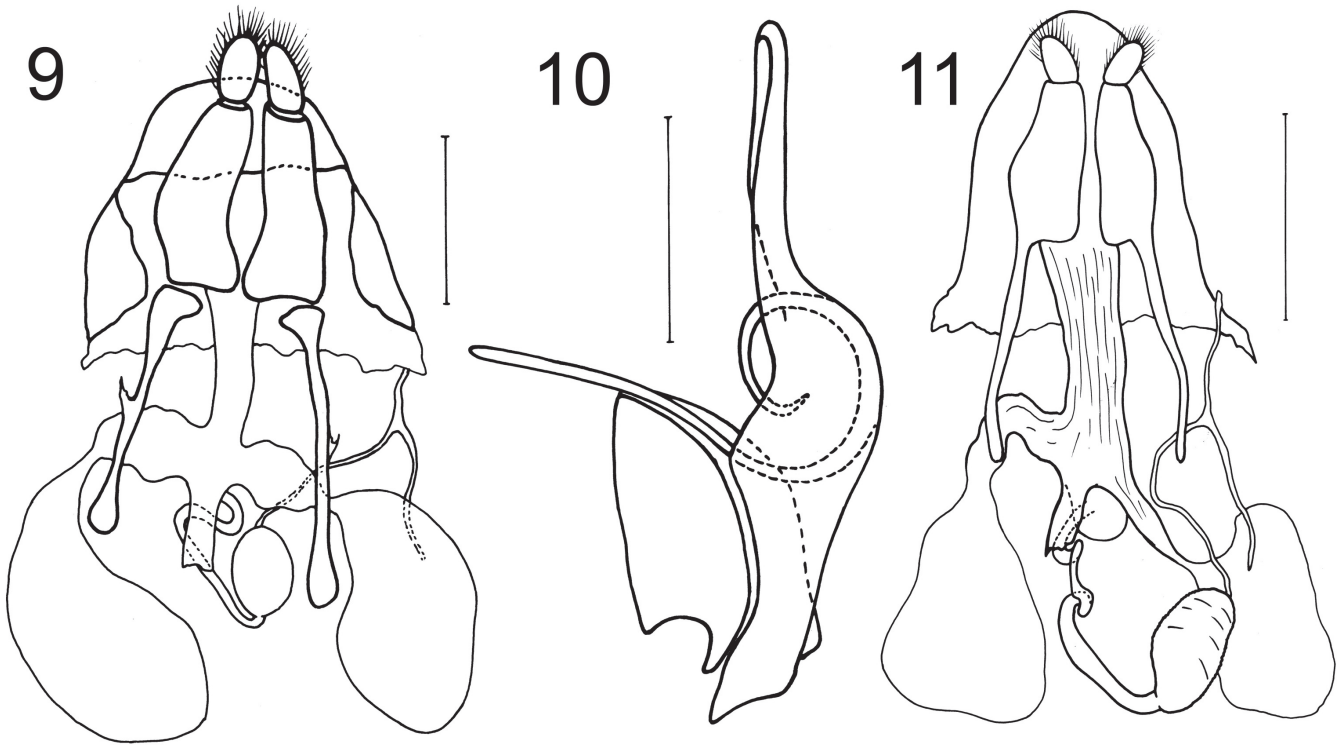
***Metriorrhynchus laosensis*, new species**
(Figs. 5–6)

***Material examined*. –** Holotype. Male (LMBC), N Laos, 20 km NW Louang Namtha, 21°09'N 101°19'E, 900 m, coll. C. Holzschuh, 5–30 May.1997.

Paratypes: 3 males (LMBC), N Laos, 20 km NW Louang Namtha, 21°09'N 101°19'E, 900 m, coll. C. Holzschuh, 5–30 May.1997; 1 male (LMBC), Laos, Louangnamtha pr., Namtha-Muang Sing, 900–1,200 m, coll. V. Kuban, 5–31 May.1997; 3 males (BMNH), Tenasserim, Javoy, coll. Doherty; 3 males (BMNH), Tenasserim; 1 male (BMNH), Birmah, Karen Mts. coll. Doherty; 3 males (LMBC), Laos, 15 km N Louang Namtha, 750 m, coll. E. Jendek and O. Sausa, 13–24 May.1997; 1 male (LMBC), Thailand, 20 Apr.1953.

***Differential diagnosis*. –** *Metriorrhynchus laosensis*, new species, is morphologically similar to *M. sericans* and these species differ in the shape of male genitalia (Figs. 5–8). Females cannot presently be identified.

***Description*. –** Male: Body medium- to large-sized, parallel-sided. Body black, ventral part of thorax and abdomen with light metallic shine. Pronotum and elytra bright yellow to cinnamon-brown, or pronotum almost completely black and elytra brown. Head small with short rostrum, frontal distance between eyes 1.4 times maximum eye diameter. Antennae acutely serrate, reaching slightly behind middle of elytra.



Figs. 9–11. 9: *Metriorrhynchus inaequalis*, female genitalia; 10: *M. lineatus*, male genitalia; 11: *M. lineatus*, female genitalia. Scale bars = 0.5 mm.

Pronotum at base 1.1 times length at midline. Elytra flat, parallel-sided. Primary costae considerably stronger than secondary ones. Transverse costae dense, regular, cells tiny, transverse. Male genitalia as in Figs. 5–6.

Female: Body usually larger, without any apparent sexual polymorphism. Frontal distance between eyes 1.65 times their maximum diameter.

Measurements. – Body length 10.4–18.3 mm, width at humeri 2.3–4.2 mm.

Variability. – All specimens of *M. laosensis*, new species, from Continental Asia are lightly yellow coloured and they have not been found in the darker form known in *M. sericans*.

Distribution. – Laos, Myanmar and Thailand.

Etymology. The specific epithet refers to the type locality of *M. laosensis*, new species.

Remarks. – *Metriorrhynchus laosensis*, new species, has a more restricted range in the Asian continent compared to *M. sericans.* Although relatively extensive material was available from Vietnam, Myanmar and eastern India only a few specimens were found from Myanmar (Karen State and Tenasserim). No records were available from eastern India and Vietnam.

Metriorrhynchus sericans Waterhouse, 1879
(Figs. 7–8)

Metriorrhynchus sericans Waterhouse, 1879: 53.

Material examined. – Male, holotype of *M. sericans* (BMNH), "India, Bowring 63.47*".

Others: 6 males (LMBC), S. Laos, Attapu Prov., Bolaven Plateau, Nong Lom env., 15°02'N 106°35'E, 800 m, coll. E. Jendek and O. Sausa, 18–30 Apr.1999; 1 male (LMBC), Laos, Louangnamtha pr., Namtha-Muang Sing, 900–1,200m, coll. V. Kuban, 5–31 May.1997; 1 male (BMNH), [Laos], Luang Prabang, Muong Om, coll. R. V. de Salvaza, 17 May.1920; 1 male (BMNH), [Laos], Luang Prabang, Ban Sen Savouage, coll. R. V. de Salvaza, 16 Mar.1920; 1 male (LMBC), S Vietnam, 40 km NW of An Khe, Buon Luoi, 620–750 m, coll. P. Pacholatko and L. Dembicky, 28 Mar.–12 Apr.1995; 1 male (LMBC), Thailand NW, Mae Hong Son, Ban Si Lang, 1,200 m, J. Horak coll., 1–8 May.1992; 2 males (BMNH), Tenasserim, Javoy, coll. Doherty; 2 males (BMNH), Tenasserim; 2 males (BMNH), Birmah, Karen Mts., coll. Doherty; 1 male (BMNH), Upper Burma, Senghku Valley, Nogmung, 28°5'N 97°35'E, 1500 feet (ca. 457 m), coll. F. Kingdon Ward, 25 Apr.1926; 1 male (BMNH), Assam, Patkai Mts., coll. Doherty; 1 male (BMNH), India Or., Manipur, coll. Fry; 1 male (BMNH), India, Wood-Mason's coll.

Differential diagnosis. – *Metriorrhynchus sericans* is very similar to the sympatrically occurring *M. laosensis*, new species, and these species differ only in the shape of male genitalia (Figs. 7–8 and 5–6, respectively). No stable differences in the female genitalia were found and females of *M. sericans* cannot be identified by morphology.

Redescription. – For external characters and colouration see the description of *M. laosensis*, new species, above.

Measurements. – Body length 10.3–15.6 mm, width at humeri 2.3–3.3 mm.

Distribution. – India: Nagaland, Manipur; Myanmar Tenasserim, Karen State; Vietnam; Laos; Thailand north of the Isthmus of Kra; The specimens with locality Assam were collected in Patkai Mountains, which have been in the state of Nagaland since 1963.

Remarks. – *Metriorrhynchus sericeus* and *M. sericans* occur sympatrically in Laos, Thailand and Myanmar. They form mimicry rings with some sympatrically occurring *Xylobanus* and *Cautires* species and the colouration of their pronota can be from light yellow through cinnamon-brown to completely black.

Metriorrhynchus sericeus Waterhouse, 1879
(Figs. 3–4)

Metriorrhynchus sericeus Waterhouse, 1879: 52.
Metriorrhynchus testaceicollis Pic, in litt., Pic, 1921: 11.

Material examined. – Male: lectotype (hereby designated) of *M. sericeus* (BMNH), "Java, Bowring 63.47*"; female, specimen designated as *M. testaceicollis* sp. n., probable holotype (MHNP), Java orient., Montes Tengger, 4,000 feet (ca. 1,219 m), H. Fruhstorfer, 1890.

Paralectotypes**:** 3 females (BMNH), same locality data.

Others: 1 female (BMNH), Java; 2 females (BMNH), Java, Kediri, Fry coll. 1905-100; 2 females (BMNH), Java, Horsfield, 60-15, Fry coll. 1905-100; 2 females (LMBC), Jawa (E), Trawas, E slope Gn. Penanggungan, coll. Bolm, 6–9 May.2001; 2 females (reared from larvae) (LMBC), Bali, 12 km NW of Bedugul (Buyan lake), 950 m, coll. Bolm, 29 Apr.–2 May.2001.

Differential diagnosis. – *Metriorrhynchus sericeus* is the only species of the genus occurring on the islands of Java and Bali. It resembles *M. laosensis* new species and *M. sericans* from Continental Asia and these species can be distinguished only by the shape of male genitalia. I have not found any stable characters in the female genitalia and therefore females cannot be identified using internal or external morphology.

Redescription. – For external characters and colouration see above the redescription of *M. laosensis* new species.

Measurements. – Body length 10.4–18.3 mm, width at humeri 2.3–4.2 mm.

Variability. – Only very limited variability was found in *M. sericeus* from Java. Several specimens have the apical-fifth of elytra slightly infuscate and one of these was designated as a new species, *M. testaceicollis*, in Pic's collection. Such variability is common in *Metriorrhynchus* species from the Moluccas (e.g. *M. doleschali* Redtenbacher, 1868). Several

species of *Xylobanus* that occur sympatrically with *M. sericeus* resemble it in body size, shape and colouration.

***Distribution*. –** Indonesia: Java and Bali.

***Remarks*. –** A lectotype and paralectotypes of *M. sericeus* are designated here. Although *M. sericeus* is the only *Metriorrhynchus* species known from Java until now, I have designated a male specimen as the lectotype because females cannot be distinguished from some related Southeast Asian species in the genus.

The specimen designated by M. Pic as a holotype of *M. testaceicollis* was found in the collection of the MNHN, but a description of such species has not been found in literature and only Pic (1921) mentioned this name without formal description. Therefore, I believe that it is not a valid name under the current code (ICZN, 1999). I studied this specimen and found that it cannot be distinguished from *M. sericeus*. It only differs from typical specimens of *M. sericeus* by having a slightly infuscate posterior fifth of the elytra.

Metriorrhynchus cribripennis Waterhouse, 1879 was reported from Java by Kleine (1933) but this record is probably based on an incorrect identification of *M. sericeus*. Unfortunately, no specimens from Java identified by Kleine as *M. cribripennenis* has been found in any of the probable collections. *Metriorrhynchus cribripennis* was described from Ternate and according to the morphology of genitalia it is a very distant species.

Species dubia

Metriorrhynchus maximus Pic, 1932

Metriorrhynchus maximus Pic, 1932: 86.

***Remarks*. –** I was unable to find the holotype of *M. maximus* in the Pic Collection at the MNHN, and considering the information given in the original description and the type locality (Sumatra), it is could either be a synonym of *M. inaequalis* or *M. lineatus*.

Species excluded from the genus *Metriorrhynchus*

Cautires atrofuscus (Waterhouse, 1879), new combination

Metriorrhynchus atrofuscus Waterhouse, 1879: 56.

***Material examined*. –** Male, holotype (BMNH), Borneo.

Cautires simulans (Waterhouse, 1879), new combination

Metriorhynchus simulans Waterhouse, 1879: 55.

***Material examined*.** – Male, holotype (BMNH), "Penang, Bowring 63.47*".

Cautires vagans (Waterhouse, 1879), new combination

Metriorhynchus vagans Waterhouse, 1879: 54.

***Material examined*.** – Female, holotype (BMNH), "S R, 58.60*" without further data, type locality Sumatra according to the original description.

***Remarks*. –** All the species listed above are transferred to the genus *Cautires* on the basis of external morphology and genitalia. I have not had an opportunity to study the type material of several additional species described by Gorham (1882) in the genus *Metriorrhynchus* from Sumatra: *M. amoenus* Gorham, 1882; *M. cinnabarinus* Gorham, 1882; *M. infuscatus* Gorham, 1882; *M. luteus* Gorham, 1882; and *M. purpurascens* Gorham, 1882. According to the descriptions, they should all belong to the genus *Cautires*, but I have chosen to keep them provisionally in *Metriorrhynchus* until the types are available for study.

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