

TAXONOMY, PHYLOGENY AND BIOGEOGRAPHY OF THE
PRIONOCERIDAE (INSECTA: COLEOPTERA: CLEROIDEA) IN THE
INDOCHINESE SUBREGION.

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Nomenclatural disclaimer: All nomenclatural acts, including new genus and species group names proposed in this dissertation are not available according to ICZN, art. 11 (ICZN, 1999). This dissertation does not constitute a published work for the purposes of zoological nomenclature, as defined in ICZN Art. 8. All nomenclatural acts will only be available after chapters III and IV have been published separately, in an appropriate journal or monograph.



Bigdia maculatithorax (Pic, 1919) – Laos, Xieng Khouang, Mt. Phou Sane.

Chapter I

Introduction

Indochina is one of the most biodiverse areas on Earth, and has been proposed as one of the World's 25 "biodiversity hotspots" (Myers & al., 2000). The term "hotspot", applied by Myers & al., does not only imply an exceptionally high number of species and higher taxa concentrated in an area, but also points out the biodiversity within that area is threatened by extinction. In the case of Indochina, the ongoing human exploitation of natural resources, fuelled by population growth and economic development, has already led to extensive deforestation and other large-scale habitat destruction, leading to the extinction of several mammal and bird species (Duckworth & al., 1999).

To resolve the ongoing crisis of habitat destruction and biodiversity loss in Indochina, general knowledge about the area's species richness is urgently needed. Any attempts to overcome this knowledge crisis can only be successful if the species within this area are known, along with their habitat requirements, distributions and phylogenetic relationships. This currently stands in stark contrast to the current situation, where Indochina's biodiversity is poorly known. Even in well-known organisms, such as mammals, an astonishing number of previously unknown species has been described from eastern Indochina since the 1990ies (Conservation International, 2011).

The state of knowledge in Indochina is especially poor for beetles (Coleoptera), which make up about 25% of the total species diversity worldwide (Hunt & al., 2007). Taxonomic treatments and identification keys for Indochinese beetles are scarce, and often completely outdated. Only few Coleoptera families have been thoroughly revised for major parts of Indochina, such as Chrysomelidae (Kimoto & Gressitt, 1979; 1981; 1982; Kimoto, 1989; 1998; 1999; 2000), Cerambycidae (Gressitt & al., 1970) and Scarabaeidae (Paulian, 1945). While these three families are still among the more popular and well-known Coleoptera groups, the families formerly included in the so-called "Malacodermata" are among the most neglected. "Malacodermata" is a traditional family-group name widely used during the 19th and early 20th century (e. g. Laporte de Castelnau, 1840; Lacordaire, 1857; Wittmer, 1941). It included beetles with all 5-segmented tarsi, soft cuticula and relatively flexible body, which have likewise been treated as members of a single family Cantharidae, in the past (e.g. Reitter, 1911). Since the inclusion of larval morphological data into beetle phylogeny (Böving & Craighead, 1931), this family concept has become obscure, and members of "Malacodermata" are now included in two different superfamilies, Elateroidea and Cleroidea (Lawrence & Newton, 1995; Bocakova & al., 2007; Bouchard & al., 2011; Bocakova & al., 2012). Nevertheless, the old concept of "Malacodermata" has not entirely died out. The general appearance of "malacoderm" families, such as Cantharidae, Melyridae, Prionoceridae can be extremely similar, probably in as an adaptation to similar life-histories (Crowson, 1955; 1981). The soft-bodiedness of these families have posed a real challenge to morphological taxonomy, due to the reduction of several external structures, which are otherwise used as sources for phylogenetic data (Crowson, 1981). This has led to the same character complexes being used in taxonomy of both Cantharidae and Melyridae (s. lat.) and to a large number of contemporary taxonomists specialising in both "cantharoids" and Cleroidea.

Prionoceridae is a relatively small group of typical "malacoderm" beetles, belonging to the melyrid lineage within the superfamily Cleroidea (the so called "soft-winged flower beetles"). They have been treated as a subfamily of Melyridae in a wider sense, e.g. by Crowson, 1964 and Majer, 1987, but are now more often regarded as a separate family (Lawrence & Newton, 1995; Lawrence & Leschen, 2010; Bouchard & al., 2011). The most recent family-level phylogeny of the clade containing Prionoceridae was published by Bocakova & al. (2012). Their classification of the "melyrid lineage" included the families Rhadalidae, Mauroniscidae,

Prionoceridae, Melyridae, Dasytidae and Malachiidae, which are all included in Crowson's (1964) concept of "Melyridae" (in a wider sense). Bocakova & al.'s analysis placed Prionoceridae as one of the basal families of the melyrid lineage, but not as the most basal one. This implies that, should someone continue to use Crowson's wider concept of Melyridae, they would fall within this clade and should rather be treated as a subfamily. This contradicts Bouchard's (2011) classification, which also uses a wider concept of Melyridae, but excludes Prionoceridae from it.

The number of species currently placed in Prionoceridae stands at 158 (see Chapter II) and their distribution is limited to the Old World tropics and subtropics, including the southern parts of the Palearctic, the whole Oriental (Indo-Malayan) region, most of the Afrotropics, as well as minor parts of the Australian region (New Guinea and Micronesia). The Oriental region is, by far, the most species-rich in terms of prionocerids (Champion, 1919; Pic, 1926). At the current state of knowledge (see Chapter II), two parts of the Oriental region appear to be exceptionally rich in species: The area including South India and Sri Lanka (termed "Ceylonese subregion" by Wallace, 1876) and the area including the Malay Peninsula and the Greater Sunda islands, termed "Sundaland" by Wallace, 1876. This distribution of species diversity may be highly biased by collecting efforts and taxonomic treatments. As stated before, the Indochinese subregion is particularly poorly-known.

Most Prionoceridae are superficially very similar to members of two other beetle families, Cantharidae and Oedemeridae. This has led to many mis-classifications and still poses a problem when looking for them in institutional collections. The majority of museum collections visited during the course of this work had prionocerid specimens sorted under the wrong families, including even some of the most well-curated collections.

The similarity of prionocerids with Cantharidae has also led to their placement within the same family-group taxon "Malacodermata" (as discussed above) for over a century. The evolutionary reasons for this similarity have never been thoroughly examined, but it can be assumed that similar life-history strategies are at least partially responsible (Crowson, 1981; Crowson, 1995). Both Cantharidae and Prionoceridae have predatory larvae and short-lived adults, which are usually flower visitors. The reduction of cuticular features and sclerotisation (soft-bodiedness) may have evolved in response to the short life-span of the adults, which could have made the evolution of strong body armour unnecessary and a waste of resources. Chemical defense probably also plays a major role. While chemical defense mechanisms are well-known in Cantharidae (Poinar & al., 2007), their existence has not yet been published for Prionoceridae, but is known for some of their close relatives (Dumbacher & al., 2004).

Assuming that Prionoceridae have chemical defenses as their relatives, which seems very likely, at least some of their superficial similarity with both Cantharidae and Oedemeridae can also be explained by Muellierian mimicry. In fact, Marshall (1902) already proposed a species of Prionoceridae (*Idgia dimidiata* (Gerstaecker, 1871)) to belong to a Muellierian mimicry ring, along with a species of Cantharidae and several Lycidae. Similar mimicry rings, but including species of Oedemeridae instead of Lycidae, are likely to exist in Indochina, but have not been reported in the literature yet.

The geographic area termed here as "Indochina" has been defined in various ways. In the most restricted sense, Indochina refers to the former colony French Indochina, which contained the historic countries of Tonkin, Annam, Cochinchina, Cambodia and Laos (Vitalis de Salvaza, 1919; Paulian, 1945). Apart from minor differences in the exact borderline to China and Thailand, this corresponds to today's countries Vietnam, Laos and Cambodia. In a broader, more geographic sense, Indochina can be used in the synonym for the Indochinese peninsula, which includes also Myanmar (Burma) and Thailand, in a wider sense even the Malay Peninsula. In a zoogeographic sense, Indochina corresponds to the area inhabited by

the typically "Indochinese" fauna, which was defined as Indochinese subregion by Wallace (1876). Wallace's original definition of this subregion still included the southern slopes of the Himalayas, which are now no longer treated as part of Indochina (Corbet & Hill, 1992; Woodruff, 2010; Conservation International, 2011). The "Indo-Burma" biodiversity hotspot of Myers & al. (2000) corresponds almost exactly to this more recent definition of the Indochinese subregion. For the purpose of this work, "Indochina" or the "Indochinese subregion" is defined according to Conservation International (2011) (fig. 1), which includes all of Vietnam, Laos, Cambodia, Myanmar, Thailand northwards from the Isthmus of Kra, the extreme North-East of India, South of the Brahmaputra (Meghalaya, Nagaland, Manipur, Mizoram, Tripura, parts of Assam), as well as the South of the Chinese provinces Yunnan, Guangxi, Guangdong, Hainan island and the Andaman islands.

The focus of this dissertation will be on the area here termed "Eastern Indochina", which includes the former "French Indochina" east of the Mekong river (Laos, Cambodia and Vietnam) as well as the Xishuangbanna prefecture in Yunnan (China), which has an insect fauna almost identical to northern Laos. The taxonomic, phylogenetic and biogeographic data presented here show an exceptionally good coverage for Laos, as this country was in focus of recent field-work, carried out mostly by the Natural History Museum, Basel, under the direction of Michel Brancucci (Geiser & Nagel, 2013). Without the material collected during the "Beetle diversity of Laos" survey project, neither the phylogenetic analysis (Chapter VI), nor the taxonomic work on eastern Indochinese prionocerids (Chapters III and IV) would have been possible.



Fig. 1: Indochinese subregion according to Conservation International (2011). This area corresponds to the Indo-Burma biodiversity hotspot of Myers & al. (2000) and roughly to Wallace's (1876) Indochinese subregion with the exclusion of the Himalayas.

The last treatment of Indochinese "Malacodermata", which included Prionoceridae, was published by Pic (1923a) and limited to French Indochina (Laos, Cambodia and Vietnam). Its author, Maurice Pic, a French amateur entomologist, was one of the most productive taxonomists of all times in terms of described species (Constantin, 1992b). Unfortunately, his beetle descriptions were also among the shortest and poorest ever published, and to make a correct diagnosis of his species is often impossible. In contrast to this, George Charles Champion, an English entomologist and contemporary of Pic, had previously published a review of the World prionocerid fauna (Champion, 1919), which included very detailed diagnoses and illustrations of morphological details for most species. Champion's work, however, suffered from relative isolation, as he didn't have access to any of Pic's type material, nor to any of the types described by German and Austrian authors, so he was only able to "revise" Prionoceridae based on material available at museums within England at this time, omitting many species. Moreover, his work soon became outdated, after a series of papers by Pic, adding a large number of prionocerid taxa with very short and poor diagnoses (Pic, 1920a; 1920b; 1921; 1923a; 1923b). This left prionocerid taxonomy in such a chaotic state that Champion and other taxonomists "abandoned" the family almost completely for the following 85 years. The number of taxonomic contributions on Prionoceridae stayed at a very low level since Pic's death in 1957 and only four new species were added until 2007 (Wittmer, 1980; Nakane, 1981; Majer, 1990; Geiser, 2007).

In the intervening period between the work of Pic and Champion and more recently, a large amount of unidentified or unrevised material has accumulated in institutional collections worldwide. The total number of prionocerid specimens examined during the course of this study stands at over 22'000, although not all will be cited in this work. The first "modern" revision of a prionocerid group since Champion's work was Constantin's paper on eastern Palearctic *Lobonyx* Jacquelin du Val, 1857 (Constantin, 2009). Shortly afterwards, my revision of *Prionocerus* Perty, 1831 appeared (Geiser, 2010a). The taxonomic part of this dissertation deals mainly with the third, still completely unrevised prionocerid genus *Idgia* Laporte de Castelnau, 1838 and can therefore be seen as a logical continuation of the *Prionocerus* revision.

As previously stated, the current state of knowledge about nearly everything concerning Prionoceridae in Indochina stands at a very low level. Apart from the abovementioned taxonomic works by Champion (1919) and Pic (1923a), only a few isolated species descriptions have been published (Pic, 1914; 1920a; 1920b; 1931; 1941; 1943a). The identification keys given by Pic (1923a) are outdated and contain a number of errors. Published distributional data are limited to very few historic collecting sites. Data on anything about prionocerid biology, including their larva are completely unavailable for Indochina and extremely scarce for the rest of their range. The phylogeny of the family and the monophyly of its genus-group taxa has never been critically examined. Worldwide, there are few papers on phylogeny of the melyrid clade, based on morphological (Majer, 1987; 1994) and molecular data (Hunt & al., 2007; Bocakova & al., 2012). These provide a first glimpse into the relationships between prionocerid genera, but based on a very limited sampling of only three to five species. Moreover, the whole family currently lacks a taxonomic catalogue, which lists all of the species and relevant literature. Only Mayor's (2007) recently catalogued list of the Palearctic species, including those from South China and the Himalayas, has been completed.

The aims of this dissertation are the following: Firstly, a taxonomic catalogue of Prionoceridae will be given, to provide a stable foundation for any taxonomic works on this group. Apart from a simple listing of all available scientific names, a complete bibliography will be given for each taxon, along with a summary of its known geographic distribution.

Secondly, the eastern Indochinese species of the largest prionocerid genus, *Idgia*, will be revised taxonomically. Currently, only 14 species of this genus have been cited for Laos, Vietnam and Cambodia (Pic, 1923a), which turned out to be a gross under-representation. Along with descriptions of numerous new species and a new genus, this chapter will provide detailed re-descriptions and illustrations of all previously described species, new faunistic data, as well as taxonomic notes on related species. Also, a key will be provided to facilitate their identification.

The third part of this work is dedicated to a very distinctive clade of Prionoceridae, whose members are currently placed in the genus *Idgia*, although they differ markedly in a number of characters. This clade will be described as a new genus and revised at the same time. This taxonomic revision also includes (re-)descriptions of all taxa, illustrations, new distributional data and an identification key. The species of this clade are not exclusively Indochinese, but also occur in parts of Palearctic China and in the Himalayas.

After having added two new genera in these two chapters, an updated key to genera of Prionoceridae will be provided.

Finally, a phylogenetic study of the family Prionoceridae will provide some insight into the relationships between species, species-groups and genera of Prionoceridae. This part will be the first large-scale study on prionocerids using molecular markers and the first work to examine also biogeography and the evolution of life-history traits within a phylogenetic framework. To provide a meaningful representation of clades and described genera, not only Indochinese taxa are included in this part, but the fauna of Indochina will be particularly well represented. More broad-scale biogeographical analysis will require denser sampling, which is currently not available.

Similarly, the biology and ecology of prionocerids is poorly understood, but this work provides a spring board, in which research can be focussed on questions of nocturnality, mimicry and ecological specialisation in this group. Ultimately, such work will hopefully provide information relevant to conservationists for preserving both these species and the habitats they occupy.

Overall, this dissertation aims at overcoming at least parts of the huge "taxonomic impediment" (Wheeler & al., 2004), which has encumbered research on "malacoderm" beetles in Indochina and filling the various gaps in knowledge that have accumulated during almost 90 years of taxonomic neglect. Even though Prionoceridae are a small family, making up only a minor part of the "melyrid lineage", it is hoped that similar studies can be conducted on other families in future. Even though my overall contribution towards the understanding of the enormous biodiversity of the "Indo-Burma" hotspot may be a small one, I hope to provide an example for other researchers, working on similar project on other groups of organisms.

Chapter II

The status quo: A World catalogue of Prionoceridae (Coleoptera: Cleroidea)

Not yet submitted for publication.

Abstract

A taxonomic catalogue is provided for Prionoceridae. All described taxa are listed, along with all available literature references, as of February 2014. Taxa described as varieties are treated as available and treated among the synonyms of their respective species. Prionoceridae currently contains 159 valid species, 158 extant and one fossil. These species are currently placed in four genera: *Lobonyx* Jacquelin du Val, 1859 (11 spp.), *Prionocerus* Perty, 1831 (8 spp.), *Idgia* Laporte de Castelnau, 1838 (139 spp.) and *Prionocerites* Lawrence et. al. 2008 (one fossil species). A total of 42 available names are currently treated as synonyms, in addition to 14 names cited in the literature were found to be unavailable. Distributional data are given for all species, based on the published literature.

Key words: Insecta, Melyridae s. l., *Lobonyx*, *Idgia*, *Prionocerus*, *Prionocerites*, checklist, taxonomy.

Introduction

The last taxonomic catalogue of the cleroid family Prionoceridae was published by Pic (1926) as a part of the series „Coleopterorum Catalogus“, edited by W. Junk & S. Schenkling. The same author contributed to this series by a relatively large numbers of catalogues, treating various beetle families from different superfamilies of Polyphaga. This may have been a reason, why the prionocerid catalogue was not very carefully compiled, and omitted some species described by Pic himself (Pic, 1921), as well as numerous literature citations. The genus *Lobonyx* was not yet included in Prionoceridae at this point, and was catalogued separately, within Dasytidae, by Pic (1937). Also this catalogue omitted a number of citations, but also gave some erroneous references, which turned out not to contain any reference to *Lobonyx*.

Since the publication of these two catalogues, a number of additional papers on Prionoceridae have appeared. They also contained a number of taxonomic changes, which need to be taken into account. To provide a stable base for taxonomic research on Prionoceridae, a complete up-to-date taxonomic catalogue is here attempted. The aim of this contribution is to provide not only an update on the taxonomy of this group, but also list all citations dealing with faunistics, biology and larval morphology of prionocerid species. In addition, all available information on depository of type material is here summarised, and updated information on distribution of all taxa are provided.

Material and methods

All available published literature between 1758 and 2014 was checked for citations of prionocerid taxa. Online publications were omitted, except for electronic versions of scientific journals, which were published online in PDF format. Citations in taxonomic catalogues and checklists are also listed. Indexes of names which do not provide any statement on their validity (such as Sherborn's „Index Animalium") are not cited.

Printed volumes of „Zoological Record" between 1900 and 1978, as well as their online database with data for 1978 onwards were consulted and checked for any further taxonomic citations.

The type depository is given for all available taxa, including synonyms. This information was gathered during visits at various museum and through enquiring the responsible curators. For information on the fate of various historic collections, Horn & Kahle (1935), Horn, Kahle et al. (1990) and Horn, Friese et. al. (1990) were consulted. The history of the Laporte de Castelnau collection was described in detail by Evenhuis (2012). For syntype series, the type depositories given in the respective original descriptions are listed, along with the results of 8 years of research in various museum collections. This does not yet exclude the possible existence of additional syntypes at other institutions, especially in cases, where „duplicates" of poorly labelled syntype series have been exchanged between museum. In cases where a holotype, lectotype or neotype was designated, only the depository of this primary type is given, not for all of the paratypes.

Taxa described as „var.", „v." or „varieté" by M. Pic are here regarded as subspecific and therefore available names according to ICZN Art. 45.6 (ICZN, 1999), following the recommendations given by Lingafelter & Nearns (2013). Taxa described as „ab." by Wittmer (1941) are clearly infraspecific and therefore unavailable, following the same reasoning.

Abbreviations used:

D. (after a reference): Indicates the original description of the taxon.

nom. dub.: nomen dubium

nom. obl.: nomen oblitum

pl. : plate

AF: Afrotropical Region.

AU: Australian Region (Including West Papua).

NA: Nearctic Region.

OR: Oriental Region (Including Sulawesi, South China, Taiwan and the Himalayas).

PA: Palearctic Region (Including the Arabian Peninsula).

Type material is deposited in the following collections:

HMCZ: Harvard Museum of Comparative Zoology, Cambridge MA, USA.

HUMS: Hokkaido University Museum, Sapporo, Japan.

IRSB: Institut Royal des Sciences Naturelles de Belgique, Bruxelles, Belgium.

- MCGD: Museo Civico di Storia naturale „Giacomo Doria", Genova, Italy.
 MCNM: Museo Nacional de Ciencias Naturales, Madrid, Spain.
 MHNG: Muséum d'histoire naturelle, Genève, Switzerland.
 MNHB: Museum für Naturkunde der Humboldt-Universität, Berlin, Germany.
 MNHP: Musée nationale d'histoire naturelle, Paris, France.
 MRAC: Musée royal d'Afrique centrale, Tervuren, Belgium.
 MTMB: Magyar Természettudományi Múzeum, Budapest, Hungary.
 NHMB: Naturhistorisches Museum, Basel, Switzerland.
 BMNH: Natural History Museum, London (formerly: British Museum (Natural History)), UK.
 NHMW: Naturhistorisches Museum, Wien, Austria.
 NKME: Naturkundemuseum, Erfurt, Germany.
 NMBE: Naturhistorisches Museum, Bern, Switzerland.
 NMPC: Národní Muzeum, Praha, Czech Republic.
 NRMS: Naturhistoriska Riksmuseet, Stockholm, Sweden.
 OUMN: Hope Entomological Collections, Oxford University, Oxford, UK.
 RBCM: Royal British Columbia Museum, Victoria, British Columbia, Canada.
 SDEI: Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany.
 SMNS: Staatliches Museum für Naturkunde, Stuttgart, Germany.
 SMTD: Staatliches Museum für Tierkunde, Dresden, Germany.
 SYSU: Sun-Yat-Sen University (formerly: Lingnan Natural History Museum), Guangzhou, China.
 UUEM: Uppsala Universitet Evolutionsmuseet, Uppsala, Sweden.
 ZMAM: Zoologisch Museum, Amsterdam, Netherlands.
 ZMUC: Zoological Museum, University of Copenhagen, Denmark.
 ZSIK: Zoological Survey of India, National Zoological Collection, Kolkata, India.
 ZSMU: Zoologische Staatssammlung, München, Germany.

The known distribution is given for all valid taxa in the list, the type localities of synonyms are not indicated, but they are indicated for infrasubspecific taxa, as some of these names might prove to be valid species or subspecies. Distributional records are given only to country level, except for India, China, Malaysia, Indonesia and the Philippines, where the province and/or the island records are also given, as far as indicated in the literature.

Catalogue

Familia **PRIONOCERIDAE** Lacordaire, 1857 [158 spp.]

Lacordaire, 1857: 380. D. Heyne & Taschenberg, 1908: 182 (as „Prionocérides"). Jakobson, 1911: 712 (as „Prionocerini"). Champion, 1919: 327 (family status). Winkler, 1925: 564 (as "Prionocerini"). Pic, 1926: 4 (family status). Pic, 1927a: 81. Miwa & Chûjo, 1938: 23. Wittmer, 1938: 7. Gressitt, 1939: 187. Wittmer, 1941: 227. Crowson, 1952: 68 (as „Prionocerinae"). Crowson, 1955: 84. Nakane, 1956: 65. Fiori, 1963: 265, 288. Crowson, 1964: 316, 318, 320. Crowson, 1970: 20. Fiori, 1971: 58. Satô, 1985b: 163. Iablokoff-Khnzorian, 1980: 272. Lawrence, 1982: 522. Satô, 1985a: 1. Majer, 1987: 789. Constantin, 1989: 400, 401. Evers, 1989: 30. Constantin & Menier, 1990: 179, 180. Forster & Lawrence, 1991: 454. Egorov, 1992: 95. Majer, 1994a: 66 (family status), 68, 70, 71. Majer, 1994b: 344. Crowson, 1995: 76. Lawrence & Newton, 1995: 785, 871. Bahillo de la Puebla & López Colón, 2003: 161. Mayor, 2007: 384. Lawrence, Archibald & Slipinski, 2008: 689. Liberti, 2009: 341. Geiser,

2010a: 2. Lawrence & Leschen, 2010: 268. Aston, 2011: 2. Bouchard & al. 2011: 57, 349, 884. Yoshitomi & Hayashi, 2011: 18. Constantin & Liberti, 2011: 13. Bocakova, Constantin & Bocak, 2012: 1, 7, 12. Yang, Geiser & Yang, 2012: 379, 381. Hájek & Švihla, 2012: 608. Molina Molina, 2013: 39.

Subfamily **LOBONYCHINAE** Majer, 1987 [11 sp.]

Majer, 1987: 790, 791. D. Mayor, 2007: 384. Bouchard & al. 2011: 57, 349 (as "Lobonychini"). Bocakova, Constantin & Bocak, 2012: 12 (subfamily status). Yang, Geiser & Yang, 2012: 381.

G. *Lobonyx* JACQUELIN DU VAL, 1859 [11 spp.]

Jacquelin du Val, 1859: 42. D. Jacquelin du Val, 1860: 183, 192. Schaum, 1862: 65. Kiesenwetter, 1863: 625. Mulsant & Rey, 1868: 25, 55, 167. pl. IX. Fauvel, 1869: 67. Gemminger & Harold, 1869: 1712. Calwer & Jäger, 1869: 354. Bertoloni, 1872: 136. Redtenbacher, 1874: 32. Seidlitz, 1891: 113. Fauconnet, 1892: 292. Fauconnet, 1894 : 58. Paulino de Oliveira, 1893: 214. Acloque, 1896: 312. Schilsky, 1897: Nr. 34y. Gavoy, 1901: 127. Jakobson, 1911: 701, 707. Escalera, 1914: 248. Schaufuss, 1916: 388, 392. Pic, 1918: 10. Champion, 1920: 72. Winkler, 1925: 555. Escalera, 1927: 28. Luigioni, 1929: 632. Porta, 1929: 114, 124. Fuente, 1931: 115. Pic, 1937: 111. Seabra, 1943: 68. Crowson, 1964: 321. Majer, 1987: 791. Crowson, 1995: 76. Lawrence & Newton, 1995: 871. Bahillo de la Puebla & López Cólón, 2003: 161, 165. Mayor, 2007: 384. Lawrence, Archibald & Slipinski, 2008: 689. Constantin, 2009: 300. Liberti, 2009: 341. Geiser, 2010a: 2. Lawrence & Leschen, 2010: 268. Aston, 2011: 2. Bouchard & al. 2011: 349. Constantin & Liberti, 2011: 13. Yang, Geiser & Yang, 2012: 380, 381.

Type species: *Lagria aenea* FABRICIUS, 1798 (original designation).

Eulobonyx KRAATZ, 1882: Kraatz, 1882: 97. D. Jakobson, 1911: 707. Winkler, 1925: 555. Luigioni, 1929: 632. Pic, 1937: 111. Crowson, 1964: 321. Majer, 1987: 791. Bahillo de la Puebla & López Cólón, 2003: 165. Mayor, 2007: 384. Constantin, 2009: 302. Yang, Geiser & Yang, 2012: 381.

Type species: *Eulobonyx turkestanicus* KRAATZ, 1882 (Monotypy).

aeneus (FABRICIUS, 1798) (*Lagria*)

Fabricius, 1798: 119. D. Fabricius, 1801: 73 (as *Dasytes*). Illiger, 1807: 302. Schönherr, 1817: 15. Rosenhauer, 1856: 154. Jacquelin du Val, 1859: 42. Jacquelin du Val, 1860: 184. pl. 45. Schaum, 1862: 65. Reiche, 1862: 79, 80. Reiche, 1863: 132. Schaum & Kiesenwetter, 1863: 670. Kiesenwetter, 1863: 625. Kiesenwetter, 1866: 375. Kiesenwetter, 1867: 119. Mulsant & Rey, 1868: 169. pl. IX. Gemminger & Harold, 1869: 1712. Heyden, 1870: 10, 18. Bertoloni, 1872: 136. Cardona y Orfila, 1872: 42. Fairmaire & Raffray, 1873: 376. Baudi di Selve, 1873: 249. Baudi di Selve, 1874: 303. Redtenbacher, 1874: 32. Uhagon, 1879: 214. Heyden, 1887b: 439. Seidlitz, 1891: 113. Fauconnet, 1892: 292. Paulino de Oliveira, 1893: 214. Fauconnet, 1894 : 58. Schilsky, 1894a: Nr. 54. Schilsky, 1894b: 230. Gavoy, 1895: 33. Medina, 1895: 45. Acloque, 1896: 312. Schilsky, 1897: Nr. 34y.

PA: Spain. Portugal. France. Morocco. Algeria. Tunisia.

Gavoy, 1901: 127. Jakobson, 1911: 707. Escalera, 1914: 248. Schaufuss, 1916: 392. Pic, 1918: 10. Winkler, 1925: 555. Iglesias, 1928: 92. Luigioni, 1929: 632. Porta, 1929: 124. Fuente, 1931: 115. Pic & Lindberg, 1932: 23. Normand, 1935: 248. Pic, 1937: 111. Kocher, 1983: 87. Seabra, 1943: 68. Cobos, 1949: 581. Cobos, 1954: 34. Kocher, 1956: 67. Torres Sala, 1962: 175. Crowson, 1964: 316, 321. Zimsen, 1964: 128. Fiori, 1971: 58, 59. Majer, 1986: 138, 148. Mouna & Arahou, 1986: 136. Majer, 1987: 750, 791. Herrera, 1988: 279, 286. Constantin, 1989: 403. Majer, 1990b: 85, 89, 92. Constantin, 1992a: 403. Arahou, El Agbani & Dakki, 1992: 106. Majer, 1994b: 346. Serrano, Zuzarte, Boiero & Aguiar, 2002: 62. Bahillo de la Puebla & López Cólón, 2003: 162, 165. Gourvès, 2005: 68. Mayor, 2007: 384. Arahou, 2008: 7. Constantin, 2009: 300, 304. Liberti, 2009: 341. Lawrence & Leschen, 2010: 268, 269. Bocakova, Constantin & Bocak, 2011: 7, 12. Molina Molina, 2013: 39.

Syntypes at ZMUC.

ciliatus (GRAELLS, 1842) (*Dasytes*): Graells, 1842: 221. D. pl. 10. Lucas, 1846: 195. Rosenhauer, 1856: 154. Marseul, 1857: 104. Jacquelin du Val, 1859: 42. Jacquelin du Val, 1860: 184. Schaum, 1862: 65. Schaum & Kiesenwetter, 1863: 670. Bertoloni, 1872: 136. Reiche, 1862: 80. Reiche, 1863: 132. Kiesenwetter, 1863: 625. López Seoane, 1866: 45. Mulsant & Rey, 1868: 170. Gemminger & Harold, 1869: 1712. Calwer & Jäger, 1869: 355. Baudi di Selve, 1873: 249. Baudi di Selve, 1874: 303. Redtenbacher, 1874: 32. Schilsky, 1894a: Nr. 54. Jakobson, 1911: 707. Winkler, 1925: 555. Luigioni, 1929: 632. Fuente, 1931: 115. Pic, 1937: 111. Bahillo de la Puebla & López Cólón, 2003: 165. Mayor, 2007: 384.

Type depository unknown (MCNM?).

NOTE: In most of the literature, the original description is cited as "Fabricius, 1787: 94". This is wrong, as this description refers to *Dasytes metallicus* (Fabricius, 1792) (Dasytidae), not to a species of *Lobonyx*. This fact was already pointed out by Reiche, 1862: 79, but ignored by most subsequent authors. The name *Cryptocephalus barbarus* Gmelin, 1790: 1731, cited as a synonym of *Lobonyx aeneus* by several authors, also cannot be applied to this species, as the original description clearly points out that this species is identical to *Dasytes aeneus* Fabricius, 1787, so it must be placed as a synonym of the dasytid, rather than the prionocerid. The name *Dasytes aurarius* Illiger, 1807: 302 can probably be referred to *L. aeneus* (which he misidentified as *Dasytes metallicus*), it is, however, unavailable, as it was originally introduced as a synonym of this species and never used as valid name afterwards (ICZN, 1999: Art. 11.6). This leaves only *Dasytes ciliatus* Graells, 1842 as an available synonym of *Lobonyx aeneus*.

- atrovirens*** CONSTANTIN, 2009
Constantin, 2009: 309. D.
Holotype at NKME. **OR:** Nepal
- bioculatus*** (ABEILLE DE PERRIN, 1894) (*Psilothrix*)
Abeille de Perrin, 1894: 93. D. Schilsky, 1897: Nr. 27, 34y. Jakobson, 1911: 707. Sahlberg, 1913: 151. Winkler, 1925: 555. Pic, 1937: 112. Mayor, 2007: 384.
Syntypes at MNHP. **PA:** Syria.
- exasperatus*** (CHAMPION, 1920) (*Eulobonyx*)
Champion, 1920: 72. D. Champion, 1922: 126. Pic, 1937: 112. Mayor, 2007: 384. Constantin, 2009: 305.
Syntypes at BMNH and MNHP. **OR:** India: Uttarakhand, Himachal Pradesh, Kashmir. Pakistan.
- gracilis*** REITTER, 1872
Reitter, 1872: 180. D. Reitter, 1874: 528. Bedel, 1884: 223. Pic, 1894: 112. Schilsky, 1897: Nr. 28, 34y. Bedel, 1904: 226. Jakobson, 1911: 707. Escalera, 1914: 248. Schaufuss, 1916: 392. Winkler, 1925: 555. Fuente, 1931: 115. Pic & Lindberg, 1932: 24. Pic, 1937: 112. Koch, 1939: 247. Kocher, 1956: 67. Mouna & Arahou, 1986: 136. Arahou, El Agbani & Dakki, 1992: 106. Bahillo de la Puebla & López Cólón, 2003: 164, 1965. Gourvès, 2005: 68. Mayor, 2007: 384. Arahou, 2008: 7. Molina Molina, 2013: 39.
Type depository unknown. **PA:** Morocco. Algeria. Libya. Spain (?).
- ruficollis*** RAFFRAY, 1873: Fairmaire & Raffray, 1873: 376. D. Reitter, 1874: 528. Marseul, 1877: 45. Bedel, 1884: 223. Pic, 1894: 112. Schilsky, 1897: Nr. 28. Jakobson, 1911: 707. Escalera, 1914: 248. Winkler, 1925: 555. Fuente, 1931: 115. Pic, 1937: 112. Bahillo de la Puebla & López Cólón, 2003: 165. Mayor, 2007: 384.
Type depository unknown (MNHG?).
- guerryi*** (PIC, 1920) (*Eulobonyx*)
Pic, 1920c: 8. D. Winkler, 1925: 555. Pic, 1937: 112. Hua, 2002: 72. Mayor, 2007: 384. Constantin, 2009: 309. Yang, Geiser & Yang, 2012: 381.
Lectotype at MNHP. **PA:** China: Tibet, Gansu, Sichuan, Shaanxi. **OR:** China: Yunnan. India: Sikkim. Myanmar.
- kashmirensis*** FAIRMAIRE, 1891
Fairmaire, 1891b: CXXXI. D. Schilsky, 1906: Nr. 12. Jakobson, 1911: 707. Champion, 1920: 72. Winkler, 1925: 555. Pic, 1937: 112. Mayor, 2007: 384. Constantin, 2009: 306.
Type depository unknown. **PA:** Afghanistan. **OR:** Pakistan. India: Kashmir, Himachal Pradesh, Sikkim. Uttarakhand, Arunachal Pradesh. Nepal. Bhutan.
- haemorrhoidalis*** (SCHILSKY, 1906) (*Eulobonyx*):
Schilsky, 1906: Nr. 12. D. Jakobson, 1911: 707. Champion, 1920: 71. Winkler, 1925: 555. Pic, 1937: 112. Mayor, 2007: 384. Constantin, 2009: 306.
Syntypes at MNHB.

inaequalis (PIC, 1920) (*Eulobonyx*): Pic, 1920c: 8.
D. Pic, 1937: 112. Mayor, 2007: 384. Constantin,
2009: 306.

Syntype at MNHP.

granulatus (PIC, 1920) (*Eulobonyx*): Pic, 1920c: 8.
D. Pic, 1937: 112. Mayor, 2007: 384. Constantin,
2009: 306.

Syntype at MNHP.

curticollis (PIC, 1924) (*Eulobonyx*): Pic, 1924a: 27.
D. Pic, 1937: 112. Mayor, 2007: 384. Constantin,
2009: 306.

Syntype at MNHP.

gorhami (PIC, 1924) (*Eulobonyx*): Pic, 1924a: 27.
D. Pic, 1937: 112. Mayor, 2007: 384. Constantin,
2009: 306.

Syntype at MNHP.

intuberculatus (PIC, 1924) (*Eulobonyx granulatus*
var.): Pic, 1924a: 27. D. Pic, 1937: 112. Mayor, 2007:
384. Constantin, 2009: 306.

Syntype at MNHP.

bicoloripes (PIC, 1924) (*Eulobonyx*): Pic, 1924b:
476. D. Pic, 1937: 112. Mayor, 2007: 384.
Constantin, 2009: 306.

Syntypes at MNHP.

sericeus (CHAMPION, 1920) (*Eulobonyx*)

OR: India: Uttarakhand.

Champion, 1920: 71. Champion, 1922: 126. Pic,
1937: 112. Mayor, 2007: 385. Constantin, 2009: 305.
Syntypes at BMNH and MNHP

thoracicus MAJER, 1990

PA: Iran.

Majer, 1990a: 159. D. Mayor, 2007: 385. Hájek &
Švihla, 2012: 608.
Holotype at NMPC.

turkestanicus (KRAATZ, 1882) (*Eulobonyx*)

PA: Uzbekistan. Kyrgyzstan.
Tadzhikistan. Turkmenistan.

Kraatz, 1882: 98. D. Heyden & Kraatz, 1882: 304.
Heyden, 1887a: 306, 307. Fairmaire, 1891b: CXXXI.
Schilsky, 1894a: Nr. 53. Schilsky, 1897: Nr. 34y.
Jakobson, 1911: 707. Champion, 1920: 71. Winkler,
1925: 555. Pic, 1937: 112. Iablokoff-Khuzorian,
1980: 282. Döbler, 1982: 411. Majer, 1987: 751.
Majer, 1990b: 84, 87, 89, 93. Mayor, 2007: 385.
Constantin, 2009: 302.

Lectotype at SDEI.

arisi (SCHILSKY, 1906) (*Eulobonyx*): Schilsky,
1906: Nr. 11. D. Jakobson, 1911: 707. Winkler, 1925:
555. Pic, 1937: 112. Mayor, 2007: 384. Constantin,
2009: 302.

Syntypes at MNHB.

varipes SCHILSKY, 1894 (*L. turkestanicus* var.)

PA: Iran. Afghanistan.

Schilsky, 1894a: Nr. 53. D. Schilsky, 1897: Nr. 34y. Tadzhikistan. Kazakhstan.

Jakobson, 1911: 707. Winkler, 1925: 555. Pic, 1937: Uzbekistan. Kyrgyzstan.
 112. Mayor, 2007: 385. Constantin, 2009: 304. Turkmenistan.
 Lectotype at MNHB.
scheibei (BLAIR, 1937) (*Eulobonyx*): Blair, 1937:
 181. D. Döbler, 1982: 411. Mayor, 2007: 384.
 Constantin, 2009: 304.
 Holotype at SDEI.

Subfamily **PRIONOCERINAE** Lacordaire, 1857 [147 spp.]

Majer, 1987: 790. Egorov, 1992: 95. Mayor, 2007: 385. Bouchard & al. 2011: 57, 349, 884. Yoshitomi & Hayashi, 2011: 18 (as "Prionocerini"). Bocakova, Constantin & Bocak, 2012: 12 (subfamily status). Yang, Geiser & Yang, 2012: 381.

G. Prionocerus PERTY, 1831 [8 spp.]

Perty, 1831: 33. D. Brullé, 1837: 166. Laporte de Castelnau, 1838: 26. Laporte de Castelnau, 1840: 275. Reiche, 1849: 286. Lacordaire, 1857: 412. Jacquelin du Val, 1860: 189. Gemminger & Harold, 1869: 1721. Chenu, 1870: 294 (as "*Prionocera*"). Gerstaecker, 1873: 158. Casto de Elera, 1895: 72. Heyne & Taschenberg, 1908: 183. Jakobson, 1911: 712. Champion, 1919: 328. Vitalis de Salvaza, 1919: 79. Champion, 1920: 72. Pic, 1923a: 46. Winkler, 1925: 564. Pic, 1926: 4. Gressitt, 1939: 187. Crowson, 1952: 65. Wittmer, 1958: 73. Crowson, 1964: 320. Majer, 1987: 791. Egorov, 1992: 95. Choldumrongkul & Seng-sim, 1993: 102. Crowson, 1995: 76. Lawrence & Newton, 1995: 871. Beutel & Pollock, 2000: 830. Bahillo de la Puebla & López Cólón, 2003: 161. Mayor, 2007: 385. Lawrence, Archibald & Slipinski, 2008: 689. Geiser, 2010a: 3. Lawrence & Leschen, 2010: 268. Aston, 2011: 2. Bouchard & al. 2011: 349. Yoshitomi & Hayashi, 2011: 18. Yang, Geiser & Yang, 2012: 380, 382.
 Type species: *Prionocerus coeruleipennis* PERTY, 1831 (Monotypy).

bicolor REDTENBACHER, 1868

Redtenbacher, 1868: 109. D. pl. IV. Gemminger & Harold, 1869: 1721. Gerstaecker, 1873: 158. Kirsch, 1875: 38. Schaufuss, 1887: 125. Gorham, 1887: 77. Hagen, 1890: 233. Bourgeois, 1890b: 188. Dohrn, 1891: 253. Gorham, 1895: 318. Bourgeois, 1904b: 104. Maxwell-Lefroy & Howlett, 1909: 325. Mason & Maxwell-Lefroy, 1911: 121, 335. Champion, 1919: 329. pl. XI. Vitalis de Salvaza, 1919: 79. Pic, 1923a: 48. Pic, 1923b: 72. Pic, 1926: 4. Pic, 1929a: 2. Wittmer, 1938: 7. Miwa & Chujô, 1938: 23. Gressitt, 1939: 194. Wittmer, 1939: 130. Wittmer, 1941: 227. Wittmer, 1954: 28. Crowson, 1964: 316. Hua, 2002: 77. Mayor, 2007: 385. Geiser, 2007: 170. Geiser, 2010a: 22. Geiser, 2010b: 137. Lawrence & Leschen, 2010: 268 (as "*bicolor*", lapsus calami). Bocakova, Constantin & Bocak, 2012: 7, 12. Yang, Geiser & Yang, 2012: 382.
 Holotype at NHMW.
pertii LAPORTE DE CASTELNAU, 1838

PA: China: Tibet. **OR:** India: Uttar Pradesh, West Bengal, Sikkim, Assam, Meghalaya, Kerala (?). Bangladesh. Nepal. Bhutan. Myanmar. Thailand. Laos. Vietnam. Cambodia. Malaysia: Penang, Perak, Pahang, Kelantan, Terengganu, Kuala Lumpur, Sarawak, Sabah. Singapore. Indonesia: Sumatra, Nias, Kalimantan, Java, Sumbawa, Flores, Sumba, Alor, Timor, Damar, Sulawesi, Tukangbesi, Tanimbar, Buru, Ambon, Ceram, Halmahera, Kai. Timor-Leste. Philippines: Luzon, Panay, Mindanao, Palawan. China: Yunnan, Guangxi, Guangdong,

Laporte de Castelnau, 1838: 27. D. Geiser, 2010a: 22. Hainan. Taiwan. **AU**: Geiser, 2010b: 137. Yang, Geiser & Yang, 2012: 382. Indonesia: Irian Jaya. Type depository unknown (probably lost).

notaticollis (PIC, 1910) (*Idgia* (*Prionocerus*)

bicolor var.): Pic, 1910b: 53. D. Champion, 1919: 329.

Pic, 1926: 4. Geiser, 2007: 170. Geiser, 2010a: 22.

Geiser, 2010b: 138. Yang, Geiser & Yang, 2012: 382.

Holotype at MNHP.

championi GEISER, 2010

OR: Indonesia: Sumatra.

Geiser, 2010a: 36. D.

Holotype at NHMB.

coeruleipennis PERTY, 1831

OR: India: Sikkim, Andaman

Perty, 1831: 33. D. pl. I. Guérin-Méneville, 1833: 494. Islands. Myanmar. Thailand. pl. II. Brullé, 1837: 166. Laporte de Castelnau, 1838: Laos. Cambodia.

27. Laporte de Castelnau, 1840: 275. Lacordaire, Vietnam. Malaysia: Penang,

1857: 412. Gemminger & Harold, 1869: 1721. Chenu, Perak, Pahang, Negeri

1870: 294. Gerstaecker, 1873: 158. Baer, 1886: 134. Sembilan, Selangor,

Fairmaire, 1887: 160. Schaufuss, 1887: 126. Gorham, Sarawak, Sabah. Singapore.

1887: 77. Hagen, 1890: 233. Bourgeois, 1890a: 175. Brunei. Indonesia: Sumatra,

Bourgeois, 1890b: 188. Fairmaire, 1891c: CCLXXX. Riau, Nias, Batu, Mentawai,

Ganglbauer, 1894: 337. Gorham, 1895: 318. Casto Enggano, Kalimantan, Java,

de Elera, 1895: 72. Alluaud, 1900: 173. Bourgeois, Sumbawa, Komodo, Flores,

1904b: 103. Keyl, 1913: 1. pl. I. Champion, 1919: Sumba, Adonara, Rote,

328. pl. XI. Vitalis de Salvaza, 1919: 79. Pic, 1923a: Timor, Sulawesi, Buton,

47. Pic, 1923b: 72. Pic, 1926: 4. Williams, 1928: 104. Ambon, Ceram, Gorong,

pl. 2. Pic, 1929a: 2. Pic, 1933a: 3. Miwa & Chujô, Tanimbar, Bacan, Buru,

1938: 23. Gressitt, 1939: 188. pl. 6. Wittmer, 1938: 7. Watubela, Ternate,

Wittmer, 1939: 130. Wittmer, 1941: 227. Wittmer, Halmahera, Aru. Timor-

1954: 28. Wittmer, 1958: 74. Wittmer, 1962: 270. Leste. Philippines: Luzon,

Satô, 1985a: 2. Majer, 1986: 138, 148. Majer, Mindoro, Samar, Masbate,

1987: 748, 790. Majer, 1990b: 89, 92. Majer, 1994b: Panay, Negros, Cebu, Leyte,

346. Mayor, 2007: 385. Geiser, 2007: 170. Geiser, Panaon, Bohol, Mindanao,

2010a: 6. Lawrence & Leschen, 2010: 268. Yoshitomi Palawan, Balabac. China:

& Hayashi, 2011: 18. Yang, Geiser & Yang, 2012: Yunnan, Guangxi, Hainan,

382. Jiangxi, Fujian. **AU**:

Holotype at ZSMU. Indonesia: Waigeo, Misool.

fuscipennis LEWIS, 1879: Lewis, 1879a: 464. D. Papua New Guinea. Caroline

Lewis, 1879b: 17. Lewis, 1895: 121. Jakobson, 1911: Is. Yap Is. Palau Is. **AF**:

712. Champion, 1919: 328. Winkler, 1925: 564. Pic, Tanzania. Kenya. Uganda.

1926: 4. Miwa & Chujô, 1938: 23. Nakane, 1983:

166. Satô, 1985a: 2. Mayor, 2007: 386. Geiser, 2010a:

6. Yang, Geiser & Yang, 2012: 382.

Holotype at BMNH.

forticornis SCHAUFUSS, 1887: Schaufuss, 1887:

126. D. Bourgeois, 1890a: 175. Bourgeois, 1890b:

188b. Bourgeois, 1904b: 103. Champion, 1919: 328.

Pic, 1923a: 47. Pic, 1926: 4. Miwa & Chujô, 1938:

23. Satô, 1985a: 2. Geiser, 2010a: 6. Yang, Geiser &

Yang, 2012: 382.

Syntype at MNHB.

brevicornis SCHAUFUSS, 1887: Schaufuss, 1887: 126. D. Bourgeois, 1890a: 175. Bourgeois, 1890b: 188. Bourgeois, 1904b: 103. Champion, 1919: 328. Pic, 1926: 4. Miwa & Chujô, 1938: 23. Satô, 1985a: 2. Mayor, 2007: 386. Geiser, 2010a: 6. Yang, Geiser & Yang, 2012: 382.

Syntype at MNHB.

diversicollis PIC, 1920: Pic, 1920b: 12. D (*P. coeruleipennis* var.). Pic, 1926: 4. Satô, 1985a: 2. Geiser, 2007: 170. Geiser, 2010a: 6. Yang, Geiser & Yang, 2012: 382.

Holotype at MNHP.

malaysiacus GEISER, 2010

Geiser, 2010a: 34. D.

Holotype at NHMB.

OR: Malaysia: Pahang.

opacipennis (PIC, 1920) (*Idgia*)

Pic, 1920a: 7. D. Pic, 1926: 8. Geiser, 2010a: 37.

Holotype at MNHP.

OR: Indonesia: Mentawai, Sumatra. Thailand.

paiensis GEISER, 2010

Geiser, 2010a: 32. D.

Holotype at NHMB.

OR: Thailand.

viridiflavus GEISER, 2007

Geiser, 2007: 168. D. Geiser, 2010a: 34. Lawrence & Leschen, 2010: 268. Bocakova, Constantin & Bocak, 2011: 3.

Holotype at NHMB.

OR: Indonesia: Sumatra.

wittmeri GEISER, 2010

Geiser, 2010a: 39. D. Hájek & Švihla, 2012: 608.

Holotype at NHMB.

OR: Indonesia: Java.

G. *Idgia* LAPORTE DE CASTELNAU, 1838 [139 spp.]

Laporte de Castelnau, 1838: 27. D. Laporte de Castelnau, 1840: 275. Reiche, 1849: 286. Lacordaire, 1857: 412. Redtenbacher, 1857: 661. Pascoe, 1860: 43. Jacquelin du Val, 1860: 189. Gemminger & Harold, 1869: 1721. Chenu, 1870: 294. Gerstaecker, 1873: 158. (as synonym of *Prionocerus* Perty). Redtenbacher, 1874: 180. Gorham, 1883: 601. Heyne & Taschenberg, 1908: 183. Maxwell-Lefroy & Howlett, 1909: 325. Jakobson, 1911: 712. Champion, 1919: 329. Champion, 1920: 72. Pic, 1923a: 46. Winkler, 1925: 564. Pic, 1926: 4. Miwa & Chujô, 1938: 23. Gressitt, 1939: 187. Crowson, 1964: 316, 320. Dharmadhikari, Ramaseshiah & Achan, 1985: 405. Satô, 1985a: 1. Satô, 1985b: 163. Majer, 1987: 791. Egorov, 1992: 95. Majer, 1994b: 345. Crowson, 1995: 76. Lawrence & Newton, 1995: 871. Bahillo de la Puebla & López Cólón, 2003: 161. Mayor, 2007: 385. Lawrence, Archibald & Slipinski, 2008: 689. Geiser, 2010a: 2. Lawrence & Leschen, 2010: 268. Aston, 2011: 2. Yoshitomi & Hayashi, 2011: 18. Yang, Geiser & Yang, 2012: 383.

Type species: *Idgia terminata* LAPORTE DE CASTELNAU, 1838 (Monotypy).

Deromma KOLLAR & REDTENBACHER, 1844: Kollar & Redtenbacher, 1844: 511. D. Lacordaire, 1857: 412. Redtenbacher, 1857: 661. Jacquelin du Val, 1860: 189. Gemminger & Harold, 1869: 1721. Chenu, 1870: 294. Gerstaecker, 1873: 158. Jakobson, 1911: 712. Champion, 1919: 329. Winkler,

1925: 564 (as "*Deroma*", lapsus calami). Pic, 1926: 4. Egorov, 1992: 95. Mayor, 2007: 385. Yang, Geiser & Yang, 2012: 383.

Type species: *Deromma melanura* KOLLAR & REDTENBACHER, 1844 (Monotypy).

Diprosopus MULSANT, 1851: Mulsant, 1851: 209. D. Mulsant, 1852: 72. Lacordaire, 1857: 413. Marseul, 1857: 102. Redtenbacher, 1857: 661. Jacquelin du Val, 1860: 189. Gemminger & Harold, 1869: 1721. Gerstaecker, 1873: 158. Redtenbacher, 1874: 180. Jakobson, 1911: 711. Champion, 1919: 329. Pic, 1923a: 48. Pic, 1926: 5. Mayor, 2007: 385. Yang, Geiser & Yang, 2012: 383.

Type species: *Diprosopus melanurus* MULSANT, 1851 (Monotypy).

Thaccona WALKER, 1859: Walker, 1859: 260. D. Gemminger & Harold, 1870: 2179. Schenkling, 1915: 73. Champion, 1919: 329. Pic, 1926: 5. Mayor, 2007: 385. Yang, Geiser & Yang, 2012: 383.

Type species: *Thaccona dimelaena* WALKER, 1859 (Monotypy).

1. Species from Africa [19 spp.]

- abyssinica*** CHAMPION, 1919 AF: Ethiopia.
 Champion, 1919: 334. D. Pic, 1926: 5.
 Holotype at BMNH.
- alluaudi*** PIC, 1919 AF: Kenya. Ethiopia.
 Pic, 1919b: 3. D. Pic, 1923b: 72. Pic, 1926: 5.
 Syntypes at MNHP.
- apicalis*** (GERSTAECKER, 1871) (*Prionocerus* (*Idgia*)) AF: Kenya. Tanzania.
„Congo".
 Gerstaecker, 1871: 56. D. Gerstaecker, 1873: 159.
 Fairmaire, 1887: 160. Champion, 1919: 333. Pic,
 1923b: 72. Pic, 1926: 5.
 Syntypes at MNHB and HMCZ.
- costata*** PIC, 1920 AF: Kenya.
 Pic, 1920a: 7. D. Pic, 1926: 6.
 Holotype at MNHP.
- cyanea*** PIC, 1906 AF: Uganda. Nigeria.
Congo-Kinshasa. Congo-
Brazzaville.
 Pic, 1906b: 44. D. Champion, 1919: 335. pl. XI.
 Pic, 1923b: 72. Pic, 1926: 6. Wittmer, 1965: 42.
 Holotype at MNHP.
- dimidiata*** (GERSTAECKER, 1871) (*Prionocerus*) AF: Ethiopia. Tanzania.
Kenya. Congo-Kinshasa.
Malawi. Zimbabwe. RSA.
 Gerstaecker, 1871: 56. D. Gerstaecker, 1873: 158.
 Tafel VIII. Fairmaire, 1887: 159. Ganglbauer, 1894:
 337. Gestro, 1895: 116. Linell, 1896: 706. Marshall,
 1902: 341, 347, 516, 517. Pl. XVIII. Pic, 1910a: 60.
 Pic, 1914: 60. Champion, 1919: 331. pl. XI. Pic,
 1923b: 72. Pic, 1926: 6. Gedye, 1940: 26 (as
 "*bipartita*", lapsus calami). Wittmer, 1962: 270.
 Syntypes at MNHB.
- var. atrimembris*** PIC, 1929: Pic, 1929b: 263. D. AF: Tanzania. Rwanda.
 Syntypes at MRAC and MNHP.
- feai*** PIC, 1914 AF: Guinea Bissau.
 Pic, 1914: 59. D. Pic, 1920b: 12. Pic, 1926: 6.
 Syntypes at MCGD and MNHP.
- fulvicollis*** REICHE, 1849 AF: Ethiopia. Kenya.
 Reiche, 1849: 286. D. Lacordaire, 1857: 413.
 Gemminger & Harold, 1869: 1721. Gorham, 1883:

601. Gestro, 1895: 116. Pic, 1914: 59. Champion, 1919: 335. pl. XI. Pic, 1923b: 72. Pic, 1926: 7. Damoiseau, 1968: 22. Holotype at IRSB.
- griseolineata*** PIC, 1934 AF: Tanzania.
Pic, 1934: 140. D. Holotype at MNHP.
- henonii*** FAIRMAIRE, 1893 AF: Ethiopia.
Fairmaire, 1893: 26. D. Champion, 1919: 336. Pic, 1926: 7. Syntypes at MNHP.
- hirta*** (WALKER, 1871) (*Prionocerus*) **nom. dub.** AF: Djibouti.
Walker, 1871: 14. D. Champion, 1919: 336. Pic, 1926: 7. Geiser, 2010a: 42. Type depository unknown (probably lost).
- longipalpis*** CHAMPION, 1919 AF: Ethiopia.
Champion, 1919: 334. D. pl. XI. Pic, 1926: 7. Syntypes at BMNH and MNHP.
- nigricollis*** PIC, 1906 AF: Sierra Leone.
Pic, 1906b: 43. D. Pic, 1910a: 60. Champion, 1919: 332. Pic, 1926: 8. Syntypes at MNHP.
- plectrophora*** CHAMPION, 1919 AF: Kenya. Uganda.
Champion, 1919: 330. D. pl. XI. Pic, 1926: 8. Syntypes at BMNH.
- revoili*** PIC, 1920 AF: Somalia.
Pic, 1920a: 7. D. Pic, 1926: 8. Holotype at MNHP.
- senegalensis*** (LAPORTE DE CASTELNAU, 1840) (*Prionocerus*) AF: Senegal.
Laporte de Castelnau, 1840: 275. D. Lacordaire, 1857: 412. Gemminger & Harold, 1869: 1721. Pic, 1926: 8. Type depository unknown (probably lost).
- stamperi*** PIC, 1924 AF: Tanzania.
Pic, 1924c: 437. D. Pic, 1926: 8. Holotype at MRAC.
- terminata*** LAPORTE DE CASTELNAU, 1838 AF: Senegal.
Laporte de Castelnau, 1838: 28. D. Laporte de Castelnau, 1840: 275. Lacordaire, 1857: 413. Gemminger & Harold, 1869: 1721. Chenu, 1870: 294. Champion, 1919: 332. pl. XI. Pic, 1926: 9. Majer, 1987: 750. Type depository unknown (probably lost).
- tripartita*** PIC, 1912 AF: Kenya. Tanzania.
Pic, 1912: 300. D. Champion, 1919: 332. (as var. of *I. dimidiata* (Gerstaecker)). Pic, 1920b: 12. Pic, 1923b: 72. Pic, 1926: 9. Gedye, 1940: 26. Syntypes at MNHP.
var. diversicollis Pic, 1919: Pic, 1919b: 3. D. Pic, 1926: 9. AF: Kenya.

Holotype at MNHP.

2. *Species from the Arabian Peninsula and the Sinai* [4 spp.]

- arabica*** CHAMPION, 1919 **PA:** Yemen.
 Champion, 1919: 336. D. pl. XI. Pic, 1926: 5.
 Wittmer, 1980: 117. Mayor, 2007: 385.
 Syntypes at BMNH and MNHP.
- asirensis*** WITTMER, 1980 **PA:** Saudi Arabia.
 Wittmer, 1980: 117. D. Mayor, 2007: 385. El-
 Hawagry & al., 2013: 32.
 Holotype at NHMB.
- laticornis*** CHAMPION, 1919 **PA:** Yemen.
 Champion, 1919: 337. D. pl. XI. Pic, 1926: 7.
 Wittmer, 1980: 117. Mayor, 2007: 385.
 Syntypes at BMNH and MNHP.
- particularicornis*** PIC, 1939 **PA:** Egypt: Sinai.
 Pic, 1939: 145. D. Wittmer, 1980: 117. Mayor, 2007:
 385.
 Holotype at NHMB.

3. *Species from the East Palearctic and Oriental Regions* [115 spp.]

- abori*** PIC, 1913 **OR:** India: Arunachal
 Pic, 1913: 199. D. (as „*arbori*“). Pic, 1926: 5. Mayor, Pradesh.
 2007: 385.
 Syntypes at ZSIK and MNHP.
- amplipennis*** PIC, 1908 **OR:** Vietnam. China:
 Pic, 1908c: 59. D. Vitalis de Salvaza, 1919: 79. Pic, Guizhou.
 1923a: 48. Winkler, 1925: 564. Pic, 1926: 5. Gressitt,
 1939: 194. Hua, 2002: 76. Mayor, 2007: 385. Yang,
 Geiser & Yang, 2012: 383.
 Syntypes in MNHP.
- var. obscurimembris*** PIC, 1923: Pic, 1923a: 48. D. **OR:** Vietnam.
 Gressitt, 1939: 194 (as „*obscuriceps*“, lapsus calami).
 Yang, Geiser & Yang, 2012: 383.
 Syntypes in MNHP.
- var. obscurimembris*** PIC, 1923 (nec PIC, 1923a): **OR:** China: Guizhou.
 Pic, 1923b: 73. D. Gressitt, 1939: 194. Hua, 2002:
 76. Mayor, 2007: 385.
 Syntypes in MNHP.
- andrewesi*** (BOURGEOIS, 1907) (*Prionocerus* (*Idgia*)) **OR:** India: Kerala.
 Bourgeois, 1907: 104. D. Champion, 1919: 344. pl.
 XI. Pic, 1926: 5.
 Syntypes in MNHP and BMNH.
- angustata*** CHAMPION, 1919 **OR:** Malaysia: Sabah.
 Champion, 1919: 369. D. pl. XII. Pic, 1926: 5.

- Holotype at BMNH.
apicata GORHAM, 1895 **OR:** Singapore.
 Gorham, 1895: 320. D. Champion, 1919: 365. pl. XII.
 Pic, 1926: 5. Pic, 1929a: 2.
 Holotype at MNHP.
- ardesiaca*** PIC, 1908 **OR:** China: Fujian. Vietnam.
 Pic, 1908c: 59. D. Jakobson, 1911: 712. Vitalis de
 Salvaza, 1919: 79. Pic, 1923a: 48. Pic, 1926: 5.
 Gressitt, 1939: 194. Hua, 2002: 76. Mayor, 2007:
 385. Yang, Geiser & Yang, 2012: 383.
 Syntypes at MNHP.
- assimilis*** (HOPE, 1831) (*Telephorus*) **OR:** India: Uttarakhand,
 Hope, 1831: 26. D. Gorham, 1895: 319. (as *melanura* Himachal Pradesh,
 KOLLAR & REDTENBACHER, misidentification). Karnataka. Nepal. Bhutan
 Champion, 1919: 357. pl. XII. Pic, 1926: 5. Mayor, (?) Myanmar.
 2007: 385.
 Syntypes at BMNH.
- melanurus*** (MULSANT, 1851) (*Diprosopus*):
 Mulsant, 1851: 210. D. Mulsant, 1852: 73.
 Lacordaire, 1857: 414. Marseul, 1857: 102.
 Redtenbacher, 1857: 661. Jacquelin du Val, 1860: 189.
 Gemminger & Harold, 1869: 1721. Redtenbacher,
 1874: 180. Jakobson, 1911: 711. Champion, 1919:
 357. Pic, 1926: 5.
 Type depository unknown.
- atriceps*** CHAMPION, 1919 **OR:** Myanmar.
 Champion, 1919: 367. D. pl. XII. Pic, 1926: 5.
 Syntypes at BMNH.
- atricornis*** PIC, 1920 **OR:** Indonesia: Sumatra.
 Pic, 1920a: 8. D. Pic, 1926: 5.
 Holotype at MNHP.
- bakeri*** PIC, 1920 **OR:** Philippines: Mindanao,
 Pic, 1920a: 8. D. Pic, 1926: 5. Wittmer, 1941: 227. Mindoro, Luzon.
 Syntypes at MNHP.
- var. diversiceps*** PIC, 1925: Pic, 1925: 17. D. Pic, **OR:** Philippines: Samar.
 1926: 5.
 Syntypes at MNHP.
- belli*** GORHAM, 1895 **OR:** India: Tamil Nadu,
 Gorham, 1895: 319. D. Champion, 1919: 342. pl. XI. Kerala, Karnataka.
 Pic, 1920b: 12. Pic, 1926: 5.
 Syntypes at BMNH.
- caeruleatus*** (FAIRMAIRE, 1896) (*Prionocerus*):
 Fairmaire, 1896: 94. D. Champion, 1919: 342. Pic,
 1920b: 12. Pic, 1926: 5.
 Holotype at MNHP.
- bicoloriceps*** PIC, 1943 **OR:** India: Tamil Nadu.
 Pic, 1943b: 4. D.
 Holotype at MNHP.
- bicoloripes*** PIC, 1920 **OR:** Indonesia: Sumatra.

- Pic, 1920b: 12. D. Pic, 1926: 5.
Syntypes at MNHP and BMNH.
- bimaculata*** PIC, 1910 **OR:** Taiwan.
Pic, 1910c: 75. D. Pic, 1926: 5. Miwa & Chujô, 1938: 23. Gressitt, 1939: 189. pl. 6. Hua, 2002: 76. Mayor, 2007: 385. Geiser, 2009: 132. Yang, Geiser & Yang, 2012: 383.
Holotype at MNHP.
- bipicta*** GEISER, 2009 **OR:** India: Tamil Nadu.
Geiser, 2009: 131 (n. n. pro *bimaculata* Pic, 1921).
bimaculata PIC, 1921 (nec PIC, 1910): Pic, 1921: 18. D. Geiser, 2009: 131.
Holotype at MNHP.
- bourgeoisii*** PIC, 1906 **OR:** Indonesia: Java.
Pic, 1906a: 42. D. Pic, 1910d: 346. Champion, 1919: 365. Pic, 1926: 5.
Syntypes at MNHP.
- caeruleiventris*** CHAMPION, 1919 **OR:** Malaysia: Penang, Perak, Pahang, Kelantan.
Champion, 1919: 348. D. pl. XI. Pic, 1920b: 12. Pic, 1926: 5.
Syntypes at BMNH.
- cavilabris*** CHAMPION, 1919 **OR:** India: Kerala.
Champion, 1919: 349. D. pl. XII. Pic, 1920b: 12. Pic, 1926: 5.
Holotype at BMNH.
- chloroptera*** REDTENBACHER, 1868 **OR:** Sri Lanka.
Redtenbacher, 1868: 111. D. Gemminger & Harold, 1869: 1721. Champion, 1919: 344. pl. XI. Pic, 1926: 5.
Syntypes at NHMW.
- cincta*** PIC, 1906 **OR:** Indonesia: Java.
Pic, 1906a: 42. D. Pic, 1926: 6. Bocakova, Constantin & Bocak, 2012: 7, 12.
Holotype at MNHP.
var. bogorensis PIC, 1920: Pic, 1920a: 7. D. Pic, 1926: 6.
Holotype at MNHP.
- circumdata*** PIC, 1909 **OR:** India.
Pic, 1909b: 160. D. Pic, 1926: 6. Mayor, 2007: 385.
Holotype at MNHP.
- coeruleipes*** PIC, 1941 **OR:** Malaysia: Pahang.
Pic, 1941: 16. D.
Holotype at MNHP.
- coomani*** PIC, 1931 **OR:** Vietnam.
Pic, 1931: 100. D. Gressitt, 1939: 194.
Holotype at MNHP.
- costulata*** PIC, 1941 **OR:** China: Hainan.
Pic, 1941: 16. D. Mayor, 2007: 385. Yang, Geiser & Yang, 2012: 384.
Holotype at MNHP.

- crassicornis*** PIC, 1942
Pic, 1942b: 16. D.
Syntypes at MNHP. **OR:** India: Tamil Nadu.
- curticeps*** PIC, 1920
Pic, 1920a: 8. D. Pic, 1926: 6. Mayor, 2007: 385.
Geiser, 2009: 132.
Syntypes at MNHP. **OR:** India: Tamil Nadu.
curticeps PIC, 1943 (nec PIC, 1920): Pic, 1943b: 4.
D. Geiser, 2009: 132.
Syntypes at MNHP.
- cyanipennis*** PIC, 1920
Pic, 1920a: 7. D. Pic, 1926: 6 (as "*cyaneipennis*",
lapsus calami). Mayor, 2007: 385.
Holotype at MNHP. **OR:** India: Karnataka.
- cyancephala*** CHAMPION, 1919
Champion, 1919: 345. D. pl. XI. Pic, 1926: 6.
Syntypes at BMNH. **OR:** Malaysia: Perak.
- cyanura*** CHAMPION, 1919
Champion, 1919: 359. D. Pic, 1926: 6. Wittmer, 1956:
52. (as „*cyanea*", lapsus calami). **OR:** Sri Lanka.
Holotype at BMNH.
- dasytoides*** CHAMPION, 1919
Champion, 1919: 370. D. Pic, 1920b: 12. Pic, 1926: 6.
Crowson, 1964: 321. **OR:** Myanmar.
Syntypes at BMNH.
- decolor*** CHAMPION, 1919
Champion, 1919: 368. D. pl. XII. Pic, 1926: 6. **OR:** Myanmar. India:
Syntypes at BMNH. Manipur.
- deusta*** FAIRMAIRE, 1878
Fairmaire in Deyrolle & Fairmaire, 1878: 118. D. **PA:** China: Shanghai,
Jiangsu, Zhejiang, Sichuan.
Jakobson, 1911: 712. Champion, 1919: 338. pl. XI. **OR:** China: Fujian, Jiangxi,
Hunan, Guangdong, Guizhou,
Yunnan. Taiwan. Vietnam.
Vitalis de Salvaza, 1919: 79. Pic, 1923a: 48. Pic,
1923b: 72. Winkler, 1925: 564. Pic, 1926: 6. Pic,
1938: 15. Miwa & Chujô, 1938: 23. Gressitt, 1939:
189. pl. 6. Peng & Liu, 1992: 367 (as „*Idgia denota*",
lapsus calami). Hua, 2002: 76. Mayor, 2007: 385.
Aston, 2011: 5. Yang, Geiser & Yang, 2012: 385.
Syntypes at MNHP.
- dichroa*** CHAMPION, 1919
Champion, 1919: 355. D. Pic, 1923b: 72. Pic, 1926: 6. **OR:** Malaysia: Sarawak.
Holotype at OUMN. Indonesia: Kalimantan.
- dimelaena*** (WALKER, 1859) (*Thaccona*)
Walker, 1859: 260. D. Gemminger & Harold, 1870: **OR:** India: Mumbai, Kerala,
2179. Schenkling, 1915: 73. Champion, 1919: 360. pl. Karnataka, Tamil Nadu,
XII. Pic, 1923b: 72. Pic, 1926: 6. Wittmer, 1956: 52. Jharkhand. Punjab (?). Sri
Lanka.
Pillai & Nair, 1986: 139. Nasser & Abdurahiman,
2001: 288 (as „*Ibgia dimalaena*", lapsus calami).
Syntypes at BMNH.
cardoni BOURGEOIS, 1891: Bourgeois, 1891: CXLI.

- D. Bourgeois, 1892: 237. Gorham, 1895: 319.
Gorham, 1903: 331. Maxwell-Lefroy & Howlett, 1909:
325. Fletcher, 1917: 188. Champion, 1919: 360. Pic,
1926: 6. Damoiseau, 1968: 20.
Syntypes at IRSB, MNHP and MCGD.
- diversipennis*** PIC, 1911 (*I. gorhami* var.) **OR:** India: Kerala.
Pic, 1911a: 241. D. Champion, 1919: 347. Pic, 1920a:
8. Pic, 1926: 6.
Holotype at MNHP.
nilgirica CHAMPION, 1919: Champion, 1919: 347.
D. pl. XI. Pic, 1920a: 8. Pic, 1926: 6.
Syntypes at BMNH.
- dohertyi*** PIC, 1912 (*I. setifrons* var.) **OR:** Malaysia: Perak.
Pic, 1912: 300. D. Champion, 1919: 365. pl. XII. Pic,
1926: 6.
Holotype at MNHP.
- dubia*** (GYLLENHAL, 1808) (*Cantharis*) **OR:** "India Orientalis".
Gyllenhal in Schönherr, 1808: 73. D. Perty, 1831: 13.
Gemming & Harold, 1869: 1721. Champion, 1919:
369. Pic, 1926: 6.
Holotype at UUEM.
- elongaticeps*** PIC, 1923 **OR:** Laos.
Pic, 1923a: 62. D. Gressitt, 1939: 194 (as
„*eleganticeps*" (sic!)). Geiser, 2009: 132.
Holotype at MNHP.
elongaticeps PIC, 1943 (nec PIC, 1923): Pic,
1943a: 4. D. Geiser, 2009: 132.
Holotype at MNHP.
- femorata*** CHAMPION, 1919 **OR:** India: Karnataka,
Mysore, Maharashtra.
Champion, 1919: 346. D. pl. XI. Pic, 1926: 6.
Gressitt, 1939: 190. pl. 6. Hua, 2002: 76. Mayor,
2007: 385.
Syntypes at BMNH.
- femoralis*** PIC, 1942 **OR:** India: Tamil Nadu.
Pic, 1942b: 16. D.
Syntypes at MNHP.
- flavibuccis*** BOURGEOIS, 1892 **OR:** India: West Bengal.
Bourgeois, 1892: 237. D. Champion, 1919: 361. pl. Bhutan. Sri Lanka (?).
XII. Pic, 1926: 6. Gardner, 1929: 110. pl. II. Wittmer, Pakistan (?).
1956: 52. Damoiseau, 1968: 22. Hashmi, 1994: 4.
Syntypes at IRSB.
- flavicollis*** REDTENBACHER, 1868 **OR:** China: Hong Kong.
Redtenbacher, 1868: 111. D. Gemming & Harold, Taiwan.
1869: 1721. Fairmaire, 1889: 44. D. Jakobson, 1911:
712. Champion, 1919: 339. pl. XI. Takahashi, 1925:
5. Winkler, 1925: 564. Pic, 1926: 6. Miwa & Chujô,
1938: 24. Gressitt, 1939: 190. pl. 6. Satô, 1985a: 2.
Satô, 1985b: 163. pl. 26. Okushima, 1994: 7. Hua,
2002: 76. Mayor, 2007: 385. Aston, 2011: 3.

- Yoshitomi & Hayashi, 2011: 18. Yang, Geiser & Yang, 2012: 386.
Syntypes at NHMW.
- flavilabris*** CHAMPION, 1919
Champion, 1919: 354. D. pl. XII. Pic, 1926: 6.
Syntypes at BMNH. **OR:** Malaysia: Perak, Penang.
- flavirostris*** PASCOE, 1860
Pascoe, 1860: 43. D. Gemminger & Harold, 1869: 1721. Fairmaire, 1889: 44. D. Jakobson, 1911: 712. Champion, 1919: 340. pl. XI. Winkler, 1925: 564. Pic, 1926: 6. Gressitt, 1939: 194. Hua, 2002: 76. Mayor, 2007: 385. Aston, 2011: 5. Yang, Geiser & Yang, 2012: 386.
Holotype at BMNH. **OR:** China: Shanghai, Anhui, Zhejiang, Fujian, Guangdong, Hong Kong.
- flavithorax*** PIC, 1927
Pic, 1927b: 4. D. Gressitt, 1939: 195.
Holotype at MNHP. **OR:** Vietnam.
- flavolimbata*** CHAMPION, 1919
Champion, 1919: 351. D. pl. XII. Pic, 1926: 6.
Holotype at BMNH. **OR:** India: Kerala.
- foveifrons*** FAIRMAIRE, 1899
Fairmaire, 1899: 629. D. Pic, 1911b: 188. Pic, 1926: 6. Miwa & Chujô, 1938: 24. Gressitt, 1939: 191. pl. 6. Hua, 2002: 76. Mayor, 2007: 385. Yang, Geiser & Yang, 2012: 386.
Holotype at MNHP. **OR:** Taiwan.
- fruhstorferi*** PIC, 1910
Pic, 1910c: 76. D. Pic, 1910d: 346. Champion, 1919: 364. pl. XII. Pic, 1926: 6.
Holotype at MNHP. **OR:** Indonesia: Java.
- var. obscuriceps* PIC, 1914: Pic, 1914: 60. D. Pic, 1926: 7.
Syntypes at MCGD and MNHP. **OR:** Indonesia: Sumatra, Mentawai.
- var. oedemeroides* PIC, 1920: Pic, 1920a: 8. D. Pic, 1926: 7.
Holotype at MNHP. **OR:** Indonesia: Java.
- geniculata*** CHAMPION, 1919
Champion, 1919: 354. D. pl. XII. Pic, 1926: 7.
Holotype at BMNH. **OR:** Sri Lanka.
- gorhami*** PIC, 1911
Gorham, 1895: 319. Gorham, 1903: 331 (as *oculata* REDTENBACHER, misidentification). Pic, 1911a: 241. D. Champion, 1919: 347. pl. XI. Pic, 1920a: 8. Pic, 1926: 7.
Holotype at MNHP. **OR:** India: Karnataka, Kerala, Tamil Nadu. Myanmar (?).
- grandis*** PIC, 1933
Pic, 1933b: 5. D. Hua, 2002: 76. Mayor, 2007: 385. Geiser, 2009: 132. Yang, Geiser & Yang, 2012: 386.
Lectotype at NRMS. **PA:** China: Sichuan, Gansu.

- granulata*** PIC, 1920 **OR:** Vietnam.
 Pic, 1920b: 12. D. Pic, 1923a: 48. Winkler, 1925: 564.
 Pic, 1926: 7. Gressitt, 1939: 195.
 Syntypes at BMNH, MNHP, NHMB and MCGD.
- granulipennis*** FAIRMAIRE, 1891 **PA:** China: Hubei. **OR:**
 China: Guizhou.
 Fairmaire, 1891a: CCIX. D. Jakobson, 1911: 712.
 Pic, 1923b: 73. Winkler, 1925: 564. Pic, 1926: 7.
 Gressitt, 1939: 195. Hua, 2002: 76. Mayor, 2007:
 385. Yang, Geiser & Yang, 2012: 386.
 Holotype at MNHP.
var. abdominalis PIC, 1920: Pic, 1920a: 7. D. **OR:** China: Yunnan.
 Winkler, 1925: 564. Pic, 1926: 7. Gressitt, 1939: 195.
 Mayor, 2007: 385. Yang, Geiser & Yang, 2012: 386.
 Holotype at MNHP.
- haemorrhoidalis*** PIC, 1906 **OR:** China: Yunnan.
 Pic, 1906d: 217. D. Jakobson, 1911: 712. Winkler,
 1925: 564. Pic, 1926: 7. Gressitt, 1939: 195. Hua,
 2002: 76. Mayor, 2007: 385. Yang, Geiser & Yang,
 2012: 386.
 Syntypes at MNHP.
- hoffmanni*** GRESSITT, 1939 **OR:** China: Guangdong.
 Gressitt, 1939: 191. D. pl. 6. Hua, 2002: 76. Mayor,
 2007: 385. Aston, 2011: 4. Yang, Geiser & Yang,
 2012: 386.
 Holotype at SYSU.
- huegeli*** (REDTENBACHER, 1868) (*Prionocerus*) **OR/PA:** „China”.
 Redtenbacher, 1868: 110. D. Gemminger & Harold,
 1869: 1721. Jakobson, 1911: 712. Winkler, 1925: 564.
 Pic, 1926: 7. Gressitt, 1939: 195. Hua, 2002: 77.
 Mayor, 2007: 385. Geiser, 2010a: 41. Yang, Geiser &
 Yang, 2012: 387.
 Holotype at NHMW.
- humeralifer*** PIC, 1920 **OR:** Indonesia: Java.
 Pic, 1920a: 7. D. Pic, 1926: 7.
 Holotype at MNHP.
- humeralis*** PIC, 1910 **OR:** Indonesia: Sumatra,
 Java.
 Pic, 1910c: 76. D. Pic, 1926: 7. Pic, 1927c: 45. Pic,
 1929a: 2
 Syntypes at MNHP.
- inapicalis*** PIC, 1910 **OR:** Indonesia: Sumatra.
 Pic, 1910d: 345. D. Pic, 1914: 60. Pic, 1926: 7.
 Syntypes at MNHP.
var. distinctipes PIC, 1914: Pic, 1914: 60. D. Pic,
 1926: 7. **OR:** Myanmar.
 Holotype at MCGD.
- indicola*** CHAMPION, 1919 **OR:** India: Kerala.
 Champion, 1919: 362. D. pl. XII. Pic, 1926: 7.
 Holotype at BMNH.
- iriomoteana*** NAKANE, 1981 **PA:** Japan: Iriomote-Jima,

- Nakane, 1981: 129. D. Nakane, 1983: 166. Satô, Ishigaki-Jima.
1985a: 2 (as synonym of *I. flavicollis*). Mayor, 2007:
385. Yoshitomi & Hayashi, 2011: 18.
Holotype at HUMS.
- javana*** CHAMPION, 1919 **OR: Indonesia: Java.**
Champion, 1919: 350. D. pl. XII. Pic, 1920b: 12. Pic,
1926: 7. (as var. of *I. kannegieteri* Pic).
Holotype at BMNH.
- kannegieteri*** PIC, 1910 (*I. sumatrensis* var.) **OR: Indonesia: Sumatra.**
Pic, 1910c: 75. D. Pic, 1914: 60. Champion, 1919: „Borneo”.
350. Pic, 1920a: 8. Pic, 1926: 7. Pic, 1927c: 45. Pic,
1929a: 2.
Syntypes at MNHP and BMNH.
- lajoyei*** PIC, 1920 **OR: Vietnam.**
Pic, 1920a: 8. D. Pic, 1923a: 48. Winkler, 1925: 564.
Pic, 1926: 7. Gressitt, 1939: 195.
Syntypes at MNHP and BMNH.
- lineata*** PIC, 1907 **OR: India: Tamil Nadu.**
Pic, 1907: 125. D. Pic, 1926: 7. Mayor, 2007: 385.
Holotype at MNHP.
- var. confusa* PIC, 1920: Pic, 1920a: 7. D. Pic, 1926: **OR: India: Tamil Nadu.**
7. Mayor, 2007: 385.
Holotype at MNHP.
- longicollis*** PIC, 1925 **OR: Philippines: Luzon.**
Pic, 1925: 17. D. Pic, 1926: 7. Wittmer, 1941: 228.
Holotype at MNHP.
- longipennis*** PIC, 1910 **OR: Indonesia: Sumatra.**
Pic, 1910d: 346. D. Pic, 1914: 60. Champion, 1919:
359. Pic, 1926: 7.
Holotype at MNHP.
- var. modiglianii* PIC, 1914: Pic, 1914: 60. D. Pic, **OR: Indonesia: Sumatra.**
1926: 7.
Syntypes at MCGD.
- longipes*** PIC, 1920 **OR: Indonesia: Java.**
Pic, 1920a: 8. D. Pic, 1926: 7.
Syntypes at MNHP.
- longissima*** PIC, 1909 **OR: Indonesia: Sumatra.**
Pic, 1909a: 245. D. Pic, 1910d: 346. Champion, 1919:
358. Pic, 1926: 7.
Holotype at MNHP.
- luteipes*** CHAMPION, 1919 **OR: India: Kerala.**
Champion, 1919: 361. D. pl. XII. Pic, 1926: 7. Pic,
1933a: 3.
Holotype at BMNH.
- luzonica*** PIC, 1924 **OR: Philippines: Luzon.**
Pic, 1924d: 230. D. Pic, 1926: 8. Wittmer, 1941: 227.
Holotype at MNHP.
- maculatithorax*** PIC, 1919 **OR: Vietnam.**
Pic, 1919a: 7. D. Pic, 1923a: 48. Winkler, 1925: 564

- (as "*maculithorax*", lapsus calami). Pic, 1926: 8.
Gressitt, 1939: 195.
Holotype at MNHP.
- maculicollis*** PIC, 1906 **OR:** Indonesia: Java.
Pic, 1906a: 43. D. Pic, 1926: 8.
Holotype at MNHP.
- maculicornis*** PIC, 1925 **OR:** Malaysia: Sabah.
Pic, 1925: 17. D. Pic, 1926: 8.
Holotype at MNHP.
- maculiventris*** CHAMPION, 1919 **OR:** India: Kerala.
Champion, 1919: 353. D. pl. XII. Pic, 1926: 8.
Syntypes at BMNH.
- maindroni*** PIC, 1909 **OR:** India: Kerala.
Pic, 1909a: 245. D. Champion, 1919: 363. pl. XII.
Pic, 1926: 8.
Syntypes at MNHP.
- major*** PIC, 1908 **OR:** China: Yunnan.
Pic, 1908b: 128. D. Jakobson, 1911: 712. Winkler,
1925: 564. Pic, 1926: 8. Gressitt, 1939: 195. Hua,
2002: 77. Mayor, 2007: 385. Yang, Geiser & Yang,
2012: 387.
Holotype at MNHP.
- marginata*** CHAMPION, 1919 **OR:** India: Kerala. Vietnam.
Champion, 1919: 350. D. pl. XII. Pic, 1926: 8.
Gressitt, 1939: 192. pl. 6.
Syntypes at BMNH.
- melanocephala*** (FABRICIUS, 1781) (*Cantharis*) **OR:** India: Karnataka,
Kerala. Sri Lanka.
Fabricius, 1781: 260. D. Fabricius, 1787: 168. Olivier,
1790: No. 26, p. 9 (as *Telephorus*). Fabricius, 1792a:
217. Fabricius, 1801: 300. Schönherr, 1808: 69.
Perty, 1831: 13. Champion, 1919: 356. pl. XII. Pic,
1926: 8. Wittmer, 1956: 52. Zimsen, 1964: 74.
Holotype at BMNH.
- ceylonica*** PIC, 1910: Pic, 1910c: 76. D. Champion,
1919: 356. Pic, 1920b: 12. Pic, 1926: 8.
Holotype at MNHP.
- melanura*** (KOLLAR & REDTENBACHER, 1844) (*Deromma*) **OR:** India: Uttarakhand,
Kashmir, Punjab, Sikkim,
Himachal Pradesh, Mumbai.
Kollar & Redtenbacher, 1844: 511. D. pl. XXV. **Pakistan.**
Lacordaire, 1857: 413. Redtenbacher, 1857: 661.
Jacquelin du Val, 1860: 189. Gemminger & Harold,
1869: 1721. Redtenbacher, 1874: 180. Gorham, 1887:
77. Bourgeois, 1892: 237. Jakobson, 1911: 712.
Champion, 1919: 358. pl. XII. Pic, 1926: 8. Gardner,
1929: 108. pl. II. Winkler, 1925: 564. Singh & Misra,
1988: 403. Sands & Murphy, 2001: 124. Mayor,
2007: 385.
Syntypes at NHMW.
- minuta*** PIC, 1920 **OR:** Vietnam.
Pic, 1920a: 8. D. Pic, 1923a: 48. Winkler, 1925: 564.

- Pic, 1926: 8. Gressitt, 1939: 195.
Holotype at MNHP.
- moupinensis*** FAIRMAIRE, 1889 **PA:** China: Sichuan. **OR:** China: Guizhou.
Fairmaire, 1889: 44. D. Jakobson, 1911: 712. Pic, 1923b: 73. Winkler, 1925: 564. Pic, 1926: 8. Gressitt, 1939: 195. Hua, 2002: 77. Mayor, 2007: 385. Yang, Geiser & Yang, 2012: 387.
Holotype at MNHP.
- nitida*** CHAMPION, 1919 **OR:** Pakistan.
Champion, 1919: 364. D. Pic, 1926: 8. Mayor, 2007: 385.
Syntypes at BMNH.
- notaticeps*** PIC, 1912 **OR:** Indonesia: Java.
Pic, 1912: 301. D. Pic, 1926: 8.
Holotype at MNHP.
- notaticollis*** PIC, 1943 **OR:** Vietnam.
Pic, 1943a: 4. D.
Holotype at MNHP.
- var. diversipes*** PIC, 1943: Pic, 1943a: 4. D. **OR:** Vietnam.
Holotype at MNHP.
- oculata*** REDTENBACHER, 1868 **OR:** China: Hong Kong, Hainan. Vietnam.
Redtenbacher, 1868: 110. D. pl. IV. Gemminger & Harold, 1869: 1721. Fairmaire, 1889: 44. D. Jakobson, 1911: 712. Vitalis de Salvaza, 1919: 79. Pic, 1923a: 48. Winkler, 1925: 564. Pic, 1926: 8. Gressitt, 1939: 193. pl. 6. Hua, 2002: 77. Mayor, 2007: 385. Aston, 2011: 4. Yang, Geiser & Yang, 2012: 387.
Syntypes at NHMW.
- pallidicolor*** PIC, 1906 **OR:** India: Assam. Myanmar. Thailand. Malaysia: Perak, Penang, Sarawak (?). Indonesia: Java.
Pic, 1906a: 43. D. Pic, 1910d: 346. Champion, 1919: 370. pl. XII. Pic, 1926: 8. Pic, 1929a: 2.
Holotype at MNHP.
- pallidolimbata*** PIC, 1921 **OR:** Indonesia: Sumatra.
Pic, 1921: 18. D. Pic, 1929a: 2.
Holotype at MNHP.
- particularipes*** PIC, 1920 **OR:** Myanmar.
Pic, 1920a: 7. D. Pic, 1926: 8.
Holotype at MNHP.
- puncticollis*** BOURGEOIS, 1904 **OR:** India: Puducherry, Tamil Nadu, Kerala. Sri Lanka.
Bourgeois, 1904a: 483. D. Bourgeois, 1905: 133. Bourgeois, 1909: 437 (as *Prionocerus (Idgia)*). Pic, 1923b: 72. Pic, 1926: 8.
Syntypes at MNHP.
- quadrimaculata*** PIC, 1914 (*I. melanura* var.) **OR:** Myanmar.
Pic, 1914: 60. D. Pic, 1920a: 8. Pic, 1926: 8.
Holotype at MCGD.
- redtenbacheri*** (KIRSCH, 1875) (*Prionocerus (Deromma)*) **OR:** Malaysia.
Kirsch, 1875: 38. D. Pic, 1926: 8.

- Type depository unknown.
- rostrifera*** CHAMPION, 1919 **OR:** India: Kerala.
 Champion, 1919: 363. D. Pic, 1926: 8.
 Holotype at BMNH.
- rouyeri*** PIC, 1906 **OR:** Indonesia: Java,
 Pic, 1906a: 43. D. Champion, 1919: 345. pl. XI. Pic, Sumatra.
 1926: 8.
 Syntypes at MNHP.
- var. *binotata*** PIC, 1920: Pic, 1920b: 12. D. Pic, **OR:** Indonesia: Sumatra.
 1926: 8.
 Holotype at MNHP.
- var. *mindanaosa*** PIC, 1942: Pic, 1942a: 12. D. **OR:** Philippines: Mindanao.
 Wittmer, 1941: 228 (as „*var. mindanaona*“, lapsus
 calami).
 Syntypes at MNHP.
- rufobasalis*** PIC, 1941 **OR:** India („Indes MÉR.“).
 Pic, 1941: 16. D.
 Syntypes at MNHP
- semilimbata*** PIC, 1906 (*I. sumatrensis* var.) **OR:** Indonesia: Sumatra.
 Pic, 1906a: 43. D. Pic, 1920a: 8. Pic, 1926: 8.
 Holotype at MNHP.
- semitecta*** CHAMPION, 1919 **OR:** Sri Lanka.
 Champion, 1919: 355. D. pl. XII. Pic, 1926: 8.
 Holotype at BMNH.
- setifrons*** (KIRSCH, 1875) (*Prionocerus (Deromma)*) **OR:** Malaysia.
 Kirsch, 1875: 39. D. Pic, 1910d: 346. Champion,
 1919: 367. Pic, 1926: 8.
 Type depository unknown.
- subacuminata*** PIC, 1920 **OR:** Indonesia: Sumatra.
 Pic, 1920b: 12. D. Pic, 1926: 9.
 Holotype at MNHP.
- subcostulata*** PIC, 1910 **OR:** Indonesia: Sumatra.
 Pic, 1910d: 346. D. Pic, 1914: 60. Pic, 1926: 9.
 Syntypes at MNHP.
- submetallica*** PIC, 1911 **OR:** Sri Lanka.
 Pic, 1911a: 241. D. Champion, 1919: 342. Pic, 1926: 9.
 Syntypes at MNHP.
- subparallela*** PIC, 1920 **OR:** India.
 Pic, 1920a: 8. D. Pic, 1926: 9. Mayor, 2007: 385.
 Holotype at MNHP.
- sumatrensis*** PIC, 1906 (*I. metallescens* var.) **OR:** Indonesia: Sumatra.
 Pic, 1906a: 43. D. Pic, 1910c: 75. Champion, 1919:
 350. Pic, 1926: 9.
 Holotype at MNHP.
- suturalis*** (KIRSCH, 1875) (*Prionocerus*) **OR:** Malaysia.
 Kirsch, 1875: 38. D. Pic, 1926: 9.
 Type depository unknown.
- testaceipes*** PIC, 1908 **OR:** China: Yunnan.
 Pic, 1908d: 95. D. Jakobson, 1911: 712. Winkler,

1925: 564. Pic, 1926: 9. Gressitt, 1939: 195. Hua, 2002: 77. Mayor, 2007: 385. Yang, Geiser & Yang, 2012: 387.

Holotype at MNHP.

tonkinea PIC, 1908

OR: Vietnam.

Pic, 1908a: 150. D. Vitalis de Salvaza, 1919: 79. Pic, 1923a: 48. Pic, 1923b: 72. Winkler, 1925: 564. Pic, 1926: 9. Gressitt, 1939: 195.

Syntypes at MNHP.

triserrata CHAMPION, 1919

OR: India: Manipur.

Champion, 1919: 341. D. Pic, 1926: 9.

Holotype at BMNH.

uncigera CHAMPION, 1919

OR: Malaysia: Sarawak.

Champion, 1919: 349. D. pl. XII. Pic, 1926: 9.

Indonesia: Kalimantan.

Syntypes at BMNH.

ungulata CHAMPION, 1919

OR: China: Fujian, Jiangxi,

Champion, 1919: 339. D. pl. XI. Winkler, 1925: 564.

Guangdong, Hong Kong,

Pic, 1926: 9. Gressitt, 1939: 193. pl. 6. Hua, 2002:

Hainan.

77. Mayor, 2007: 385. Aston, 2011: 5. Yang, Geiser & Yang, 2012: 387.

Syntypes at BMNH and MNHP.

varicornis CHAMPION, 1919

OR: India: Assam. Myanmar.

Champion, 1919: 366. D. pl. XII. Pic, 1926: 9.

Holotype at BMNH.

varipes CHAMPION, 1919

OR: Malaysia: Penang.

Champion, 1919: 367. D. pl. XII. Winkler, 1925: 564.

Pic, 1926: 9.

Holotype at BMNH.

virescens CHAMPION, 1919

PA: China: Chongqing.

Champion, 1919: 340. D. Pic, 1926: 9. Gressitt,

1939: 195. Hua, 2002: 77. Mayor, 2007: 385. Yang, Geiser & Yang, 2012: 387.

Holotype at BMNH.

viridescens GORHAM, 1895

OR: India: Uttarakhand,

Gorham, 1895: 319. D. Champion, 1919: 343. pl. XI.

Himachal Pradesh, Sikkim.

Pic, 1923b: 72. Pic, 1926: 9. Mayor, 2007: 385.

Nepal.

Geiser, 2010a: 42.

Syntypes at MNHP.

metallescens (FAIRMAIRE, 1896) (*Prionocerus*):

Fairmaire, 1896: 94. D. Jakobson, 1911: 712.

Champion, 1919: 343. Winkler, 1925: 564. Pic, 1926:

9. Mayor, 2007: 385. Geiser, 2010a: 42.

Syntypes at MNHP.

thibetanus (OBENBERGER, 1918) (*Prionocerus*):

Obenberger, 1918: 60. D. Winkler, 1925: 564. Pic,

1926: 9. Gressitt, 1939: 195. Mayor, 2007: 385.

Geiser, 2010a: 42. Hájek & Švihla, 2012: 608.

Holotype at NMPC.

viridipennis PIC, 1906

Pic, 1906c: 55. D. Bourgeois, 1907: 103. (as *Prionocerus*). Champion, 1919: 342. Pic, 1926: 9. Syntypes at MNHP.

OR: India: Kerala.

viridivittata CHAMPION, 1919

Champion, 1919: 352. D. Pic, 1926: 9. Syntypes at BMNH.

OR: India: Nagaland.
Myanmar.

4. *Species of unknown origin* [1 sp.]

incerta PIC, 1920

Pic, 1920a: 8. D. Pic, 1926: 7. Mayor, 2007: 385. Holotype at MNHP.

Locality unknown.

INCERTAE SEDIS (fossil species of uncertain generic placement)

(*G. Prionocerites* LAWRENCE, ARCHIBALD & SLIPINSKI, 2008) **FOSSIL** [1 sp.]

Lawrence, Archibald & Slipinski, 2008: 690. D.

Established as "collective group". No type species designated according to ICZN, 1999: Art. 67.14.

(*tattriei* LAWRENCE, ARCHIBALD & SLIPINSKI, 2008)

Lawrence, Archibald & Slipinski, 2008: 690. D. Holotype at RBCM.

NA: Canada: British Columbia (**Eocene**).

Unavailable names assignable to Prionoceridae

Unavailable names cited in literature:

Epiphyta DEJEAN, 1833: Dejean, 1833: 110. Dejean, 1837: 123. Chenu, 1870: 284. Bousquet & Bouchard, 2013: 25. [= *Prionocerus* PERTY + *Idgia* LAPORTE DE CASTELNAU].

aurarius (ILLIGER, 1807) (*Dasytes*): Illiger, 1807: 302. D (as synonym of *Dasytes metallicus*). Schönherr, 1817: 15. Marseul, 1857: 105. Reiche, 1862: 80. Gemminger & Harold, 1869: 1712. Redtenbacher, 1874: 32. Schilsky, 1894a: Nr. 54. Jakobson, 1911: 707. Winkler, 1925: 555. Luigioni, 1929: 632. Fuente, 1931: 115. Pic, 1937: 111 (as „*auresiacus*“, lapsus calami). Bahillo de la Puebla & López Cólón, 2003: 165. Mayor, 2007: 384. [= *Lobonyx aeneus* (Fabricius, 1798)], see note under *L. aeneus*, above.

collaris DE HAAN (*Epiphyta*): Dejean, 1833: 110. Dejean, 1837: 123. Chenu, 1870: 284, 294. Bourgeois, 1890b: 188. Bourgeois, 1904b: 103. [= *Prionocerus coeruleipennis* PERTY].

compressicornis DEJEAN, 1837 (*Epiphyta*): Dejean, 1837: 123.

longula FAIRMAIRE (*Idgia*): Fairmaire, 1899: 629. Vitalis de Salvaza, 1919: 79. [= *Idgia tonkinea* (PIC)].

melanura DEJEAN, 1833 (*Epiphyta*): Dejean, 1833: 110. Dejean, 1837: 123. Chenu, 1870: 284.

morbillosus DEJEAN (*Dasytes*): Bertoloni, 1872: 136. Baudi di Selve, 1874: 303. Luigioni, 1929: 632. [= *Lobonyx aeneus* (FABRICIUS)].

sanguinea DE HAAN (*Epiphyta*): Dejean, 1833: 110. Dejean, 1837: 123. Chenu, 1870: 284. Bourgeois, 1890b: 188. Bourgeois, 1904b: 104. [= *Prionocerus bicolor* REDTENBACHER].

serraticornis DEJEAN, 1837 (*Epiphyta*): Dejean, 1837: 123.

tereticollis (STURM, 1826) (*Melyris*): Sturm, 1826: 107. Perty, 1831: 13. Dejean, 1833: 110. Dejean, 1837: 123. Gemminger & Harold, 1869: 1721. Pic, 1926: 4. Miwa & Chujô, 1938: 23. Satô, 1985a: 2. Mayor, 2007: 386. [= *Prionocerus coeruleipennis* PERTY].

testaceipennis WITTMER, 1941 (*Idgia bakeri* ab.): Wittmer, 1941: 228. D.

terminata DEJEAN, 1833 (*Epiphyta*): Dejean, 1833: 110. Dejean, 1837: 123. Chenu, 1870: 284.

thoracica DE HAAN (*Epiphyta*): Dejean, 1833: 110. Dejean, 1837: 123. Chenu, 1870: 284.

verrucatus HOFFMANNSEGG (*Lobonyx*): Gemminger & Harold, 1869: 1712. [= *Lobonyx aeneus* (FABRICIUS)].

Unavailable names found in collections:

adustum REITTER, i. l. (*Stenocephaloon*): MTMB [= *Idgia deusta* FAIRMAIRE].

afghana WITTMER, i. l. (*Idgia*): SMNS, NHMB, MTMB.

corporaali PIC, i. l. (*Idgia deusta* var.): MNHP, NHMB.

distinguenda FAIRMAIRE, i. l. (*Idgia*): MNHP [= *Idgia viridescens* GORHAM].

humerosus MELLY, i. l. (*Stenocephalus*): MHNG [= *Idgia oculata* REDTENBACHER].

moultoni PIC, i. l. (*Idgia*): MNHP [= *Idgia dichroa* CHAMPION].

nepalensis WITTMER, i. l. (*Idgia*): NHMB [= *Idgia viridescens* GORHAM].

nigriceps PIC, i. l. (*Idgia notaticeps* var.): MNHP, NHMB.

ochraceus PERTY (*Prionocerus*): MNHP, MHNG [= *Prionocerus bicolor* REDTENBACHER].

pallidulus FAIRMAIRE, i. l. (*Prionocerus*): MNHP.

sanguinea SCHAUM (*Priocera*): BMNH [= *Prionocerus bicolor* REDTENBACHER].

violaceipennis BOURGEOIS, i. l. (*Prionocerus*): MNHP [= *Prionocerus coeruleipennis* PERTY].

Chapter III

A revision of the genus *Idgia* Castelnau, 1838 in Laos, Vietnam and Cambodia, with description of a new genus, *Bigdia* n. gen.

To be submitted to Zootaxa, Auckland NZ.

Abstract

The species currently placed in the genus *Idgia* Laporte de Castelnau, 1838 occurring in the Eastern part of the Indochinese subregion (Laos, Vietnam and Cambodia) are revised. After study of relevant type material and a large number of newly collected specimens, a few species described as *Idgia* are transferred to a new genus, *Bigdia* n. gen., with the new combinations *B. maculatithorax* (Pic, 1919) n. comb.; *B. oculata* (Redtenbacher, 1868) n. comb. and *B. viridivittata* (Champion, 1919) n. comb. 29 species of *Idgia* are recognised and (re-)described: *Idgia amplipennis* Pic, 1908 (= *I. amplipennis* var. *obscurimembris* Pic, 1923); *I. coomani* Pic, 1931; *I. dubia* (Gyllenhal, 1808) (= *I. unguolata* Champion, 1919, n. syn.; = *I. minuta* Pic, 1920, n. syn.); *I. elongaticeps* Pic, 1923; *I. flavithorax* Pic, 1927; *I. lajoyei* Pic, 1920; *I. notaticollis* Pic, 1943 (= *I. notaticollis* var. *diversipes* Pic, 1943, n. syn.); *I. pallidicolor* Pic, 1906; *I. particularipes* Pic, 1920; *I. setifrons* (Kirsch, 1875); *I. suturalis* (Kirsch, 1875) (= *I. kannegieteri* Pic, 1910, n. syn.; = *I. pallidolimbata* Pic, 1921, n. syn.); *I. tonkinea* Pic, 1908; *I. varicornis* Champion, 1919, and 16 new species: *I. bannalama* n. sp., *I. brevitarsis* n. sp., *I. hmong* n. sp., *I. phongorum* n. sp. (all from Laos); *I. kabakovi* n. sp., *I. maculifrons* n. sp., *I. vietnamensis* n. sp., (from Vietnam); *I. mekongensis* n. sp. (from Laos, Thailand and Cambodia); *I. brancuccii* n. sp.; *I. difficilis* n. sp.; *I. kubani* n. sp. (from Laos and China); *I. perspicillata* n. sp., *I. indosinica* n. sp. (from Laos, Thailand, Vietnam and China); *I. laticollis* n. sp., *I. haucki* n. sp. (from Laos and Vietnam) and *I. karelmajeri* n. sp. (from Laos, Thailand and China). All taxa and their relevant morphological details are illustrated and a key is given for their identification. Two species (*I. deusta* Fairmaire, 1878 and *I. marginata* Champion, 1919) were recorded from Indochina based on misidentifications. *Idgia atricornis* Pic, 1920 is a junior synonym of *I. caeruleiventris* Pic, 1919 and *I. javana* Champion, 1919 is reinstated as a valid species (stat. rev.). A lectotype is designated for *I. sumatrensis* var. *kannegieteri* Pic, 1910. *I. inapicalis* var. *distinctipes* Pic, 1914, described from Burma, is elevated to full species rank (stat. nov.) and newly recorded from Thailand and Malaysia. *I. ardesiaca* Pic, 1908 and *I. granulata* Pic, 1920 are excluded from *Idgia* and will be treated in a separate paper.

Key words: Insecta, Melyridae s. l., *Idgia*, SE-Asia, Indochina, taxonomy, faunistics.

Introduction

This paper is part of a series of contribution towards a taxonomic revision of the long-neglected Old-world family Prionoceridae. Two papers were dealing with the genus *Prionocerus* Perty, 1831 (Geiser, 2007; 2010a), the third contained some nomenclatural notes (Geiser, 2009). This is the first work revising species currently placed in the ill-defined genus *Idgia* Castelnau, 1838, after the last partial revision by Champion (1919).

The area studied here is dealing with the fauna of what used to be the colony French Indochina ("Indochine française"). Geographically, this area makes up the eastern part of the Indochinese peninsula, south of China and east of the Mekong river. Some parts of the states of Cambodia and

Laos are actually situated west of this river, but there are only very few specimens known from these areas. In zoogeographical view, Laos, Vietnam and Cambodia make up the eastern part of the Indochinese subregion of the Oriental region, according to Wallace (1876). The faunal composition is similar to parts of South China (Yunnan, Guangxi), Thailand, Myanmar (Burma), and some parts of Northeast India (Assam, Meghalaya, Nagaland, Mizoram, Manipur, Tripura). All of these areas together were defined as the „Indo-Burma biodiversity hotspot" by Myers & al., 2000. As there are still several taxonomic problems concerning species from Myanmar and Thailand, their prionocerid fauna will be treated in a later contribution. However, for species with a larger range, faunistic records from the western part of the Indochinese area will also be given here, to give a more complete picture of their distribution.

The first species of *Idgia* described from Indochina (Vietnam) was *I. tonkinea* Pic, 1908. Up to now, there are 13 species recorded from Vietnam (*I. tonkinea*, *I. oculata* Redtenbacher, 1868, *I. deusta* Fairmaire, 1878, *I. amplipennis* Pic, 1908, *I. ardesiaca* Pic, 1908, *I. marginata* Champion, 1919, *I. maculatithorax* Pic, 1919, *I. minuta* Pic, 1920, *I. lajoyei* Pic, 1920, *I. granulata* Pic, 1920, *I. flavithorax* Pic, 1927, *I. coomani* Pic, 1931, *I. notaticollis* Pic, 1943) and only one from Laos (*I. elongaticeps* Pic, 1923), while no species has been recorded from Cambodia so far (Vitalis de Salvaza, 1919; Pic, 1923a; Gressitt, 1939; Pic, 1943a).

While studying types and further specimens from various museum collections, it became evident that there are much more species occurring in these countries, while three recorded species have to be deleted from the list: *I. minuta* is a junior synonym of a species previously known from China, and the records of *I. deusta* and *I. marginata* are based on misidentifications. Two more species, *I. ardesiaca* and *I. granulata*, have to be excluded from the genus *Idgia*, as they do not share all of the characters given for the tribe Prionocerini by Majer (1987). They belong to a morphologically well characterised group which will be described as a new genus in a forthcoming paper. The aim of the present paper is to update the knowledge of the Indochinese *Idgia* species to the present state, by revising, describing and illustrating all known species as well as some new ones. Also, the very distinctive species group around *Idgia oculata* is here defined as a new genus, based on a number of morphological characters.

Material and methods

Over 2000 specimens were studied by examination through a stereoscopic microscope. Most specimens were dry prepared, a few of them kept in 100% ethanol. The genitalia of most males and some females were extracted and dry mounted on a card below the specimen, sometimes after clearing in potassium hydroxide (KOH) solution (in this case they were embedded in polyvinyle-lactophenole to avoid shrinking).

Illustrations of habitus and male genitalia were made through a microscope-mounted digital camera using focus stacking technique. Images were combined using CombineZ software and worked over with Adobe PhotoShop®. Line drawings of the last sternites were made by Armin Coray, using a camera lucida.

The specimens are deposited in the following collections:

BIMH: Bishop Museum, Honolulu, Hawaii, USA.

BMNH: Natural History Museum, London, UK.

CHH: Collection Hans Hebauer, Rain (Niederbayern), Germany.

CRC: Collection Robert Constantin, St. Lô, France.

EHUM: Entomological Laboratory, Ehime University, Matsuyama, Japan.

IZAS: Institute of Zoology, Chinese Academy of Sciences, Beijing, P.R. China.

KMNH: Kurashiki Museum of Natural History, Okayama, Japan.
 MCGD: Museo Civico di Storia Naturale "Giacomo Doria", Genova, Italy.
 MHNG: Muséum d'Histoire Naturelle, Genève, Switzerland.
 MNHB: Naturhistorisches Museum der Humboldt-Universität, Berlin, Germany.
 MNHP: Musée national d'Histoire naturelle, Paris, France.
 MTMB: Magyar Természettudományi Múzeum, Budapest, Hungary.
 NHMB: Naturhistorisches Museum, Basel, Switzerland.
 NHMW: Naturhistorisches Museum, Wien, Austria.
 NKME: Naturkundemuseum, Erfurt, Germany.
 NMNT: National Museum of Natural Sciences, Taichung, Taiwan.
 NMPC: Národní Muzeum, Praha, Czech Republic.
 SDEI: Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany.
 SFDS: Forest Insect Museum, Sabah Forestry Department, Sepilok (Sandakan), Malaysia.
 SMNS: Staatliches Museum für Naturkunde, Stuttgart, Germany.
 SYSU: Sun Yat-sen University Collection, Guangzhou, P. R. China.
 UUEM: Uppsala Universitet Evolutionsmuseet, Uppsala, Sweden.
 ZISP: Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia.
 ZMUC: Zoological Museum, University of Copenhagen, Denmark.
 ZSMU: Zoologische Staatssammlung, München, Germany.

For type specimens at MNHP, the exact location (coll. Pic; coll. Fairmaire; coll. générale etc.) is always given. The types at NHMB treated herein are always located in the general collection, not in the coll. Frey. All types were provided with red printed type labels, giving the full name of the species (in the original combination), the author and year of description, plus the indication des./ rev. M. Geiser 20xx.

Label data given in Chinese characters were transliterated into Pinyin, thanks to the help of Dr. Yu-Xia Yang (Hebei University, Baoding, China). Label data in Russian Cyrillic were transliterated following British standard.

Systematic part

I. Species with metallic or dark-coloured elytra

The *Idgia* species listed in this section do not form a monophyletic group, but are treated here together to facilitate comparison with similar-looking species.

Idgia amplipennis Pic, 1908 (Figs. 1, 2, 61, 91, 147)

Idgia amplipennis Pic, 1908c: 59.

Idgia amplipennis var. *obscurimembris* Pic, 1923a: 48. **n. syn.**

Idgia amplipennis var. *obscurimembris* Pic, 1923b: 73. **n. syn.**

Type material examined: *Idgia amplipennis*: Syntype ♂ (MNHP, coll. Fairmaire): "162", "H. Tonkin, Laokay", "Prionocerus amplipenn., Mai 1893, H. Tonkin". Syntype label added. Right front leg broken off at the trochanter.

Syntype ♂ (MNHP, coll. Fairmaire): No label, but belonging to the same series as the syntype above, according to its position in the drawer. Syntype label and white, printed label "H. Tonkin, Lao Kay

(coll. L. Fairmaire)" added. Legs and antennae strongly damaged, with only half of the left antenna, four femora and tibiae and parts of some tarsi left; middle pair of legs entirely lacking; abdomen separated for aedeagus dissection.

Syntype ♀ (MNHP, coll. Fairmaire): Labels as above. Right middle leg and most of the left antenna (segments 2-11) missing.

Idgia amplipennis var. *obscurimembris*: Syntype ♂ (MNHP, coll. Pic): "Muséum Paris, Chine, Kouy-Tchéou, Père Cavalerie 1905"; "*Idgia amplipennis* Pic var. M. Pic det. 189-21". Syntype label added. Left antenna and parts of the tarsi missing.

Syntype ♂ (MNHP, coll. générale): "Museum Paris, Chine, Kouy-Tchéou, Gan Chouen, Hin y Fou et Tchen-Fong Tchéou, P. Cavalerie 1913"; "*Idgia amplipennis* Pic var. M. Pic det. 189-21"; "var. *obscurimembris* Pic". Syntype label added. Left hind tarsus and some more tarsal segments missing.

Syntype ♂ (MNHP, coll. générale): "Museum Paris, Chine, Kouy-Tchéou, Rég. de Pin-Fa, Père Cavalerie 1909". Syntype label added. Left antennal segments 2-11 and last segment of right middle tarsi missing.

Syntype ♂ (MNHP, coll. générale): "Museum Paris, Chine, Kouy-Tchéou, Rég. de Pin-Fa, Père Cavalerie 1909". Both antennae, right front and middle leg and right metatarsus missing.

Other material examined: CHINA: SICHUAN: Emei Shan, Jiulaodong, 1800-1900 m, 28. VII. 1957, K. R. Huang leg. 1 ♂ 1 ♀ (NHMB); Emei Shan, Jiulaodong, 1800-1900m, 9. VII. 1957, Zhu Fu-Xing leg. 1 ♂ (IZAS); Emei Shan, 1600-2100m, 24. VI. 1955, Wu Le leg. 1 ♂ (IZAS); Tapashan, ~VI. 2004, Native leg. 1 ♀ (KMNH). GUIZHOU: "Kouy-Tchéou, R. P. J. R. Chaffanjon 1903" 1 ♂ (MNHP). GUANGXI: "Tchao Pin Io, Chine, Collection Le Moult, Naturaliste, Paris" 1 ♀ (MNHP). HUBEI: NW Hubei, Shennongjia Nat. Res., 1700-2500 m, 1.-5. VII. 1998, Bolm leg. 1 ♂ (NHMB); Shennongjia, Muyuping, 1400m, 4. VII. 1981, Han Yin-Heng leg. 1 ♀ (IZAS); Xingshan, Longmenhe, 1400m, 24. VII. 1993, Yang Xing-Ke leg. 1 ♀ (IZAS); Xingshan, Longmenhe, 900-1200m, 15. VI. 1995, Wang Shu-Yong leg. 2 ♂ (IZAS); Xingshan, Longmenhe, 1200m, 10. VI. 1995, Wang Shu-Yong leg. 1 ♂ (IZAS).

Measurements ♂ : TBL 13.7 - 17.3 mm, L-h 11.6 - 14.8 mm

HL 1.9 - 2.5 mm, PL 2.3 - 2.6 mm, EL 9.3 - 12.2 mm

♀ : TBL 14.8 - 18.8 mm, L-h 13.0 - 16.3 mm

HL 1.8 - 2.5 mm, PL 2.5 - 3.2 mm, EL 10.5 - 13.1 mm

Differential diagnosis: Within the fauna of Indochina, *I. amplipennis* is easily recognisable by its large size and broad habitus. The only equally large species are *Bigdia oculata* and *B. maculatithorax*, with much narrower elytra and pronotum. They also differ in the lack of tarsal combs in males and by having black pronotal markings. In China, there are two similar and probably related species: *I. hoffmanni* Gressitt, 1939 and *I. grandis* Pic, 1933. They both differ in aedeagus shape and in the colour pattern of the abdomen: In *I. hoffmanni*, not only the last two sternites are testaceous, but also the outer parts of the third and fourth, and a small spot on the outermost corner of the first two visible sternites. *I. grandis* has an entirely reddish abdomen. *I. viridescens* Gorham, 1895 from the Himalayas also has a similar appearance, but is distinguished by the entirely black abdomen.

Redescription: Habitus as in figs. 1 (♂) and 2 (♀). Body black with blue metallic lustre. Prothorax orange yellow. Elytra and scutellum dark metallic blue. Last two ventrites and sometimes the apical edge of the fourth ventrite yellowish testaceous. Anterior half of clypeus light brownish, testaceous. Antennae mostly dark brown to black, with the apical end of the scapus, the second segments and at least the ventral parts of the third and fourth segment light brownish, sometimes also parts of the

following segments of a lighter colour. Maxillary and labial palpi testaceous at the base, last segment infusate. Tarsi black, claws light brown.

Head behind the eyes about 0.75 times as wide as middle part of pronotum. Vertex slightly shagreened and with fine, brownish, recumbent vestiture and several longer, blackish setae at the sides, behind the eyes. Frons rather shining, slightly wrinkled in front of eyes, with rather long, brownish vestiture; eyes separated by a space about equal to the length of first antennal joint (male). Clypeus transverse, rather flat and smooth, with blackish vestiture. Labrum subquadrate, slightly widened in anterior part, with rounded angles, slightly impressed in middle part, finely shagreened, with yellowish vestiture along fore margin and some longer, blackish or brownish setae.

Male antennae rather short, reaching the humeral part of elytra in length; subfiliform, with segments 5-10 thickened towards the end; matt and with rather dense, greyish vestiture. First segment thickened and over twice as long as the second. Third to fifth segments of about equal length, longer than the first two together. Segments 5-10 decreasing slightly in length, but increasing in width. Last segment longest, about as long as the first three together, blade-shaped.

Pronotum about as long as wide, subquadrate with obtusely rounded angles; margins distinctly bordered; with an impression in middle part, near the base, plus one on each side; disc shining, very finely and shallowly punctate, with long, villous, blackish vestiture.

Elytra about 2.6 times as long as wide together in males, parallel-sided; humeral callus distinct; with oily shine and dense, leathery texture; sometimes with two faintly visible, discal costae; with fine, greyish recumbent vestiture and an inconspicuous row of longer, blackish setae. Margins bordered, but not crenulate; with some longer, dark brownish setae. Scutellum black, transversely oval, smooth and finely punctate, with fine, brownish, recumbent vestiture.

Femora not thickened, finely shagreened, rather matt, with long brownish vestiture. Tibiae covered in stiff, blackish and brownish setae. Claws widened at base, otherwise simple.

Abdomen large and broad, rather matt. Sternites with slightly leathery texture and greyish, recumbent vestiture and around the outer margins with some longer hair-like setae. Last ventrite more polished and shining.

Male: Last (sixth) ventrite as in fig. 147; relatively large, but distinctly narrower than the fifth ventrite; apical margin with a broad, rounded emargination. Apical margin of last tergite simply arcuate, not thickened or emarginate.

Aedeagus as in figs. 61, 91. Process of phallobase pointing directly backwards. Parameres gaping dorsally, their apices bent inwards, touching each other; lower edge with long, yellowish setae. Median lobe flattened before apex, apical point strongly narrowed and sharply bent ventrally.

Sexual dimorphism: Females of this species tend to be distinctly larger than the males. The examined specimens of both sexes show relatively little overlap in size. In addition, females have a broader habitus, especially pronotum and elytra. Last ventrite and tergite simple in females, without incisions or emarginations. Male with black comb on the first three protarsomeres.

Variability: Two very faint costae are visible on the elytral disc of some specimens, but not in all. Also, the extent of infusate colouration of the basal antennomeres is variable.

Distribution: China (Sichuan, Guizhou, Guangxi, Hubei), N Vietnam.

Biology and ecology: Adults were collected relatively late (June to end of July) at rather high altitudes (1200-2500 m). It can be considered a montane species. There is no information on the type of habitat they were found in.

Notes: The description of the infraspecific taxon *Idgia amplipennis* var. *obscurimembris* appeared twice, in different publications, based on the same type series. The "varieties" described by Pic, 1923a and Pic, 1923b are therefore objective synonyms. Pic distinguished his taxon from the type form by the "darkened legs". However, the type series of both *I. amplipennis* and var. *obscurimembris* have entirely blackish-blue legs. No other character to distinguish the two taxa was found. They are here synonymised.

Idgia flavithorax Pic, 1927
(Figs. 4, 5, 62, 92, 121)

Idgia flavithorax Pic, 1927b: 4

Type material examined: Holotype ♀ (MNHP, coll. Pic): "Tonkin, Chapa, 29. IV. 1918, Jeanvoine"; "type"; "TYPE"; "flavithorax n. sp.". Holotype label added. In good condition.

Other material examined: LAOS: Houa Phan prov., Ban Saluei → Phou Pane Mt., 1340-1870 m, 20°12'-13.5' N / 103°59.5-104°01' E, 15. VI.-15. V. 2008, Lao collectors leg. 1 ♂ 4 ♀ (NHMB); Houaphan Prov., Phu Pan (Mt.), 24.-27. III. 2005. 1 ♂ (KMNH); Houaphan Prov., Phu Pan (Mts.), Ban Seleui, 1300-1800 m, 16. IV. - 15. V. 2004, Local collectors leg. 1 ♂ 1 ♀ (KMNH); Hua Phan prov., Ban Saleui, Phou Pan (Mt.), 1300-1900 m, 20°12' N / 104°01' E, 7. IV. - 25. V. 2010, C. Holzschuh leg. 1 ♂ 1 ♀ (BMNH); Hua Phan prov., Ban Saluei, Phou Pan (Mt.), 1300-1900 m, 20°12' N / 104°01' E, 11. IV. - 15. V. 2012, C. Holzschuh leg., BMNH(E) 2012-14. 2 ♀ (BMNH); Hua Phan prov., Ban Saluei, Phou Pan (Mt.), 1300-1900 m, 20°12' N / 104°01' E, 11. IV. - 15. V. 2012, C. Holzschuh leg. 1 ♂ 6 ♀ (NKME).

Measurements ♂ : TBL 8.0 - 9.1 mm, L-h 7.0 - 7.9 mm

HL 1.0 - 1.3 mm, PL 1.2 - 1.4 mm, EL 5.8 - 6.4 mm

♀ : TBL 10.0 - 11.3 mm, L-h 8.9 - 10.0 mm

HL 1.1 - 1.5 mm, PL 1.4 - 1.7 mm, EL 7.4 - 8.3 mm

Differential diagnosis: Of similar colouration than *I. tonkinea* and the Chinese *I. flavicollis* Redtenbacher, 1868. Easily separable by broader habitus, darker, less brilliant greenish colour and transverse, nearly oval pronotum. Also, the rough, blackish pronotal vestiture is distinctive. *I. laticollis* n. sp., found in the same areas, has a similar habitus, but is smaller in size and can be separated by constant blue metallic colour of elytra, as well as different shape of median lobe in males.

Redescription: Habitus as in figs. 4 (♂) and 5 (♀). Body black with bluish or greenish metallic lustre. Pronotum and prosternum yellow to orange testaceous. Last abdominal segment yellow testaceous. Fore half of clypeus light brownish or black as the rest. Elytra dark blackish green, with slight metallic lustre. Antennae with basal and apical segments pale brownish testaceous and middle segments infuscate, nearly black. Maxillary and labial palpi yellow to reddish brown testaceous. Fore tibiae and tarsi light brown testaceous or as dark as the femora; all claws light brown testaceous.

Head behind the eyes about 0.6 times as wide as middle part of pronotum. Vertex finely shagreened, with a sparse, inconspicuous, blackish, recumbent vestiture and several longer, blackish setae at the sides, behind the eyes. Frons unevenly sculptured, often slightly wrinkled in front of eyes, with little, inconspicuous brownish vestiture; eyes separated by a space about equal to the length of first antennal joint (male). Clypeus slightly transverse, convex and rather smooth, with long, erect, brownish setae. Labrum transversely subrectangular, flat, with finely wrinkled microsculpture and rough brownish vestiture.

Male antennae reaching the first fourth of elytra in length, surpassing the humeral callus. Filiform, with segments slightly more robust towards the end. First segment about three times as long as the second. Third to fifth segments longest, about as long as the first two together. Segments 6-9 a bit shorter, 10 even shorter, about same length as first. Last segment again a bit longer, about the length of 6-9, slightly flattened and a bit excavate on the dorsal surface, outer edge very slightly emarginate.

Pronotum distinctly transverse, maximal length : maximal width 1 : 1.3, widest in middle; suboval in shape, with bluntly rounded angles; margins not distinctly bordered; subbasal depression very shallow; disc finely shagreened and only moderately shining; vestiture sparse but rather coarse, long and very conspicuous, of contrasting black colour, along the margins with longer and thicker black setae.

Elytra about 2.6-2.7 times as long as wide together in males, subparallel (males), with bluntly rounded tips; humeral callus distinct; matt and with granulose texture, ground vestiture very short, brownish, hardly perceivable; with two rows of longer blackish setae, which are easily abraded. Margins crenulate and with a row of black setae. Scutellum subquadrate, of slightly smoother texture than the elytra; with recumbent, brownish vestiture.

Femora not thickened, matt, shagreened, with short brownish vestiture. Tibiae and tarsi rather matt, covered in stiff blackish and brownish setae. Claws slightly thickened at base, otherwise simple.

Abdomen relatively broad and flat. Sternites finely shagreened and relatively mat; with fine, recumbent, greyish vestiture and longer, blackish setae along the margins.

Male: Last (sixth) ventrite as in fig. 121; transverse, but much narrower than fifth ventrite; apical margin with broad, relatively shallow emargination. Apical margin of last tergite simply arcuate, not thickened or emarginate.

Aedeagus as in figs. 62, 92, relatively weakly sclerotised and rather pale-coloured, as compared to most other *Idgia*. Process of phallobase pointing directly backwards, relatively long and with foliate dilation. Apical half of parameres gaping in dorsal view, their apices convergent dorsally, laterally relatively narrow and almost straight; their lower edge with only few, very short setae. Median lobe very faintly sinuate in middle part, flattened subapically after ostium; apex evenly narrowed in dorsal view, with rounded tip curved downwards.

Sexual dimorphism: Females of this species are distinctly larger than males, with no size overlap detected in the examined material; their elytra are slightly dilated in middle part, making them more oval shaped. Other differences: Pronotum more transverse in females. Eyes larger and more narrowly separated in males. Last ventrite and tergite simple in females, without incisions or emarginations. Male with black comb on the first three protarsomeres.

Variability: Apart from sexual dimorphism, there is slight variation in leg and antennal colour: Fore tibiae varying from brown to black; antennomeres 4-10 varying from nearly all brown to nearly all black.

Distribution: N Vietnam, N Laos.

Biology and ecology: Despite extensive collecting efforts at the two known localities, this species remains rarely represented in collections. In Laos, it was found in disturbed old-growth forest in March and April, at the very beginning of the monsoon season, earlier than other species at the same locality.

***Idgia notaticollis* Pic, 1943**
(Figs. 6, 7, 63, 93, 122)

Idgia notaticollis Pic, 1943a: 4.

Idgia notaticollis var. *diversipes* Pic, 1943a: 4. **n. syn.**

Type material examined: *I. notaticollis*: Holotype ♀ (MNHP, coll. Pic): "Chapa"; "notaticollis n. sp.". Holotype label added. Partly soiled with glue, but relatively well preserved.

I. notaticollis var. *diversipes*: Holotype ♂ (MNHP, coll. Pic): "Chapa"; "v. *diversipes* mihi". Holotype label added. Segments 9-11 of left antenna missing.

Other material examined: LAOS: Phongsaly prov., Phongsaly env., ~1500 m, 21°41' N / 102°06-8' E, 6.-17. V. 2004, M. Brancucci leg. 1 ♀ (NHMB); Phongsaly prov., Phongsaly env., ~1500 m, 21°41' N / 102°06-8' E, 6.-17. V. 2004, V. Kubáň leg. 5 ♂ 4 ♀ (NHMB); Phongsaly prov., Phongsaly env., ~1500 m, 21°41' N / 102°06-8' E, 6.-17. V. 2004, P. Pacholátko leg. 6 ♀ (NHMB); Phongsaly prov., Phongsaly env., ~1500 m, 21°41' N / 102°06' E, 6.-17. V. 2004, P. Pacholátko leg. 5 ♂ 6 ♀ (NHMB); Louangphrabang prov., 25 km E Muang Ngoy, 1000 m, 20°42' N / 102°54' E, 23. IV. 1999, Vít Kubáň leg. 2 ♀ (NHMB); Louangphrabang prov., Ban Song Cha, 1200 m, 20°33' N / 102°14' E, 24. IV.-16. V. 1999, Vít Kubáň leg. 1 ♀ (NHMB); Houa Phan prov., Ban Saluei, Phu Phan Mt., 20°15' N / 104°02' E, 1500-2000 m, 26. IV. - 11. V. 2001, D. Hauck leg. 2 ♂ (BMNH); Hua Phan prov., Ban Saluei, Phou Phan Mt., 20°13' N / 103°59' E, 1300-2000 m, 6.-18. V. 2004, J. Bezděk leg. 1 ♂ (NMPC); Hua Phan prov., Phu Phan Mt., 1500-1900 m, ~20°12' N / 104°01' E, 17. V.-3. VI. 2007, Vít Kubáň leg., NHMB Basel expedition to Laos 2007. 1 ♂ 18 ♀ (NHMB); Hua Phan prov., Phu Phan Mt., 1500-1900 m, ~20°12' N / 104°01' E, 17. V.-3. VI. 2007, M. Brancucci leg., NHMB Basel expedition to Laos 2007. 3 ♀ (NHMB); Houa Phan prov., Phou Pane Mt., 1480-1900 m, 20°12'01"-13'09" N" / 103°59'54"-104°00'55" E, 22. IV.-14. V. 2008, Lao collector leg. 7 ♂ 20 ♀ (NMPC); Houa Phan prov., 20°12-13.5' N / 103°59.5'-104°01' E, Ban Saluei → Phou Pane Mts., 1340-1870 m 15. IV. - 15. V. 2008, Lao collectors leg. 2 ♂ 2 ♀ (NHMB); Houa Phan prov., Ban Saluei → Phou Pane Mt., 1340-1870 m, 20°12-13.5' N / 103°59.5-104°01' E, 10. V. - 9. VI. 2009, C. Holzschuh & local coll. leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 2 ♀ (NHMB); Houa Phan prov., Ban Saluei → Phou Pane Mt., 1350-1500 m, ~20°13' N / 104°00' E, 1.-16. VI. 2009, M. Brancucci leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 3 ♀ (NHMB); Houa Phan prov., Ban Saluei → Phou Pane Mt., 20°12-13.5' N / 103°59.5-104°01' E, 1340-1870 m, 7. IV. - 25. V. 2010, C. Holzschuh & local coll. leg. 7 ♂ 11 ♀ (NHMB), 2 ♂ 2 ♀ (BMNH); Hua Phan prov., Ban Saluei, Phou Pan (Mt.), 1300-1900 m, 20°12' N / 104°01' E, 11. IV. - 15. V. 2012, C. Holzschuh leg. 26 ♂ 20 ♀ (NKME); Houa Phan Prov., Xam Neua, Ban Saleui, Mt. Phou Pan, 27. IV. - 11. V. 2007, J. Yamasako leg. 1 ♀ (EHUM); Xam Neua, Phu Pan, 16.-19. V. 2004, M. Satô leg. 1 ♀ (EHUM); Xam Neua, Phu Pan, alt. 1750 m, 16.-20. V. 2004, M. Sato leg. 1 ♀ (EHUM); Samneua, V.-VI. 2006. 1 ♂ (KMNH); "Root from Sam Neua to Xieng Khouang, 1. IV. 2005, N.

Ohbayashi leg." 1 ♀ (EHUM); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37-8' N / 103°20' E, secondary forest, on flowering trees and shrubs, 12.-15. V. 2009, Z. Kraus leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 1 ♀ (NHMB). **VIETNAM:** Cuc Phuong, Ninh Binh prov., 29. IV. 1996, Y. Okushima leg. 1 ♀ (KMNH); Cao Bang Prov., Mt. Pia Oac, 19.-21. V. 1999, H. Karube leg. 1 ♀ (KMNH); "khr. Tam-Dao Shon-Zuong, 200 m, 22.3.1962 g., Kabakov, iz kollektzii O. N. Kabakova." 1 ♂ (ZISP); "khr. Tam-Dao Shon-Zuong, 300 m, 23.3.1962 g., Kabakov, iz kollektzii O. N. Kabakova." 1 ♂ 1 ♀ (ZISP); "mountains W of Tam-Dao, Shon-Zuong, 300 m, 22.3.1962 g., Kabakov, iz kollektzii O. N. Kabakova." 1 ♀ (ZISP); "Sonduong, 300 m, 20. 3. 1963, Kabakov, iz kollektzii O. N. Kabakova." 1 ♂ 2 ♀ (ZISP). **CHINA:** GUANGXI: Jinxiu, Huawangshan, Zhuang, 600m, 20. V. 1999. 1 ♀ (IZAS).

Measurements ♂ : TBL 9.2 - 10.0 mm, L-h 7.8 - 8.4 mm
 HL 1.3 - 1.6 mm, PL 1.3 - 1.5 mm, EL 6.4 - 7.1 mm
 ♀ : TBL 9.9 - 10.9 mm, L-h 8.4 - 9.4 mm
 HL 1.4 - 1.5 mm, PL 1.4 - 1.5 mm, EL 7.0 - 7.9 mm

Differential diagnosis: This species is easily recognisable among all Indochinese species by its distinctive colouration (green or bluishelytra, yellow pronotum with large, black central spot, abdomen entirely greenish). Only *I. maculatithorax* has a similar colouration, but is much larger and males lack the tarsal combs. It may be more closely related to *I. haemorrhoidalis* Pic, 1906, from China (Yunnan), which, however, has a larger, broader and unicolorous pronotum and its last sternite is yellow.

Redescription: Habitus as in figs. 6 (♂) and 7 (♀). Body black with bluish or greenish metallic lustre. Pronotum and prosternum pale yellow, the former with a large, clearly delimited, slightly transverse, black discal spot. Fore half of clypeus pale yellow. Elytra varying from black with slight metallic lustre to dark greenish. Antennae and palpi yellow testaceous, only the middle of the first antennal segment slightly infuscate. Fore tibiae and tarsi lighter brownish; all claws light brown testaceous.

Head behind the eyes about 0.75 times as wide as middle part of pronotum. Vertex finely shagreened, with sparse, recumbent, greyish vestiture and several longer, blackish setae at the sides, behind the eyes. Frons concave (especially in males), wrinkled in front of eyes, with very little, inconspicuous vestiture; eyes rather widely separated, their distance about equal to the length of third antennal joint (male). Clypeus transverse, convex and rather smooth. Labrum wider than long, flattened and slightly concave in the middle, with and fine microsculpture and few recumbent greyish setae.

Male antennae reaching the first fourth of elytra in length, surpassing the humeral callus. Filiform, with only the first segment slightly thickened. First segment relatively short, but more than twice as long as the second. Third to 9th segments all of roughly the same length, about as long as the first and second together; 10th a bit shorter; last segment about as long as 3-9, slightly constricted in middle part, not emarginate and not flattened, but a bit thicker than the middle segments.

Pronotum about as long as wide, subhexagonal with obtuse, rounded angles, widest part in apical half, slightly before the middle; margins not distinctly bordered; with an impression in middle part, near the base; disc shagreened, matt, not punctate; with short, inconspicuous, yellowish recumbent vestiture, intermixed with short, recumbent black setae.

Elytra about 3.0-3.1 times as long as wide together in males, parallel-sided, narrowed in apical fifth; humeral callus distinct; rather matt and of leathery texture, with an inconspicuous row of granules, parallel to the suture; with short, dense, recumbent, brownish to golden vestiture. Margins crenulate

and with a row of black setae. Scutellum subquadrate, of slightly smoother texture than the elytra; with recumbent, brownish vestiture.

Femora not thickened, shagreened, but a bit more shining than the elytra, with recumbent brownish vestiture. Tibiae and tarsi rather smooth, covered in stiff blackish and brownish setae. Claws widened at base, otherwise simple.

Abdomen narrowed towards apex. Sternites densely and rugosely punctate, moderately shining; with long, light brownish vestiture and some longer, brownish setae along the margins.

Male: Last (sixth) ventrite as in fig. 122; relatively wide, but distinctly narrower than the fifth ventrite; apical margin with broad, shallow emargination. Apical margin of last tergite simply arcuate, not thickened or emarginate.

Aedeagus as in figs. 63, 93. Process of phallobase pointing backwards. Parameres slightly gaping dorsally, apices rounded; their lower edge with some yellowish hair-like setae and with short, stiff, blackish, thorn-like setation on the inside of apical part. Median lobe slightly sinuate in middle part, apex curved downwards, strongly narrowed and slightly flattened.

Sexual dimorphism: Females always with smaller, more widely separated eyes. Also, they tend to have shorter antennae and less parallel, slightly broader elytra. Last ventrite and tergite simple in females, without incisions or emarginations. Male with black comb on the first three protarsomeres.

Variability: Elytral colour varying from dark green to blackish. Legs more rufous brownish in slightly teneral specimens.

Distribution: N Laos, N Vietnam, SW China.

Biology and ecology: In northern Laos, this species was collected in secondary montane forests (1000-2000 m altitude) on flowering trees and shrubs, usually about 5 m above ground. Adults are probably feeding on pollen. They have been collected in the early monsoon season, from April to June and seem to be most abundant in May. *I. notaticollis* co-occurs with a number of other *Idgia* species and can be locally one of the most common species.

Notes: This species was described after a female from North Vietnam ("Chapa" = Sa Pa). Another specimen (male) from the same locality was described as "var. *diversipes*", but shows no clear differences, apart from male sexual characters. This "variety" is here synonymised with the type form.

Idgia suturalis (Kirsch, 1875)
(Figs. 13-15, 64, 94, 123)

Prionocerus (Idgia) suturalis Kirsch, 1875: 38.

Idgia suturalis (Kirsch): Pic, 1926: 9.

Idgia sumatrensis v. *Kannegieteri* Pic, 1910d: 75. **n. syn.**

Idgia sumatrensis var. *kannegieteri* Pic: Champion, 1919: 350.

Idgia Kannegieteri Pic: Pic, 1920a: 8.

Idgia pallidolimbata Pic, 1921: 18. **n. syn.**

Idgia marginata Champion: Gressitt, 1939: 192 (misidentification).

Type material examined: *Idgia sumatrensis* v. *kannegieteri*: Lectotype ♂ (MNHP, coll. Pic, here designated): "Palembang, Sumatra"; "type"; "TYPE"; "Idgia var. kannegieteri Pic". Lectotype label added. Covered in mycelium, tarsomeres 4-5 of left hind leg missing.

Paralectotype ♀ (MNHP, coll. Pic): "Mana Riang, Palembang"; "♀". Tarsomeres 4-5 of left middle leg missing. Paralectotype label added.

Paralectotype ♀ (MNHP, coll. Pic): No label. Covered in mycelium, but not broken. Paralectotype label added. Type status inferred from position in original drawer.

Paralectotype ♂ (MNHP, coll. Pic): No label. Slightly mouldy and right antenna missing.

Paralectotype label added. Type status inferred from position in original drawer.

Paralectotype ♀ (MNHP, coll. Pic): "Palembang"; "type". Covered in mycelium, tarsomeres 4-5 of left middle leg missing. Paralectotype label added.

Paralectotype ♀ (MNHP, coll. Pic): "Palembang". Covered in mycelium, but not broken.

Paralectotype label added.

Paralectotype ♂ (MNHP, coll. Pic): "Mana Riang, Palembang"; "♂". Covered in mycelium and with the abdomen strongly damaged by dermestid larvae. Paralectotype label added.

Paralectotype ♂ (MNHP, coll. Pic): "Mana Riang, Palembang (Kannegieter)". Covered in mycelium, right hind tarsus missing. Paralectotype label added.

Paralectotype ♂ (BMNH): "♂"; "Mana Riang, Sumatra"; "I. kannegieteri Pic"; "ex Coll. Pic. 1920-255.". In good condition. Paralectotype label added.

Paralectotype ♂ (BMNH): "♂"; "Mana Riang (Kannegieter)"; "ex Coll. Pic. 1920-255.". Right antenna missing. Paralectotype label added.

Paralectotype ♂ (MCGD): "Palembang, Sumatra"; "Palembang, Sumatra, ex. coll. Pic"; "Idgia sumatrensis v. kannegieteri Pic"; "D. Pic 1910"; "SYNTYPUS, Idgia sumatrensis var. kannegieteri Pic, 1910". Paralectotype label added. In good condition.

Idgia pallidolimbata: Holotype ♂ (MNHP, coll. Pic): "Corporaal, Serdang, Pag. Marbau, 26. 12. 1917"; "suturalis var Kirsh"; "type"; "TYPE"; "pallidolimbata n sp". Holotype label added. In good condition.

Other material examined:

Typical form:

VIETNAM: "Cochin-China, French Indo-China, Travinh, Travinh province. July 1932. K. H. Tsui" 1 ♀ (SYSU).

MALAYSIA: SELANGOR: "Kuala Lumpur, at light, Aug. 10th 1926. H. M. Pendlebury. , ex. Coll. F.M.S. Mus., B.M. 1927-12." 1 ♀ (BMNH). NEGERI SEMBILAN: "Negri Sembilan, Port Dickson, 20. II. 1933., H. M. Pendlebury, F. M. S. Museums." 1 ♀ (MNHP).

INDONESIA: SUMATRA: N. Sumatra, Dolok Meranyir, 7. IX. 1970, Dr. Diehl leg. 1 ♀ (NHMB); N. Sumatra, Dolok Meranyir, 2.-9. X. 1970, Dr. Diehl leg. 1 ♀ (NHMB); N. Sumatra, Dolok Meranyir, 19. IV. 1971, Dr. Diehl leg., coll. W. Wittmer. 1 ♀ (NHMB); N. Sumatra, Dairi, 24. V. 1971, Dr. Diehl leg., coll. W. Wittmer. 1 ♀ (NHMB); "Stabat, 9. 5. 1972, N. Sumatra" 1 ♀ (NHMB); E Sumatra, coastal area of Indra Giri Hilir env., 0-50 m, VI. 2006, St. Jakl leg. 21 ♂ 49 ♀ (BMNH), 2 ♂ 3 ♀ (NHMB); E Sumatra, Jambi prov., Indra Hilir env., 0-10 m, II. 2006, St. Jakl leg. 2 ♂ 5 ♀ (BMNH); Bengkulu, 20 km S Muko Muko, Urwald, Lichtfang, 20 m, 16. VIII. 1991, Erber leg. 2 ♀ (SMNS); "Medan, Mj**ö**b." 1 ♀ (MNHP).

JAVA: "Java, coll. Richard Hicker, Wien, coll. W. Wittmer" 1 ♀ (NHMB); "Java (Hicker)" 1 ♀ (MNHP); "Java, Coll. Kraatz" 1 ♂ 6 ♀ (SDEI); "Coll. Kraatz" 2 ♀ (SDEI).

PROBABLY MISLABELED: "Queensland. Coll. Franklin Müller" 1 ♀ (SDEI); "Queensland, Frkl. Müller" 1 ♀ (SDEI).

Black form ("*kannegieteri*"):

MALAYSIA: KELANTAN: Kampong Raja - Gua Musang road, Ladang Pandrak, 1400-1700 m, 4°63-88' N / 101°45-95' E, 1.-28. IV. 2006, P. Cechovsky leg. 1 ♀ (NHMB); 30 km NW of Gua Musang, Ulu Lalat Mt., Kampong Sungai Om, 800-1000 m, 27. V. – 19. VI. 2011, Petr Cechovsky leg. 1 ♀ (BMNH).

Measurements ♂ : TBL 8.0 - 8.8 mm, L-h 6.7 - 7.3 mm

HL 1.3 - 1.5 mm, PL 1.3 - 1.4 mm, EL 5.4 - 5.9 mm

♀ : TBL 8.6 - 10.1 mm, L-h 7.3 - 8.5 mm

HL 1.3 - 1.6 mm, PL 1.3 - 1.5 mm, EL 5.9 - 7.1 mm

Differential diagnosis: *Idgia suturalis* occurs in two colour morphs: The "typical form" with testaceous stripes along the elytral suture and margins, and the black form ("*kannegieteri*"). The typical form cannot be confused with any other species on the Indochinese/Malay peninsula. *I. cincta* Pic, 1906 (Java) has a similar colour scheme, but a much larger and more elongate body shape, darker antennae and a large, dark brown spot on the pronotum.

The most similar species to the black form are *I. caeruleiventris* Champion, 1919 (Peninsular Malaysia, Sumatra), *I. uncinata* Champion, 1919 (Borneo) and *I. javana* Champion, 1919 (Java) (see below under "Further taxonomic changes"). Apart from the different aedeagus shape, *I. suturalis* differs by having a lighter antennal colouration (only the middle segments are black), simple, rounded elytral apex in females (without "hooks" or "dentiform processes" at the sutural angles, see Champion 1919: 350) and a very narrow, acutely triangular last sternite in males (see Table 1).

I. sumatrensis Pic, 1906 and *I. semilimbata* Pic, 1906, both only known by their female holotype, differ from the above species by a large, dark brown patch on the pronotal disc.

Table 1: Diagnostic characters of *Idgia suturalis* (Kirsch) and related species.

	elytral colour	sutural angle of elytra (♀♀)	last sternite (♂♂) (general shape, disregarding the large emargination at apex)	apical part of median lobe (lateral view)	parameres (lateral view)
<i>uncigera</i>	black	with long, spine-like process	narrow, subtrapezoidal	almost straight	simple, without apical tooth
<i>javana</i>	black	with small emargination, shortly before the apical edge	triangular (about equilateral)	strongly sinuate	simple, without apical tooth
<i>suturalis</i>	black or with sutural and lateral margins yellow testaceous	simple	narrow, acutely triangular	weakly sinuate	simple, without apical tooth
<i>caeruleiventris</i>	black with dense, greyish vestiture	simple	transverse, subtrapezoidal	weakly sinuate	broad, then abruptly narrowed and with large apical tooth

Redescription: Habitus as in figs. 13 (♂), 14 and 15 (♀). Body dark brown to black. Head, apart from fore half of clypeus, entirely black. Prothorax, including pronotum, orange testaceous. Elytra infuscate, dark brown, with sutural and lateral margins pale yellow, testaceous (typical form), or entirely black (dark form, described as *I. kannegieteri*). Antennae, maxillary and labial palpi orange testaceous.

Head behind eyes about 0.7 times as wide as middle part of pronotum; around eyes with several scattered, long black setae. Vertex convex, very finely shagreened and slightly wrinkly, with fine, short, greyish vestiture; sides behind eyes with some long, stiff, blackish setae. Eyes large and protruding; separated by a space slightly narrower than base of first antennomere in males. Frons strongly depressed in front of eyes, moderately shining, with some fine wrinkles and rather sparse setation. Clypeus transversely subtrapezoidal, convex, and with sparse, but relatively long setae. Labrum slightly transverse, shagreened, with nearly translucent fore margin and distinct median depression; setation sparse, short and brownish on disc, with a few longer, black setae along margins.

Male antennae short and relatively robust, barely reaching past the humeral callus. First segment slightly thickened; 2-4 subcylindrical; 5-10 slightly flattened and widened from base to apex, subserrate; last segment widened after base and with emarginate outer edge. First segment about twice as long as wide at apex; second very short, subglobose; third slightly longer than first; fourth shorter, about as long as first; fifth and sixth slightly longer than third, but not quite as long as the first two together, the following antennomeres getting gradually shorter and wider; last segment again longer, about as long as fifth.

Pronotum about as long as wide; widened in middle third, with narrowed and distinctly sinuate sides in basal half and subarcuate apical edge and subrectangular, slightly rounded basal angles; margins clearly bordered, especially basal margin; disc slightly convex, with rather shallow, but distinct, median subbasal depression and two oblique, lateral impressions, on each side of disc; moderately shining with shagreened ground sculpture and relatively dense punctuation; vestiture short and yellowish, not very conspicuous; along the margins with some stronger, brownish setae. Basal and apical margins finely ciliate, with short, yellowish hair-like setae.

Elytra 2.4-2.6 times as long as wide together in males, middle part slightly widened in females, subparallel in males; without spine or emargination emarginate at apex; humeral callus distinct; densely, rugosely punctate and slightly shining, with dense, contrastingly yellow ground vestiture and three rows of long, stiff, blackish setae on disc, plus another row of slightly shorter black setae along sutural margin and some additional, long setae near lateral margin in apical half. Margins crenulate, with a row of stiff, black setae, those around apex very long. Scutellum transverse, rounded, very finely punctate and with similar ground vestiture than elytra.

Femora not thickened, matt, with rugulose microsculpture and finer pilosity than elytra. Tibiae and tarsi matt, covered in stiff, brownish setae. Claws slightly thickened at base, otherwise simple.

Abdomen relatively narrow and convex. Sternites finely shagreened and not very shining; with fine, brownish or greyish ground vestiture and some long, brownish setae along the margins.

Male: Apex part of abdomen strongly narrowed, subconical. Last (sixth) ventrite as in fig. 123; elongate and subtriangular, very narrow towards the apex, with several long setae along the apical edge and one very long, conspicuous, isolated seta at each of the lateral margins, at the basal half of the sternite; middle part apical margin with relatively narrow, not very deep emargination. Apical margin of last tergite slightly wider than apex of last ventrite, not thickened or emarginate.

Aedeagus as in figs. 64, 94. Process of phallobase long, apically widened and flattened, pointing backwards at an approximately 150° angle, relative to apical part of paramera. Parameres in lateral view slightly curved, flattened in apical fourth; dorsally subparallel, with little gap in between and rounded apices; their lower edge with long, brownish, hair-like setae in apical fourth, inside of apex without short, spiny setae. Median lobe with slightly thickened base; apical fourth distinctly sinuate, with the tip curved upwards; apex subconical, when seen from above.

Sexual dimorphism: As in other species of the genus, females of this species have smaller, more widely separate eyes and broader, less parallel elytra. Male with black comb on the first three protarsomeres.

Variability: As noted in the examined material above, there are a few specimens with entirely dark elytra, lacking the sutural and lateral testaceous stripe. These were first described as a variety of *Idgia*

sumatrensis by Pic, then elevated to species rank. In striped specimens (typical form), the width of the lateral and especially sutural stripes is variable. Specimens with strongly narrowed black elytral colour or entirely pale elytra have not been found.

Distribution: Indonesia (Sumatra, Java), Peninsular Malaysia, South Vietnam.

It is very unlikely that the specimens from "Queensland" (Australia) are correctly labelled.

Biology and ecology: *I. suturalis* seems to be, essentially, a species of lowland forests. Almost all of the specimens were collected at a few localities within the coastal plains of Sumatra, at altitudes below 200 m a.s.l., in areas with nearby remnants of primary forest (at the time of collecting). This may explain the great lack of recent data for most of the Malay Peninsula, Cambodia and Vietnam, as these areas are intensively used for agriculture by now, with almost no remaining forest. Only a single specimen from Malaysia has reportedly been found at higher altitudes (1400-1700m).

Collecting circumstances are only known for one specimen, collected at a light trap (further specimens, collected by Dr. Eduard W. Diehl, were probably found at light, too). The dates of collecting range from April to October.

Notes: This species could only be identified according to the original description, which, however, is sufficiently diagnostic. The type material of *I. suturalis* was not found at the Senckenberg Natural History Collections in Dresden (pers. comm. Olaf Jäger), where it should be located, nor at any other institution. The type material of *Idgia pallidolimbata* is in any respect identical to the species here identified as *suturalis*. *Idgia kannegieteri* must be considered a colour morph with unicolorous elytra, as examination of type and non-type material revealed no specific differences. Accordingly, both of Pic's species are here synonymised.

A lectotype designation was necessary for *I. kannegieteri*, to fix the usage of this name, as the type was found to contain two species. One female paralectotype, labelled „Bornéo“, „type“ (MNHP, coll. Pic) evidently doesn't belong to *I. suturalis*. It may be either *I. javana* Champion, 1919 or a specimen of *I. uncigera* Champion, 1919 with the spines at the elytral apices broken off.

See chapter "Further taxonomic changes", below, for some notes on the related species.

Idgia tonkinea Pic, 1908
(Figs. 8, 9, 65, 95, 124)

Idgia tonkinea Pic, 1908a: 150.

Type material examined: Syntype ♀ (MNHP, coll. Pic): "Ho Lang (Tonkin)"; "type"; "TYPE"; "tonkinea Pic"; "le nat. 519, 1908, p. 150". Syntype label added. In poor condition, mouldy and with several parts of the legs, including all tarsi, missing.

Syntype ♀ (MNHP, coll. Pic): "174"; "Ho Lang (Tonkin)"; "type"; "Le nat. 519, 1908, p. 150". Syntype label added. In poor condition, mouldy and with several parts of the legs missing.

Other material examined: VIETNAM: "Tonkin" 1 ♀ (MNHP); "173, H. Tonkin, Lamey" 1 ♀ (MNHP); "176, N. Tonkin" 1 ♀ (MNHP); "Tonkin, Rég. de Hoa-Binh, A. de Cooman 1928" 1 ♂ (MNHP); "Tonkin: Hoabinh. Aug 1918. R. V. Salvaza." 10 ♂ 3 ♀ (MNHP); "Tonkin: Hoabinh. Aug. 1918. R. V. de Salvaza, Indo-China. R. V. de Salvaza. 1918-1" 1 ♂ 1 ♀ (BMNH), 1 ♂ (MNHP); "Tonkin: Hoabinh. Aug. 1918. R. V. de Salvaza, coll. W. Wittmer" 3 ♂ (NHMB); "Tonkin-Occ., rég. de Hoa Binh, ex. Coll. R. Oberthur" 1 ♀ (MNHP); "Tonkin-Occ., Rég. de Hoa Binh, 1919, coll. R. Oberthur 1952" 5 ♂ 4 ♀ (MNHP); "Tonkin, Env. de Hoa-Binh, J. Laisi, 1901" 1 ♀ (MNHP); "Hoa Binh, Tonkin, coll. W. Wittmer" 7 ♂ 12 ♀ (NHMB); "Hoa Binh, Tonkin" 3

♂ 4 ♀ (MNHP); "Hao Binh, Tonkin" 4 ♀ (MNHP); "Tonkin, Hoa-Binh, leg. A. de Cooman" 3 ♂ (IZAS); "Tonkin, Hoa-Binh, III. 1937, leg. A. de Cooman" 1 ♀ (IZAS); "Tonkin, Hoa-Binh, VII. 40, leg. A. de Cooman" 2 ♂ (IZAS); Ha Son Binh prov., Huong Son, 26.-29. IV. 1991, Jan Strnad leg. 2 ♀ (NHMB); Chua Huong (Huong Son), 60 km SW Hanoi, 26.-29. IV. 1991, E. Jendek leg. 3 ♀ (NHMW); "Thanh Moi, Tonkin, H. Perrot, 69" 1 ♂ (MNHP); "Lac Thò, Tonkin" 2 ♀ (MNHP); "Chapo, prov. de Laokay, Ht. Tonkin" 1 ♀ (MNHP); "Tonkin Centr., Env. de Tuyen-Quan, A. Weiss 1901, avril 1901, case I" 1 ♀ (MNHP); Tuyen Quang prov., Da Vi env., 350 +/-50 m, 22°27'45" E / 195°32' E, 13. V. 2010, L. Dembický leg. 1 ♀ (NHMB); 52 km SW of Lang Son, 370 m, 21°35' N / 106°30' E, 27. IV.-6. V. 1996, Pacholátko & Dembický leg. 1 ♂ 7 ♀ (NHMB); "Dong-Dang, IV. 1903, Vauloger leg., Coll. L. Bedel 1922" 1 ♀ (MNHP); Ninh Binh prov., 90 km SW Hanoi, vic. Cuc Phuong village, 160 m, 20°14'04" N / 105°43'19" E, 19. IV. 2012, A. Weigel leg. 2 ♀ (NKME); Ninh Binh prov., 90 km SW Hanoi, Cuc Phuong village, 160 m, Tümp., 20°14'01" N / 105°43'19" E, 20. IV. 2012, A. Weigel leg. 1 ♀ (NKME); Cuc Phuong, Ninh Binh prov., 28. IV. 1996, Y. Okushima leg. 1 ♂ (KMNH); Yen Bai Prov., Bao-Ha, 7. IV. 1962, Warchalowski leg. 1 ♀ (NHMB).

NO LOCALITY: "3710 86, Coll. E. Olivier 1914" 2 ♀ (MNHP).

Measurements ♂ : TBL 9.8 - 11.0 mm, L-h 8.5 - 9.3 mm

HL 1.3 - 1.6 mm, PL 1.4 - 1.5 mm, EL 7.0 - 7.9 mm

♀ : TBL 10.5 - 12.2 mm, L-h 9.2 - 12.4 mm

HL 1.3 - 1.6 mm, PL 1.2 - 1.5 mm, EL 8.0 - 9.3 mm

Differential diagnosis: The only Indochinese species with similar colouration is *I. flavithorax*, which can be easily distinguished by its transverse pronotum and matt elytra.

I. flavicollis Redtenbacher, 1868 (from Hong Kong) and *I. foveifrons* Fairmaire, 1899 (from Taiwan) are identical in colour pattern, but smaller in size. Furthermore, the aedeagus shapes serves as a reliable diagnostic character.

Redescription: Habitus as in figs. 8 (♂) and 9 (♀). Body greenish to dark blue metallic, head and abdomen usually with a slightly darker colour tone than the elytra. Last ventrite, prothorax, antennae, maxillary and labial palpi yellowish testaceous. Femora brownish with bluishmetallic lustre. Tibiae and tarsi brown, fore tibiae usually with a lighter colour tone. Claws light brown testaceous.

Head behind the eyes about 0.65 times as wide as middle part of pronotum. Vertex slightly shagreened, with long, brownish vestiture. Behind the eyes with a tuft of long, stiff, brownish setae. Frons rather flat and shining, slightly wrinkled between eyes, with rather long, brownish vestiture. Eyes rather widely separated in males, by a space equivalent to about double the length of the second antennomere. Clypeus transversely subtrapezoidal, finely shagreened, with brownish recumbent vestiture. Labrum about as long as wide, slightly widened in anterior part, with rounded angles, slightly impressed in middle part, with finely impressed punctures and recumbent vestiture and some longer, brownish setae along the margins.

Male antennae reaching the first third of elytra in length, surpassing the humeral callus. Filiform, with the first segment slightly thickened and the last three slightly flattened and widened. First segment relatively short, but about twice as long as the second. Third segment about as long as the first two together: fourth slightly shorter: fifth segment longest, slightly longer than third: the following of roughly equal length, about as long as the third; last segment emarginate and slightly sinuous.

Pronotum about long as wide, widest near the middle; subarcuate in fore part; hind angles obtuse, rounded, margins finely bordered, basal margin with clearest bordering; disc slightly elevate, with an impression in middle part of basal half; ground polished and shining, finely and shallowly punctate,

with sparse, irregular, black vestiture and long, stiff, blackish setae along the margins; basal margin and basal part of lateral margin with relatively dense, but much shorter, yellowish setation.

Elytra about 2.5-3.0 times as long as wide together in males, parallel-sided; humeral callus distinct; with metallic sheen; densely rugulose; with short, golden-brownish to slightly greyish, recumbent vestiture and two rows of longer, black, erect setae, which are visible only in profile view. Margins finely crenulate and with a row of stiff, black setae. Scutellum slightly transverse, with rounded sides, transversely rugulose texture and fine, golden-brownish recumbent vestiture.

Femora not thickened, shagreened, less shining than the elytra, with recumbent brownish vestiture. Tibiae and tarsi covered in stiff brownish setae. Claws simple.

Abdomen gradually narrowed towards apex. Sternites shagreened and partly with rugulose texture; with greyish to brownish, recumbent vestiture and some longer, brownish setae along the margins.

Male: Last (sixth) ventrite as in fig. 124; large, not much narrower than apical part of fifth ventrite at apex; middle of apical margin with narrow and relatively deep emargination. Apical margin of last tergite broad, subtruncate, but not distinctly thickened or emarginate.

Aedeagus as in figs. 65, 95. Process of phallobase oblique. Parameres long and narrow, gaping dorsally, apices slightly thickened, approximately spoon-shaped; their lower edge with relatively short, yellowish setae and with short, stiff, darker brownish setation on the inside of apical part. Median curved downwards subapically; apex flattened and sharply pointed.

Sexual dimorphism: Females have a flatter head and more widely separated eyes. They are also on average larger and with broader, less parallel and more rounded elytra. Last ventrite and tergite simple in females, without incisions or emarginations. Male with black comb on the first three protarsomeres.

Variability: Elytral colouration varies from greenish to dark bluishmetallic. Femora reddish brown in slightly teneral specimens.

Distribution: N Vietnam.

Biology and ecology: Adult females of this species were found in April and May (late dry season) as well as in August (monsoon season). Males were found mostly in August. Habitat data and information on collecting techniques are unavailable at the moment. Nearly all of the specimens with exact label data were found at low altitude, below 500m, with one possible outlier being the specimen labelled as "Chapo, prov. de Laokay" (= Sa Pa, ~1500m), which may be not accurate.

***Idgia laticollis* n. sp.**

(Figs. 11, 12, 66, 96)

Holotype ♂ (EHUM): "Cuc Pong [sic!], N. Vietnam, 19. III. 1995, T. Niisato leg.". Holotype label added. Last segment of left antennae missing.

Paratypes (1 ♂ 4 ♀): 1 ♂ 2 ♀ (EHUM): same data as holotype. 1 ♀ (ZISP): "Vietnam, mts. 50 km NE Thay-Nguyen, 300 m, 3. 3. 1963, Kabakov", "from O. N. Kabakov collection" [in Russian]. 1 ♀

(ZISP): "Vietnam, mts. 50 km NE Thay-Nguyen, 300 m, 8. 3. 1963, Kabakov", "from O. N. Kabakov collection" [in Russian].

Additional material examined: LAOS: Hua Phan prov, Phu Phan Mt., 1500-1900 m, ~20°12' N / 104°01' E, 17.V. - 3.VI. 2007, Vít Kubáň leg., NHMB Basel expedition to Laos 2007" (NHMB).

Type locality: Vietnam, Ninh Binh prov., Cuc Phuong National Park.

Measurements ♂ : TBL 6.7 - 7.2 mm, L-h 5.8 - 6.2 mm

HL 0.9 - 1.0 mm, PL 1.0 - 1.1 mm, EL 4.8 - 5.1 mm

♀ : TBL 7.7 - 8.4 mm, L-h 6.6 - 7.1 mm

HL 1.0 - 1.3 mm, PL 1.1 - 1.2 mm, EL 5.5 - 6.0 mm

Differential diagnosis: This small species has a rather characteristic, bright blue colouration, with the pronotum and the last sternite orange yellow. The most similar species are *I. flavithorax* and *I. haemorrhoidalis* Pic, 1906 from China (Yunnan). It differs from *I. flavithorax* by smaller body size, stouter and somewhat parallel-sided elytra, shorter and less extensive pronotal vestiture and aedeagus shape. *I. haemorrhoidalis* has almost the same colouration, but a flatter and much larger habitus, more slender antennae, larger claws and different aedeagus shape.

Description: Habitus as in figs. 11 (♂) and 12 (♀). Body metallic dark blue. Prothorax (including pronotum), last ventrite and last tergite yellow testaceous. Antennae light reddish brown, apically infusate. Fore tibiae and tarsi, as well as maxillary and labial palpi reddish brown. Femora blackish with blue metallic lustre.

Head short and relatively broad, not distinctly rostrate, behind the eyes about 0.7 times as wide as middle part of pronotum. Vertex shagreened, with brownish vestiture. Sides behind eyes with some loner, stiff, blackish setae. Eyes relatively small for a prionocerid, widely separated in males, by a space more than three times as wide as the third antennomere. Frons distinctly depressed between and in front of eyes, shagreened and wrinkled, with sparse, relatively long, erect, brownish setae. Clypeus convex, slightly transverse, shagreened and with fine, brownish setae. Labrum small, flat, about as long as wide, rather smooth and sparsely setose, with brownish setae.

Male antennae relatively short, just reaching past the humeral callus in length, despite the short head and pronotum; filiform. First segment slightly thickened towards the end, slightly less than twice as long as wide at apex; second short, about half as long as first; segments 3-8 of slightly variable length, all longer than first, but shorter than first two together; 9-10 each about as long as 1; 11 longest, about as long as first two together; not much flattened, with faintly thickened basal and apical half and a slight constriction in between.

Pronotum of suboval shape, distinctly transverse, maximal length to maximal width around 1 : 1.2; widest in middle part, all angles bluntly rounded; margins finely bordered; with shallow, often hardly perceptible, median longitudinal furrow, separating two slightly convex halves of the disc; surface glossy, polished; vestiture very sparse and rough, consisting of relatively long, blackish setae, facing in different directions; along margins with longer, thicker, blackish setae. Basal margins finely and sparsely ciliate, with yellowish hair-like setae.

Elytra about 2.4-2.5 times as long as wide together in males, parallel-sided in males; humeral callus distinct, but not very protruding; coarsely rugose, with metallic sheen; disc with traces of three faint

longitudinal costae, with fine, greyish ground vestiture and three rows of longer, but very inconspicuous black setae, visible only in profile view and largely abraded in several of the specimens. Margins rather coarsely crenulate, with a row of stiff, black to bluishmetallic setae. Scutellum tongue-shaped, about as long as wide, finely shagreened and matt, with similar ground vestiture than elytra.

Femora not thickened in males, shagreened and matt, with similar ground vestiture than elytra. Tibiae and tarsi with longer, rather stiff greyish and brownish setae, sparse at base of tibia, then increasing in density towards tibial apex. Claws slightly widened at base, otherwise simple.

Abdomen relatively flat. Sternites less shining than elytra, with shagreened microsculpture and rugulose texture; with rather long, brownish ground vestiture and longer setae along the margins.

Male: Last (sixth) ventrite similar to *I. flavithorax*; transverse; basal part distinctly narrower than apical part of fifth ventrite; apical margin with relatively shallow emargination. Apical margin of last tergite simply arcuate, not thickened or emarginate.

Aedeagus as in figs. 66, 96, relatively pale and weakly sclerotised, as compared to other *Idgia*, not unlike *I. flavithorax*, but distinctly shorter. Process of phallobase pointing obliquely backwards, with widened apex. Parameres relatively narrow, strongly gaping dorsally, with convergent apices, lower edge with only few, relatively short hair-like setae in subapical portion; lower edge and inner surface of apex with several stiff, brownish, thorn-like setae. Median lobe rather narrow and almost straight, except for the thickened, slightly curved base and the flattened apex, which has the extreme tip slightly bent ventrally; apex rather pointed in dorsal view.

Sexual dimorphism: Females larger and with slightly broader habitus than males, as usual in Prionoceridae; eyes even smaller and more widely separated. Pygidium in females relatively long, easily visible from above in most of the examined specimens, with long, blackish setae, but without any incision or emargination; last ventrite also simple. Male with black comb on the first three protarsomeres.

Variability: The single female paratype from Laos has shorter antennae than the other females, barely reaching the humeral callus. Basal three antennomeres dorsally infusate in the Laotian specimen, not so much in the Vietnamese ones.

Distribution: N Vietnam, NE Laos.

Biology and ecology: The Vietnamese specimens were found very early (mid of March), before the start of the monsoon season, only the single Laotian female was found a bit later (May, early monsoon season). Both known localities are partly covered by primary forests, but no exact habitat data are given.

Derivatio nominis: From Latin "*latus*" = broad and "*collum*" = neck. Named after the pronotal shape.

II. Species with pale-coloured elytra, with or without black apical macula

As with the section before, the following species do not form a monophyletic clade. It seems; however, useful to treat them together in a row, to facilitate comparison among the often very similar-looking species. All of the species in this section seem to be nocturnal.

Idgia dubia (Gyllenhal, 1808)
(Figs. 16, 17, 67, 97, 125)

Cantharis dubia Gyllenhal in Schoenherr, 1808: 73.

Idgia dubia (Gyllenhal): Champion, 1919: 369.

Idgia ungulata Champion, 1919: 339. pl. XI, fig. 12. **n. syn.**

Idgia minuta Pic, 1920a: 8. **n. syn.**

Type material examined: *Cantharis dubia*: Holotype ♂ (UUEM): "a" (red label); "Uppsala Univ. Zool. Mus. Gyllenhals saml. TYP nr. 1401" (red label). Holotype label added. Right antenna and right hind leg missing.

I. ungulata: Syntype ♂ (BMNH): "Hong Kong. Walker Coll. 23-58."; "♂"; "Type H. T."; "Idgia ungulata Ch."; "Idgia ungulata, Champ. Det. G. C. C.". Syntype label added. In good condition.

Syntype ♂ (BMNH): "Hong Kong. Walker Coll. 23-58."; "♂"; "Idgia ungulata Ch."; "Idgia ungulata, Champ. Det. G. C. C.". Syntype label added. Right antenna and hind leg missing; right fore leg broken off and glued separately on the mounting card.

Syntype ♀ (BMNH): "Hong Kong. Walker Coll. 23-58."; "♀"; "Idgia ungulata Ch."; "Idgia ungulata, Champ. Det. G. C. C.". Syntype label added. Segments 2-11 of right and 8-11 of left antenna, left fore leg and last segment of right metatarsus missing.

Syntype ♂ (BMNH): "Hong Kong"; "128 12/11/49"; "♂"; "Idgia ungulata Ch."; "Idgia ungulata, Champ. Det. G. C. C.". Syntype label added. Mounted on a triangle, but with a large pin hole in the right elytron.

Syntype ♂ (BMNH): "Hong Kong. J. J. Walker."; "♂"; "1-3 pect."; "Idgia ungulata Ch."; "Idgia ungulata, Champ. Det. G. C. C.". In good condition.

Syntype ♀ (BMNH): "Hong Kong"; "128 8/6/49"; "♀"; "Idgia ungulata Ch."; "Idgia ungulata, Champ. Det. G. C. C.". Syntype label added. Left meso- and right metatarsus, left hind leg and left antennal segments 9-11 missing.

Syntype ♀ (BMNH): "Hong Kong"; "128 9/6/51"; "♀"; "Idgia ungulata Ch."; "Idgia ungulata, Champ. Det. G. C. C.". Syntype label added. Left antenna, fore and middle leg missing.

Syntype ♂ (BMNH): "Hongkong. F. W. Terry. 1911-359."; "♂"; "Idgia ungulata Ch."; "Idgia ungulata, Champ. Det. G. C. C.". Syntype label added. Segments 9-11 of right antenna missing.

Syntype ♂ (BMNH): "Hongkong. F. W. Terry. 1911-359."; "♂"; "Idgia ungulata Ch."; "Idgia ungulata, Champ. Det. G. C. C.". Syntype label added. Segments 10-11 of right antenna missing.

Syntype ♂ (BMNH): "Hongkong. F. W. Terry. 1911-359."; "♂"; "Idgia ungulata Ch."; "Idgia ungulata, Champ. Det. G. C. C.". Syntype label added. In good condition.

Syntype ♀ (BMNH): "Hongkong. F. W. Terry. 1911-359."; "♀"; "Idgia ungulata Ch."; "Idgia ungulata, Champ. Det. G. C. C.". Syntype label added. Last segment of left metatarsus missing.

Syntype ♀ (BMNH): "China. G. Lewis. 1915-38"; "15 Amoy"; "♀"; "Idgia ungulata Ch."; "Idgia ungulata, Champ. Det. G. C. C.". Syntype label added. Several tarsal segments missing.

Syntype ♂ (BMNH): "China"; "Fry Coll. 1905.100."; "♂"; "1999"; "Idgia ungulata Ch."; "Idgia ungulata, Champ. Det. G. C. C.". Syntype label added. In poor condition with segments 9-11 of right antenna, both fore legs, right middle and hind leg, tarsi of the remaining two legs and tip of right elytra missing. Abdomen and genitalia mounted on a separate pin.

Syntype ♀ (BMNH): "China"; "Bowring 43.47*"; "♀"; "Idgia ungulata Ch."; "Idgia ungulata, Champ. Det. G. C. C.". Segments 9-11 of left and 8-11 of right antenna missing.

Syntype ♂ (BMNH): "China"; "128"; "Bowring 43.47*"; "♂"; "Idgia ungulata Ch."; "Idgia ungulata, Champ. Det. G. C. C.". Syntype label added. In good condition.

Syntype ♂ (MNHP, coll. Pic): "♂"; "Hong Kong. J. J. Walker."; "Idgia ungulata, Champ. Det. G. C. C."; "1919.28"; "La ♀ a les yeux très proches (mais non joints) et le proth. presque noir sur les cotes posterieurement". Syntype label added. In good condition.

I. minuta: Holotype ♀ (MNHP, coll. Pic): "Hanoi, Tonkin"; "type"; "TYPE"; "minuta Pic"; "ungulata Chp var probable". Holotype label added. In rather poor condition, slightly mouldy and with antennae and legs partially damaged.

Other material examined: LAOS: Houa Phan prov., Ban Saluei → Phou Pane Mt., 1300-1900 m, 20°11-13' N / 103°59-104°01' E, 10.-17. VI. 2009, Michael Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 3 ♂ (NHMB).
 VIETNAM: "Tonkin" 1 ♀ (MNHP); "Hanoi, 1.-10.V.1902, Vauloger leg., coll. L. Bedel 1922" 1 ♀ (MNHP); Hanoi, 5 m, at light, 23. V. 1981, J. M. Stusák leg. 1 ♀ (NHMB); N.Vietnam, Tonkin, Hanoi, 17.-26. VI. 1985, Vit Kubáň leg. 1 ♀ (NHMB); N Vietnam (Tonkin), Ha Noi (city), 4.-5. V. 1990, P. Pacholátka leg. 2 ♂ (NHMB); N Vietnam (Tonkin), Ha Noi (city), 4.-5. V. 1990, L. Dembický leg. 2 ♀ (NHMB); Hanoi, 6.-25. V. 1990, O. Šauša leg. 2 ♀ (NHMB); N-Vietnam, Hanoi, 8.-9. VI. 1990, S. Brantlová leg. 2 ♂ (NHMB); N Vietnam, Hanoi, 9. VI. 1990, Jan Strnad leg. 1 ♂ (NHMB); Hanoi, 1.-4. V. 1969, I. Hornyák leg. 1 ♂ (MTMB); Hanoi, at light, 20.-30. IV. 1991, E. Jendek leg. 1 ♂ 1 ♀ (NHMW); "Sept-Pagodes (Tonkin), L. Blaise, (Coll. Ph. Francois) Coll. L. Bedel 1922" 4 ♂ 1 ♀ (MNHP); "Env. de Lam (Tonkin), L. Blaise, (Coll. Ph. Francois) Coll. L. Bedel 1922" 1 ♂ 1 ♀ (MNHP); "Rég. de Luc-Nam (Tonkin), L. Blaise, (Coll. Ph. Francois) Coll. L. Bedel 1922" 1 ♀ (MNHP); Prov. Hanoi, Ha-Long, 1. VI. 1985, V. Kubáň leg. 2 ♀ (NHMB); Ha Long, 29. V. - 1. VI. 1985, J. Jelínek leg. 1 ♀ (NMPC); Na Hang, 160 km NNW Hanoi env. NE of Na Hang, 150-200 m, 2.-9. VI. 1996, A. Napolov leg. 1 ♂ 1 ♀ (NKME); Na Hang, 160 km NNW Hanoi env. NE of Na Hang, 150-200 m, 5.-10. VI. 1996, A. Napolov & I. Roma leg. 1 ♀ (NKME); Prov. Bac Can, Ba Be NP, 200 m, broad leaved forest NE of lake Ba Be, No. 69, 11. IX. 1999, Gy. Sziráki leg. 1 ♀ (MTMB); Bac Kan prov., Ba Be NP, Nam Man, at light, 187 m, 22.422612°N / 105.626792°E, 17.-18. IV. 2010, L. Papp, L. Peregovits, Z. Soltész & G. Lengyei, VN2010PL_16. 2 ♂ 3 ♀ (MTMB); "Hoa Binh, Tonkin" 2 ♂ 1 ♀ (MNHP); "Tonkin, Hoa-Binh, VII. 40, leg. A. de Cooman" 1 ♀ (IZAS); "Chapa, Tonkin, Coll. J. Clermont" 1 ♂ (MNHP); "Dap ban, Tonkin" 1 ♀ (MNHP); "Dap ban ton 8. 5. 06" 1 ♂ (MNHP); N Vietnam, 52 km SW of Lang Son, 21°35' N / 106°30' E, 370 m, 27. IV. - 6. V. 1996, Pacholátka & Dembický leg. 1 ♂ 7 ♀ (NHMB); N. Vietnam, Cuc Phuong, 2.-11. V. 1991, Jan Strnad leg. 1 ♀ (NHMB); Cuc Phuong, Ninh Binh prov., 27. IV. 1996, Y. Okushima leg. 1 ♂ (KMNH); "zapov. Cuc-phuong, 15. 7. 1967, Vasil'ev, iz kollektivsii O. N. Kabakova." 1 ♀ (ZISP); 100 km SSW Hanoi, 40 km SW Thanh Hoa, Ben En National Park, 50 m, 23.-28. VII. 1997, A. Napolov leg. 1 ♀ (NKME); "dol. r. Shong-Kon r.-n. Kvi Chau, 15. IV. 63 g., O. N. Kabakov" 1 ♂ (ZISP); "gory W Ha-Tin, Kim-Kuong, 31.3. 1963 g., Kabakov, iz kollektivsii O. N. Kabakova." 1 ♀ (ZISP); "Vung Tau, VI. 188, Freiwilliger Museumsverein Basel, 1989" 1 ♀ (NHMB); Vung Tau, 15.-25. IV. 1989, M. Formánek leg. 1 ♂ (NHMB).
 CHINA: "China, Coll. Kraatz" 2 ♀ (SDEI); "Muséum Paris, Chine" 1 ♂ (MNHP); "198, Chine" 1 ♀ (MNHP).
 FUJIAN: "Fujiang, Dujia, Wuyishan, 27. V. 2002, N. Ohbayashu & L. Li" [more text in Chinese] 1 ♀ (EHUM).
 HONG KONG: "Boyer, 1860" 1 ♀ (NHMW); "Hongkong" 1 ♂ (MTMB), 1 ♂ (NHMB); "Hong kong" 1 ♂ (MNHP); "Hong Kong, F. Duval, 74." 1 ♂ (MNHP); "Hong Kong, J. J. Walker, G. C. Champion Coll., B. M. 1927-409." 5 ♂ 3 ♀ (BMNH); "Hong Kong, Walker Coll. 92.-87." 1 ♂ 1 ♀ (MNHP); "Hong-Lok-Yuen, Tai-Po, N.T., IV-22-1941" 1 ♂ (SYSU); "Chueng-chow Id. nr Hong Kong. May 9-13, 1940. F. K. To" 4 ♂ 1 ♀ (SYSU).
 GUANGDONG: "Canton, 142" 1 ♀ (BIMH); "Canton, Honam Island, P'an-yu District, 193." 2 ♀ (SYSU); "Canton, Honam Island, May 24, 1933, Wm. E. Hoffmann, 50" 1 ♀ (BIMH); "Canton, Honam Island, May 27, 1933, Wm. E. Hoffmann" 1 ♂ (SYSU); "Canton, Honam Island, June 20, 1933, Wm. E. Hoffmann, 51" 1 ♀ (BIMH); "Canton, Honam Island, P'an-yu District, April 21, 1935, William E. Hoffmann, 52" 1 ♀ (BIMH); "Canton, Honam Island, P'an-yu District, Apr. 30, 1936, F. K. To" 1 ♂ (SYSU); "Canton, Honam Island, P'an-yu District, May 14, 1936, F. K. To, 53" 1 ♂ (BIMH); "Canton, Honam Island, P'an-yu District, Sept. 29, 1936, F. K. To" 1 ♂ (SYSU); Guangzhou, Sun Yat-Sen University, 11. IV. 1990, Zheng Xin-Dong leg. 1 ♀ (SYSU); Guangzhou, Sun Yat-Sen University, 11. IV. 1990, Zheng Zhi-Xin leg. 1 ♂ (SYSU); Guangzhou, Sun Yat-Sen University, 21. IV. 1990, Zheng Zhi-Xin leg. 1 ♂ (SYSU); Guangzhou, Sun Yat-Sen University, 8. V. 1990, Zheng Xin-Dong leg. 1 ♀ (SYSU); Guangzhou, Sun Yat-Sen University, 18. V. 1992, Ai Xin-Yu leg. 1 ♀ (SYSU); Guangzhou, Sun Yat-Sen University, 17. IX. 1992, Ai Xin-Yu leg. 1 ♀ (SYSU); Guangzhou Botanical

Garden, 1. V. 1978. 1 ♂ 5 ♀ (IZAS); Guangzhou, Chigang, 24. V. 1987, Wu Qin leg. 1 ♂ (SYSU); Guangzhou, Xinshi, 11. X. 1964, Huang Zheng-Wei leg. 1 ♀ (SYSU); Shenzhen, Wutongshan, 17.-20. IV. 1998, Jia Feng-Long leg. 1 ♀ (SYSU); Shenzhen, Neilingding, 11. V. 1998, Peng Chang-Sheng leg. 1 ♂ (SYSU); Gaoming, Yangliu, 20.-27. IV. 2006, Yu Nan leg. 1 ♀ (SYSU); Yunan, Tongle Forestry, 31. V. 2000, Chen Zhen-Yao leg. 1 ♀ (SYSU); Ruyuan, Longxi, 4.-5. X. 1964. 1 ♀ (SYSU); Dinghushan, 24. VII. 1964, Liang Si-Cheng leg. 1 ♀ (SYSU); "Kwangtung, S. China, Chung-tung, Sheung-shui-heung, Lin-hsien (District), Aug. 2, 1934, F. K. To, 45" 1 ♂ (BIMH); "Yuet Loi Hui, about 40 li NW. of Ping Chuen, Mei-hsien (District), July 29, 1933. F. K. To" 1 ♀ (SYSU); "Kwangtung, S. China, Yam Na Shan, 50 +/- li SE.-E. of Ping Chuen, Mei-hsien (District), August 29, 1933, F. K. To, 46" 1 ♂ (BIMH).

GUANGXI: "Nanning, China, coll. R. Hicker, Wien, coll. W. Wittmer" 1 ♂ 3 ♀ (NHMB); Nanning, 21. IV. 1980, Cai Rong-Quan leg. 1 ♂ (IZAS); Nanning, 29. V. 1984. 2 ♀ (IZAS); Napo, Baihe, 440 m, 6. IV. 1998, Li Wen-Zhu leg. 1 ♂ (IZAS); Longsheng, Sanmen, 300 m, 28. VI. 1963, Wang Chun-Guang leg. 1 ♂ (IZAS); Ningming, Paiyangshan Forestry, 500 m, 27. V. 1984. 1 ♂ (IZAS); Guilin, Yanshan, 23. VII. 1952. 1 ♀ (IZAS); Guilin, Liangfeng, 15. VI. 1952. 1 ♀ (IZAS).

GUIZHOU: "Lilong, China" 1 ♂ (NHMB). HAINAN: "Hainan Is., S. China, Ka-cheh, K'iung-tung, District, May 11, 1932, F. K. To, 48" 1 ♀ (BIMH).

SICHUAN: Emei Shan, 580 m, 25. VI. 1955, Leng Huai-Rou leg. 1 ♂ (IZAS).

YUNNAN: Xishuangbanna, Damenglong, 650m, 17. VII. 1958, Zhang Yi-Ran leg. 1 ♂ (IZAS).

HAINAN: Tongshi, 340 m, 27. IV. 1960, Li Chang-Qing leg. 1 ♀ (IZAS); Nada, 25. IV. 1954, Huang Ke-Ren leg. 1 ♂ (IZAS); Yinggen, 200 m, 6. V. 1960, Li Gui-Fu leg. 1 ♂ (IZAS); Yinggen, 200 m, 7. V. 1960, Li Chang-Qing leg. 1 ♀ (IZAS); Yinggen, 200 m, 5. VII. 1960, Li Gui-Fu leg. 1 ♀ (IZAS); Jianfeng, 4. III. 1984, Song Shi-Mei leg. 1 ♂ (IZAS).

THAILAND: "Thanon Thong Chai", Chiang Dao, 1000 m, 19°25' N / 98°52' E, 17.-24. V. 1991, Vit Kubáň leg. 2 ♂ (NHMB); Kiwlom pass, nr. Soppong, 1400 m, 19°26' N / 98°19'E, 23.-IV.-2.VII. 2005, R. & H. Fouqué leg. 1 ♂ (BMNH); Soppong, 19°29' N / 98°18' E, 13. V. 1993, Vit Kubáň leg. 1 ♀ (NHMB).

UNCLEAR OR IMPRECISE LOCALITIES: "Südost-Asien, Dr. Stendel" 1 ♂ (MNHB).

Measurements ♂ : TBL 8.2 - 8.8 mm, L-h 6.9 - 7.3 mm

HL 1.3 - 1.5 mm, PL 1.2 - 1.3 mm, EL 5.6 - 6.0 mm

♀ : TBL 8.6 - 10.7 mm, L-h 7.4 - 9.0 mm

HL 1.2 - 1.7 mm, PL 1.3 - 1.5 mm, EL 6.0 - 7.5 mm

Differential diagnosis: Males are easily distinguished from all other *Idgia* species by the enlarged, claw-like hind tibial spurs and distinctive aedeagus shape. Females are recognised by the combination bicolorous head (black around eyes, vertex at least partly reddish), bicolorous femora, regular rows of black setae on the elytra and relatively short, stout habitus.

Redescription: Habitus as in figs. 16 (♂) and 17 (♀). Body testaceous yellowish-brown. Elytra with a black apical macula, occupying about 1/10 of their total length. Head with a black fascia around the eyes, often covering most of the front and vertex, sometimes only leaving a spot at the base of the vertex and the fore part of clypeus testaceous. Antennae light brown, with the inner part of the last segment lighter yellow. Maxillary and labial palpi yellowish testaceous. Femora mostly yellowish testaceous, with a short, diffusely delimited black stripe along the outer edge, at the tibial insertions. Tibiae and tarsi infuscate, brown to blackish.

Head behind eyes about 0.6 times as wide as middle part of pronotum; polished and shining with fine, scattered, greyish recumbent vestiture, with a few long, black setae behind the eyes. Eyes very large and occupying most of the head in male, leaving only a narrow ridge in between (much narrower than the middle antennal segments); only slightly smaller in females, with a broader space in between (about the width of the third antennal segment). Frons in front of eyes forming a flat, rectangular area, delimited by the ridges above the antennal insertions and the epistomal suture. Clypeus convex, about

double as wide as long. Labrum flat, subpentagonal, with straight diverging sides and arcuate apical edge, with shorter, recumbent vestiture and a few long, yellowish setae.

Male antennae subfiliform, reaching the first third of the elytra, behind the humeral callus, in length; finely pubescent. First segment slightly thickened, about twice as long as wide, second segment short, third thin and slightly longer than first and second together, fourth and fifth shorter than third, sixth about the same length but slightly thicker, seventh to tenth decreasing in length, but faintly increasing in thickness. Last segment longest, a bit shorter than the first three together; subcultriform, with a slight angle at $\frac{3}{4}$ of the inner edge.

Pronotum about as long as wide, widest in apical half, sinuate at the sides, before the hind angles; all angles rounded, hind angles obtuse, rounded; margins only with traces of a bordering, especially in front; vertex slightly convex, and with a very faint subbasal impression in the middle; shining and finely, irregularly punctate; with fine, inconspicuous vestiture and a few longer, yellowish setae along the outer margins (often abraded).

Elytra about 2.4-2.5 times as long as wide together in males, subparallel in shape with humeral area slightly narrower than middle part; humeral callus distinct; moderately shining, finely and densely punctate, covered with inconspicuous yellowish recumbent vestiture and longer, stiff black setae arranged into four rows, one of them close to the suture. Margins finely crenulate, with brownish or blackish setae. Scutellum small, about double as wide as long, impunctate and glabrous; with fine, yellowish vestiture.

Femora not thickened in males, very finely punctate and finely, inconspicuously pubescent. Tibiae and tarsi with longer, rather stiff golden brownish setae, especially dense in apical part of tibia. Claws widened at base, otherwise simple.

Abdomen relatively shining, with golden brown ground vestiture and some longer hair-like setae around the margins.

Male: Last (sixth) ventrite of distinctive shape, together with the last tergite about funnel-shaped, with only a small apical opening (fig. 125). Apical edge with a small, but sharp incision. Hind tibiae arcuate. Hind tibial spurs strongly enlarged, hook-shaped.

Aedeagus as in figs. 67, 97; relatively large in relation to body size. Process of phallobase relatively long, bent down at an 90° angle relative to apical part of parameres. Parameres bluntly rounded at tip, gaping dorsally, lower edge without hair-like setae, but apex with several bristly, brownish setae on the inside, along the margins. Median lobe long and narrow, sinuate before apex, with characteristic, slightly hooked tip (best seen in lateral view).

Sexual dimorphism: Apart from the strong characters of the hind tibiae in males, females are usually larger and a bit broader, less parallel in shape. The head is slightly flatter and the eyes are a bit smaller. Male with black comb on the first three protarsomeres.

Variability: Rarely, the black stripe along the eyes is reduced, leaving the whole head testaceous, yellowish brown. There are also specimens with nearly completely black head. Specimens from S-China vary considerably in size, sometimes being much larger than specimens from Indochina. The aedeagus characters, as well as the last sternite in male, are identical.

Distribution: S China (Fujian, Guizhou, Sichuan, Hong Kong, Guangdong, Guangxi, Hainan), Vietnam, Laos, Thailand.

Biology and ecology: This widely distributed species was found at altitudes from sea level upwards to over 1000 m. It seems to be tolerant to degraded habitats and was even found in highly urbanised areas, like in the cities of Hong Kong and Hanoi.

Idgia elongaticeps Pic, 1923

(Fig. 18)

Idgia elongaticeps Pic, 1923a: 62.

Idgia eleganticeps (sic!) Pic, 1928 (sic!): Gressitt, 1939: 194.

Idgia elongaticeps Pic, 1943a: 4. (nec Pic, 1923a). Synonymised by Geiser, 2009: 132.

Type material examined: Holotype ♂ (MNHP, coll. Pic): "Natheng, Annam, 5 avril 1919"; "*Idgia elongaticeps* n. sp."; "type"; "TYPE". Holotype label added. In very poor condition, damaged by dermestid larvae, with most of the legs and both antennae missing.

Measurements: ♂: TBL 11.2 mm, L-h 8.9 mm, HL 2.3 mm, PL 1.8 mm, EL 7.1 mm

Differential diagnosis: Easily distinguished from all Indochinese species by the extremely elongate "rostriform" head, with an unusually large space between the eyes and the antennal insertions. A species similar in shape and colouration is *I. arabica* Champion, 1919, from the Arabian Peninsula, but this is larger, with broader pronotum and a more extended apical macula on the elytra. *I. rostrifera* Champion, 1919, from South India, has a similarly elongate head, but a densely punctate pronotal and elytra sculpture, as well as partly infusate femora.

Redescription: Habitus as in fig. 18 (holotype ♂). Body testaceous. Elytra light brown with a black apical spot occupying about $\frac{1}{4}$ of the total length, but only reaching the suture at apex. Head black with clypeus and labrum dark reddish brown. Legs entirely testaceous.

Head narrow and extremely elongate, behind the eyes about 0.6 times as wide as middle part of pronotum. Vertex smooth, with very sparse greyish setae. Eyes very large, but not largely protruding, only very narrowly separated on the dorsal surface, more widely on the underside. Frons smooth and shining. Space between eyes and antennal insertions large, in lateral view about half of the length of the eyes. Clypeus lower than frons, finely shagreened and with a few shallow punctures. Labrum widest at base, semicircular, about as long as wide, with sparse punctures and a few long, brownish, hair-like setae.

Pronotum longer than wide, maximal length : maximal width 1 : 0.82, widest after the middle; all angles rounded, hind angles approximately 100°, front angles oblique; all margins distinctly bordered; front margins and the area of the hind angles slightly elevate, disc slightly convex, with a rather shallow, oblique impression in basal part, between disc and hind angles and a shallow, transverse impression between disc and front margins; shining and without microsculpture; with sparse irregular punctures and very sparse, inconspicuous brownish recumbent vestiture.

Elytra about 2.7 times as long as wide together, very slightly widened towards the apical third, with a convex humeral fold; all over with irregular shallow punctures within a rugulose texture; covered with

very fine and short, but rather dense golden brown recumbent vestiture and some longer, hair-like setae, some smaller, yellowish along the suture and some larger, infuscate ones in rows on the disc. Margins weakly crenulate, with brownish erect setae. Scutellum transverse, very finely punctate with sparse, golden brown vestiture.

Femora not thickened, very finely punctate with fine, golden brownish vestiture. Tibiae with fine, inconspicuous, dark brown vestiture. Tarsi brownish, non-metallic, more roughly pubescent with long, black hair-like setae. Claws slightly widened at base, reddish brown with infuscate apex.

Sexual dimorphism: Unknown.

Variability: Unknown.

Distribution: Known only from the type locality "Natheng", which is situated in Xieng Khouang province, NE Laos.

Biology and ecology: The only known specimen was collected in early April (late dry season) at about 1100 m altitude.

Notes: The unique holotype was not dissected nor remounted, as it is already in bad condition and no other specimens could be found. For this reason, the characters of the abdomen and all the male sexual characters are unknown for the moment.

Idgia lajoyei Pic, 1920
(Figs. 19, 20, 68, 98, 126)

Idgia lajoyei Pic, 1920a: 8.

Type material examined: Syntype ♂ (MNHP, coll. Pic): "Bao-Lac (Tonkin)"; "setifrons Kirby"; "Type"; "TYPE"; "lajoyei Pic". Syntype label added. The back end of the mounting card with a stripe of green paper glued to it. Antennae strongly damaged.

Syntype ♂ (MNHP, coll. Pic): "Bao-Lac (Tonkin)"; "voir atriceps Chp". Syntype label added. The back end of the mounting card with a stripe of green paper glued to it. In good condition.

Syntype ♂ (MNHP, coll. Pic): "Bao-Lac (Tonkin)"; "Pic"; "Idgia ?setifrons Kirsch (gardé un)"; "lajoyei Pic". Syntype label added. The back end of the mounting card with a stripe of green paper glued to it. In good condition.

Syntype ♂ (MNHP, coll. Pic): "Bao-Lac (Tonkin)"; "type". Syntype label added. The back end of the mounting card with a stripe of green paper glued to it. In good condition.

Syntype ♂ (MNHP, coll. Pic): "Bao-Lac (Tonkin)"; "(ex Lajoye)"; "? setifrons Kirsch". Syntype label added. The back end of the mounting card with a stripe of green paper glued to it. In rather poor condition, mouldy, head strongly damaged by dermestid larvae, right antenna missing.

Syntype ♂ (MNHP, coll. Pic): "Bao-Lac (Tonkin)". Syntype label added. In good condition.

Syntype ♀ (MNHP, coll. Pic): Labels as above. In poor condition, very mouldy.

Syntype ♂ (BMNH): "♂"; "Bao-Lac (Tonkin)"; "I. Lajoyei Pic"; "ex Coll. Pic. 1920-255". Syntype label added. The back end of the mounting card with a stripe of green paper glued to it. In good condition.

Other material examined: LAOS: Bolikhamsai prov., Ban Nape (8 km NE), 18°21' N / 105°08' E, ~600 m, 1.-18. V. 2001, Vít Kubáň leg. 1 ♀ (NHMB).

VIETNAM: "Tonkin, Chapa, 6. V. 1918, Jeanvoine" 1 ♂ (MNHP); "Lao Kay (ex Vuillet)" 1 ♀ (MNHP); "Lang Son (Tonkin)" 1 ♀ (MNHP); N Vietnam, 52 km SW of Lang Son, 21°35' N / 106°30' E, 370 m, 27. IV. - 6. V. 1996, Pacholátko & Dembický leg. 8 ♂ (NHMB); "40 km NO Thai-nguyen, 300m, 17. VI. 1963, Kabakov, iz kollektcii O. N. Kabakova." 2 ♀ (ZISP); Ha Son Binh prov., Hoa-Binh, 6. VI. 1986, V. Švihla leg. 1 ♂ 2 ♀ (NHMB); Ha Son Binh prov., Hoa-Binh, 5.-7. VI. 1986, V. Švihla leg. 1 ♀ (NHMB); "Hoa Binh, Tonkin, coll. W. Wittmer" 7 ♂ 4 ♀ (NHMB); "Hoa Binh, Tonkin, coll. M. Pic" 7 ♂ (MNHP); "Hoa Binh, Tonkin" 1 ♀ (MNHP); "Tonkin, Hoa-Binh, leg. A. de Cooman" 1 ♀ (IZAS); "Tonkin, Hoa-Binh, VII. 40, leg. A. de Cooman" 1 ♂ 5 ♀ (IZAS); "Hoa Binh" 1 ♂ (MNHP); Bac Kan prov., Ba Be NP, Nam Man, at light, 187 m, 22.422612°N / 105.626792°E, 17.-18. IV. 2010, L. Papp, L. Peregovits, Z. Soltész & G. Lengyei, VN2010PL_16. 3 ♀ (MTMB); Bac Kan prov., Ba Be NP, Na Mam, forest, light trap, 200 m, 22.422612°N / 105.626792°E, 17.-19. IV. 2010, L. Papp, L. Peregovits, Z. Soltész & G. Lengyei, VN2010PL_17. 1 ♀ (MTMB); Chua Huong (Huong Son), 60 km SW Hanoi, 26.-29. IV. 1991, E. Jendek leg. 1 ♀ (NHMW); Ha Son Binh prov., Huong Son, 26.-29. IV. 1991, J. Strnad leg. 1 ♂ (NHMB); Na Hang, 160 km NNW Hanoi env. NE of Na Hang, 150-200 m, 2.-9. VI. 1996, A. Napolov leg. 2 ♂ 5 ♀ (NKME), 1 ♂ 1 ♀ (BMNH); Na Hang, 160 km NNW Hanoi env. NE of Na Hang, 150-200 m, 9.-14. VI. 1996, A. Napolov leg. 1 ♂ 2 ♀ (NKME); Na Hang, 160 km NNW Hanoi env. NE of Na Hang, 150-200 m, 5.-10. VI. 1996, A. Napolov & I. Roma leg. 1 ♂ (NKME); Na Hang, 100 km NNW Hanoi, NE env. of Na Hang, 150-200 m, 28. V. - 7. VI. 1996, A. Napolov & I. Roma leg. 1 ♂ 3 ♀ (NKME); Tuyen-Quang prov., SE-E env. of Na Hang, 200-700 m, 22°17'40"-22°22'30" N / 105°26'-28' E, 1.-12. V. 2010, L. Dembický leg. 4 ♀ (NHMB); "Central-Tonkin, Chiem-Hoa, Aug. Sept., H. Fruhstorfer" 1 ♂ (MNHB); Hoang Lien Son Distr., Yen Bai, 10.-11. V. 1990, Jan Horák leg. 2 ♂ (NHMB); Cuc Phuong, 2.-11. V. 1991, Jan Strnad leg. 4 ♂ 2 ♀ (NHMB); Cuc Phuong, Ninh Binh prov., 26. IV. 1996, Y. Okushima leg. 1 ♂ (KMNH); Cuc Phuong, Ninh Binh prov., 28. IV. 1996, Y. Okushima leg. 1 ♀ (KMNH); 100 km S from Hanoi, Cuc-Phuong nat. park, 2.-12. V. 1991, E. Jendek leg. 2 ♂ 2 ♀ (NHMB), 1 ♂ 1 ♀ (NHMW); Sonduong, 300 m, 15. V. 1963, Kabakov leg., coll. O. N. Kabakov. 1 ♂ 3 ♀ (ZISP); "gory NW Kon-Kuong, 400m, 22. 4. 1962 g., Kabakov, iz kollektcii O. N. Kabakova." 1 ♂ (ZISP); "perekhod ot Shong-Koi v r-n verkh ruchya Khe Oy k sev. ot. Kon-Kuong, 21. IV. 62 g., O. N. Kabakov". 6 ♂ 3 ♀ (ZISP); "Hoanbo, 14. 6. 1962, Kabakov, iz kollektcii O. N. Kabakova." 1 ♀ (ZISP); Prov. Gia-lai Kontum, Buon-loi, 40 km N of Ankhe, 28. VI. - 2. VII. 1983 1 ♀ (SMNS); Nha Ho 14 km N Phan Rang, 15. XI. 1960, C. M. Yoshimoto leg. 1 ♀ (BIMH).

CHINA: YUNNAN: Jinping, Mengla, 400m, 28. IV. 1956, Huang Ke-Ren leg. 1 ♂ (IZAS); Jinping, Mengla, 500m, 2. V. 1956, Huang Ke-Ren leg. 1 ♀ (IZAS).

Measurements ♂ : TBL 8.5 - 10.9 mm, L-h 7.3 - 9.1 mm

HL 1.2 - 1.8 mm, PL 1.4 - 1.6 mm, EL 5.9 - 7.5 mm

♀ : TBL 9.8 - 11.6 mm, L-h 8.4 - 9.8 mm

HL 1.4 - 1.9 mm, PL 1.4 - 1.6 mm, EL 7.0 - 8.2 mm

Differential diagnosis: Characterised in males by the combination of black head, slightly thickened middle and hind femora and the very distinctive paramera, with sharp emargination at their ventral edge. Otherwise extremely similar to *I. vietnamensis* n. sp., also occurring in northern Vietnam. Males of *I. vietnamensis* tend to have more elongate elytra. Females of these two species are very difficult to distinguish, with differences found only in their head shape (more elongate in *I. lajoyei*) and the elytra, which are slightly narrower and a bit more parallel in *I. vietnamensis*. In localities where both species coexists, the male genitalia need to be examined.

Redescription: Habitus as in figs. 19 (♂) and 20 (♀). Body testaceous yellow. Head, except fore part of clypeus black. Elytra with black apical macula, occupying about 1/10 of their length. Legs with infuscate tibiae and tarsi, as well as a small, infuscate patch at femoral apex. Antennae light brownish in males, sometimes with segments 5-10 slightly infuscate; more variable and generally darker in females, sometimes all dark brown, except last segment. Maxillary and labial palpi, as well as claws, testaceous.

Head behind the eyes about 0.7 times as wide as middle part of pronotum. Vertex shining, very finely and sparsely punctate, with relatively coarse, yellowish vestiture and some longer, pale-coloured setae around eyes; sides behind eyes with a tuft of some long, stiff, brownish setae. Frons rather polished and shining, sparsely punctate, not much impressed in front of eyes; with coarse, long, yellowish setae. Clypeus transversely subrectangular, smooth in fore half, with long, yellowish setae in basal half. Labrum about as wide as long, subquadrate, with arcuate apical edge; finely punctate and with yellowish setae of variable length.

Male antennae rather robust, thicker than in female, sparsely pilose. First segment, second subglobose, 3-5 long, cylindrical, filiform, 6-10 gradually flattened and widened towards their apex, subserrate; last segment subcultriform, flattened towards apex, with slightly widened base broadly emarginate outer edge, inner part densely covered in sensillae. First antennomere about twice as long as wide; second short, less than half as long as first; segments 3 and 5-8 each slightly longer than first, but shorter than the first two together, 4 and 9 about as long as 1; 11 longest, about as long as the first two together.

Pronotum about as long as wide, widest in apical half, with slightly sinuate sides in basal half; all angles rounded; margins finely bordered; without distinct median subbasal depression; disc rather smooth and shining, very finely and sparsely punctate and with fine, inconspicuous, yellowish ground vestiture; along the margins with some longer, yellowish or brownish setae, abraded in a number of specimens. Basal and apical margins very finely ciliate, with short, yellowish hair-like setae.

Elytra about 2.6 times as long as wide together in males, subparallel; humeral callus distinct; finely rugulose and with oily sheen, covered in fine, yellowish ground vestiture and with four distinct rows of long, erect, brown to blackish setae, one along suture and three on disc; with some additional, blackish setae in apical half near lateral margins. Margins finely crenulate with a row of stiff, setae, varying from yellowish to black. Scutellum transverse, semicircular, rather smooth, with very fine punctures and finer ground vestiture than elytra.

Hind and middle femora slightly thickened in males, shagreened and rather matt, with finer pilosity than elytra. Tibiae and tarsi matt, covered in stiff, golden yellowish setae, increasing in density towards tibial apex. Hind tibiae in males curved at base, to a variable degree. Tarsi densely covered in stiff, brownish setae. Claws widened at base, otherwise simple.

Abdomen finely shagreened, with fine punctures and often slightly rugulose texture. Sternites with fine, yellowish ground vestiture and longer, yellowish setae around the margins.

Male: Last (sixth) ventrite as in fig. 126; of moderate size, much narrower than the fifth ventrite; apical margin with broad, relatively shallow emargination. Apical margin of last tergite simply arcuate, not thickened or emarginate.

Aedeagus as in figs. 68, 98. Process of phallobase pointing downwards, forming an angle of about 120°-135° relative to apical part of paramera. Parameres widely gaping dorsally, convergent towards apices, their lower edge (lateral view) abruptly narrowed at about 2/3 of total length, the resulting large emargination densely covered with long, yellowish hair-like setae; inner surface at apex with shorter, very dense, spiny, yellowish setation. Median lobe slightly thickened at base, apex after ostium flattened, but very short, subtriangular with slightly rounded tip, when seen from above.

Sexual dimorphism: This species has a rather strong sexual dimorphism. Females are not only on average larger and broader than males (especially with broader elytra), they also differ in antennal shape and colouration. Antennae filiform and usually mostly dark-coloured in females, at least segments 7-10, often 1-10 distinctly infusate; clearly thicker and with subserrate apical half in males, often completely testaceous, or with only few infusate antennomeres. Eyes smaller and more widely separated in females. Middle and hind femora slightly thickened and hind tibiae curved in males. Last visible sternite and tergite simple in females, without incisions or emargination. Male with black comb on the first three protarsomeres.

Variability: Apart from the already mentioned variation in antennal colour, the curvature of the metatibiae in males seems to be slightly variable, larger males having more strongly curved tibiae. The apical patch of the femora can be reduced to a small, slightly infusate spot at the knees, or slightly widened along the outer edge of the femur, but always restricted to the apical third.

Distribution: N Vietnam, Laos, S China (Yunnan).

Biology and ecology: Adults were found between end of April and mid-November, with most of the specimens collected in May and June (early monsoon season). Most specimens were collected in or near forested areas, including both primary and degraded forests. A major part of the specimens seems to come from light traps (judging from the Lepidoptera scales found on several of the specimens).

***Idgia particularipes* Pic, 1920**

(Figs. 21, 22, 69, 99, 127)

Idgia particularipes Pic, 1920a: 7.

Type material examined: Holotype ♀ (MNHP, coll. Pic): "Teinzo, Birmania, Fea, Maggio 1886"; "désiré"; "*Idgia melanura*"; "voir varipes Chp"; "type"; "TYPE"; "*particularipes* Pic". Holotype label added. In rather poor condition, slightly mouldy and with the right antenna missing.

Other material examined: LAOS: Phongsaly prov., Phongsaly env., ~1500 m, 21°41' N / 102°06-8' E, 6.-17. V. 2004, M. Brancucci leg. 5 ♀ (NHMB); Louang Namtha pr., Namtha → Muang Sing, 900-1200 m, 21°09' N / 101°19' E, 5.-31. V. 1997, Vít Kubáň leg. 4 ♀ (NHMB); Louangphrabang prov., Ban Song Cha (5 km W), +/- 1200 m, 20°33-4' N / 102°14' E, 24. IV.-16. V. 1999, Vít Kubáň leg. 3 ♀ (NHMB); Louangphrabang prov., Ban Song Cha, 1200 m, 20°33' N / 102°14' E, 24. IV.-16. V. 1999, Vít Kubáň leg. 1 ♀ (NHMB); Xieng Khouang prov., Ban Thachôk env., 19°33' N / 103°25' E, ca. 1150 m, flowering tree, 26. V. 2010, M. Geiser & D. Hauck leg. 1 ♀ (NHMB); Xieng Khouang prov., 30 km NE Phonsavan: Phou Sane Mt., ~1400-1500 m, 19°37-38' N / 103°20' E, 10.-30. V. 2009, Z. Kraus leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 1 ♀ (NHMB); Xam Neua, around Ban Saleui, 9.10. IV. 2004, N. Ohbayashi leg. 1 ♀ (EHUM); Hua Phan prov., Phu Phan Mt., 1500-1900 m, ~20°12' N / 104°01' E, 17. V.-3. VI. 2007, M. Brancucci leg., NHMB Basel expedition to Laos 2007. 1 ♀ (NHMB); Hua Phan prov., Phu Phan Mt., 1500-1900 m, ~20°12' N / 104°01' E, 17. V.-3. VI. 2007, Vít Kubáň leg., NHMB Basel expedition to Laos 2007. 1 ♀ (NHMB); Houa Phan prov., Phou Pane Mt., 20°12'01"-13'09" N / 103°59'54"-104°00'55" E, 1480-1900 m, 22. IV.-14. V. 2008, Lao collector leg. 3 ♀ (NMPC); Houa Phan prov., Ban Saluei → Phou Pane Mt., 1340-1870 m, 20°12-13.5' N / 103°59.5'-104°01' E, 10. V. - 9. VI. 2009, C. Holzschuh & local coll. leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 6 ♀ (NHMB), 1 ♂ 1 ♀ (BMNH); Houa Phan prov., Ban Saluei → Phou Pane Mt., 1340-1500 m, 20°12-13.5' N / 103°59.5'-104°01' E, 2.-9. VI. 2009, M. Brancucci leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 4 ♀ (NHMB); Houa Phan prov., Ban Saluei → Phou Pane Mt., 1300-1900 m, 20°11-13' N / 103°59'-104°01' E, 10.-17. VI. 2009, Michael Geiser leg., NHMB Basel,

NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 1 ♀ (NHMB); Houa Phan prov., Phou Pane Mt., 1480-1550 m, 20°13'09"-19" N / 103°59'54" - 104°00'03" E, 9.-16. VI. 2009, David Hauck leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 1 ♀ (NHMB); Houa Phan prov., Ban Saluei → Phou Pane Mt., 20°12'-13.5' N / 103°59.5'-104°01' E, 1340-1870 m, 7. IV. - 25. V. 2010, C. Holzschuh & local coll. leg. 2 ♂ 24 ♀ (NHMB); Hua Phan prov., Ban Saluei, Phou Pan (Mt.), 1300-1900 m, 20°12' N / 104°01' E, 11. IV. - 15. V. 2012, C. Holzschuh leg., BMNH(E) 2012-14. 2 ♀ (BMNH); Hua Phan prov., Ban Saluei, Phou Pan (Mt.), 1300-1900 m, 20°12' N / 104°01' E, 11. IV. - 15. V. 2012, C. Holzschuh leg. 2 ♂ 17 ♀ (NKME); Bolikhamxai prov., Ban Nape (8 km NE), ~600 m, 18°21' N / 105°08' E, 1.-18. V. 2001, Pacholátka leg. 2 ♀ (NHMB); Khammouan pr., Ban Khoun Ngeun, ~200 m, 18°07' N / 104°29' E, 19.-31. V. 2001, Pacholátka leg. 1 ♀ (NHMB).

VIETNAM: Sa Pa, 11.-18. VI. 1990, A. Olexa leg. 1 ♂ (NHMB); Hoang Lien Son prov., Sa-Pa, 1500 m, 11.-19. VI. 1990, Jan Strnad leg. 1 ♀ (NHMB); Lao Cai prov., Sa Pa, 1500 m, 11. X. 1994, M. Satô leg. 1 ♂ (EHUM); "Tonkin, Chapa, 30. VI. 1917, Jeanvoine" 1 ♂ (MNHP); "Chapa, Tonkin" 1 ♀ (MNHP); "Chapa, 1150" 1 ♀ (MNHP); "Chapa" 1 ♂ (MNHP); Lao Cai prov., Hoang Lien NP, Tram Ton, 1915 m, 22.3493723° N / 103.7704565° E, forest edge, at light, 8.-11. IV. 2010, L. Papp, L. Peregovits & Z. Soltész leg., VN2010PL_4. 1 ♀ (MTMB); Lao Cai Prov., Sa Pa Distr., Fan Si Pan Mt. 1900-2500 m, 22°20'58" N / 103°46'15" E, 20. IV. - 9. V. 1999, N. L. Orlov leg. 2 ♀ (ZISP); "Lao Kay, Tonkin" 1 ♂ 1 ♀ (MNHP); "Lao Kay" 1 ♂ 3 ♀ (MNHP); "Tonkin sept., frontière de Chine, Ha-Giang, A. Weiss 1901, oct. déc." 1 ♀ (MNHP); "Tonkin sept., frontière de Chine, Ha-Giang, A. Weiss 1901, oct. déc." 1 ♀ (MNHP); "Tam Dao, Tonkin, H. Perrot, 71" 1 ♂ (MNHP); Vinh Phu Prov., Tam Dao, 1. V. 1996, Y. Okushima leg. 1 ♀ (KMNH); "Ho Lang (coll. Lamey)" 1 ♀ (MNHP); "Tonkin sept., Ha-Lang, Lamey 1904" 1 ♂ 1 ♀ (MNHP); "Ha-Lang, Tonkin Nord, Lamey, coll. Kraatz" 1 ♂ (SDEI); "Tonkin, Montes Mauson, 2-3000', April, Mai, H. Fruhstorfer" 1 ♀ (MNHB); Cao Bang prov., 12 km NE Cao Bang, 650 +/- 50 m, 22°45'45" N / 106°19' E, 15.-16. V. 2010, L. Dembický leg. 1 ♀ (NHMB); "Lay Chau, 12.12.1950, Izokh, iz kollektcii O. N. Kabakova." 1 ♀ (ZISP).

THAILAND: Chiang Mai prov., San Pakia vill. 19°19' N / 98°50' E, 1.-15. V. 1988, Vit Kubáň leg. 1 ♀ (NHMB); Chiang Mai prov., San Pakia vill., 19°19' N / 98°50' E, 1400 m, 1.-15. V. 1998, Vit Kubáň leg. 1 ♂ 2 ♀ (NHMB); Soppong - Pai, 1800 m, 1.-6. V. 1991, Pacholátka leg. 1 ♂ 3 ♀ (NHMB); Soppong Pai, 1800 m, 1.-8. V. 1993, Pacholátka & Dembický leg. 7 ♀ (NHMB); Mae Hong Son prov., SE of Soppong, 19°27' N / 98°20' E, 1500 m, 23.-27. V. 1999, M. Řiha leg. 1 ♀ (NHMB); Mae Hong Son, Ban Huai Po, 19°19' N / 97°59' E, 1600-2000 m, 9.-16. V. 1991, L. Dembický leg. 1 ♀ (NHMW).

MYANMAR: "Carin Cheba, 900-1100 m, L. Fea, V-XII. 88" 1 ♀ (MCGD).

INDIA: ARUNACHAL PRADESH: 8 km S Jamiri, Sessa vicinity, 27°07'-09' N / 92°34' E, 350 m, 26. V. - 4. VI. 2005, L. Dembický leg., BMNH (E), 2006-48, L. Dembický. 1 ♀ (BMNH). ASSAM: "Margherita, Assam, IV. & V. 1889. Brit. Mus. 1923-320. " 1 ♀ (BMNH); "Kairkhana, Assam, 20. II 12, Fon-Vik" 1 ♀ (ZISP).

MEGHALAYA: "Assam UKJH, Mynso, 3500', 20. 4. 1960, F. Schmid, coll. W. Wittmer" 1 ♀ (NHMB); Nokrek N. P., 3 km S Darbogkit, 25°27' N / 90°19' E, 26. VIII. 1998, Z. Košťál leg. 1 ♂ 1 ♀ (NHMB); Nokrek n. p., 3 km S Darbogkiri, 25°27' N / 90°19' E, 1400 m, 26. IV. 1999, Dembický & Pacholátka leg. 10 ♀ (NHMB); Nokrek N. P., 3 km S Darbogkiri, 25°27' N / 90°19' E, 1400 m, 26. IV. 1999, J. Rolčík leg. 1 ♂ 4 ♀ (NHMB); Nokrek N. P., 3 km S Darbogkiri, 25°27' N / 90°19' E, 1400 m, 26. IV. 1999, Zd. Košťál leg. 1 ♀ (NHMB); 3 km E of Tura, 25°30' N / 90°14' E, 500-1150 m, 15.-22. IV. 1999, J. Rolčík leg. 1 ♂ 2 ♀ (NHMB); 1 km E of Tura, 500-600 m, 25°30' N / 90°14' E, 2.-5. V. 2002, M. Trýzna & P. Benda leg. 1 ♂ (BMNH); 3 km E Tura, 1150 m, 25°30' N / 90°14' E, 6.-12. V. 2002, M. Trýzna & P. Benda leg. 3 ♀ (BMNH); 3 km E of Tura, 25°30' N / 90°14' E, 500-1150 m, 1.-8. V. 1999, J. Rolčík leg. 1 ♀ (NHMB); 3 km E of Tura, 25°30' N / 90°14' E, 1150 m, 4. V. 1999, Dembický & Pacholátka leg. 1 ♀ (NHMB). MANIPUR: "India Or., Manipur, Fry Coll. 1905.100. " 1 ♀ (BMNH). NAGALAND: "Kohima, Assam, leg. Dr. Kauffmann" 2 ♀ (NHMB).

CHINA: YUNNAN: "Yunnan" 1 ♀ (MNHP); "Yunnan (Sheng)" 2 ♀ (MNHP); "Yunnan fou" 1 ♀ (MNHP); Kunming, 1900m, 5. VII. 1956, Huang Ke-Ren leg. 1 ♀ (IZAS); "Pi Shit Chat (near Mengtsz), alt. 4500-5500 ft., Aug 18 1934, Ernest R. Tinkham, 54" 1 ♀ (BIMH); Cangyuan, 990m, 16. V. 1980, Gao Jin-Wen leg. 1 ♀ (IZAS); Jinping, Hetouzhai, 1500-1700m, 11. V. 1956, Huang Ke-Ren leg. 1 ♀ (IZAS); Mt. Huanglianshan, Lu-Chun county, 4.-15. VI. 2008, Jingke Li leg. 1 ♀ (CHH); 3 km W Daju, 27°19.8' N / 100°14.4' E, 1665 m, individually collected on gravel bank of a stream and on sparse vegetation, deep river valley and ruderalized grasslands, 17.-20. VI. 2007, J. Hájek & J. Růžička leg. 1 ♂ (NMPC); Jingdong, Jiweiba, 5. V. 1957, Zhu Zeng-Hao leg. 1 ♂ (IZAS); Jinghong, 550m, 17. IV. 1982, Yu Pei-Yu leg. 1 ♂ (IZAS); Jinghong, NRWNNR Naban station, 727m, 22.16°N, 100.65°E, 1. X. 2010, Lin Mei-Ying leg. 1 ♀ (IZAS); Xishuangbanna, 23 km

NW Jinghong, Na Ban Village (NNNR), LF station, 22°10.04' N / 100°39.52' E, 620 m, 5. VI. 2008, A. Weigel leg. 1 ♀ (NKME); Menghai county, NRWNR Xiaonuoyou up village, 1628m, 22°22' N, 100°59' E, 6. X. 2010, Lin Mei-Ying leg. 2 ♂ (IZAS); Xishuangbanna, Menghun, 1200-1400m, 10. V. 1958, Meng Xu-Wu leg. 2 ♀ (IZAS); Xishuangbanna, Menghun, 1200-1400m, 10. V. 1958, Zhang Yi-Ran leg. 1 ♀ (IZAS); Xishuangbanna, Menghun, 1200-1400m, 11. V. 1958, Meng Xu-Wu leg. 2 ♂ (IZAS); Xishuangbanna, Menghun, 1200-1400m, 14. V. 1958, Yu Pei-Yu leg. 1 ♀ (IZAS); Xishuangbanna, Mengsong, 1600m, 22. IV. 1958, Pu Fu-Ji leg. 1 ♀ (IZAS); Xishuangbanna, Mengsong, 1600m, 24. IV. 1958, Zheng Le-Yi leg. 1 ♀ (IZAS); Xishuangbanna, Mengsong, 1600m, 28. IV. 1958, Wang Shu-Yong leg. 1 ♀ (IZAS); Xishuangbanna, Menga, 1050-1080m, 14. V. 1958, Pu Fu-Ji leg. 1 ♂ (IZAS); Yingjiang, 1700m, 14. IV. 1980, Gao Wu leg. 1 ♀ (IZAS); Yongkou, 6.-11. VII. 2010, E. Kučera leg. 1 ♀ (BMNH).
 GUIZHOU: "Kouy Tcheou" 1 ♀ (MNHP); "Kouy Tchéou, Cavalerie, 1921" 1 ♀ (MNHP). GUANGDONG: Fengkai, Heishiding, 9. X. 1984, Yu Shuo leg. 1 ♀ (SYSU).

Measurements ♂ : TBL 10.5 - 11.3 mm, L-h 9.0 - 9.4 mm
 HL 1.5 - 1.9 mm, PL 1.6 - 1.8 mm, EL 7.3 - 7.7 mm
 ♀ : TBL 11.3 - 12.8 mm, L-h 9.8 - 11.1 mm
 HL 1.5 - 1.8 mm, PL 1.6 - 2.1 mm, EL 8.1 - 9.0 mm

Differential diagnosis: A species with relatively few outstanding characters, most easily recognised by the male genitalia. Females can still be distinguished by the characteristic colouration of the femora, in combination with the fine, dense, silky elytral vestiture. The similar-looking *I. lajoyei* and *I. deusta* Fairmaire, 1878 (China, including Taiwan) have relatively conspicuous, long, blackish setae on the elytral disc, arranged in two or three rows. These setae are golden yellow and hard to detect in *I. particularipes*. The similar-looking *I. melanura* (Kollar & Redtenbacher, 1844, widespread in the Himalayas, has more widely darkened femora, with the apical 2/3 black.

Redescription: Habitus as in figs. 21 (♂) and 22 (♀). Body testaceous yellowish-brown. Elytra with a black apical macula, occupying about 1/10 of their total length. Head black, with outer edge of labrum testaceous. Antennae mostly dark brown to black, parts of the last three segments usually lighter brown. Maxillary and labial palpi black with outer edge of last segment yellowish testaceous. Femora bicolorous, base and inner parts yellow testaceous, apex and outer edge with a black stripe, border of black colouration forming an oblique line across the femur. Tibiae and tarsi black.

Head behind the eyes about 0.65 times as wide as middle part of pronotum; rather matt, with brownish recumbent vestiture, with a few long, brownish setae behind the eyes. Eyes very large and occupying most of the head in male, leaving only a narrow ridge in between (much narrower than the middle antennal segments); slightly smaller in females, with a broader space in between (about the width of the third antennal segment). Clypeus convex, transverse. Labrum flat, subpentagonal, with straight diverging sides and arcuate apical edge, with sparse, yellowish vestiture.

Male antennae subfiliform, reaching the first fourth of elytra, past the humeral callus, in length; finely pilose. First segment slightly thickened towards the end, about twice as long as wide at apex; second segment short, less than half as long as first; third thin, almost as long as the first two together; segments 4, 9 and 10 about as long as the first; 5-8 longer, about as the third; 11 longest, about as long as 1 and 2 together, curved and emarginate on outer edge.

Pronotum about as long as wide, subquadrate, faintly widened in fore half, with rounded angles; margins only with traces of a bordering, most distinct especially in front; vertex slightly convex, and with a very faint subbasal impression in the middle; also with an oblique lateral depression on each

side in basal half; shining and finely, irregularly punctate; finely and inconspicuously pubescent, with a few longer, yellowish setae along the outer margins (often abraded).

Elytra about 2.5-2.6 times as long as wide together in males, subparallel in shape with humeral area slightly narrower than middle part; humeral callus distinct; matt and finely, rugulose punctate; covered in fine, silky, golden yellowish ground vestiture, intermixed with longer, also yellowish setae arranged in two rows on disc, which are easily abraded and only barely visible, even in profile view. Margins very faintly crenulate, with a row stiff, yellowish to brownish setae, which are easily abraded. Scutellum transverse, almost semicircular, matt, shagreened and with very fine vestiture.

Femora not thickened in males, matt and finely shagreened, with slightly finer pilosity than elytra. Tibiae and tarsi shagreened and matt, rather densely covered in stiff, yellowish to greyish setae. Claws widened at base, otherwise simple.

Abdomen rather broad and flat, shagreened and very finely rugulose, with fine, yellowish ground vestiture and some longer, yellow setae along margins.

Male: Last (sixth) ventrite as in fig. 127; small, much narrower than the fifth ventrite; middle of apical margin with broad emargination. Apical margin of last tergite simply arcuate, not thickened or emarginate.

Aedeagus as in figs. 69, 99. Process of phallobase oblique and not very long. Parameres dorsally with large gap in between; curved in lateral view, with slightly spoon-shaped apices; along their lower edge before apex with few moderately long, testaceous, hair-like setae; edge of apical part with a row of small, black, thorn-like setae, inner surface of apex mostly smooth, with only few of the black thorn-like setae extending into it. Median lobe with basal part bent downwards, apical half narrow and strongly sinuous, not distinctly flattened; apex in dorsal view narrowly tongue-shaped.

Sexual dimorphism: Females generally larger than males, with only little overlap in body size, of slightly broader habitus, with smaller and more widely separated eyes; their last visible sternite and tergite simple, without incisions or emargination. Male with black comb on the first three protarsomeres.

Variability: A variable species in size and body shape, but with quite uniform colour pattern. Large females tend to have a broader pronotum and apically widened elytra, making them superficially similar to the related *I. melanura*.

Distribution: NE-India (Arunachal Pradesh, Assam, Meghalaya, Manipur, Nagaland), Myanmar, N Thailand, Laos, N Vietnam, S China (Yunnan, Guizhou, Guangdong).

Biology and ecology: Adults of this species are usually collected at day by beating foliage of shrubs and trees in forests and secondary woodlands. Occasionally, they are found at light. A typical habitat is shown in fig. 151. Although this is a rather commonly collected species, there are no observations on feeding habits. Throughout Indochina, there seems to be a strong preference for montane altitudes (900 m and above), while in the Brahmaputra valley (NE-India), specimens have been found also at low altitudes (around 100 m). In Laos and Vietnam, they have only been collected in the early monsoon season from April to June and seem to be most abundant in May. In China (Yunnan) and NE-India, few specimens were also collected in August. The single female specimen from Kharikhana, Assam (ZISP) was reportedly found in February, during a long period of dry weather

(Fon-Vik, 1914). Females are much more commonly collected than males, probably because of a longer period of activity.

Idgia setifrons (Kirsch, 1875)
(Figs. 47, 48, 70, 100, 128)

Prionocerus (Deromma) setifrons Kirsch, 1875: 39.

Idgia setifrons (Kirsch): Pic, 1910d: 346.

Type material examined: None. The type material should be deposited at the Senckenberg Natural History Collections in Dresden, but was not found (see also note under *I. suturalis*). This species is here identified according to the original description, after studying an extensive material from Peninsular Malaysia and excluding all other possibilities.

Other material examined: VIETNAM: "Cap St. Jacques, 9 10, ex Fouquet" 1 ♂ (MNHP).

MALAYSIA: PAHANG: Endau Rompin NP, Salendang, 100 m, 28. II. – 12. III. 1995, Strba & Hergovits leg. 1 ♂ 2 ♀ (NHMW). SELANGOR: "Malaya, Teluk Marbau, 1937, leg. C. W. Frank" 1 ♂ (ZMUC). SABAH: Tenom, Melalap Expedition, Ulu Sumbiling, 25.-31. I. 2004, Momin, John & Richard leg. 1 ♂ (SFDS); Sepilok, ca. 22 km W Sandakan, Paganakan Dii lodge, at light, 11 m a.s.l., 5°54'00" N / 117°56'16" E, 17. VII. 2012. 1 ♂ 1 ♀ (BMNH). SARAWAK: Sarikei Dist., Rejang Delta, 15.-26. VII. 1958, T. C. Maa Collector" 1 ♀ (BIMH). **INDONESIA:** SUMATRA: "N. O. Sumatra, Tebing-tinggi, Dr. Schultheiss, Coll. Schultheiss, 1 ♂ 1 ♀ (SDEI). KRAKATAU: "Verlaten Eiland, N. IX. 1920" 1 ♀ (SDEI); "Verlaten Eiland, 12 1919" 1 ♀ (SDEI); "Verlaten Eiland, 4 1920" 1 ♂ 1 ♀ (SDEI); "Dammerman, Krakatau, IV 1933. B.M. 1936-728." 1 ♀ (BMNH); "Dammerman, Verlaten Eil., I 1933. B.M. 1936-728. 1 ♀ (BMNH). JAVA: "Java, Coll. Kraatz" 2 ♀ (SDEI).

Measurements ♂ : TBL 8.5 - 9.4 mm, L-h 7.0 - 7.9 mm

HL 1.2 - 1.6 mm, PL 1.4 - 1.5 mm, EL 5.6 - 6.4 mm

♀ : TBL 8.1 - 10.4 mm, L-h 6.8 - 8.7 mm

HL 1.3 - 1.7 mm, PL 1.3 - 1.6 mm, EL 5.5 - 7.1 mm

Differential diagnosis: Recognisable among the Indochinese fauna by the combination of yellow femora (apical part rarely diffusely infuscate), black head (including whole vertex, excluding labrum and fore half of clypeus), distinctive antennal shape (segments 6-10 "subserrate", thickened towards the apex, last segment long and subcultriform) and the relatively opaque elytra. The aedeagus, especially the median lobe, is very distinctive and should always be examined if males are available. *Idgia atriceps* Champion, 1919, described from Burma, is very similar and distinguished only by its median lobe (apex thinner and more strongly curved). It may turn out to be a junior synonym of *I. setifrons*, if more material becomes available.

Redescription: Habitus as in figs. 47 (♂) and 48 (♀). Body yellow testaceous. Pronotum rarely with slightly brownish disc. Head black, apical half of clypeus yellowish. Labrum yellow testaceous or slightly infuscate. Elytra with small apical macula, occupying 1/10 or less of their length, not reaching the lateral margin and usually not touching the suture. Antennae entirely yellowish or with segments 3-10 infuscate. Maxillary and labial palpi yellow testaceous. Tibiae sometimes infuscate. Femora rarely with a diffusely infuscate patch in apical half. Tarsi including claws light brownish testaceous.

Head behind the eyes about 0.6 times as wide as middle part of pronotum. Vertex not shining, but without evident microsculpture, with greyish, recumbent vestiture and several longer, stiff, blackish setae at the sides, behind the eyes. Frons rather shining, not sculptured, apart from the ridges at

antennal insertions, with greyish recumbent vestiture and a number of long, stiff, blackish or brownish setae (abraded in some specimens). Eyes large, frons between them narrower than the first antennal segments (male). Clypeus transverse, slightly convex and rather smooth, with some long, yellowish setae. Labrum transversely subhexagonal, widest in anterior half, apical edge rather straight; flat and shining, finely punctate and with, yellowish recumbent vestiture.

Male antennae subfiliform, with segments 6-10 thickened towards the end, giving them a slightly "serrate" appearance, surpassing the humeral callus in length; finely pubescent. First segment slightly thickened, about twice as long as wide, second segment short, third and fourth slightly longer than first, fifth and sixth about as long as the first two together, seventh to tenth decreasing in length, but increasing in (apical) width, tenth of subtriangular shape, last segment longest, about twice as long as tenth, slightly complanate and subcultriform in shape.

Pronotum slightly longer than wide, maximal length to maximal width around 1 : 0.9; widest in fore half, with slightly sinuate sides in basal half; basal angles rounded, apical edge subarcuate; margins finely bordered; with shallow median subbasal depression and two deeper, oblique lateral depressions on each side in basal half; moderately shining, with very fine microsculpture and shallow punctures; with fine, yellowish ground vestiture and some long, yellowish setae at the margins. Basal margin very finely ciliate, with short, yellowish hair-like setae.

Elytra about 2.5-2.7 times as long as wide together in males, subparallel in shape or slightly widened in middle part; humeral callus distinct; slightly shagreened and with oily sheen, with very fine, slightly rugulose sculpture, covered in dense, yellowish ground vestiture and with three distinct rows of longer, blackish setae on disc, sutural margin in apical third with another row of black setae, but shorter than the ones on the disc. Margins finely crenulate with a row of long, stiff, yellow setae, which get progressively infusate towards the apex. Scutellum transversely subrectangular, with bluntly rounded angles, finely shagreened and with finer vestiture than elytra.

Femora not thickened in males, finely shagreened, matt, with finer pilosity than elytra. Tibiae and tarsi with slight, oily sheen, covered in stiff, yellow or greyish setae. Claws widened at base, otherwise simple.

Abdomen rather matt, finely shagreened and finely rugulosely punctate, with fine, yellowish ground vestiture and longer, yellow setae around the margins.

Male: Last (sixth) ventrite as in fig. 128; short and relatively small, much narrower than the fifth ventrite; apical margin with very broad and shallow emargination. Apical margin of last tergite simply arcuate, not thickened or emarginate.

Aedeagus as in figs. 70, 100; rather small and short in relation to body size. Process of phallobase pointing downwards, at an angle of about 120° relative to apical 2/3 of paramera. Parameres relatively short, dorsolaterally curved, with distinct subapical emargination on lower edge; dorsally strongly gaping, their dorsal edge broadly emarginate; lower edge subapically (before emargination) with a tuft of long hair-like setae; inner side of apex covered in stiff, yellowish to brownish thorn-like setae. Median lobe strongly curved and gradually narrowed, the extreme tip narrowly tongue-shaped when seen from above.

Sexual dimorphism: Females with slightly less parallel-sided, medially more widened elytra and slightly smaller, dorsally more largely separated eyes, on average slightly larger-sized than males,

although there is a large overlap. Last visible sternite and tergite in females simple, without incisions or emargination. Male with black comb on the first three protarsomeres.

Variability: A species with unusually variable leg and antennal colouration. Legs usually entirely pale testaceous, but sometimes with completely infusate tibiae (as indicated in the original description!) and a diffusely infusate femoral apex. Antennomeres 3-10 varying from entirely yellowish to completely infusate and blackish. The single specimen examined from Vietnam has a slightly darkened, brownish pronotal disc. The size of the apical elytral macula also varies considerably, but none of the specimens lacks it completely. A „dwarf" female, with unusually small body size (8.1 mm), was found on Borneo.

Distribution: S Vietnam, W Malaysia, Sumatra, Borneo, Krakatau Is. (Sertung), Java.

Biology and ecology: This species inhabits forests in coastal lowlands. It has never been found in altitudes over 200 m, but often close to mangroves. Specimens have been found attracted to light in Borneo. *I. setifrons* seems to be less seasonal as other *Idgia* species, as specimens, including males, have been collected almost throughout the whole year. The reasons why it has not been found again in Indochina for over 100 years may be due to large-scale deforestation of the coastal lowland areas (especially around the densely populated Mekong delta), but also insufficient sampling of the remaining forest fragments.

***Idgia varicornis* Champion, 1919**
(Figs. 23, 24, 71, 101, 129)

Idgia varicornis Champion, 1919: 366. pl. XII, fig. 44.

Type material examined: Holotype ♂ (BMNH): "Tenasserim, Tavoy"; "Doherty"; "Fry Coll. 1905.100."; "♂"; "1973"; "Type H. T."; "*Idgia varicornis* Ch.". Holotype label added. Segments 2-11 of right antenna, right hind leg and left metatarsus missing; abdomen and genitalia mounted on a separate pin.

Other material examined: LAOS: Bokeo prov., 5 km W Ban Toup, Bokeo Nature Reserve, degraded primary lowland forest, beaten from shrubs, 500-700 m, 20°27-28' N / 100°45' E, 6. V. 2011, D. Hauck leg., NHMB Basel, Laos 2011 expedition: M. Brancucci, M. Geiser, D. Hauck, Z. Kraus, A. Phantala & E. Vongphachan. 1 ♂ (NHMB); Bokeo prov., 5 km W Ban Toup, Bokeo Nature Reserve, degraded primary lowland forest, beaten from shrubs, 500-700 m, 20°27-28' N / 100°45' E, 9. V. 2011, M. Geiser leg., NHMB Basel, Laos 2011 expedition: M. Brancucci, M. Geiser, D. Hauck, Z. Kraus, A. Phantala & E. Vongphachan. 1 ♂ (NHMB); Bokeo prov., 5 km W Ban Toup, Bokeo Nature Reserve, degraded primary lowland forest, beaten from shrubs, 500-700 m, 20°27-28' N / 100°45' E, 9. V. 2011, D. Hauck leg., NHMB Basel, Laos 2011 expedition: M. Brancucci, M. Geiser, D. Hauck, Z. Kraus, A. Phantala & E. Vongphachan. 1 ♀ (NHMB); Louang Namtha pr., Namtha → Muang Sing, 900-1200 m, 21°09' N / 101°19' E, 5.-31. V. 1997, Vít Kubáň leg. 1 ♀ (NHMB); Louang Phrabang prov., Ban Song Cha (5 km W), 20°33-34' N / 102°14' E, +/-1200 m, 24. IV. – 16. V. 1999, Vít Kubáň leg. 1 ♀ (NHMB); Xieng Khouang prov., Ban Thachôk env., 19°33' N / 103°25' E, ca. 1150 m, flowering tree, 26. V. 2010, M. Geiser & D. Hauck leg. 1 ♂ (NHMB); Hua Phan prov., Ban Saluei, Phou Pan (Mt.), 1300-1900 m, 20°12' N / 104°01' E, 11. IV. - 15. V. 2012, C. Holzschuh leg., BMNH(E) 2012-14. 1 ♀ (BMNH); Bolikhamxai prov., Ban Nape, Kaew Nua Pass, 600 m, 18°22.3' N / 105°09.1' E (GPS), 18. IV. – 1. V. 1998, E. Jendek & O. Šauša leg 1 ♂ (NHMB); Bolikhamxai prov., Ban Nape (8 km NE), ~600 m, 18°21' N / 105°08' E, 1.-18. V. 2001, Pacholátko leg. 1 ♀ (NHMB).

VIETNAM: "Hoa Binh, Tonkin" 2 ♂ (MNHP); "Hoa Binh, Tonkin, coll. M. Pic" 2 ♂ (MNHP); "Tonkin, Hoa-Binh, VII. 40, leg. A. de Cooman" 1 ♂ (IZAS); "Pho-Vi, 4. 1907" 1 ♂ (MNHP); "Tonkin, Pho-Vi, 4. 07" 1 ♀ (MNHP); "gory SW Kui-Chau, 200 m, 15. 3. 1961 g., Kabakov, iz kollektzii O. N. Kabakova." 1 ♀ (ZISP); "Cho-Diem, 7. 4. 1960, Izokh, iz kollektzii O. N. Kabakova." 1 ♂ (ZISP); Cao Bang prov., 12 km NE Cao Bang, 650 +/-50 m, 22°45'45" N / 106°19' E, 15.-16. V. 2010, L. Dembický leg. 1 ♂ (NHMB); Bac Kan prov., Ba Be NP, Na Mam, forest, light trap, 200 m, 22.417137°N / 105.632505°E, 17.-19. IV. 2010, L. Papp, L. Peregovits & Z. Soltész leg., VN2010PL_17. 1 ♀ (MTMB); "Gialai-Kontum, Buonloi, 3 XI 1963 Gorokhov, iz kollektzii O. N. Kabakova." 1 ♂ (ZISP).

THAILAND: "Siam: Nong Lao. 5. IV. 1920. R. V. de Salvaza." 1 ♂ (BMNH); 100 km N Chiang Mai, Chiang Dao Hill Res., h= 600 m, 1.-7. III. 2010, S. Murzin leg. 1 ♂ (CRC); Mae Hong Son distr., Soppong - pai, 19°27' N / 98°20' E, 1500 m, 7.-12. V. 1996, J. Horák leg. 1 ♂ (NHMB); Mae Hong Son prov., Soppong env., 600 m, 28. V. - 2. VI. 1999, M. Řiha leg. 1 ♀ (NHMB); Mae Hong Son, Ban Si Lang, 19°19' N / 97°59' E, 1200 m, 23.-31. V. 1991, L. Dembický leg. 1 ♂ (NHMB); Mae Hong Son, Ban Si Lang, 1000 m, 1.-7. V, 1992, S. Bily leg. 1 ♀ (NHMB); 7 km NW of Fang, Horticultural Experimental Station, 30. X. - 2. XI. 1979, Zool. Mus.

Copenhagen Exped. 2 ♂ 1 ♀ (ZMUC); Nan, Pha Khab, 11.-15. V. 1993, Pacholátko & Dembický leg. 1 ♂ 1 ♀ (NHMB); Chumphon prov., Pha To env., 9°48' N / 98°47' E, 27. III. - 13. IV. 1996, K. Majer leg. 2 ♂ (NHMB).

MYANMAR: "Tenasserim, Tavoy, Doherty, Fry Coll. 1905.100." 2 ♀ (BMNH); "Tenasserim, Thagata, Fea, Apr. 1887" 1 ♂ (MCGD).

INDIA: "India, Bowring. 63.47*" 1 ♀ (BMNH). ASSAM: "U.D.M.N.C.H., Rhongkhong, 1400', 27. 4. 1960, F. Schmid, coll. W. Wittmer" 2 ♀ (NHMB); 5 km N of Umrongso, 25°27' N / 92°43' E, 700 m, 21. V. 1999, Dembický & Pacholátko leg. 1 ♂ 1 ♀ (NHMB); 5 km N of Umrongso, 25°27' N / 92°43' E, 700 m, 17.-25. V. 1999, J. Rolčík leg. 1 ♀ (NHMB); Manas, 200 m, 22. X. 1978, Besuchet & Löbl leg. 1 ♀ (MHNG); "Sudiya, 60684, Doherty, Fry Coll. 1905.100." 2 ♀ (BMNH); "Sudiya, Doherty, Fry Coll. 1905.100" 1 ♀ (MNHP).

MEGHALAYA: Barapani Old Road, 1000 m, 14. V. 1976, Wittmer & Baroni Urbani leg. 1 ♂ (NHMB); Nokrek N. P., 3 km S Darbogkit, 25°27' N / 90°19' E, 26. VIII. 1998, Z. Košťál leg. 1 ♀ (NHMB); Nokrek n. p., 3 km S Darbogkiri, 25°27' N / 90°19' E, 1400 m, 26. IV. 1999, Dembický & Pacholátko leg. 1 ♂ 1 ♀ (NHMB).

CHINA: YUNNAN: Baoshan, Xinuijiang Valley, 800m, 9. V. 1955, Wu Le leg. 1 ♀ (IZAS); Baoshan, Xinuijiang Valley, 1000m, 11. V. 1955, Wu Le leg. 1 ♀ (IZAS); Baoshan, Xinuijiang Valley, 800m, 11. V. 1955, Xue Yu-Feng leg. 1 ♀ (IZAS); Baoshan, Xinuijiang Valley, 1000m, 11. V. 1955, Zhu Jin-Xiu leg. 1 ♀ (IZAS); Xinuijiang Valley, 800m, 9. V. 1955, Kryzhanovsky leg. 2 ♀ (IZAS); Xinuijiang Valley, 800m, 11. V. 1955, Popov leg. 1 ♀ (IZAS); Baoshan, Xinuijiang valley, 1000m, 11. V. 1955, Bushchik leg. 2 ♂ 1 ♀ (IZAS); Lushui, Liuku, 850m, 12. V. 1983, Hua Li-Zhong leg. 2 ♂ (SYSU); Gaoligongshan, 1200m, 22. VIII. 1958, Li Chuan-Long leg. 1 ♂ (IZAS); Gaoligong mts., 25°22' N / 98°49' E, 1500 m, swept on vegetation, 17./24. V. 1995, Vit Kubáň leg. 2 ♂ 4 ♀ (NHMB); 100 km W Baoshan, Gaoligongshan Nat. Res., 14.-21. VI. 1993, E. Jendek & O. Sausa leg. 1 ♀ (NHMW); Jingdong, 5. V. 1957, Zhu Zeng-Hao leg. 1 ♂ (IZAS); Jingdong, 1170m, 26. V. 1956, Kryzhanovsky leg. 1 ♀ (IZAS); Jingdong, Dongjiafen, 1250m, 30. V. 1956, Kryzhanovsky leg. 1 ♂ (IZAS); Jingdong, Dongjiafen, 1250m, 3. VI. 1956, Kryzhanovsky leg. 1 ♂ (IZAS); Jingdong, 1150m, 5. VI. 1990, Cong Shao-Guang leg. 1 ♀ (IZAS); Jinggu, 930m, 23. IV. 1955, Popov leg. 1 ♂ (IZAS); Jinggu, 22. IV. 1955, Yang Xing-Chi leg. 1 ♀ (IZAS); Puer-Jinggu, 1050m, 13. V. 1957, Liu Da-Hua leg. 1 ♂ (IZAS); Kazifang, 6. V. 1957, Zhu Zeng-Hao leg. 1 ♀ (IZAS); Xishuangbanna, Ganlanba, 540m, 17. III. 1957, Pu Fu-Ji leg. 1 ♀ (IZAS); Xishuangbanna, Ganlanba, 540m, 17. III. 1957, Liu Da-Hua leg. 1 ♂ (IZAS); Xishuangbanna, Ganlanba, 650m, 17. III. 1957, Liang Qiu-Zhen leg. 1 ♂ (IZAS); Xishuangbanna, Mengla, 620-650m, 6. VI. 1959, Zhang Yi-Ran leg. 1 ♀ (IZAS); Xiaomengyang, 850m, 2. IV. 1957, Wang Shu-Yong leg. 1 ♂ (IZAS); Xishuangbanna, Xiaomengyang, 850m, 11. VII. 1958, Zhang Yi-Ran leg. 1 ♀ (IZAS); Xishuangbanna, Mengcang, 650m, 20. IV. 1994, Xu Huan-Li leg. 1 ♀ (IZAS); Xishuangbanna, Mengcang, 580m, 30. III. 1994, Chen Xiao-Lin leg. 1 ♀ (IZAS); Xishuangbanna, Menga, 1050-1080m, 18. V. 1958, Wang Shu-Yong leg. 1 ♀ (IZAS); Xishuangbanna, Menga, 1050-1080m, 20. VIII. 1958, Pu Fu-Ji leg. 1 ♂ (IZAS).

GUANGXI: Napo, Baihe, 440m, 6. IV. 1998, Li Wen-Zhu leg. 1 ♀ (IZAS); Napo, Baihe, 440m, 7. IV. 1998, Wu Chun-Sheng leg. 2 ♂ (IZAS); Napo, Baihe, 440m, 7. IV. 1998, Li Wen-Zhu leg. 1 ♂ (IZAS); Napo, Baihe, 440m, 8. IV. 1998, Wu Min leg. 1 ♂ (IZAS); Shangsi, Hongqi Forestry, 300m, 28. V. 1999, Zhang Xue-Zhong leg. 1 ♀ (IZAS); Shangsi, Nanpingxiang, 350 m, 9. VI. 2000, Chen Yun leg. 1 ♂ (IZAS); Guilin, Liangfeng, 14. VI. 1952. 2 ♀ (IZAS).

Measurements ♂ : TBL 6.3 - 9.0 mm, L-h 5.2 - 7.6 mm
 HL 1.1 - 1.5 mm, PL 1.1 - 1.4 mm, EL 4.1 - 6.2 mm
 ♀ : TBL 7.7 - 10.6 mm, L-h 6.6 - 9.1 mm
 HL 1.1 - 1.6 mm, PL 1.1 - 1.5 mm, EL 5.5 - 7.6 mm

Differential diagnosis: A relatively *Idgia* with similar colouration as many other species, characterised by the combination of black head, entirely testaceous elytral setation and bicolorous femora with small (rarely absent) apical spot. Distinguished from *I. particularipes*, *I. deusta* (China), *I. melanura* (Himalayas), *I. assimilis* (Hope, 1831) (India, Nepal) and *I. mekongensis* n. sp. by less extended black colouration on the femora and, on average, smaller size. *I. lajoyei*, *I. vietnamensis*, *I. phongorum* and *I. setifrons* can be distinguished by the rows of long, black setae on the elytral disc.

Redescription: Habitus as in figs. 23 (♂) and 24 (♀). Body brownish yellow, testaceous. Head, except fore part of clypeus, entirely black. Elytra with sharply define black apical macula, covering about 1/10 or slightly less of their length. Tibiae, tarsi and apex of femora infusate, dark brownish; black colouration on femora usually forming a small, diffusely delimited subtriangular patch at the knees. This femoral macula can be almost completely reduced in some specimens, or rarely extended along the outer edge, to about 1/3 of femoral length. Antennae infusate dark brown, with last segment yellowish testaceous. Maxillary and labial palpi testaceous.

Head behind the eyes about 0.6 times as wide as middle part of pronotum. Vertex finely shagreened, matt, with very fine, brownish ground vestiture. Sides behind the eyes with a few long, stiff, brownish setae. Eyes very large and protruding, separated by a very narrow space in males, about half as wide as the third antennomere. Frons depressed in front of eyes, rather polished, with short, recumbent and long, erect, brownish setae. Clypeus transversely subtrapezoidal, convex and with very fine microsculpture, with long, but rather sparse brownish setation. Labrum slightly transverse, widest in apical part, flat and finely shagreened, with short, yellowish ground vestiture and a few longer, brownish setae, mostly near margins.

Male antennae subfiliform, reaching the first fourth of the elytra, past the humeral callus, in length; finely pilose. First segment slightly thickened, about twice as long as wide; second segment short, about half as long as first; third distinctly longer than first, but not quite as long as the first two together; fourth and tenth both about as long as first; fifth to ninth subequal, about as long as third; last segment longest, about twice as long as third, flattened, with outer margin broadly emarginate.

Pronotum about as long as wide or slightly longer, maximal length to maximal width varying from 1 : 0.93 to 1 : 1, widest in apical half, with slightly sinuate sides in basal half; all angles rounded; margins only with traces of a bordering; median subbasal depression very shallow, often barely visible; disc moderately shining with little microsculpture and fine, yellowish recumbent vestiture; along the margins with some longer yellowish setae. Basal margin finely and sparsely ciliate, with short, yellowish hair-like setae.

Elytra about 2.6-2.8 times as long as wide together in males, subparallel in shape or slightly widened towards apical third; humeral callus distinct; with oily sheen and finely rugulose, leathery texture, covered in fine, silky, golden yellowish ground vestiture (similar to *I. particularipes*); disc with three rows of long, suberect, yellowish setae, often not well visible because of the lack of contrast. Margins finely crenulate with a row of stiff, yellowish setae. Scutellum transverse, almost semicircular, rather matt and very finely shagreened, with similar vestiture as elytra.

Femora not thickened in males, very finely shagreened and rather matt, with finer pilosity than elytra. Tibiae and tarsi matt, rather densely covered in stiff, brownish setae. Claws widened at base, otherwise simple.

Abdomen rather matt, with fine, yellowish ground vestiture and longer, yellowish or light brown setae around the margins.

Male: Last (sixth) ventrite as in fig. 129; small, much narrower than the fifth ventrite, of similar shape as in *I. particularipes*; middle of apical margin with broad emargination. Apical margin of last tergite subtruncate, not thickened or emarginate.

Aedeagus as in figs. 71, 101; rather small and short in relation to body size. Process of phallobase short, oblique. Parameres slightly curved, their apical half dorsally with a narrow gap in between and slightly convergent, bluntly rounded tips; ventral edge subapically with a few scattered hair-like setae; inner side of apex along ventral edge with a few short, blackish, thorn-like setae. Median lobe in lateral view with apical 2/3 straight, with long, obliquely flattened apex, the extreme tip bent ventrally; in dorsal view subparallel, with apical part after ostium tapered.

Sexual dimorphism: As in other species of the genus, females of *I. varicornis* are on average larger and have a slightly broader body shape, as well as slightly smaller and dorsally more widely separated eyes. On the extreme, in very large-sized female specimens, the elytra can be only 2.39 times as long as wide. Last visible sternite and tergite simple in females, without incisions or emargination. Male with black comb on the first three protarsomeres.

Variability: An unusually variable species, both in terms of body size and shape of the median lobe, but with relatively constant colour pattern. Tibiae and tarsi usually infuscate, rarely testaceous (teneral specimens?). Specimens with pale-coloured tibiae also with strongly reduced femoral macula. Labrum usually bicolorous, with infuscate basal half; sometimes entirely testaceous.

Median lobe with long basal part in some of the specimens, bent ventrally at an angle up to 90°. In other specimens with short base, only bent down to an approximately 45° angle. Length of apex after ostium variable, also the extreme tip, which can be almost straight in some specimens or distinctly curved downwards. Although these median lobe shapes initially seemed to separate two species, they are found all over the range of *I. varicornis*, and several specimens with intermediate shapes have been found.

Body size ranging from 6.3 mm in small males to 10.6 mm in large females. This seems to be, in part, geographically correlated, with a continuous increase in average body size from southern Thailand to SW-China.

Distribution: NE-India (Assam, Meghalaya), Myanmar, Thailand, Laos, Vietnam, S China (Yunnan, Guangxi).

Biology and ecology: Most adults were collected in Laos, Thailand and Yunnan during the early monsoon season from April to June, although some specimens (NE-India and N-Thailand) have been found later, between end of August and beginning of November. One specimen was reportedly found by sweeping vegetations, which suggests that adults can be found in the foliage at least for some time of the day, while another one was collected on a flowering tree. The specimen from Ban Thachôk was found in an area of agricultural land and patches of low secondary forest, with no primary forest nearby.

***Idgia bannalama* n. sp.**

(Figs. 25, 72, 102, 130)

Holotype ♂ (NHMB): "LAOS-NE, Xieng Khouang prov., 19°37-8' N 103°20'E, Ban Na Lam → Phou Sane Mt., 20. V. 2009, 1300-1500 m, D. Hauck leg., secondary forest, beaten from shrubs"; "NHMB Basel, NMPC Prague, Laos 2009 Expedition: M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň". In good condition.

Type locality: Laos, Xieng Khouang prov., Mt. Phou Sane, near Ban Na Lam.

Measurements ♂ : TBL 10.3 mm, L-h 8.8 mm, HL 1.5 mm, PL 1.5 mm, EL 7.3 mm

Differential diagnosis: Very distinctive species by its male characters, i. e. the peculiarly modified male hind tibiae, the last two ventrites and the median lobe. No other *Idgia* has even remotely similar structures. Also, it has the most elongate elytra within the whole Indochinese fauna. Females are unknown.

Description: Habitus as in fig. 25 (holotype ♂). Body yellowish testaceous. Head, except apical half of clypeus, entirely black. Elytra with black apical macula, occupying slightly less than 1/10 of elytral length. Antennomeres 1-10, tibiae, tarsi and a narrow stripe along the outer edge of all femora infuscate, dark brownish. Maxillary and labial palpi light brownish. Labrum light brown with infuscate disc.

Head behind the eyes about 0.72 times as wide as middle part of pronotum. Vertex finely shagreened, rather matt, with very fine, inconspicuous, brownish vestiture. Sides behind the eyes with some very long, blackish setae. Eyes extremely large, strongly protruding, subcontiguous dorsally and ventrally, separated by an extremely narrow space, narrower than one ommatidium. Frons slightly wrinkled, strongly depressed between antennal insertion and eyes, with brownish to greyish setae of variable length. Clypeus relatively flat, shagreened, with fine, yellowish setae. Labrum flat, about as long as wide, with broadly arcuate apical edge, finely and sparsely punctate, with relatively long, erect, yellowish setae.

Male antennae reaching first fourth of elytra, past the humeral callus, in length; basal part filiform, with cylindrical antennomeres, segments 6-10 flattened, with basal constriction, nearly serrate; last segment rather thick, with basal and apical part thickened and a constriction in between. First segment slightly thicker than the following, a bit more than twice as long as wide; second very small, less than half as long as first, third about as long as first; fourth slightly shorter than third; segments 5-9 longer, but not quite as long as the first two together; 10 and 11 again shorter, about as long as first.

Pronotum slightly longer than wide, maximal length : maximal width 1 : 0.95; widest in apical half, sides sinuate in basal half; hind angles rounded; fore margin subarcuate; all margins with fine traces of a bordering; with very shallow, almost indistinct median subbasal impression; disc relatively polished and shining, with fine, sparse punctulation and short, inconspicuous, yellowish ground vestiture; along the margins with some larger, stronger, brownish setae. Basal margin very finely ciliate, with short, yellowish, hair-like setae.

Elytra very elongate, about 3.3 times as long as wide together, parallel-sided; with distinct humeral callus; relatively shining; finely and densely punctate, the punctures often confluent and slightly

rugulose, particularly in apical third and near suture, ground vestiture regular, fine, short, yellowish; disc with three rows of longer, blackish setae, rather recumbent and partially abraded in holotype. Margins almost straight, not distinctly crenulate, with a row of stiff, brownish setae. Scutellum transverse, nearly semicircular, slightly expanded towards pronotal base; flat and smooth, with finer ground vestiture than elytra.

Hind femora very slightly thickened in male, middle and fore femora not much different from regular type; relatively matt, with fine microsculpture and similarly fine pilosity as elytra. Tibiae and tarsi shagreened, covered in stiff, golden-yellowish setae, increasing in density from base of tibiae until apex. Hind tibiae of very peculiar shape, slightly curved, base thin, apical $\frac{3}{4}$ expanded, their inner face with a sharp, sclerotised ridge. Claws widened at base, otherwise simple.

Abdomen rather narrow and slightly convex. Sternites finely shagreened, matt, with recumbent, golden yellow setae (longer than ground vestiture of elytra) and some longer, erect, yellowish setae along margins.

Male: Fifth (second last) ventrite very large, with strong, median furrow, running all across the middle line, nearly splitting it in two halves, in middle of apical margin extended into a slightly raised process, projecting deeply into the membrane between the two last ventrites. Last (sixth) ventrite as in fig. 130, strongly transverse and of peculiar shape, strongly narrowed in middle part, apical margin with a wide, shallow emargination on each side and a small, median, U-shaped incision in between.

Aedeagus as in figs. 72, 102. Process of phallobase pointing directly backwards, apically widened. Parameres of characteristic shape, ventral edge emarginate in middle part, dorsally with a sharp tooth; dorsal edges running parallel, with no gap in between, apex obliquely subtruncate; ventral edge before apex with several long, hair-like setae; inner face of apex with shorter, thorn-like setae. Median lobe basally thickened, with very characteristic apex, looking like a barbed hook in lateral view.

Sexual dimorphism: Unknown.

Variability: Unknown.

Distribution: NE-Laos (Xieng Khouang).

Biology and ecology: The only known adult of this species was found beating foliage of trees and shrubs in a secondary forest in May, during the early monsoon season (fig. 151). Despite considerable collecting efforts, only one male could be found. A female found at the same locality can currently not be identified, but probably does not belong to *bannalama*. It occurs sympatrically and syntopically with *I. brancuccii* n. sp. (see above) and the much more abundant *Bigdia maculatithorax* (Pic, 1919).

Derivatio nominis: Named after the small Lao Loum ("lowland Laotian") village Ban Na Lam on the foot of Mt. Phou Sane, next to the type locality. To be used as a latinised adjective.

***Idgia brancuccii* n. sp.**
(Figs. 26, 27, 73, 103, 131)

Holotype ♂ (NHMB): "LAOS-NE, Xieng Khouang prov., 19°37-8' N 103°20'E, Ban Na Lam → Phou Sane Mt., 19. V. 2009, 1300-1500 m, M. Geiser leg., at light"; "NHMB Basel, NMPC Prague, Laos 2009 Expedition: M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň". In good condition.

Paratypes (5 ♂ 5 ♀): 1 ♂ (NHMB): "LAOS-NE, Xieng Khouang prov., 19°37-8' N 103°20'E, Ban Na Lam → Phou Sane Mt., 27. V. 2009, 1300-1500 m, D. Hauck leg."; "NHMB Basel, NMPC Prague, Laos 2009 Expedition: M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň"; "secondary forest, beaten from shrub". 1 ♂ (NHMB): "LAOS-NE, Houa Phan prov., ~20°13' N 104°00' E, PHOU PANE Mt., 1.-16. VI. 2009, 1350-1500 m, M. Brancucci leg.", "NHMB Basel, NMPC Prague, Laos 2009 Expedition: M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň". 1 ♂ (NHMB): "LAOS, Phongsaly prov., BAN SANO MAI, 19.-26. V. 2004, ~1150 m, 21°21' N / 102°03' E, M. Brancucci leg.". 1 ♀ (BMNH): "LAOS, Phongsaly Prov., PHONGSALY env., Phu Fa, h: 1450-1600 m"; "26. VII. 2006, leg. M. Geiser, Bergregenwald". 2 ♂ 2 ♀ (BMNH): "NE-LAOS, Hua Phan prov. Ban Saleui, Phou Pan (Mt.), ~20°12'N, 104°01'E, 13.-30.VI.2013, 1300-1900 m, leg. C. Holzschuh". 1 ♀ (IZAS): "Yunnan, Xishuangbanna, Mengla, 620-650 m, Zhongguokexueyuan", "1958.XI.19, PU Fu-Ji leg." [in Chinese characters]. 1 ♀ (IZAS): "Yunnan, Xishuangbanna, Menghai, 1200-1600m, Zhongguokexueyuan", "1958.VII.18, WANG Shu-Yong leg." [in Chinese characters].

Type locality: Laos, Xieng Khouang prov., Phou Sane, near Ban Na Lam.

Measurements ♂ : TBL 8.7 - 9.0 mm, L-h 7.3 - 7.5 mm

HL 1.3 - 1.5 mm, PL 1.3 - 1.5 mm, EL 5.9 - 6.1 mm

♀ : TBL 9.7 - 10.5 mm, L-h 8.1 - 9.0 mm

HL 1.4 - 1.7 mm, PL 1.4 - 1.6 mm, EL 6.7 - 7.4 mm

Differential diagnosis: Easily recognised in males, by the distinctive shape of the last tergite and the aedeagus. Females are more problematic to recognise, as the colouration is similar to several other species, particularly to *I. brevitarsis* n. sp. Distinguished from most other pale-coloured species with black head by the colouration of the femora, with the black macula reduced to a narrow, dark stripe running along the outer edge in apical half. Habitus, especially head and pronotum, narrower than in *I. brevitarsis*, at least in males (the female of *I. brevitarsis* is unknown).

Description: Habitus as in figs. 26 (holotype ♂) and 27 (paratype ♀). Body yellowish brown, testaceous. Elytra with a diffusely delimited black apical patch, covering slightly less than 1/10 of the elytral length. Head black; labrum, fore part of clypeus and a part of the mandibles yellow testaceous. Antennae dark brown to black, with the inner parts of the last segment light brown, testaceous. Maxillary and labial palpi light brown, testaceous. Tibiae, tarsi and a narrow stripe along the outer edge of the femora dark brown.

Head behind the eyes about 0.75 times as wide as middle part of pronotum. Vertex slightly shagreened, finely and sparsely punctate, with greyish recumbent vestiture. Behind and between the eyes with a tuft of some long, stiff, brownish setae. Eyes large in males, separated from each other by a space narrower than the third antennal segment; smaller in females, with a broader space in between (about the wide as the apex of the first antennomere). Frons rather shining, depressed in front of the eyes, with long, brownish setae. Clypeus transverse and rather smooth, with fine vestiture. Labrum flat, subpentagonal, with rounded sides and arcuate apical edge, with sparse, whitish vestiture and some longer, thin, light brown setae.

Male antennae subfiliform, reaching the first third of the elytra, past the humeral callus, in length; finely pilose, slightly flattened towards apex. First segment slightly thickened towards the end, slightly less than twice as long as wide at apex; second segment short, about half as long as first; third distinctly longer than first, but not quite as long as the first two together; fourth and tenth both slightly longer than first; fifth to ninth subequal, about as long as third; last segment longest, about twice as long as tenth, flattened, subcultriform, slightly curved.

Pronotum as long as wide or slightly longer than wide, maximal length : maximal width varying from 1 : 0.9 to 1 : 1, widest in apical half, sides sinuate in basal half; all angles rounded, hind angles obtuse, rounded; basal and fore margins finely bordered; fore margins and disc slightly elevate, with a very shallow subbasal median impression and two oblique depressions in basal half, on either side of the disc; moderately shining; with a few fine, inconspicuous punctures and fine, yellowish, recumbent vestiture; along the margins with some stronger, long, yellowish or brownish setae, which are easily abraded.

Elytra about 2.7-2.95 times as long as wide together and subparallel-shaped in males, humeral callus distinct; moderately shining with fine, rugulose-punctate texture; covered in very fine, rather dense yellow ground vestiture and with three rows of longer, stiff, golden yellowish setae on disc, only visible in profile view. Margins finely crenulate, with a row of long, yellowish setae. Scutellum transverse, flat, matt, very finely punctate and with slightly finer, yellowish ground vestiture than elytra.

Middle and hind femora slightly thickened in males, flatter and slightly narrower in female. Fore femora in both sexes relatively flat. All femora finely shagreened and matt, with similarly fine ground vestiture as elytra. Tibiae matt and thickly covered in thorn-like golden-yellowish setae. Tarsi with finer, golden yellow to brownish setae. Claws slightly thickened at base, otherwise simple.

Abdomen slightly shining. Tergites finely rugulose and covered in fine, silky, golden-yellowish vestiture, with some longer, yellowish setae along the margins.

Male: Last (sixth) ventrite as in fig. 131; short and of moderate size, much narrower than the fifth ventrite; apical margin with broad, shallow emargination. Last tergite very distinctive, apical margin of last tergite thickened and deeply emarginate in middle, the lateral parts forming strongly thickened, rounded lobes.

Aedeagus as in figs. 73, 103. Process of phallobase very short, pointing obliquely downwards. Parameres dorsally almost parallel, with narrow gap in between; curved when seen in lateral view, with bluntly rounded apex; lower edge subapically with only few, yellowish hair-like setae, but with a long row of short, blackish thorn-like setae around the apex; situated all along edge, not extending onto inner surface. Median strongly widened at base, slightly widened in middle part, lower edge distinctly emarginate before at apex, with long, rather pointed tip when seen from above.

Sexual dimorphism: Females are distinctly larger in total body size, with wider elytra and pronotum and shorter last antennomere. Last visible sternite and tergite simple, without emargination or incisions. Male with black comb on the first three protarsomeres.

Variability: Slightly variable in pronotum shape and relative length of elytra, as notes above. One male paratype with unusually strongly crenulate elytral margins, the setae raising out of granules. Colour pattern very constant among the examined material.

Distribution: N-Laos (Xieng Khouang, Houa Phan and Phongsaly), SW China (Yunnan).

Biology and ecology: This species was found by beating foliage of shrubs and trees, usually about 1 m above ground. Despite considerable efforts, only very few, sporadic specimens could be obtained at otherwise well-sampled localities. It may have a similar lifestyle than *I. karelmajeri* n. sp. (see below). One specimen was attracted to light after darkness. Its known habitats are all humid, montane forests between 1150 and 1900 m (fig. 151), except for one locality at lower altitude (620-650 m) in China.

Derivatio nominis: Named after my mentor, the eminent Swiss coleopterist Michel Brancucci (1950-2012), who initially encouraged me to write this revision, constantly supported it during its progress and, unfortunately, could not witness its completion. Michel was an excellent field entomologist, who collected not only one male paratype of this new species, but also many other valuable specimens described herein. Most of the material treated in this paper originates from Michel's numerous expeditions to Laos, a country, he truly loved.

***Idgia brevitarsis* n. sp.**

(Figs. 28, 74, 104, 132)

Holotype ♂ (EHUM): "Laos, Ban Saleui, Houa Phan Prov., alt. ca. 1400-1500 m, 20.-24. VI. 2003, N. Ohbayashi"; "M. Satô Coll., Ehime Univ., No. 00658". The segments 8-11 of the right antenna are broken off and the last tergite is slightly damaged. Otherwise in good condition.

Type locality: Laos, Houa Phan prov., Ban Saluei.

Measurements ♂ : TBL 10.3 mm, L-h 8.8 mm HL 1.5 mm, PL 1.5 mm, EL 7.3 mm

Differential diagnosis: A species of similar colouration than many other *Idgia*, most easily recognised by the shape of the male genitalia. The colouration of the femora distinguishes *I. brevitarsis* from most other pale-coloured species, having the apical black macula reduced to a narrow stripe, running along the outer edge. The only other species with such femora are *I. perspicillata* n. sp., *I. kabakovi* n. sp. and *I. brancuccii* n. sp. The former two are easily distinguished by (at least partially) pale-coloured head, whereas the head is also black in *I. brancuccii* (see diagnosis above). Distinguished from the similarly coloured *I. varipes* Champion, 1919 (Malaysia) by larger size, broader habitus and shorter metatarsi. These are only about half the length of the metatibia in *I. brevitarsis*, longer than 2/3 in *varipes*.

Description: Habitus as in fig. 28 (holotype ♂). Body testaceous yellowish-brown. Elytra with a black apical macula, occupying less than 1/10 of their total length. Head black, except fore part of clypeus. Antennae except the apical three segments, tibiae, tarsi and a narrow stripe along the outer edge of the femora infuscate.

Head behind the eyes about 0.65 times as wide as middle part of pronotum. Vertex slightly shagreened, with long, greyish setae; behind the eyes with a tuft of long, stiff, brownish setae. Eyes large in males, separated from each other by a space narrower than the third antennal segment. Frons shining, flattened in front of the eyes, with greyish setae. Clypeus transversely subtrapezoidal, very finely shagreened, with recumbent, greyish setae. Labrum flat, transversely subpentagonal, with

bluntly rounded sides and arcuate apical edge; with fine punctures and short, recumbent, brownish vestiture; along the margins with some longer setae.

Male antennae filiform, finely pilose, reaching the first fourth of the elytra, past the humeral callus, in length. First antennomere slightly thickened, about twice as long as wide; second smallest, subglobose, less than half as long as first; third slightly shorter than first two together; fourth as long as first; segments 5-9 and 11 longest, each about as long as the first two together; 10 as long as 3; last segment flattened, with a small emargination in basal half of outer edge.

Pronotum as long as wide, widest in apical half, sides slightly sinuate in basal half; fore part arcuate; all angles rounded, hind angles obtuse, rounded; basal margins finely bordered, fore margins only with traces of a bordering; disc slightly convex, with a very shallow subbasal median impression and two faint, oblique depressions on either side of the disc; very finely shagreened and moderately shining; shallowly irregularly punctate and with fine, yellowish, recumbent vestiture; along the margins with some stronger, yellowish setae.

Elytra about 2.3 times as long as wide together, slightly widened towards the apical third, humeral callus distinct; densely, rugosely punctate, with leathery texture and oily sheen; covered in very fine, rather dense golden yellow recumbent vestiture and with two rows of longer, stiff, golden yellowish setae on disc. Margins finely crenulate and with a row of long, yellowish setae. Scutellum transverse, very finely punctate with fine, golden brown vestiture.

Femora not thickened, rather matt, with fine, yellowish pilosity not finer than ground vestiture of elytra. Tibiae and tarsi, especially tibial apex, covered in stiff, golden yellowish setae. Claws simple.

Abdomen relatively broad, with oily sheen. Sternites with rugulose texture, very fine, inconspicuous vestiture and some longer, yellowish setae along margins.

Male: Last (sixth) ventrite as in fig. 132; relatively small and short, much narrower than the fifth ventrite; middle of apical margin with deep and narrow emargination. Apical margin of last tergite simply arcuate, not thickened or emarginate.

Aedeagus as in figs. 74, 104. Process of phallobase a bit oblique. Parameres dorsally broad, with very little gap in between, apex bluntly rounded; lower edge subapically with a tuft of long, yellowish hair-like setae; inner side and ventral edge of apex with numerous, short, black spines. Median lobe with short, slightly thickened basal part, gradually flattened towards apex, very faintly sinuate; tip flattened, subtriangular when seen from above.

Sexual dimorphism: Female unknown.

Variability: Unknown.

Distribution: NE-Laos (Houa Phan).

Biology and ecology: The only known specimen was collected during the end of June (monsoon season), apparently in the old secondary montane forest at the slope of Mt. Phu Pane. It co-occurs with a large number of other Prionoceridae species.

Derivatio nominis: From Latin „brevis" (short) and „tarsus", referring to the relatively short meso- and metatarsis of this species, which has otherwise not many distinctive external characters.

***Idgia difficilis* n. sp.**

(Figs. 29, 30, 75, 105, 133)

Holotype ♂ (NHMB): "CHINA, Yunnan prov., Xishuangbanna, ca. 4 km S MENGLUN, near "Green stone forest park", 600-650 m, 21°54' N / 101°16' E, 26. IV. 2011, M. Geiser leg."; "foliage of moist secondary forest and shrubland; beating"; "DNA sample A173. University of Basel, Biogeography". In good condition

Paratypes (2 ♀): 1 ♀ (NHMB): "LAOS, Bokeo prov., 5 km W Ban Toup, Bokeo Nature Reserve, 500-700 m, 20°27-28' N / 100°45' E, 6. V. 2011"; "NHMB Basel, Laos 2011 Expedition, M. Brancucci, M. Geiser, D. Hauck, Z. Kraus, A. Phantala & E. Vongphachan"; degraded primary lowland forest, beaten from shrubs, David Hauck leg.". 1 ♀ (NHMB): same data as above, but "7. V. 2011".

Other material examined: CHINA: YUNNAN: Cheli, Shihuiyao, 700 m, 27. IV. 1957, Liu Da-Hua leg. 1 ♀ (IZAS); Xishuangbanna, Damenglong, 700 m, 11. IV. 1957, Liu Da-Hua leg. 1 ♀ (IZAS); Xishuangbanna, Damenglong, 700 m, 11. IV. 1957, Hong Guang-Ji leg. 2 ♀ (IZAS).

Type locality: China, Yunnan prov., Xishuangbanna, 4 km S Menglun.

Measurements ♂ : TBL 9.2 mm, L-h 7.8 mm, HL 1.4 mm, PL 1.4 mm, EL 6.8 mm

♀ : TBL 9.7 - 10.3 mm, L-h 8.2 - 8.7 mm HL 1.5 - 1.6 mm, PL 1.4 - 1.5 mm, EL 6.8 - 7.2 mm

Differential diagnosis: This species is very similar to *I. perspicillata* n. sp. It differs mainly by the shape of the aedeagus. Females can be distinguished by the shorter 11th antennomere, which is about the same length, or not much longer than the 10th (1.5 to 2 times as long in *I. perspicillata*) and has a less emarginate outer edge. However, this character shows some infraspecific variability.

Description: Habitus as in figs. 29 (holotype ♂) and 30 (paratype ♀). Body yellow testaceous; elytra pale yellow with a small, diffusely delimited black apical patch, covering about 1/17 of the elytral length; eyes bordered by with a narrow black stripe; antennae black, with most of the last segment orange yellow; tibiae, tarsi, knees and a stripe along the outer edge of the apical half of the femora also black.

Head behind eyes about 0.6 times as wide as middle part of pronotum. Vertex slightly shagreened, finely punctate and pilose with yellowish setae; behind the eyes with some long, stiff, dark brownish setae. Eyes very large in males, extremely narrowly separated, by a space much narrower than half the width of the third antennomere. Frons moderately shining, with fine and sparse, yellowish vestiture. Clypeus transversely subtrapezoidal, finely shagreened and with yellowish setae. Labrum about as long as wide, angles rounded, with a broad, but very shallow, median depression, almost flat, with sparse, yellowish vestiture.

Male antennae filiform, finely pilose, reaching the first fourth of the elytra, past the humeral callus, in length. First two antennomeres slightly thickened towards apex, 3-10 subcylindrical, the last segment

flattened, with very small emargination in basal half of outer edge. First segment about twice as long as wide at apex; second segment a bit longer than half of the first; third longer than first, but shorter than the first two together; fourth about as long as first; segments 5-10 about as long as 3 or slightly longer; last segment longest, about as long as the first two together, slightly than the preceding segment.

Pronotum slightly longer than wide, maximal length : maximal width 1 : 0.9, widest in apical half; with slightly sinuate sides in basal half, rounded hind angles and broadly arcuate apical margin; basal and apical margins with traces of a bordering; disc with shallow median subbasal depression; moderately shining, very finely shagreened and finely punctate, with fine, yellowish, recumbent vestiture and a few longer, brownish setae along the margins.

Elytra about 3 times as long as wide together, subparallel; humeral callus distinct; densely, rugosely punctate and moderately shining; with very fine, yellowish ground vestiture and rows of longer, erect, black setae; in unabraded specimens with a row of black setae along the suture and four rows on disc, the outermost one confined to the apical two thirds. Margins finely crenulate and with another row of dark, stiff setae. Scutellum transverse, very finely punctate and with sparse, hair-like setae.

Femora not thickened, very finely shagreened and with fine, yellowish pilosity, similar to ground vestiture of elytra. Tibiae and tarsi, with more stiff greyish to yellowish setae. Claws widened at base, otherwise simple.

Abdomen narrower than in *I. perspicillata* (male). Sternites finely, rugosely punctate, with short, yellowish vestiture and some longer, yellowish to brownish setae along margins.

Male: Last (sixth) ventrite as in fig. 133; short and transverse, basal part distinctly narrower than apical margin of fifth ventrite; apical margin with deep and broad emargination. Apical margin of last tergite simply arcuate, not thickened or emarginate.

Aedeagus as in figs. 75, 105. Process of phallobase long and oblique. Parameres dorsally almost parallel, with very little gap in between, apex bluntly rounded, lower edge in apical half with some longer, yellowish, hair like setae ; inner side and lower edge of apex with short, blackish, thorn-like setae. Median lobe relatively thick in basal half, then gradually narrowed towards the flattened apex ; subparallel-sided and with triangular tip in dorsal view.

Sexual dimorphism: Females often, but not always, with slightly shorter 11th antennomere, not distinctly longer than the preceding ones; body size larger and antennae broader, eyes almost as large as in males. Last visible tergite and sternite simple, without emargination. Male with black comb on the first three protarsomeres.

Variability: The females here not included into the type series differ from the specimens in the type series by entirely testaceous head, without black rings around the eyes. Their antennal colour varies from lighter reddish to dark brown. The last antennomere can be about as long as the 10th, or up to 1.3 times its length, but always shorter than in *I. perspicillata*.

Distribution: SW China (Yunnan: Xishuangbanna) and N Laos.

Biology and ecology: Specimens were collected in the early monsoon season (April to May) by beating understorey shrubs in secondary forest/shrubland and degraded primary forest at relatively low altitude (500-700 m).

Derivatio nominis: The species epithet "*difficilis*" (lat.: difficult) was chosen to underline the difficulties to distinguish this species from *I. perspicillata*, using external characters.

***Idgia haucki* n. sp.**

(Figs. 31, 32, 76, 106, 134)

Holotype ♂ (NHMB): "LAOS, Champasak prov., 15°02' N / 106°31-34' E, Ban Nong Panouan env., 770-800 m, beaten from shrub, 17. VI. 2010, M. Geiser leg.". In good condition.

Paratypes (2 ♂ 2 ♀): 1 ♀ (NHMB): "LAOS, Champasak prov., 15°02' N / 106°31-34' E, Ban Nong Panouan env., 770-800 m, beaten from shrub, 12. VI. 2010, D. Hauck leg.". 1 ♂ (NMPC): "LAOS, CHAMPASAK prov., Bolavens Plateau, ca. 3 km SE Ban Lak 40 [vill.], coffee plantations/forest (at light), 15°09.8'N, 106°09.5'E, 1070 m, Jiří Hájek leg. 9.v.2010". 1 ♂ 1 ♀ (BIMH): "VIET NAM, Dalat 6 km S., 1400-1500 m, 9. VI. - 7. VII. 1961, N. R. Spencer, Collector".

Type locality: Laos, Champasak prov., E-slope of Bolaven plateau, near Ban Nong Panouan.

Measurements ♂ : TBL 9.6 - 10.3 mm, L-h 8.1 - 8.6 mm

HL 1.5 - 1.7 mm, PL 1.4 - 1.6 mm, EL 6.7 - 7.0 mm

♀ : TBL 10.6 - 12.3 mm, L-h 8.8 - 9.4 mm

HL 1.8 - 1.9 mm, PL 1.7 mm, EL 7.1 - 8.7 mm

Differential diagnosis: Males are easy to recognise by their slightly thickened middle and hind femora, as well as their aedeagus shape. The only other Indochinese species with slightly thickened femora being *I. lajoyei* and, to a lesser extent, *I. bannalama* n. sp. and *I. brancuccii* n. sp., all with entirely black head. Both, males and females, are distinguished by very pale colouration, with entirely yellow head and legs. The similar-looking *I. coomani* has infusate tibiae, the equally pale *I. kabakovi* n. sp. lacks the black apical macula on the elytra.

Other species with thickened male femora are *I. geniculata* Champion, 1919 (Sri Lanka), *I. femoralis* Pic, 1942, *I. crassicornis* Pic, 1942, *I. maculiventris* Champion, 1919 (all from South India) and *I. flavilabris* Champion, 1919. They all have a black head and differently shaped aedeagus.

Description: Habitus as in figs. 31 (holotype ♂) and 32 (paratype ♀). Body pale testaceous yellow, with only a small apical macula on elytra black. Elytral macula slightly variable in size, occupying about 1/15 to 1/20 of total length.

Head behind eyes about 0.7 times as wide as middle part of pronotum. Apart from the long, erect, pale brownish setae behind the eyes with several more, similar-looking setae around eyes and on frons. Vertex rather polished and finely punctate, with fine, yellowish setae. Eyes very large in males, dorsally only separated by an extremely narrow space, less than half the width of the third antennomere. Frons flat except for ridges at antennal bases, not depressed in front of eyes, with fine, yellowish ground vestiture. Clypeus transversely subtrapezoidal, relatively matt and slightly convex, with sparse, yellowish setation. Labrum slightly transverse, subpentagonal, arcuate in front, flat and

relatively shining, with short, yellow setae on disc and a few longer, also yellowish setae along margins.

Male antennae filiform, with base of segments 6-10 slightly narrowed and the last segment flattened, slightly curved and with broadly, but emarginate outer edge; finely pilose with yellowish setae; reaching the first third of the elytra, past the humeral callus, in length. First segment apically slightly thickened, a bit more than twice as long as wide in apical part, second segment short, about half as long as first; third longer than first, but shorter than the first two together; fourth about as long as first; fifth about as long as third; 5th to 10th segments gradually slightly shortened; tenth about as long as first; last segment very long, about double the length of the 10th.

Pronotum distinctly longer than wide, maximal length : maximal width 1 : 0.81, widest in apical half; with rather strongly sinuate sides in basal half, all angles rounded; basal and apical margins very finely bordered; disc with shallow median subbasal depression; rather polished and shining; finely punctulate and with short, inconspicuous, yellowish ground vestiture; along the margins with some longer, yellowish setae.

Elytra about 3.0 times as long as wide together, slightly widened towards middle; humeral callus distinct; slightly shining and finely punctulate, slightly rugulose in apical half and near suture, rugosely punctate and moderately shining; ground vestiture very fine, pale yellow, rather inconspicuous; with three well-visible rows of long, stiff, yellowish setae, getting slightly more brownish in colour towards apex, in addition with a few extra setae in apical third near margins and with a row of shorter setae along suture. Margins finely crenulate and with another row of stiff, yellowish setae, in addition to a very fine, dense ciliation consisting of short, pale-coloured, hair-like setae.

Middle and hind femora slightly thickened in males, very finely shagreened and with fine, yellowish pilosity, finer than ground vestiture of elytra. Tibiae and tarsi, with longer, stiff, golden yellowish setae, especially dense towards tibial apex. Claws widened at base, otherwise simple.

Abdomen relatively flat. Sternites finely shagreened and rugulose; with fine punctulation and short, inconspicuous, yellowish vestiture; along margins with some longer, also yellowish setae.

Male: Last (sixth) ventrite as in fig. 134; short and transverse, basal part clearly narrower than apical part of fifth ventrite; apical margin with broad, moderately deep emargination. Apical margin of last tergite simply arcuate, not thickened or emarginate.

Aedeagus as in figs. 76, 106. Process of phallobase long and thin, oblique. Parameres strongly gaping dorsally, with convergent apices; with a bend in middle part when seen from the side; their lower edge subapically with long, hair-like setae; inner sides of apex covered in short, testaceous, thorn-like setae. Median lobe curved throughout its length, with very narrow but not much flattened apex, bent ventrally.

Sexual dimorphism: Female with simple femora, larger than male, with slightly broader elytra and more widely separated eyes. Last sternite and tergite simple, without incisions or emargination. Male with black comb on the first three protarsomeres.

Variability: Apart from the above-mentioned slight variability of the apical elytral macula, the thickness of the male hind femora seems to vary slightly. Otherwise not a variable species.

Distribution: S Laos, S Vietnam.

Biology and ecology: Adults have been collected between June and July (monsoon season) at altitudes between 770 and 1500 m. At the type locality, they were found by beating foliage of trees and shrubs in a secondary forest and in a degraded old-growth forest, respectively. Within more than a week of intensive collecting, only two individuals have been found. The only other Prionoceridae found at the type locality is *Prionocerus bicolor* Redtenbacher, 1868.

Derivatio nominis: Named after my colleague and travel companion, David Hauck from Brno, Czech Republic, who collected a female paratype during our trip to South Laos (NHMB expedition 2010), as well as numerous other interesting specimens treated in this paper.

***Idgia hmong* n. sp.**

(Figs. 33, 77, 107, 135)

Holotype ♂ (EHUM): "LAOS, Xiengkhouang Prov., Nong Het, 5. IV. 2007, N. Ohbayashi leg.". In good condition.

Paratype: 1 ♂ (EHUM): same data as holotype.

Type locality: Laos, Xieng Khouang prov., Nong Haet.

Measurements ♂ : TBL 10.6 - 10.8 mm, L-h 9.0 - 9.2 mm

HL 1.6 mm, PL 1.6 mm, EL 7.4 - 7.6 mm

Differential diagnosis: Easily recognisable by its characteristic colouration, especially the diffuse, dark pronotal spots and the infuscate middle part of the ventrites, also the ground colour is unusually pale, not yellowish or orange as in other species. This colour pattern resembles *Idgia notaticeps* Pic, 1912, from Java, which is, however, more elongate, has longer and thinner antennae and a yellow head (except base of vertex).

Description: Habitus as in figs. 33 (paratype ♂). Body pale testaceous, greyish brown. Head black, except fore half of clypeus. Antennae, tibiae, tarsi and a line along the outer edge of femora dark brown; this line, running along the whole length of the otherwise testaceous femora, widened towards the apices. Elytra with diffusely delimited dark apical spot, occupying slightly less than 1/10 of their length. Pronotum with two longitudinal, diffusely infuscate maculae, one on each side of the disc. Scutellum, disc of metasternum and middle part of abdomen (except last ventrite) broadly infuscate.

Head behind the eyes about 0.60 times as wide as middle part of pronotum. Vertex shining, with fine, wrinkly sculpture, very fine punctation and brownish, recumbent setation, intermixed with longer, erect setae; behind the eyes with a tuft of long, stiff, brownish setae. Eyes very large in males, almost touching each other, dorsally separated from each other by a space narrower than half the width of the third antennomere. Frons flat, shining, slightly wrinkly and with some long, brownish setae. Clypeus transversely subtrapezoidal, shining and sparsely setose. Labrum flat, transversely subpentagonal, shining, with arcuate apical edge; finely and sparsely punctate and with short, recumbent, brownish vestiture; along the margins with some longer setae.

Male antennae filiform, finely pilose, reaching the first third of the elytra behind the humeral callus, in length. First segment slightly thickened; second very small, less than half as long as first; third elongate, slightly shorter than first two together; fourth shorter, slightly shorter than first; fifth about as long as second and third together; sixth to ninth of roughly equal length, about as long as third; tenth shorter, about as long as fourth, but thicker; last segment largest, slightly longer than fifth, subcultriform, flattened, but without emargination.

Pronotum as long as wide, widest near middle, sides not distinctly sinuate; all angles bluntly rounded; margins without bordering; disc with shallow, median subbasal depression; shining and without much microsculpture, apart from very fine punctation; with fine, yellowish, recumbent vestiture; along the margins with some stronger, brown setae. Front margin ciliate with fine, yellowish, hair-like setae.

Elytra about 2.8 times as long as wide together, slightly widened towards the apical third; humeral callus distinct; moderately shining with dense punctuation, converging into a rugulose texture on disc; covered in fine, recumbent yellowish ground vestiture and with three conspicuous rows of long, stiff, black setae; apical half with some additional black setae near the lateral margins. Margins finely crenulate and with a row of stiff, dark-brownish setae. Scutellum transversely suboval, with relatively dense, yellowish vestiture.

Femora not thickened, rather matt, pilosity finer than on elytra. Tibiae and tarsi slightly shagreened, covered in stiff, golden brownish setae. Claws simple.

Abdomen relatively flat and broad towards apex. Sternites rugosely punctate, slightly wrinkly and only moderately shining; with dense, yellowish recumbent vestiture and some longer, yellowish setae along margins.

Male: Last (sixth) ventrite as in fig. 135; relatively wide, but narrower than the fifth ventrite; middle part apical margin with round emargination; basal margin with subtriangular, median incision, merging into a deep furrow. Apical margin of last tergite simply arcuate, not thickened or emarginate.

Aedeagus as in figs. 77, 107. Process of phallobase short, oblique. Parameres dorsally flattened, gaping only in apical part when seen from above, in lateral view with a slight „hump" before the bluntly rounded apex, their lower subapically with a tuft of long, yellowish hair-like setae, then with a row of much shorter, darker brownish setae in apical part. Median lobe with apical 2/3 almost straight, gradually flattened towards the tip; apex pointed when seen dorsally.

Sexual dimorphism: Female unknown.

Variability: Scutellum completely infusate in holotype, with testaceous apex and infusate disc in paratype.

Distribution: NE Laos (Xieng Khouang).

Biology and ecology: Adults were collected early in April, probably shortly before the beginning of the monsoon season. There is no information about the type of habitat.

Derivatio nominis: Named after the Hmong people, a large ethnic minority in northern Laos and adjacent Vietnam, which make up most of the population around the type locality of this species. The

Hmong people also make up most of the "local collectors", operating on the Xieng Khouang plateau. The species epithet is a noun in apposition.

***Idgia indosinica* n. sp.**
(Figs. 34, 35, 78, 108, 136)

Holotype ♂ (NHMB): "LAOS, Louang Namtha pr., 21°00' N 101°25' E, Louang Namtha, 600 m, 31. V. 1997, Vit Kubáň leg.". In good condition.

Paratypes (10 ♂ 14 ♀): 1 ♀ (NHMB): same data as holotype. 2 ♂ 3 ♀ (CRC): "LAOS NW, 5 km SE Muang Sing, Chiang Tung (Stupa) GH, h=750 m, 9.-14. VI. 2010, S. Murzin leg.". 1 ♀ (NHMB): same data, plus: "DNA sample A213, University of Basel, Biogeography". 1 ♂ (NHMB): "LAOS, Louang Namtha prov., ca. 5 km SE Muang Sing, Xieng Thung Stupa, 750 m, 21°08' N / 101°10' E, 14. V. 2011"; "NHMB Basel, Laos 2011 Expedition, M. Geiser & D. Hauck". 1 ♀ (ZMUC): "LAOS: Vientiane prov.: Houayang Nat. Park, 18°05.889' N 102°40.521' E, 180 m, 22.-24. V. 2008; leg. A. Solodovnikov & J. Pedersen"; "mostly secondary rainforest; ZMUC collection". 1 ♂ (NHMB): "THAI, 17.-24. V. 1991, Chiang Dao, 1000 m, 19°25' N 98°52' E, Vit Kubáň leg."; "Thailand '91, "Thanon Thong Chai", D. Král & V. Kubáň". 2 ♀ (CRC): "THAILAND N, h=650 m, 100 km N Chiang Mai, Chiang Dao Hill Res., 28. V. – 8. VI. 2009, S. Murzin leg.". 1 ♂ (NHMB): "THAILAND, CHIANG MAI Prov., Doi Chiang Dao env., 1200 +/- 50 m, 19°24'45" N 98°51'30" E, 9.-13. V. 2009, L. Dembický leg.". 1 ♀ (ZMUC): "North Thailand, Doi Sutep, tillys, 23. 4. 1958. 1100 m, B. Degerbøl leg., Pr. 179 A (1. 7. 59)". 1 ♂ (KMNH): "(Doi Suthep), Chiang Mai pref., THAILAND, 16-th Jun. 1988, O. Furuta col."; "Kurashiki Mus. N. H., Exot. Insect Coll., No. 16847". 1 ♂ 2 ♀ (BMNH): "THAI, N, Mae Hong Son prov., Soppong env., 600 m, 19°27' N 98°20' E, 28. V. – 2. VI. 1999, D. Hauck leg.". 1 ♀ (MTMB): "THAILAND, Prov. Prachin Buri, Sakaerat Ecol. Research Institute,"; "No. 95, at light, 16. VI. 2001, E. Horváth & Gy. Sziráki". 1 ♂ (BIMH): "VIETNAM: Kontum, 570 m, 13.-14. VI. 1960"; "R. E. Leech Collector, BISHOP"; "At Light". 1 ♂ (NKME): "CHINA, S-Yunnan Prov., Xishuangbanna, 29 km NW Jinghong, Da Nuo You (NNNR)"; "790 m NN, 22°12.41' N 100°38.29' E, 24. V. 2008, leg. A Weigel H KF". 1 ♂ (IZAS): "Yunnan, Xishuangbanna, Xiaomengyang, 850 m, Zongguokexueyuan", "1957.VI.16, ZANG Ling-Chao leg." [in Chinese characters]; „IOZ(E)1122058". 1 ♀ (IZAS): "Yunnan: Xishuangbanna, Mengla, 620-650 m, Zongguokexueyuan", "1959.V.9, PU Fu-Ji leg." [in Chinese characters]; „IOZ(E)1122059". 1 ♀ (IZAS): "Shuangjiang, 53-VI" [in Chinese characters]; „IOZ(E)1122276".

Type locality: Laos, Louang Namtha prov., Louang Namtha.

Measurements ♂ : TBL 10.7 - 12.4 mm, L-h 9.0 - 10.5 mm
HL 1.7 - 2.0 mm, PL 1.5 - 1.9 mm, EL 7.4 - 8.6 mm
♀ : TBL 11.5 - 13.5 mm, L-h 9.6 - 11.2 mm
HL 1.9 - 2.3 mm, PL 1.7 - 2.0 mm, EL 7.8 - 9.2 mm

Differential diagnosis: A relatively large and broad species among the pale-coloured ones. Similar to *I. particularipes*, *I. melanura* (Himalayas), *I. assimilis* (India) and *I. deusta* (China) but head with base of vertex testaceous, never with entirely black head. Distinguished from *I. perspicillata* n. sp., *I. difficilis* n. sp., and *I. kubani* n. sp. by different colour pattern on the femora, from *I. dubia* by larger size. Also distinguished from all other species by its aedeagus shape, the most similar species and probably closest relative being *I. kubani* n. sp.

Description: Habitus as in figs. 34 (holotype ♂) and 35 (paratype ♀). Body testaceous brownish yellow. Elytra with black apical macula, occupying about 1/9 to 1/10 of their total length. Head with broad black fascia around eyes, leaving basal part of vertex and epistomal area testaceous, rarely reduced to two diffuse black rings around the eyes. Tibiae tarsi and apex of femora infuscate, dark brown to black, border between black and testaceous femoral colour running obliquely across the dorsal surface of the femur, often a bit diffuse. Antennae dark brown to black, with inner part of apical segment and often of lighter colour. Maxillary and labial palpi infuscate, dark brown.

Head behind eyes about 0.55-0.6 times as wide as middle part of pronotum. Vertex relatively shining, very finely shagreened, finely punctate and with fine, yellowish to greyish, recumbent vestiture. Behind eyes with some long, stiff, brownish setae (abraded in some specimens). Eyes very large, protruding and narrowly separated in males, space between them about half as wide as the third antennomere. Frons flattened in front of eyes, rather polished, with sparse, short, greyish setae. Clypeus about as long as wide, transversely subtrapezoidal, slightly convex and rather matt, with yellowish setae. Labrum transversely subhexagonal, flat, with finely wrinkly microsculpture, sparse, fine, greyish or yellowish vestiture and some longer, yellowish setae along the margins

Male antennae reaching the first fourth of the elytra, past the humeral callus; subdiliform, with segments 6-10 gradually widened and flattened; basal slightly thickened towards the end, about twice as long as wide at apex; second very short, less than half as long as first; third about slightly longer than first; fourth slightly shorter; fifth about as long as third, the following five segments gradually shortened. Last antennomere longest, at least twice as long as 10th, and longer than first two together, subcultriform, flattened, slightly curved with long emargination along outer edge.

Pronotum about as long as wide, widest in middle; with obtuse, rounded angles and very faintly sinuate sides in basal half; margins finely bordered; disc with very shallow, median subbasal depression and two weak, oblique impressions on each side in basal half; very finely shagreened, shallowly and inconspicuously punctate and with slight, oily sheen; ground vestiture fine, yellow; along the margins with few longer, but easily abraded setae. Basal margin very finely ciliate, with short, yellowish hair-like setae.

Elytra about 2.5 times as long as wide together, slightly widened toward the apical third; humeral callus distinct; slightly shagreened and rather matt, with finely ruguloso-punctate texture, covered in fine, dense, golden yellowish ground vestiture and long, black setae, arranged in three sparse, slightly irregular rows on disc; in apical half with some additional, long, black setae near lateral margins and a row of shorter blackish setae along suture. Margins finely crenulate and with a row of erect setae; these setae either all blackish, or testaceous in basal part, then gradually infuscate towards apex. Scutellum transverse, finely punctate and with sparse, fine, yellowish setae.

Femora not thickened, matt and shagreened, with slightly finer ground vestiture than elytra. Tibiae and tarsi matt, covered in stiff, golden brownish setae. Base of claws widened, otherwise simple.

Abdomen relatively broad and flat, matt. Sternites finely rugulose, with fine, golden yellowish ground vestiture and some longer, yellowish at lateral margins.

Male: Last (sixth) ventrite as in fig. 136; short and strongly transverse, narrower than apical part of fifth ventrite; apical margin with broad, very shallow emargination. Apical margin of last tergite broadly arcuate, not thickened or emarginate.

Aedeagus as in figs. 78, 108. Process of phallobase pointing downwards at an angle of about 100° relative to apical half of paramera. Parameres strongly gaping dorsally, their apices convergent; in lateral view slightly sinuate subapically, with their bluntly rounded tips curved upwards, their lower edge with only few, relatively short hair-like setae. Inner side of apical part covered in short, thorn-like setae. Median lobe only slightly curved in basal half, gradually narrowed from base to apex; with pointed, dorsoventrally flattened and slightly ventrally bent tip.

Sexual dimorphism: Females only slightly more widened than male, and on average larger, with a bit more widely separated eyes. Last visible sternite and tergite simple, without emargination or incision. Male with black comb on the first three protarsomeres.

Variability: The black head fascia of slightly variable size, sometimes reaching the clypeus, sometimes reduced to two diffuse, blackish rings around the eyes. None of the examined specimens has an entirely testaceous or black head, however.

Distribution: Laos, Vietnam, S China (Yunnan), N Thailand.

Biology and ecology: Adults were collected between April and June, during the early monsoon season, at relatively low altitudes (570-1100 m). Two specimens were attracted to light, while another one was found by sweeping vegetation. The habitat around the type locality is mostly agricultural landscape with some patches of secondary and tertiary (bamboo) forest.

Derivatio nominis: Named after its area of distribution, "Indo-Sina", the latinised version of Indochina.

***Idgia kabakovi* n. sp.**

(Figs. 36, 79, 109, 137)

Holotype ♂ (ZISP): „Vietnam, mountains 50 km NE Thai-Nguyen, 300 m, 10. V. 1963, Kabakov"; "from O.N. Kabakov collection" (in Russian). Left antennomeres 8-11 missing. Holotype label added.

Type locality: Vietnam, Thai Nguyen prov., 50 km NE Thai Nguyen (Sammoc, near Trang Xa, according to Kirejtshuk & Kabakov, 1997).

Measurements ♂ : TBL 9.9 mm, L-h 8.4 mm, HL 1.5 mm, PL 1.4 mm, EL 7.0 mm

Differential diagnosis: The unicolorous pale yellow elytra and the simple (not bi-incised) last sternite in males distinguish this species from all other treated herein. It is externally very similar to *I. distinctipes* Pic, 1914 stat. nov. (see below under "Further taxonomic changes") from Burma, but can be distinguished by slightly smaller size, lighter antennal colour and different shape of median lobe and paramera.

Description: Habitus as in figs. 36 (holotype ♂). Body pale yellow testaceous. Tibiae, tarsi and a stripe along the outer edge of the femora infusate. Antennomeres 2-5 and ventral part of scapus also slightly infusate.

Head behind the eyes about 0.75 times as wide as middle part of pronotum. Vertex slightly shagreened, with inconspicuous recumbent vestiture. Behind eyes with a tuft of long, stiff, brownish

setae. Eyes large and very narrowly separated in male, separated from each other by a space narrower than half the width of the third antennomere. Frons flat and very finely shagreened, with sparse, whitish setae. Clypeus transversely subtrapezoidal, finely shagreened and slightly convex, with a few whitish setae and rather smooth, with fine vestiture. Labrum flat, transversely subhexagonal, with rounded sides and arcuate apical edge, with fine, sparse, yellowish vestiture and some longer, thin, whitish setae along the margins.

Male antennae filiform and relatively thin, reaching the first fourth of the elytra, past the humeral callus. First segment apically thickened, about twice as long as wide in apical portion; second very short, slightly less than half as long as first; segments 3, 4, 10 and 11 roughly equal in length, slightly shorter than the first two together; 5-9 each about as long as the first two together; last segment subcylindrical, slightly constricted in middle part.

Pronotum elongate, longer than wide, maximal length : maximal width 1 : 0.88, widest after the middle; all angles rounded, hind angles oblique, front angles bluntly rounded; apical and basal margins faintly bordered; front margin, basal and discal part slightly raised, middle lateral part depressed; finely shagreened and with inconspicuous, yellowish, recumbent vestiture, without distinct punctures.

Elytra about 3.0 times as long as wide together, nearly parallel, very slightly widened toward the apical third; apices bluntly rounded; humeral callus distinct; almost matt, densely, rugosely punctate; covered in fine, inconspicuous, yellowish ground vestiture. Disc with two rows of loosely arranged, rather inconspicuous, longer brownish setae; a few additional setae in apical part near lateral margins. Margins finely crenulate in middle part, almost straight in apical third, with fine yellowish, hair-like setation and few, rather loosely arranged, stronger, brownish setae. Scutellum transversely subrectangular, very finely punctate and with few fine, yellowish setae.

Femora not thickened, finely shagreened and with very fine vestiture. Tibiae and tarsi matt, covered in whitish setae. Claws with thickened base, otherwise simple.

Abdomen narrow, matt, finely shagreened and punctate, with yellowish recumbent vestiture and some longer, yellow setae, mostly around the lateral and apical margins.

Male: Last (sixth) ventrite as in fig. 137; relatively large and elongate, not much narrower than the fifth ventrite; middle of apical margin with relatively deep and narrow, U-shaped emargination. Apical margin of last tergite simply arcuate, not thickened or emarginate.

Aedeagus as in figs. 79, 109. Process of phallobase narrow, slightly thickened at apex, pointing backwards. Dorsal edges of parameres parallel, without gap in between; their lower edge subapically emarginate, with long, hair-like setae in apical third; apex narrowed and curved; setation at apex bristly, extremely short. Median lobe thickened and slightly curved in basal half, apex flattened, slightly sinuate in lateral view, with rounded tip in dorsal view.

Sexual dimorphism: Female unknown.

Variability: Unknown.

Distribution: N Vietnam (Thai Nguyen).

Biology and ecology: The only known specimen was collected in early March (late dry season), at a relatively low altitude (300 m). No information on the habitat was given.

Derivatio nominis: Named in honour of the collector of the holotype, the Russian geologist Oleg Nikolaevich Kabakov (1928-2009) from St. Petersburg, who contributed substantially to the knowledge of the beetle fauna of Vietnam and Laos, even during the times of the Second Indochina War.

***Idgia kubani* n. sp.**

(Figs. 37, 80, 110, 138)

Holotype ♂ (NHMB): "LAOS, Louang Namtha pr., 21°00' N 101°25' E, Louang Namtha, 31. V. 1997, 600 m, Vít Kubáň leg.". Segments 5-11 of the right antenna missing.

Paratypes (1 ♂ 1 ♀): 1 ♂ (IZAS): "Yunnan, Xishuangbanna, Xiaomengyang, 850 m, Zhongguokexueyuan"; "1958.VII.11, ZHANG Yi-Ran leg." [in Chinese characters]; „IOZ(E)1122057". 1 ♀ (IZAS): same data, „IOZ(E)1122055".

Type locality: Laos, Louang Namtha prov., Louang Namtha town.

Measurements ♂ : TBL 8.8-9.6 mm, L-h 7.5-8.1 mm, HL 1.3-1.5 mm, PL 1.4-1.5 mm, EL 6.1-6.6 mm

♀ : TBL 10.1 mm, L-h 8.7 mm , HL 1.4 mm, PL 1.5 mm, EL 7.2 mm

Differential diagnosis: This species is most similar to *I. perspicillata* n. sp., described above. It differs in having entirely testaceous legs and antennae, narrower paramera, a flatter tip of the aedeagus and more robust antennae. *I. difficilis* n. sp. also has darker legs and antennae, in addition to the very different male genitalia. Females of this species are unknown. Very similar to *I. indosinica* n. sp. by aedeagus shape. These species are probably close relatives, but distinguished by the angle of the phallobase and the more strongly curved apex of the aedeagus, apart from the differently coloured femora.

Description: Habitus as in fig. 37 (holotype ♂). Body orange yellow. Elytral apex with a black apical spot, covering a bit less than 1/10 of the elytral length. Head broadly black around the eyes, leaving the base of the vertex and most of the frons in front of the eyes testaceous. Tibiae, tarsi and antennomeres 3-10 faintly infuscate.

Head behind eyes about 0.65 times as wide as middle part of pronotum. Vertex very finely punctate, with fine, yellowish, recumbent vestiture. Behind eyes with some long, stiff, brownish setae. Eyes large and rather narrowly separated in male, space between them about as wide as the base of the third antennomere. Frons rather polished, sparsely punctate with some long, yellowish setae. Clypeus transversely subtrapezoidal, slightly convex, with fine yellowish setae. Labrum about as long as wide, subpentagonal, with shallow median depression; with yellowish setae, fine and short on disc and some larger ones along the margins.

Male antennae reaching the first fourth of the elytra, past the humeral callus; relatively robust; basal segment slightly thickened, segments 2-5 subcylindrical, 6-10 slightly gradually flattened and widened

towards their apex; terminal segment strongly flattened and very elongate, subcultriform. First segment nearly twice as long as wide; second very short, about half as long as first; third about as long as first two together; fourth and tenth slightly shorter; fifth to ninth subequal in length, about as long as third; last segment longest, about as long as the first three together.

Pronotum about as long as wide, widest near middle; basal angles rounded; apical margin arcuate; basal margins with traces of a bordering; disc with shallow, median subbasal depression; finely punctate and with oily sheen; with fine, yellowish, recumbent vestiture; along the margins with some longer, yellowish setae. Middle part of basal margin finely ciliate, with short, yellowish hair-like setae.

Elytra about 2.7 times as long as wide together, slightly widened toward the apical third; humeral callus distinct; with oily sheen and shallow, slightly rugulose punctation; covered in fine, recumbent golden yellowish ground vestiture, a row of longer, more blackish setae along the suture in apical third and three rather conspicuous rows of long, black setae on disc; in apical half with some additional black setae near the lateral margins. Margins finely crenulate and with a row of stiff, black setae. Scutellum transversely subrectangular, very finely punctate and with few fine, yellowish setae.

Femora not thickened, finely shagreened and with very fine, inconspicuous, yellowish vestiture. Tibiae and tarsi matt, covered in stiff, golden brownish setae. Base of claws widened, otherwise simple.

Abdomen broad, flat, glossy, finely punctate, with short, inconspicuous, yellowish recumbent vestiture and only few, longer setae around the lateral margins.

Male: Last (sixth) ventrite as in fig. 138; transverse and relatively short, base clearly narrower than apical margin of fifth ventrite; apical margin with broad, shallow emargination. Apical margin of last tergite simply subtruncate, not thickened or emarginate.

Aedeagus as in figs. 80, 110. Process of phallobase narrow and relatively long, pointing downwards at an angle of about 120° relative to apical half of paramera. Parameres strongly gaping dorsally, their apices convergent, in lateral view slightly sinuate subapically, with their bluntly rounded tips curved upwards (as in *I. indosinica*), their lower edge with few hair-like setae. Inner side of apical part covered in short, thorn-like setae. Median lobe only slightly curved in basal half, apex narrowed flattened and curved downwards.

Sexual dimorphism: Female slightly larger than the males, with broader, medially slightly widened elytra and smaller, more widely separated eyes. Last ventrite and tergite simple in females, without incisions or emarginations. Ovipositor with long, cylindrical coxital styli. Male with black comb on the first three protarsomeres.

Variability: The male paratype from China has a slightly narrower pronotum and a slightly more extended elytral apical macula than the holotype. The female paratype differs from the males by less extensive black head colouration, covering only the area around the eyes and leaving most of the vertex testaceous.

Distribution: N Laos (Louang Namtha), SW China (Yunnan: Xishuangbanna).

Biology and ecology: The only known specimen was collected in the early monsoon season (end of May) at an altitude of 600 m. In 2006, the immediate surroundings of Louang Namtha town were

largely deforested, with small fragments of secondary forest a few kilometers away. In 1997, there may have been still more forest.

Derivatio nominis: Named in honour of the collector of the holotype, Vítězslav (Vit'a) Kubáň from Brno, curator at NMPC, excellent specialist on Buprestidae and dear travel companion on the NHMB expedition to Laos in 2009.

***Idgia maculifrons* n. sp.**

(Figs. 38, 81, 111, 139)

Holotype ♂ (NHMB): "S VIETNAM, 40 km NW of An khe, BUON LUOI, 14°10' N 108°30' E, 620-750 m, 28. III.-12. IV. 1995, Pacholátko & Dembický leg.". In good condition.

Type locality: Vietnam, Gia Lai prov., Buon Luoi (ca. 40 km NW of An Khe).

Measurements ♂ : TBL 9.6 mm, L-h 8.1 mm, HL 1.5 mm, PL 1.3 mm, EL 6.8 mm

Differential diagnosis: Colour pattern very similar to *I. brancuccii* n. sp. and *I. brevitarsis* n. sp. Distinguished by the orange brown central part of the frons and longer metatarsi. Male genitalia very similar to *I. difficilis* n. sp., but with broader paramera. Distinguished from *I. difficilis* also by entirely black vertex of the head.

Description: Habitus as in fig. 38 (holotype ♂). Body yellow testaceous. Elytra of slightly paler colour tone than pronotum, with black apical macula, occupying about 1/10 of their length. Head black, with most of the frons (except lateral parts before antennal insertions and base between eyes), clypeus and labrum orange brown testaceous. Antennomeres 1-10, tibiae and tarsi infusate. Femora with a diffusely infusate stripe, covering apex and outer edge, across about half their total length.

Head behind the eyes about 0.65 times as wide as middle part of pronotum. Vertex, shagreened, matt, with greyish setae. Eyes very large and narrowly separated dorsally (male), space between them about half as wide as apical part of third antennomere. Frons polished, flat, only slightly depressed in front of eyes, with very fine, sparse, yellowish vestiture. Clypeus transversely subtrapezoidal, with slightly arcuate fore margin, with few, very fine, yellowish, hair-like setae. Labrum slightly longer than wide, central part slightly impressed, very finely shagreened and with very few setae (abraded in holotype?).

Male antennae filiform, reaching the first fourth of elytra, past the humeral callus, in length. First segment slightly thickened and about twice as long as wide; second very small, about half as long as first; third and fourth subequal, slightly longer than first; segments 5-10 each slightly longer than 3 and 4, but shorter than 1 and 2 together; last segment longest, longer than the first two together, flattened, outer edge with emargination in basal half.

Pronotum about as long as wide, widest in middle part; margins in basal half not sinuate; apical margins subarcuate; hind angles rounded; all margins very finely bordered; disc with very shallow, hardly discernible, median subbasal impression; very finely punctate, with slightly shagreened microsculpture and oily sheen; with fine, relatively sparse, yellowish ground vestiture; along the margins with few longer, yellowish setae. Basal margin very finely and sparsely ciliate, with very short, yellowish hair-like setae.

Elytra about 2.7 times as long as wide together in males, subparallel; humeral callus distinct; densely rugulose punctate and rather matt, with slight oily sheen; densely covered in fine, pale yellowish ground vestiture; disc with three rows of longer, blackish setae, in apical half with traces of a fourth such row of setae; along suture in apical half with a row of shorter and more recumbent black setae. Scutellum transverse, microsculpture and punctulation very fine, with very fine, sparse vestiture.

Femora not thickened, shagreened and matt, with similarly fine, yellowish ground vestiture as elytra. Tibiae and tarsi matt, covered in stiff, brownish setae. Base of claws widened, otherwise simple.

Abdomen moderately broad, finely shagreened and rather matt, with similarly fine yellowish ground vestiture as elytra, along lateral margins with some longer, yellowish setae.

Male: Last (sixth) ventrite as in fig. 139; transverse, base distinctly narrower than apical margin of fifth ventrite; apical margin with large, broad, relatively deep emargination. Apical margin of last tergite simply arcuate, not thickened or emarginate.

Aedeagus as in figs. 81, 111. Process of phallobase narrow and relatively long, pointing obliquely backwards. Parameres in apical 2/3 more or less parallel-sided, dorsally with very little gap in between; apex bluntly rounded; lower edge subapically with several long, hair-like setae; lower edge and inner face of apex covered in short, blackish, thorn-like setae. Median lobe relatively short, not distinctly sinuate, with relatively short, obliquely flattened apex; similar to *I. difficilis* n. sp., but shorter and stouter in shape.

Sexual dimorphism: Female unknown.

Variability: Unknown.

Distribution: S Vietnam (Gia Lai).

Biology and ecology: The only known specimen was at the start of the monsoon season or slightly earlier (March to April), in a forested area (type of forest unknown) at low to medium altitude.

Derivatio nominis: Named after the characteristic colouration of the frons.

***Idgia mekongensis* n. sp.**
(Figs. 39, 40, 82, 112, 140)

Holotype ♂ (NMPC): "Laos: Vientiane prov., Lao Pako env., 200 m, 55 km NE Vientiane, J. Bezděk lgt., 1.-4. V. 2004". In good condition.

Paratypes (9 ♂ 18 ♀): 1 ♂ 6 ♀ (NMPC): same data as holotype. 1 ♂ 4 ♀ (NMPC): "Laos: Vientiane prov., Lao Pako, 200 m, 35 km NE Vientiane, P. Kresl lgt., 1.-2. V. 2005". 1 ♂ (NHMB): "LAOS, Boli Kham Xai prov., 18°16'N / 103°11' E, 70 km NEE of Vientiane, 2.-3. VI. 1997, 150 m, Vít Kubáň leg.". 1 ♂ (NMPC): "Laos, 13.-20. V. 2003, Borikhan, 20 km N Muang Pahxan, O. Šafránek lgt.". 1 ♀ (BMNH): "LAOS centr., Khammouan, NAKAI env., 22.v.-8.vi.2001, 17°43' N; 105°09' E; 500-600 m, E. Jendek & O. Šauša leg.". 1 ♂ 1 ♀ (NHMB): "LAOS, Savannakhet prov., Phou Xang He NBCA, ca. 5 km SW Ban Pa Phaknau, 250-400 m, 17°00' N / 105°38' E, 3. VI. 2011"; "beaten from shrubs growing on large rocky slabs, David Hauck leg."; "NHMB Basel, Laos 2011 Expedition,

M. Brancucci, M. Geiser, D. Hauck, Z. Kraus, A. Phantala & E. Vongphachan". 1 ♀ (NHMB): same data but: "5. VI. 2011". 1 ♀ (NHMB): same data but: "5. VI. 2011, Michael Geiser leg.". 1 ♀ (NHMB): same data but: "5. VI. 2011, Zdeněk Kraus leg.". 1 ♂ (NHMB): "LAOS, Savannakhet prov., Phou Xang He NBCA, ca. 5 km SW Ban Pa Phaknau, 250-400 m, 17°00' N / 105°38' E, 31.V. – 6. VI. 2011"; "NHMB Basel, Laos 2011 Expedition, M. Brancucci, M. Geiser, D. Hauck, Z. Kraus, A. Phantala & E. Vongphachan"; "DNA sample A190. University of Basel, Biogeography". 1 ♂ 1 ♀ (NMPC): "LAOS, SALAVAN prov., ca. 16 km NW Salavan (at light), broken bridge over SE DON river, 15°47.4'N 106°17.5'E, 150 m, 15.v.2010, Jiří Hájek leg.". 1 ♀ (NHMW): "S-LAOS: Prov. Sekong, Bolavens-Pl., N-slope, ca. 10 km N Mg. Tha Theng, 29./30. 5. 1996, 500-700 m, leg. Schillhammer (14a)". 2 ♂ (NKME): "THAILAND, N, Phu Pan, 10.-13. X. 2007, 17°05,767' N 103°59,907'E, LF, leg. U. Scheidt"; "collection NATURKUNDEMUSEUM ERFURT". 1 ♀ (MTMB): "CAMBODIA, Mondolkiri Pr., Seima Biodiv. Cons. Area, road between Seima and O'Rang"; "300 m, at light, 12°12'12" N / 107°01'09" E, 30. I. 2006, G. Csorba, L. Duval & G. Ronkay".

Other material examined: LAOS: Vientiane prov., Ban Thangon, N Vientiane, 200 m, 17. V. 2005, Takashi Kurihara leg. 1 ♂ (EHUM).

Type locality: Laos, Vientiane prov., Ban Pako (Lao Pako), near Tha Xiangle

Measurements ♂ : TBL 8.0 - 8.7 mm, L-h 6.7 - 7.3 mm

HL 1.2 - 1.5 mm, PL 1.2 - 1.3 mm, EL 6.7 - 7.3 mm

♀ : TBL 8.1 – 10.5 mm, L-h 6.8 - 8.9 mm

HL 1.2 - 1.6 mm, PL 1.3 - 1.6 mm, EL 5.5 - 7.3 mm

Differential diagnosis: Compared to species with similar colouration, this species has a relatively short and stout body shape. Distinguished from most other species with entirely black head by the colouration of the femora, having the whole apical 1/3 black. The testaceous ground colour of the femora is not extending further basally along the inner edge, as in *I. particularipes* and *I. brevitarsis*. *I. deusta* (China), *I. assimilis* (India, Nepal) and *I. melanura* (Himalayas) have an identical colouration, but are on average larger and easily distinguished by their male genitalia. At the current state of knowledge, these three species do not overlap geographically with *I. mekongensis*.

Description: Habitus as in figs. 39 (holotype ♂) and 40 (paratype ♀). Body yellow testaceous, elytral apex with a clearly delimited black patch, covering a bit less than 1/10 of the elytral length; head entirely black (except outer edge of clypeus and labrum), palpi brownish, antennae dark brown at the base, then gradually lighter yellow testaceous; legs dark brown to black, with the tarsi lighter brown, basal half of femora yellow testaceous, the border between the colours rather diffuse.

Head behind eyes about 0.65 times as wide as middle part of pronotum; suboval, not very elongate, with protruding eyes. Frons and vertex with several long, projecting black setae, basal part of vertex micro-rugulose, otherwise smooth. Eyes very large and only narrowly separated on dorsal and ventral side; space between eyes in males dorsally much narrower than the width of the basal antennal segments. Frons smooth and shining, with some wrinkles towards the epistomal suture. Antennal insertions bordered by an elevated ridge, touching and expanding slightly into the outline of the eyes. Clypeus slightly convex, finely punctured and setose. Labrum transverse, subhexagonal, with rounded sides, slightly concave in the middle, finely shagreened, with fine, rather dense punctures and yellowish setae.

Male antennae filiform, reaching the first third of the elytra, past the humeral callus; relatively robust; basal segment slightly thickened, the other of about equal width. First segment about twice as long as wide; second smallest, about half as long as first; third and fourth subequal, about as long as first; segments 5-10 each about as long as 1-2 together; last segment longest, but only slightly longer as the preceding six, flattened, its outer edge slightly emarginate.

Pronotum about as long as wide or slightly transverse, maximal length : maximal width varying from 1 : 1 to 1 : 1.1, widest near middle; basal angles rounded; apical margin subarcuate; basal and apical margins with traces of a bordering; disc with shallow, median subbasal depression; fairly shining; finely and shallowly punctate; with fine, golden yellowish ground vestiture; along the margins with some longer, brownish setae. All margins finely, rather sparsely ciliate, with short, hair-like setae.

Elytra varying from 2.4 to 2.7 times as long as wide together, slightly widened toward apical third; humeral callus distinct; with oily sheen and densely rugulosely-punctate texture; covered in fine, recumbent golden yellowish ground vestiture, disc with five rows of long, rather conspicuous, black setae, the innermost row along sutural margin, the outermost only visible in apical 2/3, not extending into humeral area. Lateral margins usually not distinctly crenulate (fine crenulation visible in some specimens), with row of stiff, dark brownish setae, denser than the discal rows. Scutellum transversely subrectangular, very finely punctate and with few fine, yellowish setae.

Femora not thickened in males, matt, with fine, transversely rugulose sculpture, and finer ground vestiture than elytra. Tibiae and tarsi shagreened, matt, covered in stiff, brownish, sometimes golden yellowish setae. Claws slightly widened at base, otherwise simple.

Abdomen moderately convex. Sternites shagreened and matt, finely and shallowly punctulate, with fine, yellowish, recumbent ground vestiture and some longer, yellowish setae along outer margins.

Male: Last (sixth) ventrite as in fig. 140; moderately large, not much narrower than apical part of fifth ventrite; middle of apical margin with deep, abrupt, U-shaped emargination. Apical margin of last tergite simply arcuate, not thickened or emarginate.

Aedeagus as in figs. 82, 112. Process of phallobase long and narrow, pointing obliquely backwards. Parameres with a bend in basal half, apical half straight, dorsally parallel and narrowly separated, lower edge in apical third with fine, relatively long, hair-like setae; inner face of apex with shorter, darker brownish, thorn-like setae. Median lobe with slightly curved base, otherwise nearly straight, very faintly sinuate in apical third, apex rather abruptly narrowed, with short and tongue-like tip, facing obliquely downwards.

Sexual dimorphism: Females on average about as large as males, but with slightly broader habitus and more widened elytra and abdomen; eyes more slightly smaller and dorsally more widely separated. Last visible sternite and tergite simple, without incisions or emargination. Male with black comb on the first three protarsomeres.

Variability: Among the examined specimens, the antennal colour seems to be slightly variable, instead of having all of the basal 10 segments infuscate dark brownish, some specimens have only the basal five segments infuscate and the rest of lighter, orange brownish colour. The crenulation of the elytral margins also shows some individual variability. One females paratype (Laos, Khammouan, Nakai) is unusually large in size, about 1.5 mm larger than all other known specimens. The specimen

from Thangon, here not included into the type series, has slightly flatter parameres and a slightly more elongate aedeagus.

Distribution: Central to South Laos, NE Thailand, Cambodia.

Biology and ecology: Adults have been collected at low altitudes (150-700 m), mostly in the early monsoon season (May and beginning of June), although some specimens have been found also in October and January, during the "smaller" (northeast) monsoon season. They have been found in deciduous monsoon forests, and seem to tolerate moderate habitat degradation. At the locality in Savannakhet province, adults were beaten from foliage of shrubs, growing on large rocky slabs at hilltops.

Derivatio nominis: Named after the Mekong (Mae Nam Khong), the largest river in Indochina. All known localities of this species are situated in the valley of the Mekong or its tributaries.

Idgia perspicillata n. sp.
(Figs. 41, 42, 83, 114, 141)

Holotype ♂ (NHMB): "LAOS-N (Oudomxai), 1.-9. V. 2002, ~1100 m, 20°45' N / 102°09' E, OUDOM XAI (17 km NEE), Vít Kubáň leg.". In good condition.

Paratypes (5 ♂ 10 ♀): 1 ♀ (NHMB): "LAO, Phongsaly prov., 21°41'-2' N 102°06'-8' E, 28. V. - 20. VI. 2003, PHONGSALY env., ~1500 m, Brancucci leg.". 1 ♀ (NHMB): "LAOS, Phongsaly prov., PHONGSALY env., 6.-7. V. 2004, ~1500 m, 21°41' N 102°06'-8' E, V. Kubáň leg.". 1 ♀ (NHMB): "LAOS, Bokeo prov., 5 km W Ban Toup, Bokeo Nature Reserve, 500-700 m, 20°27'-28' N / 100°45' E, 8. V. 2011"; "NHMB Basel, Laos 2011 Expedition, M. Brancucci, M. Geiser, D. Hauck, Z. Kraus, A. Phantala & E. Vongphachan"; degraded primary lowland forest, beaten from shrubs, David Hauck leg.". 1 ♀ (BMNH): "Laos: Na Peng. 25. XI. 1919. R. V. de Salvaza."; "Indo China. R. V. de Salvaza. 1918-1". 1 ♀ (BMNH): "THAI-NE, Loei prov., PHU KRADUNG N.P., 16°52' N 101°49' E, 16. - 18.v. 1998, 1000 m, D. Hauck leg."; "BMNH (E) 2013-134, M. Geiser". 1 ♂ 1 ♀ (NHMB): "THAI-N, 1.-15. V. 1998, Chiang Mai prov., SAN PAKIA vill., 19°19' N / 98°50' E, 1400 m, Vít Kubáň leg.". 1 ♀ (MHNG): "N. THAILAND, 4. VII. 84, Chiangmai Prov., Doi Chiengdao, NW Pass, 1200-1300 m. Leg. Bänziger". 1 ♂ (NHMB): "THAI, N, Mae Hong Son prov., SE of Soppong, 1500 m, 19°27' N / 98°20' E, 23.-27. V. 1999, M. Řiha leg.". 1 ♂ 2 ♀ (NHMB): "THAI, 28.-31./5 1995, 19°27' N 98°20'E, SOPPONG, 1500 m, Vít Kubáň leg.". 2 ♂ (NHMB): "NW THAILAND, 17.-23. 5. 1991, Mae Hong Son, Ban Huai Po, 1600-2000 m, J. Horák leg.". 1 ♀ (IZAS): "Yunnan, Xishuangbanna, Menghai, 1200-1600 m, Zhongguokexueyuan"; 1919.VIII.15, WANG Shu-Yong leg." [in Chinese characters]. 1 ♀ (IZAS): "Yunnan, Jingdong, 1170 m, 1956.VI.20, Kryzhanovskiy" [in Chinese characters and in Russian].

Other material examined: **MYANMAR:** Washaung, 20 km East of Myitkyina, ca. 200 m, 14. VII. 1934, Malaise leg. 1 ♀ (NHMB).

THAILAND: Chiang Mai prov., SAN PAKIA vill., 19°19' N / 98°50' E, 1400 m, 1.-15. V. 1998, Vít Kubáň leg. 1 ♀ (NHMB).

VIETNAM: 40 km NW of An Khe, Buon Luoi, 14°10' N / 108°30' E, 28.-30. V. 1996, Pacholátko & Dembický leg. 1 ♀ (NHMB).

CHINA: YUNNAN: Jinghong, 21°57' N / 100°35' E, 1530 m, 12.-21. VI. 2006. 1 ♂ (BMNH).

Females with sharp tooth at sutural apex of elytra, tentatively assigned to *I. perspicillata*:

LAOS: Phongsaly prov., Phongsaly env., ~1500 m, 21°41-2' N 102°06-8' E, 28. V. - 20. VI. 2003, Brancucci leg. 1 ♀ (NHMB); Phongsaly prov., Ban Sano Mai, ~1150 m, 21°21' N 102°03' E, 19.-26. V. 2004, P. Pacholátko leg. 1 ♀ (NHMB).

CHINA: YUNNAN: Jingdong, Dongjiafeng, 1250 m, 10. VI. 1956, Kryzhanovsky leg. 1 ♀ (IZAS):

Type locality: Laos, Oudomxai prov., 17 km NEE Oudomxai (Muang Xay).

Measurements ♂ : TBL 9.9 - 10.4 mm, L-h 8.3 - 8.8 mm

HL 1.5 - 1.6 mm, PL 1.2 - 1.5 mm, EL 7.1 - 7.3 mm

♀ : TBL 9.6 - 11.3 mm, L-h 8.1 - 9.4 mm

HL 1.4 - 1.9 mm, PL 1.4 - 1.6 mm, EL 6.6 - 7.8 mm

Differential diagnosis: Very similar to *I. difficilis* n. sp., see differential diagnosis there.

Distinguished from *I. kubani* n. sp. by the narrow black stripe on the femora, darker antennae and different aedeagus shape.

Description: Habitus as in figs. 41 (holotype ♂) and 42 (paratype ♀). Body yellow testaceous; elytral apex with a small, diffusely delimited black patch, covering less than 1/10 of the elytral length; eyes bordered by with a narrow black stripe; antennae mostly black, with the inner part of the last segment orange yellow; tibiae, tarsi, knees and a stripe along the outer edge of the apical half of the femora also black.

Head behind eyes about 0.6-0.7 times as wide as middle part of pronotum; with protruding eyes.

Vertex finely shagreened, rather matt, with relatively sparse, yellowish setae. Sides behind eyes with some long, erect, dark brownish setae. Eyes very large in males, subcontiguous, extremely narrowly separated, by a thin line, narrower than one of the ommatidia, sometimes by a slightly wider space, about half as wide as third antennomere. Frons only faintly depressed in front of eyes, rather smooth, with fine, yellowish setae of variable length. Furrow between frons and clypeus often not very deep. Clypeus transversely subtrapezoidal, smooth, in basal half with long, erect, yellowish setae. Labrum about as long as wide, subpentagonal, with slightly arcuate fore margin, widest in fore half, very finely shagreened and with fine, recumbent, yellowish ground vestiture; along fore margin with some longer, yellowish setae.

Male antennae reaching the first fourth of the elytra, past the humeral callus, in length, subfiliform, with 10th segment slightly widened from base to apex. First segment slightly thickened, about twice as long as wide; second smallest, about half as long as first; third slightly shorter than first two together, fourth a bit shorter than third, but longer than first, segments 5-8 about as long as third; ninth about as long as fourth, tenth about as long as first; last segment longest nearly twice as long as tenth and distinctly longer than first two together, narrow, flattened and slightly curved, outer margin with wide emargination.

Pronotum about as long as wide, widest in fore part; margins in basal half slightly sinuate; apical margins arcuate; hind angles rounded; basal margin bordered; disc with very shallow, hardly discernible, median subbasal impression; finely punctate and moderately shining; with fine, moderately long, yellowish ground vestiture; along the margins with several longer, yellowish to brownish setae. Basal margin finely ciliate, with yellowish hair-like setae.

Elytra about 2.9 times as long as wide together in males, slightly widened toward the apical third; humeral callus distinct; densely rugulose punctate, with oily sheen; covered in fine, yellowish ground vestiture; disc with three rows of long, erect blackish setae, in apical third near lateral margin with some additional, long, blackish setae; along suture with another row of shorter and more recumbent black setae, abraded in several specimens. Scutellum transverse, relatively smooth, with similar ground vestiture as elytra.

Femora not thickened in males, very finely shagreened and finely, rugulose-punctate, with similar ground vestiture as elytra. Tibiae and tarsi matt, covered in stiff, golden yellowish setae. Base of claws slightly widened, otherwise simple.

Abdomen relatively broad, finely shagreened and rather matt, with wrinkly texture, with finer yellowish ground vestiture than elytra, apical three sternites along lateral margins with several longer, yellowish setae.

Male: Last (sixth) ventrite as in fig. 141; moderately large, short and transverse, much narrower than the fifth ventrite; apical margin with broad and relatively shallow emargination. Apical margin of last tergite subtruncate, not thickened or emarginate.

Aedeagus as in figs. 83, 114. Process of phallobase short, pointing obliquely downwards, at an angle of roughly 120° relative to apical part of paramera. Parameres relatively short and wide, slightly curved in basal part, sinuate before apex, dorsally forming a wide gap, with convergent apices; their lower edge subapically with only few hair-like setae, lower edge of apical part, but only a small part of inner surface, with brownish, spine-like setae. Median straight in middle part, with apex curved gently curved downwards; apical tip not as strongly flattened as in other species, but very narrow in dorsal view.

Sexual dimorphism: Females on average slightly larger (though not as much as in other *Idgia*), with variable elytral shape, often broader than in males. Eyes smaller and dorsally more widely separated. Last ventrite simple in female; last tergite subtruncate and sometimes very faintly notched in middle part. Male with black comb on the first three protarsomeres.

Variability: A relatively variable species. The characteristic dark margin around the eyes varying in width, sometimes very thin. Eyes of slightly variable size in males, more widely separated in some individuals than in others. Elytral colour tone slightly variable, from very pale, almost whitish brown to orange testaceous. Shape of elytra relatively plastic, especially in female sometimes wider than usual. Apical macula of variable size. The one male from China, here not included into the type series, shows a complete lack of blackish setae on the elytra, which may be an artefact.

It is interesting to note that three female specimens from the same geographic range as *I. perspicillata* show an acute, tooth-like projection at the sutural apex of the elytra. A similar structure was described by Champion (1919) for *I. uncigera*. As there are no other external characters to distinguish these three specimens from *I. perspicillata* females, they are tentatively assigned to this species, pending further material. If, in fact, such a polymorphism in the sutural angle exists within *Idgia*, this may also have consequences for species delimitation within the *I. suturalis* complex (including *I. javana* and *I. uncigera*).

Distribution: N Laos, N Thailand, S Vietnam, SW China (Yunnan).

Biology and ecology: Adults were collected during the early monsoon season (May to June) in montane secondary forests, at altitudes between 1100 and 2000 m (the altitude at Buon Luoi, Vietnam, may be slightly lower, but is not given). There is no recorded information on microhabitat or collecting techniques.

Derivatio nominis: The latin word "*perspicillata*" ("bespectacled") refers to the distinctive narrow, black stripe around the large eyes in this species.

***Idgia phongorum* n. sp.**

(Figs. 43, 44, 84, 115, 142)

Holotype ♂ (NHMB): "LAOS-NE, Houa Phan prov., 20°12'-13.5' N / 103°59.5'-104°01' E, Ban Saluei → Phou Pane Mt., 1340-1870 m, 7. IV. - 25. V. 2010, C. Holzschuh & local coll. leg.". In good condition.

Paratypes (3 ♂ 7 ♀): 1 ♂ 1 ♀ (NHMB): same data as holotype. 1 ♂ 1 ♀ (NMPC): "LAOS-NE, Houa Phan prov., 20°12'01"-13'09"N 103°59'54"-104°00'55"E, 1480-1900 m, Phou Pane Mt., 22. IV. - 14. V. 2008, Lao collector leg.". 1 ♀ (NHMB): "LAOS-NE, Houa Phan prov., 20°12'01"-13'09"N 103°59'54"-104°00'55"E, 1340-1870 m, Phou Pane Mt., 15. IV. - 15. V. 2008, Lao collectors leg.". 1 ♀ (NHMB): "LAOS NE, Houa Phan prov., Ban Saluei → Phou Pane Mt., 1340-1870 m, 20°12'-13.5' N / 103°59.5'-104°01' E, 10. V. - 9. VI. 2009, C. Holzschuh & local coll. leg."; "NHMB Basel, NMPC Prague, Laos 2009 Expedition: M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň". 1 ♀ (NHMB): "LAOS NE, Houa Phan prov., Ban Saluei → Phou Pane Mt., 1300-1900 m, 20°11'-13' N / 103°59'-104°01' E, 10.-17. VI. 2009, Michael Geiser leg."; "NHMB Basel, NMPC Prague, Laos 2009 Expedition: M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň". 1 ♂ 2 ♀ (NKME): "NE-LAOS, Hua Phan prov., Ban Saluei, Phou Pan (Mt.), 1300-1900m, 11.IV.-15.V.2012, 20°12' N / 104°01' E, leg. C. Holzschuh"; "collection NATURKUNDE-MUSEUM ERFURT".

Type locality: Laos, Houa Phan prov., Mt. Phou Pane, near Ban Saluei.

Measurements ♂ : TBL 10.3 - 11.2 mm, L-h 8.7 - 9.5 mm
HL 1.5 - 1.7 mm, PL 1.5 - 1.6 mm, EL 7.2 - 7.9 mm
♀ : TBL 11.2 - 12.0 mm, L-h 9.4 - 10.3 mm
HL 1.5 - 1.7 mm, PL 1.5 - 1.7 mm, EL 7.8 - 8.7 mm

Differential diagnosis: Distinguished from most other species by the combination of entirely dark head (fore part of clypeus excepted), entirely yellowish femora and dark, infusate tibiae. Differs from *I. varicornis* by the conspicuous black setae on the elytral disc, from *I. setifrons* mainly by larger size. Females of *I. lajoyei* are similar, with slightly more elongate head, but no specimens with entirely yellow femora are known.

Description: Habitus as in figs. 43 (holotype ♂) and 44 (paratype ♀). Body yellow testaceous, head (except fore part of clypeus) entirely black; elytral apex with rather clearly delimited black macula, covering about 1/10 of total elytral length; antennomeres 1-10, tibiae and tarsi infusate; femora, as well as maxillary and labial palpi, entirely testaceous.

Head behind the eyes about 0.65 times as wide as middle part of pronotum. Vertex coarsely shagreened, matt, with fine, recumbent, greyish vestitures and some longer setae near eyes. Sides

behind eyes with a tuft of long, erect, black setae (rarely abraded). Eyes protruding, very large, dorsally subcontiguous, extremely narrowly separated, by a space much narrower than half the width of the third antennomere. Frons not much depressed in front of eyes, rather polished and shining, with brownish setae of variable length. Clypeus transversely subtrapezoidal, slightly convex, finely setose in basal half. Labrum slightly transverse, slightly widened in fore half, with finely rugulose microsculpture, fine, yellowish vestiture and some longer, brownish setae near the margins.

Male antennae subfiliform, reaching the fourth third of the elytra, past the humeral callus, in length; finely pilose; slightly flattened and a bit widened towards apex. First segment slightly thickened, about twice as long as wide; second smallest, about half as long as first; third slightly shorter than first two together, fourth a bit shorter than third, but longer than first, fifth to ninth each slightly longer than third; tenth about as long as fourth; last segment longest, longer than the first two together, but slightly less than twice as long tenth, flattened, slightly curved, outer margin with strong emargination in apical half.

Pronotum about as long as wide, widest in fore half; sides slightly sinuate in basal half; angles bluntly rounded; surface finely shagreened, rather matt, finely and shallowly punctate; median subbasal impression very shallow or completely absent; ground vestiture fine and very short, yellowish; along margins with much larger and stronger, yellowish to brownish setae. Basal margin ciliate, with fine, hair-like setae.

Elytra about 2.7 times as long as wide together in males, slightly widened toward the apical third; humeral callus distinct; finely rugulose, with leathery texture and rather strong, oily sheen; covered in fine, yellowish ground vestiture; with four, rather regular rows of longer, erect, blackish setae, one along the suture and three on disc, often with traces of another such row of setae in apical third, near lateral margins; setae often arising from on slightly raised granules, forming three faint costae, visible mainly in middle part of elytron. Scutellum transverse, with rounded sides, relatively smooth, with finer ground vestiture than elytra.

Femora not thickened in males, shagreened and rather matt, with finer ground vestiture than elytra. Tibiae and tarsi matt, densely covered in stiff, golden brownish setae. Base of claws widened, otherwise simple.

Abdomen moderately broad, shagreened and rugulose, with longer yellowish ground vestiture than elytra, along the lateral margins with some longer, yellowish setae.

Male: Last (sixth) ventrite as in fig. 142; strongly transverse and relatively short; base, including the prolongate basal angles, nearly as broad as fifth ventrite; middle part of apical margin with deeply emarginate. Apical margin of last tergite simply arcuate, not thickened or emarginate.

Aedeagus as in figs. 84, 115. Process of phallobase pointing obliquely downwards, at an angle of roughly 120° relative to apical part of paramera. Parameres curved, dorsally strongly gaping, with convergent apices, which are widened and spoon-shaped; their lower edge with only few hair-like setae before apex, but edges of apex, as well as inner surface, densely covered with blackish spines. Median lobe with slightly thickened and curved base, apical 2/3 straight, with flattened tip; apex in dorsal view rather bluntly rounded.

Sexual dimorphism: Females larger than males, with broader elytra and slightly broader pronotum; eyes slightly smaller and more widely separated dorsally. Last visible sternite and tergite simple, without incisions or emargination. Male with black comb on the first three protarsomeres.

Variability: As mentioned above, there is some slight variation in the elytral sculpture, which may show some faint costae, consistent of fine granuli, in some specimens, but not always. In some individuals, the basal antennomeres are of lighter colour, less infuscate than the rest. Otherwise, this species seems to be very constant in appearance and colour pattern.

Distribution: NE Laos (Houa Phan).

Biology and ecology: Adults were collected during the early monsoon season (April to June) by beating foliage of trees and shrubs in a old-growth forest. They occur sympatrically with several other species treated herein.

Derivatio nominis: Named after the ethnic minority of the Phong people, a tribe of the Mon-Khmer language family ("Lao Theung"). They are the inhabitants of the village Ban Saluei, next to the type locality, who contributed much to the discovery of this species.

***Idgia vietnamensis* n. sp.**
(Figs. 45, 46, 86, 116, 143)

Holotype ♂ (MTMB): „VIETNAM, Bac Kan Prov., Ba Be NP, Na Mam, forest, 200 m, 22.417137° N, 105.632505° E, light trap"; „17-19. IV. 2010, leg. L. Papp, L. Peregovits & Z. Soltész, VN2010PL_17". Holotype label added. In good condition.

Paratypes (4 ♂ 4 ♀): 1 ♂ 1 ♀ (MTMB): same data as holotype. 1 ♂ 3 ♀ (MTMB): „VIETNAM, Bac Kan Prov., Ba Be NP, Na Mam, at light, 187 m, 22.411612° N, 105.626792° E"; „17-18. IV. 2010, leg. L. Papp, L. Peregovits, Z. Soltész & G. Lengyei, VN2010PL_16". 1 ♂ (NKME): „VIETNAM, N, Na Hang, 160 km NNW Hanoi, env. NE of Na Hang, 150-200m, 02-09. VI. 1996, leg. A. Napolov". 1 ♂ (NKME): „N-VIETNAM Ninh Binh Prov. 90Km SW Hanoi, vic. Cuc Phuong NP, 190m, primates rescue centre, N20°14'24'', E105°42'53'' 19.-25.IV.2012, leg. A. Weigel"; „collection NATURKUNDE-MUSEUM ERFURT".

Type locality: Vietnam, Bac Kan prov., Ba Be National Park, Na Mam.

Measurements ♂ : TBL 8.7 - 9.4 mm, L-h 7.5 - 8.2 mm
HL 1.2 - 1.3 mm, PL 1.3 - 1.5 mm, EL 6.2 - 6.8 mm
♀ : TBL 9.8 - 11.3 mm, L-h 8.4 - 9.4 mm
HL 1.4 - 1.9 mm, PL 1.2 - 1.6 mm, EL 6.9 - 7.8 mm

Differential diagnosis: Very similar to *I. lajoyei*, distinguished mainly by different aedeagus size and the middle and hind femora, which are not thickened in males. Males also have more elongate, narrower elytra and slightly narrower antennae. Females are problematic to identify. See also diagnosis under *I. lajoyei*.

Description: Habitus as in figs. 45 (paratype ♂) and 46 (paratype ♀). Colouration as in *I. lajoyei*, except for more constant antennal colour. Antennomere 1-10 in both sexes always infuscate.

Head behind the eyes about 0.65 times as wide as middle part of pronotum. Vertex finely shagreened, rather matt, with relatively coarse, yellowish vestiture and some longer, blackish setae around eyes; sides behind eyes with a tuft of some long, stiff, brownish setae. Frons rather polished and shining, sparsely punctate, not much impressed in front of eyes; with coarse, long, yellowish setae. Clypeus transversely subrectangular, rather flat, smooth in fore half, with long, yellowish setae in basal half. Labrum about as wide as long; finely shagreened and with yellowish setae of variable length.

Male antennae reaching the first fourth of elytra in length, past the humeral callus; subfiliform, gradually flattened towards the apical segments. First antennomere slightly thickened, a bit less than twice as long as wide; second short, about half as long as first; segments 3 and 5-9 each longer than first, but shorter than the first two together, 4 and 10 slightly shorter, but still a bit longer than 1; 11 longest, longer than the first two together, subcultriform, flat, outer margin very broadly and shallowly emarginate.

Pronotum about as long as wide, widest in apical half, with slightly sinuate sides in basal half; all angles rounded; margins with traces of a bordering; without distinct median subbasal depression; disc very finely shagreened, finely with very fine, sparse, inconspicuous punctures and, fine, also inconspicuous, yellowish ground vestiture; along the margins with some longer, brownish setae. Basal and apical margins very finely ciliate, with short, yellowish hair-like setae.

Elytra relatively long and subparallel in males, 2.9-3.2 times as long as wide together; humeral callus distinct; finely rugulose and with oily sheen, covered in fine, yellowish ground vestiture and with three distinct rows of long, erect, brown to blackish setae on disc; with some additional, blackish setae in apical half near lateral margins and along suture. Margins rather straight, not distinctly crenulate, with a row of stiff, yellowish setae. Scutellum transverse, rather smooth, with very fine punctures and finer ground vestiture than elytra.

Femora simple in males, shagreened and rather matt, with finer pilosity than elytra. Tibiae and tarsi matt, covered in stiff, golden yellowish setae, increasing in density towards tibial apex. Claws widened at base, otherwise simple.

Abdomen matt, shagreened, with fine punctures and often slightly rugulose texture. Sternites with fine, yellowish ground vestiture and longer, yellowish setae around the margins.

Male: Last (sixth) ventrite as in fig. 143; similar to *I. lajoyei*; slightly smaller, apical emargination a bit narrower; apical margin of tergite simply arcuate, not thickened or emarginate.

Aedeagus as in figs. 86, 116. Process of phallobase much smaller and shorter than in *I. lajoyei*, pointing obliquely downwards. Parameres dorsally almost parallel, gaping in apical part, not convergent towards apices, their lower edge in lateral view rather straight, not abruptly narrowed; lower edge subapically with a tuft of long, hair-like setae, around apex with short, blackish, thorn-like setae. Median basally more curved than in *I. lajoyei*, apical part rather straight, not sinuate and only little flattened.

Sexual dimorphism: As females of this species are problematic to distinguish from the related *I. lajoyei*, there are only few specimens, which were confidently identified as *I. vietnamensis*. These show a similar dimorphism as in other *Idgia*: Slightly larger body size, broader elytra and dorsally more widely separated eyes.

Variability: The specimens of the type series look rather homogenous, with no variability found in colouration. The structure of the elytral margins differs slightly among the specimens, sometimes being very finely crenulate, but usually without any perceptible crenulation.

Distribution: N Vietnam.

Biology and ecology: A nocturnal species, collected at light traps in or near humid, tropical forest at low altitudes. Adults were collected from mid-April to early June, during the early monsoon season.

Derivatio nominis: Named after Vietnam, its country of origin.

III. Species group of *Idgia pallidicolor* Pic

The following three species form a monophyletic clade characterised by the bi-incised last sternite in males and a relatively similar shape of the median lobe. They are all pale-coloured, probably nocturnal species found in the Indochinese Peninsula (including NE-India) and the Sundaland area (Malay Peninsular, Sumatra, Borneo, Java). Champion (1919: 370) correctly identified *I. pallidicolor*, but failed to recognise, that there is in fact more than just one species with these characteristics. Therefore, some of his records of *I. pallidicolor* refer to other, mostly undescribed species. Apart from the three species treated herein, this species group contains *I. dohertyi* Pic, 1912 from Peninsular Malaysia, *I. inapicalis* Pic, 1910 from Malaysia and Sumatra and *I. maculicornis* Pic, 1925 from Borneo.

Idgia pallidicolor Pic, 1906 (Figs. 49, 50, 87, 117, 145)

Idgia pallidicolor Pic, 1906a: 43.

Idgia pallidicolor: Champion, 1919: 370. pl. XII. figs. 49, 49a.

Type material examined: Holotype ♀ (MNHP, coll. Pic): "Java"; "9"; "Idgia sp. (inconnue à Bourgeois) brg. vid."; "type."; "TYPE"; "pallidicolor Pic". Holotype label added. In rather poor condition, with the left elytron and segments 3-11 of left antenna missing.

Other material examined: LAOS: Champassak Prov., Dong Hua Xao NBCA, bank of Nam Phak river, 15°59' N 105°55' E, 280 m, singled & swept from the vegetation, No. 15, 28.-29. III. 1998, O. Merkl & G. Csorba leg. 1 ♂ (MTMB).

THAILAND: Trang prov., Kao Chong Nature and Wildlife Reserve Center, rainforest, at Ton Prew Waterfall, black light trap. 25. XI. 2003, A. Orosz & Gy. Sziráki leg. 1 ♂ (MTMB); Trang prov., Kao Chong Nature and Wildlife Reserve Center, rainforest, Khao Chong river, swept & beaten. 24. XI. 2003, A. Orosz & Gy. Sziráki leg. 1 ♂ 1 ♀ (MTMB); Pi Tam, 9. VIII. 1987, M. Satô leg. 1 ♂ (EHUM); "Siam, Renong, Fry Coll. 1905.100. 2003" 1 ♂ (BMNH); "Siam, Renong, 62361, Doherty" 1 ♀ (BMNH); Tak province, Umphang District, Song Bae Stream. Thung Yai Wildlife Sanctuary. 15°28' N / 98°48' E, 300 m. Evergreen rain forest. M.J.D. Brendell leg., 18.-27. IV. 1988, B.M. 1988-183. 1 ♀ (BMNH); Mae Hong Son, 28. IV. 1991, S. Bilý leg. 1 ♀ (NHMB); Mae Hong Son, Ban Si Lang, 1200 m, 19°19' N / 97°59' E, 23.-31. V. 1991, L. Dembický leg. 2 ♂ (NHMB); Mae Hong Son, Ban Si Lang, 1000 m, 1.-7. V. 1992, S. Bilý leg. 1 ♂ (NHMB); Mae Hong Son, Ban Si Lang, 1200 m, 1.-8. V. 1992, J. Horak leg. 1 ♂ (NHMB).

MYANMAR: "Birmah, Karen Mts., Fry Coll. 1905.100." 1 ♂ (BMNH); "Birmah, Karen Mts., Fry Coll. 1905.100." 2 ♂ (BMNH); "Tenasserim, Tavoy, Fry Coll. 1905.100." 1 ♂ (BMNH); "Tenasserim, Tavoy, Doherty, Fry Coll. 1905.100" 1 ♂ (MNHP).

MALAYSIA: SELANGOR: Ulu Gombak, 27. VII. 1987, M. Satô leg. 1 ♂ (EHUM). PERAK: Cameron Hlds., Tapah, IV.-V. 1989, B. Molnár leg. 1 ♂ (MTMB). PAHANG: Cameron Highlands, Tanah Rata, 1200-1500 m, 3.-19. II. 2005, P. Cechovsky leg. 1 ♂ (NHMB).

SINGAPORE: "Singapore 29 Dr. Baum" 1 ♀ (NMPC).

INDONESIA: SUMATRA: N-Sumatra, 10 km NE Prapat, "Holzweg", 1050 m, 98°57' E / 2°44' N, 23. II. 1991, H. Malicky leg. 1 ♂ (NHMB). JAVA: Trawas, E slope Gn Penanggungan, 1000 m, 6.-9. V. 2001, Bolm leg. 2 ♂ 4 ♀ (NHMB); "Depok, Java. G. E. Bryant. 18. IV. 09. 2005." 1 ♂ (BMNH).

Measurements ♂ : TBL 7.4 - 8.1 mm, L-h 6.3 - 6.8 mm

HL 1.1 - 1.4 mm, PL 1.0 - 1.2 mm, EL 5.3 - 5.7 mm

♀ : TBL 7.8 - 9.0 mm, L-h 6.7 - 7.6 mm

HL 1.1 - 1.4 mm, PL 1.1 - 1.2 mm, EL 5.5 - 6.4 mm

Differential diagnosis: A very small and pale-coloured species among the Indochinese *Idgia*.

Recognised in males by the combination of bi-incised terminal ventrite (synapomorphy of the *I. pallidicolor* species group), small size and black elytral apex. Females are distinguished from the related *I. karelmajeri* n. sp. by paler yellow colouration and the presence of an black elytral apical patch; from *I. coomani* by much smaller size and less elongate habitus. Outside of the *I. pallidicolor*-group, the only species of similar body size is *I. varicornis*, which has an entirely black head (except fore part of clypeus).

Further species of the pallidicolor-group from outside Indochina are *I. dohertyi* Pic, 1912 from Peninsular Malaysia and *I. inapicalis* Pic, 1910 from Sumatra. *I. dohertyi* is larger, with more elongate habitus and with longer genitalia. *I. inapicalis* has unicolorously yellow elytra.

Redescription: Habitus as in figs. 49 (♂) and 50 (♀). Body pale yellow. Head varying from entirely pale yellow to almost entirely black (except clypeus); most commonly the eyes are broadly bordered with black, leaving a spot on the vertex yellow. Elytra with a black apical macula, which can extend to 1/10 of the elytral length at most, sometimes reduced to a slightly infusate area at the apical margin. Antennae varying from entirely pale to almost entirely infusate (last two segments always pale). Tibiae and tarsi, usually also the apical part of the femora, to a variable extent, infusate. Maxillary and labial palpi entirely yellow testaceous or with inner margin of last segment slightly infusate. Claws yellow testaceous.

Head behind the eyes about 0.65 times as wide as middle part of pronotum, with protruding eyes and long, yellowish setae around eyes and on frons. Vertex finely shagreened and shallowly punctate, with very fine, yellowish ground vestiture. Sides behind eyes with a tuft of long, yellowish setae. Eyes very large in male, narrowly separated dorsally, by a space about half as wide as third antennomere. Frons, apart from the ridges above antennal insertions, relatively flat and smooth, sparsely, but coarsely setose. Clypeus transversely subrectangular, finely shagreened and sparsely setose, with stiff, yellowish setae. Labrum about as long as wide, widest in fore part, with arcuate fore margin, finely shagreened and with short and fine, yellow ground vestiture, along margins with longer setae.

Male antennae filiform, reaching the first fourth of elytra, past the humeral callus, in length. First antennomere slightly thickened towards the end, about twice as long as wide at apex; second short, slightly less than half as long as first; segments 3, 10 and 11 each longer than first, but shorter than the first two together, 4 about as long as first; 5-9 slightly longer than third, about as long as first two together; last segment slightly flattened, subcultriform, outer margin not emarginate.

Pronotum subcordiform, about as long as wide or slightly longer, maximal length : maximal width varying from 1 : 0.9 to 1 : 1, widest in apical half, with slightly sinuate sides in basal half; all angles rounded; all margins finely bordered; finely shagreened and with slight, oily sheen, relatively coarsely punctured, with fine, inconspicuous, yellowish ground vestiture and some longer, yellowish to brownish setae along margins. All margins finely ciliate, with short, yellowish hair-like setae.

Elytra narrow and subparallel in males, 2.9-3.2 times as long as wide together; humeral callus distinct; rather matt, slightly shagreened and with very finely rugulose texture, covered in fine, recumbent, yellowish ground vestiture; disc with three rows of long, erect, yellowish setae, additionally with traces of another row of setae along suture and on near lateral margins in apical half; these setae are distinctly longer than in other species (such as *I. particularipes*) and easily visible, despite the lack of colour contrast; in some specimens, some of the setae in apical third are infuscate in colour. Margins finely crenulate, with another row of stiff, yellowish setae. Scutellum transverse, almost semicircular, triangularly widened towards base of pronotum, rather smooth and very finely punctate, with slightly finer and sparser ground vestiture than elytra.

Femora simple in males, very finely rugulose and shagreened, with finer pilosity than elytra. Tibiae and tarsi matt, covered in stiff, golden yellowish setae, increasing in density towards tibial apex. Claws simple.

Abdomen relatively narrow, subconically narrowed towards apical ventrite. Sternites finely rugulose, shagreened and rather matt, with similar ground vestiture as elytra; with some longer, erect, yellowish setae, mostly along margins.

Male: Last (sixth) ventrite as in fig. 145; moderately large, short and transverse; base only slightly narrower than apical part of fifth ventrite; apical margin deeply bi-incised; bottom of incisions rounded; process between incisions truncate, densely setose dorsally, not projecting beyond the oblique lateral parts of the sternite; basal margin with large, deep, tongue-shaped incision in middle part. Apical margin of last tergite thickened, with a broad, shallow emargination in middle part.

Aedeagus as in figs. 87, 117; relatively fine and short, compared to related species; weakly sclerotised and almost translucent. Process of phallobase thin, pointing backwards, dorsally almost parallel, with narrow or no gap in between; lower edge of apical part emarginate, with very few, rather thick, thorn-like setae; before apex with a few, scattered hair-like setae along lower edge. Median lobe very almost straight in middle part; apex strongly flattened and bent downwards, tongue-shaped with rather bluntly rounded tip, when seen from above subtriangular in dorsal view.

Sexual dimorphism: Females, as in other species, slightly larger and broader-shaped than males, with smaller and more widely separated eyes; also often of slightly darker, a bit more brownish colour tone. Last visible sternite and tergite simple, without incisions or emargination. Male with black comb on the first three protarsomeres.

Variability: Femora, head and antennae vary in colour within this species. Femora either unicolorously yellow or with diffusely infuscate apical third. Head either entirely yellow or with circular black markings around the eyes. Basal part of antennae diffusely infuscate to various degrees. Also, the black apical elytral macula is reduced in size in some of the specimens, but never entirely absent.

Distribution: Indonesia (Java, Sumatra), Singapore, W Malaysia, Thailand, Laos, Myanmar.

Biology and ecology: The single known specimen from Laos was collected in March (dry season) at an altitude of only 280 m; those from NW-Thailand from April to May at altitudes of 1000-1200 m; those from Indonesia in February and May at roughly 1000 m. It is unclear what this species' habitat requirements are, and if they are the same throughout its large geographic range.

Idgia coomani Pic, 1931
(Figs. 51, 85, 113, 144)

Idgia coomani Pic, 1931: 100.

Type material examined: Holotype ♀ (MNHP, coll. Pic): "Hoa Binh"; "type"; "*Idgia coomani* n. sp."; "TYPE". Holotype label added. In rather poor condition with both antennae, left maxillary palpus, right mesotarsus and left metatarsus broken off.

Other material examined: VIETNAM: 40 km NW of An Khe, Buon Luoi, 14°10' N / 108°30' E, 620-750 m, 28. III.-12. IV. 1995, Pacholátko & Dembický leg. 1 ♂ (NHMB). Provisionally identified as *I. coomani*, pending further material: „Lac Tho, Tonkin" 1 ♀ (MNHP).

Measurements ♂ : TBL 11.5 mm, L-h 9.8 mm HL 1.7 mm, PL 1.8 mm, EL 8.0 mm
♀ : TBL 12.0 mm, L-h 10.2 mm, HL 1.8 mm, PL 1.7 mm, EL 8.5 mm

Differential diagnosis: Males of this species have a very characteristic, extremely long aedeagus and a deeply emarginate fifth ventrite, along with the typical bi-incised last ventrite of the *I. pallidicolor* group. Within this group, it is also the most elongate species. The closely related *I. dohertyi* from Malaysia is distinguished by slightly shorter (but still extremely elongate) genitalia and a the lack of an emargination on the last tergite in males.

Females are recognised by the combination of elongate habitus and pronotum, entirely yellow testaceous head and fuscous tibiae. The superficially similar *I. haucki* n. sp., from the same area, has entirely pale, testaceous tibiae. *I. perspicillata* n. sp. has differently coloured femora (with a dark stripe along the outer edge) and usually a black margin around the eyes, absent in *I. coomani*.

Redescription: Habitus as in figs. 51 (♂). Body almost entirely yellow, with orange tinge. Elytra with a small black spot at apex, occupying about 1/20 of their length. Antennae yellow testaceous, with most of segments 1-7 infusate, brownish. Femora yellow testaceous with their tip around the tibial insertion slightly infusate. Tibiae and tarsi infusate, brownish. Claws reddish brown.

Head behind the eyes about 0.7 times as wide as middle part of pronotum. Vertex smooth, with yellowish vestiture and a few long, erect, hair-like setae at the sides behind the eyes.

Eyes very large, close to each other on dorsal and ventral surface, dorsally only separated by a narrow band, less than half the width of the third antennomere. Frons with slightly longer, yellow vestiture, shining. Clypeus not clearly separated from frons, only by a very shallow transverse impression; about double as wide as long. Labrum about as wide as long at the base, then distally widened; with a distinct, longitudinal, median furrow, nearly smooth but with several longer, yellow, hair-like setae.

Male antennae filiform and thin (in comparison to other *Idgia*), reaching the first fifth of the elytra in length, past the humeral callus; finely pilose. First segment slightly thickened, about twice as long as

wide; second segment short, about half the length of the first; third thin and slightly longer than first; fourth about as long as first; segments 5-9 longes, about as long as the first two together; 10-11 slightly shorter, about the length of the third. Last segment without any modifications.

Pronotum longer than wide, maximal length : maximal width 1 : 0.85; subhexagonal in shape, widest after the middle; all angles rounded, sides slightly sinuate in basal half; basal and front margins distinctly bordered, lateral margins not; front margins and the area of the hind angles slightly elevate, disc rather even, with a short, rather shallow, oblique impression in basal part, between disc and hind angles, also impressed on both sides next to the front angles; shining and without microsculpture; with fine, short recumbent, yellow vestiture directed mainly towards the base; vestiture of basal part longer and less recumbent; along the front margin with longer, infuscate hair-like setae.

Elytra about 3.2 times as long as wide together in male, subparallel in shape, widest at the beginning of the apical third, with a strong humeral fold; along the sides with slightly rugulose texture, otherwise rather smooth; covered with very fine and short, but rather dense yellow recumbent vestiture; with a few longer, hair-like setae, some smaller, yellowish along the suture and some larger, infuscate on the disc, loosely arranged in two rows. Margins bordered and weakly crenulate, with a few long, light brownish setae in apical part. Scutellum transverse, about double as wide as long, with the same texture and vestiture as the elytra, but without longer setae.

Femora not thickened, with very fine, brownish vestiture brownish. Tibiae, especially in apical part, rather densely covered with fine, yellowish, hair-like setae. Tarsi brownish, non-metallic, with rather rough, brownish vestiture. Claws simple.

Abdomen with very fine, greyish recumbent vestiture and around their outer margins with some longer hair-like setae. Sternites shining; finely and sparsely punctate, their middle parts with somewhat rugulose texture.

Male: Last (sixth) ventrite as in fig. 144; moderately large, about as long as wide; base only slightly narrower than apical part of fifth ventrite; apical margin deeply bi-incised; incisions broader and more open than in the two related species treated here; process between incisions subtruncate, densely setose dorsally, lateral parts of the sternite rounded, strongly setose; basal margin with large, deep, tongue-shaped incision in middle part. Apical margin of last tergite thickened, with a deep, U-shaped emargination in middle part; lateral parts know-like and covered in setae. Apical margin of fifth ventrite deeply emarginate.

Aedeagus as in figs. 85, 113; extremely elongate; length of median lobe 5.0 mm, almost half the body length. Process of phallobase short, blade like, pointing directly backwards. Parameres parallel-sided, dorsally without without gap, their lower edge in lateral view slightly sinuate subapically; apex slightly curved downwards, ventrally with small emargination; lower edge of apical part with some yellowish, hair-like setae; inner part of apex at the extreme tip with numerous small spines. Median lobe very faintly sinuate in middle part; apex strongly flattened, curved tip subtriangular in dorsal view.

Sexual dimorphism: The only known female (holotype) has slightly broader elytra and smaller, more widely separated eyes. Last ventrite and tergite simple in females, without incisions or emarginations. Male with black comb on the first three protarsomeres.

Variability: Elytral colour slightly paler in female holotype than in the male specimen examined.

A specimen from „Lac Tho" is here doubtfully assigned to this species, possibly belonging to another, undescribed species. It has entirely yellow testaceous antennae and rows of long, blackish setae on the elytra.

Distribution: North and Central Vietnam.

Biology and ecology: The only specimen with precise label data was found in the late dry season in Central Vietnam.

***Idgia karelmajeri* n. sp.**

(Figs. 52, 53, 88, 118, 146)

Holotype ♂ (NHMB): "LAOS, Bokeo prov., Nam Kan NPA, BAN TOUP env., 20°28'N 100°47-48'E, 500-600m, 3.-7. V. 2012, M. Geiser leg."; "NHMB Basel, Laos 2012 Expedition, M. Brancucci, M. Geiser, K. Phanthavong & S. Xayalath". In good condition.

Paratypes (59 ♂ 52 ♀): 35 ♂ 19 ♀ (NHMB), 2 ♂ 2 ♀ (BMNH): same data as holotype. 4 ♂ (NHMB): "LAOS, Bokeo prov., 5 km W Ban Toup, Bokeo Nature Reserve, 500-700 m, 20°27-28' N 100°45' E, 6. V. 2011"; "NHMB Basel, Laos 2011 Expedition, M. Brancucci, M. Geiser, D. Hauck, Z. Kraus, A. Phantala & E. Vongpachan"; "degraded primary lowland forest, beaten from shrubs, David Hauck leg.". 1 ♂ 2 ♀ (NHMB): "LAOS, Bokeo prov., 5 km W Ban Toup, Bokeo Nature Reserve, 500-700 m, 20°27-28' N 100°45' E, 7. V. 2011"; "NHMB Basel, Laos 2011 Expedition, M. Brancucci, M. Geiser, D. Hauck, Z. Kraus, A. Phantala & E. Vongpachan"; "degraded primary lowland forest, beaten from shrubs, Michael Geiser leg.". 3 ♂ 2 ♀ (NHMB): "LAOS, Bokeo prov., 5 km W Ban Toup, Bokeo Nature Reserve, 500-700 m, 20°27-28' N 100°45' E, 7. V. 2011"; "NHMB Basel, Laos 2011 Expedition, M. Brancucci, M. Geiser, D. Hauck, Z. Kraus, A. Phantala & E. Vongpachan"; "degraded primary lowland forest, beaten from shrubs, David Hauck leg.". 1 ♂ (NHMB): "LAOS, Bokeo prov., 5 km W Ban Toup, Bokeo Nature Reserve, 500-700 m, 20°27-28' N 100°45' E, 7. V. 2011"; "NHMB Basel, Laos 2011 Expedition, M. Brancucci, M. Geiser, D. Hauck, Z. Kraus, A. Phantala & E. Vongpachan"; "degraded primary lowland forest, beaten from shrubs, Zdeněk Kraus leg.". 2 ♀ (NHMB): "LAOS, Bokeo prov., 5 km W Ban Toup, Bokeo Nature Reserve, 500-700 m, 20°27-28' N 100°45' E, 9. V. 2011"; "NHMB Basel, Laos 2011 Expedition, M. Brancucci, M. Geiser, D. Hauck, Z. Kraus, A. Phantala & E. Vongpachan"; "degraded primary lowland forest, beaten from shrubs, Michael Geiser leg.". 1 ♀ (NHMB): "LAOS, Bokeo prov., 5 km W Ban Toup, Bokeo Nature Reserve, 500-700 m, 20°27-28' N 100°45' E, 10. V. 2011"; "degraded primary lowland forest, beaten from foliage of low undergrowth, Michael Geiser leg."; "NHMB Basel, Laos 2011 Expedition, M. Brancucci, M. Geiser, D. Hauck, Z. Kraus, A. Phantala & E. Vongpachan". 1 ♀ (NHMB): "LAOS, Louang Namtha pr., NAMTHA → Muang Sing, 21°09' N / 101°19' E, 5.-31. V. 1997, 900-1200 m, Vit Kubáň leg.". 1 ♀ (BIMH): "LAOS: 800 m, Ban-van-eue, SE of Phou-kow-kuei, 11. IV. 1965"; "J. L. Gressitt Collector, BISHOP MUSEUM". 1 ♂ 2 ♀ (BIMH): "LAOS, Ban Van Eue, 13-15. IV. 1965"; "J. L. Gressitt Collector, BISHOP Museum". 2 ♂ 2 ♀ (BIMH): "LAOS: Vientiane Prov., Phou Kou Khouei, 15. IV. 1965"; "J. L. Gressitt Collector, BISHOP MUSEUM". 1 ♀ (NMPC): "Laos, Vientiane pr., Phou Khao Khouay N.P. 102°49' E / 18°27' N, V. 2005, P. Kresl lgt.". 1 ♂ 3 ♀ (NHMB): "LAOS, Xieng Khouang prov., 18°59.98' N / 103°22.93' E, BAN THAVIANG env. (near Ban Phon Hom), 550 m, 18. V. 2010, M. Geiser leg."; "secondary forest, sitting on the underside of leaves next to a flowering tree". 1 ♀ (NHMB): "LAOS, Xieng Khouang prov., 18°59.98' N / 103°22.93' E, BAN THAVIANG env. (near Ban Phon Hom), 550 m, 18. V. 2010, M. Geiser leg."; "secondary forest, sitting on the underside of leaves next to a flowering tree"; "DNA sample A150,

University of Basel, Biogeography". 1 ♀ (NHMB): "LAOS, Xieng Khouang prov., 18°59.98' N / 103°22.93' E, BAN THAVIANG env. (near Ban Phon Hom), 550 m, 18. V. 2010, M. Geiser leg."; "secondary forest, sitting on the underside of leaves next to a flowering tree"; "DNA sample A157, University of Basel, Biogeography". 2 ♀ (NHMB): "LAOS, Xieng Khouang prov., 18°59.98' N / 103°22.93' E, BAN THAVIANG env. (near Ban Phon Hom), 550 m, 20. V. 2010, M. Geiser leg."; "secondary forest, sitting on the underside of leaves next to a flowering tree". 1 ♀ (NHMB): "LAOS, Bolikhamxay prov., Nam Kading NPA, Tad Paloy campsite, 300 m, 18°21'N 104°09'E, 26.V.2011"; "NHMB Basel, Laos 2011 Expedition, beating shrubs in primary monsoon forest, D. Hauck leg."; "DNA sample A176, University of Basel, Biogeography". 1 ♂ (NHMB): "LAOS, Bolikhamxay prov., Nam Kading NPA, Tad Paloy campsite, 18°21-23' N / 104°09' E, 250-400 m, 24.-28. V. 2011"; "NHMB Basel, Laos 2011 Expedition, M. Geiser, D. Hauck, A. Phantala & E. Vongphachan"; "primary lowland monsoon forest; beaten from foliage. D. Hauck leg.". 1 ♂ (NHMB): "NE Thailand, 19.-22. 4. 1991, Chiang Mai prov., Doi Suthep, S. Bily leg.". 1 ♂ (NHMB): "THAI, 10.-16. V. 1991, CHIANG DAO, 600 m, 19°24' N 98°55' E, Vit Kubáň leg."; "Thailand '91, "Thanon Thong Chai", D. Král & V. Kubáň". 1 ♂ 2 ♀ (NHMB): "THAI, 17.-24. V. 1991, CHIANG DAO, 1000 m, 19°25' N 98°52' E, Vit Kubáň leg."; "Thailand '91, "Thanon Thong Chai", D. Král & V. Kubáň". 1 ♀ (NHMB): "THAI, NE Loei prov., Phu Kradung N.P., 1300 m, 16°53' N / 101°47' E, 11.15. V. 1999, M. Říha leg.". 2 ♀ (BMNH): "THAI-NE, Loei prov., PHU KRADUNG N. P.: 16°52' N 101°49' E, 16.-18. V. 1999, 1000 m, D. Hauck leg.". 2 ♂ 2 ♀ (IZAS): "Yunnan, Xishuangbanna, Ganlanba, 540m, 1957.IV.17, LIU Da-Hua" [in Chinese characters and in Russian]. 1 ♂ (IZAS): "Yunnan, Xiashuangbanna, Damenglong, 650 m, Zhongguokexueyuan", "1958.V.3., ZHANG Yi-Ran leg." [in Chinese characters]. 1 ♀ (IZAS): "Yunnan, Xiashuangbanna, Damenglong, 650 m, Zhongguokexueyuan", "1958.V.4., WANG Shu-Yong leg." [in Chinese characters].

Type locality: Laos, Bokeo prov., Nam Kan NPA, W of Ban Toup village.

Measurements ♂ : TBL 8.0 - 8.9 mm, L-h 6.7 - 7.5 mm

HL 1.2 - 1.5 mm, PL 1.0 - 1.3 mm, EL 5.7 - 6.2 mm

♀ : TBL 7.8 - 11.0 mm, L-h 6.8 - 9.2 mm

HL 1.1 - 1.8 mm, PL 1.1 - 1.6 mm, EL 5.5 - 7.6 mm

Differential diagnosis: Distinguished from the related *I. pallidicolor* and *I. coomani* by more orange colour tone and the lack of a black apical macula on the elytra, as well as the shape of the male terminalia (aedeagus, last ventrite, last tergite). Distinguished from all other Indochinese *Idgia* species by the bi-incised last ventrite in males (character of the *I. pallidicolor* group).

Description: Habitus as in figs. 52 (paratype ♂) and 53 (paratype ♀). Body orange yellow, not as pale as in *I. pallidicolor*. Head around the eyes black, in front of the eyes infusate, hind part of vertex yellow. Elytra without black apical macula, entirely orange yellow. Segments 1-8 of antennae infusate (segment 8 only partly). Legs yellow with tibiae and tarsi infusate. Claws yellow testaceous. Maxillary and labial palpi entirely yellow testaceous. Tips of mandibles black.

Head behind the eyes about 0.65 times as wide as middle part of pronotum. Vertex not shining, but without evident microsculpture, with sparse, greyish, recumbent vestiture and several longer, stiff, blackish setae at the sides, behind the eyes. Frons flat, not sculptured, apart from the ridges at antennal insertions, with rather long, sparse, greyish vestiture; eyes almost contiguous, space between them much narrower than the first antennal segments (male). Clypeus transverse, flat and smooth, with some brownish vestiture. Labrum transversely subtrapezoidal, widest in anterior part, fore margin broadly rounded, flat, with long brownish vestiture.

Male antennae filiform, reaching the first fourth of the elytra in length; finely pubescent. First segment slightly thickened, about twice as long as wide, second segment short, third thin and about as long as first and second together, fourth slightly, fifth to eighth slightly longer, ninth about as long as third, but a bit thicker, tenth a bit shorter, last segment about as long as ninth, complanate, not emarginate.

Pronotum about as long as wide, widest in apical half, sides slightly sinuate in basal half, before the hind angles; all angles rounded, hind angles obtuse, rounded; most of basal and anterior margins finely bordered; vertex slightly convex, and with a very faint subbasal impression in the middle; very finely shagreened, without distinct punctures; with inconspicuous, fine, recumbent, yellowish vestiture and some longer, yellowish or brownish setae along the outer margins (often abraded). Basal and apical margins finely and sparsely ciliate, with short, yellow, hair-like setae.

Elytra about 2.6 times as long as wide together in males, subparallel in shape with humeral area slightly narrower than middle part; humeral callus distinct; moderately shining, densely and rugosely punctate, with slightly oily sheen, covered with fine, very fine, yellowish ground vestiture; disc with three distinct rows of long, erect, yellowish brown setae and traces of a fourth row, in apical part near lateral margins. Margins finely crenulate, with another row, of yellowish brown setae, which are shorter than on elytral disc. Scutellum transverse, almost semicircular, matt and rather smooth, with finer ground vestiture than elytra.

Femora not thickened in males, with finely rugulose texture and finer, shorter pilosity than elytra. Tibiae and tarsi matt, with longer, stiffer, golden-yellowish setae. Claws simple.

Abdomen relatively narrow. Sternites matt, finely shagreened, with fine, yellowish vestiture and longer, yellowish setae along the margins

Male: Last (sixth) ventrite as in fig. 146; moderately large, transverse, more elongate than in *I. pallidicolor*; base only slightly narrower than apical part of fifth ventrite; apical margin deeply bi-incised; incisions sharp, narrower than in *I. pallidicolor*; process between incisions broad, apical margin bent dorsally, densely setose, not projecting beyond the oblique lateral parts of the sternite; basal margin with large, deep, tongue-shaped incision in middle part. Apical margin of last tergite thickened, with a deep, narrow incision in middle part.

Aedeagus as in figs. 88, 118; similar to *I. pallidicolor*; slightly shorter, apex of median lobe a bit more strongly curved; paramera thicker and more curved.

Sexual dimorphism: Females on average slightly larger, although there are occasionally some very small specimens; elytra not as parallel, widened in middle, generally broader, last visible sternite and tergite simple, without any visible incisions. Male with black comb on the first three protarsomeres.

Variability: Head usually with broad black fascia around eyes, sometimes reduced to two narrowly infusate circles around eye margins. Tibiae usually infusate dark brown, rarely almost testaceous and only little darker than femora. Females vary considerably in size, males only slightly.

Distribution: Laos, N Thailand, SW China (Yunnan).

Biology and ecology: Adults of this species were found in the beginning of the monsoon season (April and May) in primary and secondary forest habitats at altitudes between 550 and 1300 m. At the type

locality they have been found on the underside of leaves of small trees and shrubs, about 1-3 m above ground, very close to another shrub, which was flowering. They were not observed feeding directly on the flowers, which they might be doing only during certain times of the day (or night).

Derivatio nominis: Named in honour of the late Karel Majer from Brno (Czech republic), an excellent specialist of Dasytidae, Melyridae and related families, who, unfortunately, died much too early in 1998. Karel Majer published some of the most important, fundamental works on Prionoceridae morphology (Majer, 1987; 1994b) and built up an invaluable private collection (now at NHMB), which contains a large number of undescribed Prionoceridae, including paratypes of this new species.

IV. A new genus of Prionoceridae

Bigdia n. gen.

Type species: *Idgia oculata* Redtenbacher, 1868.

Gender: Feminine.

Diagnosis: This genus is easily distinguished from all other members of the family by the complete absence of protarsal combs in male. Females are recognisable by large size and characteristic habitus (broad shoulders and rather flat, rostrate head). The last antennal segment, which is thin, very elongate and often sexually dimorphic is also characteristic of the new genus.

Description: Body very large, TBL 16-22 mm, with at least partly bright-coloured metallic or infusate elytra, unicolorous or with longitudinal stripes, never with apical black macula. Prothorax testaceous, pronotum usually with black discal markings.

Head flattened and rostrate in front of eyes. Ridges above antennal insertions lower than in most *Idgia* and *Prionocerus*. Eyes kidney-shaped, with distinct emargination behind antennal insertions, smaller than in *Prionocerus* and most species of *Idgia* and, rather widely separated dorsally, usually about the length of the first antennomere, never subcontiguous as in several *Idgia* species. Penicillus of mandibles (see Majer, 1987) present, not absent as in *Lobonyx*.

Antennae filiform, with subcylindrical segments, the subapical ones sometimes flattened and widened towards apex, but never distinctly serrate. Last antennomere always long and more or less flattened, usually with distinct sexual dimorphism, shorter in females, longer in males, sometimes extremely elongate.

Femora simple, tibiae straight. None of the species with thickened femora or arcuate tibiae in males. Fore tarsi densely setose in males, but lacking the otherwise characteristic black, sclerotised comb. Hind tibial spurs short and simple in all known species.

Elytra with broad shoulders, base about double as wide as pronotum. Humeral callus distinct in all species, alae normally developed. Texture of elytra densely granulose, not punctate or leathery rugulose as in most *Idgia*.

Abdomen broad and rather flattened, with strongly transverse ventrites. Last ventrite small, very short and simple (without emargination) in females; short and with relatively small apical emargination in

males, never with two incisions as in the *Idgia pallidicolor* species group. None of the examined species has an incision on the last visible tergite.

Aedeagus in males very small in relation to body size; length of median lobe around 2 mm. Median lobe relatively short and stout, of variable shape.

Female ovipositor with short, barrel-shaped coxital styli, distinctly shorter and thicker than in all other examined Prionoceridae.

Composition: This genus includes the two species described below, *B. oculata* (Redtenbacher, 1868) **n. comb.** and, *B. maculatithorax* (Pic, 1919) **n. comb.**, as well as *B. viridivittata* (Champion, 1919) **n. comb.** from Myanmar and NE-India and two undescribed species from China, which will be treated in a later paper.

Distribution: This genus is distributed in the mountainous parts of the Indochinese Peninsula (Myanmar, N-Thailand, Laos and Vietnam), in the extreme Northeast of India (Assam, Manipur, Nagaland) and in the south-western provinces of China (Yunnan, Guangxi, Hainan and Guangdong). *B. oculata* is commonly found in Hong Kong.

Biology and ecology: Members of this genus inhabit montane forests of the Indochinese peninsula and humid subtropical lowland habitats (including parks and gardens) of southern China. Adults are pollen feeders on various shrubs and trees with a rather short period of activity, usually in spring (April and May). While *B. oculata* and *B. maculatithorax* are locally abundant and diurnal, little information is available for the other species. Some specimens were collected at light, but only in small numbers. The larvae and their habitats are unknown.

Derivatio nominis: A combination of the English adjective „big" and the closely related genus „*Idgia*", a contraction of „big *Idgia*".

***Bigdia oculata* (Redtenbacher, 1868) n. comb.**
(Figs. 3, 90, 120, 149)

Idgia oculata Redtenbacher, 1868: 110. pl. IV, fig. 2.

Type material examined: Syntype ♀ (NHMW): "oculata, China, Redt". Syntype label added. In good condition.

Syntype ♂ (NHMW): "Pffr.". Syntype label added. In good condition.

Syntype ♂ (NHMW): No label, but belonging to the same series as the two syntypes above, according to its position in the drawer. Syntype label added. In good condition.

Syntype ♀ (NHMW): As above. In good condition.

Other material examined: LAOS: "Indo Chine, Coll. Dussault, Khouang, 1923" 2 ♂ (NHMB); "Indo Chine, Coll. Dussault, Khouang, 1923, coll. W. Wittmer" 1 ♀ (NHMB); Xieng Khouang Prov., 25 km E Phonsavan, 19. VI. 2006, H. Wakahara leg. 1 ♀ (EHUM); Xiang Khoang, 25 km E Phonsavan, 19. VI. 2005, J. Yamasako leg. 1 ♀ 2 ♂ (EHUM); Xieng Khouang prov., Muang Khoun env., 100-1500 m, V.-VI. 2010, local collector leg. 1 ♂ (NHMB).

VIETNAM: "Tonkin (Vitalis)" 1 ♂ (MNHP); "Tonkin, 1905" 1 ♀ (MNHP); "Charkhè, Tonkin" 1 ♀ (MNHP); "Lang Son (Tonkin)" 1 ♀ (MNHP), 1 ♀ (BMNH). "Lang Son, Tonkin (peau) 2 ♀ (MNHP); "Lang Son (1904)" 2

♀ (MNHP); "Lang Son 1904" 1 ♂ (MNHP); "Lao Kay, Tonkin" 1 ♀ (MNHP); "Lao-Kay, 15.5.1960, Izokh., iz kollektivii O. N. Kabakova." 1 ♂ 1 ♀ (ZISP); "Tonkin, Backan, Lemée, 1908. coll. R. Oberthür 1952" 4 ♀ (MNHP); Son La prov., Deo Cao Pha, 420 m, 23. VI. 1997, M. Owada leg. 3 ♂ 5 ♀ (KMNH); "Na-Cham, ex. coll. R. Oberthür 1952" 1 ♀ (MNHP); "NO Thainguyen, 300m, 9. V. 1963, Kabakov, iz kollektivii O. N. Kabakova." 1 ♂ (ZISP); "gory 50km NE Thai-Nguyen, 300 m, 10. V. 1963g., Kabakov, iz kollektivii O. N. Kabakova." 2 ♂ (ZISP); "gory NW Tam-Dao, Shon-Zuong, 300 m, 12. 4. 1962 g., Kabakov, iz kollektivii O. N. Kabakova." 1 ♀ (ZISP); "gory 30km N Hon-Gay, 10. 4. 1962 g., Kabakov, iz kollektivii O. N. Kabakova." 1 ♂ (ZISP); "Hoanbo, 14. 6. 1962, Kabakov, iz kollektivii O. N. Kabakova." 1 ♂ (ZISP); "Ile des Biches (Fai-Tsi-Long), L. Blaise, (Coll. Ph. Francois), Coll. L. Bedel 1922" 1 ♀ (MNHP).

CHINA: GUANGXI: Jinxiu, Luoxiang, 450m, 30. VI. 2000, Yao Jian leg. 1 ♂ (IZAS); Jinxiu, Luoxiang, 450m, 1. VII. 2000, Chen Jun leg. 4 ♂ 3 ♀ (IZAS); Jinxiu, Luoxiang, 450m, 1. VII. 2000-VII-1, Li Wen-Zhu leg. 1 ♂ (IZAS); Jinxiu, Luoxiang, 450m, 1. VII. 2000, Zhu Chao-Dong leg. 2 ♀ (IZAS); Jinxiu, Huawangshan, Zhuang, 600m, 20. V. 1999, Xiao Hui leg. 1 ♂ (IZAS).

GUANGDONG: Shenzhen, 7. V. 2003, Zhang Bi-Sheng leg. 5 ♂ 7 ♀ (SYSU); Shenzhen, Wutongshan, 29. IV. 1998, Chen Zhen-Yao leg. 1 ♂ (SYSU); Huidong, Gutian, 11. VI. 1984, Liang Luo-Qiu leg. 1 ♂ 3 ♀ (SYSU); Shaoguan, Longtoushan, 14. XI. 1923, W. E. Hoffmann leg. 1 ♂ 1 ♀ (SYSU); Shaoguan, Longtoushan, 3. VI. 1924, W. E. Hoffmann leg. 2 ♂ 2 ♀ (SYSU).

HONG KONG: "Hong kong" 1 ♂ (MNHP); "Hong Kong, V Duval" 1 ♂ (MHNG); "Hong Kong, Duval." 1 ♂ (MHNG); New Terr., Tai Po Kau Nat. Res. 110-260 m, 22°26' N / 114°08' E, 16.-18. VI. 2004, S. Murzin leg. 3 ♀ (CRC); Tai-Mo-Shan, 400 m, 5. VI. 1986, M. Takakuwa leg. 3 ♂ 3 ♀ (SMNS), 1 ♂ (BMNH); Tai-Mo-Shan, 400 m, 7. VI. 1986, M. Takakuwa leg. 2 ♂ 1 ♀ (SMNS).

HAINAN: Nada, 27. IV. 1942. 3 ♂ (SYSU); "Nodoa, 75+/-mi. SW. of Hoihow. Tan-hsien (Dist.), April 26, 1932. F. K. To" 1 ♂ (SYSU); "Nodoa, 75+/-mi. SW. of Hoihow. Tan-hsien (Dist.), April 27, 1932. F. K. To" 1 ♂ 5 ♀ (SYSU); "Nodoa, 75 mi. SW. of Hoihow, Tan-hsien (Dist.), April 27, 1932, F. K. To, 218" 1 ♀ (BIMH); "Nodoa, 75+/-mi. SW. of Hoihow. Tan-hsien (Dist.), June 11, 1932. O. K. Lau & F. K. To" 1 ♀ (SYSU); "Nodoa, 75+/-mi. SW. of Hoihow. Tan-hsien (Dist.), June 17, 1932. O. K. Lau & F. K. To" 1 ♀ (SYSU); Nodoa, Tan-hsien (District), June 4-10, 1932, F. K. To" 1 ♂ 1 ♀ (BIMH), 1 ♂ (BMNH); "Nodoa. June 1929, Lingnan University 5th. Hainan Is. Exped. 1929." 1 ♂ (BMNH); "Nodoa, Tan-hsien (District), June 4-10, 1932. F. K. To" 5 ♂ (SYSU); "Groves around Mei-fu-ts'uen, 9 li E. of Nodoa, Tan-hsien (Dist.). Aug. 12-13, 1929. Lingnan U. Fifth Hainan Expedition" 1 ♀ (SYSU); "Lin-fa-shan, 2000 +/- alt., 6 mi. SE. of Nodoa. Lin-kaio & Ch'eng-mai Dist. June 9, 1932, O. K. Lau & F. K. To" 1 ♂ (BIMH), 2 ♂ (SYSU); "Grove 2mi. N.E. of Nodoa, July 1, Lingnan University 5th. Hainan Is. Exped. 1929." 2 ♂ (BMNH); "Woh Hau Chuen, E. of Nodoa, July 3, Lingnan University 5th. Hainan Is. Exped. 1929." 1 ♂ 6 ♀ (BMNH); "grove about 10 li s.w. of Nodoa, July 4, Lingnan University 5th. Hainan Is. Exped. 1929." 1 ♀ (BMNH); "Nam Cha Chuen, 10 li env. of Nodoa, July 6, Lingnan University 5th. Hainan Is. Exped. 1929." 1 ♂ (BMNH); "Man Fook Chuen, S. of Nodoa, July 19, Lingnan University 5th. Hainan Is. Exped. 1929." 1 ♂ (BMNH); "Tun-heung-ts'uen, 6mi. SE of Nodoa; between Sam-kok-ling & Laen-yeung. Lin-kaio Dist., June 13-14, 1932. O. K. Lau & F. K. To" 11 ♂ 8 ♀ (SYSU); "Hau-ying ts'uen, 6 mi. SE of Nodoa. Lin-kaio District. July 27-28, 1932. F. K. To" 2 ♂ 2 ♀ (SYSU); "Hau-ying ts'uen, 6 mi. SE of Nodoa. Lin-kaio District. July 29-30, 1932. F. K. To" 1 ♂ 2 ♀ (SYSU); "Hau-ying ts'uen, 6 mi. SE of Nodoa. Lin-kaio District. July 31, 1932. F. K. To" 1 ♀ (SYSU); "Hau-ying ts'uen, 6 mi. SE of Nodoa. Lin-kaio District. August 1-3, 1932. F. K. To" 3 ♀ (SYSU); "Lok-kei, 9 mi. N-NW. of Nodoa. Tan-hsien (Dist.). June 20, 1932. F. K. To" 1 ♂ (SYSU); "Naam-fung, 10 mi. S-SW of Nodoa. Tan-hsien (Dist.). June 24, 1932. O. K. Lau & F. K. To" 3 ♂ 2 ♀ (SYSU); "Naam-fung, 10 mi. S-SW of Nodoa. Tan-hsien (Dist.). June 29-30, 1932. O. K. Lau & F. K. To" 1 ♂ 4 ♀ (SYSU); "Naam-fung, 10 mi. S-SW of Nodoa. Tan-hsien (Dist.). July 2, 1932. O. K. Lau & F. K. To" 2 ♂ 4 ♀ (SYSU); "Naam-fung, 10 mi. S-SW. of Nodoa, Tan-hsien (Dist.). July 3-4, 1932, O. K. Lau & F. K. To" 1 ♀ (BIMH), 4 ♀ (SYSU); "Naam-fung, 10 mi. S-SW of Nodoa. Tan-hsien (Dist.). July 7, 1932. O. K. Lau & F. K. To" 1 ♂ 2 ♀ (SYSU); "Yau-ma-who, 3 mi. SW. of Nodoa, nr. foot of Sha-po-ling. Tan-hsien (Dist.), July 8-9, 1932, F. K. To" 1 ♂ (BIMH), 12 ♂ 12 ♀ (SYSU); "Fan Ta Chuen (hung Mo Tung valley), July 29, Lingnan University 5th. Hainan Is. Exped. 1929." 1 ♀ (BMNH); "Fan-ta-ts'uen, Hung-mo-ling; K'iuung-shan Dist. June 1, 1929. W. T. Tsang" 1 ♂ (SYSU); "Fan-ta-ts'uen to Kap-wa-ts'uen, Hung-mo-tung; K'iuung-shan Dist. May 6, 1929. Lingnan Univ. Fifth Hainan Expedition" 1 ♂ (SYSU); "Fan-ta-ts'uen to Poh-shang, Hung-mo-tung; K'iuung-shan Dist. July 31 - Aug. 1, 1929. Lingnan University 5th Hainan Expedition" 1 ♂ (SYSU); "Lam-ko, Lin-kaio District. May 23-25, 1932. F. K. To" 2 ♂ 1 ♀ (SYSU); "Lok-kei to Nodoa (distance 9 mi.), Tan-hsien (Dist.). June 18 & 21, 1932, O. K. Lau & F. K. To, 223" 1 ♀ (BIMH); Qiongzong,

400m, 15. VII. 1960, Li Gui-Fu leg. 1 ♂ (IZAS); "Hainan I. (C.): Ta Hian (TaSianKwan), 600 m. VI-10-35, J. L. Gressitt" 1 ♀ (BIMH); "Ta-hian, nr. Five Finger Mts., June 18, 1935, J. L. Gressitt" 1 ♀ (SYSU); "Ta Hian, VI-19-'35, L. Gressitt Collection" 1 ♂ (SYSU); Jianfeng, 16. VI. 1981, Li Fu leg. 1 ♀ (IZAS); Ledong, Jianfengling National Forest Park, sweeping net, 16. V. 2005, C. S. Lin & W. T. Yang leg. 2 ♂ 2 ♀ (NMNT); Jianfengling, 500-950m, 19.-20. V. 2004, Zhang Chun-Tian leg. 1 ♀ (SYSU); Jianfengling, Tianchi, 27. VII. 1984, Hua Li-Zhong leg. 1 ♂ (SYSU); Yinggen, 200m, 5. VII. 1960, Li Gui-Fu leg. 1 ♂ (IZAS); Tongshi, 340m, 31. VII. 1980, Li Chang-Qing leg. 2 ♀ (IZAS); Tongshi, 340m, 5. VIII. 1980, Li Chang-Qing leg. 2 ♀ (IZAS); "Hongmaoshan 1929" 4 ♂ 11 ♀ (SYSU); "Hongmaoshan, Panda Village, 1929" 2 ♂ 3 ♀ (SYSU). FUJIAN: Nanjing, Hexi, 13. VII. 2010, Jia Feng-Long leg. 2 ♀ (SYSU).

Measurements ♂ : TBL 16.6 - 19.3 mm, L-h 14.0 - 16.4 mm

HL 2.3 - 2.9 mm, PL 2.2 - 2.6 mm, EL 12.0 - 13.8 mm

♀ : TBL 18.2 - 19.6 mm, L-h 15.6 - 17.4 mm

HL 2.2 - 2.7 mm, PL 2.4 - 2.8 mm, EL 13.0 - 14.7 mm

Differential diagnosis: As a member of the genus *Bigdia*, this species is characterised by the absence of sclerotised tarsal combs in males, which is very unusual in Prionoceridae. Among its close relatives, *B. oculata* is distinguished by the entirely red abdomen and entirely blue metallic coloration of elytra (greenish in *B. maculatithorax*, testaceous with a green stripe in *B. viridivittata*). *B. maculatithorax* also has a much longer last antennal segment in males. *B. viridivittata* has the fore part of its head yellow testaceous (black in *B. oculata* and *B. maculatithorax*).

Redescription: Habitus as in fig. 3 (♀). Body yellowish/orange testaceous; head (except antennal insertions and mandibles), disc of labrum, metathorax, tibiae, tarsi and apical 2/3 of femora black; elytra metallic blue; pronotum with two black, rounded spots, one on each side of the disc. Rarely, in some Vietnamese individuals, the pronotal spots reduced or completely absent.

Head behind eyes about 0.6 times as wide as middle part of pronotum, rostrate in front of eyes. Vertex matt, shagreened and finely rugulose, with very fine, greyish ground vestiture, Eyes, though still large, smaller than in most *Idgia* species; widely separated, space in between about as long as first antennomere, or three times the width of the third antennomere at base. Frons distinctly depressed in front of eyes, with transverse wrinkles, shagreened and with very fine, greyish vestiture. Clypeus convex, about as long as wide, with smooth surface and sparse, greyish recumbent vestiture in basal ¾. Labrum transversely subrectangular, often with a more or less impressed median furrow, very finely shagreened, with sparse, greyish ground vestiture and some longer, yellowish to brownish setae.

Male antennae reaching the first third of the elytra, past the humeral callus, in length; finely pilose; subfiliform, slightly flattened towards apex. First segment distinctly thickened, about 1½ times as long as wide at apex; second very short, less than half as long as first; third about twice as long as first, much longer than first two together; fourth about as long as first two together; segments 5-9 intermediate in length between 3 and 4; tenth about as long as fourth; last segment sexually dimorphic, in males about as long as 9 and 10 together, flat and slightly curved; broadly but shallowly emarginate on outer edge.

Pronotum about as long as wide, widest in middle part; hind angles bluntly rounded, margin of apical half broadly arcuate, semicircular; lateral margins in basal half straight, not sinuate; all margins bordered, basal and apical margins thickened; middle part of disc gently elevate, convex; rather shagreened and matt, with fine, inconspicuous, yellowish or greyish ground vestiture and a few long, yellowish, hair-like setae along the margins.

Elytra about 3.2 times as long as wide together in males, parallel-sided; humeral callus distinct; shining and densely granulose; vestiture sparse, consisting of very fine, greyish, recumbent, hair-like setae; longer, erect, black setae very sparse on disc, easily abraded, hardly visible in most specimens, forming a row along the suture and one very loose row on disc, only visible in profile view. Margins finely crenulate, with a row of erect, blackish setae, shorter and finer than those on disc and along suture. Scutellum slightly longer than wide, tongue-shaped, with basal margin triangularly expanded towards base of pronotum; matt, finely rugulosely-punctate and with denser, but similar vestiture as elytra.

Femora matt, dark parts sometimes with slight metallic lustre, finely shagreened, with slightly rugulose texture and very fine, blackish recumbent ground vestiture. Tibiae and tarsi matt or with slight metallic lustre densely covered in stiff, brownish setae. Claws long, slightly widened at base, otherwise simple.

Abdomen broad and flat; rather glossy, with little texture; ground vestiture denser, longer and more conspicuous than on elytra, yellowish; intermixed with longer, blackish setae, especially along lateral and anterior margins of sternites.

Male: Last (sixth) ventrite as in fig. 149; large and strongly transverse, distinctly narrower than the fifth ventrite; middle of apical margin with moderately deep emargination. Apical margin of last tergite simply arcuate, not thickened or emarginate.

Aedeagus as in figs. 90, 120; short in relation to body size. Process of phallobase straight, pointing downwards at an angle of about 110° in relation apical part of paramera. Parameres distinctly narrowed in apical third of their length, dorsally widely gaping, with slightly convergent apices; lower edge in apical part with long, hair-like setae, near apex with a row of very short, tooth-like spines. Median lobe distinctly sinuate in middle part, obliquely narrowed towards apex, with short, round, knob-like tip.

Sexual dimorphism: Female relatively similar to male, on average only slightly longer and broader than male, without clear differences in size of eyes, but 11th antennomere slightly shorter than the two preceding ones (9 and 10) together. Last visible sternite and tergite simple in female, without incisions or emargination. Male without tarsal combs.

Variability: Colour of scutellum varying from orange testaceous to black.

Distribution: S China (Guangxi, Guangdong, Hong Kong, Hainan, Fujian), N Vietnam, N Laos.

Biology and ecology: *B. oculata* seems to be a rather common species in the subtropical parts of China (e. g. around Hong Kong). In Laos it is known from only one locality at an approximate altitude of 1000 m. As the habitats around Hong Kong suggest, it is not dependent on pristine forests. While the Indochinese and Hainanese specimens have been collected from mid June to August, the period of adult activity seems to be slightly earlier in Hong Kong, from mid May to June (Aston, 2011). Aston also reports that *B. oculata* is often „encountered in large groups, feeding on various flowering shrubs and trees", as well as „on leaves of *Mallotus paniculatus* (Lam) Muell.Arg." (Aston, 2011).

***Bigdia maculatithorax* (Pic, 1919) n. comb.**
(Figs. 56, 57, 59, 50, 89, 119, 148, 150)

Idgia maculatithorax Pic, 1919a: 7.

Type material examined: Holotype ♂ (MNHP, coll. Pic): "Choganh, Tonkin, L. Dupat 8-18"; "type"; "TYPE"; "maculatithorax Pic". Holotype label added. Most of the left antenna (segments 2-11) and some tarsomeres missing.

Other material examined: CHINA: YUNNAN: Xishuangbanna, Menga, 1050-1080m, 23. V. 1958, Pu Fu-Ji leg. 1 ♂ (IZAS); Xishuangbanna, Menga, 1050-1080m, 16. VIII. 1958, Pu Fu-Ji leg. 1 ♀ (IZAS); Xishuangbanna, Menga, 1000m, 25. V. 1958, Wang Shu-Yong leg. 3 ♂ (IZAS); Xishuangbanna, Damenglong, 650m, 9. VI. 1958, Wang Shu-Yong leg. 1 ♀ (IZAS); Xishuangbanna, Menghun, 1200m, 28. V. 1958, Wang Shu-Yong leg. 1 ♂ 1 ♀ (IZAS).

LAOS: Hua Phan prov., Phu Phan Mt., Ban Saluei, 20°15' N / 104°02' E, 1500-2000 m, 26. IV. - 11. V. 2001, J. Bezděk leg. 1 ♀ (NMPC); Houa Phan prov., Ban Saluei, Phu Phan Mt., 20°15' N / 104°02' E, 1500-2000 m, 26. IV. - 11. V. 2001, D. Hauck leg. 1 ♂ 1 ♀ (BMNH); Houapan, Xamneua, Ban Saleui, Pho Pan, 19. V. 2001, S. Kawabe leg. 1 ♂ 1 ♀ (KMNH); Houa Pan Prov., Xam Neua, Ban Saleui, Mt. Phu-Pan, alt. ca. 1500-1700 m, 1. V. 2002, N. Ohbayashi leg. 1 ♀ (EHUM); Houa Pan Prov., Xam Neua, Ban Saleui, Mt. Phu-Pan, alt. ca. 1500-1700 m, 4. V. 2002, N. Ohbayashi leg. 1 ♀ (EHUM); Houa Phan Prov., Mt. Phu-Pan, alt. ca. 1700-1800 m, 17.-20. VI. 2003, N. Ohbayashi leg. 1 ♂ 2 ♀ (EHUM); Hua Phan prov., Ban Saluei, Phu Phan Mt., 20°13' N / 103°59' E, 1300-2000 m, 6.-18. V. 2004, J. Bezděk leg. 1 ♀ (NMPC); Hua Phan prov., Ban Saluei, 1300-2000 m, 20°13' N / 103°59' E, 6.-18. V. 2004, F. & L. Kantner leg. 1 ♂ (NKME); Hua Phan prov., Phu Phan Mt., 1500-1900 m, ~20°12' N / 104°01' E, 17. V.-3. VI. 2007, M. Brancucci leg., NHMB Basel expedition to Laos 2007. 1 ♂ 1 ♀ (NHMB); Houa Phan prov., Ban Saluei → Phou Pane Mt., 1340-1870 m, 20°12'-13.5' N / 103°59.5'-104°01' E, 15. IV.-15. V. 2008, Lao collectors leg. 1 ♀ (NHMB); Houa Phan prov., Ban Saluei → Phou Pane Mt., 1340-1870 m, 20°12'-13.5' N / 103°59.5'-104°01' E, 10. V. - 9. VI. 2009, C. Holzschuh & local coll. leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 2 ♂ (NHMB); Houa Phan prov., Phou Pane Mt., 1480-1550 m, 20°13'09"-19" N / 103°59'54" - 104°00'03" E, 9.-16. VI. 2009, David Hauck leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 1 ♀ (NHMB); Houa Phan prov., Ban Saluei → Phou Pane Mt., 20°12'-13.5' N / 103°59.5'-104°01' E, 1340-1870 m, 7. IV. - 25. V. 2010, C. Holzschuh & local coll. leg. 8 ♂ 4 ♀ (NHMB), 2 ♂ 2 ♀ (BMNH); Hua Phan prov., Ban Saluei, Phou Pan (Mt.), 1300-1900 m, 20°12' N / 104°01' E, 11. IV. - 15. V. 2012, C. Holzschuh leg. 4 ♂ 3 ♀ (NKME); Xiang Khoang, Phonsavan, 19.-20. VI. 2005, H. Wakahara leg. 1 ♂ (EHUM); Xiang Khoang, 25 km E Phonsavan, 19. VI. 2005, J. Yamasako leg. 1 ♀ (EHUM); Xieng Khouang prov., around Phonsavan (+/- 35 km), IV.-V. 2009, local collector leg. 49 ♂ 38 ♀ (NHMB), 19 ♂ 14 ♀ (BMNH); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37'-8' N / 103°20' E, secondary forest, sitting on underside of leaves of trees and shrubs, 10.-11. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 2 ♂ 8 ♀ (NHMB); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37'-8' N / 103°20' E, secondary forest, beaten from shrubs, 10.-11. V. 2009, Z. Kraus leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 5 ♀ (NHMB); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt. near Ban Na Lam (Muang Pek), 1400 m, 19°37.41' N / 103°20.34' E, 11. V. 2009, M. Geiser leg. 1 ♀ (NHMB); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37'-8' N / 103°20' E, secondary forest, sitting on underside of leaves of trees and shrubs, 12.-15. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 10 ♂ 4 ♀ (NHMB), 1 ♂ 1 ♀ (BMNH); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37'-8' N / 103°20' E, secondary forest, sitting on underside of leaves of trees and shrubs, 12.-15. V. 2009, Z. Kraus leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 1 ♀ (NHMB); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37'-8' N / 103°20' E, secondary forest, feeding on flowers of *Rubus* sp., 12.-15. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 2 ♂ 2 ♀ (NHMB); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37'-8' N / 103°20' E, secondary forest, on flowering trees and shrubs, 12.-15. V. 2009, Z. Kraus leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 3 ♀ (NHMB); Xieng Khouang

prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37-8' N / 103°20' E, secondary forest, sitting on underside of leaves of trees and shrubs, 15.-19. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 6 ♂ 9 ♀ (NHMB), 1 ♂ 1 ♀ (BMNH); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37-8' N / 103°20' E, secondary forest, on flowering trees and shrubs, 15.-19. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 2 ♂ 1 ♀ (NHMB); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37-8' N / 103°20' E, at light, 16. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 1 ♂ (NHMB); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37-8' N / 103°20' E, secondary forest, sitting on underside of leaves of trees and shrubs, 19.-22. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 10 ♂ 4 ♀ (NHMB); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37-8' N / 103°20' E, secondary forest, on flowering trees and shrubs, 19.-22. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 4 ♂ 5 ♀ (NHMB); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37-8' N / 103°20' E, at light, 20. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 1 ♂ (NHMB); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37-8' N / 103°20' E, at light, 21. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 1 ♂ (NHMB); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37-8' N / 103°20' E, at light, 22. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 1 ♂ (NHMB); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37-8' N / 103°20' E, secondary forest, sitting on underside of leaves of trees and shrubs, 22.-24. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 12 ♂ 7 ♀ (NHMB); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37-8' N / 103°20' E, secondary forest, on flowering trees and shrubs, 22.-24. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 5 ♂ 5 ♀ (NHMB); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37-8' N / 103°20' E, at light, 23. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 1 ♀ (NHMB); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37-8' N / 103°20' E, at light, 24. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 1 ♂ (NHMB); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37-8' N / 103°20' E, secondary forest, sitting on underside of leaves of trees and shrubs, 24.-27. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 8 ♂ 2 ♀ (NHMB), 2 ♂ 2 ♀ (BMNH); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37-8' N / 103°20' E, secondary forest, on flowering trees and shrubs, 24.-27. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 7 ♂ 1 ♀ (NHMB); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37-8' N / 103°20' E, secondary forest, feeding on flowers of *Rubus* sp., 24.-27. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 1 ♂ 1 ♀ (NHMB); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37-8' N / 103°20' E, at light, 25. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 1 ♂ (NHMB); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37-8' N / 103°20' E, secondary forest, sitting on underside of leaves of trees and shrubs, 27.-30. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 6 ♂ 5 ♀ (NHMB); Xieng Khouang prov., Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37-8' N / 103°20' E, secondary forest, on flowering trees and shrubs, 27.-30. V. 2009, M. Geiser leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 8 ♂ 4 ♀ (NHMB); Xieng Khouang prov., 30 km NE Phonsavan: Ban Na Lam → Phou Sane Mt., 1300-1500 m, 19°37-38' N / 103°20' E, 10.-30. V. 2009, M. Brancucci leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 3 ♂ 1 ♀ (NHMB); Xieng Khouang prov., 30 km NE Phonsavan: Phou Sane Mt., 1400-1700 m, 19°37-38' N / 103°20-21' E, 10.-30. V. 2009, D. Hauck leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 38 ♂ 28 ♀ (NHMB); Xieng Khouang prov., 30 km NE Phonsavan: Phou Sane Mt., ~1400-1500 m,

19°37-38' N / 103°20' E, 10.-30. V. 2009, Z. Kraus leg., NHMB Basel, NMPC Prague, Laos 2009 Expedition, M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň. 29 ♂ 17 ♀ (NHMB); Xieng Khouang prov., Tad Kha near Ban Thachôk, ca. 1000 m, 13°33' N 103°24' E, 3. VI. 2010, local collector leg. 3 ♀ (BMNH); Xieng Khouang prov., Muang Khoun env., 1000-1500 m, 1. VI. 2010, Chantaseng Keomaravong leg. 7 ♂ 2 ♀ (BMNH), 1 ♂ 1 ♀ (NHMB); Xieng Khouang prov., Phu Samsun env., ca. 2000 m, 10. V. 2009, Chantaseng Keomaravong leg. 6 ♂ 5 ♀ (BMNH); Xieng Khouang prov., Phou Samsoum env., 10. V. 2009, local collector leg. 2 ♂ 2 ♀ (NHMB), 5 ♂ 7 ♀ (BMNH); "Umg. Paklay, 1963" 1 ♂ 1 ♀ (ZSMU); "Umgeb. Paksé, 1963, coll. W. Wittmer" 1 ♂ (NHMB).

VIETNAM: "Tonkin (Vitalis)" 1 ♀ (MNHP); "Tonkin, Chapa, le mai 1916, R. Vitalis de Salvaza, 1942" 1 ♀ (MNHP); "gory u Sa-Pa, 1600-2000, 4.6. 1963 g., Kabakov, iz kollektzii O. N. Kabakova." 1 ♂ (ZISP); "Tuyen Quang, mai 1942" 1 ♂ (MNHP); "Tonkin, Mont Bavi, 900 a 1000 m, VIII. 1940, P. A. de Cooman" 2 ♀ (IZAS); "Annam, Quang Tri, M. et M^{me} Poilane 1925" 1 ♂ 1 ♀ (MNHP).

Measurements ♂ : TBL 17.0 - 19.7 mm, L-h 14.5 - 17.4 mm

HL 2.0 - 2.6 mm, PL 2.2 - 2.5 mm, EL 12.2 - 15.0 mm

♀ : TBL 19.3 - 21.7 mm, L-h 16.7 - 19.1 mm

HL 2.4 - 2.9 mm, PL 2.4 - 2.9 mm, EL 14.1 - 16.2 mm

Differential diagnosis: This species is closely related to *B. oculata*. See there for differential characters.

Redescription: Habitus as in figs. 56 (♂) and 57 (♀). Head (except antennal insertions and mandibles), meso- and metathorax, discal area of ventrites 1-4 and two paired discal spots on ventrites 5-6 black with metallic blue lustre; labrum, tibiae, tarsi and apical 2/3 of femora black; last antennomere dark brownish; elytra metallic dark green, sometimes with slight blue or coppery red lustre; prothorax testaceous yellow, pronotum with two large, black, often converging, discal spots, sometimes all of pronotum except margins black; last antennomere dark brownish; base of femora, antennae, palpi, lateral margins of ventrites 1-4, as well as major parts of ventrites 5-6 yellow to orange testaceous.

Head behind eyes about 0.6 times as wide as middle part of pronotum, rostrate in front of eyes. Vertex matt, shagreened and transversely wrinkled, with very fine, greyish ground vestiture. Eyes as in *B. oculata*. Frons flattened in front of eyes, basally with transverse wrinkles, apically rather smooth, with fine, greyish vestiture and some longer, greyish setae. Clypeus convex, transversely subrectangular, shagreened and with greyish recumbent vestiture. Labrum transverse, often with medially notched apical margin, sparsely and finely punctate, with fine, transverse, wrinkly microsculpture, sparse, brownish or greyish ground vestiture and longer, brownish setae along margins.

Male antennae long, nearly reaching the middle of the elytra; finely pilose; subfiliform, slightly flattened towards apex. First segment distinctly thickened, about twice as long as wide at apex; second very short, about half as long as first; third about twice as long as first, much longer than first two together; fourth about as long as first two together; segments 5-8 intermediate in length between 3 and 4; 9 and 10 each about as long as first; last segment sexually dimorphic, extremely elongate in males, about 5 times as long as 10th, longer than 8-10 together, flattened, sometimes slightly curved, matt and with finely granulose texture (glandular tissue?), sometimes with stronger wart-like granuli along inner edge (fig. 60).

Pronotum about as long as wide, widest in middle part; hind angles bluntly rounded, margin of apical half subarcuate; lateral margins in basal half nearly straight, not distinctly sinuate; all margins bordered, basal margin thickened; middle part of disc gently elevate, convex; matt, shagreened and

coarsely rugose, much smoother around margins; disc with inconspicuous, yellowish or greyish ground vestiture, intermixed with fine, curly, blackish setae; along margins with longer setae. Basal and apical margins finely and sparsely ciliate, with relatively long, yellowish, hair-like setae.

Elytra very elongate, about 3.2-3.4 times as long as wide together in males, parallel-sided; humeral callus distinct; shining and densely granulose; vestiture sparse, consisting of very fine, greyish, recumbent, hair-like setae; with a row of long, erect, blackish setae along suture and two very loose, irregular rows of longer setae on disc, only visible in profile view. Longer setae arising from larger granuli, which are easier to see than the setae themselves. Margins finely crenulate, with a row of erect, blackish setae, shorter and finer than those on disc and along suture. Scutellum as in *B. oculata*.

Legs as in *B. oculata*.

Abdomen broad and flat; rather glossy, in some parts with slightly wrinkly texture; ground vestiture denser, longer and more conspicuous than on elytra, yellowish; intermixed with longer, blackish setae, especially along lateral and anterior margins of sternites.

Male: Last (sixth) ventrite as in fig. 148; large and strongly transverse, distinctly narrower than the fifth ventrite; of similar shape as in *B. oculata*; middle of apical margin with moderately deep emargination. Apical margin of last tergite simply arcuate, not thickened or emarginate.

Aedeagus as in figs. 89, 119; short in relation to body size, very similar to *B. oculata*, but with process of phallobase pointing directly backwards, nearly parallel to apical part of paramera. Median lobe not distinctly sinuate in middle part, apex shorter and more abruptly narrower than in *B. oculata*, with very short, rounded, knob-like tip, facing ventrally.

Sexual dimorphism: Females on average slightly larger than males, but with identical body shape and eyes. Last antennomere strongly dimorphic: In females about 1.5 -2.5 times as long as 10th antennomere (fig. 59), in males about five times as long (fig. 60). Last visible sternite and tergite simple in female, without incisions or emargination. Male without tarsal combs.

Variability: Shape of the last antennomere in males varying from straight to distinctly curved or sinuate. Dark pronotal spots sometimes rounded and separate, as in *B. oculata*, usually larger, oval and confluent, sometimes whole pronotal disc dark, with yellow margins around. Elytral colour usually dark green metallic, sometimes with coppery red hue.

Distribution: Laos, N Vietnam, S China (Yunnan).

Biology and ecology: *B. maculatithorax* can be found in abundance from late April until end of May (early monsoon season) in degraded montane forests in north-eastern Laos (fig. 151). Later in the season (June to August) only few specimens were collected, most of them females.

Adult beetles are found sitting on leaves and flowers of various understory shrubs, where they are often collected by beating (fig. 150). They were observed feeding on flowers of *Rubus sp.* and other shrubs (own observations). Although this is clearly a diurnal species, a few individuals were occasionally attracted to light traps.

Nearly all of the 500 examined specimen were found at altitudes between 1000 and 2000 m. Only very few, older specimens have apparently been collected at lower altitudes, some of them with rather imprecise label data (e.g. „Umg. Pakse“).

B. maculatithorax adults exude a yellowish liquid from their legs and abdomen when disturbed, probably a kind of autohaemorrhaging behaviour similar to Coccinellidae and Meloidae. Still, they were occasionally found to be preyed upon by a species of *Themus* (Cantharidae). Relatively fresh exuvia were found in mid-May, attached to the underside of leaves of understorey trees. Despite intensive searching, no larvae were observed at the locality in Phou Sane, suggesting that they are either cryptic, or had already all hatched by 10th May (all according to own observations).

V. Unidentified specimens

Idgia n. sp. 1 (Fig. 10)

Material examined: LAOS: "Umgeb. Vanky, 1963" 1 ♀ (ZSMU).

This species, only known from a single female, has a colour pattern similar to *I. notaticollis*, with a transverse, discal marking on the pronotum and darker, plumbeous black elytra. It is, however, much larger (14.0 mm) and has a more elongate head and elytra. This is undoubtedly a new species, but will not be described here in the absence of the male.

The locality "Vanky" corresponds to Ban Vang Khi in Hin Heup district, Vientiane province, on the road between Vientiane and Vang Vieng.

Idgia n. sp. 2 (Fig. 54)

Material examined: LAOS: Vientiane prov., Phou Khao Khouay N. P., 18°27' N / 102°49' E, V. 2005, P. Kresl leg. 1 ♀ (NMPC); Xayaboury prov., 2 km N of Xayaboury, sitting on wall of building, 19°17' N / 101°43' E, ca. 300 m, 30. VI. 2010, D. Hauck leg. 1 ♀ (NHMB). THAILAND: Chiang Mai, Mae Chaem, Thep Phanom hot springs, 380 m, 18°16'13"N / 98°23'50" E, 15. VIII. 2009, D. Potanin leg. 1 ♀ (BMNH).

The available material of this species is not sufficient to clearly assess its identity, but it is very probably an undescribed species. The dorsal surface is mostly orange testaceous and quite glossy, making it similar to *I. kubani* n. sp., it has, however, a differently shaped, broader pronotum, broader and flatter elytra, a more extended black head colouration (all of the vertex black) and darker tibiae. These characters make it unlikely to fall within the variability of the above species. *I. phongorum* n. sp. is another very similar species, but has a narrower head, a shorter last antennomere and an infusate clypeus and labrum, which this species has not.

Idgia n. sp. 3 (Fig. 55)

Material examined: LAOS: Saisombun, Mt. Phu Bia, 21. III. 2003, M. Sato leg. 1 ♀ (EHUM); Saisombun, Nam Ja River, 20. III. 2005, M. Sato leg., M. Satô Coll., Ehime Univ. No. 00650. 1 ♀ (EHUM); Saisombun, Nam Ja River, 19.-21. III. 2005, M. Sato leg., M. Satô Coll., Ehime Univ. No. 00677. 1 ♀ (EHUM); Vientiane prov., Vang Vieng, bank of Nam Song river, 280 m, at light, No. 6, 21. III. 1998, O. Merkl & G. Csorba leg. 1 ♀ (MTMB); Vientiane prov., Vang Vieng, near Chang Cave, 300 m, swept, No. 7, 22. III. 1998, O. Merkl & G. Csorba leg. 1 ♀ (MTMB); Vientiane prov., Vang Vieng, near Chang Cave, 300 m, at light, No. 11, 22. III. 1998, O. Merkl & G. Csorba leg. 1 ♀ (MTMB).

This species has some resemblance to *I. decolor* Champion, 1919, from Myanmar and Thailand, but the body size is larger. While *decolor* has a completely infusate, dark brownish abdomen, this species

only has the pygidium and last ventrite, and sometimes a diffuse median line across the abdomen, infusate. Among the species treated herein, they are very distinctive by their completely infusate, dark brownish femora.

***Idgia n. sp. 4* (Fig. 58)**

Material examined: CAMBODIA: 15 km SE Tuol Kruos, 11°11'48" N / 104° E, 20.-28. XII., M. & S. Murzin leg. 1 ♀ (NMPC); Phnom-Bokor N. Res., 550 m, 10°38'23" N / 104°05'40"E, 25. XI. – 6. XII. 1999, M. & S. Murzin leg. 1 ♀ (NMPC); Kirirom Nat. Res., 650 m, 5.-17. XII. 2007, S. Murzin leg. 3 ♀ (BMNH). VIETNAM: Gia-lai Kontum prov., 40 km N of Ankhe, Buon-loi, 28. VI. – 2. VII. 1983. 1 ♀ (SMNS); Dong Nai prov., Na-da forest, 17. X. 1990, S. Murzin leg. 1 ♀ (NHMB).

These specimens look similar to *I. perspicillata* n. sp., with a dark blackish fascia around the eyes, but with entirely yellow femora and slightly less infusate antennae. *I. kubani* n. sp. has a similar colour pattern, but more orange tinged and glossier elytra, also with more reddish brown, less infusate tibiae and antennae. *I. n. sp. 4* was only found in the southern part of Indochina, in Cambodia and South Vietnam, as opposed to the abovementioned similar species from further North. This probably represents yet another new species, but males are needed to confirm this hypothesis.

VI. Species erroneously recorded from Indochina

***Idgia marginata* Champion, 1919**

Idgia marginata Champion, 1919: 350. Gressitt, 1939: 192 (misidentification).

Type material examined: Syntype ♂ (BMNH): "♂"; "H. L. Andrewes, Nilgiri Hills"; "1980"; "Type H. T."; "Idgia marginata Ch."; "1919.26". Syntype label added. Segments 4-5 of left fore tarsus and last segment of right metatarsus missing; abdomen and genitalia mounted on a separate pin. Syntype ♂ (BMNH): "H. L. Andrewes, Nilgiri Hills"; "♂"; "Idgia marginata Ch."; "1919.26". Syntype label added. Segments 10-11 of right antenna and last segment of right metatarsus missing. Syntype ♀ (BMNH): "♀"; "H. L. Andrewes, Nilgiri Hills"; "Idgia marginata Ch."; "1919.26". Syntype label added. Right fore tarsus and segments 3-5 of left fore tarsus missing. Syntype ♀ (BMNH): "H. L. Andrewes, Nilgiri Hills"; "Idgia marginata Ch.". Syntype label added. In good condition. Syntype ♀ (BMNH): "H. L. Andrewes, Nilgiri Hills"; "♀"; "Idgia marginata Ch.". Syntype label added. In good condition. Syntype ♀ (BMNH): "♀"; "H. L. Andrewes, Nilgiri Hills"; "Idgia marginata Ch."; "1919.26". Syntype label added. Segments 2-4 of left mesotarsus missing.

Distribution: South India (Tamil Nadu).

Notes: Gressitt (1939: 192) reported this species from South Vietnam (Travinh). This record is, however, based on a misidentification of *I. suturalis*. The original specimen at SYSU was examined and represents the only record of *I. suturalis* from Indochina.

***Idgia deusta* Fairmaire, 1878**

Idgia deusta Fairmaire in Deyrolle & Fairmaire, 1878: 118. Pic, 1923a: 48 (misidentification).

Type material examined: Syntype ♀ (MNHP, coll. Pic): "Museum Paris, Kiang-Si, A. David 1875"; "473 76"; "Idgia deusta Frm (desiré)". Syntype label added. In good condition.

Distribution: China, including Taiwan.

Notes: It was possible to study the specimens, on which Pic's record from "Tonkin" was based, at MNHP. They all turned out to be misidentified *I. particularipes* or *I. lajoyei*. *I. deusta* seems to be a species restricted to China.

VII. Species excluded from *Idgia*

The following two species need to be excluded from *Idgia*, because they show some morphological peculiarities and do not share all the characters given to define the tribe Prionocerini and the genus *Idgia* by Majer (1987). A definition and revision of this group is currently in progress and will be published in a separate paper. Bibliographical and distributional details are given here only for completeness.

"*Idgia*" *ardesiaca* Pic, 1908

Idgia ardesiaca Pic, 1908c: 59.

Distribution: China (Fujian). North Vietnam (Vitalis de Salvaza, 1919: 79; Pic, 1923a: 48).

"*Idgia*" *granulata* Pic, 1920

Idgia granulata Pic, 1920b: 12.

Distribution: North Vietnam.

VIII. Further taxonomic changes

The inclusion of *Idgia suturalis* in this revision made it necessary to study a number of related or similar species, all occurring in the Sundaland region (Malaysia and Indonesia). It is beyond the scope of the present work to thoroughly revise this group of species and provide full redescriptions. However, to avoid nomenclatural confusion, some taxonomic changes, concerning the species mentioned above in the "differential diagnosis" of *I. suturalis*, are presented here:

Idgia caeruleiventris Champion, 1919

Idgia Kannegieteri Pic var.: Pic, 1914: 60 (misidentification).

Idgia caeruleiventris Champion, 1919: 348.

Idgia atricornis Pic, 1920a: 8. **n. syn.**

Type material examined: *Idgia caeruleiventris*: Syntype ♂ (BMNH): "Penang"; "Bowring. 63.47*"; "♂"; "Type H. T."; "Idgia caeruleiventris Ch. "; "Idgia caeruleiventris, Champ. Det. G. C. C.. Syntype label added. Right fore leg and right metatarsus missing.

Syntype ♂ (BMNH): "Penang"; "Bowring. 63.47*"; "♂"; "1978"; "Idgia caeruleiventris Ch. "; "Idgia caeruleiventris, Champ. Det. G. C. C.". Syntype label added. Legs and antennae strongly damaged, with parts of them glued on the triangle next to the specimen; tip of abdomen and genitalia mounted on a separate pin.

Idgia atricornis: Holotype ♀: "Sumatra, Pajacumbo"; "9"; "Idgia n. sp. ? (Bourg. vid.)"; "Idgia metallescens ♂ Fairm"; "TYPE"; "Idgia atricornis Pic". In poor condition, very mouldy and with the left middle tibia and tarsus and the whole left hind leg missing.

Distribution: Peninsular Malaysia, Indonesia (Sumatra).

Notes: A large part of the non-type material identified by M. Pic as "*Idgia kannegieteri*" (synonymised with *I. suturalis* above), actually belongs here, including the specimens at MCGD, which he reported as "*Idgia Kannegieteri* Pic var." in one of his publications (Pic 1914). Kirsch (1875: 38), in the original description of *I. suturalis*, also noted a specimen "with unicolorously black elytra and darker antennae", which almost certainly belongs to *I. caeruleiventris*.

M. Pic later described *Idgia atricornis*, distinguishing it from *I. kannegieteri* by "coarser elytral punctuation and darker antennae". The holotype (and only known specimen) obviously belongs to *I. caeruleiventris*. It is here treated as a junior subjective synonym.

A senior synonym might be *I. sumatrensis* Pic, 1906, only known from the female holotype, which differs in having an infusate pronotal disc. Additional material of this taxon is needed to verify its status as a synonym or valid species.

I. caeruleiventris is among the most commonly collected prionocerids in the Malay Peninsula, especially in montane areas. Well over 200 specimens from many collections have been examined. Surprisingly few specimens (21 in total) were found in Sumatra.

***Idgia javana* Champion, 1919 stat. rev.**

Idgia javana Champion, 1919: 350.

Type material examined: Holotype ♂ (BMNH): "Java"; "Bowring. 63.47*"; "♂"; "1989"; "Type H. T."; „Idgia javana Ch.". Holotype label added. Both antennae and right maxillary palpus missing; abdomen and genitalia mounted on a separate pin.

Distribution: Indonesia (Java).

Notes: This species was treated as a variety of *I. kannegieteri* by Pic (1920a). Examination of type material and several additional specimens revealed that they are, in fact, separate, but closely related species (see differential diagnosis of *I. suturalis*, above and Table 1).

The following taxon from western Indochina and Malaysia, mentioned in the differential diagnosis of *I. kabakovi* n. sp., needs to be upgraded to species rank:

***Idgia distinctipes* Pic, 1914 stat. nov.**

Idgia inapicalis var. *distinctipes* Pic, 1914: 60.

Type material examined: Holotype ♂ (MCGD): "Carin Cheba, 900-1100m, L. Fea V. XII-88"; "TYPUS"; "inapicalis Pic var. distinctipes Pic"; "Idgia inapicalis Pic var."; "v. distinctipes mihi"; "HOLOTYPUS, Idgia inapicalis var. distinctipes Pic, 1913". Holotype label added.

Other material examined: THAILAND: Doi Inthanon, Bang Khun Klang, 18°32' N / 98°32' E, 1200 m, Lichtfalle, 5.-12. XII. 1989, Chantaramongkol & Malicky leg. 1 ♂ 1 ♀ (NHMB); Doi Inthanon, Bang Khun Klang, 98°32' E / 18°32' N, 1200 m, 16.-23. I. 1990, Malicky & Chantaramongkol leg. 1 ♀ (NHMW); Kanchanaburi pref., Khao Laem Nat. Park, 26. II. 1992, Y. Okushima leg. 1 ♀ (KMNH).

MALAYSIA: PAHANG: Cameron Highlands, Tanah Rata, 1500-1700 m, 1.-13. II. 2003, P. Pacholátko leg. 1 ♀ (NHMB).

Distribution: Myanmar, Thailand, Malaysia

Notes: This taxon was described as a „variety" of *Idgia inapicalis* Pic, 1910. According to the evidence given in the original description (Pic, 1914), the name „*distinctipes*" has to be treated as an available subspecific name, following the recommendations given by Lingafelter & Nearn (2013). However, this „form" differs clearly from *I. inapicalis* (described from Sumatra; type material examined at MNHP) by a number of characters, including larger size, different leg colouration, last sternite simply emarginate in males and clearly different male genitalia. *I. inapicalis* is a member of the *I. pallidicolor*-group (see above), having a bi-incised last ventrite in males. *I. distinctipes* lacks the synapomorphy of the *I. pallidicolor*-group and is clearly a different species, not closely related to *I. inapicalis*. It is here newly recorded for Thailand and Peninsular Malaysia.

IX. Key to the species of *Idgia* and *Bigdia* n. gen. occurring in Laos, Vietnam and Cambodia

1. Elytra either black (rarely with pale sutural and lateral margins), or greenish/bluishmetallic 2
 - Elytra predominantly yellow or orange testaceous, usually with black apical macula. 10
2. Males without sclerotised combs on fore tarsi. Large-sized species (16-22 mm) with black markings on the pronotal disc (rarely absent in *oculata*). *Bigdia* n. gen 3
 - Males with well-developed sclerotised combs on fore tarsi. Either smaller or with unicolorous pronotum 4
3. Abdomen entirely red. Elytra metallic blue. 11th antennomere in males about 2-3 times as long as the 10th. *Bigdia oculata* (Redtenbacher, 1868)
 - Ventrites 1-4 black with testaceous sides, 5-6 with black spots (fig. 148). Elytra metallic dark green, sometimes with coppery reddish shine. 11th antennomere in males over 5 times as long as the 10th. *Bigdia maculatithorax* (Pic, 1919)
4. Pronotum with large, black discal macula. Abdomen entirely metallic green or blue. 5
 - Pronotum entirely yellow, without dark discal macula. Tip of abdomen yellow, reddish or black. 6
5. Smaller (9-11 mm). Pronotum about as long as wide. Elytra metallic dark green to blackish. *I. notaticollis* Pic, 1943
 - Larger (14 mm). Pronotum longer than wide. Elytra plumbeous black. *I. n. sp.* 1
6. Abdomen entirely blackish. Elytra non-metallic. Either entirely dark brown to black, or with lateral and sutural margins pale testaceous. *I. suturalis* (Kirsch, 1875)
 - Last abdominal segment yellow or reddish. Elytra metallic green or blue. 7
7. Large species 13.5-17.5 mm. Elytra broad, dark blue or slightly greenish. Last two abdominal segments yellow. *I. amplipennis* Pic, 1908
 - Smaller species, up to 12 mm. Elytra relatively narrower. Second last sternite dark-coloured, only the last one yellow. 8
8. Antennae orange testaceous, not infusate. Pronotum about as long as wide. Body size usually larger: 9.5-12.5 mm. *I. tonkinea* Pic, 1908
 - Antennae at least partly infusate. Pronotum transverse. Body size smaller on average: 6.5-11.5 mm. 9
9. Elytra dark green. Body size 8-9.5 mm in male, 10-11.5 mm in female. *I. flavithorax* Pic, 1927

- Elytra bright metallic blue. Body size 6.5-7.5 mm in male, 7.5-8.5 mm in female.
..... *I. laticollis* n. sp.
10. Elytra entirely testaceous, without apical spot. 11
- Elytral apex with black macula. 12
11. Apical margin of last ventrite in males with two sharp incisions (fig. 146). Smaller species (8-11 mm, males only up to 9 mm) with orange yellow colour tone. *I. karelmajeri* n. sp.
- Apical margin of last ventrite in males with U-shaped emargination (fig. 137). Larger species (9.9 mm in male) with pale yellow colour tone. *I. kabakovi* n. sp.
12. Setae on elytral disc all yellowish, including longer setae arranged in rows; these do not form a contrast to the ground vestiture and are hard to spot in some species. 13
- Elytral disc, apart from the ground vestiture, with contrasting rows of longer, blackish setae. 19
13. Head entirely black, excluding fore part of clypeus or labrum. 14
- Head entirely yellowish testaceous, or with dark markings around the eyes, vertex never entirely black, excluding fore part of clypeus or labrum. 17
14. Femora with a narrow, black stripe along their outer edge, inner part always entirely testaceous. 15
- Femora with triangular black macula at knees, reaching also the inner edge; rarely with reduced macula, which is then limited to the apical area and not prolonged into a stripe. 16
15. Male: Apical margin of last tergite emarginate in middle, the laterally thickened into two knobs (fig. 131). *I. brancuccii* n. sp.
- Male: Apical margin of last tergite simple, not emarginate and not thickened (fig. 132).
..... *I. brevitarsis* n. sp.
16. Smaller species, 6-9 mm in males, 7.5-11 mm in females. Black colouration of femora restricted to apical $\frac{1}{4}$, rarely with entirely yellowish femora. *I. varicornis* Champion, 1919
- Larger species, 10.5-11.5 mm in males, 11-13 mm in females. Black colouration of femora more extensive, extending beyond the apical $\frac{1}{4}$ *I. particularipes* Pic, 1920
17. Tibiae entirely pale yellow, testaceous. Male: Last ventrite with simple emargination (fig. 134).
..... *I. haucki* n. sp.
- Tibiae infusate. Male: Last ventrite with two deep incisions (figs. 144, 145). 18
18. Larger and very elongate species, 11.5-12 mm. Male: Aedeagus extremely large (figs. 85, 113).
..... *I. coomani* Pic, 1931

- Smaller and less elongate species, 7-9 mm. Male: Aedeagus much shorter (figs. 87, 117).
 *I. pallidicolor* Pic, 1906
19. Vertex of head never entirely black, testaceous or black with testaceous basal part.
 20
- Vertex of head entirely black. 25
20. Femora entirely yellowish. 21
- Femora with black markings. 22
21. Elytra with orange tinge. Tibiae and antennae very faintly infusate, reddish brown. Species from
 North Laos and Yunnan (Xishuangbanna). *I. kubani* n. sp.
- Elytra pale testaceous, without orange tinge. Tibiae and antennae more strongly infusate, dark
 brown. Species from Cambodia and South Vietnam *I. n. sp.* 4
22. Apical macula covering 1/10 or more of elytral length. Basic colour of body orange testaceous.
 23
- Apical macula covering less than 1/10 of elytral length. Basic colour of body pale yellowish or
 brownish testaceous. 24
23. Smaller species, 8-9 mm in males, 8.5-11 mm in females. Male with modified, enlarged, claw-like
 metatibial spurs. *I. dubia* (Gyllenhal, 1808)
- Larger species, 10.5-12.5 mm in males, 11.5-13.5 mm in females. Male with simple metatibial spurs.
 *I. indosinica* n. sp.
24. Last antennomere less than 1.5 times as long as 10th. Aedeagus as in figs. 75, 105. *I. difficilis* n. sp.
- Last antennomere at least 1.5 times as long as 10th. Aedeagus as in figs. 83, 114.
 *I. perspicillata* n. sp.
25. Femora entirely testaceous. 26
- Femora partially black or infusate. 29
26. Tibiae infusate. 27
- Tibiae testaceous. 28
27. Clypeus and labrum infusate. Last antennomere shorter than the two preceding ones (9 and 10)
 together. *I. phongorum* n. sp.
- Clypeus and labrum orange testaceous. Last antennomere shorter than the two preceding ones (9 and
 10) together. *I. n. sp.* 2

28. Apical black macula covering about $\frac{1}{4}$ of elytral length. Head extremely elongate, about 1.3 times as long as pronotum..... *I. elongaticeps* Pic, 1923
- Apical black macula covering $\frac{1}{10}$ or less of elytral length. Head much shorter, about as long as pronotum. *I. setifrons* (Kirsch, 1875) (pale-legged form)
29. Frons largely reddish testaceous. *I. maculifrons* n. sp.
- Frons entirely black. 30
30. Femora entirely black. *I.* n. sp. 3
- Femora bicolorous black and testaceous. 31
31. Femora with longitudinal black stripe, running along the outer edge. Inner edge of each femur testaceous. 32
- Femora without longitudinal black stripe. Black colouration either restricted to apical part, or with more widely darkened, transverse black patch, which includes also the inner edge. 33
32. Pronotum with infusate discal markings. Male: Femora and tibiae simple. *I. hmong* n. sp.
- Pronotum entirely testaceous. Male: Femora slightly thickened. Tibiae widened in apical $\frac{2}{3}$, with sharp ridge along inner edge. *I. bannalama* n. sp.
33. Apical $\frac{1}{3}$ (or more) of each femur black. *I. mekongensis* n. sp.
- Less than $\frac{1}{3}$ of each femur black. 34
34. Species from Sundaland and the coastal South Vietnam. Male: Apical margin of last ventrite with very flat emargination (fig. 128). Median lobe of aedeagus strongly curved throughout its length (fig. 70). *I. setifrons* (Kirsch, 1875) (dark-legged form)
- Species from northern Vietnam and adjacent areas of Laos and China. Male: Apical margin of last ventrite with much clearer, rounded emargination (figs. 126, 143). Median lobe of aedeagus with nearly straight apical part. 35
35. Male: Femora slightly thickened. Lower edge of parameres strongly emarginate (fig. 98). Median lobe of aedeagus as in fig. 68. *I. lajoyei* Pic, 1920
- Male: Femora not thickened. Lower edge of parameres not clearly emarginate (fig. 116). Median lobe of aedeagus as in fig. 86. *I. vietnamensis* n. sp.

Discussion

Taxonomy and phylogeny

This study adds an additional 16 species to the otherwise poorly known fauna of eastern Indochina, while simultaneously synonymising four species and two subspecific taxa. Along with the new distributional records, this increases the number of taxa dramatically, by over 50%. The generic taxonomy within Prionoceridae is far from being clear. Despite the description of *Bigdia*, for a morphologically very distinct group of Prionoceridae, „*Idgia*“ is still left as a large, very heterogeneous taxon. A phylogeny based on molecular data (Geiser & al., unpublished) supports the monophyly of both *Prionocerus* and *Bigdia*, but not of *Idgia*, in its current constitution.

Within *Idgia*, a number of morphological characters show a large diversity, which may eventually provide data for the establishment of additional „species groups“, or genus-group taxa. However, this requires further in-depth morphological studies, which must be carried out at a World-wide scale, not just in regional revision. Due to the relative scarcity of morphological character complexes within the so-called „malacoderm“ beetles, molecular data can be expected to become a major source for phylogenetic data.

Morphological character complexes of high significance within Prionoceridae include the male genitalia, the sexually dimorphic terminal ventrites and the last tergite of the abdomen, the shape of the head and the relative size of the eyes and the last antennomere. The coxital styli of the ovipositor in females proved to be useful to define the genus *Bigdia*, while the rest of the ovipositor shows little variation among prionocerids and other members of the melyrid lineage (Majer, 1987). The endophallus and the claws, otherwise good genus-level characters complexes, show clear differences between the subfamilies Lobonychinae (*Lobonyx*) and Prionocerinae (*Idgia* and *Prionocerus*), but only little variation within *Idgia* (Majer, 1987; Constantin, 2009). Another important character complex are the male tarsal combs, absent in *Bigdia*, variable within *Lobonyx* (Bahillo de la Puebla & Lopez-Colon, 2003; Constantin, 2009), but rather constant among the species of *Idgia* and *Prionocerus*. Among the species of the eastern Indochinese fauna, a clearly-defined and probably monophyletic clade of pale-coloured species was found and defined as „*Idgia pallidicolor* group“. The remaining pale-coloured *Idgia* look superficially similar, but show a great deal of variation in their terminalia, suggesting that they may be further subdivided when more data become available. The metallic-coloured *Idgia* treated here are particularly diverse in their head, pronotum and aedeagus shape and none of them seems to be a close relative of one of the pale-coloured ones. Among them, *I. amplipennis* stands out by its large size and broad habitus. By its head shape, parameres and last ventrite, it shows similarities with species of *Prionocerus*. Among the closer relatives of *I. amplipennis* seem to be several montane species from China and the Himalayas: *I. hoffmanni* Gressitt, 1939, *I. grandis* Pic, 1933, *I. major* Pic, 1908 and *I. viridescens* Gorham, 1895. *I. flavithorax* and *I. laticollis* are probably sister species, sharing a very unusual, transversely suboval pronotum shape, relatively small eyes and similarities in their male genitalia. The closest relatives of *I. tonkinea* are probably *I. flavicollis* Redtenbacher, 1868 (Hong Kong) and *I. foveifrons* Fairmaire, 1899 (Taiwan). The only evidently close relative of *I. notaticollis* was found to be an undescribed species from Hainan.

Patterns of prionocerid biodiversity

The present study more than doubles the number of species known from eastern Indochina, from 14 to 31. This does not yet include *I. ardesiaca* and *I. granulata*, here excluded from *Idgia*, which will be treated in a separate paper, and the two *Prionocerus* species reported from the same area (Geiser,

2010a). A total of 35 Prionoceridae species are now known from eastern Indochina, excluding Thailand, Myanmar, Hainan Island and the southern tip of Yunnan (Xishuangbanna).

An additional 6 *Idgia* and 1 *Bigdia* species are currently recorded from Myanmar: *I. distinctipes*, *I. atriceps* Champion, 1919, *I. decolor* Champion, 1919, *I. dasytoides* Champion, 1919, *I. gorhami* Pic, 1911, *I. quadrimaculata* Pic, 1914 and *Bigdia viridivittata* (Champion, 1919) (Champion, 1919; Pic, 1926). Two further *Prionocerus* were recorded from Thailand by Geiser, 2010a: *P. opacipennis* (Pic, 1920) and *P. paiensis* Geiser, 2010. One additional species, *I. costulata*, was described from Hainan (Pic, 1941). The number of recorded prionocerid species from the Indochinese Peninsula therefore stands at 45.

To put this number into perspective, it can be compared to other biogeographic subregions (after Wallace, 1876), which, for the Oriental Region, largely coincide with the Biodiversity hotspots defined by Myers & al., 2000. Other areas with exceptionally rich prionocerid faunas are the Sundaland subregion / Biodiversity hotspot and the Ceylonese subregion or „Western Ghats and Sri Lanka Biodiversity Hotspot". Sundaland currently has 43 recorded prionocerid species (Pic, 1926; Pic, 1941; Geiser, 2010a), South India and Sri Lanka stands at 33 species (Pic, 1926; Pic, 1941; Pic, 1942b; Pic, 1943b; Geiser, 2009). The whole Afrotropical Region, including the South of the Arabian Peninsula, has only 23 recorded species (Pic, 1926; Pic, 1934; Wittmer, 1980; Geiser, 2010a).

All these data are, of course, biased by the lack of taxonomic revisions. Additional data was obtained from several 1000s of examined prionocerid specimens from other areas, which will not be published at this point. Preliminary taxonomic examinations (M. Geiser, unpublished data) suggest that the number of species in South India and Sri Lanka will have only a slight increase, whereas the number of species in Sundaland can be expected to be much higher than currently known. Similarly, the parts of the Indochinese Subregion („Indo-Burma Hotspot") not treated herein (Thailand, Myanmar, Hainan Is. and Xishuangbanna) have an additional 13 species at the very least. Also to consider are the four probably new species mentioned in this paper, which were not described because of insufficient material. Taking all these data into account, the Indo-Burma and Sundaland biodiversity hotspots can be estimated to host an approximately equal number of prionocerid species, both being far richer than any other comparable area.

Biogeographic affiliations

Due to the poor understanding of prionocerid phylogeny, as well as the lack of faunistic data from many places, only few hypotheses on biogeographic affiliations seem to be sufficiently supported to be mentioned here:

- *I. pallidicolor* is widespread in Indochina, as well as in the Sundaland subregion.
- *I. suturalis* and *I. setifrons* are both elements of coastal lowland forest, found mainly in the Sundaland subregion, but extending into coastal South Vietnam.
- *I. amplipennis* is a montane species, widespread in Central and South China, only reaching Indochina in the Hoang Lieng Son mountains of Vietnam, close to the Chinese border.
- *I. tonkinea*, found mainly in lowland parts of North Vietnam, has its putative relatives in subtropical parts of South China and Taiwan.
- *B. oculata* and *I. dubia* are both widespread in subtropical parts of South China, including Hainan, reaching further into the North of the Indochinese Peninsula.
- *I. particularipes* and *I. varicornis* are found all across the Indochinese subregion, from Meghalaya in NE-India to N-Vietnam and from southern Yunnan and Guangxi in China to the Isthmus of Kra in Thailand, but not any further. *I. indosinica* and *I. perspicillata* are widespread as well, but with fewer available locality data, both not known from Myanmar and NE-India.

- Several species are apparently endemic to the montane forests of the northern Annamite Range, between Xishuangbanna in China and Khammouan in Laos. This includes *I. brancuccii* (known from several localities) and *I. bannalama*, *I. brevitarsis*, *I. elongaticeps*, *I. hmong*, *I. phongorum*, known only from a single locality.
- *I. flavithorax* and *I. notatithorax* have been found in the northern Annamites, as well as in the Vietnamese Hoang Lien Son mountains, near Sa Pa.
- Two species, *I. haucki* and *I. maculifrons*, seem to be restricted to the South of the Annamite Range, between the Bolaven Plateau in Laos and the Dalat (Langbian) Plateau in Vietnam.
- *B. maculatithorax* is, essentially, a montane species of the Annamite Range and has been found from Xishuangbanna in China south to Attapeu in Laos. It was also collected in the Hoang Lien Son mountains in Vietnam.
- Two species seem to be typical lowland elements of the Mekong valley and surrounding areas, including the Khorat Plateau in Thailand. These are *I. karelmajeri*, reaching North until Xishuangbanna in Yunnan and *I. mekongensis*, not known from further North than Vientiane in Laos. *I. difficilis* may fall within this category, but the data are too sparse to include it.
- Two species, *I. vietnamensis* and *I. kabakovi*, were found only in low-lying areas of North Vietnam
- *I. laticollis*, *I. coomani*, *I. kubani* and *I. lajoyei* are not easily categorised, based on the available data.

Even though all available material, including from outside Indochina, was considered in the testing of the abovementioned hypotheses, it cannot be excluded that some of them will have to be changed, when specimens from more localities become available.

In summary, of the 31 species treated, the vast majority (25) seem to be endemic to Indochina, or to the Indo-Burma hotspot, as defined by Myers & al. 2000. None of the species was found to extend West across the Brahmaputra River. Although the southern slopes of the Himalayas, West of the Brahmaputra, were also considered part of the Indochinese subregion by Wallace, 1876, this does not seem to be the case in Prionoceridae. In fact, the Brahmaputra can be considered as an effective faunal barrier for the typical Indochinese species.

Of the three species shared with Sundaland, all are essentially lowland or coastal forest inhabitants. The only species shared with the mountains of Central China (South-Central China hotspot after Myers & al., 2000) occurs in the Hoang Lien Son mountains.

Two Indochinese species extend slightly further into lowland South-East China, to Fujian. These areas, poorly sampled for Prionoceridae, were also considered part of the Indochinese subregion by Wallace, 1876, but not all part of the Indo-Burma hotspot by Myers & al., 2000. It seems likely that more species of the Indochinese fauna will eventually be found in the southern to south-eastern parts of China, as these areas receive better sampling. Unfortunately, most of the original forest habitats in these areas have been destroyed.

Life history and ecology of Prionoceridae

In terms of life history traits, there is a clear distinction between nocturnal and diurnal species within Prionoceridae. However, neither of these groups is probably a monophyletic clade. Diurnal species have been observed feeding on flowers of blossoming trees and shrubs during the day, but are rarely found in light traps. Nocturnal species, on the contrary, have never been observed feeding. They can be found during the day, sitting still on the underside of leaves of forest understorey shrubs and trees, where they are occasionally collected by beating. Several of them have been collected commonly or exclusively at lights. Morphologically, nocturnal species are characterised by pale, usually yellowish testaceous body colour, with or without an apical elytral spot. They also have extremely large eyes,

which are often only narrowly separated in males. Diurnal species tend to have smaller eyes (except *Prionocerus* Perty, 1831) and bright metallic colours. Usually the elytra are greenish or bluish. Within the fauna of eastern Indochina, the following species can be classified as diurnal: *I. amplipennis*, *I. flavithorax*, *I. laticollis*, *I. notatithorax*, *I. tonkinea*, both species of *Bigdia*, the two species excluded here from *Idgia* (*ardesiaca* and *granulata*) and both species of *Prionocerus* (see Geiser, 2010a).

Nocturnal species include *I. bannalama*, *I. brancuccii*, *I. brevitarsis*, *I. difficilis*, *I. dubia*, *I. elongaticeps*, *I. haucki*, *I. hmong*, *I. indosinica*, *I. kabakovi*, *I. kubani*, *I. lajoyei*, *I. maculifrons*, *I. mekongensis*, *I. particularipes*, *I. perspicillata*, *I. phongorum*, *I. setifrons*, *I. varicornis*, *I. vietnamensis* and the whole *I. pallidicolor* group.

Another probably nocturnal species is *I. suturalis*, having a largely infuscate, darker body colour, but also very large eyes. For some of the species listed above (*amplipennis*, *laticollis*, *brevitarsis*, *elongaticeps*, *hmong*, *kabakovi*, *kubani*, *maculifrons*) the collecting circumstances are unknown, so they were classified according to their morphology.

Ecologically, all Indochinese *Idgia* are typical forest or woodland insects, in contrast to the two common *Prionocerus* (*bicolor* and *coeruleipennis*), which are usually found in villages and agricultural lands (Geiser, 2010a). Several of the more commonly collected species seem to tolerate strongly degraded forests and secondary woodlands (e.g. *Bigdia maculatithorax*, *B. oculata*, *I. particularipes*, *I. varicornis*), or even city parks with trees (*I. dubia*). A larger number of species, however, has only been found in or near relatively undisturbed old-growth or primary forests, and are often only known from a few specimens (e.g. *I. brevitarsis*, *I. flavithorax*, *I. laticollis*, *I. phongorum*). It has to be feared that several of these species, especially those with limited distributional ranges, are in danger of extinction. Two species, *I. elongaticeps* and *I. n. sp. 1*, have not been collected within the past 50 years and were initially collected from areas that are now largely deforested. A third one, *I. suturalis*, has not been collected in Indochina since 1932, but was recently found in Malaysia and Indonesia.

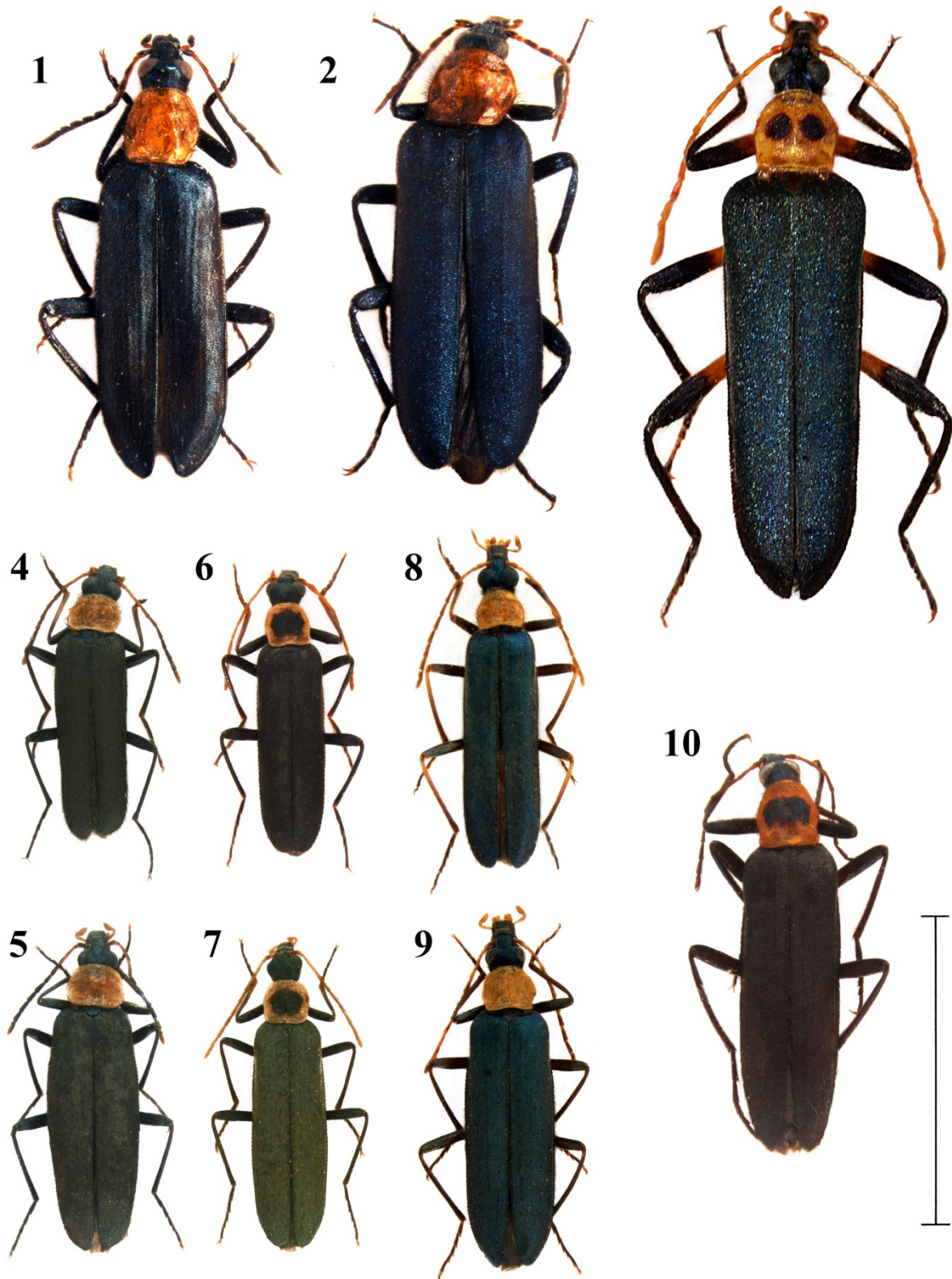
Crucial to the understanding of prionocerid ecology and conservation would be a better knowledge of their larvae and larval habitat. Unfortunately, the data for Indochina (and worldwide) are extremely scarce. A total of 8 prionocerid larvae were found during NHMB fieldwork in Laos, 6 in Nam Kading National Park, Bolikhamxay, 1 in Nam Kan NPA, Bokeo and one in Nakai-Nam-Theun NPA, Khammouan. The Bolikhamxay larvae were all quite small (probably early instar) and found under scaly bark of live dipterocarp trees in July. The Bokeo and Khammouan larvae, which are much larger, were found by beating foliage of forest understorey shrubs in rainy weather, during the monsoon season. Both the Bokeo and Khammouan larvae were kept alive for 1-2 weeks, by feeding them the winged adults of a small termite species. As currently known, all prionocerid larvae are predators, or found feeding on recently dead insect carcasses (Williams, 1924). Larvae of *Idgia* species from outside the study area were found under bark of trees in India (Gardner, 1929) and Thailand (Artem Zaitsev, pers.comm.). Another larva was found at night, actively running on bark of a Fagaceae tree in China (Tibet), observed by Wenxuan Bi (pers. comm. Ganyan Yang).

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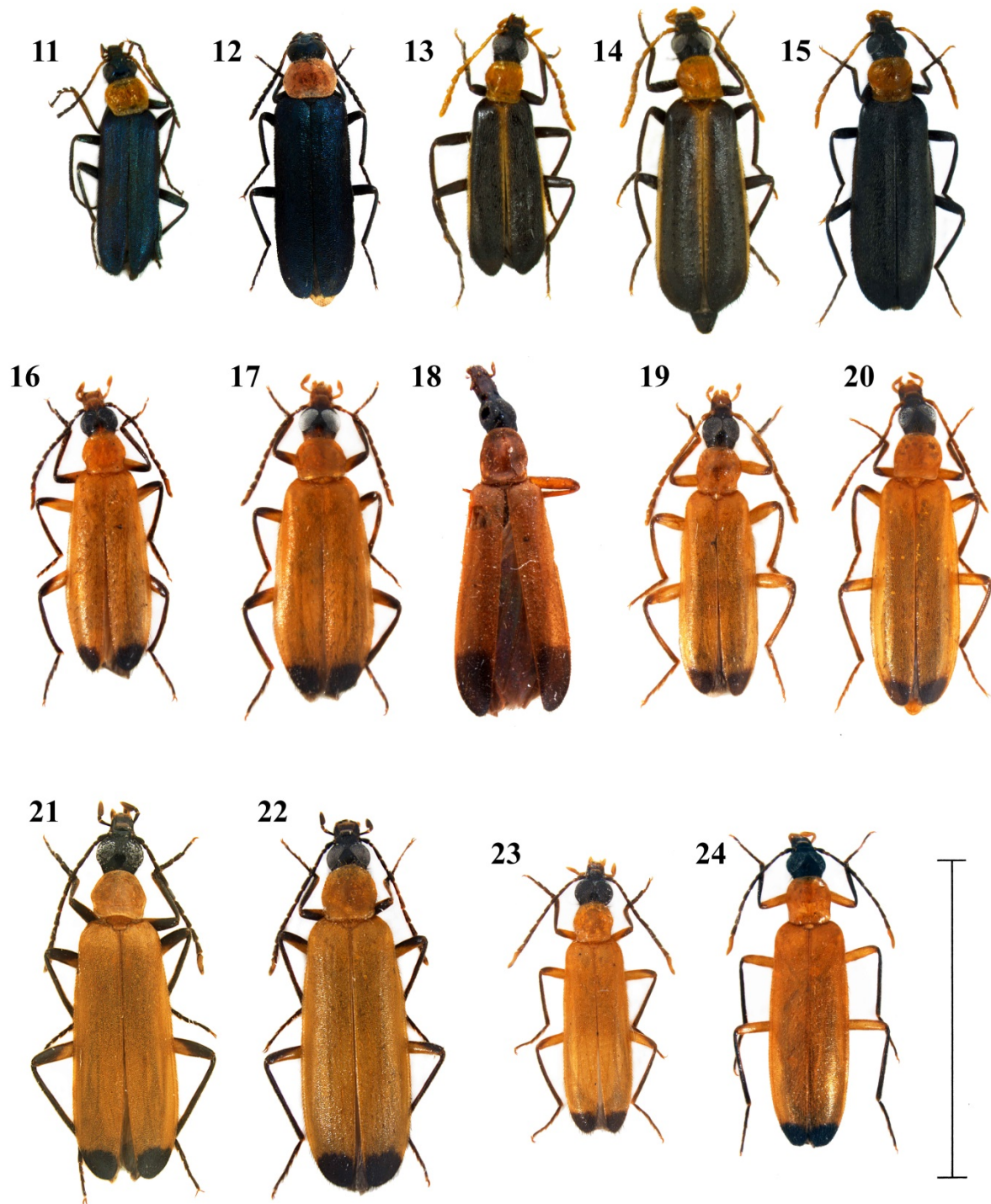
and Dr. Mark Volkovitsh (ZISP). I would also like to thank Hans Mejlou (UUEM) for sending the type of *Idgia dubia*; as well as the following people for sending me further interesting material for study: Shepherd Myers (BIMH), Hans Hebauer (CHH), Dr. Robert Constantin (CRC), Dr. Hiroyuki Yoshitomi (EHUM), Dr. Yuichi Okushima (KMNH), Bernd Jäger and Dr. Johannes Frisch (MNHB), Dr. Ottó Merkl (MTMB), Dr. Harald Schillhammer and Isidor Plonski (NHMW), Andreas Kopetz and Matthias Hartmann (NKME), Dr. Lothar Zerche (SDEI), Dr. Alexey Solodovnikov (ZMUC) and Dr. Michael Balke (ZSMU). This work is part of a PhD thesis at the University of Basel, Department of Environmental Sciences, Section Biogeography. It received financial support from the Fritz Sarasin fund of the Freiwillige Akademische Gesellschaft (FAG), Basel, which is here gratefully acknowledged. This research also received support from the SYNTHESYS Project <http://www.synthesys.info/> which is financed by European Community Research Infrastructure Action under the FP7 Integrating Activities Programme.

(plate 1, figs. 1-10)



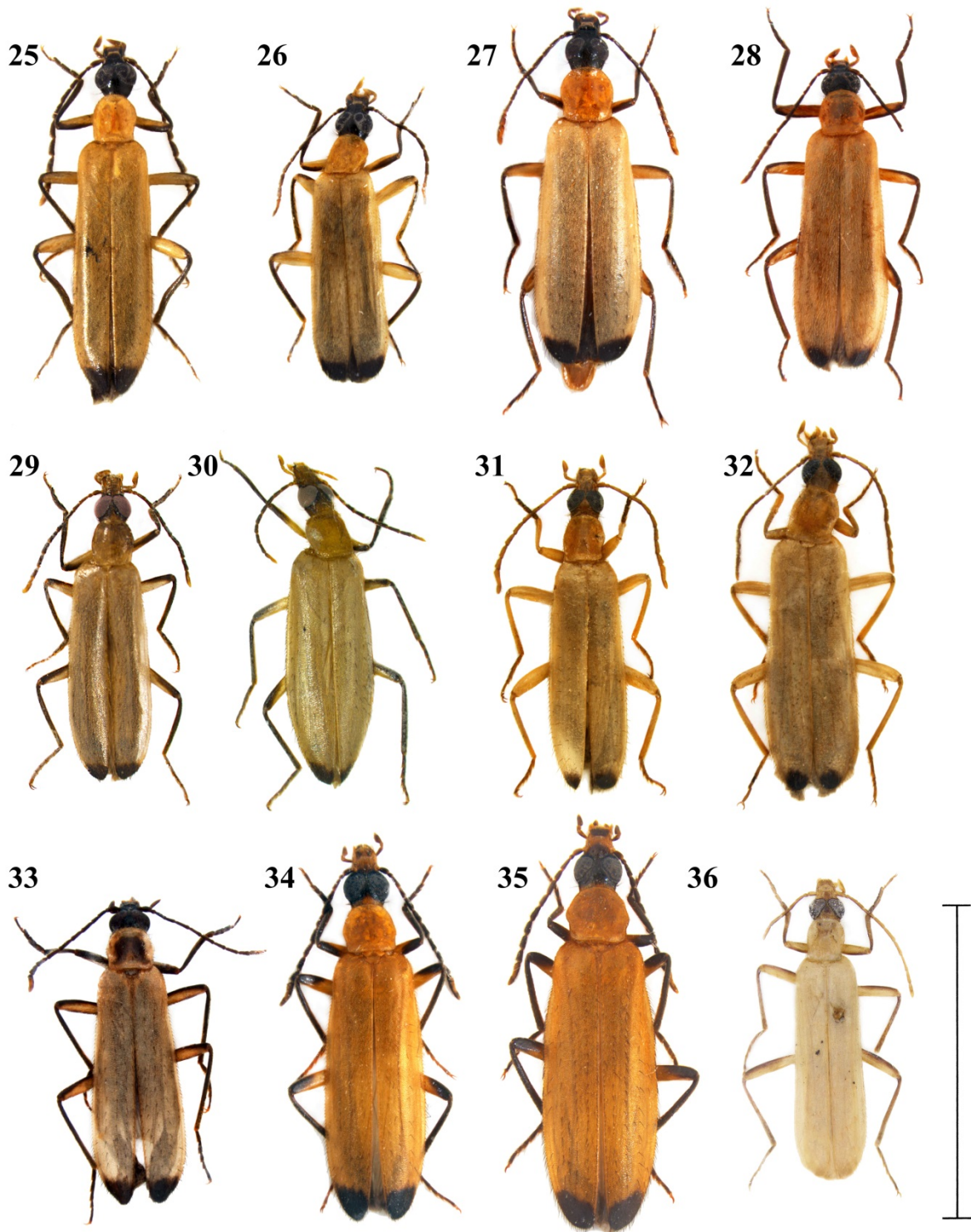
Figs. 1-10: Dorsal habitus. 1-2: *Idgia amplipennis* Pic, 1908 (China), ♂ (1) and ♀ (2); 3: *Bigdia oculata* (Redtenbacher, 1868) (Hong Kong), ♀; 4-5: *Idgia flavithorax* Pic, 1927 (Laos), ♂ (4) and ♀ (5); 6-7: *Idgia notaticollis* Pic, 1943 (Laos), ♂ (6) and ♀ (7); 8-9: *Idgia tonkinea* Pic, 1908 (Vietnam), ♂ (8) and ♀ (9); 10: *Idgia* n. sp.1 (Laos), ♀. The scale represents 10 mm.

(plate 2, figs. 11-24)



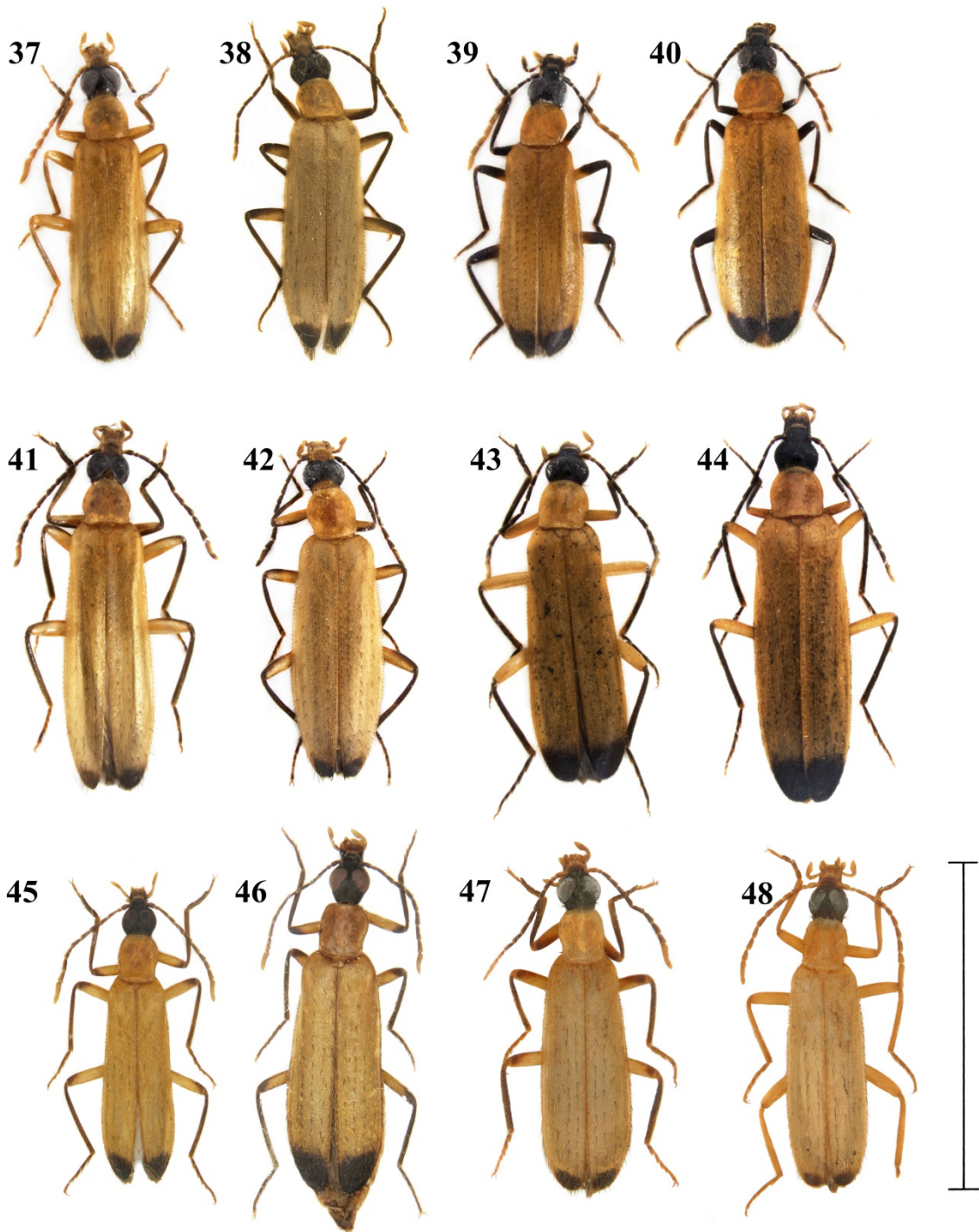
Figs. 11-24: Dorsal habitus. 11-12: *Idgia laticollis* n. sp., holotype ♂ from Vietnam (1) and ♀ from Laos (2); 13-15: *Idgia suturalis* (Kirsch, 1875), ♂ from Indonesia (13), ♀ from Indonesia (14), ♀ of dark form („*kannegieteri*“) from Malaysia ; 16-17: *Idgia dubia* (Gyllenhal, 1808) (Vietnam), ♂ (16) and ♀ (17); 18: *Idgia elongaticeps* Pic, 1923 (Laos), holotype ♂ ; 19-20: *Idgia lajoyei* Pic, 1920 (Vietnam), ♂ (19) and ♀ (20); 21-22: *Idgia particularipes* Pic, 1920 (Vietnam), ♂ (21) and ♀ (22); 23-24: *Idgia varicornis* Champion, 1919 (Laos), ♂ (23) and ♀ (24). The scale represents 10 mm.

(plate 3, figs. 25-36)



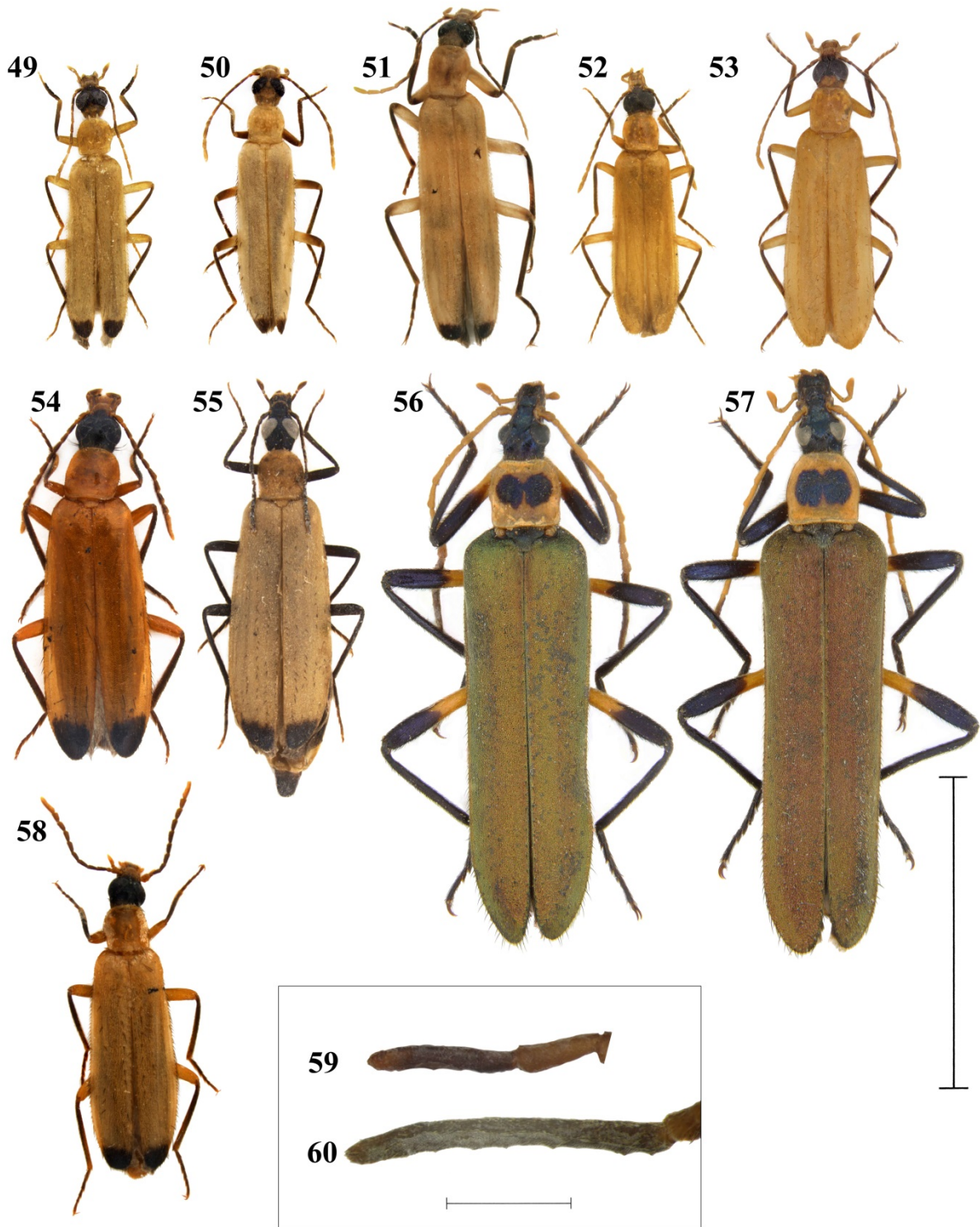
Figs. 25-36: Dorsal habitus. 25: *Idgia bannalama* n. sp. (Laos), holotype ♂; 26-27: *Idgia brancuccii* n. sp. (Laos), holotype ♂ (26), paratype ♀ (27); 28: *Idgia brevitarsis* n. sp. (Laos), holotype ♂; 29-30: *Idgia difficilis* n. sp., holotype ♂ from China (29), paratype ♀ from Laos (30); 31-32: *Idgia haucki* n. sp. (Laos), holotype ♂ (31), paratype ♀ (32); 33: *Idgia hmong* n. sp. (Laos), paratype ♂; 34-35: *Idgia indosinica* n. sp. (Laos), holotype ♂ (34), paratype ♀ (35); 36: *Idgia kabakovi* n. sp. (Vietnam), holotype ♂. The scale represents 10 mm.

(plate 4, figs. 37-48)



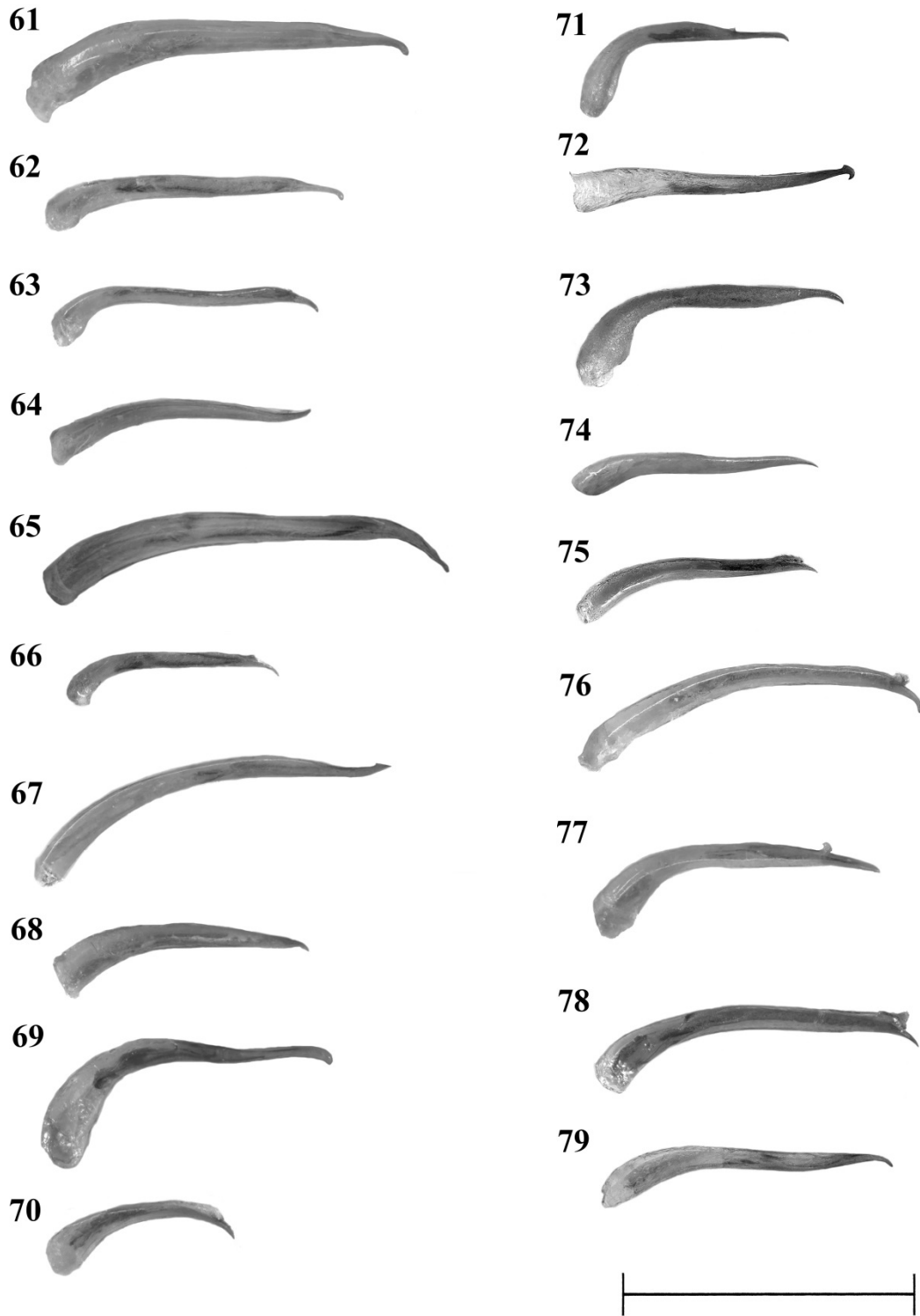
Figs. 37-48: Dorsal habitus. 37: *Idgia kubani* n. sp. (Laos), holotype ♂; 38: *Idgia maculifrons* n. sp. (Vietnam), holotype ♂; 39-40: *Idgia mekongensis* n. sp. (Laos), holotype ♂ (39), paratype ♀ (40); 41-42: *Idgia perspicillata* n. sp. (Laos), holotype ♂ (41), paratype ♀ (42); 43-44: *Idgia phongorum* n. sp. (Laos), holotype ♂ (43), paratype ♀ (44); 45-46: *Idgia vietnamensis* n. sp. (Vietnam), paratype ♂ (45), paratype ♀ (46); 47-48: *Idgia setifrons* (Kirsch, 1875), ♂ of dark-legged form from Borneo (47), ♀ of pale-legged form from Indonesia (Sumatra) (48). The scale represents 10 mm.

(plate 5, figs. 49-60)



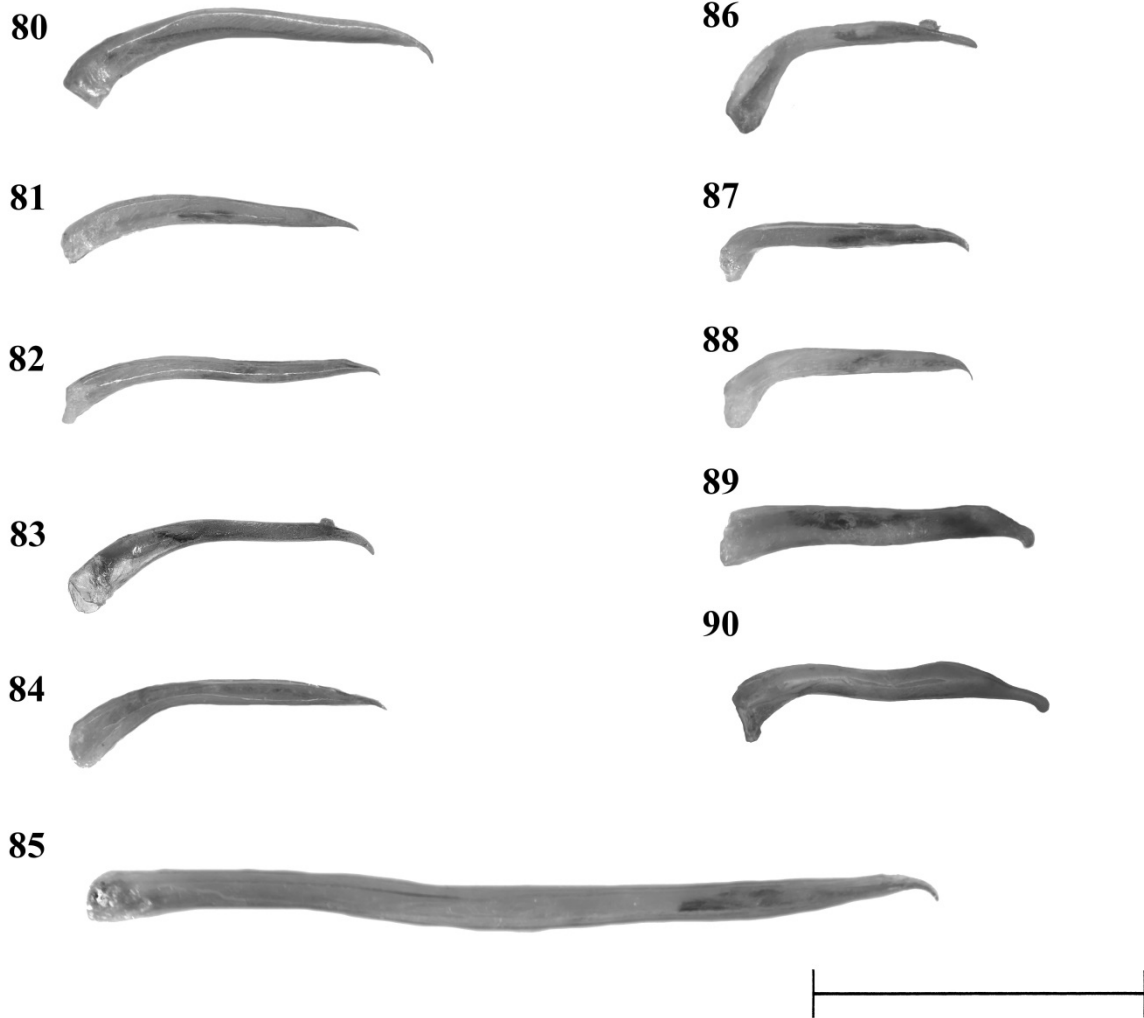
Figs. 49-58: Dorsal habitus. 49-50: *Idgia pallidicolor* Pic, 1906, ♂ from Laos (49), ♀ from Indonesia (Java) (50); 51: *Idgia coomani* Pic, 1931 (Vietnam), ♂; 52-53: *Idgia karelmajeri* n. sp., paratype ♂ from Thailand (52), paratype ♀ from Laos (53); 54: *Idgia* n. sp.2 (Laos), ♀; 55: *Idgia* n. sp.3 (Laos), ♀; 56-57: *Bigdia maculatithorax* (Pic, 1919) (Laos), ♂ (57), ♀ (58); 58: *Idgia* n. sp.4 (Cambodia), ♀. The scale represents 10 mm. **Figs. 59-60:** Apex of antenna in *Bigdia maculatithorax* (Pic, 1919): ♀: 59; ♂: 60. The scale represents 1 mm.

(plate 6, figs. 61-79)



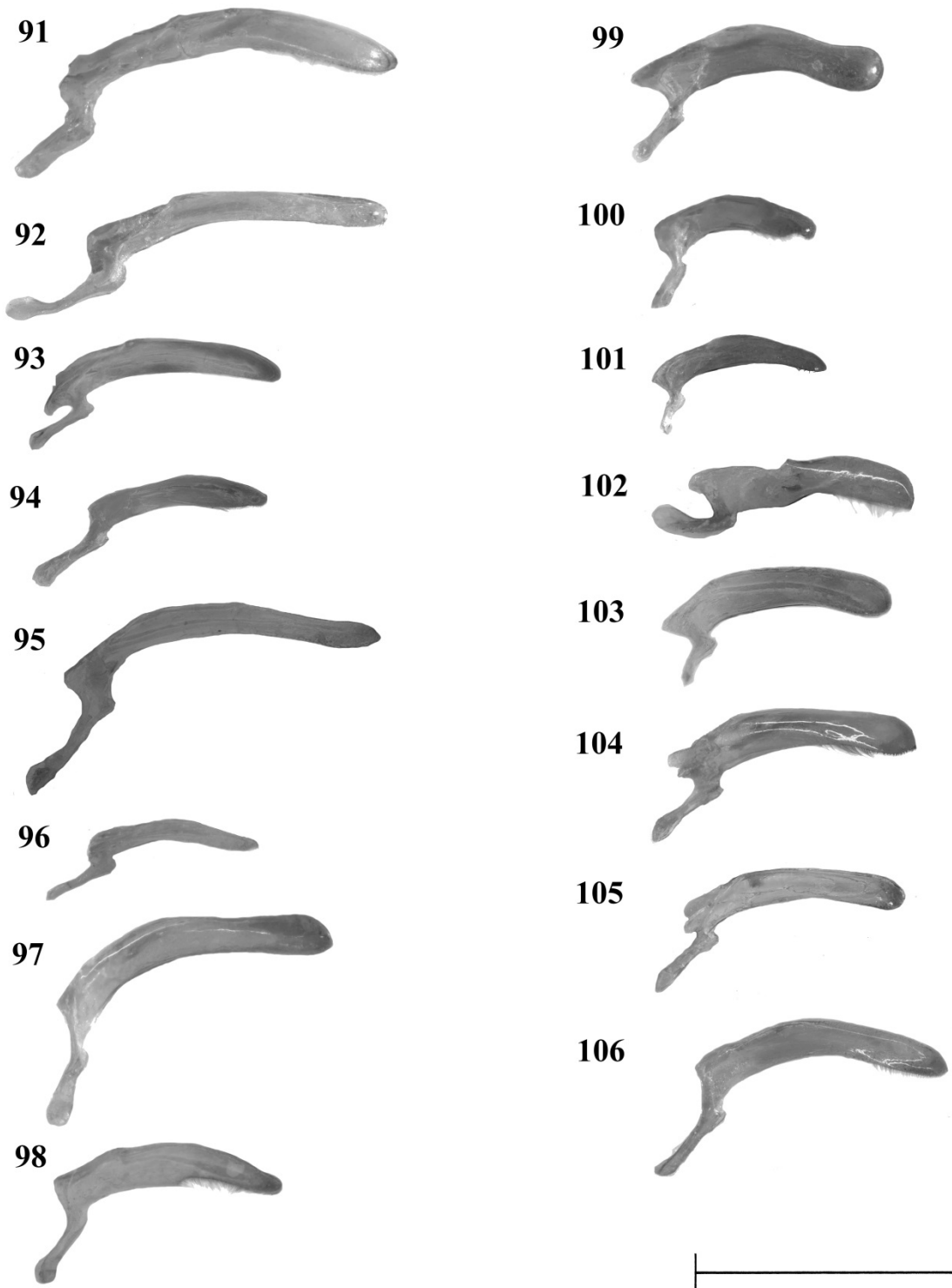
Figs. 61-79: Median lobe of aedeagus in lateral view. 61: *Idgia amplipennis* Pic, 1908 (China); 62: *Idgia flavithorax* Pic, 1927 (Laos); 63: *Idgia notaticollis* Pic, 1943 (Laos); 64: *Idgia suturalis* (Kirsch, 1875) (Indonesia: Sumatra); 65: *Idgia tonkinea* Pic, 1908 (Vietnam); 66: *Idgia laticollis* n. sp., paratype (Vietnam); 67: *Idgia dubia* (Gyllenhal, 1808) (Laos); 68: *Idgia lajoyei* Pic, 1920 (Vietnam); 69: *Idgia particularipes* Pic, 1920 (Laos); 70: *Idgia setifrons* (Kirsch, 1875) (Vietnam); 71: *Idgia varicornis* Champion, 1919 (Laos); 72: *Idgia bannalama* n. sp., holotype (Laos); 73: *Idgia brancuccii* n. sp., paratype (Laos); 74: *Idgia brevitarsis* n. sp., holotype (Laos); 75: *Idgia difficilis* n. sp., holotype (China); 76: *Idgia haucki* n. sp., holotype (Laos); 77: *Idgia hmong* n. sp., holotype (Laos); 78: *Idgia indosinica* n. sp., paratype (China); 79: *Idgia kabakovi* n. sp., holotype (Vietnam). The scale represents 2 mm.

(plate 7, figs. 80-90)



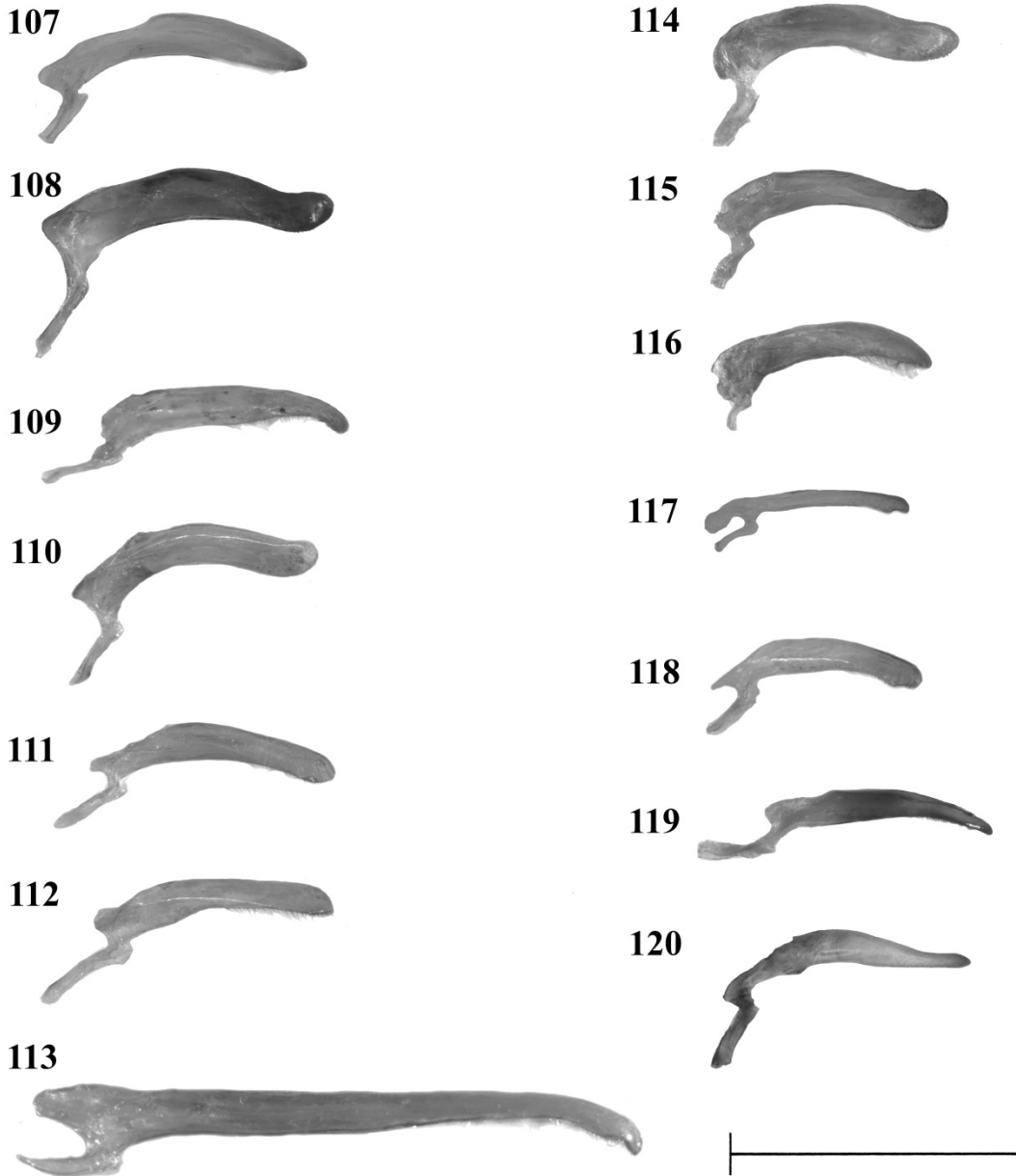
Figs. 80-90: Median lobe of aedeagus in lateral view. 80: *Idgia kubani* n. sp., holotype (Laos); 81: *Idgia maculifrons* n. sp., holotype (Vietnam); 82: *Idgia mekongensis* n. sp., paratype (Laos); 83: *Idgia perspicillata* n. sp., holotype (Laos); 84: *Idgia phongorum* n. sp., holotype (Laos); 85: *Idgia coomani* Pic, 1931 (Vietnam); 86: *Idgia vietnamensis* n. sp., paratype (Vietnam); 87: *Idgia pallidicolor* Pic, 1906 (Indonesia: Sumatra); 88: *Idgia karelmajeri* n. sp., paratype (Laos); 89: *Bigdia maculatithorax* (Pic, 1919) (Laos); 90: *Bigdia oculata* (Redtenbacher, 1868) (Hong Kong). The scale represents 2 mm.

(plate 8, figs. 91-106)



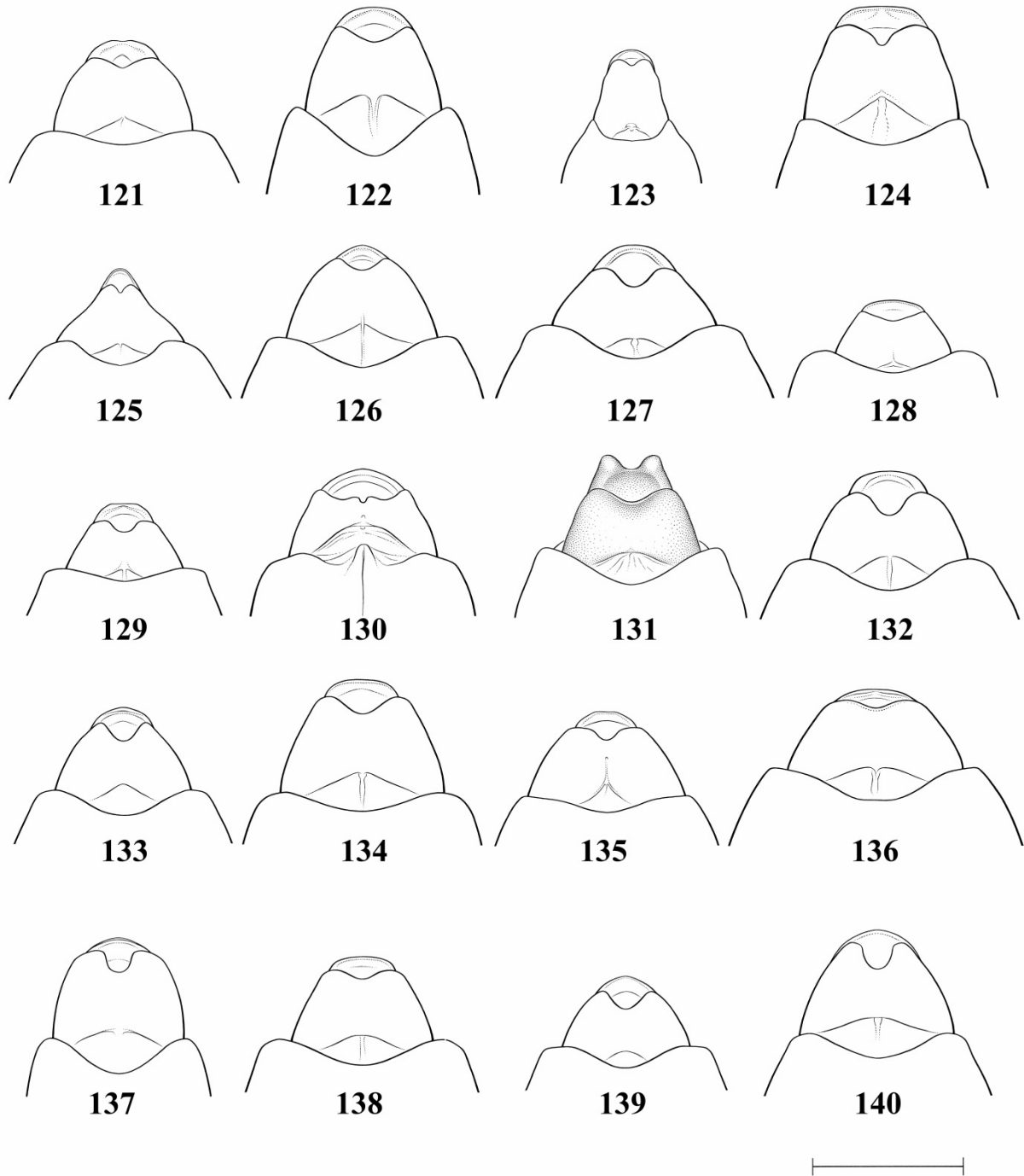
Figs. 91-106: Right paramera of aedeagus in lateral view. 91: *Idgia amplipennis* Pic, 1908 (China); 92: *Idgia flavithorax* Pic, 1927 (Laos); 93: *Idgia notaticollis* Pic, 1943 (Laos); 94: *Idgia suturalis* (Kirsch, 1875) (Indonesia: Sumatra); 95: *Idgia tonkinea* Pic, 1908 (Vietnam); 96: *Idgia laticollis* n. sp., paratype (Vietnam); 97: *Idgia dubia* (Gyllenhal, 1808) (Laos); 98: *Idgia lajoyei* Pic, 1920 (Vietnam); 99: *Idgia particularipes* Pic, 1920 (Laos); 100: *Idgia setifrons* (Kirsch, 1875) (Vietnam); 101: *Idgia varicornis* Champion, 1919 (Laos); 102: *Idgia bannalama* n. sp., holotype (Laos); 103: *Idgia brancuccii* n. sp., paratype (Laos); 104: *Idgia brevitarsis* n. sp., holotype (Laos); 105: *Idgia difficilis* n. sp., holotype (China); 106: *Idgia haucki* n. sp., holotype (Laos). The scale represents 2 mm.

(plate 9, figs. 107-120)



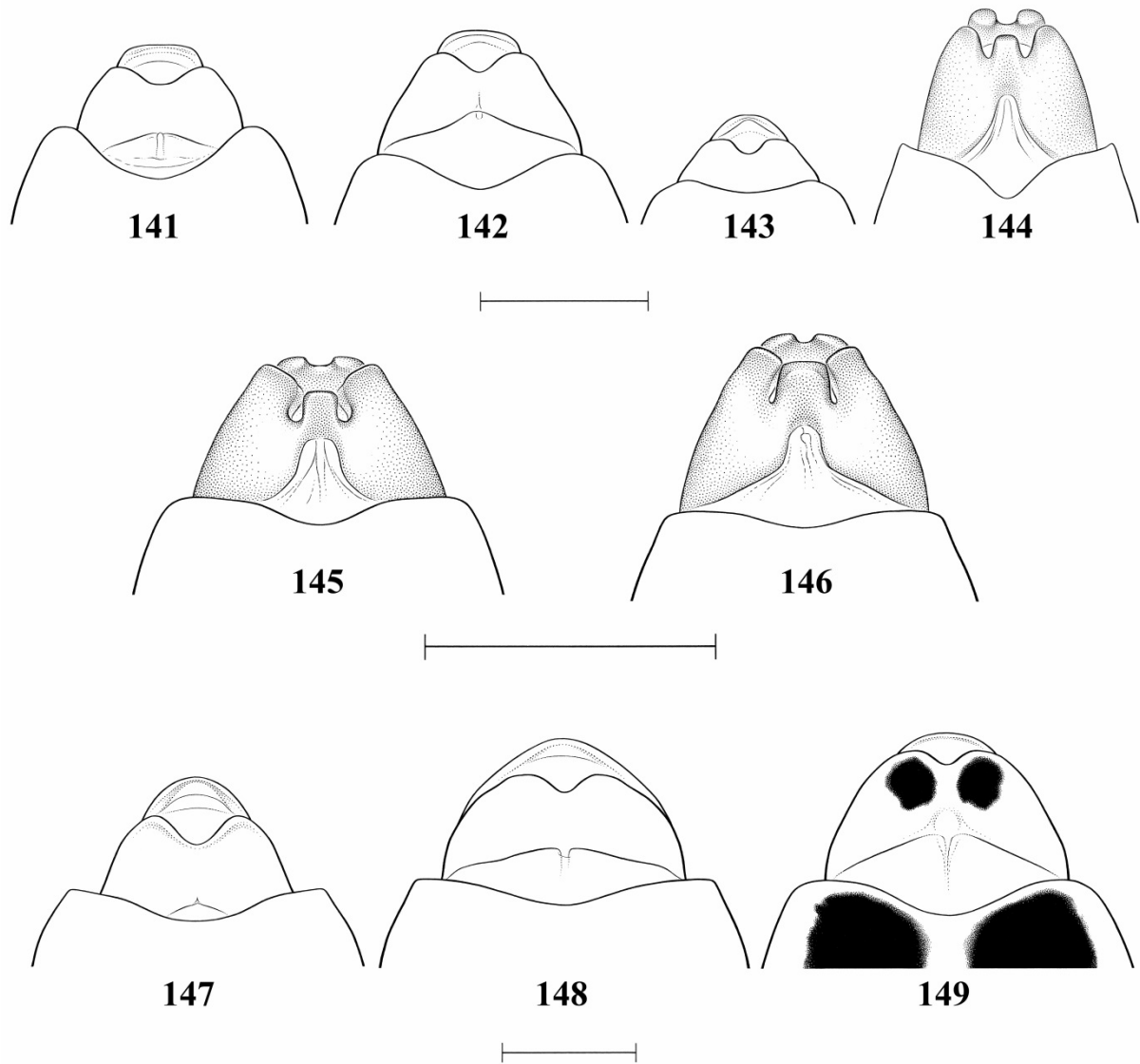
Figs. 107-120: Right paramera of aedeagus in lateral view. 107: *Idgia hmong* n. sp., holotype (Laos); 108: *Idgia indosinica* n. sp., paratype (China); 109: *Idgia kabakovi* n. sp., holotype (Vietnam); 110: *Idgia kubani* n. sp., holotype (Laos); 111: *Idgia maculifrons* n. sp., holotype (Vietnam); 112: *Idgia mekongensis* n. sp., paratype (Laos); 113: *Idgia coomani* Pic, 1931 (Vietnam); 114: *Idgia perspicillata* n. sp., holotype (Laos); 115: *Idgia phongorum* n. sp., holotype (Laos); 116: *Idgia vietnamensis* n. sp., paratype (Vietnam); 117: *Idgia pallidicolor* Pic, 1906 (Indonesia: Sumatra); 118: *Idgia karelmajeri* n. sp., paratype (Laos); 119: *Bigdia maculatithorax* (Pic, 1919) (Laos); 120: *Bigdia oculata* (Redtenbacher, 1868) (Hong Kong). The scale represents 2 mm.

(plate 10, figs. 121-140)



Figs. 121-140: Male ventrite 6, anterior half of ventrite 5 and apical margin of last tergite in ventral view. 121: *Idgia flavithorax* Pic, 1927 (Laos); 122: *Idgia notaticollis* Pic, 1943 (Laos); 123: *Idgia suturalis* (Kirsch, 1875) (Indonesia: Sumatra); 124: *Idgia tonkinea* Pic, 1908 (Vietnam); 125: *Idgia dubia* (Gyllenhal, 1808) (Laos); 126: *Idgia lajoyei* Pic, 1920 (Vietnam); 127: *Idgia particularipes* Pic, 1920 (Laos); 128: *Idgia setifrons* (Kirsch, 1875) (Vietnam); 129: *Idgia varicornis* Champion, 1919 (Laos); 130: *Idgia bannalama* n. sp., holotype (Laos); 131: *Idgia brancuccii* n. sp., paratype (Laos); 132: *Idgia brevitarsis* n. sp., holotype (Laos); 133: *Idgia difficilis* n. sp., holotype (China); 134: *Idgia haucki* n. sp., paratype (Laos); 135: *Idgia hmong* n. sp., holotype (Laos); 136: *Idgia indosinica* n. sp., paratype (Laos); 137: *Idgia kabakovi* n. sp., holotype (Vietnam); 138: *Idgia kubani* n. sp., holotype (Laos); 139: *Idgia maculifrons* n. sp., holotype (Vietnam); 140: *Idgia mekongensis* n. sp., paratype (Laos). The scale represents 2 mm.

(plate 11, figs. 141-159)



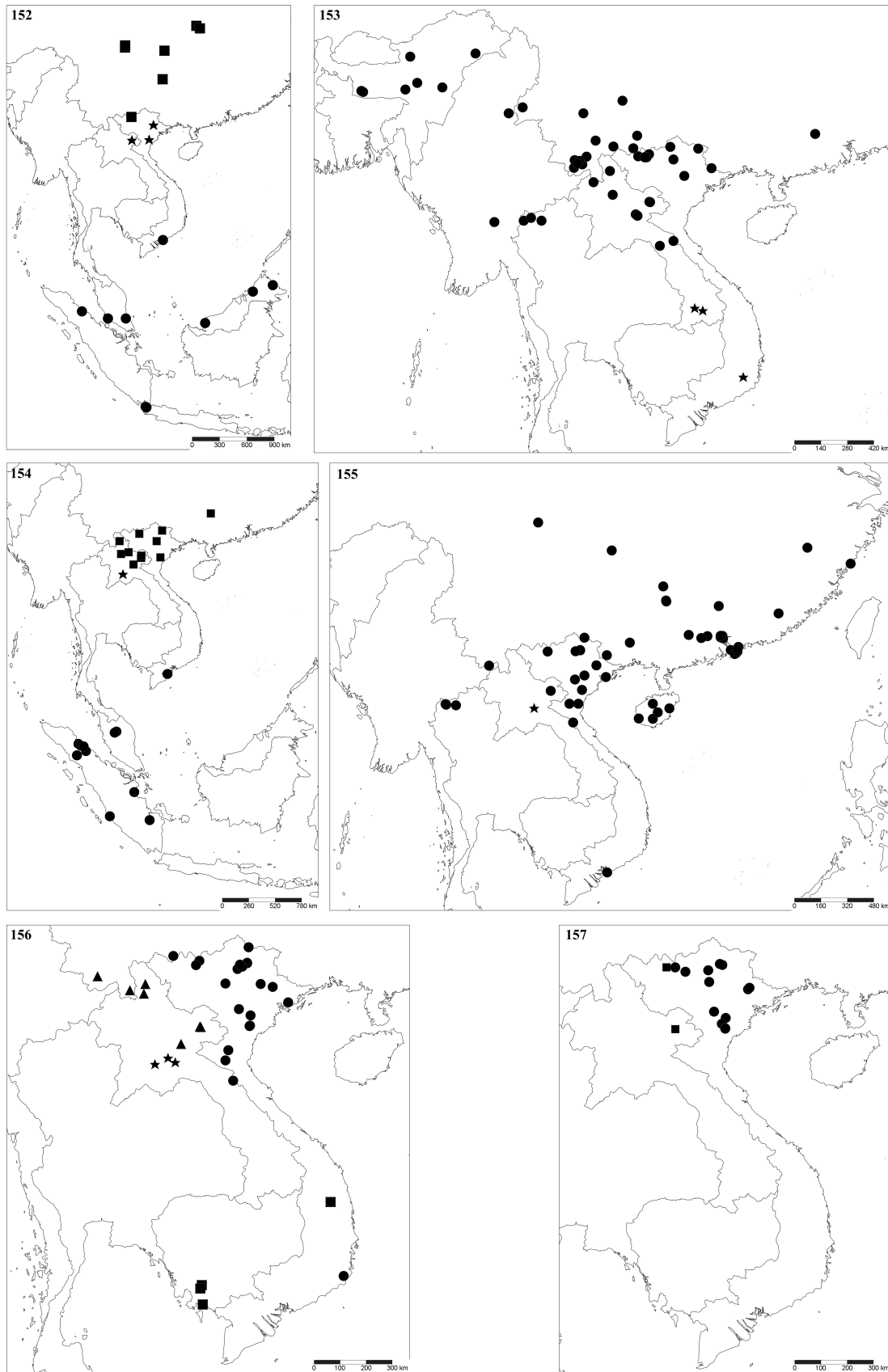
Figs. 141-149: Male ventrite 6, anterior half of ventrite 5 and apical margin of last tergite in ventral view. 141: *Idgia perspicillata* n. sp., holotype (Laos); 142: *Idgia phongorum* n. sp., paratype (Laos); 143: *Idgia vietnamensis* n. sp., paratype (Vietnam); 144: *Idgia coomani* Pic, 1931 (Vietnam); 145: *Idgia pallidicolor* Pic, 1906 (Indonesia: Sumatra); 146: *Idgia karelmajeri* n. sp., paratype (Laos); 147: *Idgia amplipennis* Pic, 1908 (China); 148: *Bigdia oculata* (Redtenbacher, 1868) (Hong Kong); 149: *Bigdia maculatithorax* (Pic, 1919) (Laos). The scale represents 2 mm; each row with separate scale.



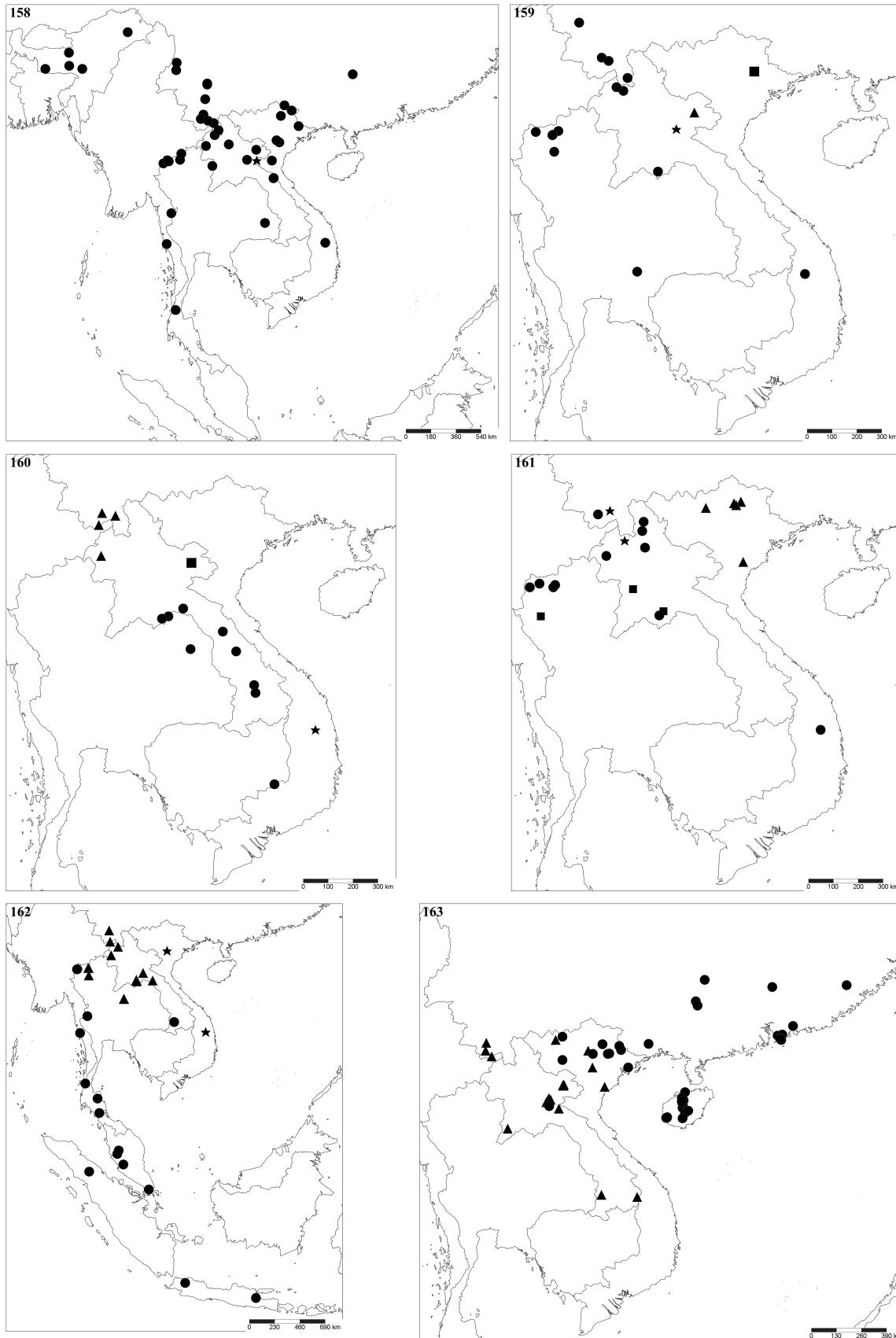
Fig. 150: Live individual (♀) of *Bigdia maculatithorax* (Pic, 1919) in its natural habitat at Phou Sane, Xieng Khouang prov., Laos.



Fig. 151: Secondary montane forests and shrublands around Mt. Phou Sane in Xieng Khouang prov., Laos. Altitude ca. 1450 m. Habitat of *Bigdia maculatithorax* (Pic, 1919), *Idgia notaticollis* Pic, 1943, *I. particularipes* Pic, 1920, *I. bannalama* n. sp. and *I. brancuccii* n. sp. Photo taken on 16 May 2009.



Figs. 152-157: Distribution maps. 152: *Idgia setifrons* (Kirsch, 1875) (dots, unspecified records from “Java” not shown); *I. amplipennis* Pic, 1908 (squares); *I. laticollis* n.sp. (stars). 153: *I. particularipes* Pic, 1920 (dots); *I. haucki* n. sp. (stars). 154: *I. suturalis* (Kirsch, 1875) (dots); *I. notaticollis* (squares); *I. n. sp.1* (star). 155: *I. dubia* (Gyllenhal, 1808) (dots); *I. elongaticeps* Pic, 1923 (star). 156: *I. lajoyei* Pic, 1920 (dots); *I. brancuccii* n. sp. (triangles); *I. n. sp.3* (stars); *I. n. sp.4* (squares). 157: *I. tonkinea* Pic, 1908 (dots); *I. flavithorax* Pic, 1927 (squares).



Figs. 158-163: Distribution maps. 158: *Idgia varicornis* Champion, 1919 (dots); *I. hmong* n.sp. (star). 159: *I. indosinica* n. sp. (dots); *I. kabakovi* n. sp. (square); *I. brevitaris* n. sp. (triangle); *I. bannalama* n. sp. (star). 160: *I. mekongensis* n. sp. (dots); *I. difficilis* n. sp. (triangles); *I. phongorum* n. sp. (square); *I. maculifrons* n. sp. (star). 161: *I. perspicillata* n. sp. (dots); *I. vietnamensis* n. sp. (triangles); *I. kubani* n. sp. (stars); *I. n. sp.2* (squares). 162: *I. pallidicolor* (Pic, 1906) (dots); *I. karelmajeri* n. sp. (triangles); *I. coomani* Pic, 1931 (stars). 163: *Bigdia oculata* (Redtenbacher, 1868) (dots); *B. maculatithorax* (Champion, 1919) (triangles).

Chapter IV

Description and revision of a new genus, *Palpolobonyx*.

To be submitted to Deutsche Entomologische Zeitschrift, Berlin.

Abstract

A new genus of Prionoceridae is described as *Palpolobonyx* n. gen. It unites characters of both *Idgia* Castelnau, 1836 and *Lobonyx* Jacquelin du Val, 1859, but differs from all genera of this family in the modified maxillary and labial palpi in males. The genus is composed of the following six species previously placed in *Idgia*: *P. moupinensis* (Fairmaire, 1889), n. comb. (type species); *P. abori* (Pic, 1913), n. comb.; *P. dasytoides* (Champion, 1919), n. comb.; *P. flavirostris* (Pascoe, 1860), n. comb.; *P. granulatus* (Pic, 1920), n. comb.; and *P. granulipennis* (Fairmaire, 1891), n. comb. The following seven species are described as new: *P. yuxiae* n. sp. (SW China); *P. gressitti* n. sp., *P. simillimus* n. sp., (Taiwan); *P. laosensis* n. sp. (Laos), *P. kameng* n. sp., *P. mishmi* n. sp. (NE India) and *P. weigeli* n. sp. (Nepal). Based on the study of all relevant type material, four taxa turned out to be junior subjective synonyms: *Idgia ardesiaca* Pic, 1908 n. syn. is synonymised under *P. flavirostris*; *Idgia virescens* Champion, 1919 n. syn. under *P. granulipennis*; *Idgia testaceipes* Pic, 1908 and *Idgia granulipennis* var. *abdominalis* Pic, 1920 n. syn. both under *P. moupinensis*. All species are (re-)described with illustrations of their habitus and the most important morphological features. An identification key for males and females is given. The phylogenetic position of *Palpolobonyx* and the definition of the subfamilies Lobonychinae Majer, 1987 and Prionocerinae Lacordaire, 1857 are briefly discussed.

Key words: Insecta, Melyridae s. l., Prionocerinae, Palearctic region, Oriental region, taxonomy.

Introduction

Prionoceridae is a small Old-World family of weakly sclerotised („malacoderm“) beetles, belonging to the same lineage as Melyridae and their closest relatives. Formerly considered as a subfamily of Melyridae (Crowson, 1964; Majer, 1987), they have been given full family status more recently (Majer, 1994; Bouchard & al., 2011; Bocakova & al., 2012). Prionocerid taxonomy has been badly neglected for almost 100 years, since Champion's (1919) partial revision. This is mainly due to the fact that most of the descriptions published after Champion's work are insufficient and make it nearly impossible to identify species without extensive type revisions.

Only three genera are currently recognised in Prionoceridae: The mainly Palearctic *Lobonyx* Jacquelin du Val, 1859, which were partially revised by Constantin (2009); the Oriental *Prionocerus* Perty, 1831, recently revised by Geiser (2010a); and the large and heterogeneous genus *Idgia* Laporte de Castelnau, 1838, which contains the majority of the species. As an attempt to mitigate the taxonomic chaos within *Idgia*, the Indochinese species are currently under revision (Geiser, unpublished). During the course of this revisionary work, it soon became obvious that *Idgia* is non-monophyletic assemblage of species. Some of the species, mainly from the Palearctic-Oriental transition zone turned out to be morphologically very different from typical *Idgia*. Several of their characters suggest a close relationship with *Lobonyx*, rather than *Idgia*, which was recently confirmed by molecular data (Geiser & al., unpublished). Further morphological studies made it evident, that this group of species represents a monophyletic clade, which can be clearly separated from both *Idgia* and *Lobonyx* and therefore deserves to be described as a new genus.

The aim of this paper is to define this genus and provide a full taxonomic revision of all its species, in order to facilitate any further studies on this group. Several of the described taxa turned out to be junior synonyms, while a large number of specimens turned out to belong to undescribed species. These are here described as new species, as long as the available material permits it, and the previously known species are redescribed. Furthermore, a key to both males and females will be provided, to permit easier identification and the available data on biology, ecology and distribution are summarised.

Material and methods

Over 6000 dry specimens were studied using a stereoscopic microscope. The sclerotised parts of the male genitalia were extracted and dry-mounted on a card below the specimen prior to examination. Some male genitalia were first treated for 1 hour in highly concentrated KOH solution, then embedded in polyphenyle-lactophenole on a mounting card to examine internal sclerites. Terminology of the aedeagus follows Majer (1987), except for the distal projections of the tegmen generally referred to as „parameres“. Line-drawings were made by Armin Coray, using a camera lucida. Photographies of the habitus, aedeagus and parameres were made in layers and combined with focus stacking software (Combine Z and Helicon Focus).

Measurements were taken using a 0.1 mm scale in the microscope eyepiece, their abbreviations are the following:

HL = Head length (from anterior margin of labrum to pronotum).
 PL = Pronotal length (from central part of anterior margin to central part of base).
 EL = Elytral length (from base of elytron to central part of apex).
 TBL = Total body length (= HL + PL + EL).
 L-h = Length without head (= PL + EL).

As the head in dry prepared specimens is often slightly tilted ventrally, HL, PL and EL were measured separately in slightly different angles, then counted together to calculate L-h and TBL. If the measurement of TBL is taken at once without accounting for the flexion of the body, the measured length will be usually slightly lower, normally by 0.1-0.3 mm

The material is deposited in the following collections:

BIMH: Bishop Museum, Honolulu, Hawaii, USA.
 BMNH: Natural History Museum, London, UK.
 CRC: Private collection Robert Constantin, St. Lô, France.
 CRS: Private collection Rudolf Schuh, Wiener Neustadt, Austria.
 CTT: Private collection Tomáš Tichý, Opava, Czech Republic.
 DAUC: Dali University Collection, Dali (Yunnan), P. R. China
 EHUM: Entomological Laboratory, Ehime University, Matsuyama, Japan.
 IZAS: Institute of Zoology, Chinese Academy of Science, Beijing, P. R. China.
 KMNH: Kurashiki Museum of Natural History, Okayama, Japan.
 MCGD: Museo Civico di Storia Naturale "Giacomo Doria", Genova, Italy.
 MHNG: Muséum d'histoire naturelle, Genève, Switzerland.
 MNHB: Museum für Naturkunde der Humboldt-Universität, Berlin, Germany.
 MTMB: Magyar Természettudományi Múzeum, Budapest.

- MNHP: Musée national d'Histoire naturelle, Paris, France.
 NHMB: Naturhistorisches Museum, Basel, Switzerland.
 NHMW: Naturhistorisches Museum, Wien, Austria.
 NKME: Naturkundemuseum, Erfurt, Germany.
 NMPC: Národní Muzeum, Praha, Czech Republic.
 SMNS: Staatliches Museum für Naturkunde, Stuttgart, Germany.
 SYSU: Sun Yat-sen University Collection, Guangzhou, P. R. China.
 TARI: Taiwan Agricultural Research Institute, Taichung, Taiwan.
 ZISP: Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia.
 ZMUC: Zoological Museum, University of Copenhagen, Denmark.

Label data at IZAS, SYSU and DAUC are mostly in Chinese and were transliterated into Hanyu Pinyin. Terms referring to the collection circumstances were translated into English. Localities written in Taiwanese Chinese (at TARI and KMNH) are given verbatim for type material. For non-types, they are transliterated into Hanyu Pinyin. Label data written in Russian Cyrillic were transliterated according to British standard. Labels with individual registry numbers are only cited for primary types, but not for paratypes or non-type specimens.

For type specimens at MNHP, the exact location (coll. Pic; coll. Fairmaire; coll. générale etc.) is always given. The types at NHMB treated herein are all located in the general collection, not in the coll. Frey. All types were provided with red printed type labels, giving the full name of the species (in the original combination), the author and year of description, plus the indication des./ rev. M. Geiser 20xx.

Systematic part

Palpolobonyx n. gen.

Type species: *Idgia moupinensis* Fairmaire, 1889.

Gender: Masculine.

Diagnosis: Habitus similar to *Idgia* and *Prionocerus*, but head less prolongate than in most species, eyes smaller and only weakly emarginate, broadly separated on dorsal face, clypeus and frons separated by a sharply marked suture, not by a transverse depression. Claws with membranous appendages (sometimes small and not very well visible), which are absent in both *Idgia* and *Prionocerus*, but present in *Lobonyx*. Distinguished from *Lobonyx* (incl. *Eulobonyx*) by more elongate, "oedemerid-like" habitus with longer legs, larger labial palpi with cultriform apical segment and by the unique sexual dimorphism in shape and size of both maxillary and labial palpi. Apical segment of antennae with characteristic constriction in middle part (found only in few species of *Lobonyx*), not emarginate or subcultriform as in *Prionocerus* and most *Idgia*.

Description: Elytra dark coloured, blackish to more or less blue or dark green metallic, Pronotum often reddish, sometimes with black spots, sometimes of the same colour as the elytra. Metathorax always dark coloured with metallic lustre; pro- and mesothorax often (partially) testaceous; abdomen black, testaceous, or bicolorous.

Habitus oedemerid-like; body shape elongate and with relatively long legs (as compared to *Lobonyx*).

Elytra weakly sclerotised and rather thin; with oily shine; with two to four, often irregular rows of polished tubercles, sometimes confluent to form faintly elevated costae; with greyish recumbent ground vestiture and rows of blackish, stiff setae (which are often often abraded and may be visible only in profile view).

Head not strongly prolongate; with sharply marked epistomal suture, without transverse depression between frons and clypeus. Eyes slightly emarginate, but smaller than in most *Idgia* and *Prionocerus*, not distinctly bordered, always widely separated from each other, especially in females. Maxillary and labial palpi sexually dimorphic: basal segments longer in males, apical segment enlarged, flattened and often somewhat excavate in males, thicker and distinctly smaller in females. Penicillus of mandibles (see Majer, 1987: fig. 242) present.

Antennae filiform, longer and relatively thinner than in *Lobonyx*, last segment constricted in middle part. First antennomere with a group of white setae at the base, distinct from the normal vestiture.

Pronotum generally with a shallow depression in middle part of disc, near base („median subbasal depression") and two stronger lateral depressions in basal half, on each side of the slightly raised disc; all margins finely bordered.

Legs rather long and thin. Femora without teeth or other modifications, never thickened in males. Hind tibial spurs simple, short to moderately long, up to about ¼ of length of first tarsomere, not sexually dimorphic.

Claws with membranous appendage: this can be either strongly developed and clearly visible (fig. 30), much smaller (fig. 31) or rudimentary and only seen at outer base of claws.

First three protarsomeres in males with a strongly sclerotised, blackish tarsal combs, more densely pectinate than in *Lobonyx*. Second and third protarsomere very elongate, fourth short. Apical angle of first protarsomere projecting in males, simple in females. Middle and hind tarsi without comb, not sexually dimorphic.

Abdomen weakly sclerotised. In males, penultimate ventrite apically and last ventrite basally emarginate, with a large membranous space between the last two ventrites, as in fig. 59 (except for *P. abori* (Pic, 1913) and *P. weigeli* n. sp.). Last ventrite small. Apical segment (tergite plus ventrite) moveable, often bent downwards in freshly collected specimens.

Median lobe of aedeagus dorsoventrally complanate. Endophallic sclerites similar to *Lobonyx* (see Constantin, 2009: figs. 7, 8), including partly extrudable, sclerotised spikes. Internal sclerites restricted to apical portion of median lobe, near ostium, without subbasal paired sclerites and rows of small denticles, as in *Prionocerus* and *Idgia* (see Majer, 1987: figs. 270, 271).

Composition: This genus includes seven new species described herein and nine species formerly placed in *Idgia*, of which three turned out to be junior synonyms: *P. abori* (Pic, 1913), *P. dasytoides* (Champion, 1919), *P. flavirostris* (Pascoe, 1860) = *ardesiacus* (Pic, 1908), *P. granulatus* (Pic, 1920), *P. granulipennis* (Fairmaire, 1891) = *virescens* (Champion, 1919), *P. moupinensis* (Fairmaire, 1889) = *testaceipes* (Pic, 1908).

Distribution: This genus is confined to the border areas between the Palearctic and the Oriental region. Its distribution ranges from W-Nepal over NE-India (Arunachal Pradesh), North Myanmar,

North Laos, North Vietnam, South, Central and East China (Tibet, Yunnan, Sichuan, Gansu, Shaanxi, Chongqing, Guizhou, Hubei, Anhui, Shandong, Hong Kong, Guangdong, Fujian, Zhejiang) until Taiwan. It can be seen as an essentially south-eastern Palearctic faunal element, contrary to *Idgia* and *Prionocerus* which are almost exclusively Paleotropical and *Lobonyx*, which is typically western and central Palearctic.

Biology and ecology: Contrary to *Prionocerus* and several *Idgia*, these species are rarely encountered in lowland areas. Although some species have been found at altitudes as low as 300 m (especially in the northern, more temperate part of their range), the vast majority of specimens was collected at altitudes of 1000 m and above, sometimes exceeding 3000 m (in *P. moupinensis* and *P. gressitti*). This leads to the conclusion that most species can be considered montane (but not alpine) elements. See also under „discussion“.

Derivatio nominis: A combination of "*palpus*", referring to their main character, sexually dimorphic palpi, and "*Lobonyx*", a genus of Prionoceridae with which they shares some important characters.

I. Species group of *Palpolobonyx moupinensis* (Fairmaire)

The following seven species seem to form a monophyletic clade characterised by the presence of a large tooth near the apex of the first protarsomere in males, situated inside the area enclosed by the tarsal comb on the ventral side. They are generally of larger size than the species of the *P. dasytoides* species group, and have lighter-coloured legs, with entirely testaceous femora. Compared to species of the *dasytoides* group, they also tend to have a more evenly sculptured head, without distinct depression between the eyes, at least in males. This species group is distributed in South and Central China (including Taiwan) and in the montaninous parts of north-eastern Indochina. The three species with dark-coloured pronotum, *P. moupinensis*, *P. granulipennis* and *P. yuxiae*, are relatively easily distinguished from each other by external morphology. *P. flavirostris* is a very variable and widespread species, which might eventually turn out to be a species complex, when more data are available. The three species with maculate pronotum, *P. laosensis* n. sp., *P. gressitti* n. sp. and *P. simillimus* n. sp. are very closely related and mainly distinguished by their male genitalia.

Palpolobonyx moupinensis (Fairmaire, 1889) **n. comb.**

(Figs. 1, 2, 30, 32, 46)

Idgia moupinensis Fairmaire, 1889: 44.

Idgia testaceipes Pic, 1908d: 95. **n. syn.**

Idgia granulipennis var. *abdominalis* Pic, 1920a: 7. **n. syn.**

Type material examined: Holotype ♂ of *moupinensis* (MNHP, coll. Fairmaire): "*Idgia moupinensis* Fairm". No locality label, but coming from "Moupin" (= Baoxing, Sichuan, China), according to original description. Holotype label added. In good condition.

Holotype ♀ of *testaceipes* (MNHP, coll. Pic): "Yunnan"; "moins étroit que moupinensis avec les cuisses testacées (et non noir)"; "granulipennis a le prothorax a le prothorax plus étroit, la tête moins testacée en avant"; "type"; "TYPE"; "testaceipes Pic". Holotype label added. In rather poor condition, mouldy and with several tarsal segments missing.

Holotype ♀ of *abdominalis*: "Dali, Ht. Yunnan"; "?granulipennis Fairm."; "Type"; "TYPE"; "granulipennis v. abdominalis Pic". Holotype label added. In very poor condition, very mouldy and with large parts of legs and antennae missing.

Additional material examined: CHINA: YUNNAN: N Yunnan [C2005-09], Diqing Tibet Aut. Pref., Deqin Co., Meili Xue Shan, E-side, 14 km W Deqin, 28°27.47' N / 98°46.35' E, 2580 m, creek valley below glacier, mixed forest, leaf litter, moss, dead wood, sifted. 11. VI. 2005, M. Schülke leg. 1 ♀ (SMNS); NW-Yunnan, Deqen Co., Mekong side of Hengduan Shan, S of Meilixue Shan, 28°15-16' N / 98°43-44' E, 3500-4300 m, 3.-5. VI. 1999, L. & R. Businský leg. 3 ♂ 1 ♀ (NMPC); NW-Yunnan, Deqen Co., Hengduan Shan, Meilixue, 3500-4300 m, 3.-5. VI. 1999, L. & R. Businský leg. 1 ♂ (NMPC); "Hengd 96, 5.-8. VII." 1 ♀ (NHMB); Dali zhou, Weishan county, Weibaoshan, 2700-3000 m, 30. VI. - 17. VII. 1993, C. Holzschuh leg. 8 ♀ (NHMB); Weibaoshan mts., W slope, 25°11' N / 100°24' E, 2000-2800 m, 25.-28. VI. 1992, Vít Kubáň leg. 1 ♀ (NHMB); Weishan mts., 25°10' N / 100°21' E, 22.-25. VI. 1992, Vít Kubáň leg. 1 ♀ (NHMB); 20 km N Dali, 2800-3100 m, VII. 1993. 1 ♀ (NHMB); Dali, Dien Cang Shan, Baolining, 24. V. 2007, Wu Chun leg. 1 ♂ 4 ♀ (DAUC); Dali, Dien Cang Shan, Baolining, 12. VI. 2006, Wu Chun leg. 3 ♀ (DAUC); Dali, Cang Shan, Li Shu Bin leg. 1 ♀ (DAUC); Xiaguan, Yi Zhong Nong Zha, 30. V. 2007. 1 ♀ (DAUC); Xiaguan, Qi Wu Cun, 2100 m, 25. V. 2007, Wu Lifang leg. 1 ♀ (DAUC); Xiaguan, Wen Quan, Li Shu Bin leg. 1 ♂ (DAUC); 100 km W Kunming, Diaolin Nat. Res., 22. V. - 2. VI. 1993, E. Jendek & O. Sausa leg. 2 ♀ (NHMW); Tengchong env., 10.-13. VI. 1993, E. Jendek & O. Sausa leg. 1 ♀ (NHMW); N Yunnan, Ningjing Shan, Mekong Riv., Tse kou, 28°01'59" N / 98°54'17" E, 2100 m, 8.-11. VI. 2007, Major leg. 2 ♀ (CRS), 1 ♀ (BMNH); Yunnan, Ningjing Shan, Mekong Riv., Tse kou, 28°01'59" N / 98°54'17" E, 2100 m, 5.-9. VI. 2011, V. Major leg. 1 ♀ (BMNH); Ningjing Shan, Wei - Shi, 2200 m, 12.-13. VI. 2006, Vladimir Major leg. 2 ♀ (BMNH); Yanjin, 10. V. 1934. 1 ♀ (IZAS); Yanjin, 12. V. 1934. 1 ♂ 1 ♀ (IZAS); Jingdong, 29. IX. 1933. 1 ♂ (IZAS); Yanmen, 13.-23. VI. 2005, E. Kucera leg. 1 ♀ (BMNH).

SICHUAN: Emei Mt., 500m, 4.-20. V. 1989, Vít Kubáň leg. 3 ♂ 12 ♀ (NHMB); Mt. Emei, 19°30' N / 103°20' E, 500-1200 m, 4.-18. V. 1989, S. & J. Kolibáč leg. 5 ♀ (NHMB); Mt. Emei, 600-1050 m, 5.-19. V. 1989, Lad. Bocák leg. 7 ♀ (NHMB); Emei Shan, Baoguosi, 500-750m, 30. III. 1957, Huang Ke-Ren leg. 1 ♂ (IZAS); Emei Shan, Baoguosi, 500-750m, 8. IV. 1957, Huang Ke-Ren leg. 1 ♂ (IZAS); Emei Shan, Baoguosi, 500-750m, 8. IV. 1957, Wang Zong-Yuan leg. 1 ♀ (IZAS); Emei Shan, Baoguosi, 500-750m, 12. IV. 1957, Huang Ke-Ren leg. 2 ♂ (IZAS); Emei Shan, Baoguosi, 500-750m, 17. IV. 1957, Huang Ke-Ren leg. 1 ♂ (IZAS); Emei Shan, Baoguosi, 500-750m, 26. IV. 1957, Huang Ke-Ren leg. 1 ♀ (IZAS); Emei Shan, Baoguosi, 500-750m, 20. V. 1957, Huang Ke-Ren leg. 1 ♀ (IZAS); Emei Shan, Baoguosi, 500-750m, 30. V. 1957, Zhu Fu-Xing leg. 1 ♀ (IZAS); Emei Shan, Baoguosi, 550-750m, 3. VI. 1957, Huang Ke-Ren leg. 1 ♀ (IZAS); Emei Shan, 2100-1150m, 26. VI. 1955, Yang Xing-Chi leg. 1 ♀ (IZAS); Emei Shan, 10. V. 1955, Huang Ke-Ren & Jin Gen-Tao leg. 1 ♀ (IZAS); Emei Shan, Qingyinge, 800-1000m, 16. IV. 1957, Yu You-Cai leg. 1 ♂ (IZAS); Emei Shan, Qingyinge, 800-1000m, 17. IV. 1957, Yu You-Cai leg. 3 ♂ (IZAS); Emei Shan, Qingyinge, 800-1000m, 18. IV. 1957, Yu You-Cai leg. 1 ♂ (IZAS); Emei Shan, Qingyinge, 800-1000m, 19. IV. 1957, Yu You-Cai leg. 1 ♀ (IZAS); Emei Shan, Qingyinge, 800-1000m, 21. IV. 1957, Huang Ke-Ren leg. 3 ♀ (IZAS); Emei Shan, Qingyinge, 800-1000m, 22. IV. 1957, Zhu Fu-Xing leg. 1 ♀ (IZAS); Emei Shan, Qingyinge, 800-1000m, 23. IV. 1957, Huang Ke-Ren leg. 1 ♀ (IZAS); Emei Shan, Qingyinge, 800-1000m, 23. IV. 1957, Zhu Fu-Xing leg. 1 ♂ (IZAS); Emei Shan, Qingyinge, 800-1000m, 25. IV. 1957, Zhu Fu-Xing leg. 1 ♂ (IZAS); Emei Shan, Qingyinge, 800-1000m, 26. IV. 1957, Zhu Fu-Xing leg. 1 ♀ (IZAS); Emei Shan, Qingyinge, 800-1000m, 27. IV. 1957, Wang Zong-Yuan leg. 1 ♀ (IZAS); Emei Shan, Qingyinge, 800-1000m, 6. V. 1957, Wang Zong-Yuan leg. 1 ♀ (IZAS); Emei Shan, Qingyinge, 800-1000m, 6. V. 1957, Zhu Fu-Xing leg. 1 ♀ (IZAS); Emei Shan, Qingyinge, 800-1000m, 9. V. 1957, Wang Zong-Yuan leg. 1 ♀ (IZAS); Valley 5 km N Wenchuan, 1800 m, 28. VII. 2001, S. Murzin leg. 1 ♀ (NMPC); 70 km W Chengdu, Qingcheng Hou Shan mts., 30°44' N / 103°08' E, 1360 m, 26. VIII. 2004, S. Murzin leg. 1 ♀ (CRC); 70 km W Chengdu, Qingcheng Hou Shan mts., 30°44' N / 103°08' E, 1500 m, 1.-6. VI. 2005, S. Murzin leg. 1 ♀ (CRC); 70 km NW Chengdu, Qingcheng hou Shan mts., 1400 m, 2.-4. V. 2006, S. Murzin & I. Shokhin leg. 2 ♀ (CRC); "Muséum Paris, Mou Pin, A. David 1870, Mus.Hist.Nat., A. David, Moupin (Thbiet), 1871" 1 ♂ 1 ♀ (MNHP); "Wassuland, Chungwa, Szechuan, Reitter" 1 ♀ (BMNH).

CHONGQING: "Kinfushan, Prov. Szechuen, West-China, IV / V 29. Coll. H. Becker, coll. Richard Hicker, Wien, coll. W. Wittmer" 3 ♂ 2 ♀ (NHMB); Dabashan Mountain Range, S Gaoguan vill., 1810-1845 m, 31°49'12-14"N / 108°53'31-44"E, 18. V. 2010, I.A. Belousov, I.I. Kabak & A.E. Korolev leg. 1 ♀ (BMNH).

GANSU: Wenxian, Tieloukeqiao Village, 1500m, 23. VI. 1999, Wang Hong-Jian leg. 1 ♀ (IZAS).

GUIZHOU: "Museum Paris, Kouy-Tchéou, P. Cavalerie 1910" 2 ♂ (MNHP); "Museum Paris, Kouy-Tchéou, Gan Choen Fou, Kiang-Long et Yun-Lin-Tchéou, P. Cavalerie 1912, Mai, Juin" 1 ♂ (MNHP); "Museum Paris, Gan Choen Fou, P. Cavalerie 1912, mai, juin" 1 ♀ (MNHP); "Museum Paris, Kouy-Tchéou, Gan Choen, Hin y Fou et Tchen-Fong Tchéou, P. Cavalerie 1913" 1 ♀ (MNHP); "Museum Paris, Kouy-Tchéou, Rég. de Pin-Fa, Père Cavalerie 1908" 1 ♂ 1 ♀ (MNHP).

GUANGXI: "Tchao-Pin-Io, Coll. Le Moul, Naturaliste, Paris" 1 ♀ (MNHP).

JIANGXI: "Kiangsi, China" 1 ♀ (MNHP).

SHANDONG?: "Kiautschau, China, coll. Richard Hicker, Wien, coll. W. Wittmer" 2 ♂ 1 ♀ (NHMB);

"Kiautschau, China" 4 ♂ 2 ♀ (MNHP), 1 ♀ (NHMB), 3 ♂ (NMPC).

Measurements ♂ : TBL 9.1 - 10.3 mm, L-h 7.9 - 8.7 mm

HL 1.2 - 1.7 mm, PL 1.4 - 1.7 mm, EL 6.4 - 7.2 mm

♀ : TBL 8.8 - 11.7 mm, L-h 7.4 - 9.8 mm

HL 1.4 - 1.9 mm, PL 1.4 - 1.7 mm, EL 6.0 - 8.2 mm

Differential diagnosis: This species is similar to *P. granulipennis* (Fairmaire, 1891) in colouration, but can be clearly distinguished by the presence of a large, well-developed membraneous lobe at the tarsal claws in both sexes. Moreover, the paramera are of clearly different shape and its prosternum is dark-coloured, like the pronotum. *P. yuxiae* n. sp. is distinguished by a much smaller membraneous lobe at the claws, as well as darker, non-metallic matt black colouration. All other species of *Palpolobonyx* are easily distinguished by having either a reddish pronotum or dark-coloured legs.

Redescription: Habitus as in figs. 1 (♂) and 2 (♀). Body dark blueish black, with slight blueish (rarely greenish) metallic lustre; specimens with intact, dense vestiture appearing slightly greyish. Fore part of head (antennal insertions, clypeus, labrum), palpi, coxae, femora and parts of antennae, abdomen and tibiae testaceous yellow. Abdomen with last two ventrites and margins of ventrites 1-4 broadly testaceous, middle part of basal four ventrites black. Antennae with testaceous base, infusate dark brown towards apex, starting from antennomere 3-6. Tibiae and tarsi mostly infusate dark brown, fore tibiae and tarsi often (especially in males) yellow testaceous, as femora. Claws light brown, often infusate at base. Prosternum of the same dark blueish black colour as pronotum.

Head narrowed at base, immediately behind eyes about 0.7 to 0.75 times as wide as middle part of pronotum, coarsely shagreened and matt, with sparse, greyish ground vestiture and a tuft of long, stiff, dark brownish setae behind eyes. Eyes rather widely separated dorsally; space between eyes about 1.5 times as wide as frons between antennal insertions. Clypeus transversely subtrapezoidal, not distinctly raised, very finely shagreened, with a few long, dark brownish setae. Labrum slightly transverse, widest in apical half, with bluntly rounded sides, with sparse, with sparse, recumbent brownish setae and some loner, erect setae around apical margin.

Male antennae long and thin, almost reaching the middle of the elytra in length. First segment slightly thickened towards apex; second very short, about half as long as first; third about as long as first, fourth slightly longer; segments 5-8 each as long as first two together, or slightly longer; ninth about as long as fourth; 10 and 11 about as long as 1 and 3; last segment slightly constricted in middle part.

Pronotum slightly longer than wide, maximal length : maximal width 1 : 0.85 - 1 : 0.96; widest in fore half; sides in basal half slightly sinuate (more clearly in males than in females); all angles rounded; all

margins distinctly bordered; coarsely shagreened and matt; with fine, greyish ground vestiture and some larger, stiff, blackish setae along the margins. Basal and apical margins finely ciliate, with short, greyish hair-like setae (easily abraded).

Elytra about 2.9 times as long as wide together in males, subparallel; humeral callus distinct; finely shagreened, with slight oily sheen and rugose, leathery texture; ground vestiture relatively long and conspicuous, of greyish colour; with five conspicuous, longitudinal rows of long, black, erect setae, including the row along suture, slightly irregular and with some extra setae in apical third; setae arising from distinctly raised granuli. Margins very finely crenulate; crenulation often only distinct in apical third; with another row of long, stiff, black setae. Scutellum slightly transverse, with bluntly rounded apex; coarsely shagreened; sometimes slightly depressed in middle; covered in the same, greyish ground vestiture as elytra.

Femora matt, very finely shagreened, with short, blackish, recumbent pilosity. Tibiae and tarsi with slight, oily sheen, relatively sparsely covered in stiff, brownish setae. All claws in both sexes with large membranous appendage (fig. 30).

Abdomen with slight, oily sheen, very finely shagreened, with greyish, recumbent ground vestiture, finer than on elytra; around lateral and apical margins of ventrites; especially on the apical two; with longer, stiff, dark brownish to black setae.

Male: Apical margin of penultimate ventrite (sternite VI) emarginate; middle part of ventrite less than half as wide as lateral parts. Basal margin of last ventrite less emarginate than in *I. flavirostris*.

Aedeagus as in figs. 32, 46. Process of phallobase pointing backwards. Parameres with narrow, pointed apex; lower edge abruptly narrowed in apical third, with distinct, semicircular emargination at apex; dorsally gaping in apical half. Paramera gaping in apical half when seen from above. Median lobe not distinctly sinuate; curved upwards apically. Apex narrow, bluntly rounded, dorsoventrally not flattened.

Variability: Tibiae, tarsi and antennae infuscate to various degrees. Elytral colour tone usually plumbeous blueish to blueish-green, rarely with stronger greenish lustre, in one specimen (holotype of *I. testaceipes*) slightly violet. Elytral shape slightly variable, often more broadened in females.

Distribution: China (Yunnan, Sichuan, Chongqing, Gansu, Guizhou, Guangxi, Jiangxi).

Biology and ecology: This species occupies a wide altitudinal range from 500 m at the foot of Mt. Emei Shan until at least 3500 m in the subalpine zone of Hengduan Shan.

All in all, this species seems to be one of the most tolerant for cool, temperate climate within the whole family.

There are no informations available on their way of live or collecting techniques, except for the indication that some have been found in montane forest habitats.

Notes: Some specimens are labelled „Kiautschau", which was the name of a former German colonial outpost in Shandong province, around Qingdao city. This locality is far outside of the known range of the genus, and therefore very dubious. If the specimens are not mislabelled, „Kiautschau" might also be a corruption of the province name „Guizhou", which would be much more plausible.

***Palpolobonyx granulipennis* (Fairmaire, 1891) n. comb.**

(Figs. 3, 4, 31, 33, 47)

Idgia granulipennis Fairmaire, 1891a: CCIX.*Idgia virescens* Champion, 1919: 340. n. syn.**Type material examined:** Holotype ♂ of *granulipennis* (MNHP, coll. Fairmaire): "Idgia granulipennis. Fairm., Tchang Yang" (handwritten). Holotype label added. In good condition.Holotype ♀ of *virescens* (BMNH): "Chin-Fu-San, W. China. W. A. Maw. 1908-10."; "♀"; "Type H. T."; "Idgia virescens Ch.". Fallen off the original mounting card and strongly damaged, all legs except femur of left middle leg and one loose femur + tibia, as well as segments 7-11 of left and 2-11 of right antenna missing.**Other material examined:** CHINA: GANSU: "Kansou mer., Hoi-Sien., Coll. G. Hauser, Zool. Mus.

Berlin" 1 ♀ (MNHB); South Gansu, Venxian env., 1. IV. 1999, Beneš leg. 1 ♀ (NHMB); Wenxian, Qiujiaba, 2000-2100 m, 1. VII. 1998, Yao Jian leg. 1 ♀ (IZAS); Kangxian, Qinghe Forestry, 2250 m, 8. VII. 1999, Wang Hong-Jian leg. 1 ♀ (IZAS); Kangxian, Qinghe Forestry, 1400 m, 14. VII. 1999, Wang Shu-Yong leg. 1 ♀ (IZAS); Kangxian, Heimagan, 1450-1550m, Yuan De-Cheng leg. 1 ♀ (IZAS).

SHAANXI: Hua Shan, 17.-21. VI. 1991, R. Dunda leg. 2 ♀ (NHMB); Ningshan, Huoditang, 1620 m, 22. VII. 1979, Han Yin-Heng leg. 3 ♀ (IZAS); Ningshan, Huoditang, 2300 m, 6. VIII. 1979, Han Yin-Heng leg. 1 ♀ (IZAS); Ningshan, Huoditang, 2. VI. 2007, Cui Jun-Zhi leg. 1 ♀ (IZAS); Quing Ling Shan Mts., 1500 m, Hou Zhen Zi, 30 km SE Mt. Taibai Shan, 1500 m, 16. VI. 1998, O. Šafránek & M. Trýzna leg. 1 ♀ (NHMB); Taibai Shan above Houshenzi, 1300-1700 m, 9. VI. – 3. VII. 1998, P. Jäger & J. Martens leg. 1 ♀ (SMNS); Zhouzhi, Huozhenzi, 1350 m, 24. VI. 1999, Liu Chan-Min leg. 1 ♀ (IZAS); Zhouzhi, Huozhenzi, 1320 m, 23. VI. 1999, Zhang You-Wei leg. 1 ♂ (IZAS); Zhouzhi, Houzhenzi, 1271 m, 33.85°N, 107.83°E, 25. V. 2007, Shi Hong-Liang leg. 1 ♂ 1 ♀ (IZAS); Liuba, Miaotaizi, 1470 m, 1. VII. 1999, He Tong-Li leg. 1 ♀ (IZAS); Liuba, Miaotaizi, 1470 m, 1. VII. 1999, Hu Jian leg. 1 ♀ (IZAS); Foping env., 120 km SW Xian, 7. VI. 1992, M. Bok leg. 1 ♀ (SMNS); Foping, 20. V. 2007, Cui Jun-Zhi leg. 2 ♂ 1 ♀ (IZAS); Foping, 900 m, 27. VI. 1999, Yao Jian leg. 1 ♀ (IZAS); Foping, Shangshawo, 1100 m, 29. V. 2007, Li Wen-Zhu leg. 1 ♀ (IZAS); Foping, Shangshawo, 1295 m, 5. VII. 2008, Cui Jun-Zhi leg. 1 ♀ (IZAS); Foping, Shawo, 29. V. 2007, Zhang Li-Jie leg. 1 ♂ (IZAS); Foping, Shawo, 1170-1215 m, 33.59°N, 108.02°E, 29. V. 2007, Shi Hong-Liang leg. 1 ♂ 1 ♀ (IZAS); Foping, Changjiaoba, 29. V. 2007. 1 ♀ (IZAS); Lueyang, 4.-6. VI. 2004, E. Kučera leg. BMNH (E), 2004-106. M.V.L. Barclay. 1 ♀ (BMNH); Lueyang, 26. VI. – 6. VII. 2009, E. Kučera leg. 1 ♀ (BMNH).

GUIZHOU: 60 km N of Kaili, Shibing-Yuntai Shan, 21.-26. V. 1995, E. Jendek & O. Šauša leg. 1 ♀ (NHMB); 20 km NW of Jiangkou, Fanjing Shan – Kuaichang, 27. V. - 3. VI. 1995, E. Jendek & O. Šauša leg. 1 ♀ (NHMB); Zunyi, Nieyang, Kuankuoshui, 1400-1514 m, 3. VI. 2010, Wang Zhi-Liang leg. 1 ♀ (IZAS).

SICHUAN: Micang Shan, Daba env., 32°40' N / 106°55' E, 1300-1450 m, 11.-12. VI. 2008. 1 ♂ 3 ♀ (BMNH).

CHONGQING: Wanxian, Wangerbao, 1200 m, 22. V. 1993, Wang Shu-Yong leg. 2 ♂ 1 ♀ (IZAS); Wanxian, Wangerbao, 1200 m, 27. V. 1994, Zhang You-Wei leg. 1 ♀ (IZAS); Wanxian, Wangerbao, 1200 m, 28. V. 1994, Yao Jian leg. 1 ♂ (IZAS); Wanxian, Wangerbao, 1200 m, 28. V. 1994, Zhang You-Wei leg. 2 ♀ (IZAS); Wanxian, Wangerbao, 1200 m, 29. V. 1994, Yang Xing-Ke leg. 1 ♂ (IZAS).

HUNAN: Yanyanjie, 30 km N of Deyong, 27.-29. V. 2005, O. Nakládal leg. 1 ♀ (NMPC).

HUBEI: Dabie Shan, Wujiashan forest park, 31.1° N / 115.8° E, 7.-10. V. 2004. 3 ♀ (BMNH); Wudang Shan, 20.-25. V. 2005, O. Nakládal leg. 3 ♂ 2 ♀ (NMPC); Dashennongjia Nat. Res., Muyu, E slope, 2000 m, 12.-15. VI. 1997, Bolm leg. 3 ♂ 2 ♀ (NHMB); Muyuping, S. env., 31.45° N / 110.4° E, ~1300 m, 18. V. 2003. 6 ♂ 2 ♀ (BMNH), 1 ♂ 1 ♀ (NHMB); Shennongjia, Honghuaduo Forestry, 1640 m, 27. VII. 1981, Han Ying-Heng leg. 1 ♀ (IZAS); ~5 km S Lücongpo, 30.8° N / 110.25° E, 20. V. 2004. 6 ♂ 2 ♀ (BMNH), 1 ♂ (NHMB); Hefeng, 520 m, 24. VII. 1989, Li Yong-Kun leg. 1 ♀ (IZAS); ~30 km NE Hefeng, Mulinzi, 30.1° N / 110.2° E, 23.-24. V. 2004. 1 ♂ 2 ♀ (BMNH); ~3 km S Duncun, 31.0° N / 110.95° E, 5.-8. VI. 2005. 1 ♀ (CRS); Xingshan, Longmenhe, 700-1400m, 11. V. 1994, Yang Xing-Ke leg. 1 ♂ (IZAS); Xingshan, Longmenhe, 900-1200m, 12. VI. 1995, Wang Shu-Yong leg. 1 ♀ (IZAS); Xingshan, Longmenhe, 1300m, 6. V. 1994, Li Wen-Zhu leg. 1 ♂

(IZAS); Xingshan, Longmenhe, 1300m, 7. V. 1994, Yang Xing-Ke leg. 1 ♂ (IZAS); Xingshan, Longmenhe, 1300m, 11. V. 1994, Zhang You-Wei leg. 1 ♀ (IZAS); Xingshan, Longmenhe, 1300 m, 15. VI. 1993, Yao Jian leg. 1 ♂ (IZAS); Xingshan, Longmenhe, 1300 m, 17. VI. 1993, Huang Run-Zhi leg. 1 ♂ (IZAS); Xingshan, Longmenhe, 1300 m, 21. VI. 1993, Huang Run-Zhi leg. 1 ♂ (IZAS); Xingshan, Longmenhe, 1330m, 11. VI. 1995, Wang Shu-Yong leg. 1 ♀ (IZAS); Xingshan, Longmenhe, 1400m, 23. VI. 1993, Li Wen-Zhu leg. 1 ♀ (IZAS); Xingshan, Longmenhe, 1400m, 24. VI. 1993, Sun Bao-Wen leg. 1 ♀ (IZAS); Xingshan, Longmenhe, 1400m, 22. VII. 1993, Sun Bao-Wen leg. 1 ♀ (IZAS); Xingshan, Longmenhe, 1800m, 17. VI. 1993, Li Wen-Zhu leg. 1 ♀ (IZAS); Xingshan, Xiaohekou, 700m, 11. V. 1994, Li Wen-Zhu leg. 1 ♂ (IZAS).
HENAN: Xuejiaying – Yawu mts., 15. -19. V. 2004, E. Kučera leg. BMNH (E), 2004-106. M.V.L. Barclay. 1 ♀ (BMNH).

ANHUI: Dabieshan, 65 km SW Huoshan, 1400 m, 21.-24. VI. 1998, Bolm leg. 2 ♀ (NHMB).

JIANGXI: "Jiangxi" 1 ♀ (IZAS); "Ku-Ling, Musée Heude, 7. 7-35, O. Piel coll." 1 ♀ (IZAS); "Kou-Ling, VII-VIII-1919, J. Merré-Bazin, 10" 1 ♂ (MNHP); "Ku-ling, Musée Heude, 7. 7. 35, O. Piel coll., P. 487" 1 ♀ (MNHP); Lushan, 9. V. 1977, Zhang You-Wei leg. 1 ♂ 1 ♀ (IZAS); Lushan mts., Guling, 29.6° N / 116.0° E, 29. V. 2004. 2 ♂ 5 ♀ (BMNH), 1 ♀ (NHMB).

Measurements ♂ : TBL 7.7 - 9.8 mm, L-h 6.6 - 8.3 mm

HL 1.1 - 1.5 mm, PL 1.1 - 1.4 mm, EL 5.4 - 6.9 mm

♀ : TBL 8.5 - 10.5 mm, L-h 7.2 - 9.0 mm

HL 1.3 - 1.5 mm, PL 1.2 - 1.6 mm, EL 6.0 - 7.4 mm

Differential diagnosis: This species is superficially similar to *P. moupinensis*, but differs in having a yellow prosternum and only very small, vestigial membranous lobes at the base of the tarsal claws. Distinguished from *P. yuxiae* n. sp. by more metallic colouration, much more coarsely shagreened pronotum and also by the yellow prosternum.

Redescription: Habitus as in figs. 3 (♂) and 4 (♀). Head, pronotum, elytra, meso and metathorax dark blackish blue, at least elytra with blueish (sometimes greenish) metallic sheen. Abdomen, ventral face of prothorax, legs including coxae, antennae, clypeus, labrum, palpi and antennal insertions yellow testaceous. Tarsi and antennomeres 5-11 usually, tibiae more rarely, infuscate to a variable degree. Fore margin of pronotum often narrowly light brownish, sometimes yellow.

Head behind eyes about 0.65 to 0.75 times as wide as middle part of pronotum, coarsely shagreened and rather matt, with sparse, whitish and yellowish ground vestiture and a tuft of long, stiff, dark brownish setae behind eyes. Eyes rather widely separated dorsally; space between eyes slightly wider than frons between antennal insertions. Clypeus transversely subtrapezoidal, rather convex, very finely shagreened, with a few long, dark brownish setae. Labrum transverse, widest in apical half, with bluntly rounded sides, with sparse, yellowish ground vestiture and some scattered, long, brownish setae.

Male antennae long and thin, almost reaching the middle of the elytra in length. First segment slightly thickened towards apex; second very short, less than half as long as first; third about as long as first, fourth slightly longer; segments 5-8 each as long as first two together, or slightly longer; ninth about as long as fourth; 10 and 11 about as long as 1 and 3; last segment slightly constricted in middle part; apical half slightly narrower than basal half.

Pronotum slightly longer than wide, maximal length : maximal width 1 : 0.82 - 1 : 0.95; widest in fore half; sides in basal half faintly sinuate; all angles rounded; all margins distinctly bordered; coarsely shagreened and matt; with fine, greyish ground vestiture and some larger, stiff, blackish setae along the margins. Basal and apical margins ciliate, with rather long, greyish hair-like setae.

Elytra 3.3-3.6 times as long as wide together in males, subparallel; humeral callus distinct; finely shagreened, with slight metallic sheen and rugose texture; ground vestiture relatively sparse, greyish, well visible; with five conspicuous, longitudinal rows of long, black, erect setae, arising from distinctly raised granuli; inner row along suture easily abraded, outer row most developed in apical half, near lateral margins, rarely extending onto basal half of elytra. Margins distinctly crenulate, with another row of long, stiff, black setae. Scutellum flat, about as long as wide, with rounded angles; distinctly shagreened; with similar ground vestiture as elytra.

Femora rather matt, with very fine microsculpture and short, sparse, yellowish, recumbent pilosity, slightly finer than ground vestiture of elytra. Tibiae and tarsi with slight, oily sheen, relatively sparsely covered in stiff, brownish setae. Claws with small membranous appendage at base (fig. 31).

Abdomen relatively matt, very finely shagreened and with slightly wrinkly texture, with fine and rather inconspicuous yellowish ground vestiture; along lateral margins with some long, dark brownish setae, mostly on the last two ventrites.

Male: Apical margin of penultimate ventrite (sternite VI) emarginate; middle part of ventrite about half as wide as lateral parts. Last ventrite similar in shape to other species of the genus.

Aedeagus as in figs. 33, 47; relatively short. Process of phallobase pointing backwards. Apices of parameres narrow, pointed and bent downwards, claw-like. Paramera gaping in apical half when seen from above. Median lobe only faintly sinuate, with short, narrowed and flattened apex.

Variability: Elytral shape and width to length ratio relatively variable, also within one sex. Colouration constant, except tibiae, tarsi and antennae, which can be more or less infusate. Parameral shape slightly variable, also within one population, with claw-like apex varying in width; lower margin before apex with distinct emargination in some of the examined males.

Distribution: China (Hubei, Sichuan, Chongqing, Guizhou, Hunan, Anhui, Jiangxi, Henan, Shaanxi, Gansu).

Biology and ecology: According to label data, almost all examined specimens were found between April and the beginning of July (mostly in May), at montane altitudes between 1000 and 2000 m. Although there are no exact information given on their habitat, they seem to occur in temperate, deciduous, montane forests of Central China, judging from the given localities.

Notes: As the holotype of *Idgia virescens* is strongly damaged, the characters of the claws are not visible any more. Champion (1919) in his original description doesn't mention any kind of membranous appendage on the claws. He could have easily overlooked this character in *P. granulipennis*, but certainly not in the other species known from the type locality, *P. moupinensis*. From its still visible characters, including the yellow prosternum, as well as from the original description, it clearly belongs to *P. granulipennis*, occurring in the same area. Consequently, these two taxa are here synonymised.

***Palpolobonyx yuxiae* n. sp.**
(Figs. 5, 6, 34, 48, 60, 61)

Holotype ♂ (NHMB): "China, Yunnan, Baoshan, Gaoligongshan Nat. Res., ca. 50 km E Tengchong, ca. 2100 m, 24°49' N / 98°46' E, 22.-23. IV. 2011, leg. M. Geiser, Yang Y.-X. & Feng P.". Holotype label added. In good condition.

Paratypes (4 ♂ 93 ♀): 4 ♂ 13 ♀ (BMNH, NHMB, IZAS): same data as holotype. 1 ♀ (NMPC): "China, Yunnan pr., Gaoligong Shan, pass SW Baoshan 4.-8.vi.2005, O. Nakládal lgt.". 1 ♀ (NHMB): "YUNNAN, Gaoligong mts., 1500 m, 25.22N 98.49E, 17/24.v.1995, Vit Kubáň leg.". 5 ♀ (BMNH): "CHINA, W Yunnan, mts. 60 km E Tengchong, 2300 m, 14.-19. V. 2006, S. Murzin & I. Shokhin leg.". 71 ♀ (CRC): "China, W Yunnan, mts. 60 km E Tengchong, 2300 m, 14.-19. V. 2006, S. Murzin & I. Shokhin leg.". 1 ♀ (CRC): "China, Yunnan, Mts. 60 km E Tengchong, 2200 m, 19-22. V. 2006, S. Murzin & I. Shokhin leg.". 1 ♀ (CRC): "China, Yunnan, 65 km E Tengshong, humid forest, 2200-2350 m, 21.-22. V. 2003, S. Murzin leg.".

Type locality: China, Yunnan prov., Baoshan prefecture, Gaoligongshan mts. ca. 50 km E of Tengchong.

Measurements ♂ : TBL 7.4 - 9.1 mm, L-h 6.3 - 7.7 mm
HL 1.1 - 1.4 mm, PL 1.2 - 1.6 mm, EL 5.1 - 6.2 mm
♀ : TBL 9.9 - 11.1 mm, L-h 8.6 - 9.7 mm
HL 1.3 - 1.5 mm, PL 1.4 - 1.7 mm, EL 7.2 - 8.0 mm

Differential diagnosis: Similar to *P. granulipennis* and *P. moupinensis*. Distinguished by duller black colour without metallic sheen, the very finely sculptured pronotum and the shape of the male genitalia. Also distinguished from *P. moupinensis* by the much smaller membraneous lobe of the claws and from *P. granulipennis* by brownish to black ventral side of the prothorax.

Description: Habitus as in figs. 5 (♂) and 6 (♀). Body matt black, with coxae, clypeus, labrum, palpi, antennomeres 1-4 and parts of abdomen and legs pale yellow. Tibiae, tarsi and fourth antennomere often more or less infuscate, middle and hind tibiae sometimes entirely dark brown. Middle part of basal four ventrites infuscate, blackish brown, apical ventrites entirely yellow.

Head behind eyes about 0.7 times as wide as middle part of pronotum, finely shagreened and matt, with inconspicuous, dark, recumbent vestiture and some longer, black, erect setae behind the eyes. Eyes widely separated dorsally; space between eyes about 1.5 times as wide as frons between antennal insertions. Clypeus transversely subtrapezoidal, finely shagreened, with long, dark brownish setae. Labrum large, flat, about as wide as clypeus, but about double as long; thin and translucent; sparsely setose, with small, fine, brownish and longer, stiff, more blackish setae.

Male antennae long and thin, reaching the middle of the elytra in length. First segment slightly thickened; second very short; segments 3, 4, 9, 10 about equal in length, each of them longer than the first, but shorter than the first two together; segment 5 slightly longer than 4; 6-8 longest; last segment short, about as long as the first, basal part thickened, constricted in middle part.

Pronotum slightly longer than wide, maximal length : maximal width 1 : 0.82 - 1 : 0.93; widest in fore half, near middle; sides in basal half sometimes (but not always) slightly sinuate; all angles rounded, hind angles obtuse; basal margin more distinctly bordered than lateral and front margins; shallowly impressed in middle of basal part and with a large, oblique impression on both sides of the disc; finely sculptured and matt; with fine, greyish vestiture and a few larger, stiff, blackish setae along the margins. Basal and apical margins finely and sparsely ciliate, with short, brownish hair-like setae.

Elytra three times as long as wide together in males, subparallel in shape, with middle and subapical part slightly wider than humeral area; humeral callus distinct; matt, with finely rugulose, leathery texture and fine, inconspicuous ground vestiture; with three rows of small tubercles or granuli parallel to the suture in females, indistinct or absent in males; with three well-developed rows of stiff, black setae, parallel to suture. Margins very finely, sometimes not distinctly crenulate, with a row of stiff, black setae. Scutellum flat, subpentagonal, wider than long, with greyish vestiture.

Femora moderately shining, with fine, rather sparse, blackish vestiture, finer than ground vestiture on elytra. Tibiae without metallic lustre, shagreened, with short, stiff, brownish and blackish setae. Tarsi moderately shining, with brownish setae. Claws with small membranous appendage at base (as in fig. 31).

Abdomen moderately shining, with fine, greyish vestiture. Last two ventrites with long, black setae at their outer edges.

Male: Apical margin of penultimate ventrite (sternite VI) strongly emarginate; middle part of ventrite narrow, less than half as wide as lateral parts. Last ventrite similar in shape to other species of the genus.

Aedeagus as in figs. 34, 48; relatively short. Process of phallobase pointing backwards. Apical part of paramera in lateral view narrowed, in lateral view sinuate before apex. Apical tooth rounded and pointing ventrally. Median lobe flat, parallel-sided and straight until apical part. Apex slightly sinuate, narrower and pointed in dorsal view.

Variability: Among the material studied, some specimens were slightly teneral, with more brownish, semi-translucent pronotum and elytra, instead of matt black. Apart from some differences in body size, there is also considerable variation in pronotum shape, which can be more stout in some specimens. In males, the elytral tubercles are reduced or absent, which may be interpreted as either sexual dimorphism or individual variation, based on the limited available material.

Distribution: China (Yunnan).

Biology and ecology: Adults of this species were found from April to June in the understorey of a primary, montane deciduous forest in Gaoligongshan nature reserve (figs. 60, 61), which is known for its high diversity of tree species, including many Magnoliaceae, Theaceae and Fagaceae (*Castanopsis*). They were collected at daytime, sitting on leaves of understorey shrubs along small trails, and by beating. Both, males and females, were found in April. In May, large series of females were collected, but not a single male. In June, only few females were found.

Derivatio nominis: This interesting new species is dedicated in gratitude to my Chinese colleague, Dr. Yang Yu-Xia from Baoding University, Hebei, a specialist in Cantharidae. Only due to her invaluable help, it was possible to discover the males of this species at the Gaoligongshan nature reserve. She also collected a part of the type series.

Palpolobonyx flavirostris (Pascoe, 1860) **n. comb.**
(Figs. 7, 8, 9, 35, 49, 59)

Idgia flavirostris Pascoe, 1860: 43.

Idgia ardesiaca Pic, 1908c: 59. **n. syn.**

Type material examined: Holotype of *flavirostris* ♀ (BMNH): "Type"; "N China"; "Idgia flavirostris Type Pasc."; "Pascoe Coll. 93-60."; "♀"; "Idgia flavirostris Pasc". Holotype label added. Segments 9-11 of left and 7-11 of right antenna missing.

Syntype of *ardesiaca* ♂ (MNHP, coll. Pic): "Kouatoun"; "Idgia ardesiaca Frm. n. sp."; "collect. Grandjean". Syntype label added. Left antennal segments 4-11 missing.

Syntype of *ardesiaca* ♀ (MNHP, coll. Pic): "Kouatoun"; "Chine"; "type"; "TYPE"; "Idgia ardesiaca Frm. n. sp."; "Pic, L' Ech. no. 284 1908 p. 59". Syntype label added. In rather poor condition, mouldy, with few antennal and tarsal segments missing.

Syntype of *ardesiaca* ♀ (MNHP, coll. Fairmaire): "Kouatoun"; "Idgia ardesiaca Fairm". Syntype label added. Segments 4-11 of right antennae and large parts of the legs (tibiae and tarsi) missing.

Syntype of *ardesiaca* ♂ (MNHP, coll. Fairmaire): "Kouatoun, DeLaTouche". Syntype label added. Right antenna and segments 9-11 of left antenna missing.

Syntype of *ardesiaca* ♀ (MNHP, coll. Fairmaire): Same labels as above. Syntype label added. Right metatarsus missing.

Syntype of *ardesiaca* ♀ (MNHP, coll. Fairmaire): "Kouatoun, Latouch."; "Idgia ardesiaca Fm n. sp.". Syntype label added. Parts of both antennae and several tarsal segments missing.

Additional material examined:

„*Palpolobonyx flavirostris* s. str." (males with aedeagus shape as in syntypes of *ardesiaca*)

CHINA: "China, 92.-87" 1 ♀ (BMNH); "China, 666, 14/3/52, Bowring, 63-47*" 1 ♀ (BMNH); "666, 14/3/52" 1 ♀ (BMNH); "China, Mell S.V." 1 ♀ (MNHB); "China, 666, 30/1/57, Bowring, 63-47*" 1 ♀ (BMNH); "China, 666, Bowring, 63-47*" 3 ♀ (BMNH); "China, Bowring, 63-47*" 1 ♀ (BMNH); "N. China, 54.8." 1 ♀ (BMNH); "N. Ch., ex Musaeo Reiche, coll. R. Oberthür 1952" 1 ♀ (MNHP); "China bor." 2 ♀ (ZMUC).

HONG KONG: "Hong Kong, 56-113" 1 ♀ (BMNH); "Hong Kong, 56-157, 666, 28/3/53" 1 ♀ (BMNH); "Hong Kong, 48-200" 1 ♀ (BMNH); "Hong Kong, Boyer, 860" 1 ♀ (NHMW).

GUANGDONG: Daqiao, 24°54' N / 113°01' E, 1500-1900 m, 2. V. 2002, R. Fencel leg. 1 ♀ (NMPC); Lianzhou, Yaoan, Tianxin Forestry, 15.-19. III. 2003, Zhang Bing-Lan leg. 1 ♂ 1 ♀ (SYSU); Lianzhou, Tianxin Forestry, 15.-21. III. 2003 Zhang Bi-Sheng & Zhang Bing-Lan leg. 1 ♀ (SYSU); Shixing, Chebaling, 25. IV. 1991, Wen Rui-Zhen leg. 1 ♀ (SYSU); Chaoan, Fenghuangshan, 5. IV. 1959. 1 ♀ (SYSU).

ANHUI: "Ahnwei, Anking" 1 ♀ (IZAS).

JIANGXI: Wufugang, E slopes, 1000-1400 m, 27°59' N / 118°02' E, 29. IV. 2010, BMNH (E), 2010-169. 1 ♀ (BMNH); "Kin Kiang, Chine" 2 ♀ (MNHP).

FUJIAN: "Fukien, 1948-V" 1 ♀ (IZAS); "Fokien" 1 ♀ (ZISP); "Fukien, China, J. Klapperich, coll. W. Wittmer" 2 ♂ 1 ♀ (NHMB); Fenshui Guan, 27.9° N / 117.85°E, 1700 m, 7. V. 2005. 1 ♂ (CRS); Daiyunshan, 25°39' N / 118°13' E, 1300-1600 m, 3. V. 2008. 1 ♂ (BMNH); Kuantun, 2300 m, 27°40' N / 117°40' E, 24. III. 1938, J. Klapperich leg. 7 ♂ 1 ♀ (ZMFK); Kuantun, 2300 m, 27°40' N / 117°40' E, 28. III. 1938, J. Klapperich leg. 3 ♂ 1 ♀ (ZMFK); Kuantun, 2300 m, 27°40' N / 117°40' E, 29. III. 1938, J. Klapperich leg. 10 ♂ 1 ♀ (ZMFK); Kuantun, 2300 m, 27°40' N / 117°40' E, 30. III. 1938, J. Klapperich leg. 16 ♂ 1 ♀ (ZMFK); Kuantun, 27°40' N / 117°40' E, 2300 m, 30. III. 1938, J. Klapperich leg., coll. W. Wittmer. 1 ♂ (NHMB); Kuantun, 2300 m, 27°40' N / 117°40' E, 31. III. 1938, J. Klapperich leg. 21 ♂ 4 ♀ (ZMFK); Kuantun, 2300 m, 27°40' N / 117°40' E, 1. IV. 1938, J. Klapperich leg. 18 ♂ (ZMFK); Kuantun, 27°40' N / 117°40' E, 2300 m, 1. IV. 1938, J. Klapperich leg., coll. W.

Wittmer. 1 ♂ (NHMB); Kuatun, 2300 m, 27°40' N / 117°40' E, 2. IV. 1938, J. Klapperich leg. 4 ♂ 1 ♀ (ZMFK); Kuatun, 2300 m, 27°40' N / 117°40' E, 3. IV. 1938, J. Klapperich leg. 7 ♂ 1 ♀ (ZMFK); Kuatun, 2300 m, 27°40' N / 117°40' E, 4. IV. 1938, J. Klapperich leg. 1 ♂ 2 ♀ (ZMFK); Kuatun, 2300 m, 27°40' N / 117°40' E, 5. IV. 1938, J. Klapperich leg. 9 ♂ 2 ♀ (ZMFK); Kuatun, 2300 m, 27°40' N / 117°40' E, 6. IV. 1938, J. Klapperich leg. 9 ♂ (ZMFK); Kuatun, 2300 m, 27°40' N / 117°40' E, 7. IV. 1938, J. Klapperich leg. 7 ♂ 1 ♀ (ZMFK); Kuatun, 2300 m, 7. IV. 1938, J. Klapperich, coll. W. Wittmer. 2 ♀ (NHMB); Kuatun, 2300 m, 27°40' N / 117°40' E, 8. IV. 1938, J. Klapperich leg. 2 ♀ (ZMFK); Kuatun, 2300 m, 10. IV. 1938, J. Klapperich, coll. W. Wittmer. 2 ♂ (NHMB); Kuatun, 2300 m, 27°40' N / 117°40' E, 12. IV. 1938, J. Klapperich leg. 1 ♂ 3 ♀ (ZMFK); Kuatun, 2300 m, 27°40' N / 117°40' E, 14. IV. 1938, J. Klapperich leg. 3 ♀ (ZMFK); Kuatun, 2300 m, 27°40' N / 117°40' E, 15. IV. 1938, J. Klapperich leg. 1 ♂ (ZMFK); Kuatun, 2300 m, 27°40' N / 117°40' E, 17. IV. 1938, J. Klapperich leg. 1 ♀ (ZMFK); Kuatun, 2300 m, 27°40' N / 117°40' E, 18. IV. 1938, J. Klapperich leg. 1 ♀ (ZMFK); Kuatun, 2300 m, 27°40' N / 117°40' E, 20. IV. 1938, J. Klapperich leg. 1 ♀ (ZMFK); Kuatun, 2300 m, 27°40' N / 117°40' E, 21. IV. 1938, J. Klapperich leg. 4 ♀ (ZMFK); Kuatun, 2300 m, 27°40' N / 117°40' E, 24. IV. 1938, J. Klapperich leg. 6 ♂ (ZMFK); Kuatun, 2300 m, 27°40' N / 117°40' E, 27. IV. 1938, J. Klapperich leg. 1 ♀ (ZMFK); Kuatun, 2300 m, 27°40' N / 117°40' E, 28. IV. 1938, J. Klapperich leg. 1 ♀ (ZMFK); Kuatun, 2300 m, 27°40' N / 117°40' E, 13. V. 1938, J. Klapperich leg. 1 ♂ 3 ♀ (ZMFK); Kuatun, 2300 m, 18. V. 1938, J. Klapperich, coll. W. Wittmer. 1 ♀ (NHMB); Kuatun, 2300 m, 27°40' N / 117°40' E, 20. V. 1938, J. Klapperich leg. 1 ♀ (ZMFK); Kuatun, 2300 m, 27°40' N / 117°40' E, 23. V. 1938, J. Klapperich leg. 1 ♀ (ZMFK); "Kuatun, 14. III. 1946" 15 ♂ 2 ♀ (NHMB); Kuatun vill., 2300 m, 14. III. 1946, J. Klapperich leg. 34 ♂ 20 ♀ (NHMB); "Kuatun, 16. III. 1946" 4 ♂ 1 ♀ (NHMB); Kuatun vill., 2300 m, 17. III. 1946. 38 ♂ 4 ♀ (NHMB); Kuatun vill., 2300 m, 20. III. 1946, J. Klapperich leg. 95 ♂ 12 ♀ (NHMB); Kuatun vill., 2300 m, 20. III. 1946. 113 ♂ 6 ♀ (NHMB); "Kuatun, 21. III. 1946" 16 ♂ 6 ♀ (NHMB); Kuatun vill., 2300 m, 21. III. 1946, J. Klapperich leg. 87 ♂ 20 ♀ (NHMB); Kuatun village, 21. III. 1946, Klapperich leg. 20 ♂ 7 ♀ (BMNH); Kuatun vill., 2300 m, 23. III. 1946. 134 ♂ 80 ♀ (NHMB); Kuatun vill., 2300 m, 25. III. 1946, J. Klapperich leg. 35 ♂ 20 ♀ (NHMB); Kuatun vill., 2300 m, 25. III. 1946. 37 ♂ 15 ♀ (NHMB); Kuatun vill., 2300 m, 26. III. 1946, J. Klapperich leg. 93 ♂ 23 ♀ (NHMB); Kuatun vill., 2300 m, 26. III. 1946. 160 ♂ 52 ♀ (NHMB); "Kuatun, 31. III. 1946" 33 ♂ 4 ♀ (NHMB); Kuatun vill., 2300 m, 31. III. 1946. 83 ♂ 23 ♀ (NHMB); Kuatun vill., 2300 m, 1. IV. 1946. 64 ♂ 41 ♀ (NHMB); Kuatun vill., 2300 m, 2. IV. 1946, J. Klapperich leg. 770 ♂ 409 ♀ (NHMB); "Kuatun, 5. IV. 1946" 91 ♂ 40 ♀ (NHMB); Kuatun vill., 2300 m, 5. IV. 1946, J. Klapperich leg. 90 ♂ 20 ♀ (NHMB); Kuatun vill., 2300 m, 5. IV. 1946. 91 ♂ 26 ♀ (NHMB); "Kuatun, 7. IV. 1946" 10 ♂ 6 ♀ (NHMB); Kuatun vill., 2300 m, 7. IV. 1946. 324 ♂ 87 ♀ (NHMB); Kuatun vill., 2300 m, 8. IV. 1946, J. Klapperich leg. 416 ♂ 103 ♀ (NHMB); Kuatun vill., 2300 m, 10. IV. 1946. 78 ♂ 25 ♀ (NHMB); Kuatun vill., 2300 m, 12. IV. 1946. 123 ♂ 91 ♀ (NHMB); "Kuatun, 12. IV. 1946" 4 ♂ 4 ♀ (NHMB); "Kuatun, 22. IV. 1946" 4 ♀ (NHMB); "Kuatun, 23. IV. 1946" 1 ♂ 2 ♀ (NHMB); Kuatun vill., 2300 m, 23. IV. 1946. 61 ♂ 96 ♀ (NHMB); Kuatun vill., 2300 m, 26. IV. 1946. 16 ♂ 65 ♀ (NHMB); "Kuatun, 1. V. 1946" 2 ♀ (NHMB); "Kuatun, 10. V. 1946" 1 ♀ (NHMB); "Kuatun, 12. V. 1946" 1 ♀ (NHMB); Kuatun vill., 2300 m, 12. V. 1946. 6 ♀ (NHMB); "Kuatun, 26. V. 1946" 2 ♀ (NHMB); "Kuatun, 30. V. 1946" 1 ♀ (NHMB); "Kuatun, 5. VI. 1946" 1 ♀ (NHMB); "Kuatun, 26. VI. 1946" 2 ♀ (NHMB); "Kuatun, 18. IX. 1946" 1 ♀ (NHMB); "Kouatoun, 387" 1 ♂ (MNHP); Ziyungdongshan, NW slopes, 700-1100 m, 25°46' N 117°20' E, 29. IV. 2008. 2 ♀ (BMNH); Jianyang, Huangkeng, 350-460m, 25. III. 1960, Zuo Yong leg. 1 ♀ (IZAS); Jianyang, Huangkeng, 270-350m, 26. III. 1960, Jiang Sheng-Qiao leg. 1 ♀ (IZAS); Jianyang, Huangkeng, 270-350m, 26. III. 1960, Pu Fu-Ji leg. 2 ♀ (IZAS); Jianyang, Huangkeng, 270-350m, 27. III. 1960, Zhang Yi-Ran leg. 2 ♀ (IZAS); Jianyang, Huangkeng, Liudun, 300-400m, 28. III. 1960, Pu Fu-Ji leg. 2 ♀ (IZAS); Jianyang, Huangkeng, Xinli, 270-290m, 1. IV. 1960, Jiang Sheng-Qiao leg. 1 ♀ (IZAS); Jianyang, Huangkeng, Guilin, 270-590m, 11. IV. 1960, Zuo Yong leg. 2 ♂ (IZAS); Jianyang, Huangkeng, Guilin, 270-590m, 14. IV. 1960, Zuo Yong leg. 1 ♀ (IZAS); Jianyang, Huangkeng, Guilin, 270-390m, 5. IX. 1960, Ma Cheng-Lin leg. 1 ♀ (IZAS); Jianyang, Huangkeng, Guilin, 270m, 4. IV. 1960, Zhang Yi-Ran leg. 1 ♀ (IZAS); Jianyang, Huangkeng, Guilin, 270m, 11. IV. 1960, Zhang Yi-Ran leg. 1 ♀ (IZAS); Jianyang, Huangkeng, Guilin, 290-320m, 4. IV. 1960, Jiang Sheng-Qiao leg. 1 ♀ (IZAS); Jianyang, Huangkeng, Guilin, 290-400m, 5. IV. 1960, Jiang Sheng-Qiao leg. 1 ♀ (IZAS); Jianyang, Huangkeng, Guilin, 270-590m, 7. IV. 1960, Zhang Yi-Ran leg. 1 ♀ (IZAS); Jianyang, Huangkeng, Guilin, 270-590m, 14. IV. 1960, Ma Cheng-Lin leg. 1 ♀ (IZAS); Jianyang, Huangkeng, Changjian, 340-370m, 18. IV. 1960, Jiang Sheng-Qiao leg. 1 ♀ (IZAS); Jianyang, Huangkeng, Dazhulan, 950-1170m, 2. V. 1960, Ma Cheng-Lin leg. 8 ♀ (IZAS); Chongan, Xingcun, Sangang, 720m, 12. V. 1960, Pu Fu-Ji leg. 1 ♀ (IZAS); Chongan, Xingcun, Sangang, 720m, 14. V. 1960, Jiang Sheng-Qiao leg. 1 ♀ (IZAS); Chongan, Xingcun, Sangang, 740m, 17. V. 1960, Zhang Yi-Ran leg. 2 ♀ (IZAS);

Chongan, Xingcun, Sangang, 740m, 25. V. 1960, Zhang Yi-Ran leg. 3 ♀ (IZAS); Chongan, Sangang, 8. VI. 1982, Li Hong-Xing leg. 1 ♀ (IZAS); Chongan, Xingcun, Xianfengding, 820-1170m, 20. V. 1960, Zhang Yi-Ran leg. 1 ♀ (IZAS); Chongan, Xingcun, Tongmuguan, 800-900m, 22. V. 1960, Jiang Sheng-Qiao leg. 1 ♀ (IZAS); Chongan, Xingcun, Tongmuguan, 900-1050m, 30. V. 1960, Zuo Yong leg. 1 ♀ (IZAS); Chongan, Longbo-Pikeng, 580-380m, 24. V. 1960, Zuo Yong leg. 1 ♀ (IZAS); Chongan, Xingcun, Guadun, 840-1140m, 11. V. 1960, Pu Fu-Ji leg. 1 ♀ (IZAS); Chongan, Xingcun, Guadun, 950-1210m, 22. V. 1960, Ma Cheng-Lin leg. 2 ♀ (IZAS); Chongan, Xingcun, Guadun, 840-1160m, 11. VII. 1960, Ma Cheng-Lin leg. 1 ♀ (IZAS); Chongan, Xingcun, Aotou, 800-950m, 23. IV. 1960, Zuo Yong leg. 1 ♂ (IZAS); Chongan, Xingcun, Aotou, 800-950m, 24. IV. 1960, Zhang Yi-Ran leg. 1 ♀ (IZAS); Chongan, Xingcun, Aotou, 900-950m, 26. IV. 1960, Pu Fu-Ji leg. 1 ♀ (IZAS); Chongan, Xingcun, Aotou, 850-950m, 29. IV. 1960, Pu Fu-Ji leg. 1 ♀ (IZAS); Chongan, Xingcun, Aotou, 720-950m, 30. IV. 1960, Zuo Yong leg. 2 ♀ (IZAS); Chongan, Xingcun, Aotou, 720-950m, 30. IV. 1960, Ma Cheng-Lin leg. 1 ♂ 1 ♀ (IZAS); Chongan, Xingcun, Aotou, 750-950m, 7. V. 1960, Zhang Yi-Ran leg. 1 ♀ (IZAS); Chongan, Xingcun, Aotou, 950m, 2. V. 1960, Zhang Yi-Ran leg. 1 ♀ (IZAS); Chongan, Xingcun, Aotou, 800-950m, 5. V. 1960, Pu Fu-Ji leg. 1 ♀ (IZAS); "Changting: Niuling, 24. IV. 1941, T. C. Maa Collector" 2 ♀ (BIHM).

ZHEJIANG: "Che-K." 1 ♀ (NMPC); "Mokan Shan, 1. 5. 36, O. Piel coll., Musée Heude, coll. W. Wittmer" 1 ♂ 1 ♀ (NHMB); "Mokan Shan, 27. 4. 36, O. Piel coll., Musée Heude, P. 491" 1 ♂ 1 ♀ (MNHP); "Mokan Shan, 6. 5. 36, O. Piel coll., Musée Heude, P. 491" 1 ♂ (MNHP); "Mokan Shan, Musée Heude" 1 ♂ 1 ♀ (IZAS); "Mokan Shan, Musée Heude, 30. 4. 36, O. Piel coll." 2 ♂ 3 ♀ (IZAS); "Mokan Shan, Musée Heude, 1. 5. 36, O. Piel coll." 2 ♂ 4 ♀ (IZAS); "Mokan Shan, Musée Heude, 11. 5. 36, O. Piel coll." 1 ♀ (IZAS); "Mokan Shan, Musée Heude, 21. 5. 36, O. Piel coll." 1 ♀ (IZAS); "T'ienmu Shan, Musée Heude, 18. 6. 36, O. Piel coll." 1 ♀ (IZAS); "T'ienmu Shan, Musée Heude, 19. IV. 37, O. Piel coll." 2 ♂ 1 ♀ (IZAS); "Tienmuschan, N. W. China, Rtt." 1 ♀ (NHMB); Tianmushan, 4. V. 1980-V-4, Yu Pei-Yu leg. 8 ♀ (IZAS); Tianmushan, 3. V. 1980-V-3, Yu Pei-Yu leg. 3 ♀ (IZAS); "Ningpo, Chine" 1 ♀ (MNHP); "Ningpo" 4 ♀ (MNHP); "Hangchow, 28. IV. 1930, leg. Prof. P. H. Tsai" 2 ♀ (BMNH); Jiulong Shan, 600-700 m, 28°22' N / 118°51' E, 14. V. 2008. 2 ♀ (BMNH); Anji, Longwangshan, 450m, 12. V. 1996, Wu Hong leg. 1 ♀ (IZAS); Anji, Longwangshan, 450m, 16. V. 1996, Wu Hong leg. 1 ♂ (IZAS); Qingyuan, Baishanzu, 1600m, 21. VIII. 1993, Wu Hong leg. 1 ♀ (IZAS); Qingyuan, Baishanzu, 1300m, 13. IX. 1993, Wu Hong leg. 1 ♂ (IZAS); Qingyuan, Baishanzu, 1100m, 15. IV. 1994, Wu Hong leg. 1 ♂ (IZAS); Qingyuan, Baishanzu, 300m, 21. IV. 1994, Wu Hong leg. 1 ♀ (IZAS); Qingyuan, Baishanzu, 1500m, 18. V. 1994, Wu Hong leg. 1 ♂ (IZAS); Qingyuan, Baishanzu, Shijiuyuan, 1650m, 21. IV. 1994, Wu Hong leg. 3 ♂ 2 ♀ (IZAS); Qingyuan, Baishanzu, Chachangyu, 1300m, 19. IV. 1994, Wu Hong leg. 1 ♂ (IZAS); "Tung-lu, China, Apr. 23, 1926, Mrs. Dora E Wright Collector" 1 ♀ (SYSU); Qianjiang for.park, 29°23' N / 118°12' E, 720-950 m, 1. V. 2010. 6 ♂ 2 ♀ (BMNH), 1 ♂ 1 ♀ (NHMB); Qianjiang, for. park, 720-950 m, 29°53' N / 118°12' E, 29. V. 2010. 1 ♂ (BMNH); Caoyutang for. park, 1100-1300 m, 27°55' N / 119°39' E, 31. V. 2010. 4 ♀ (BMNH); SE of Pan'an, Dapanshan, 700-1000 m, 28°58' N / 120°31' E, 16. V. 2011. 8 ♂ 1 ♀ (BMNH); "Chusan Is., J. J. W., 1996, 1919-28" 1 ♂ (BMNH); "Chusan Is., J. J. W., 1919-28" 2 ♀ (BMNH); "Chusan Is., J. J. W., G. C. Champion Coll., B. M. 1927-409." 4 ♀ (BMNH); "Ta-maon. Id. (I), 92.-87, 1928" 1 ♀ (BMNH); "Ta-maon. Id. (I), 92.-87, 7413" 1 ♀ (BMNH).

SHANGHAI: "Shanghai, Ex Musaeo Mniszech, coll. R. Oberthür 1952" 1 ♀ (MNHP).

TAIWAN: Fushan, Taipei Hsien, 21. III. 1998, M. Sakai leg. 1 ♀ (EHUM); Fushan, Yuanshan Township, 600 m, 27. III. 2004, T. Kurihara leg. 1 ♀ (EHUM); Fushan, Wulai Township, 600 m, 28. III. 2004, T. Kurihara leg. 3 ♂ 2 ♀ (EHUM); Fushan Botanical Park, Yilan & Taipei, 12.-13. IV. 2011, Kiyoshi Ando leg. 2 ♂ 2 ♀ (KMNH); Taipei Hsien, Fushan LTER site, lake-shore, meadow, swept, 25. III. 2003, L. Papp & M. Földvári leg. 1 ♀ (MTMB); Wulai, Taipei Hsien, 21. III. 1998, M. Sakai leg. 1 ♂ (EHUM); Taipei county, Neitung Forest Recreation Area, 6 km S of Wulai, swept from vegetation, 7. IV. 2002, Gy. Fábrián & O. Merkl leg. 1 ♀ (MTMB); Ilan, Tatung, 30. III. 2010, H.-J. Chen leg. 1 ♀ (TARI); Hsinchu, Tahunshan, 24. II. 2009, S.-F. Yu leg. 1 ♂ (TARI).

„*Palpolobonyx flavirostris s. lat.*“ (males with aedeagus shape differing from Fujian populations, plus unassigned females from SW-China):

CHINA: GUIZHOU: Leishan Co., SE Kaili, NE Leishan, Leigong Shan, E – slope, 1700-1800 m, env. of pass between Leishan and Fangxiang, 26°22.74' N / 108°12.99' E, 14.-26. VI. 2001, Schillhammer leg. 2 ♀ (NHMW); Shibing – Yuntai Shan, 60 km N of Kaili, 21.-26. V. 1995, E. Jendek & O. Šauša leg. 1 ♀ (NHMB). SICHUAN: „Prov. Szechuen, West-China, IV / V 29. coll. W. Wittmer." 1 ♀ (NHMB); "Nitou, Tatsienlu, Szechuan, Em. Reitter" 1 ♀ (NHMB); Emei Mt., 500 m, 4.-20. V. 1989, Vít Kubáň leg. 1 ♀ (NHMB); Mt. Emei, 600-1050 m, 5.-19. V. 1989, Lad. Bocák leg. 2 ♀ (NHMB); Mt. Emei, 500-1200 m, 4.-18. V. 1989, S. & J. Kolibáč leg. 2 ♀ (NHMB). CHONGQING: "Kinfushan, Prov. Szechuen, West-China, IV / V 29. " 1 ♀ (MNHP); "Kinfushan, Prov. Szechuen, West-China, IV / V 29. coll. W. Wittmer." 2 ♀ (NHMB); "Kinfushan, Prov. Szechuen, West-China, IV / V 29. Coll. H. Becker. coll. W. Wittmer." 2 ♀ (NHMB). YUNNAN: Jinping, Hetouzhai, 1700 m, 9. V. 1956, Huang Ke-Ren leg. 1 ♀ (IZAS); Jinping, Hetouzhai, at light, 1700 m, 14. V. 1956, Huang Ke-Ren leg. 1 ♀ (IZAS). GUANGXI: Jinxiu, Huawangshan, Zhuang, 600m, 20. V. 1999, Xiao Hui leg. 1 ♀ (IZAS). HAINAN: Haikou Park, 6. XI. 1964, Hua Li-Zhong leg. 1 ♀ (SYSU). **VIETNAM:** Lao Cai prov., 16 km W of Sa Pa, 1800, first frontier base camp, at light, 17. III. 1998, L. Peregovits & T. Vásárhelyi leg. 1 ♂ (MTMB); Lao Cai prov., Hoang Lien NP, Tram Ton, 1915 m, forest edge, at light, 22.3493723° N, 103.7704565° E, 8.-11. IV. 2010, L. Papp, L. Peregovits & Z. Soltész leg. 9 ♂ 2 ♀ (MTMB), 2 ♂ (BMNH); „Lao Kay, Tonkin" 1 ♀ (MNHP); „Lao Kay" 1 ♂ 1 ♀ (MNHP); „Lao Kay, mai 1913" 1 ♀ (MNHP); „Tonkin, Chapa, le mai 1916, R. Vitalis de Salvaza, 1154" 1 ♀ (MNHP); „Chapa, 1154" 1 ♀ (MNHP); „Tonkin, Chapa, 1-V-1918, Jeanvoine" 1 ♀ (MNHP); „Tonkin, Chapa, 4-V-1918, Jeanvoine" 1 ♀ (MNHP); „Chapa, Tonkin, coll. W. Wittmer" 1 ♀ (NHMB); „Chapa, Tonkin" 2 ♀ (MNHP); „Chapa" 1 ♂ 6 ♀ (MNHP); Lao Cai prov., Sa Pa Distr., Fan Si Pan Mt., 1900-2500 m, 22°20'58" N / 103°46'15" E, 9. V. 1999, N. L. Orlov leg. 1 ♀ (ZISP); Lao Cai prov., Sa Pa Distr., Fan Si Pan Mt., 1900-2500 m, 22°20'58" N / 103°46'15" E, 9. V. 1999, N. L. Orlov leg., iz kollektcii O. N. Kabakova. 2 ♀ (ZISP); Lao Cai prov., Sa Pa Distr., Fan Si Pan Mt., 1400-1500 m, 22°18'56" N / 103°49'35" E, 6. VI. 1999, N. L. Orlov leg., iz kollektcii O. N. Kabakova. 1 ♀ (ZISP); Na Hang, Yen Bai, 1700 m, 21°40' N / 104°06' E, 24. V, 2005, M. Sano leg. 1 ♀ (EHUM); „Yen Bai, Tonkin, L. Dupont" 1 ♀ (MNHP); „Ht. Tonkin, N.O. de Bao-Lac, Dr. Battarel 1897-1898, coll. R. Oberthür" 1 ♀ (MNHP).

Measurements ♂ : TBL 10.0 - 11.5 mm, L-h 8.7 - 10.0 mm
 HL 1.3 - 1.7 mm, PL 1.5 - 1.8 mm, EL 7.1 - 8.2 mm
 ♀ : TBL 10.1 - 13.5 mm, L-h 8.6 - 12.0 mm
 HL 1.4 - 1.8 mm, PL 1.6 - 1.9 mm, EL 7.9 - 10.1 mm

Differential diagnosis: This species can be easily distinguished from *P. gressitti* n. sp. and related species by the immaculate pronotum. It is, however, closely related to *P. sapaensis* n. sp. (see below). They are best distinguished by the shape of the aedeagus, while females are very hard or impossible to tell apart without using the locality.

Redescription: Habitus as in figs. 7 (♂) and 8 (♀). Metasternum and elytra black with blueish or dark greenish lustre, vertex of head and frons between eyes black; pronotum, scutellum, meso- and prosternum, legs, antennae, fore part of head, including labrum and palpi varying from testaceous yellow to light reddish brown; tibiae and tarsi; antennomeres 5-11, as well as tibiae and tarsi of middle- and hind legs often infusate. Abdomen usually bicolorous, with middle part of ventrites 1-4 broadly infusate, the sides and the whole of the last two tergites testaceous yellow; sometimes whole abdomen testaceous.

Head behind eyes 0.7-0.8 times as wide as middle part of pronotum, relatively matt with wrinkly microsculpture, with fine, whitish and brownish, recumbent vestiture and longer, brownish to black setae on the vertex and behind the eyes. Eyes relatively widely separated dorsally; space between eyes 1.3-1.5 times as wide as frons between antennal insertions. Clypeus transversely subrectangular, finely

shagreened, with long, brownish setae. Labrum large, flat, slightly widened in apical part, about as wide as clypeus, also about double as long, sparsely setose, with small, recumbent and longer, erect, brown setae.

Male antennae reaching the middle third of the elytra in length. First segment apically thickened; second short; third segment about as long as the first or slightly longer, segment 4, 9 and 10 about equal in length, slightly longer than the first, but shorter than the first two together; segments 5-8 longest; last segment short, about as long as the first, thickened, constricted in middle part.

Pronotum as long as wide or slightly longer, maximal length : maximal width 1 : 0.93 - 1 : 1.03; widest in fore half, often slightly sinuate in basal half; all angles rounded, hind angles obtuse; basal margin not bordered; shallowly impressed in middle of basal part and with a large, but shallow, oblique impression on both sides of the disc; with very fine texture, rather matt; with fine, black vestiture and a few larger, stiff, blackish setae along the margins.

Elytra about 3.3 times as long as wide together in males, subparallel in shape, with middle and subapical part slightly wider than humeral area; humeral callus distinct; relatively shining, with metallic lustre, with densely and shallowly punctate, rugulose texture and dense, greyish ground vestiture; with three rows of small tubercles or granuli parallel to the suture, each of them bearing a long, blackish seta; margins often finely crenulate, at least in middle part, with a row of small, stiff, black setae. Scutellum flat, subpentagonal, about as wide as long, with fine vestiture.

Femora moderately shining, with fine, inconspicuous, brownish vestiture. Tibiae with stronger, more stiff, and denser setation. Tarsi rather matt, with strong, brownish setation. Claws with small membranous appendage at base (as in fig. 31).

Abdomen moderately shining, with fine, greyish vestiture. Last two ventrites with long, brownish setae at their outer edges.

Male: Apical margin of penultimate ventrite (sternite VI) strongly emarginate; middle part of ventrite narrow, about $\frac{1}{4}$ as wide as lateral parts. Last ventrite similar in shape to other species of the genus. See fig. 59.

Aedeagus as in figs. 35, 49. Process of phallobase pointing backwards. Parameres broad, shorter and stouter than in *P. gressitti* and *P. simillimus*; apex truncate, with ventral tooth, lower edge before apex with few, short, inconspicuous hair-like setae. Median lobe very flat and nearly straight until the apical $\frac{1}{8}$, which is gently curved dorsally. Apex tongue-shaped in dorsal view.

Variability: Throughout its range a very variable species in body size and shape. Tibiae, antennae, scutellum and central parts of ventrites 1-4 infuscate to various degrees. Males from Vietnam are slightly more elongate and parallel-sided than males from Fujian and Hongkong, with the apex of the median lobe less curved (fig. 36). In males from Taiwan, the apex of the median lobe tends to be slightly narrower. However, this character also varies between individuals of the same populations in Fujian. The paramera can also be slightly narrower in some specimens (especially from Vietnam) and the apical ventral tooth varies in size and shape (within individuals of the same populations in Fujian). Finally, the last tergite (pygidium) in males shows some variability and can be bluntly rounded (majority of the specimens) or more or less triangularly pointed (few specimens, especially from Vietnam). See also under „notes" below. A male from Vietnam is shown in fig. 9.

Distribution: Chinese mainland (Yunnan, Sichuan, Chongqing, Guizhou, Guangxi, Guangdong, Anhui, Jiangxi, Fujian, Zhejiang, Shanghai), Hong Kong, Hainan isl., Taiwan, North Vietnam.

Biology and ecology: Found in localities from near Sea level to over 2000 m altitude. Particularly abundant in montane forest of the Wuyi Shan range (locality „Kuatun" or Guadun) and other mountains of SW-China. Pollen found on the head of some specimens suggest a flower visiting adult life-style. Thanks to the enormous number of specimens examined from „Kuatun" (over 4000), an abundance of phenological data is available. Adults were found from March until beginning of July, very rarely in September. Peak activity is around the 2nd of April, with only few specimens found in May or later. Males are only present during March, April and, very rarely, beginning of May. Their relative abundance is very high until the first days of April. Between mid-May and July, not a single male was collected.

Notes: Although the holotype of *Idgia flavirostris* is a female with imprecise locality data, there is no doubt that it must be conspecific with the syntypes of *Idgia ardesiaca*. As the syntypes of *ardesiaca* are all from one locality and belong to the same species, a lectotype designation is currently not needed.

I. flavirostris shows extensive variability in aedeagus shape, which is, in part, geographically correlated. This suggests that it may be, in fact, a complex of at least two closely related species. One of these „forms" (figs. 9, 36) occurs in Vietnam and possibly also in Yunnan, Sichuan and Guizhou, whereas the typical *P. flavirostris* are found between Hong Kong and Taiwan. It was decided not to describe them as different species or subspecies, because of the relatively poor evidence found so far. Considerable variability in the tip of the median lobe was found also within a single population in Guadun (Kuatun), Fujian, suggesting that this character has to be treated with caution. Not a single external character was found to be constantly different between the two „geographic forms". Further in-depth morphological or molecular studies will be needed to clarify the status of the Vietnamese populations.

***Palpolobonyx gressitti* n. sp.**

(Figs. 10, 11, 37, 50)

Idgia bimaculata Pic, 1910: Gressitt, 1939: 189 (misidentification).

Holotype ♂ (TARI): "Taiwan: Hsinchu, Kuanwu (觀霧), 30.IV.2009, leg. Y.-F. Hsu". Holotype label added. In good condition.

Paratypes (49 ♂): 1 ♂ (TARI): same data, but 28.V.2009. 6 ♂ (TARI): "Taiwan: Hsinchu, Talulintao (大鹿林道), 25.III.2009, leg. Y.-L. Lin". 2 ♂ (TARI): "Taiwan: Hsinchu, Litungshan (李棟山), 15.III.2009, leg. S.-F. Yu". 1 ♂ (EHUM): "[TAIWAN: HSINCHU], Lidong-shan (李棟山), alt. ca. 1500 m ~1913 m, Jianshih Township (尖石鄉), 26. IV. 2007, S-T. Hisamatsu leg.; from flower of *Viburnum* sp.". 1 ♂ (KMNH): "Fushan Botanical Park, Yilan & Taipei, Taiwan, 12~13-IV-2011, Kiyoshi ANDO leg.". 1 ♂ (MHNG): "TAIWAN Taoyuan Hsien, Upper Palin, 1200m, 18.IV.90, A. Smetana [T6]". 5 ♂ (KMNH): "Baling, Taoyuan Hsien, Taiwan, 3 Apr. 1991, Y. Okushima leg.". 2 ♂ (TARI): "Taiwan: Taoyuan, Lalashan (拉拉山), 08.III.2009, leg. C.-F. Lee". 1 ♂ (KMNH): "達觀山, Taoyuan Hsien, Taiwan, 4. Apr. 1991, Y. Okushima leg.". 1 ♂ (EHUM): "[TAIWAN: TAOYUAN], Sihling (西陵)~Sicun (西村), Fusing Township (復興鄉), 18. IV. 2007, S-T. Hisamatsu leg.". 1 ♂ (EHUM): "Ming Chi, 1800 m, I Lan Co., Taiwan, 17-V-2000, C.L.Li". 3 ♂ (MHNG): "TAIWAN

Taichung Hsien, Anmashan, 2230m, 30.IV.-4.V.90, A. Smetana [T32]". 2 ♂ (NHMW): "TAIWAN: Hwa-Lien Hsien, Pi Lui Shern Mu, 19. 4. 1991, 1850 m, leg. Lo". 1 ♂ (EHUM): "Yuanfeng, Nantou Hsien, Taiwan, 24-VI-1989, M. Satô leg.". 1 ♂ (KMNH): "Shintzetow, Nantou Hsien, Taiwan, 11 May 1994, C. Lou leg.". 1 ♂ (KMNH): "Shih-tze-tow, Nantou Hsien, Taiwan, 24-III-1995, C. Lou leg.". 1 ♂ (KMNH): "Nanshanchi, Nantou Hsien, Taiwan, 10. Apr. 1991, Y. Okushima leg.". 1 ♂ (TARI): "Taiwan: Nantou, Tunyuan (屯原), 10.III.2010, leg. Y.-F. Hsu". 2 ♂ (BIMH): "Mt. Arisan, 7000 ft., Formosa V-1928; F.C. Hadden Collector". 2 ♂ (MNHB): "FORMOSA, Taihorin, III. 10, Sauter S.". 1 ♂ (KMNH): "Eejituan (二集團), Taoyuan Hsiang, Kaohsiung Hsien, TAIWAN, 22.III.2004, T. Tsuru". 4 ♂ (KMNH): "Tengchih, 1400m, Taoyuan, Kaohsiung Hsien, Taiwan, 24-III-2002, B. Tanaka leg.". 1 ♂ (KMNH): "Tengchih, 1400m, Taoyuan, Kaohsiung Hsien, Taiwan, 25-III-2002, B. Tanaka leg.". 5 ♂ (KMNH): "Tengchih, Kaohsiung Hsien, Taiwan, 12-III-1999, T. Mizusawa leg.". 1 ♂ (TARI): "Taiwan: Kaohsiung, Chuyunshan logging trail, 24.III.2009, leg. C.-F. Lee". 1 ♂ (BMNH): "TAIWAN, Pingtung Co., Dahanshan, 15. iii. 2012, K. Wang leg. "; "ENRICO RUZZIER COLLECTION ITALY".

Additional material examined: TAIWAN: "(Taiwan) 1974" 2 ♂ (EHUM); Baling, Taoyuan Hsien, 5. IV. 1991, Y. Okushima leg. 1 ♂ (KMNH); Yilan, Fushan, Yuanshan Township, 600 m, 28. III. 2004, T. Kurihara leg. 1 ♂ (EHUM); Taipei, Fushan, Wulai Township, 600 m, 29. III. 2004, T. Kurihara leg. 1 ♂ (EHUM); Nantou Hsien, Shih-tze-tow, 4. IV. 1997, C. Lou leg. 1 ♂ (KMNH); Nantou Hsien, Shintzetow, 11. V. 1994, C. Lou leg. 2 ♂ (KMNH); Nantou Hsien, Sungkang, 22. V. 1998, C. Lou leg. 1 ♂ (KMNH); Nantou county, Hohuachi, between Lishan and Tayuling, at the road No. 8, at light, 1950 m, 24°13' N, 121°16' E, 31. III. 2000, A. Kun & L. Peregovits leg. 1 ♂ (MTMB); Taichung Hsien, Hsuehshan, Chi-Ka, 2463 m, 6. V. 1991, A. Smetana leg. 1 ♂ (MHNG);

The following females were assigned to this species based only on their locality. Given the risk of confusion with the externally very similar *P. simillimus* n.sp., they were not included in the paratype series.

TAIWAN: Taoyuan Hsien, Baling, 3. IV. 1991, Y. Okushima leg. 3 ♀ (KMNH); Taoyuan Hsien, Upper Palin, 1200 m, 18. IV. 1990, A. Smetana leg. 1 ♀ (MHNG); Taoyuan, Sihling~Sicun, Fusing Township, 17. IV. 2007, S.-T. Hisamatsu leg. 2 ♀ (EHUM); Taoyuan, Sihling~Sicun, Fusing Township, 18. IV. 2007, S.-T. Hisamatsu leg. 1 ♀ (EHUM); Taoyuan, Sihling~Sicun, Fusing Township, from flower of *Prunus phaeosticta* (Hance) Maxim., 19. IV. 2007, S.-T. Hisamatsu leg. 2 ♀ (EHUM); Yilan & Taipei, Fushan Botanical Park, 12.-13. IV. 2011, Kiyoshi Ando leg. 1 ♀ (KMNH); Ilan, Fushan Chihwuyuan, 14. II. 2009, M.-H. Tsau leg. 1 ♀ (TARI); Iylan, Fushan, Yuanshan Township, 600 m, 28. III. 2004, T. Kurihara leg. 1 ♀ (EHUM); Hsinchu Co., Joanshieh, Lidongshan, 25. V. 2010, N. Ohbayashi leg. 3 ♀ (TARI); Hsinchu, Litungshan, 27. II. 2009, S.-F. Yu leg. 1 ♀ (TARI); Hsinchu, Litungshan, 15. III. 2009, S.-F. Yu leg. 1 ♀ (TARI); Hsinchu, Talulintao, 25. III. 2009, Y.-L. Lin leg. 1 ♀ (TARI); Hsinchu, Kuanwu, 30. IV. 2009, Y.-F. Hsu leg. 2 ♀ (TARI); Taichung Hsien, Hsuehshan, Chi-Ka, 2463 m, 11. V. 1991, A. Smetana leg. 1 ♀ (MHNG); Taichung Hsien, Chika-shanchuang, Mt. Shuehshan, 2460 m, 29. VI. 1989, M. Satô leg. 1 ♀ (EHUM); Taichung Hsien, Hsuehshan, nr. Hsuehshan Tun-feng, 3170 m, 7. V. 1991, A. Smetana leg. 1 ♀ (MHNG); Taichung Hsien, Hsueshantungfeng, 30. VI. 1989, M. Satô leg. 1 ♀ (EHUM); Taichung Hsien, Hsueshantungfeng, 2. VII. 1989, M. Satô leg. 1 ♀ (EHUM); Nantou Hsien, Yuanfeng, 24. VI. 1989, M. Satô leg. 4 ♀ (EHUM); Nantou Hsien, Nanshanchi, 31. III. 1996, R. Matsumoto leg. 2 ♀ (KMNH); Hualien Pref., Pilu-Shenmu, 2000-2200 m, 14. VI. 1982, T. Shimomura leg. 1 ♀ (NHMB); Hualien, Pilu (10A-1), 27. VI. 2010, W.-P. Chen leg. 3 ♀ (TARI); Hualien, Pilu (10A-2), 27. VI. 2010, W.-P. Chen leg. 1 ♀ (TARI); Hualien, Pilu (10A-3), 27. VI. 2010, W.-P. Chen leg. 1 ♀ (TARI); Hualien, Pilu (10B-3), 27. VI. 2010, W.-P. Chen leg. 1 ♀ (TARI); Arisan, Tainan-shu, 2200 m, 24. V. 1934, Gressitt leg. 2 ♀ (SYSU); Arisan, 2000 m, 24. V. 1934, Gressitt leg. 9 ♀ (SYSU); Arisan, 2000 m, 25. V. 1934, Gressitt leg. 1 ♀ (BIMH); Alishan, 2400 m, 28. IV. 1977, J. & S. Klapperich leg. 1 ♀ (NHMB); Alishan, Alishan forest reserve, 2200-2600 m, 26.-28. VI. 2010, T. Tichý leg. 1 ♀ (CTT); "Taihorin, VI. 09, Sauter S." 3 ♀ (MNHB); "Taihorin, IV. 10, Sauter S." 1 ♀ (MNHB); "Taihorin, V. 10, Sauter S." 3 ♀ (MNHB); Kaohsiung County,

Vicinity of Meishan, 1. V. 1977, W. L. Cheng leg. 1 ♀ (EHUM); Kaohsiung County, Erhchituan near Liukey, 7. IV. 1976, K. Ushijima leg. 1 ♀ (EHUM); Kaohsiung Hsien, Tengchih, 12. III. 1999, T. Mizusawa leg. 3 ♀ (KMNH); Kaohsiung Hsien, Tengchih, 1565 m, 23. IV. 1990, A. Smetana leg. 1 ♀ (MHNG); Kaohsiung Hsien, Taoyuan, Tengchih, 1400 m, 24. III. 2002, B. Tanaka leg. 7 ♀ (KMNH); Kaohsiung Hsien, Taoyuan, Tengchih, 1400 m, 25. III. 2002, B. Tanaka leg. 1 ♀ (KMNH); Pingtung Co., Dahanshan, 15. III. 2012, K. Wang leg., coll. Enrico Ruzzier. 2 ♀ (BMNH).

Type locality: Taiwan, Hsinchu Hsien, Wufeng township, Kuanwu (= Guanwu).

Measurements ♂ : TBL 9.5 - 11.6 mm, L-h 8.2 - 10.1 mm

HL 1.1 - 1.6 mm, PL 1.5 - 1.7 mm, EL 6.6 - 8.4 mm

♀ : TBL 10.7 - 14.3 mm, L-h 9.4 - 12.7 mm

HL 1.3 - 1.9 mm, PL 1.6 - 2.0 mm, EL 7.8 - 10.7 mm

Differential diagnosis: *P. gressitti* forms a complex of externally very similar species, together with *P. simillimus* n. sp. and *P. laosensis* n. sp. These species show clear differences in the shape of the male aedeagus (median lobe and paramera), but no constant characters allowing to distinguish the females could be found so far. *P. laosensis* is, on average, smaller and stouter and occurs at some geographic distance. Taiwanese females of this complex are, at present, not identifiable without having male associated to them at the same locality.

Specimens of *P. gressitti* with reduced pronotal markings look very similar to *P. flavirostris*, but can be recognised by narrower pronotum, more elongate elytra and longer paramera, with differently shaped apex.

Description: Habitus as in figs. 10 (♂) and 11 (♀). Metasternum and elytra dark metallic green; vertex of head and frons between eyes black; middle and hind tarsi dark brownish; pro- and mesosternum, abdomen, scutellum, femora, tibiae and fore tarsi, antennae, labrum, palpi and fore part of head yellow testaceous. Pronotum with two large, not clearly delimited, oval or approximately comma shaped, brownish infuscate spots of variable size, one on each side of the disc. Middle part of ventrites 2-4, sometimes also apex of first and base of fifth ventrite, infuscate.

Head behind eyes 0.7-0.8 times as wide as middle part of pronotum, finely shagreened and moderately shining, with fine, greyish and brownish, recumbent vestiture and some longer, black, erect setae behind the eyes. Vertex sparsely and shallowly punctate. Eyes relatively widely separated dorsally; space between eyes about 1.3-1.5 times as wide as frons between antennal insertions. Clypeus transversely subrectangular, with fine, yellow vestiture and long, black setae. Labrum large, flat, slightly widened in apical part, about as long as wide, sparsely setose, matt with very fine microsculpture, with both smaller and larger blackish setae.

Male antennae long, reaching the middle of the elytra in length. First segment apically thickened; second short; segments 3, 4, 9 and 10 about equal in length, each of them longer than the first, but shorter than the first two together; segments 5-8 longest, longer than first two together; last segment short, about as long as the first, constricted in middle part.

Pronotum longer than wide, maximal length : maximal width 1 : 0.8 - 1 : 0.85; widest in fore half, margins not distinctly sinuate in basal half; all angles rounded, hind angles obtuse; basal margin only with traces of a bordering; distinctly depressed at each side of the base, around the center of the dark markings; very finely shagreened, rather matt; with fine, brownish, recumbent ground vestiture and

long, stiff, brownish setae along the margins. Basal and apical margins very finely ciliate, with short, yellowish, hair-like setae.

Elytra very elongate, about 3.5-3.9 times as long as wide together in males, parallel-sided; humeral callus distinct; moderately shining, finely shagreened and with densely rugose, leathery texture, with distinct metallic lustre; ground vestiture relatively long and rather dense; with four rather inconspicuous and easily abraded rows of long, erect, blackish setae, one along suture and three on disc, plus some additional setae in apical third, near lateral margins; setae of inner discal row sometimes arising from slightly raised granules, forming a very faint costa, much less pronounced than in other species, e. g. *P. granulipennis*. Margins very finely crenulate, mainly in apical half, with a row of long, stiff, blackish setae. Scutellum about as long as wide, subquadrate; matt, very finely shagreened; with similar ground vestiture as elytra.

Femora moderately shining, with fine microsculpture and sparse, blackish ground vestiture, much shorter than on elytra. Tibiae and tarsi similar, but with denser, stronger and more bristly setae. Claws very elongate; base with small, rather inconspicuous, membraneous appendage.

Abdomen relatively glossy, with fine, inconspicuous ground vestiture. Ventrites 1-4 with wrinkly texture. Margins of ventrites 5 and 6 with some long, blackish setae.

Male: Apical margin of penultimate ventrite (sternite VI) strongly emarginate; middle part of ventrite narrow, about $\frac{1}{4}$ as wide as lateral parts. Last ventrite as in *P. flavirostris*.

Aedeagus as in figs. 37, 50; similar to *P. flavirostris*. Process of phallobase pointing backwards. Apical $\frac{1}{4}$ of paramera obliquely narrowed, more elongate and narrower than in *P. flavirostris*; apex truncate, ventrally with small tooth; lower edge subapically with some hair-like setae. Median lobe very flat and nearly straight until the apical $\frac{1}{10}$, which is curved dorsally. Apex blunt in dorsal view, tongue-shaped.

Variability: Pronotal markings variable in size and shape, ranging from small, diffusely infuscate, comma-shaped spots to large, longitudinal, dark brown bands, occupying most of the lateral parts of the pronotum, but never reaching the margins; in the latter case, always separated by a broad testaceous middle line; rarely (in one individual) with completely reduced pronotal markings. Colour of meso- and metatibiae varying from entirely testaceous to mostly infuscate; protibiae always testaceous. Possibly as an artefact of preparation, the elytral and pronotal setae are abraded in many specimens, making them appear more shiny than individuals with intact cloth of setae. This species also shows a certain variability in shape of the median lobe, the apex sometimes being more strongly curved upwards than usual.

Distribution: Taiwan.

Biology and ecology: *P. gressitti* occurs at montane altitudes (usually between about 900 and 2400 m, rarely up to 3170 m) in forested areas. Males were collected in spring from early March until June, with peak activity in late March. Females were found as early as February and as late as July, and are much more abundant than males between late April and June. Adults are diurnal and were most often collected on foliage of understory shrubs, as well as on flowering trees and bushes. Rarely, they were attracted to light traps (only one specimen). As for all other members of the genus, the larvae are unknown.

Derivatio nominis: Named after the eminent American entomologist J. Linsley Gressitt (1914-1982). He was not only a prominent beetle collector in China, Taiwan and many other areas adjacent to the Pacific, but also a brilliant taxonomist working on Cerambycidae, Chrysomelidae and sometimes other groups. He already recognised and redescribed this species in his 1939 publication, but, using Pic's original description, took it for *Idgia bimaculata*. Furthermore, he collected a series of specimens himself, at Alishan.

Notes: After examining the type of *Idgia bimaculata* Pic, 1910 at MNHP (coll. M. Pic), it became evident that this species is not related to the species described here, although the short original description fits both *P. gressitti* n. sp. as well as the real *Idgia bimaculata*. Gressitt (1939), when identifying his specimens from Taiwan was misled by the description and erroneously gave them the name *I. bimaculata*. Pic's species also occurs on Taiwan, but is not a member of *Palpolobonyx*. Its closest relatives are *Idgia foveifrons* Fairmaire, 1899, *I. flavicollis* Redtenbacher, 1868 and *I. iriomoteana* Nakane, 1981.

***Palpolobonyx simillimus* n. sp.**

(Figs. 12, 13, 38, 51)

Holotype ♂ (MTMB): "TAIWAN, Nantou county, Hohuachi, between Lishan and Tayuling, at the road No. 8, 1950 m," "24°13' N / 121°16' E, at light, 31. III. 2000, A. Kun & L. Peregovits". Holotype label added. In good condition.

Paratypes (25 ♂): 4 ♂ (MTMB): same data as holotype. 1 ♂ (NHMB): same data as holotype. 3 ♂ (KMNH): "Wanta, Nantou Hsien, Taiwan, 24-IV-1998, C. Lou leg.". 1 ♂ (KMNH): "Meifeng, Nantou Hsien, Taiwan, 21 May 1994, C. Lou leg.". 6 ♂ (KMNH): "關刀山, Nantou Hsien, Taiwan, 15-IV-1998, C. Lou leg.". 6 ♂ (KMNH): "達觀山, Taoyuan Hsien, Taiwan, 4. Apr. 1991, Y. Okushima leg.". 1 ♂ (MHNG): "TAIWAN, Taoyuan Hsien, Takuanshan, For., 1600 m, 17. IV. 90, A. Smetana [T3]". 1 ♂ (NHMW): "TAIWAN, Tao-Yuan Hsien, Pa Lin, 1000 m, 22. 4. 1993, leg. Lo". 1 ♂ (MHNG): "TAIWAN, Taichung Hsien, Anmashan, 2225 m, 11.-12. V. 92, A. Smetana [T122]". 1 ♂ (MHNG): "TAIWAN, Pingtung Hsien, Peitawushan, trail at 1500 m, 1. V. 1992, A. Smetana [T110]".

Additional material examined: TAIWAN: Nantou Hsien, Shih-tze-tow, 19. VI. 1996, C. Lou leg. 1 ♂ (KMNH).

As in the previous species, the following females are not included in the type series, as they were associated solely by their locality data:

TAIWAN: Nantou Hsien, Wanda, 8. V. 1997, C. Lou leg. 1 ♀ (KMNH); Nantou Hsien, Wanta, 24. IV. 1998, C. Lou leg. 5 ♀ (KMNH); Nantou Hsien, Meifeng, 21. V. 1994, C. Lou leg. 2 ♀ (KMNH); Nantou Hsien, Guandaoshan, 15. IV. 1996, C. Lou leg. 1 ♀ (KMNH); Pingtung Hsien, Peitawushan, Kuai-Ku Hut, 2126 m, 27. IV. 1992, A. Smetana leg. 1 ♀ (MHNG); Pingtung Hsien, Peitawushan, Kuai-Ku Hut, 2130 m, 27. IV. 1992, A. Smetana leg. 1 ♀ (MHNG); Pingtung Hsien, Peitawushan, Kuai-Ku Hut, 2130 m, 30. IV. 1992, A. Smetana leg. 1 ♀ (MHNG).

Type locality: Taiwan, Nantou county, Hohuachi township, between Lishan and Tayuling.

Measurements ♂ : TBL 10.6 - 12.4 mm, L-h 9.0 - 10.5 mm
HL 1.3 - 1.9 mm, PL 1.6 - 1.8 mm, EL 7.4 - 8.7 mm

♀ : TBL 12.0 - 15.1 mm, L-h 10.6 - 13.2 mm
HL 1.4 - 1.9 mm, PL 1.7 - 2.3 mm, EL 8.9 - 11.0 mm

Differential diagnosis: As noted above, *P. simillimus* forms a complex of very similar species with *P. gressitti* n. sp. and *P. laosensis* n. sp. Examination of the aedeagus is necessary to identify these species with confidence. Apical part of paramera narrower and more elongate than in all related species, with obliquely truncate tip. Median lobe flat and without curved apex.

Description: Habitus as in figs. 12 (♂) and 13 (♀). Colouration as in *P. gressitti*. Dark pronotal markings always clearly visible, on average larger and less variable than in *P. gressitti*, comma-shape to oval, always longer than wide.

Head behind eyes 0.7-0.75 times as wide as middle part of pronotum, very finely shagreened and moderately shining, with fine, greyish, recumbent vestiture and some longer, black, erect setae behind the eyes. Vertex finely, sparsely and shallowly punctate. Eyes relatively widely separated dorsally; space between eyes 1.2-1.4 times as wide as frons between antennal insertions. Clypeus and labrum as in *P. gressitti*.

Male antennae similar to *P. gressitti*, basal segment on average a bit longer, almost as long as third.

Pronotum longer than wide, maximal length : maximal width 1 : 0.75 - 1 : 0.85; widest in fore half, margins not distinctly sinuate in basal half; all angles rounded, hind angles obtuse; basal margin often only with traces of a bordering; distinctly depressed at each side of the base, around the center of the dark markings; finely shagreened, rather matt; with fine, black, recumbent ground vestiture and long, stiff, brownish setae along the margins. Basal and apical margins very finely ciliate, with short, yellowish, hair-like setae.

Elytra very elongate, about 3.6-3.9 times as long as wide together in males, parallel-sided; very much as in *P. gressitti*. First discal row of long, blackish setae usually arising from small granules, forming a faint costa in basal half, usually isolated, but still clearly visible in apical half. Scutellum slightly longer than wide, slightly variable in shape, usually with bluntly rounded apical margin; matt, very finely shagreened and sparsely punctate; with similar ground vestiture as elytra.

Legs as in *P. gressitti*. Base of claws with relatively small membraneous appendage (as in fig. 31).

Abdomen rather matt, finely shagreened, with fine, inconspicuous ground vestiture. Ventrites 1-4 often with transverse wrinkles. Margins of ventrites 5 and 6 with some long, blackish setae.

Male: Apical margin of penultimate ventrite (sternite VI) strongly emarginate; middle part of ventrite narrow, about 1/3 as wide as lateral parts. Last ventrite narrower and slightly more elongate than in *P. gressitti* and *P. flavirostris*, apical margin only shallowly emarginate. Apical margin of last tergite subtriangular.

Aedeagus as in figs. 38, 51; more elongate than in *P. gressitti*. Process of phallobase pointing backwards. Apical half of paramera elongate and narrow, lower edge broadly emarginate in lateral view; apex obliquely truncate, ventrally with strong, but rather blunt, apical tooth. Median lobe flat and completely straight. Apex slightly flattened, but not bent (lateral view), in dorsal view triangularly pointed.

Variability: Meso- and metatibiae, as well as tarsi and middle part of ventrites 1-4 infuscate to various degrees, sometimes legs entirely testaceous; ventrites sometimes only with a dark macula at their base, but often with continuous, dark band from first to fourth ventrite. Pronotal markings slightly variable in shape, but much less variable than in *P. gressitti*, usually rather large. Male genitalia not variable, unlike in *P. gressitti* and *P. flavirostris*.

Distribution: Taiwan.

Biology and ecology: Specimens of *P. simillimus* were collected in spring (March to May) at montane altitudes (1000-2225 m). Several were attracted to a light trap. They seem to occur in similar habitats as the related *P. gressitti* and were often collected together, for example at Anmashan, Hohuachi, Shitzetow and in the Lalashan area, including Baling (= Pa Lin). As a general trend, *P. simillimus* seems to prefer higher altitudes than *P. gressitti*, usually above 1500 m. The limited material suggests that the peak activity season for males may be later than in *P. gressitti*, centered around mid-April.

Derivatio nominis: "*Simillimus*" is the superlative form of the latin word "*similis*", meaning "very similar". This name was given due to the fact that this species is hard to distinguish from the related ones, especially in females.

***Palpolobonyx laosensis* n. sp.**

(Figs. 14, 15, 39, 52)

Holotype ♂ (NKME): "NE-LAOS, Hua Phan prov., Ban Saleui, Phou Pan (Mt.), 1300-1900m, 11.IV.-15.V.2012, 20°12'N, 104°01'E, leg. C. Holzschuh". Holotype label added. In good condition.

Paratypes (3 ♂ 587 ♀): 2 ♂ 350 ♀ (NKME): same data as holotype. 3 ♀ (NKME): "NE-LAOS, Hua Phan prov., Ban Saleui, Phou Pan (Mt.), 20°12'N, 104°01'E 1300-1900mNN, 11.IV.-15.V.2012, leg. C. Holzschuh". 1 ♀ (NKME): "NE-LAOS, Hua Phan prov., Ban Saluei, 1300-2000 m, 20°13' N; 103°59' E, Phu Phan Mt. env. 2004, F.& L. Kantner leg.6-18.v.". 1 ♀ (NMPC): "Laos, Hua Phan prov., Ban Saluei, Mt. Phu Phan, 20°13' N 103°59' E, P. Kresl lgt., 6.-17. V. 2004". 2 ♀ (EHUM): "LAOS, Xam Neua, around Ban Saluei, 9.-10. IV. 2004, N. Ohbayashi leg.". 1 ♂ 9 ♀ (EHUM): "[LAOS], Ban Saluei, Xam Neua, 30.-31. III. 2005, J. Yamasako leg.". 1 ♀ (NHMB): "LAO-NE, Hua Phan prov., ~20°12' N 104°01' E, PHU PHAN Mt., 1500-1900 m, 17. V. - 3. VI. 2007, M. Brancucci leg."; "NHMB Basel, expedition to Laos, 2007". 47 ♀ (NHMB): "LAOS-NE, Houa Phan prov., Ban Saluei → Phou Pane Mt., 1340-1870 m, 15. IV. - 15. V. 2008, Lao collectors leg.". 119 ♀ (NMPC): "LAOS-NE, Houa Phan prov., 20°12'01"-13'09" N / 103°59'54" - 104°00'55" E, 1480-1900 m, PHOU PANE Mt., 22. iv.-14.v. 2008, Lao collector leg.". 1 ♀ (NHMB): "LAOS-NE, Houa Phan prov., 20°12-13.5' N / 103°59.5' - 104°01' E, Ban Saluei → Phou Pane Mt., 1340-1870 m, 10. V. - 9. VI. 2009, C. Holzschuh & local coll. leg."; "NHMB Basel, NMPC Prague, Laos 2009 Expedition: M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň". 2 ♀ (NHMB): "LAOS-NE, Houa Phan prov., ~20°13' N / 104°00' E, PHOU PANE Mt., 1350-1500 m, 1.-16. VI. 2009, M. Brancucci leg."; "NHMB Basel, NMPC Prague, Laos 2009 Expedition: M. Brancucci, M. Geiser, Z. Kraus, D. Hauck, V. Kubáň". 45 ♀ (NHMB): "LAOS-NE, Houa Phan prov., 20°12-13.5' N / 103°59.5' - 104°01' E, Ban Saluei → Phou Pane Mt., 1340-1870 m, 7. IV. - 25. V. 2010, C. Holzschuh & local coll. leg.". 4 ♀ (BMNH): same data as above.
2 ♀ (EHUM): "[LAOS]: Ban Ban - Ban Saluei, Xiang Khoang - Xam Neua, 27. III. 2005, J. Yamasako leg.".

Type locality: Laos, Houa Phan province, Mt. Phou Pane near Ban Saleui.

Measurements ♂: TBL 9.0 - 10.1 mm, L-h 7.9 - 8.8 mm
 HL 1.0 - 1.3 mm, PL 1.5 - 1.6 mm, EL 6.4 - 7.3 mm
 ♀: TBL 9.4 - 12.8 mm, L-h 8.4 - 11.1 mm
 HL 1.0 - 1.9 mm, PL 1.4 - 2.0 mm, EL 6.9 - 9.1 mm

Differential diagnosis: Males of *P. laosensis* are very similar to *P. gressitti* and *P. simillimus*, but distinguished by the shorter aedeagus, with stouter and thicker paramera and a differently shaped apex of the median lobe. Females are hardly distinguishable from the two other species of the complex, although they are, on average, slightly smaller and often (but not always) have infusate protibiae. An easy, but not very reliable character is the colouration of the abdomen, which is entirely testaceous in *P. laosensis*.

Description: Habitus as in figs. 14 (♂) and 15 (♀). Colouration very similar to *P. gressitti*. Fore tarsi, middle and hind tibiae often more or less infusate or entirely dark brownish. Pronotal markings variable, usually approximately comma-shaped and on average a bit smaller than in *P. simillimus*. Abdomen testaceous, basal four ventrites sometimes very diffusely brownish, but without black median macula.

Head behind eyes 0.7-0.8 times as wide as middle part of pronotum, with very fine microsculpture, fairly shining, with fine, brownish, recumbent vestiture and some longer, black, erect setae behind the eyes. Vertex sparsely and finely punctate. Eyes relatively widely separated dorsally; space between eyes 1.1-1.4 times as wide as frons between antennal insertions. Clypeus as in *P. gressitti*. Labrum large, flat, not clearly widened in apical part, about as wide and double as long as clypeus, slightly translucent, sparsely setose, with brownish setae of variable size.

Male antennae long, reaching the middle of the elytra in length. Similar to *P. gressitti*, but with segment 10 slightly shorter than 9.

Pronotum longer than wide, maximal length : maximal width 1 : 0.77 - 1 : 0.90; widest near middle; all angles rounded, hind angles obtuse; only basal margin with traces of a bordering; impressed in middle of basal part and with a large, oblique impression on both sides of the disc; moderately shining and punctate: space between punctures very finely shagreened; with very fine, greyish to blackish vestiture and some larger, stiff, blackish setae along the margins.

Elytra about 3.4-3.7 times as long as wide together in males, parallel-sided; humeral callus distinct; with rugulose ground texture and distinct, oily shine; with three rows of small tubercles running parallel to the suture; margins crenulate. Setation consisting of fine, greyish, recumbent, rather inconspicuous ground vestiture; three to four sparse, but well developed rows of stiff, black setae, parallel to suture; a dense row of black setae along the outer margins. Scutellum flat, subpentagonal, about as wide as long, with greyish vestiture.

Femora moderately shining, with fine microsculpture and short, brownish to black ground vestiture, much shorter than on elytra. Tibiae and tarsi with denser, longer, stronger and more light brownish setae. Base of claws with small membranous appendage (as in fig. 31).

Abdomen with slight, oily sheen and recumbent, yellowish to brownish vestiture. Basal ventrites often with wrinkly texture. Margins of ventrites 5 and 6 with some long, blackish setae, which are easily abraded.

Male: Apical margin of penultimate ventrite (sternite VI) strongly emarginate; middle part of ventrite very narrow, less than $\frac{1}{4}$ as wide as lateral parts. Last ventrite similar as in *P. flavirostris*, much more transverse than in *P. simillimus*. Apex of last tergite (pygidium) subtriangular, distinctly pointed.

Aedeagus as in figs. 39, 52; shorter than in related species. Process of phallobase pointing backwards. Parameres dorsally slightly gaping, lower edge of angularly narrowed at about $\frac{2}{3}$ of their length; apex subtruncate, ventrally with tooth. Median lobe not as flat as in related species; apex gradually tapered when seen from above, in lateral view with abruptly flattened, very thin apex.

Variability: The pronotal macula vary considerably in size and shape, sometimes being more oval or nearly rectangular, rather than comma-shaped. Nevertheless, no individual with confluent or absent pronotal macula was found. Tibiae and tarsi usually more or less infuscate, sometimes entirely testaceous. As in *P. gressitti*, the elytral setation is abraded in many specimens, slightly changing their appearance.

Distribution: NE Laos (Houa Phan prov.).

Biology and ecology: Apparently most (if not all) specimens were found during the day in degraded primary montane forest at Mt. Phou Pane. The altitudinal range of 1340 to 1900 m is given on the labels, but probably they are mostly from above 1700 m, as they could not be found in the immediate vicinity of the village Ban Saluei.

Derivatio nominis: Named after Laos, its country of origin.

II. Species group of *Palpolobonyx dasytoides* (Champion)

The following six species are characterised by the absence of the tooth on the first tarsomere in males, which is situated inside the area enclosed by the tarsal comb on the ventral side in the *P. moupinensis* species group. This group includes some very small to medium-sized prionocerids, smaller than most members of the *moupinensis* group. All species included here have dark legs, rarely with yellowish femoral base (in „*Palpolobonyx* sp. 1"); only teneral specimens with diffusely reddish-brown legs. The frons usually has a concave depression, starting from the area between the eyes, at least in males. This group includes species from the Himalayas and the mountains of northern Indochina (Myanmar and Thailand), never reaching far into China, except on the Tibetan Plateau. *P. granulatus* and *P. dasytoides* are easily recognisable species of very small size, whereas *P. weigeli* is geographically isolated and of characteristic habitus. The species around *P. abori* (*abori*, *kameng* n. sp., *mishmi* n. sp.) form a complex or very closely related species, distinguished mainly by male genitalia.

Palpolobonyx abori (Pic, 1913) n. comb.

(Figs. 17, 18, 40, 53)

Idgia abori Pic, 1913: 199.

Type material examined: Syntype ♂ (MNHP, coll. Pic): "Ind. Mus., Yambung 1100 ft, Abor Exp. 16-19-II.12. Kemp"; "6165 19"; "type". Syntype label added. In rather poor condition, with parts of the abdomen destroyed by dermestid larvae..

Syntype ♀ (MNHP, coll. Pic): "Ind. Mus., Yambung 1100 ft, Abor Exp. 16-19-II.12. Kemp"; "6165 19"; "type"; "TYPE"; "Idgia abori Pic". Syntype label added. Dusty, with the left tibia and tarsus of front legs missing.

Additional material examined: CHINA: TIBET: "Xizang, Chinese Academy of Sciences, 1983, Han Yin-Heng" 1 ♀ (IZAS); Mêdog, Beibeng, 850 m, 11. III. 1983, Han Yin-Heng leg. 5 ♂ 14 ♀ (IZAS); Mêdog, Beibeng, 850 m, 17. III. 1983, Han Yin-Heng leg. 1 ♂ 4 ♀ (IZAS); Mêdog, Beibeng, 100-850 m, 24. III. 1983, Han Yin-Heng leg. 1 ♀ (IZAS); Mêdog, Beibeng, 700-800 m, 8. VIII. 1983, Han Yin-Heng leg. 1 ♀ (IZAS); Mêdog, Beibeng, 850 m, 9. VIII. 1983, Han Yin-Heng leg. 1 ♂ 1 ♀ (IZAS); Mêdog, Beibeng, 860-900 m, 26.-27. VIII. 1983, Han Yin-Heng leg. 21 ♀ (IZAS).

Measurements ♂ : TBL 7.0 - 7.7 mm, L-h 6.0 - 6.7 mm

HL 0.9 - 1.2 mm, PL 1.0 - 1.2 mm, EL 5.0 - 5.5 mm

♀ : TBL 8.0 - 9.9 mm, L-h 7.0 - 8.5 mm

HL 1.0 - 1.4 mm, PL 1.3 - 1.5 mm, EL 5.7 - 7.0 mm

Differential diagnosis: This species is very similar to *P. kameng* n. sp. and *P. mishmi* n. sp., but, on average, smaller in size. Distinguished from *P. mishmi* by the reddish penultimate segment of the abdomen (only the last segment reddish in *mishmi*); from *P. kameng* by differently shaped aedeagus. Males are easily distinguished from both *kameng* and *mishmi* by the non-emarginate base of the last ventrite. Also, the frons is slightly narrower and more strongly depressed than in these two species, at least in males.

Description: Habitus as in figs. 17 (♂) and 18 (♀). Body black with dark blueish metallic lustre. Last tergite and ventrite yellow testaceous; legs, antennae and palpi varying from lighter to darker brown, basal three to five antennomeres and palpi usually of a lighter brown than the rest, but then usually with parts of their disc infusate.

Head behind eyes 0.7-0.8 times as wide as middle part of pronotum, rather smooth and relatively shining (except frons); with sparse and inconspicuous, but relatively long, brownish ground vestiture and a number of large, stiff, dark brownish setae behind eyes as well as on vertex. Eyes relatively small, moderately protruding; separated by a space about 1.3-1.4 times as wide as frons between antennal insertions. Frons rugulose and wrinkly, strongly depressed. Depression starting between eyes, clearly delimited by the sharply raised antennal insertions and frontoclypeal (epistomal) suture. Clypeus transversely subrectangular, about twice as wide as long, rather smooth, with very fine, whitish ground vestiture and some long, blackish setae. Labrum slightly transverse, with very finely rugose microsculpture and brownish setae of variable length.

Male antennae long, reaching the middle third of the elytra in length. First and last three segments slightly thickened; second short, less than half as long as first; segments 3 and 4 about equal in length, each of them slightly longer than the first; segment 5 slightly longer than 4; 6-8 longest; last three segments of roughly equal length, much shorter than the preceding, about as long as basal segment; apical segment thickened in basal and flattened in apical half, constricted in middle part.

Pronotum longer than wide, maximal length : maximal width 1 : 0.85 - 1 : 0.93; widest in fore half; margins not distinctly (sometimes very faintly) sinuate in basal half; all angles rounded, hind angles

obtuse; all margins distinctly bordered; with a distinct depression in middle part of basal half; densely shagreened and rather coarsely sculptured, completely matt; with short, very inconspicuous, blackish ground vestiture and numerous long, stiff, blackish setae, mostly along the margins. Basal and apical margins very finely ciliate, with short, greyish, hair-like setae.

Elytra about 3.5-3.9 times as long as wide together and rather parallel-sided in males, around 3.3 times as long as wide and slightly widened in females; humeral callus distinct; moderately shining, rather coarsely shagreened and with uneven, coarsely rugose texture; with easily visible, greyish, recumbent ground vestiture and with four rows of very long, conspicuous, erect, black setae, one along suture and the other three on disc, arising from large, raised granuli, forming four rather conspicuous granular rows. Margins very finely crenulate with another row of long, stiff, blackish setae. Scutellum rather rounded, about as long as wide, coarsely shagreened, with similar ground vestiture as elytra.

Femora matt and with fine, dense microsculpture, with finer and sparser pilosity than elytra, made up of short, greyish to brownish, recumbent setae. Tibiae and tarsi slightly more shining than femora, sometimes with finely rugose texture, covered in stiff, brownish setae. Base of claws with very small, rather inconspicuous, membranous appendage.

Abdomen relatively smooth and moderately shining, with fine and sparse, greyish ground vestiture. Ventrites 1-4 often with slightly wrinkly texture. Lateral and apical margins of ventrites 5 and 6 with numerous long, black setae.

Male: Apical margin of penultimate ventrite (sternite VI) not emarginate; middle part of ventrite about as wide as lateral parts. Outline of last ventrite of similar shape as in *P. flavirostris*, but very distinct by the completely straight basal margin, which lacks any kind of emargination. Apex of last tergite (pygidium) simply arcuate.

Aedeagus as in figs. 40, 53. Process of phallobase curved, pointing backwards. Parameres gaping in apical half when seen from above, with very narrow, pointed apices; lower edge at apex strongly emarginate in lateral view, but with the apices pointing more or less forwards, not curved down as in *P. kameng* and *P. mishmi*. Median lobe extremely thin and flat, strongly sinuate and with narrowly pointed apex, which is not bent downwards.

Variability: Apart from considerable variety in size, which is mostly due to sexual dimorphism, *P. abori* is a rather constant species. Palpi and bases of antennae sometimes lighter reddish, infuscate to various degrees. Some of the examined specimens seem to be slightly teneral, with pitchy brownish leg colour.

Distribution: NE-India (Arunachal Pradesh) and China (Tibet).

Biology and ecology: A species of lower montane altitudes (700-900 m), with two distinct seasons of activity, one in March and one in August. Males were collected during both of these seasons, but in much smaller numbers than females. No information given on collecting circumstances.

***Palpolobonyx kameng* n. sp.**

(Figs. 19, 20, 41, 54)

Holotype ♂ (BMNH): "NE INDIA, ARUNACHAL PR., DIRANG vicinity, 1800+/-100m, 27°21'N 92°13'E, 2006, P. Pacholátko leg. 8.-22.v."; "L. Dembický & P. Pacholátko, BMNH{E} 2006-48". Holotype label added. Tarsomere 3-5 on both fore legs missing.

Paratypes (8 ♂ 25 ♀): 7 ♀ (BMNH): same data as holotype. 1 ♂ 9 ♀ (BMNH): "NE INDIA, ARUNACHAL PR., DIRANG vicinity, 1800+/-100m, 27°21'N 92°13'E, L. Dembický leg. 8.-22.v.2006, BMNH 2006-48"; "L. Dembický & P. Pacholátko, BMNH{E} 2006-48". 4 ♀ (NHMB): "NE INDIA, ARUNACHAL PR., DIRANG vicinity, 1550+/-150m, 27°21'-23' N 92°13'-16' E, L. Dembický leg. 1.-9.vi.2004". 1 ♂ (NHMB): "Assam Kameng, Dirang Dzong"; "5300' 10. 4. 1961, F. Schmid"; "Naturhist. Museum Basel, coll. W. Wittmer". 1 ♂ (NHMB): "Diran Dzong, 5300' 9. 4. 1961"; "Assam, F. Schmid"; "Naturhist. Museum Basel, coll. W. Wittmer". 2 ♂ (NHMB): "Assam Kameng, Sangti 6500'"; "30. 4. 1961, F. Schmid"; "Naturhist. Museum Basel, coll. W. Wittmer". 2 ♂ 3 ♀ (NHMB): "Assam Kameng, Gigaon 6000'"; "4. 5. 1961, F. Schmid"; "Naturhist. Museum Basel, coll. W. Wittmer". 1 ♂ 1 ♀ (NHMB): "Assam Kameng, Shergaon 5. 5. 61"; "6100-6600', F. Schmid"; "Naturhist. Museum Basel, coll. W. Wittmer". 1 ♀ (NHMB): "Assam Shergaon, 6200-6600'"; "30. 3. 1961, F. Schmid"; "Naturhist. Museum Basel, coll. W. Wittmer".

Additional material examined: INDIA: ARUNACHAL PRADESH: "Assam, Kameng, Amatulla, 1500' F. Schmid, 10. 3. 1961, coll. W. Wittmer" 4 ♂ 1 ♀ (NHMB); "Assam, Kameng, Domkho, 6900', F. Schmid, 11. 5. 61, coll. W. Wittmer" 1 ♀ (NHMB); "Assam, Rahung, 7000', F. Schmid, 25. 4. 61, coll. W. Wittmer" 1 ♀ (NHMB).

Type locality: India, Arunachal Pradesh, West Kameng District, vicinity of Dirang.

Measurements ♂ : TBL 8.0 - 9.2 mm, L-h 6.9 - 7.9 mm
HL 1.1 - 1.3 mm, PL 1.2 - 1.4 mm, EL 5.6 - 6.7 mm
♀ : TBL 8.9 - 10.3 mm, L-h 7.6 - 8.7 mm
HL 1.3 - 1.6 mm, PL 1.4 - 1.6 mm, EL 6.2 - 7.2 mm

Differential diagnosis: This species is very similar to *P. mishmi* n. sp., but differs in having the penultimate ventrite, except its basal margin, reddish testaceous. Otherwise, the main characters lie in the apex of the median lobe and paramera of the male genitalia. *P. abori* is closely related and of identical colouration, but slightly smaller and also with different aedeagus shape. Furthermore, *P. abori* lacks the deep basal emargination of the last ventrite in males. *P. weigeli* n. sp. and *P. dasytoides* are easily distinguished by their unicolourous, black abdomen.

Description: Habitus as in figs. 19 (♂) and 20 (♀). Body black, often with plumbeous dark greenish or blueish sheen. Antennae, palpi and fore part of clypeus lighter or darker brownish, infuscate to various degrees; antennae usually with basal segments lighter brown than apical third. Last two segments (ventrite and tergite) of abdomen orange reddish testaceous, only base of penultimate ventrite sometimes black. Claws reddish testaceous.

Head behind eyes 0.6-0.7 times as wide as middle part of pronotum, very finely shagreened, with fine, brownish ground vestiture and a number of large, stiff, dark brownish setae behind eyes as well as on vertex. Eyes relatively small, moderately protruding; separated by a space about 1.4-1.5 times as wide as frons between antennal insertions. Frons often slightly wrinkly, slightly depressed. Depression starting between eyes, clearly delimited by the sharply raised antennal insertions and frontoclypeal (epistomal) suture. Clypeus subrectangular, slightly transverse, matt and with very fine microsculpture, with a few fine, greyish to brownish setae, mainly in basal-half. Labrum slightly

transverse, widened in apical half, with subarcuate apical margin, with very finely rugose microsculpture and some very fine, greyish, recumbent setae; near apical margin with a few long, stiff, brownish setae, which are easily abraded.

Male antennae long, reaching the middle third of the elytra in length. First segment slightly thickened; second very small, less than half as long as first; segments 3, 4, 9 and 11 about equal in length, each of them longer than the first, but shorter than the first two together; segments 5-8 longest, each almost twice as long as first; segment 10 about as long as first, slightly shorter than 9 and 11; last segment thickened in basal half, distinctly constricted in middle part; apical part slightly flattened and narrower than basal part.

Pronotum slightly longer than wide, maximal length : maximal width 1 : 0.85 - 1 : 0.95; widest in fore half; margins not sinuate in basal half; all angles rounded, hind angles obtuse; all margins distinctly bordered; with a distinct depression in middle part of basal half; densely shagreened and with rather coarse, granulate sculpture (finer than in *P. weigeli*), with slight, oily sheen; with very short, inconspicuous, brownish ground vestiture and numerous long, stiff, black setae along the margins. Basal and apical margins very finely ciliate, with short, greyish, hair-like setae.

Elytra about 3.2-3.9 times as long as wide together and rather parallel-sided in males, about 2.8-3.3 times as long as wide and slightly more widened in females; very much like in *P. mishmi*, with slightly weaker greenish sheen. Granular rows also very well developed, the black setae slightly shorter than in *P. mishmi*. Setae along margins also shorter.

Legs as in *P. mishmi*.

Abdomen rather smooth and relatively shining, very finely punctate and with very fine, relatively sparse, brownish ground vestiture. Lateral and apical margins of ventrites 5 and 6 with numerous long, black setae, which are easily abraded.

Male: Apical margin of penultimate ventrite (sternite VI) strongly emarginate; middle part of ventrite about half as wide as lateral parts. Last of similar shape as in *P. flavirostris*, with deep basal and shallow apical emargination, slightly more transverse in shape. Apex of last tergite (pygidium) rounded, simply arcuate.

Aedeagus as in figs. 41, 54, overall quite similar to *P. mishmi*. Process of phallobase pointing backwards. Parameres gaping in apical half when seen from above, with narrow, somewhat claw-like apices; their lower edge at apex strongly emarginate in lateral view, with the apices pointing ventrally, similar to *P. mishmi*. Median lobe relatively thin and flat, slightly sinuate and with sinuate apex, the apex prolonged into a small, narrow, tongue-like tip, which is curved downwards.

Variability: Slightly variable in colouration of the penultimate ventrite, which can be entirely reddish testaceous or more or less blackish along the basal margin, but never entirely. Legs brownish in slightly teneral specimens, usually black. Antennae and palpi infuscate to various degrees. Elytral and pronotal colour varying from blueish black to black with dark greenish sheen. Granular rows of elytra slightly weaker in some specimens. Crenulation of elytral margins nearly absent in some females, but usually well-visible.

Distribution: NE India (Arunachal Pradesh).

Biology and ecology: Collected from March to early June at altitudes between 1400 and 2300 m. Males were found from March to May. The specimens from Amatulla, here not included in the type series, are from lower altitudes, at around 500 m. According to L. Dembický (pers. comm.), the series from Dirang was collected from flowering trees and shrubs.

Derivatio nominis: Named after the Kameng river, a major tributary of the Brahmaputra in western Arunachal Pradesh. „Kameng" is here used as a noun in apposition. This species inhabits the valleys of the Kameng river and its tributaries, within the West Kameng district.

***Palpolobonyx mishmi* n. sp.**

(Figs. 21, 22, 42, 55)

Holotype ♂ (BMNH): "BURMA: Mishmi Hills, Lohit River. 24. iii. 1935. M. Steele."; "Brit.Mus. 1935-312.". Holotype label added. In good condition.

Paratypes (10 ♂ 23 ♀): 7 ♂ 3 ♀ (BMNH): same data as holotype. 2 ♂ 4 ♀ (BMNH): "BURMA: Mishmi Hills, 1935. M. Steele."; "Brit.Mus. 1935-312.". 1 ♂ 3 ♀ (BMNH): "BURMA: Mishmi Hills, Mondon. M. Steele."; "Brit.Mus. 1935-312.". 8 ♀ (BMNH): "BURMA: Mishmi Hills, Dingliang. 2450 ft. 12.iii.1935.M. Steele."; "Brit.Mus. 1935-312.". 3 ♀ (BMNH): "BURMA: Mishmi Hills, Dingliang. 2450 ft. 13.iii.1935.M. Steele."; "Brit.Mus. 1935-312.". 1 ♀ (BMNH): "BURMA: Mishmi Hills, Dingliang. 2450 ft. 13.iii.1935.M. Steele."; "Brit.Mus. 1935-312.". 1 ♀ (BMNH): "BURMA: Mishmi Hills, Dingliang. 2450 ft. 11.-15.iii.1935.M. Steele."; "Brit.Mus. 1935-312.".

Type locality: India, Arunachal Pradesh, Lohit District, Lohit River valley.

Additional material examined: INDIA: ARUNACHAL PRADESH: "Mishmi Hills, Chhaglon, 5350 ft., 26. II. 1935. M. Steele. Brit. Mus. 1935-312." 1 ♂ (BMNH); "Mishmi Hills, Chhaglon, 5350 ft., 7. III. 1935. M. Steele. Brit. Mus. 1935-312." 1 ♂ (BMNH); "Mishmi Hills, Chhaglon, 5350 ft., 8. III. 1935. M. Steele. Brit. Mus. 1935-312." 1 ♀ (BMNH); "Mishmi Hills, Chhaglon, 5350 ft., 9. III. 1935. M. Steele. Brit. Mus. 1935-312." 1 ♀ (BMNH); "Mishmi Hills, Platon. M. Steele. Brit. Mus. 1935-312." 1 ♀ (BMNH); "Mishmi Hills. 1928. Percy Sladen Expn. B. M. 1929-531." 1 ♀ (BMNH).

Measurements ♂ : TBL 7.3 - 9.2 mm, L-h 6.3 - 7.9 mm

HL 1.1 - 1.3 mm, PL 1.1 - 1.4 mm, EL 5.2 - 6.5 mm

♀ : TBL 9.3 - 10.9 mm, L-h 8.1 - 9.3 mm

HL 1.1 - 1.6 mm, PL 1.3 - 1.6 mm, EL 6.8 - 7.7 mm

Differential diagnosis: This species is similar from the closely related *P. abori*, *P. kameng* n. sp. and *P. weigeli* n. sp. by the colouration of the abdomen, having only the terminal segment reddish. Apart from this extremely similar to *P. kameng*, but distinguished by different shape of median lobe and paramera in male genitalia.

Description: Habitus as in figs. 21 (♂) and 22 (♀). Body black with distinct, dark greenish metallic or plumbeous blueish lustre. Last tergite and ventrite yellow testaceous; legs, antennae and palpi varying from lighter to darker brown, basal three to five antennomeres and palpi usually of a lighter brown than the rest, but then usually with parts of their disc infusate.

Head behind eyes about 0.7 times as wide as middle part of pronotum, with wrinkly microsculpture, moderately shining, with brownish, recumbent vestiture, longer, erect brownish setae and some stiff, black setae behind the eyes. Eyes relatively widely separated dorsally; space between eyes 1.3-1.4 times as wide as frons between antennal insertions. Clypeus transversely subrectangular, slightly wrinkly, with some long, brownish setae. Labrum large, flat, more or less parallel-sided, about as wide and double as long as clypeus, setose, with long, brownish setae.

Male antennae long, reaching the middle third of the elytra in length. First and last three segments slightly thickened; second short, less than half as long as first; segments 3 and 4 about equal in length, each of them slightly longer than the first; segment 5 slightly longer than 4; 6-8 longest; last three segments of roughly equal length, much shorter than the preceding, about as long as basal segment; apical segment thickened in basal and flattened in apical half, constricted in middle part.

Pronotum about as long as wide or slightly longer, maximal length : maximal width 1 : 0.9 - 1 : 1; widest in fore half, margins not sinuate in basal half; all angles rounded, hind angles obtuse; all margins clearly bordered; with a slight depression in middle part of basal half; densely and distinctly shagreened and with rugose, often somewhat granulose texture; rather matt; with short and rather sparse, brownish to greyish ground vestiture and several long, stiff, black setae along lateral margins. Basal and apical margins finely ciliate, with relatively short, greyish hair-like setae.

Elytra very elongate, about 3.4-4.2 times as long as wide together and rather parallel-sided in males, around 3.3 times as long as wide and slightly more widened in females; humeral callus distinct; moderately shining, very finely shagreened and with somewhat leathery texture; with easily visible, greyish, recumbent ground vestiture and with four rows of long, stiff, rather conspicuous black setae, one row along suture and the other three on disc, arising from large, raised granuli, forming four rather conspicuous granular rows, sometimes even faint costae. Margins very finely crenulate with another row of long, stiff, blackish setae, usually slightly shorter than on disc. Scutellum rather rounded, about as long as wide, coarsely shagreened, with similar ground vestiture as elytra.

Femora matt and with fine, dense microsculpture, with finer and more brownish pilosity than elytra. Tibiae with stronger and denser setation, between the rather recumbent pilosity with some thick, erect, brownish, thorn-like setae. Base of claws with very small, rather inconspicuous, membraneous appendage.

Abdomen matt and densely shagreened, with fine, relatively dense, greyish to brownish ground vestiture. Ventrites 1-4 sometimes slightly wrinkled. Lateral and apical margins of ventrites 5 and 6 with several long, black setae, which are easily abraded.

Male: Apical margin of penultimate ventrite (sternite VI) strongly emarginate; middle part of ventrite about half as wide as lateral parts. Last of similar shape as in *P. flavirostris*, basal emargination more parabolic in shape. Apex of last tergite (pygidium) arcuate or subtruncate.

Aedeagus as in figs. 42, 55. Process of phallobase pointing backwards. Parameres gaping in apical half when seen from above, with claw like, slightly pointed apices; their lower edge in lateral view, with an almost semicircular emargination at apex; tip of apex facing ventrally. Median lobe relatively thin and flat, distinctly sinuate and with narrowed tip. Apex in dorsal view not as pointed as in *P. abori*, with more rounded tip, more gradually tapered than in *P. kameng* n. sp.; in lateral view facing forwards, not bent ventrally.

Variability: Base of antennae and palpi infusate to variable degrees. Last abdominal segment rarely darkened and more brownish than red, sometimes yellowish testaceous, but never entirely black; also slightly variable in shape, with pygidial apex sometimes narrower and more arcuate, sometimes broader and more truncate. Pronotal sculpture slightly variable, sometimes slightly more coarsely granulate, sometimes smoother. Slightly teneral specimens with pitchy brownish legs, rather than black.

Distribution: NE India (Arunachal Pradesh).

Biology and ecology: Collected at altitudes between 300 and 1650 m, in forested areas. Adults seem to occur very early in the season, with specimens collected only in February and March.

Derivatio nominis: Named after the Mishmi Hills, a mountain range in the extreme North-East of India, at the border to Myanmar, where this species may be endemic. „Mishmi" is here used as a noun in apposition.

Note: Although the type series is labelled as coming from „Burma", all of the localities are part of today's Arunachal Pradesh. It is not yet recorded from Myanmar.

***Palpolobonyx weigeli* n. sp.**

(Figs. 23, 43, 56)

Holotype ♂ (NKME): "NEP: Mahakali/Darchula, env. Makarighar, 29°47'N 80°50'E, 12-1400 m, 03. VI. 2005, A. Weigel". The holotype is in good condition, but shows a teratologically deformed right hind leg.

Type locality: Nepal, Mahakali zone, Darchula district, near Makarighar.

Measurements ♂ : TBL 7.8 mm, L-h 6.2 mm, HL 1.6 mm, PL 1.2 mm, EL 5.0 mm.

Differential diagnosis: This species is similar to *P. abori*, *P. kameng* n. sp. and *P. mishmi* n. sp., but can be easily distinguished by the unicolourous, black abdomen without reddish segments. Also, the elytra are shorter than in *P. abori* and the aedeagus shows a clearly different shape. *P. dasytoides* which is also related, clearly differs by smaller body size. Furthermore, the pronotal sculpture in this species is coarser than in any other member of the genus and the elytra lack distinct granular rows, present in all other members of the *P. dasytoides* group.

Description: Habitus as in fig. 23 (♂). Body black. Elytra with very faint, dark plumbeous greenish hue (much weaker than in *P. granulatus*). Legs with slight blueish hue. Tarsi, antennae and palpi brownish, basal four antennomeres, apex of last antennomere and palpi of slightly lighter colour than the rest.

Head behind eyes 0.8 times as wide as middle part of pronotum; matt and shagreened; with wrinkly texture on vertex and coarsely rugose frons; with rather sparse and inconspicuous, brownish vestiture; around and behind eyes, as well as on vertex with numerous long, stiff, blackish setae. Eyes moderately protruding, separated by a space about 1.5 times as wide as between antennal insertions. Frons moderately depressed in front of eyes, but rather flat; ridges above antennal insertions not distinctly raised. Clypeus moderately transverse and rather convex, separated from frons by a suture as

well as a deepened furrow (an unusual character within *Palpolobonyx*). Labrum about as long as wide, with arcuate apical margin and sparse, fine, light brownish ground vestiture; along apical margins with few, long, blackish setae.

Male antennae shorter than in related species, reaching the first third of the elytra, past the humeral callus, in length. First segment apically thickened; second short, about half as long as first; segments 3, 4, 9, 10 and 11 about equal in length, each of them longer than the first, but shorter than the first two together; segments 5-8 longest, each about as long as first two together; last segment apically flattened, constriction in middle part hardly perceptible.

Pronotum about as long as wide, widest in fore half; margins very faintly sinuate in basal half; all angles rounded, hind angles obtuse; basal margin rather distinctly bordered, other margins only with traces of a bordering; with a shallow impression in basal half; very coarsely sculptured with densely granulate texture, the ground finely shagreened and matt; ground vestiture brownish, short and not very conspicuous; along margins with some long, stiff, black setae. Basal margin finely and sparsely ciliate, with short, greyish, hair-like setae.

Elytra relatively broad and stout, about 2.9 times as long as wide together in male; parallel sided; humeral callus distinct; relatively matt and shagreened, with coarsely rugose texture; with relatively dense, greyish ground vestiture and four rather loose rows of stiff, black setae, only visible in profile view; one row along suture and three on disc; longer setae not arising from distinct granuli and therefore without granular rows. Margins not distinctly crenulate and with a row of blackish setae, with a row of thick, but relatively short, blackish setae. Scutellum subrectangular, slightly longer than wide; matt, with dense microsculpture and relatively fine, greyish vestiture as compared to elytra.

Femora rather matt and with wrinkly microsculpture, with similar, greyish pilosity as elytra, intermixed with a few stronger, brownish setae. Tibiae and tarsi finely shagreened and with slight oily sheen, densely covered in stiff, brownish setae. Setation on tibiae also sparsely intermixed with another type of stronger, darker brownish setae. Base of claws with very small, rather inconspicuous, membraneous appendage.

Abdomen with slight, oily sheen and rather very fine, rather regular, brownish ground vestiture. Margins of ventrites 5 and 6 with several long, dark brownish setae.

Male: Apical margin of penultimate ventrite (sternite VI) not strongly emarginate; middle part of ventrite about $\frac{3}{4}$ as wide as lateral parts. Last ventrite very short and strongly transverse; shape quite different to *P. flavirostris*, with a relatively shallow basal emargination. Apex of last tergite (pygidium) simply arcuate.

Aedeagus as in figs. 43, 56; very small and short. Phallobase thickened, with short, rather oblique process. Parameres narrowed in apical third, forming a fork when seen from above; in lateral view only narrowed in apical $\frac{1}{5}$, with short, narrow but rather blunt tip and slightly emarginate lower edge. Median lobe relatively flat at base, but rather cylindrical in middle part; apex short and blunt when seen from above.

Variability: Unknown.

Distribution: W Nepal.

Biology and ecology: The holotype was collected in the beginning of June at an altitude between 1200 and 1400 m.

Derivatio nominis: Named after my colleague Andreas Weigel from Erfurt, Germany, beetle collector and taxonomist working on Cerambycidae, associated to NKME. He collected the holotype and so far only known specimen.

***Palpolobonyx dasytoides* (Champion, 1919) n. comb.**
(Figs. 26, 27, 44, 57)

Idgia dasytoides Champion, 1919: 370.

Type material examined: Syntype ♀ (BMNH): "Birmah, Karen Mts."; "Doherty"; "Type H. T."; "Idgia dasytoides Ch.". Syntype label added. In good condition.

Syntype ♀ (BMNH): "Birmah, Karen Mts."; "Doherty"; "Fry Coll. 1905.100."; "Idgia dasytoides Ch.". Syntype label added. Left antenna, tibia and tarsus of right hind leg and left hind leg missing.

Syntype ♀ (BMNH): "Birmah, Karen Mts."; "Doherty"; "Fry Coll. 1905.100."; "♀"; "Idgia dasytoides Ch.". Syntype label added. Right hind tarsus missing.

Syntype ♀ (BMNH): "64161"; "Birmah, Karen Mts."; "Doherty"; "Fry Coll. 1905.100."; "♀"; "Idgia dasytoides Ch.". Syntype label added. Segments 2-11 of left antenna missing.

Syntype ♀ (MNHP, coll. Pic): "Birmah, Karen Mts."; "Doherty"; "♀"; "Idgia dasytoides Ch.". Syntype label added. Left antenna and right metatarsus missing.

Syntype ♀ (MNHP, coll. générale): "Birmah, Karen Mts."; "Doherty"; "Fry Coll. 1905.100."; "♀"; "Idgia dasytoides Ch.". Syntype label added. Left antenna and right middle leg missing.

Additional material examined: BURMA: "N. E. Burma, Kambaiti, 7000 ft., 3/4. 34. R. Malaise, coll. W. Wittmer 1 ♀ (NHMB); "Karen Hills, Burmah 4000 (Doherty), Brit.Mus. 1923-320." 6 ♀ (BMNH); "Ober-Burmah, Ruby Mines, 5000-7500 Fuss, Heyne V., Zool. Mus. Berlin" 1 ♀ (MNHB); "Heyne 92, Ober-Burma, Coll. Mus. Vindob." 1 ♀ (NHMW).

THAILAND: Chiang Mai pref., Ban Huai Mo, 15. III. 1992, Y. Okushima leg. 1 ♂ 10 ♀ (KMNH).

Measurements ♂ : TBL 5.5 mm, L-h 4.8 mm, HL 0.7 mm, PL 0.9 mm, EL 3.9 mm

♀ : TBL 6.5 - 7.2 mm, L-h 5.6 - 6.1 mm

HL 0.9 - 1.1 mm, PL 0.9 - 1.1 mm, EL 4.2 - 5.0 mm

Differential diagnosis: One of the smallest species within the whole family, smaller than *P. abori*, *P. kameng* n. sp., *P. mishmi* n. sp. and *P. weigeli* n. sp. Easily distinguished from the related *P. granulatus* by the blackish pronotum. Distinguished from *P. abori*, *P. kameng* and *P. mishmi* also by the entirely black abdomen and from *P. weigeli* by the more distinctly metallic lustre and more elongate elytral shape.

Redescription: Habitus as in figs. 26 (♂) and 27 (♀). Body black with distinct greenish or blueish lustre. Antennal segments 1-4 yellow testaceous, with a more or less extended, dark brownish macula

on their dorsal middle parts; rest of antennae black. Maxillary and labial palpi, as well as outer edge of clypeus yellow. Legs black, with dark brownish tibiae and contrasting yellow trochanters and apical parts of coxae.

Head behind eyes 0.75-0.85 times as wide as middle part of pronotum, rather coarsely shagreened and matt, with fine, greyish ground vestiture and very long, dark brownish setae behind eyes, the ones on vertex often abraded. Eyes not very protruding, separated by a space about 1.5 times as wide as between antennal insertions (male). Frons between eyes shallowly depressed. Clypeus transversely subtrapezoidal, shagreened, with relatively long, yellowish setae. Labrum finely shagreened, with long, sparse, yellowish setae; in male about as long as wide, of almost circular shape (except for base); in females more transverse.

Male antennae long, reaching the middle of the elytra in length. First segment slightly thickened; second short, about half as long as first; segments 3, 4, 10 and 11 about equal in length, each of them longer than the first, but shorter than the first two together; segments 5-8 longest, each about as long as first two together; segment 9 intermediate in length between 8 and 10; last segment slightly constricted in middle part.

Pronotum longer than wide in male, maximal length : maximal width 1 : 0.85; broader in females, with a ratio between 1 : 0.90 and 1 : 1; margins not sinuate in basal half; all angles rounded, hind angles obtuse; margins with traces of a bordering; with a distinct depression in middle part of basal half and a shallow, longitudinal groove across central part of disc; rather coarsely shagreened and matt; with fine, inconspicuous, dark brownish ground or greyish ground vestiture and several longer, blackish setae along margins (easily abraded). Basal and apical margins very finely ciliate, with very short, greyish, hair-like setae.

Elytra about 3.2 times as long as wide together and rather parallel-sided in male, about 3.1-3.2 times as long as wide and apically slightly widened in females; humeral callus distinct; moderately shining, densely shagreened and with leathery texture; with relatively long and easily visible, greyish to brownish ground vestiture; with four rows of long, erect, black setae, one along suture and the other three on disc, arising from raised granuli, forming four rather conspicuous granular rows. Margins finely crenulate with a rather loose row of very long, stiff, black setae. Scutellum rounded, about as long as wide, matt and densely shagreened, with similar ground vestiture as elytra.

Femora finely shagreened and rather matt, with slightly finer and sparser greyish ground vestiture than elytra. Tibiae and tarsi with similar ground texture, but denser, stiffer and longer, more brownish setae. Base of claws with very small, rather inconspicuous, membraneous appendage.

Abdomen relatively smooth and moderately shining, very finely punctulate, with relatively long, but fine and rather sparse, greyish ground vestiture. Ventrites 1-4 often with slightly wrinkly texture. Lateral and apical margins of ventrites 5 and 6 with several long, blackish setae, which are easily abraded.

Male: Apical margin of penultimate ventrite (sternite VI) not much emarginate; middle part of ventrite about $\frac{3}{4}$ as wide as lateral parts. Last ventrite strongly transverse, but not as short as in *P. weigeli*; shape different to *P. flavirostris*, with deep, but more triangular basal emargination and deeper emargination at apical margin. Apex of last tergite (pygidium) simply arcuate.

Aedeagus as in figs. 44, 57; very small and short. Phallobase slightly thickened, with short and broad, oblique process. Parameres clearly gaping in apical half, when seen dorsally; with claw-like apices, with a deep subapical emargination at lower edge (lateral view). Median lobe not very strongly flattened, apex short, flattened and bent down, triangularly pointed when seen from above.

Variability: Apart from slight variation in size, this species seems to be very uniform in its appearance. Only the extent of testaceous and infusate colouration of the antennae was found to be slightly variable.

Distribution: N Myanmar, NW Thailand.

Biology and ecology: A montane species, found at altitudes between 800 (approximate elevation of Ban Huai Mo) and over 2000 m. Adults were collected in March and April, in the late dry season (possibly coinciding with the first rains in the mountains). The only known male was found in mid-March. No information on collecting circumstances is given.

Palpolobonyx granulatus (Pic, 1920)
(Figs. 28, 29, 45, 58)

Idgia granulata Pic, 1920b: 12.

Type material examined: Syntype ♂ (BMNH): "Type H. T."; "Tonkin, Hoabinh. Aug. 1918. R. V. de Salvaza."; "Indo China. R. V. de Salvaza. 1918_1"; "*Idgia granulata* Pic n. sp. type". Syntype label added. In good condition.

4 Syntypes ♂ (BMNH): "Tonkin, Hoabinh. Aug. 1918. R. V. de Salvaza."; "Indo China. R. V. de Salvaza. 1918-1". Syntype labels added. In good condition.

Syntype ♂ (BMNH): "Tonkin, Hoabinh. Aug. 1918. R. V. de Salvaza."; "Indo China. R. V. de Salvaza. 1918-1". Syntype label added. Segments 3-11 of left antenna and last segment of right metatarsus missing.

Syntype ♂ (BMNH): "Tonkin, Hoabinh. Aug. 1918. R. V. de Salvaza."; "Indo China. R. V. de Salvaza. 1918-1". Syntype label added. Segments 5-11 of left and 4-11 of right antenna and right fore leg missing.

Syntype ♂ (BMNH): "Tonkin, Hoabinh. Aug. 1918. R. V. de Salvaza."; "Indo China. R. V. de Salvaza. 1918-1"; "sp. ?, near *flavicollis* Redt."; "*Idgia granulata mihi*". Syntype labels added. Segments 9-11 of left and 2-11 of right antenna, right fore leg and left middle leg missing.

Syntype ♂ (MNHP, coll. Pic): "Tonkin, Hoabinh. Aug. 1918. R. V. de Salvaza."; "type"; "TYPE"; "*Idgia granulata* Pic". Syntype label added. In good condition.

3 Syntypes ♂ (MNHP, coll. Pic): "Tonkin, Hoabinh. Aug. 1918. R. V. de Salvaza."; "*Idgia granulata* Pic". Syntype labels added. In good condition.

Syntype ♂ (MNHP, coll. Pic): "Tonkin, Hoabinh. Aug. 1918. R. V. de Salvaza."; "Indo China. R. V. de Salvaza. 1918-1"; "ex coll. Vitalis". Syntype label added. In good condition.

6 Syntypes ♂ (MNHP, coll. Pic): "Tonkin, Hoabinh. Aug. 1918. R. V. de Salvaza.". Syntype labels added. In good condition.

Syntype ♂ (MNHP, coll. Pic): Labelled as above. Right antenna missing.

Syntype ♂ (MNHP, coll. Pic): Labelled as above. Left metatarsus missing.

Syntype ♀ (MNHP, coll. Pic): Labelled as above. In good condition.

Syntype ♂ (NHMB): "Tonkin, Hoabinh. Aug. 1918. R. V. de Salvaza."; "Idgia granulata Pic"; "Naturhist. Museum Basel coll. W. Wittmer". Syntype label added. Right middle tarsus missing.

Syntype ♂ (NHMB): "Tonkin, Hoabinh. Aug. 1918. R. V. de Salvaza."; "Idgia granulata Pic"; "Idgia granulata Pic, det. W. Wittmer"; "Naturhist. Museum Basel coll. W. Wittmer". Syntype label added. Last segment of right antenna missing.

Syntype ♀ (NHMB): "Tonkin, Hoabinh. Aug. 1918. R. V. de Salvaza."; "Naturhist. Museum Basel coll. W. Wittmer". Syntype label added. Left middle tarsus missing.

2 Syntypes ♀ (NHMB): "Hoa Binh, Tonkin"; "cotype"; "Idgia granulata Pic"; "Idgia granulata Pic, det. W. Wittmer"; "Naturhist. Museum Basel coll. W. Wittmer". Syntype labels added. In good condition.

Syntype ♀ (MCGD): "Hoa Binh, Tonkin"; "Idgia granulata Pic"; "Hoa Binh, Tonkin (leg. Vitalis de Salvaza)"; "ex. coll. Pic, dedit Pic"; "SYNTYPUS, Idgia granulata Pic, 1920". Syntype label added. Right metatarsus missing.

Additional material examined: VIETNAM: "Hoa Binh, Tonkin, coll. W. Wittmer" 3 ♂ 5 ♀ (NHMB); "Hoa Binh, Tonkin" 10 ♂ 7 ♀ (MNHP); "Hoa Binh" 3 ♂ 1 ♀ (MNHP); "Tonkin occ., Rég. de Hoa Binh 1919" 1 ♀ (MNHP); "Hao Binh, Tonkin" 5 ♀ (MNHP); "Lac Tho, Tonkin" 1 ♀ (MNHP); "Tonkin, Hoa-Binh, leg. A. de Cooman" 1 ♂ 4 ♀ (IZAS); "Tonkin, Hoa-Binh, leg. A. de Cooman, VIII. 40" 1 ♂ 4 ♀ (IZAS); Cuc Pong, 19. III. 1995, T. Niisato leg. 23 ♂ 23 ♀ (EHUM), 1 ♂ 1 ♀ (NHMB), 1 ♂ 1 ♀ (BMNH); Cuc Phuong, Ninh Binh prov., 27. IV. 1996, Y. Okushima leg. 1 ♀ (KMNH).

Measurements ♂ : TBL 5.3 - 6.3 mm, L-h 4.7 - 5.8 mm

HL 0.6 - 0.9 mm, PL 0.8 - 1.0 mm, EL 3.8 - 4.4 mm

♀ : TBL 6.9 - 7.8 mm, L-h 6.0 - 6.6 mm

HL 0.9 - 1.2 mm, PL 1.0 - 1.2 mm, EL 4.8 - 5.5 mm

Differential diagnosis: Very distinctive, being the only species within the *dasytoides*-group with reddish pronotum. Easily distinguished from members of the *moupinensis*-group (e.g. *flavirostris*) by much smaller size and dark femora.

Redescription: Habitus as in figs. 28 (♂) and 29 (♀). Body black, with plumbeous greenish-blue lustre. Prothorax, including pronotum light orange to orange red, testaceous. Elytra with distinct plumbeous blueish or greenish lustre, brownish in teneral specimens. Antennae of variable colour, usually with yellow testaceous base, progressively darkened towards apex. Palpi yellow to light brownish. Legs (including coxae) dark-coloured, brownish to black, brownish red only in teneral

specimens; fore tibiae often lighter brown to almost yellow. Clypeus and labrum yellow to orange testaceous.

Head behind eyes 0.75-0.85 times as wide as middle part of pronotum, distinctly shagreened and finely punctate, with relatively long vestiture. Sides behind eyes with some long, erect, blackish setae (abraded in some specimens). Eyes slightly protruding, relatively widely separated, by a space about twice as wide than between antennal insertions (in both males and females). Frons between eyes distinctly depressed. Clypeus very short and strongly transverse, matt, with some relatively long, yellowish setae. Labrum, flat, about as long as wide, with shorter, yellowish setae on disc and a few longer setae along the margins.

Male antennae long, reaching the middle of the elytra in length. First segment apically thickened; second short, about half as long as first; segments 3, 4 and 9 about equal in length, each of them longer than the first, but shorter than the first two together; segments 5-8 longest, each about twice as long as first; apical two segments slightly longer than first, but slightly shorter than third; last segment slightly constricted in middle part.

Pronotum about as long as wide; widest in fore half, margins not sinuate in basal half; all angles rounded, hind angles obtuse; margins with traces of a bordering; with a long, shallow, oblique depression on each side of disc in basal half; very finely shagreened and rather matt; with very fine, short, brownish ground vestiture and a number of long, stiff, blackish setae along margins. Basal and apical margins finely ciliate, with fairly long, yellowish hair-like setae.

Elytra about 3.2-3.4 times as long as wide together and rather parallel-sided in males, about 3.0 times as long as wide and apically slightly widened in females; humeral callus distinct; shining, finely microsculptured and with leathery texture; with relatively long and easily visible, greyish, recumbent ground vestiture; with four rows of long, erect, black setae, one along suture and the other three on disc, arising from raised granuli, forming four rather conspicuous granular rows. Margins very finely crenulate with another row of long, black, stiff setae. Scutellum transverse, rather matt and densely shagreened, more densely pilose than elytra, with more brownish hair-like setae.

Femora finely shagreened and rather matt, with fine, inconspicuous, blackish ground vestiture. Tibiae and tarsi slightly more shining and with dense, golden brownish, stiff setae, increasing in density from tibial base to apex. Base of claws with very small, rather inconspicuous, membraneous appendage.

Abdomen very finely shagreened and rather matt, with relatively long and dense, rather conspicuous, brownish ground vestiture. Lateral and apical margins of ventrites 5 and 6 with several long, blackish setae.

Male: Apical margin of penultimate ventrite (sternite VI) rather shallowly emarginate; middle part of ventrite about $\frac{2}{3}$ as wide as lateral parts. Last ventrite of similar shape as in *P. dasytoides*, but slightly shorter and more transverse, with shallower apical emargination, quite different to *P. flavirostris*. Apex of last tergite (pygidium) simply arcuate.

Aedeagus as in figs. 45, 58; very small and short. Phallobase with a long process pointing backwards. Parameres strongly gaping in apical half, when seen from above; apices very thin and rather pointed, but not claw-like as in *P. dasytoides*. Median lobe similar as in *P. dasytoides*, slightly flatter, with the apex not distinctly bent down.

Variability: Antennae, palpi and protibiae infuscate to various degrees; antennae usually gradually darker towards apex. In some specimens (probably slightly teneral ones) the legs are rufous dark brown instead of black. Also the elytral colour can vary from metallic dark blue in fully mature specimens to somewhat brownish in the teneral ones. This is similar to *Prionocerus coeruleipennis* Perty, 1831, where a separate species was described based on such a teneral individual ("*P. fuscipennis*" Lewis, 1879, see Geiser, 2010a).

Distribution: N Vietnam.

Biology and ecology: Although no precise altitudes were given on the labels, this is likely a species of rather low elevations (the only one in the genus). The highest elevations in Cuc Phuong National Park and in the immediate surroundings of Hoa Binh do not exceed 600 m. It is also unusual within the genus by having two distinct seasonal peaks, one in March and one in August, where both males and females were collected. This pattern is otherwise only observed in *P. abori*. A single female was collected in late April, teneral males in August.

Further species, only represented by females

As males of *Palpolobonyx* tend to be strongly under-represented in collections, there are still several female specimens which cannot be properly identified or described at the moment. Several of them belong to obviously new species, but male specimens are needed to give complete descriptions.

Palpolobonyx sp. 1 (Fig. 24)

Material examined: INDIA: ARUNACHAL PRADESH: Distr. Along Near Rapum, 2000 m, 28.53176° N / 94.24941° E, 10.-12. VII. 2007, Bretschneider leg. 1 ♀ (NKME); Distr. Pasighat, 25 km NE Pasighat, 630 m, 28°08.309' N / 95°15.514' E, 16. VII. 2010, G. Bretschneider leg. 1 ♀ (NKME).

Diagnosis: Belonging to the *dasytoides* species group. Similar to *P. abori*, but elytra more shining, with clearer sheen. Differs from all known species by the bicoloured femora, with the basal half (or basal 2/3) yellow testaceous and the apical half black. The abdomen is black with a yellow spot at the sides of each sternite.

Distribution: NE-India (Arunachal Pradesh).

Palpolobonyx sp. 2 (Fig. 25)

Material examined: CHINA: TIBET: E Tibet, Bomi env., 29°52' N / 95°45' E, 9.-10. VII. 1997, 3000 m, mixed forest. 3 ♀ (NHMB); "S.E.Tibet: Zayul, Rong Tö Valley, 6000 ft., 8.-10. v. 1933, F. Kingdon Ward & R.J.H. Kaulback. B.M. 1934-41." 2 ♀ (BMNH); "S.E.Tibet: Rong Tö Valley, 4000-7000 ft., iv. 1933, F. Kingdon Ward & R.J.H. Kaulback. B.M. 1934-41." 1 ♀ (BMNH); Bomi, Zhamu, 2750 m, 2. VII. 1974, Huang Fu-Sheng leg. 2 ♀ (IZAS); Bomi, 14. VII. 1997. 1 ♀ (IZAS).

Diagnosis: Belonging to the *dasytoides* species group. Similar to *P. abori*, but with broader pronotum and less parallel, more oval-shaped elytra. Abdomen without reddish apex, unicolorously black with blue metallic sheen. Elytra with strong blue metallic lustre.

Distribution: China (Tibet).

***Palpolobonyx* sp. 3** (Fig. 16)

Material examined: CHINA: YUNNAN: NW-Yunnan, Deqen Co., Mekong side of Hengduan Shan, S of Meilixue Shan, 28°15-16' N / 98°43-44' E, 3500-4300 m, 3.-5. VI. 1999, L. & R. Businský leg. 3 ♀ (NMPC); Mazhan env., Volcano geological park, 25°13.5' N / 98°30.0' E, 1930 m, individually collected on soil surface, on plants and flowering shrubs, ruderalized grasslands on volcanic rocks / grove margins, 6. VI. 2007, J. Hájek & J. Růžička leg. 4 ♀ (NMPC); Ningjing Shan, Wei - Shi, 2200 m, 12.-13. VI. 2006, Vladimir Major leg. 1 ♀ (BMNH); Ningjing Shan, Mekong Riv., Tse kou, 28°01'59" N / 98°54'17" E, 2100 m, 8.-11. VI. 2007, Major leg. 1 ♀ (CRS).
SICHUAN: "Su-Tchuen, Mo-Sy-Mien, 1897" 1 ♀ (MNHP).

Diagnosis: A species of the *moupinensis* species group. Similar to *P. moupinensis* and *P. granulipennis*, with relatively short pronotum and blackish opaque elytra. Differs by having a reddish testaceous pronotum and prosternum. Membraneous lobe of claws small, as in *P. granulipennis*. Much smaller than *P. flavirostris* and related species, with shorter habitus.

Distribution: China (Yunnan, Sichuan).

Unidentified females of the *gressitti*-complex

The following females were found either in localities where both *P. gressitti* and *P. simillimus* are known to occur, or in places where no males have been collected so far. For the moment, they cannot be identified with certainty.

TAIWAN: Tao-Yuan Hsien, Pa Lin, 1000 m, 22. IV. 1993, Lo leg. 1 ♀ (NHMW); Taoyuan, Paling, 31. III. 1998, M. Satô leg. 1 ♀ (EHUM); Taoyuan County, Chihtuan near Palin, 27. IV. 1978, N. Yashiro leg. 1 ♀ (EHUM); Taoyuan Hsien, Lalashan, 4. IV. 1991, Y. Okushima leg. 1 ♀ (KMNH); Taoyuan Hsien, nr. Mt. Lalashan, 5. V. 1983, M. Hasegawa leg. 1 ♀ (KMNH); Hsinchu, Mamei, 18. V. 2008, S.-F. Yu leg. 2 ♀ (TARI); Hsinchu, Lupi, 4. IV. 2009, M.-H. Tsou leg. 1 ♀ (TARI); "Taiheizan. 1550m. V-8-32. Gressitt" 1 ♀ (BIMH); Taichung Hsien, Anmashan, 2230 m, 30. IV. – 4. V. 1990, A. Smetana leg. 4 ♀ (MNHG); Taichung Hsien, Anmashan, 2200 m, 29. VII. 1997, Y. Arita leg. 1 ♀ (KMNH); Taichung Hsien, Wulin, 1600 m, 20. IV. 1990, A. Smetana leg. 2 ♀ (MNHG); Taichung, Heping, Dasyueshan National Recreation Area, 24°15' N / 121°00' E, 2100-2300 m, 4. VI. 2010, T. Tsuru leg. 1 ♀ (KMNH); Ug. Hualien, Shuillen, TF, 13. V. 2001, U. Buchsbaum leg. 2 ♀ (CRC); Hualien Hsien, Kuanyuan, 25. VI. 1989, M. Satô leg. 3 ♀ (EHUM); Hualien Hsien, Taroko N P, Chungyantienshi (Riv.) Waterfall, 2300 m, 10. V. 1990, A. Smetana leg. 1 ♀ (MNHG); Hualien Hsien, Taroko N P, Nanhushi Hut, 2220 m, 12. V. 1990, A. Smetana leg. 1 ♀ (MNHG); Lishan – Tienhsiang (E-W. Highway), 22. V. 1969, S. Hisamatsu leg. 2 ♀ (EHUM); Hualien, Guanyuan, 2200-2300 m, 24°11'12" N / 121°20'00" E, 7. V. 2006, Y.-F. Hsu leg. 2 ♀ (TARI); Nantou county, Hohuachi, between Lishan and Tayuling, at the road No. 8, 1950 m, at light, 24°13' N / 121°16' E, 31. III. 2000, A. Kun & L. Peregovits leg. 2 ♀ (MTMB), 1 ♀ (NHMB); Nantou County, Wushe near Puli, 22. III. 1977, Yutaka Notsu leg. 3 ♀ (EHUM); Meifeng, near Puli, LF, 24°05'25" N / 121°10'21" E, 2200 m NN, 10. V. 2001, U. Buchsbaum leg. 1 ♀ (CRC); Nantou Hsien, Kantoshan, 17. V. 1996, M. Takakuwa leg. 10 ♀ (SMNS); Nantou Hsien, Shintzetow, 11. V. 1994, C. Lou leg. 7 ♀ (KMNH); Nantou Hsien, Shihtyotou, 21. II. 1998, C. Lou leg. 1 ♀ (KMNH); Nantow County, Sungkang - Meifeng, 2044-2127 m, 18. V. 1969, S. Hisamatsu leg. 7 ♀ (EHUM); Nantow County, Sungkang - Meifeng, 2044-2127 m, 19. V. 1969, S. Hisamatsu leg. 1 ♀ (EHUM); Nantou Hsien, Sungkang - Meifeng, 18. V. 1970, M. Takagi leg. 2 ♀ (EHUM); Nantow County, Sungkang, 2044 m, 8. V. 1978, N. Yashiro leg. 4 ♀ (EHUM); Nantou Hsien, Sungkang, 12. IV. 1991, K. La leg. 1 ♀ (KMNH); Nantou Hsien, Sun Kang, 1600 m, 17. IV. 1991, Lo leg. 3 ♀ (NHMW); Nantou Hsien, Sun Kang, 1800 m, 28. VI. 1991, Lo leg. 1 ♀ (NHMW); Nantou Hsien, Sungkang, 9. V. 1997, C. Lou leg. 1 ♀ (KMNH); Nantou Hsien, Sungkang, 22. V. 1998, C. Lou leg. 4 ♀

(KMNH); Nantou Hsien, Sungkang, 26. V. 1998, C. Lou leg. 1 ♀ (KMNH); Nantou, Sungkang, Renai Township, 4. V. 2007, S. Hisamatsu leg. 1 ♀ (EHUM); Nantow County, Tsuifeng – Sungkang, 23. III. 1977, Y. Notsu leg. 1 ♀ (EHUM); Nantou Hsien, Tienchi, 2860 m, 22. VI. 1989, M. Owada leg. 1 ♀ (EHUM); Nantou Hsien, Mt. Hohuanshan, 25. VI. 1989, M. Satô leg. 1 ♀ (EHUM); Nantou Hsien, Lushan, 2. V. 1996, C. Lou leg. 4 ♀ (KMNH); Nantou Hsien, Lien-hua-chih, 7. IV. 1991, Y. Okushima leg. 1 ♀ (KMNH); Fenchihu, 1400 m, 15. IV. 1977, J. & S. Klapperich leg., coll. W. Wittmer. 2 ♀ (NHMB); Fenchihu, 1400 m, 23. IV. 1977, J. & S. Klapperich leg. 1 ♀ (NHMB); Fenchihu, 1400 m, 30. IV. 1977, J. & S. Klapperich leg., coll. W. Wittmer. 1 ♀ (NHMB); Fenchihu, 1400 m, 20. V. 1977, J. & S. Klapperich leg., coll. W. Wittmer. 1 ♀ (NHMB); "(Hoozan) Hosan, III. 10, Sauter S." 1 ♀ (MNHB); Thu Yun Shan, near Liu Kui, 23. VII. 1986, Col. K. Baba. 1 ♀ (EHUM); Taitung Hsien, Yakou-shanchuang, 2750 m, 11. VI. 1989, M. Satô leg. 1 ♀ (EHUM); "(Taiwan) 1974" 1 ♀ (EHUM).

Unidentified females of the *abori*-complex

The following females may belong to either *P. abori*, *P. kameng* n. sp. or *P. mishmi* n. sp., but were found at a locality where no males have been recorded. Anini is geographically closest to the range of *P. mishmi*, but some of the females were found to have a partially reddish penultimate ventrite, what leaves their placement ambiguous.

INDIA: ARUNACHAL PRADESH: Anini vicinity, 1700+/-100m, 28°54' N / 95°56' E, Pacholátko leg. 30.-31.v.2007. 12 ♀ (NHMB).

Key to males

Males of the three unidentified species cited above are unknown. "Sp.1" is related to *P. abori*, *P. kameng* and *P. mishmi* but with bicolorous femora. "Sp.2" is related to *P. weigeli* and *P. abori*. „Sp.3" is related to *P. moupinensis* and *P. granulipennis*, but with reddish pronotum.

1. First segment of fore tarsi inside the comb without large tooth. Legs entirely black or dark brown. *P. dasytoides* species group. 2
 - First segment of fore tarsi inside the comb with one or two large teeth. Legs yellow, or at least with yellow femora. *P. moupinensis* species group 7
2. Species of very small size (TBL ♂: 5-6.5 mm). Indochina. 3
 - Species of larger size (TBL ♂: 7-9.5 mm). Himalayan region. 4
3. Pronotum red; elytra greenish or blueish black. North Vietnam. .. *P. granulatus* (Pic, 1920)
 - Pronotum blueish black, like the elytra. Myanmar and NW Thailand.
..... *P. dasytoides* (Champion, 1919)
4. Last segment of abdomen black. Elytra shorter and without rows of granuli. W-Nepal.
..... *P. weigeli* n. sp.
 - Last segment of abdomen reddish testaceous. Elytra longer and with three distinct rows of granuli. NE-India (Arunachal Pradesh) and adjacent parts of China (Tibet). 5
5. Penultimate ventrite black, only the last one reddish. Aedeagus as in figs. 42, 55.
..... *P. mishmi* n. sp.
 - Penultimate ventrite reddish, as the last one. Aedeagus different. 6
6. Smaller species (TBL ♂: 7.4-7.7 mm). Paramera as fig. 53. Median lobe as in fig. 40.
..... *P. abori* (Pic, 1913)
 - Larger species (TBL ♂: 8.0-9.2 mm). Paramera as fig. 54. Median lobe as in fig. 41.
..... *P. kameng* n. sp.
7. Pronotum dark blue or blackish. 8
 - Pronotum reddish testaceous. With or without black markings. 10
8. Claws with large, well-developed membraneous lobe. Prosternum dark blue, like the pronotum. Widely distributed in China. *P. moupinensis* (Fairmaire, 1889)
 - Claws with small, inconspicuous or almost completely reduced membraneous lobe. Prosternum partly yellow..... 9

9. Prosternum only partly yellow, the outer margins blackish. Elytra blackish, opaque. SW-China (Yunnan). *P. yuxiae* n. sp.

- Prosternum entirely yellow, in strong contrast to the pronotal colour. Elytra with slightly greenish or blueish metallic lustre. Central China (Hubei, Chongqing, Sichuan, Guizhou, Hunan, Henan, Anhui, Jiangxi, Shaanxi, Gansu) *P. granulipennis* (Fairmaire, 1891)

10. Pronotum unicolourous. Paramera as in fig. 49. Median lobe as in figs. 35 or 36.
..... *P. flavirostris* (Pascoe, 1860)

- Pronotum with dark markings. Very rarely with unicolorous pronotum (see *P. gressitti*), but then with different genitalia. 11

11. Body size on average smaller (TBL ♂: 9.0-10.1 mm). Tibiae usually infusate. Median lobe and paramera as in figs. 39, 52. NE-Laos. *P. laosensis* n. sp.

- Body size on average larger (TBL ♂: 9.5-12.5 mm). Meso- and metatibiae yellow or infusate, protibiae always yellow. Median lobe and paramera of different shape. Taiwan.
..... 12

12. Paramera as in fig. 50. Median lobe as in fig. 37. *P. gressitti* n. sp.

- Paramera as in fig. 51. Median lobe as in fig. 38. *P. simillimus* n. sp.

Key to females

The female of *P. weigeli* n. sp. is unknown at the moment. It can be expected to look similar to *P. abori*, but probably with entirely dark-coloured abdomen. There are female specimens from Sichuan, which may belong to *P. flavirostris*, but this needs to be confirmed as males become available.

1. Legs entirely black or of dark metallic colour..... 2

- At least the bases of the femora are yellow..... 6

2. Abdomen entirely black. 3

- Abdomen at least with the last segment reddish testaceous. 5

3. Smaller species: TBL ♀ 6.5-7.8 mm. Indochina. 4

- Larger species: TBL ♀ 8.5-10.4 mm. China (Tibet). **sp. 2**

4. Pronotum red. North Vietnam. *P. granulatus* (Pic, 1920)

- Pronotum black with greenish or blueish metallic lustre. Myanmar, NW Thailand.
..... *P. dasytoides* (Champion, 1919)

(Here also specimens of *P. gressitti* n. sp. from Taiwan with unicolourous pronotum, which occur very rarely, and have more elongate elytra than *P. flavirostris*.)

Discussion

Taxonomy

The current revision increases the number of species within *Palpolobonyx* by seven new species, while simultaneously synonymising three previously described species, as well as one infraspecific taxon, thus bringing the number of species to 13. All previously known taxa were placed within the large and heterogeneous genus *Idgia*. Further three, most probably new species are not yet described here, because of insufficient material. The species number thus seems to be higher than in *Lobonyx* (11 described species, Constantin, 2009) and *Prionocerus* (Geiser, 2010a).

The overall variety in body and aedeagus shapes in *Palpolobonyx* is much more limited than experienced among the species currently placed in *Idgia* (see Champion, 1919), which is almost certainly not a monophyletic clade (Geiser & al., unpublished data).

There are two clusters of morphologically very similar species within *Palpolobonyx*, which may indicate recent speciation within two geographic areas. On Taiwan, *P. gressitti* and *P. simillimus* are very closely related sister-species, both also very similar and closely related to the more widespread *P. flavirostris*. Variability in male genital shape also suggest, that *P. flavirostris* itself may be in the course of speciation, or a complex of closely related species.

Furthermore, the complex of *P. abori*, *P. kameng* and *P. mishmi* in the border areas between India, China and Myanmar also indicates a relatively recent speciation. In all these cases, further studies on morphology and molecular taxonomy will be necessary to confidently identify female specimens, and to clarify the status of different populations here placed under *P. flavirostris*.

Phylogeny and placement of Palpolobonyx n. gen.

Palpolobonyx forms a relatively homogenous group of species, clearly defined by a number of characters, including the sexually dimorphic palpi, the characteristic shape of the abdomen and the relatively homogenous aedeagus shape.

Within Prionoceridae, only three genera have so far been distinguished: *Lobonyx* Jacquelin du Val, 1859, *Idgia* Laporte de Castelnau, 1838 and *Prionocerus* Perty, 1831. The first genus was placed in its own tribe, Lobonychini, by Majer, 1987, while the other two form the tribe Prionocerini. These tribes were later treated as subfamilies, after the Prionoceridae had been given full family status (Bocakova & al., 2012).

Lobonychinae, as previously defined (Majer, 1987), is distinguished from Prionoceridae by the structure of the head and eyes, the absent penicillus of the mandibles and „nearly tweezer-shaped“ tegmen and a number of other characters. Several of the other characters given were based on the examination of only one *Prionocerus*, one *Idgia* and two *Lobonyx* species. As they are highly variable between species of *Idgia* (own observation), they can hardly be used as tribal characters. This includes the shape of the last antennomere and the bordering of the pronotum.

Species of *Palpolobonyx* were previously placed in *Idgia*, based on overall similarity. They also show a number of characters otherwise typical for this genus, e.g. the relatively dense protarsal combs in males, the elongate body shape with long legs, the relatively large palpi (also in females) and the absent penicillus of the mandibles.

A number of other characters, however, are common to *Lobonyx* and *Palpolobonyx* and not found in *Idgia* and *Prionocerus*. This includes the shape of the head and eyes, the sharply marked frontoclypeal suture, the presence of a membranous appendage on the claws, the tweezer-shaped paramera, the dorsoventrally more or less complanate median lobe and the shape of the endophallic sclerites, especially the ostial spikes (Constantin, 2009: figs. 7, 8), termed „ostial lamellae" by Majer (1987: fig. 185).

The characters suggesting a sister-group relationship between *Lobonyx* and *Palpolobonyx* are more numerous, and appear to have a higher phylogenetic significance than the ones common to *Idgia* and *Palpolobonyx*. Furthermore, body shape, length of legs and size of the palpi was found to be relatively variable within *Lobonyx*, as well as *Idgia* (own observations). Based on these data, *Palpolobonyx* is here proposed to belong to Lobonychinae, rather than Prionocerinae. This placement was recently confirmed by molecular (nuclear and mitochondrial DNA) data (Geiser & al., unpublished).

The inclusion of *Palpolobonyx* in Lobonychinae requires Majer's (1987) diagnosis of this taxon to be modified as follows:

Head not rostrate, border scarcely distinct, partition in eyes only rudimentary. Clypeus separated from frons by a sharply marked suture. Claws with membranous appendage. Tegmen (including parameres) nearly tweezer-shaped. Endophallic sclerites restricted to apical half of median lobe. Ostium with ostial spikes (lamellae) and sometimes with ostial plates.

The characters of the cranium, metendosternites, prementum and ligula given by Majer (1987) still need to be examined in *Palpolobonyx*.

The structure of the endophallic sclerites as well as the appendiculate claws appear to be plesiomorphic characters within Prionoceridae. These characters are commonly found in species of Rhadalidae (Peacock, 1987; Constantin, 2009), which were shown to be one of the most basal clades of the melyrid lineage (Bocakova & al., 2012). Along with the more „generalised", dasytid-like head shape of Lobonychinae members, this leads to the assumption that Prionocerinae are more derived members of Prionoceridae, whereas Lobonychinae has conserved more plesiomorphic features from basal members of the melyrid lineage.

Biogeography

The overall distribution of *Palpolobonyx* stretches along the borders between the Eastern Palearctic and Oriental faunal regions, including the Himalayas, South and Central China and northern Indochina. Species from South China and Indochina tend to occur at montane altitudes, where also a number of other Palearctic elements are found (e.g. *Carabus* spp., *Coccinella septempunctata*). Regarding these montane species as Palearctic elements, the only truly oriental element within the genus appears to be *P. granulatus*, which occurs in lowland areas of northern Vietnam. The northern part of the distributional area of *Palpolobonyx*, which extends as far as Shaanxi and Shanghai in China is traditionally regarded as part of the Palearctic region (e.g. Wallace, 1876; Cox, 2001). It was, however, assigned to the Oriental Region in a recent study on biogeographical regionalisation by Krefl & Jetz (2010). Even more recently, Holt & al. (2013) proposed to include this area in a newly defined zoogeographic realm, termed „Sino-Japanese".

Palpolobonyx are most diverse in NE-India, Yunnan and Taiwan, with three to five species occurring in each area, including the three taxa not named here. Among the „biodiversity hotspots" defined by Myers & al. (2000), this corresponds to parts of the „Indo-Burma" and „South-Central China" hotspots. Which of these areas could be regarded as the origin of *Palpolobonyx* cannot be determined here, pending more data on phylogeny.

Ecology and life history

The majority of *Palpolobonyx* species seems to inhabit subtropical to temperate forests at montane altitudes. Some of the label data given for *P. moupinensis* indicate that they may occasionally be found in high-altitude *Rhododendron* scrubland. The available data for most species do not indicate a dependance on primary forests, although this might be the case for *P. laosensis*. *P. granulatus* seems to be rather unusual, being found in lowland tropical monsoon forests.

There is very little information about their way of life, inferred mainly from label data, but also from own collecting experience and some information given by collectors (e. g. L. Dembický.). Several species are known to visit flowers of trees and shrubs during the day (*kameng*, *laosensis*, *flavirostris*, *gressitti*), or they were found sitting on foliage of understorey shrubs (*yuxiae*, fig. 60). Several specimens were collected by simply sweeping vegetation (*flavirostris*). Although a few specimens were collected at light (*simillimus*, *flavirostris*, sp. 1), adults appear to be all diurnal. The larvae and their habitats are unknown.

The following plant species are known to host flower-visiting *Palpolobonyx* species:

Ligustrum sinense Lour., Oleaceae (for *P. flavirostris*, see Aston, 2011)

Maesa perlarius (Lour.) Merr., Primulaceae (for *P. flavirostris*, see Aston, 2011)

Prunus phaeosticta (Hance) Maxim., Rosaceae (for *P. gressitti*, according to label)

Viburnum sp. (Hance) Maxim., Adoxaceae (for *P. gressitti*, according to label)

Most species of *Palpolobonyx* appear to be univoltine, with a rather short period of activity, usually in early spring. Males seem to be very short-lived and found only during a very short season, but often in great abundance (see notes on *P. flavirostris*). Females have a longer period of activity, and can be found until up to two months after the male activity season. Two species, *P. abori* and *P. granulatus*, show two distinct peaks of activity, in March and in August, which leads to the assumption that they are bivoltine.

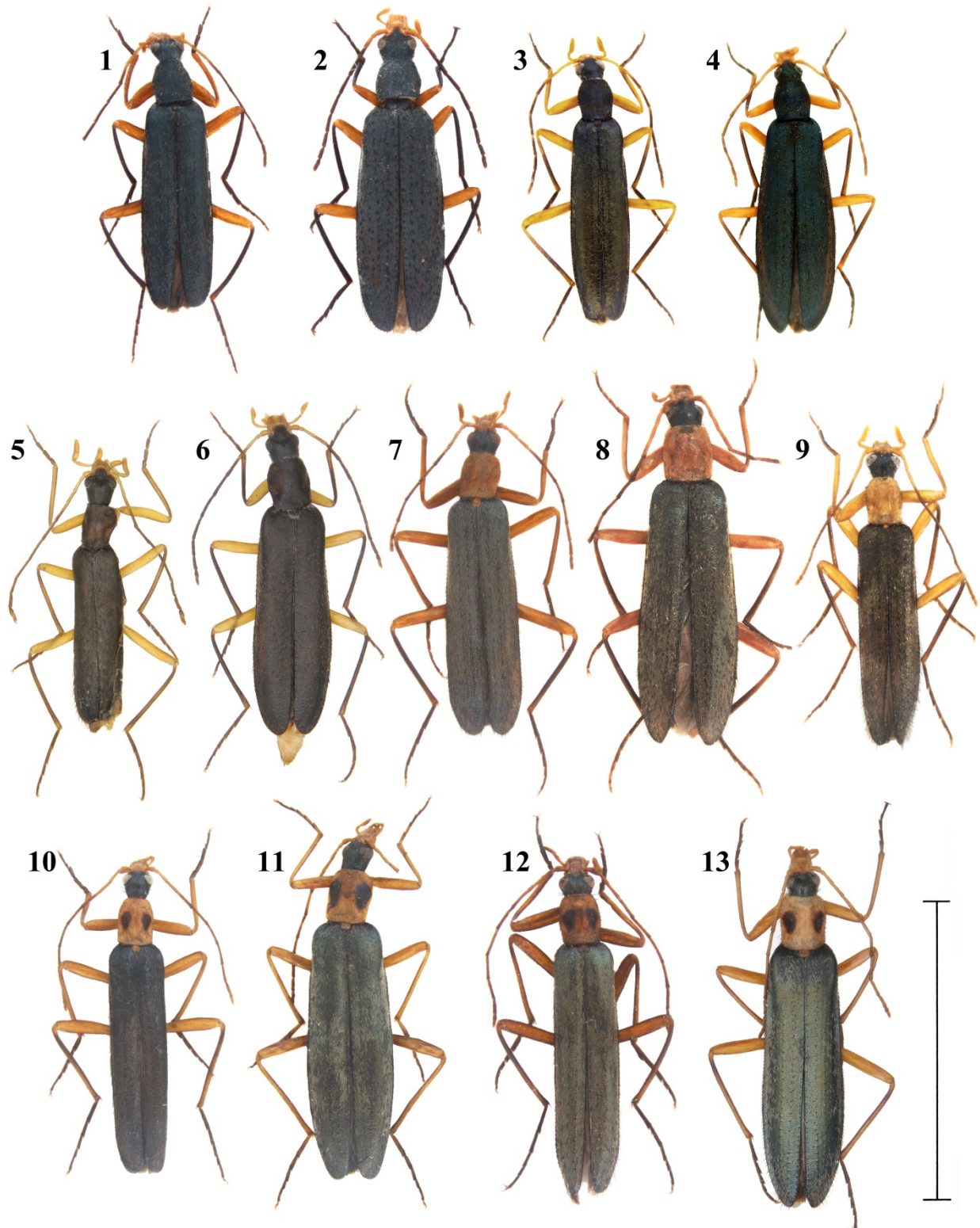
A number of species, such as *P. laosensis*, are represented in collections almost only by females. This is, at least partly explainable by the short life span of the males and the fact that most entomologists visit these localities at a later season. A good example is *P. yuxiae*, which, prior to 2011, was known from a long series of only females collected in May, which appears to be the most „yielding“ season for insect collectors in this area. Field-work carried out at the same locality in April 2011 produced a series of both males and females, but other beetle families tended to be poorly represented during this trip (own observations).

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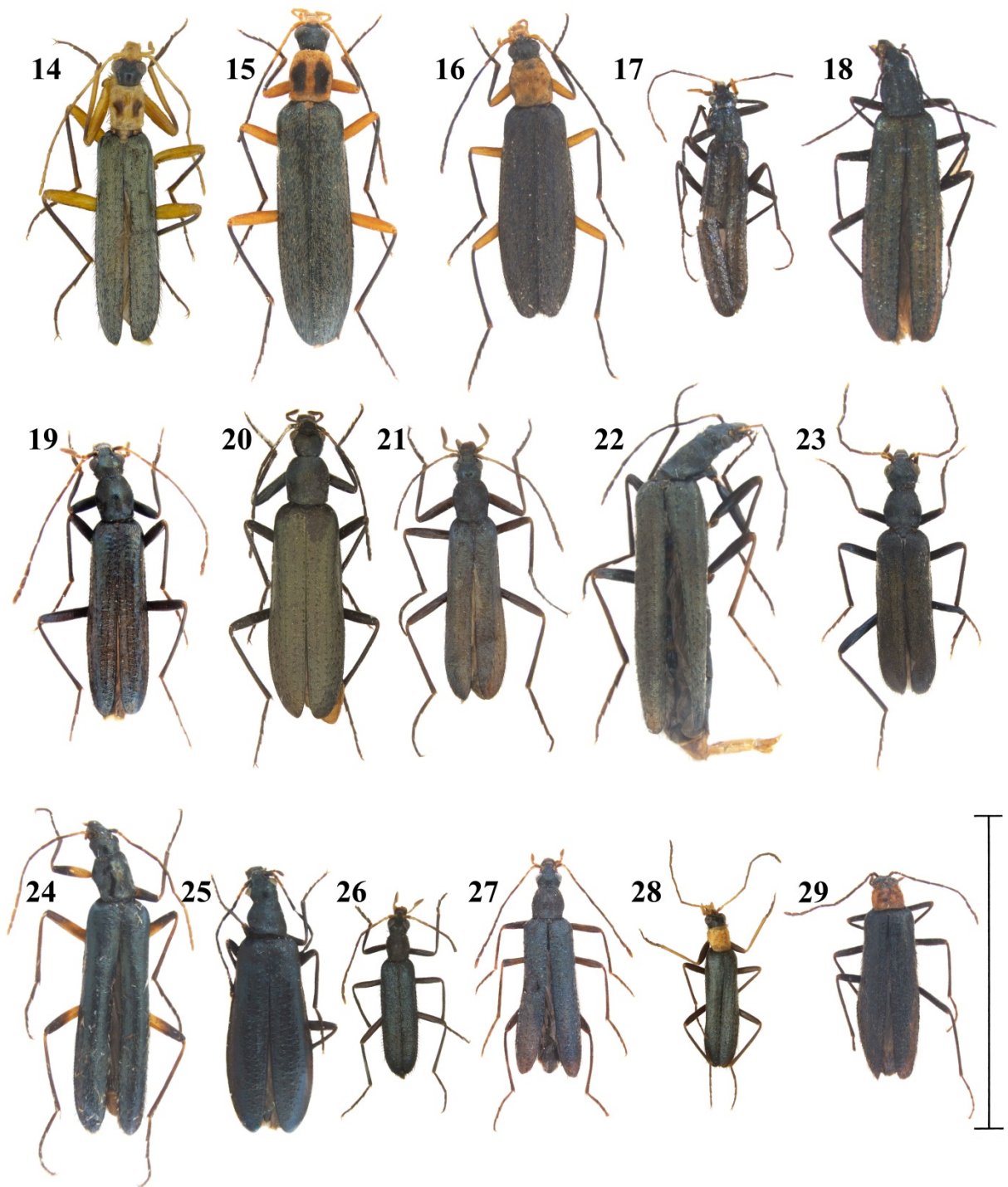
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(plate 1, figs. 1-13)



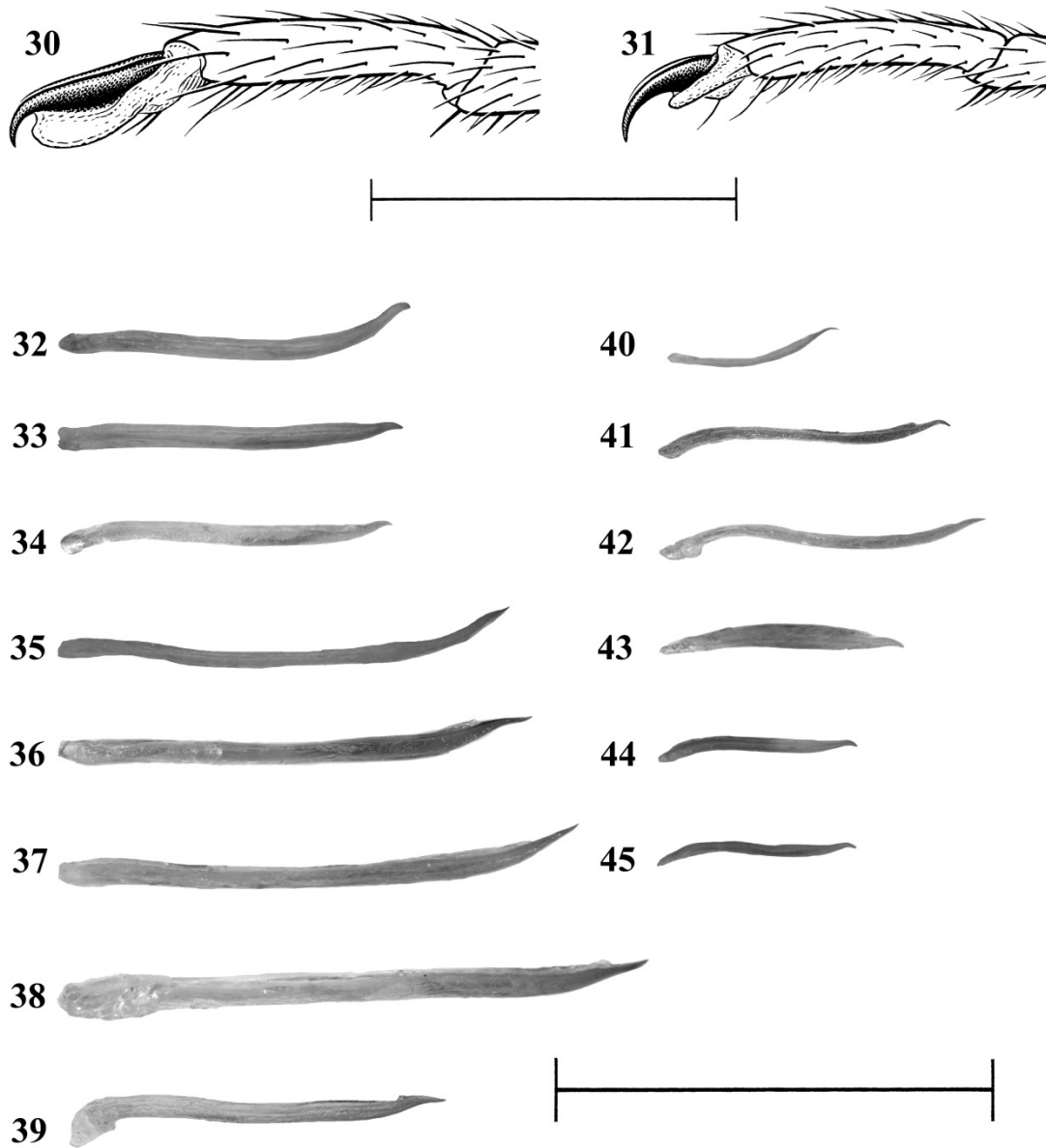
Figs. 1-13: Dorsal habitus. 1-2: *Palpolobonyx moupinensis* (Fairmaire, 1889) (China: Sichuan), ♂ (1) and ♀ (2); 3-4: *Palpolobonyx granulipennis* (Fairmaire, 1891) (China: Hubei), ♂ (3) and ♀ (4); 5-6: *Palpolobonyx yuxiae* n. sp. (China: Yunnan), paratype ♂ (5) and paratype ♀ (6); 7-9: *Palpolobonyx flavirostris* (Pascoe, 1860), ♂ from China: Fujian (7) and ♀ from China: Fujian (8), ♂ from Vietnam (9); 10-11: *Palpolobonyx gressitti* n. sp. (Taiwan), paratype ♂ (10) and ♀ (11); 12-13: *Palpolobonyx simillimus* n. sp. (Taiwan), paratype ♂ (12) and ♀ (13). The scale represents 10 mm.

(plate 2, figs. 14-29)



Figs. 14-29: Dorsal habitus. 14-15: *Palpolobonyx laosensis* n. sp. (Laos), holotype ♂ (14) and paratype ♀ (15); 16: *Palpolobonyx* sp. 3 (China: Yunnan), ♀; 17-18: *Palpolobonyx abori* (Pic, 1913) (China: Tibet), ♂ (17) and ♀ (18); 19-20: *Palpolobonyx kameng* n. sp. (India), holotype ♂ (19) and paratype ♀ (20); 21-22: *Palpolobonyx mishmi* n. sp. (India), holotype ♂ (21) and paratype ♀ (22); 23: *Palpolobonyx weigeli* n. sp. (Nepal), holotype ♂; 24: *Palpolobonyx* sp. 1 (India), ♀; 25: *Palpolobonyx* sp. 2 (China: Tibet), ♀; 26-27: *Palpolobonyx dasytoides* (Champion, 1919) (Myanmar), ♂ (26) and syntype ♀ (27); 28-29: *Palpolobonyx granulatus* (Pic, 1920) (Vietnam), ♂ (28) and ♀ (29). The scale represents 10 mm.

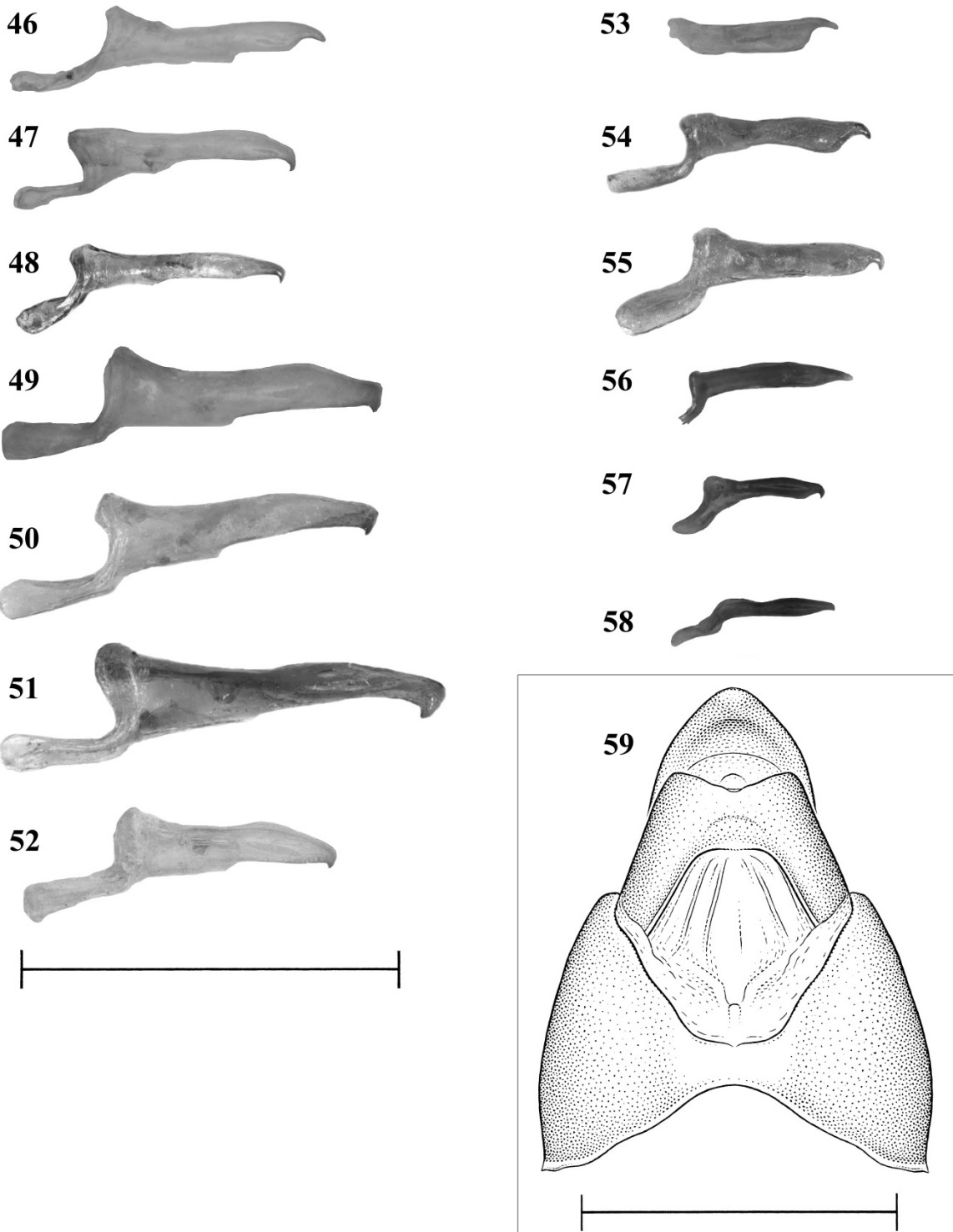
(plate 3, figs. 30-45)



Figs. 30-31: Last tarsomere of metatarsus. 30: *Palpolobonyx moupinensis* (Fairmaire, 1889); 31: *Palpolobonyx granulipennis* (Fairmaire, 1891). The scale represents 1 mm.

Figs. 32-45: Median lobe of aedeagus in lateral view. 32: *Palpolobonyx moupinensis* (Fairmaire, 1889); 33: *Palpolobonyx granulipennis* (Fairmaire, 1891); 34: *Palpolobonyx yuxiae* n. sp., holotype; 35: *Palpolobonyx flavirostris* (Pascoe, 1860) from China (Fujian); 36: *Palpolobonyx flavirostris* (Pascoe, 1860) from Vietnam; 37: *Palpolobonyx gressitti* n. sp., paratype; 38: *Palpolobonyx simillimus* n. sp., holotype; 39: *Palpolobonyx laosensis* n. sp., paratype; 40: *Palpolobonyx abori* (Pic, 1913) from China (Tibet); 41: *Palpolobonyx kameng* n. sp., holotype; 42: *Palpolobonyx mishmi* n. sp., holotype; 43: *Palpolobonyx weigeli* n. sp., holotype; 44: *Palpolobonyx dasytoides* (Champion, 1919); 45: *Palpolobonyx granulatus* (Pic, 1920). The scale represents 2 mm.

(plate 4, figs. 46-59)



Figs. 46-58: Right paramera of aedeagus in lateral view. 46: *Palpolobonyx moupinensis* (Fairmaire, 1889); 47: *Palpolobonyx granulipennis* (Fairmaire, 1891); 48: *Palpolobonyx yuxiae* n. sp., holotype; 49: *Palpolobonyx flavirostris* (Pascoe, 1860) from China (Fujian); 50: *Palpolobonyx gressitti* n. sp., paratype; 51: *Palpolobonyx simillimus* n. sp., holotype; 52: *Palpolobonyx laosensis* n. sp., paratype; 53: *Palpolobonyx abori* (Pic, 1913) from China (Tibet), base of tegmen broken; 54: *Palpolobonyx kameng* n. sp., holotype; 55: *Palpolobonyx mishmi* n. sp., holotype; 56: *Palpolobonyx weigeli* n. sp., holotype, base of tegmen broken; 57: *Palpolobonyx dasytoides* (Champion, 1919); 58: *Palpolobonyx granulatus* (Pic, 1920). The scale represents 2 mm.

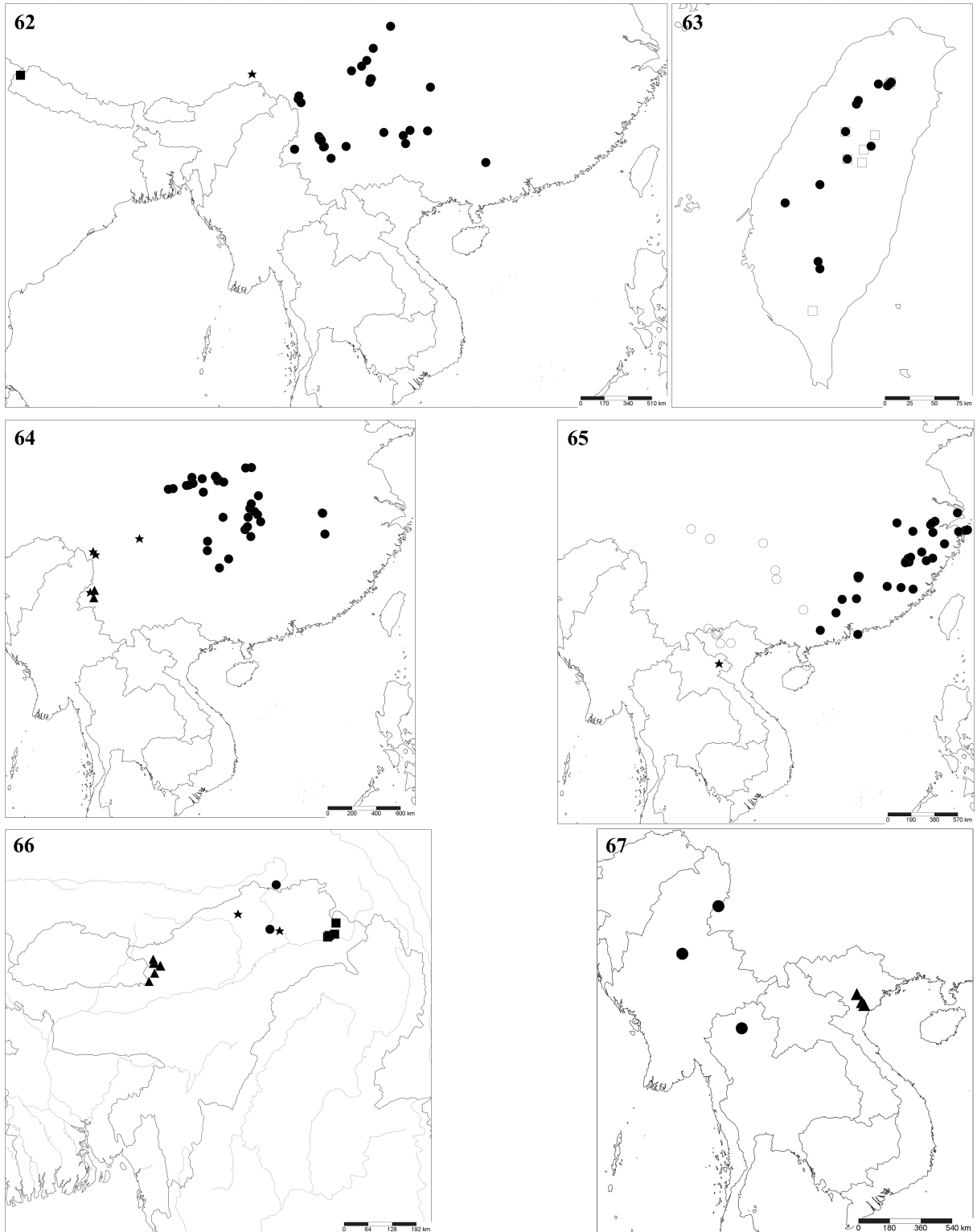
Fig. 59: Apical two ventrites and outline of pygidium in ventral view: *Palpolobonyx flavirostris* (Pascoe, 1860) from China (Fujian), ♂. The scale represents 2 mm.



Fig. 60: Live individual (♀) of *Palpolobonyx yuxiae* n. sp. in its natural habitat at Gaoligongshan Nat. Res., Baoshan, Yunnan, China.



Fig. 61: Habitat of *Palpolobonyx yuxiae* n. sp. at Gaoligongshan Nat. Res., Baoshan, Yunnan, China. Altitude ca. 2100 m. Photo taken on 22 April 2011.

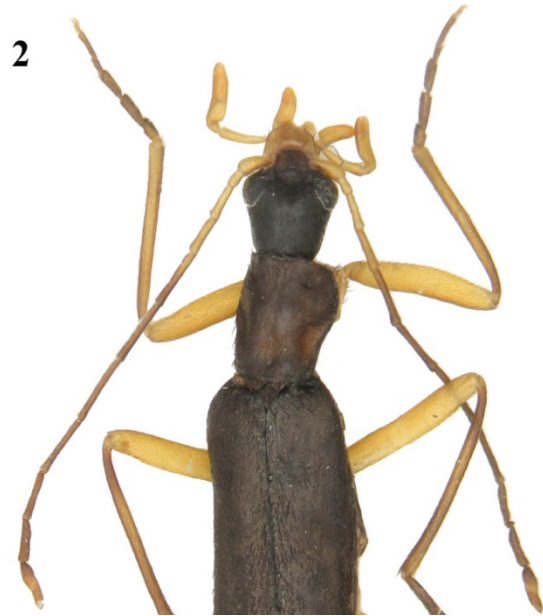
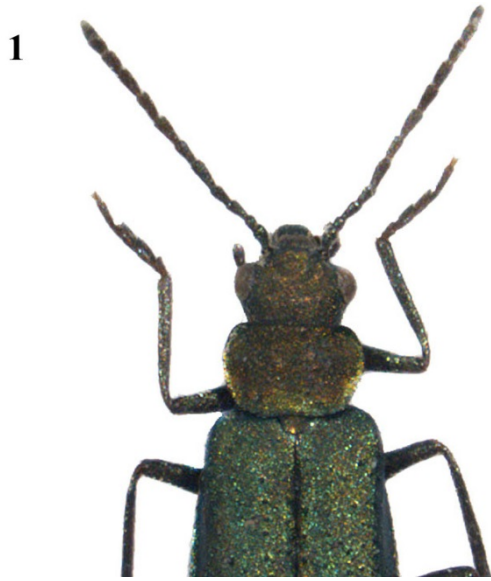


Figs. 62-67: Distribution maps. 62: *Palpolobonyx moupinensis* (Fairmaire, 1889) (dots); *P. weigeli* n.sp. (square); *P. sp.3* (star). 63: *P. gressitt* n.sp. (dots); *P. simillimus* n.sp. (open squares). 64: *P. granulipennis* (Fairmaire, 1891) (dots); *P. yuxiae* n. sp. (triangles); *P. sp.2* (stars). 65: *P. flavirostris* (Pascoe, 1860) (closed circles), "*P. flavirostris* (Pascoe, 1860)" s. lat" (open circles); *P. laosensis* n. sp. (star). 66: *P. abori* (Pic, 1913) (dots); *P. kameng* n. sp. (triangles); *P. mishmi* n. sp. (squares); *P. sp. 1* (stars). 67: *P. dasytoides* (Champion, 1919) (dots); *P. granulatus* (Pic, 1920) (triangles).

Chapter V

An updated key to genera of Prionoceridae

1. Claws with membranous appendage. Head not distinctly rostrate, with widely separated eyes (figs. 1-2). Clypeus separated from frons by a sharply marked suture. subfamily Lobonychinae Majer, 1987... 2
- Claws without membranous appendage. Head usually distinctly rostrate, with narrowly separated eyes (figs. 3-6). Clypeus separated from frons by a transverse furrow, but without sharply marked suture. subfamily Prionocerinae Lacordaire, 1857... 3
2. Habitus *Dasytes*-like, with relatively short legs. Terminal segment of maxillary and labial palpi small, not sexually dimorphic. Male tarsal comb reduced on first protarsomere, loosely arranged on second and third tarsomere. Fore body as in fig. 1. *Lobonyx* Jacquelin du Val, 1859
- Habitus *Cantharis*-like, with relatively long legs. Terminal segment of maxillary and labial palpi large in both sexes, strongly enlarged and flattened in males. Male tarsal comb well-developed on first protarsomere, very dense on second and third tarsomere. Fore body as in fig. 2 *Palpolobonyx* Geiser, n. gen.
3. Males without sclerotised combs on fore tarsi. Last antennomere sexually dimorphic, longer in males. Ovipositor with short, barrel-shaped coxital styli. Large-sized species (16-22 mm) with metallic elytra and strongly rostrate head (fig. 3). *Bigdia* Geiser, n. gen.
- Males with well-developed sclerotised combs on fore tarsi. Last antennomere usually without distinct sexual dimorphism. Ovipositor with long, cylindrical coxital styli. Usually smaller-sized species, rarely above 15 mm, with metallic or testaceous elytra, with different head shape and general appearance. 4
4. Antennae serrate, with triangularly flattened subapical segments and strongly emarginate last segment (fig. 4); more broadly serrate in males than in females. Ventral surface of body always black or metallic. *Prionocerus* Perty, 1831
- Antennae filiform (figs. 5, 6), rarely slightly serrate or flattened, but then with triangularly flattened subapical segments and with differently shaped last segment. Ventral surface of body sometimes black or metallic, but more often yellowish testaceous. *Idgia* Laporte de Castelnau, 1838



Figs. 1-6: Fore body in dorsal view. 1: *Lobonyx aeneus* (Fabricius, 1798), ♂ from Spain; 2: *Palpolobonyx yuxiae* Geiser, n. sp., ♂ from China (Yunnan); 3: *Bigdia maculatithorax* (Pic, 1919), ♀ from Laos; 4: *Prionocerus viridiflavus* Geiser, 2007, ♂ from Indonesia (Sumatra); 5: *Idgia particularipes* Pic, 1920, ♂ from Laos; 6: *Idgia cf. dimidiata* (Gerstaecker, 1871), ♂ from Swaziland.

Chapter VI

A first broad-scale molecular phylogeny of Prionoceridae (Insecta: Coleoptera: Cleroidea) provides insight into taxonomy, biogeography and life history evolution

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Abstract

Based on partial sequences of three mitochondrial (*cox1*, *cox2*, *trnL*) and two nuclear genes (*18S* and *28S*) we conducted a molecular phylogenetic analysis of Prionoceridae represented by all three valid genera, 34 species and a large number of informal species groups from the Palaearctic, Afrotropical and Oriental regions. Analyses indicate the split of Prionoceridae in two main clades, Lobonychinae and Prionocerinae. Lobonychinae includes the genus *Lobonyx* Jacquelin du Val, 1859 and some species currently placed in *Idgia* Laporte de Castelnau, 1838. Prionocerinae includes a large paraphyletic grade of *Idgia* and monophyletic *Prionocerus* Perty, 1831, with *Idgia viridescens* Gorham, 1895 identified as a sister to *Prionocerus*. *Idgia* consists of seven clades, with their basal relationships weakly resolved. Two clades – *Idgia oculata* and *Idgia pallidicolor* species groups – are well supported by molecular data and morphological characters. Species identifications based on morphology are consistent with tree topology recovered from molecular dataset, with one possible exception (*Idgia inapicalis*). Sequence divergence in *cox1* varies from 3.7 to 16% between species and from 0 to 4.9% within species of Prionoceridae. The reconstruction of diurnal and nocturnal life histories suggests a single origin of nocturnality, and multiple transitions from nocturnal to diurnal life style within Prionoceridae. The African and the Arabian species represent two lineages, both having their origin in tropical Asia.

Key words

Soft-winged flower beetles, Cucujiformia, *Idgia*, *Prionocerus*, *Lobonyx*, taxonomy, nocturnality, diurnality, biogeography, barcoding.

1. Introduction

Molecular systematic methods are of increasing importance in building the “Beetle Tree of Life”. An important first step towards this goal has been the paper of HUNT et al. (2007), examining higher-level phylogeny within the whole Coleoptera based on three partial gene sequences. The majority of beetle families, however, have never been subject to a detailed phylogenetic analysis.

Prionoceridae is a poorly known family within the melyrid lineage (“soft-winged flower beetles”) of the superfamily Cleroidea (Polyphaga: Cucujiformia). Formerly, prionocerid beetles were placed in the superfamily “Malacodermata”, assuming a relationship with Cantharidae (soldier beetles), as both have a very similar external appearance (LACORDAIRE 1857). However, based on larval (BÖVING & CRAIGHEAD 1931) and adult characters (CROWSON 1955), the Melyridae lineage was also thought to be closely related to other groups, e.g. Cleridae and Trogossitidae. Once the Malacodermata was split into superfamilies Cantharoidea (now part of Elateroidea) and Cleroidea, Prionoceridae was formally placed in

Cleroidea and treated as either a subfamily of Melyridae in the wider sense (CROWSON 1955; MAJER 1987), or as a separate family (MAJER 1994; LAWRENCE & NEWTON 1995). The apparent morphological similarity of prionocerids and cantharids is probably due to convergent life histories (CROWSON 1964). Recently, the phylogeny of the Melyridae lineage of Cleroidea was examined in detail, based on molecular data of two ribosomal and two nuclear gene fragments (BOCAKOVA et al. 2012). Their analysis showed Melyridae s.lat. (the melyrid lineage) to consist of six clades, which were given family status and showed the following relationships: Rhadalidae + (Mauroniscidae + (Prionoceridae + (Melyridae s.str. + (Dasytidae + Malachiidae))). These groupings are largely consistent with morphological data (MAJER 1994) and with the previous, large-scale molecular phylogenetic analysis of the whole Coleoptera (HUNT et al. 2007). However, these studies included only a small number of taxa within the Melyridae lineage. The BOCAKOVA et al. (2012) and HUNT et al. (2007) analyses provide the first glimpses of the phylogenetic relationships of Prionoceridae, but much remains to be understood of the generic and species level relationships.

Data on the biology of Prionoceridae is very scarce, with only a few aspects known from available literature, specimen label data and unpublished fieldwork experience. Like in other beetle families with weakly sclerotised cuticle (“malacoderms”, e.g. Malachiidae and Cantharidae), adults of Prionoceridae are short lived and seasonally limited in their occurrence. They can be found in abundance locally, sometimes being among the most common and conspicuous insects, but tend to “disappear” after only a few days. Adults of diurnal species are flower visitors and probably all are pollen feeders. Nocturnal species, possibly all of the yellow-coloured species of *Idgia*, have only been observed sitting motionless on the underside of leaves in forests or were attracted to light traps, without any data on their feeding behaviour. Larvae were found either under the bark of trees, or moving around on foliage of forest under-storey shrubs during rainy weather. They are either predators or feed on dead insects (saprophagous) (GARDNER 1929)

The vast majority of Prionoceridae species occur in the Oriental region, a minority in the Ethiopian and Palearctic regions and only two widespread species reach parts of the Australian region. There are none on the Australian mainland, Madagascar and in the New World. Most Prionoceridae species are associated with tropical and subtropical moist forests, but the few Palearctic taxa are recorded from drier, savannah-like habitats, dry temperate climates (Mediterranean, Central Asia), or from dry scrublands of the Arabian Peninsula.

Currently, Prionoceridae consists of 158 described species, placed in three poorly defined genera, *Prionocerus* Perty, 1831 (8 species), *Idgia* Laporte de Castelnau, 1838 (139 species) and *Lobonyx* Jacquelin du Val, 1859 (11 species). Based on a study of type material and museum collections worldwide, an additional 100+ undescribed species have been detected so far (M. Geiser, unpublished data). The internal phylogeny of Prionoceridae has never been subject to a detailed examination, and the generic placement of most taxa has not been under scrutiny since the last (partial) revision of *Idgia* and *Prionocerus* (CHAMPION 1919). Phylogenetic data are currently limited to a morphological study of Melyridae s.lat., including three prionocerid species (MAJER 1987), and the data recently provided by BOCAKOVA et al. (2012), which was limited to four species. Furthermore, some remarks on species placements and genus-level morphology were made in older works (CHAMPION 1919; CROWSON 1964),

and in recent revisions of *Prionocerus* (GEISER 2010) and the East Palaearctic members of *Lobonyx* (CONSTANTIN 2009).

Using a dense sampling across the whole range of the family, this study aims to examine phylogenetic relationships of Prionoceridae. Using a molecular phylogenetic approach we aim to test the monophyly of genera and a number of informal species groups. These species-groups became apparent during morphological examination of over 200 prionocerid morphospecies. All species groups are named in this study for the first time – no names existed previously in the literature. We have given them “informal-names” to further understanding of these potential taxonomic groups of uncertain rank. Further, the biogeography of Prionoceridae is examined using a reconstructed phylogeny. These biogeographical categories reflect both traditional biogeographic regions but are more restrictive in cases because our sampling is limited. Additionally, the phylogeny provides an insight into the evolution of different life-history strategies. Interestingly, Prionoceridae includes a number of nocturnal species, which is unusual within the melyrid lineage. Morphological characters associated with nocturnal life style include very large eyes and a dark or pale testaceous body colouration. Diurnal species, on the other hand, tend to have a bright metallic colouration and smaller eyes. As few data is known on the behaviour, certain morphological characteristics can be used to infer behaviour. Our phylogeny provides a means to test the evolution of diurnality and nocturnality in prionocerids.

2. Material and methods

2.1. Data and taxon sampling

Previous sequencing efforts within the melyrid clade of Cleroidea was limited to the studies of BOCAKOVA et al. (2012), HUNT et al. (2007), HUNT & VOGLER (2008) and LEVKANICOVA (2009), who provided a number of cytochrome oxidase subunit I (*coxI*; mitochondrial), 16S rRNA (*16S*; mitochondrial), 18S rRNA (*18S*; nuclear) and 28S rRNA (*28S*; nuclear) sequences in their analyses. Data for *coxI* (13 sequences), *18S* (14 sequences) and *28S* (11 sequences), representing a total of six Prionoceridae species and nine species from other Cleroidea taxa were used in this study (see Table 1). Our own sequencing program added 70 *coxI*, 24 *18S* and seven *28S* sequences, taken from 70 individuals representing 30 species of Prionoceridae (28 in addition to previous studies), as well as three other Cleroidea (outgroup) taxa and three larval specimens, the latter were not identifiable according to morphology (see Table 2). Taxon sampling within Prionoceridae covers all valid genera, of which *Prionocerus* and *Lobonyx* are represented by their respective type species (*P. coeruleipennis* and *L. aeneus*) and *Idgia* Laporte de Castelnau, 1838 is represented by a species, *I. fulvicollis*, suggested to be closely related to the type species, *I. terminata* Laporte de Castelnau, 1838. Outgroup taxa cover all major clades of Cleroidea, including all families treated by BOCAKOVA et al. (2012), newly including Acanthocnemidae. All specimens used in this study, except one, were preserved in 96–100% ethanol prior to extraction. For *Idgia viridescens*, a recently collected dry prepared specimen was used.

A part of sequenced species has not yet been formally described. This is currently being established, based on a large-scale morphological revision of prionocerid type material and other museum specimens (M. Geiser, unpublished data). Two species remain unidentified, one of them cited by HUNT & VOGLER (2008) under the name “*Idgia* sp. BMNH668224”, of which the voucher specimen was not found at BMNH.

Table 1. Previously known partial gene sequences used in the present study, including their GenBank accession numbers, voucher numbers, country of origin (if known) and literature reference(s). Voucher specimens of Prionoceridae species were revised and re-identified by the first author: „*Idgia* sp. UPOL ZL0103” in GenBank corresponds to *I. pallidicolor*, while „*Idgia* sp. 1217” corresponds to *I. cf. subcostulata*.

species	family	voucher	CO1	18S	28S	country	reference
<i>Idgia cf. subcostulata</i> Pic, 1910	Prionoceridae	UPOL001217	HQ619630	HQ619497	HQ619565	Indonesia	Bocakova & al., 2012.
<i>Idgia cincta</i> Pic, 1906	Prionoceridae	UPOL001090		EF209686	HQ619519	Indonesia	Hunt & al., 2007; Bocakova & al., 2012.
<i>Idgia pallidicolor</i> Pic, 1906	Prionoceridae	UPOL ZL0103	EF490187	EF209685	FJ903952	Indonesia	Hunt & al., 2007; Bocakova & al., 2012; Lefkanicova, 2009.
<i>Idgia</i> sp.	Prionoceridae	BMNH668224		DQ337165			Hunt & Vogler, 2008.
<i>Lobonyx aeneus</i> (Fabricius, 1798)	Prionoceridae	UPOL001086	EF508052	EF209687	HQ619517	Morocco	Hunt & al., 2007; Bocakova & al., 2012.
<i>Prionocerus bicolor</i> Redtenbacher, 1868	Prionoceridae	UPOL001216	HQ619629	HQ619496	HQ619564	Indonesia	Bocakova & al., 2012.
outgroups:							
<i>Dasytidius gracilis</i> Escalera, 1914	Dasytidae	UPOL001069	EF508049	EF209712	HQ619506	Morocco	Hunt & al., 2007; Bocakova & al., 2012.
<i>Dasytes aeratus</i> Stephens, 1829	Dasytidae	UPOL001066	HQ619570	EF209709	HQ619503	Czech Republic	Hunt & al., 2007; Bocakova & al., 2012.
<i>Danacea nigritarsis</i> (Küster, 1850)	Dasytidae	UPOL001064	EF508048	EF209707	HQ619502	Czech Republic	Bocakova & al., 2012.
<i>Anthocomus rufus</i> (Herbst, 1784)	Malachiidae	BMNH679272	DQ221960	AY748136			Hunt & Vogler, 2008.
<i>Ameocomycter rugicollis</i> Majer, 1995	Mauroniscidae	UPOL001183	HQ61961	HQ619487	HQ619555	Chile	Bocakova & al., 2012.
<i>Falsomelyris granulata</i> (Fabricius, 1792)	Melyridae	UPOL001077	EF508051	EF209700	HQ619511	Morocco	Hunt & al., 2007; Bocakova & al., 2012.
<i>Aplochnemus perforatus</i> Schilsky, 1897	Rhadalidae	UPOL001073	EF508050	EF209702	HQ619509	Morocco	Bocakova & al., 2012.
<i>Necrobia rufipes</i> (DeGeer, 1775)	Cleridae	UPOL001135	EF508057	EF209698		Japan	Hunt & al., 2007.
<i>Ostoma ferruginea</i> (Linnaeus, 1758)	Trogossitidae	BMNH679285	DQ222026	AY748138	DQ202661		Hunt & Vogler, 2008.

Table 2. List of DNA samples and their corresponding voucher specimens presented in the current study. Collecting localities and future depositories are given for each specimens. GenBank reference numbers for each available sequence are indicated (*cox2* and *trnL* share the same GenBank record with their respective *cox1* sequence).

species	voucher no.	depository	country	locality	CO1	18S	28S	trnL	CO2
<i>Idgia arabica</i> Champion, 1919	A324	NMPC	Yemen	Sanaa	KF703683	KF703715	KF703691	KF703683	KF703683
<i>Idgia caeruleiventris</i> Champion, 1919	A220	BMNH	Malaysia	Pahang, Tanah Rata	KF703675	KF703711			
<i>Idgia cf. subcostulata</i> Pic, 1910	A196	BMNH	Indonesia	Sumatra, Kersik Tua, Gunung Kerinci	KF703665			KF703665	KF703665
<i>Idgia cyanocephala</i> Champion, 1919	A135	BMNH	Malaysia	Pahang, Tanah Rata		KF703623	KF703695	KF703623	
<i>Idgia cyanocephala</i> Champion, 1919	A165	BMNH	Malaysia	Pahang, Tanah Rata	KF703642				
<i>Idgia flavicollis</i> Redtenbacher, 1868	A199	BMNH	China	Hong Kong	KF703667	KF703709	KF703689		
<i>Idgia flavirostris</i> Pascoe, 1860	A183	NMPC	China	Jiangxi, Jinggang Shan, Xiangzhou	KF703653			KF703653	KF703653
<i>Idgia flavirostris</i> Pascoe, 1860	A185	NMPC	China	Jiangxi, Jinggang Shan, Baiyinhui	KF703655	KF703706		KF703655	
<i>Idgia flavirostris</i> Pascoe, 1860	A188	NMPC	China	Jiangxi, Jinggang Shan, Xiaoxidong	KF703657			KF703657	KF703657
<i>Idgia flavirostris</i> Pascoe, 1860	A201	BMNH	China	Hong Kong	KF703669			KF703669	KF703669
<i>Idgia flavirostris</i> Pascoe, 1860	A204	BMNH	China	Hong Kong	KF703671			KF703671	KF703671
<i>Idgia flavirostris</i> Pascoe, 1860	A206	BMNH	China	Hong Kong	KF703673				
<i>Idgia fulvicollis</i> Reiche, 1849	A119	BMNH	Ethiopia	Sidamo, Yabelo	KF703619	KF703694	KF703686		
<i>Idgia fulvicollis</i> Reiche, 1849	A152	BMNH	Ethiopia	Sidamo, Yabelo	KF703637			KF703637	KF703637
<i>Idgia fulvicollis</i> Reiche, 1849	A195	BMNH	Ethiopia	Sidamo, Yabelo	KF703664			KF703664	KF703664
<i>Idgia inapicalis</i> Pic, 1910	A221	NHMB	Malaysia	Pahang, Tanah Rata	KF703676				
<i>Idgia inapicalis</i> Pic, 1910	A326	BMNH	Indonesia	Sumatra Barat, Lake Maninjau, E coast	KF703684				
<i>Idgia cf. inapicalis</i> Pic, 1910	A139	BMNH	Indonesia	Sumatra, Brastagi, Gunung Sibayak	KF703625	KF703696		KF703625	KF703625
<i>Idgia maculatithorax</i> Pic, 1919	A116	NHMB	Laos	Xiang Khouang, Phou Sane	KF703616	KF703692	KF703685	KF703616	KF703616
<i>Idgia maculatithorax</i> Pic, 1919	A134	NHMB	Laos	Xiang Khouang, Phou Sane	KF703622			KF703622	
<i>Idgia maculatithorax</i> Pic, 1919	A155	NHMB	Laos	Xiang Khouang, Phou Sane	KF703640			KF703640	KF703640
<i>Idgia maculatithorax</i> Pic, 1919	A194	NHMB	Laos	Xiang Khouang, Phou Sane	KF703663			KF703663	KF703663

<i>Idgia oculata</i> Redtenbacher, 1868	A200	BMNH	China	Hong Kong		KF703668		KF703668	KF703668
<i>Idgia oculata</i> Redtenbacher, 1868	A203	BMNH	China	Hong Kong		KF703670		KF703670	KF703670
<i>Idgia particularipes</i> Pic, 1920	A207	NHMB	Laos	Xieng Khouang, Ban Thachok		KF703674	KF703710	KF703674	KF703674
<i>Idgia setifrons</i> (Kirsch, 1875)	A322	BMNH	Malaysia	Sabah, Sepilok Bokeo, Nam Kan NPA, 5 km W Ban Toup		KF703681	KF703713	KF703690	KF703681
<i>Idgia varicornis</i> Champion, 1919	A178	NHMB	Laos			KF703649	KF703703		KF703649
<i>Idgia viridescens</i> Gorham, 1895	A145	BMNH	India	Himachal Pradesh, Solan, Sallagat		KF703630	KF703698		
<i>Idgia</i> n. sp.1 (Yunnan, Laos)	A173	NHMB	China	Yunnan, Xishuangbanna, Menglun Bokeo, Nam Kan NPA, 5 km W Ban Toup		KF703644	KF703701		KF703644
<i>Idgia</i> n. sp.1 (Yunnan, Laos)	A189	NHMB	Laos			KF703658			KF703658
<i>Idgia</i> n. sp.2 (Laos)	A150	NHMB	Laos	Xieng Khouang, Ban Thaviang Bolikhamsay, Nam Kading NPA, Tad Paloy		KF703635			KF703635
<i>Idgia</i> n. sp.2 (Laos)	A176	NHMB	Laos	Bokeo, Nam Kan NPA, 5 km W Ban Toup		KF703647			KF703647
<i>Idgia</i> n. sp.2 (Laos)	A180	NHMB	Laos			KF703651			KF703651
<i>Idgia</i> n. sp.3 (Laos)	A151	NHMB	Laos	Xieng Khouang, Phou Sane		KF703636	KF703700		KF703636
<i>Idgia</i> n. sp.4 (Laos)	A182	NHMB	Laos	Savannakhet, Phou Xang He		KF703652	KF703705	KF703687	KF703652
<i>Idgia</i> n. sp.4 (Laos)	A190	NHMB	Laos	Savannakhet, Phou Xang He		KF703659			KF703659
<i>Idgia</i> n. sp.5 (Sabah)	A320	BMNH	Malaysia	Sabah, Kinabalu NP, headquarters		KF703679			KF703679
<i>Idgia</i> n. sp.6 (Sabah)	A321	BMNH	Malaysia	Sabah, Kinabalu NP, headquarters		KF703680	KF703712		KF703680
<i>Idgia</i> n. sp.7 (Sabah)	A323	BMNH	Malaysia	Sabah, Danum Valley Central Kalimantan, Sungei Mohot,		KF703682	KF703714		KF703682
<i>Idgia</i> n. sp.8 (Kalimantan)	A192	BMNH	Indonesia	Murung Raya		KF703661	KF703708	KF703688	KF703661
<i>Idgia</i> n. sp.9 (Mindanao)	A148	BMNH	Philippines	Mindanao, Mt. Apo, L. Agco		KF703633	KF703699		KF703633
<i>Idgia</i> n. sp.10 (Mindanao)	A205	BMNH	Philippines	Mindanao, Mt. Apo, L. Agco		KF703672			
<i>Idgia</i> n. sp. near <i>granulipennis</i> (Yunnan)	A175	NHMB	China	Yunnan, Gaoligongshan, 50 km E Tengchong		KF703646	KF703702		KF703646
<i>Idgia</i> n. sp. near <i>granulipennis</i> (Yunnan)	A191	NHMB	China	Yunnan, Gaoligongshan, 50 km E Tengchong		KF703660			KF703660
<i>Idgia</i> sp. (Sumatra)	A163	NHMB	Indonesia	Sumatra, Kersik Tua, Gunung Kerinci		KF703641			
<i>Prionocerus bicolor</i> Redtenbacher, 1868	A115	NHMB	Laos	Xieng Khouang, Phonsavan		KF703615			
<i>Prionocerus bicolor</i> Redtenbacher, 1868	A117	NHMB	Laos	Xieng Khouang, Phonsavan		KF703617			
<i>Prionocerus bicolor</i> Redtenbacher, 1868	A132	NHMB	Laos	Champasak, Muang Paksong		KF703620			
<i>Prionocerus bicolor</i> Redtenbacher, 1868	A146	NHMB	Laos	Xieng Khouang, Phonsavan		KF703631			KF703631
<i>Prionocerus bicolor</i> Redtenbacher, 1868	A149	NHMB	Laos	Champasak, Ban Nong Panouan		KF703634			KF703634
<i>Prionocerus bicolor</i> Redtenbacher, 1868	A154	NHMB	Laos	Xieng Khouang, Phonsavan		KF703639			KF703639
<i>Prionocerus bicolor</i> Redtenbacher, 1868	A172	NHMB	Laos	Attapeu, Ban Vang Tat Noi		KF703643			KF703643
<i>Prionocerus bicolor</i> Redtenbacher, 1868	A177	NHMB	Laos	Louang Namtha, Muang Sing		KF703648			KF703648
<i>Prionocerus bicolor</i> Redtenbacher, 1868	A184	NHMB	Laos	Savannakhet, Ban Pa Phaknau		KF703654			KF703654
<i>Prionocerus bicolor</i> Redtenbacher, 1868	A193	NHMB	Laos	Savannakhet, Ban Pa Phaknau		KF703662			KF703662
<i>Prionocerus coeruleipennis</i> Perty, 1831	A118	NHMB	Laos	Vientiane, Ban Hin Ngon		KF703618	KF703693		
<i>Prionocerus coeruleipennis</i> Perty, 1831	A133	NHMB	Laos	Xieng Khouang, Phonsavan		KF703621			KF703621
<i>Prionocerus coeruleipennis</i> Perty, 1831	A138	BMNH	Philippines	Mindanao, Mt. Malindang		KF703624			KF703624
<i>Prionocerus coeruleipennis</i> Perty, 1831	A141	NHMB	Laos	Xieng Khouang, Ban Thaviang Louang Prabang, Muang Phou Khoune		KF703627			KF703627
<i>Prionocerus coeruleipennis</i> Perty, 1831	A143	NHMB	Laos			KF703628			KF703628
<i>Prionocerus coeruleipennis</i> Perty, 1831	A147	NHMB	Laos	Xieng Khouang, Ban Na Lam		KF703632			KF703632
<i>Prionocerus coeruleipennis</i> Perty, 1831	A174	NHMB	Laos	Louang Namtha, Muang Sing		KF703645			KF703645
<i>Prionocerus coeruleipennis</i> Perty, 1831	A197	NHMB	Laos	Louang Prabang, Thong Khan		KF703666			KF703666
<i>Prionocerus</i> n. sp.	A179	NMPC	China	Guangdong, Heishiding Nat. Res. Bolikhamsay, Nam Kading NPA, Tad Paloy		KF703650	KF703704		KF703650
Prionoceridae gen.sp. larva	A144	NHMB	Laos	Bokeo, Nam Kan NPA, 5 km W Ban Toup		KF703629	KF703697		KF703629
Prionoceridae gen.sp. larva	A244	NHMB	Laos	Khammouan, Nakai-Nam Theun NBCA, Ban Navang		KF703677			KF703677
Prionoceridae gen.sp. larva	A245	NHMB	Laos			KF703678			KF703678
outgroups:									
<i>Spinapalochrus rubrofasciatus</i> Pic, 1919	A140	NHMB	Laos	Xieng Khouang, Phonsavan		KF703626			KF703626
<i>Omadius</i> sp.	A153	NHMB	Laos	Houa Phan, Ban Saluei, Phou Pane Attapeu, Thong Kai Ohk, Ban Kachung		KF703638			KF703638
<i>Acanthocnemus nigricans</i> (Hope, 1845)	A186	NHMB	Laos			KF703656	KF703707		KF703656

2.2. DNA extraction, amplification and sequencing

The chosen non-destructive extraction combines the protocol given by GILBERT et al. (2007) with standard extraction technique using an EZ1 DNA tissue extraction kit (QiaGen, Hilden, Germany). Whole specimens were incubated overnight in a buffer containing proteinase-K at 56°C after cutting open the membrane between pro- and mesothorax, in order to provide easier access to the thoracic muscle tissue. Voucher specimens were dry-mounted, labelled with voucher designation and stored for future reference in public museum collections (see Table 2), abbreviated as follows: BMNH = Natural History Museum, London, UK; NHMB = Naturhistorisches Museum, Basel, Switzerland; NMPC = Entomology Department, National Museum, Prague, Czech Republic.

Partial gene sequences for *cox1*, *18S* and *28S* were amplified using the primers reported by BOCAKOVA et al. (2012) and SHULL et al. (2001). For *cox1*, additional primers “Pat” and “Marilyn” (SIMON et al. 1994) were used, when amplification with the first set of primers failed. This set added an additional 64–318*cox1* bp beyond the end of the *cox1* gene, representing the t-RNA-Leu (*trnL*) and the first portion of the cytochrome oxidase subunit II (*cox2*) genes. PCR conditions included the following steps: Initial denaturation for 1 min at 94°C, followed by 35 cycles of 1 min denaturation at 94°C; annealing for 1 min at 49–51°C; extension at 72°C for 90 sec and a final extension step for 7 min at 72°C.

CodonCode Aligner (CodonCode Corp., Centerville, MA, USA) and Geneious 5.5.6 (Biomatters Ltd., Auckland, New Zealand) were used for assembling chromatograms and sequence editing.

2.3. Sequence alignment and phylogenetic analyses

Edited and verified sequences were aligned using Geneious Pro (Biomatters Ltd.). Protein coding sequences (*cox1* and *cox2*) were partitioned into 1st, 2nd and 3rd codon position data using TranslatorX (www.translatorx.co.uk). Conserved blocks of rRNA markers (18S and 28S) were selected using less stringent settings in GBlocks version 0.91b (CASTRESANA 2000, 2002), while non-conserved gene fractions of unalignable variable length were discarded. Data were assigned to nine partitions, *18S*, *28S*, *trnL*, and the 1st, 2nd and 3rd codon position of *cox1* and *cox2* respectively. Best-fit models were estimated for each partition using Geneious Pro. We assessed saturation of each partition by plotting Jukes-Cantor p-distances (JUKES & CANTOR 1969) against HKY85 distances (HASEGAWA, KISHINO & YANO 1985). Data that showed saturation (non-linear relationship) were excluded from the analysis {9}.

Phylogenetic tree searches were performed from these alignments using three main approaches, Bayesian Inference (BI; HUELSENBECK et al. 2001), Maximum Likelihood (ML; FELSENSTEIN 1981) and Parsimony (PA). In order to balance incomplete species sampling against missing data for some genes, different data matrices were analysed, with variable coverage of species and amounts of missing sequence data.

For the phylogenetic analyses, nine datasets were produced, each with a different set of samples and/or sequences:

{1}. *cox1*, *18S* and *28S* sequences (3156 bp in total) from 18 samples representing 12 Prionoceridae (representing major clades) and 6 outgroup species [no missing data].

{2}. *cox1* and *18S* sequences (2590 bp) from 38 samples representing 29 Prionoceridae (representing most of the included species) and 9 outgroup species [two taxa lacking *cox1* data].

{3}. *cox1*, *cox2*, *trnL*, *18S* and *28S* sequences (i.e. all available gene fragments; 3522 bp) from 85 samples representing 34 Prionoceridae and 12 outgroup species [some missing data for all gene fragments except *cox1*].

{4}. *cox1* sequences only (828 bp) from 82 samples representing 33 Prionoceridae and 12 outgroup species [no missing data].

{5}. *18S* sequences only (1762 bp) from 38 samples representing 29 Prionoceridae and 9 outgroup species [no missing data].

{6}. *28S* sequences only (566 bp) from 18 samples representing 12 Prionoceridae and 6 outgroup species [no missing data].

{7}. *cox1*, *cox2*, *trnL* (i.e. all available mitochondrial gene fragments; 1147 bp) from 76 samples representing 32 Prionoceridae and 11 outgroup species [some missing data for *cox2* and *trnL*, but mostly in outgroup species].

{8}. *18S* and *28S* (i.e. all available nuclear gene fragments; 2328 bp) from 38 samples representing 30 Prionoceridae and 8 outgroup species [some missing data for *28S*].

{9}. Same as {3} but all potentially saturated DNA partitions excluded: *trnL* and 3rd codon positions of *cox1* and *cox2* (3086 nt).

BI analyses were performed on all datasets {1}–{9} using MrBayes version 3.2.1 (RONQUIST et al. 2012) running four simultaneous Markov chains for 5 million generations, sampling every 1000 generations, and discarding the first one million generations as burn-in to prevent sampling before reaching stationarity (Tracer v1.5; RAMBAUT & DRUMMOND 2007). Data were split in 9 partitions (see above), model parameters were independently optimized for each (“un-link” option in effect).

ML analyses were performed on datasets {1}–{3} (using RAxML 7.0.4: STAMATAKIS 2006). Data were split in 9 partitions (see above), model parameters were independently optimized for each (“un-link” option in effect).

PA analysis was performed on dataset {1}, the most parsimonious trees were calculated using PAUP 4.0b10 (SWOFFORD 1998), using a heuristic search option, with 100 random addition sequence replicates and tree bisection recombination branch swapping procedure.

Support for clades was evaluated for all approaches, for BI using posterior probabilities, for

ML and PA non-parametric bootstrapping (FELSENSTEIN 1985) with 1000 replicates using (RAxML and PAUP 4.0b10). Furthermore, we calculated pairwise genetic distances for *cox1*, as these provide the largest sampling of taxa.

Ostoma ferruginea (Trogossitidae) was chosen to root BI, ML and PA trees, as it represents the most basal member of Cleroidea included in the analyses of HUNT et al. (2007) and BOCAKOVA et al. (2012).

Further phylogenetic analyses were conducted to test whether a single origin of nocturnality within Prionoceridae was significantly different from optimal topologies. Species known or assumed to be nocturnal are listed in Table 4. We constructed a constraint showing all nocturnal species to be monophyletic and compared this tree with our optimal tree. As the life-history of *Idgia fulvicollis* is incompletely known, two different constraints were tested, assuming *Idgia fulvicollis*, to be either diurnal (constraint 1) or nocturnal (constraint 2). A putative relative of *Idgia fulvicollis* has been reported to be diurnal (REF). We constrained a tree using BI and PA approaches to test differences between topologies. For the PA, a non-parametric test (TEMPLETON 1983) was used to assess the significance of length differences between most parsimonious and constraint trees. For BI, posterior probability values were compared qualitatively between constrained and optimal trees. Bayes Factors were calculated using Tracer v1.5 (RAMBAUT & DRUMMOND 2007) to quantitatively test differences between optimal and constrained tree reconstructions. A log-Bayes Factor greater than 3 was considered as strong evidence in favour of the optimal hypothesis (KASS & RAFTERY 1995; BERGSTEN et al. 2013). Using BI reconstruction of dataset {3} we conducted an ancestral state reconstruction of life history modes in Prionoceridae using MESQUITE (MADDISON & MADDISON 2011). We applied two coding schemes for ancestral state reconstruction (see above) using the following coding (0 = diurnal, 1 = nocturnal). *Idgia fulvicollis* was scored as either nocturnal or diurnal, as the data are not clear for this particular species. There are, however, relatives of *I. fulvicollis* from the Afrotropical region, which are clearly diurnal (MARSHALL 1902).

To investigate area state reconstruction for areas we coded biogeographic areas (0 = Afrotropical, 1 = Arabia, 2 = Palaearctic (except Arabia), 3 = Indochina, 4 = Sundaland, 5 = Philippines and 6 = Himalayas) and scored them for all species, and reconstructed biogeographical relationships using MESQUITE (MADDISON & MADDISON 2011). Specimens collected in subtropical lowland areas of South China were coded as Indochinese, because at least one of the species, *I. oculata*, is distributed also in Vietnam (YANG et al. 2012). Species from high altitude localities in SW-China (Yunnan) were scored as Palaearctic.

Outgroup species are not scored for biogeography, as they stand as representatives of families/subfamilies with a wider distribution. For diurnality/nocturnality, outgroup taxa in Dasytidae, Malachiidae, Melyridae s.str., Mauroniscidae and Rhadalidae are coded as diurnal, as these families consist (almost?) entirely of diurnal species. The more distant outgroups Cleridae, Trogossitidae and Acanthocnemidae are not scored for this analysis.

Table 3. List of Prionoceridae species examined by life history strategy. Species are categorised based on field observations, specimen label data and adult morphology (size of eyes and bright metallic vs. dark or testaceous body colour). The source of information allowing each species to be categorised is given.

diurnal	source of information	nocturnal	source of information
<i>Idgia flavicollis</i>	Aston, 2011	<i>Idgia arabica</i>	label data
<i>Idgia flavirostris</i>	Aston, 2011	<i>Idgia caeruleiventris</i>	label data
<i>Idgia fulvicollis</i> (?)	label data; L. Bocak, pers.comm.	<i>Idgia cf. inapicalis</i>	label data
<i>Idgia maculatithorax</i>	own observations	<i>Idgia cf. subcostulata</i>	label data
<i>Idgia</i> n.sp. near <i>granulipennis</i>	own observations	<i>Idgia cincta</i>	label data
<i>Idgia oculata</i>	Aston, 2011	<i>Idgia cyanocephala</i>	label data
<i>Lobonyx aeneus</i>	Bahillo & López Colón, 2003	<i>Idgia inapicalis</i>	label data
<i>Prionocerus bicolor</i>	own observations	<i>Idgia</i> n.sp.1 (China, Laos)	own observations
<i>Prionocerus coeruleipennis</i>	own observations	<i>Idgia</i> n.sp.2 (Laos)	own observations
<i>Prionocerus</i> n.sp.	label data	<i>Idgia</i> n.sp.3 (Laos)	own observations
		<i>Idgia</i> n.sp.4 (Laos)	own observations
		<i>Idgia</i> n.sp.5 (Sabah)	own observations
		<i>Idgia</i> n.sp.6 (Sabah)	own observations
		<i>Idgia</i> n.sp.7 (Sabah)	own observations
		<i>Idgia</i> n.sp.8 (Kalimantan)	morphology
		<i>Idgia</i> n.sp.9 (Mindanao)	label data
		<i>Idgia</i> n.sp.10 (Mindanao)	label data
		<i>Idgia pallidicolor</i>	label data
		<i>Idgia particularipes</i>	own observations
		<i>Idgia setifrons</i>	own observations
		<i>Idgia</i> sp. Sumatra	label data
		<i>Idgia</i> sp.BMNH668224	inferred from related species
		<i>Idgia varicornis</i>	own observations
		<i>Idgia viridescens</i>	label data

3. Results

3.1. Phylogeny

The nine different datasets examined are indicated in parentheses {}. A tree resulting from BI of the largest dataset {3} is shown (Fig. 1). BI, ML and PA analyses showed similar topologies and levels of support for clades (see Supplementary Table S1). The length of the shortest PA tree was 3749 steps.

Eleven clades were consistently recovered in all analyses (capital letters in brackets refer to Fig. 2): 1. Prionoceridae (A). 2. *Prionocerus*, including the species *P. bicolor*, *P. coeruleipennis* and an undescribed species (D). 3. The “*Idgia flavirostris*-species group”, including *I. flavirostris* and an undescribed species related to *I. granulipennis* Fairmaire, 1891 (E). 4. The “*I. oculata*-species group”, including *I. oculata* and *I. maculatithorax* (F). 5. The “*I. pallidicolor*-species group”, which includes *I. pallidicolor*, *I. inapicalis*, *I. n.sp.2* and *I. n.sp.5* (G). 6. The “*I. caeruleiventris*-species group”, including *I. caeruleiventris* and *I. cyanocephala* (H). 7. A clade of *Idgia* from Sundaland, here designated as “Sundaland-1”, including *I. cincta*, *I. cf. subcostulata* and *I. n.sp.6* (I). 8. A clade of *Idgia*, designated as “Indochina-1”, which includes *I. n.sp.1* and *I. n.sp.4* and an unidentified larva (J). 9. A clade of *Prionocerus* and *I. viridescens* as a sister taxon. 10. A clade comprising the “*I. caeruleiventris*-species-group” and, as its sister group, two unidentified larvae from Laos (K). 11. A clade of *P. bicolor* and *P. coeruleipennis* (M).

Table 4. List of Prionoceridae clades as shown in Fig. 2. Posterior probability (pp) values obtained from Bayesian inference (BI) and Bootstrap values obtained from Maximum likelihood (ML) and Parsimony analyses are shown. Datasets used for each analyses (see „Material and Methods) are given in parentheses {}. Clades, for which additional morphological support was found, are indicated (see discussion for details). Some datasets did not include enough taxa to give any information about certain clades, these are shown as „N/A”. Clades indicated as „--” were not found in the optimal tree.

Clade	BI {1}	BI {2}	BI {3}	ML {1}	ML {2}	ML {3}	PA {3}	BI {4}	BI {5}	BI {6}	BI {7}	BI {8}	morphological support
A: Prionocerinae	1	1	0.9884	100	100	100	99.504	0.9362	1	0.8666	1	0.9847	yes
B: Lobonychinae	N/A	0.9046	0.9901	N/A	70	68	68.319	--	0.6566	N/A	0.9492	--	yes
C: Prionocerinae	1	0.9992	0.9884	98	84	94	60.232	--	0.9996	0.9625	1	--	yes
D: <i>Prionocerus</i>	N/A	0.9433	0.9544	N/A	70	53	< 50	0.7169	0.9102	N/A	0.8426	0.6869	yes
E: <i>Idgia flavirostris</i> -group	N/A	1	1	N/A	100	100	99.9	1	1	N/A	1	1	yes
F: <i>Idgia oculata</i> -group	N/A	N/A	1	N/A	N/A	100	99.541	1	N/A	N/A	N/A	1	yes
G: <i>Idgia pallidicolor</i> -group	N/A	1	1	N/A	100	100	99.312	0.9883	1	N/A	1	0.9991	yes
H: <i>Idgia caeruleiventris</i> -group	N/A	1	0.4933	N/A	98	N/A	78.826	N/A	0.9996	N/A	1	N/A	not found
I: "Sundaland-1"	1	1	0.9996	100	96	100	91.548	1	0.9997	0.2013	0.9999	1	not found
J "Indochina-1"	N/A	1	0.9999	N/A	100	100	99.398	1	1	N/A	1	1	not found
K <i>Prionocerus</i> + <i>Idgia viridescens</i>	N/A	1	0.9997	N/A	95	87	57.718	0.8907	0.9948	N/A	0.9901	0.9703	yes
L: <i>Idgia caeruleiventris</i> -group + 2 larval samples	N/A	N/A	0.9992	N/A	N/A	69	< 50	0.9867	N/A	N/A	N/A	0.8862	not found
M: <i>Prionocerus bicolor</i> + <i>P. coeruleipennis</i>	N/A	1	1	N/A	98	97	57.657	0.4421	1	N/A	1	0.4676	yes
N: "Indochina-Indonesia-Africa"	N/A	1	0.9997	N/A	97	77	64.934	0.5529	1	--	1	0.9781	not found
O: "Sundaland-Arabia"	0.9909	0.6917	0.8995	79	41	35	--	0.4356	--	--	--	--	not found
P: <i>Idgia pallidicolor</i> -group + "Indochina-1"	1	0.9996	0.9991	90	83	80	52.864	--	0.9027	0.868	0.9937	--	not found
Q: (K + L)	N/A	0.9999	0.9952	N/A	85	60	< 50	--	0.9999	N/A	0.9992	--	not found

The deep split in Prionoceridae, roughly corresponding to MAJER’s (1987) Lobonychini and Prionocerini (given subfamily rank, Lobonychinae and Prionocerinae, by BOCAKOVA et al. 2012) was observed in all trees (B and C in Fig. 2), except those obtained from datasets {4} and {8}, i.e. when only mitochondrial data were taken into account.

The following four groupings were shown consistently in BI, ML and PA analyses from datasets {1}–{3}, but not always when only one set of genes was examined ({4}–{8}): 1. A clade of *Idgia* here termed “Indochina-Indonesia-Africa”, which contains *I. fulvicollis* from E Africa, three species from Indochina (*I. particularipes*, *I. varicornis* and *I. n.sp.3*), as well as an unidentified species from Sumatra (N). 2. A clade of *Idgia* here termed “Sundaland-Arabia”, containing *I. setifrons*, *I. n.sp.7*, *I. n.sp.8*, *I. n.sp.9*, *I. n.sp.10* and *I. arabica* (O). 3. A clade comprising the *I. pallidicolor*-group and the above mentioned “Indochina-1” clade as sister groups (P). 4. A clade comprising, as sister groups, the *Prionocerus* + *Idgia viridescens* lineage and the lineage containing the *I. caeruleiventris*-group and two unidentified larval samples (L).

The monophyly of *Idgia* is rejected in all analyses apart from {1}, which does not contain data for the *I. flavirostris*-group. *Prionocerus* was almost always nested as a clade within *Idgia* (in all analyses except {1} and {4}). *Idgia viridescens* was consistently shown as a sister species of *Prionocerus*, while the *I. flavirostris* species group was resolved as sister group to *Lobonyx* in all analyses containing nuclear DNA data (all except {4} and {7}).

All species represented by more than one sample were recovered as monophyla in all analyses, the only exception being *I. inapicalis*, which turned out to be paraphyletic in relation to *I. pallidicolor*.

3.2. Genetic distances

A complete list of the genetic similarity percentages (HKY85 model) among all samples for the *cox1* gene is given in Supplementary Table S2. A summary of genetic variation between major clades (genera and species groups), species within a group and within species is given in Table 3. We found up to 4.9% intraspecific divergence. Separate species within the same clade showed divergences between 3.7 and 13.1%. The highest genetic divergence is 16%.

3.3. Diurnality and nocturnality

BI and PA trees under the constraint of a single origin of nocturnality showed suboptimal scores compared to optimal trees, but for PA we were unable to reject the hypothesis that they were significantly suboptimal. Constraint tree 1 (assuming *Idgia fulvicollis* to be diurnal) score was 3768, and constraint 2 (assuming *I. fulvicollis* to be nocturnal) was 3760, compared to optimal tree score 3749. Both constraints were found to not be significantly different from optimal resolutions using the non-parametric Templeton Test (constraint 1: p-value 0.2287, constraint 2: 0.2859). BI analysis for constraint-1 showed poor support for all major clades within Prionoceridae, with pp-values not exceeding 0.25 (harmonic mean -19871.86 compared to optimal tree: -19803.58). For constraint-2, however, the phylogeny was much better supported, with only slightly lower pp-values than in the optimal tree (-19843.89). Bayes factor scores indicated that constraint-1 and constraint-2 were not significantly worse, in accordance with the non-parametric tests in PA analyses.

Our ancestral reconstruction of diurnality and nocturnality (Fig. 3) shows based on our sampling that there was a single evolutionary event for nocturnality within the melyrid clade. Diurnality, on the other hand, evolved multiple times within Prionocerinae. The precise number of diurnality events depends on coding schemes employed (Table 4).

4. Discussion

4.1. Phylogenetic relationships and classification

The systematics of the 158 described species of prionocerid beetles is very poorly known with only few recent studies dedicated to their taxonomy (CONSTANTIN 2009; GEISER 2010). Our study provides the first test of various morphological hypotheses of the group, since the last partial revision nearly 100 years ago (CHAMPION 1919) and the subsequent inclusion of *Lobonyx* within the family (CROWSON 1964). Currently, taxa are assigned to two subfamilies (Lobonychinae and Prionocerinae) in the family Prionoceridae (MAJER 1987; BOCAKOVA et al. 2012). Within these subfamilies one genus is recognised in Lobonychinae (*Lobonyx*) and two in Prionocerinae (*Idgia* and *Prionocerus*). Our analyses provide robust support for the deep split between Lobonychinae and Prionocerinae (see Figs. 1 and 2), supporting the morphological delineation first outlined by MAJER (1987). However, several species currently placed in *Idgia* (*flavirostris* species group), not studied by MAJER, group with the Lobonychinae clade and we suggest their placement in this subfamily. A description of a new genus will be necessary, given their molecular and morphological distinctiveness from *Lobonyx* (currently in progress; M. Geiser, unpublished).

Currently, Lobonychinae seems to be mainly defined on the basis of symplesiomorphies, which include claws with membraneous lobe, head with sharply marked frontoclypeal suture and the structure of the endophallic sclerites, which were briefly described and figured for *Lobonyx* by CONSTANTIN (2009).

The Prionocerinae are well supported based on both molecular data and morphology (MAJER 1987). Morphological synapomorphies of Prionocerinae include simple claws, frons and clypeus separated by a transverse furrow, without sharply marked suture, and endophallus with a pair of basal sclerites and two rows of denticles, which extend up to the ostium, without ostial lamellae (as shown in MAJER 1987: fig. 285).

The genus *Prionocerus* contains eight nominate species (GEISER 2010). The monophyly of *Prionocerus* was supported in our analyses, which included three species (Fig. 1). GEISER (2010) discussed four taxa as being problematic to place within or outside *Prionocerus*, based on antennal morphology and other characters. Among these, *P. wittmeri* Geiser, 2010, *Idgia triserrata* Champion, 1919 and *I. belli* Gorham, 1895 were unavailable for the present study, while *Idgia viridescens* was herein strongly supported as sister group to *Prionocerus* (Fig. 1) and may need to be moved formally into this genus. Supporting this arrangement is the morphological similarity of the antennae, although in *I. viridescens* they are not as strongly flattened and serrate as in *Prionocerus*. On the other hand, antennomere shape varies between

closely related species in Prionoceridae and strongly flattened antennae with triangular segments may have evolved more than once within the family, which makes it problematic to use this as sole diagnostic character of this genus (GEISER 2010). Additional molecular and morphological data are needed, before a formal re-definition of *Prionocerus* can be attempted.

The genus *Idgia* currently contains 139 nominate species (PIC 1921, 1926, 1927, 1931, 1934, 1941, 1942a,b, 1943a,b; MAYOR 2007; GEISER 2009, 2010). Our analyses recovered *Idgia* as a paraphyletic grade, consisting of at least 7 smaller clades, with the *I. flavirostris*-species group appearing as sister group to *Lobonyx* (see above; Fig. 1), *Prionocerus* plus *I. viridescens* represents a terminal clade. No morphological synapomorphies support *Idgia* as a monophylum (MAJER 1987; own data).

However, the basal splits within Prionocerinae (e.g. groupings among *Idgia* and *Prionocerus*) received relatively weak support within our analyses, with short branch lengths. This might be indicative of patterns of rapid evolution at a species-group/genus level or might simply reflect lack of appropriate genetic markers. Increased taxon sampling and appropriate markers will be required to investigate this further.

Critical to understanding the content of the genus *Idgia* is resolving the position of the type species (*I. terminata*) and how other species group in relation to this species and *Prionocerus*. Unfortunately, *I. terminata* is not sampled, but we sampled the morphologically similar species *I. fulvicollis* from the same geographic area. *I. fulvicollis*, and by inference *I. terminata*, are shown to be members of the “Indochina-Indonesia-Africa” clade in our analysis (see results chapter). This grouping, however, is only supported by molecular data so far. There is a similar situation for the type species of the junior synonym *Deromma*, *D. melanura* Kollar & Redtenbacher, 1844, which is morphologically most similar to *I. particularipes*. It may therefore also be included in the “Indochina-Indonesia-Africa” clade. Following morphological study of nearly all described taxa of *Idgia* (M. Geiser, unpublished data), a number of potentially monophyletic species groups was recognised within *Idgia*, which may deserve genus or subgenus status, depending on the available data and their phylogenetic position in relation to the type species of *Idgia* and *Prionocerus* (see Fig. 2).

Two species groups, *Idgia oculata* and *Idgia pallidicolor*, were well supported by molecular analyses (Fig. 2). The species group of *Idgia oculata* consists of *I. oculata* and *I. maculatithorax*. These species show a number of morphological peculiarities: the absence of male protarsal combs, which is one of the main diagnostic characters of Prionoceridae; the short, barrel-shaped coxital styli of the ovipositor and the sexually dimorphic, peculiarly formed 11th antennomere. The *Idgia oculata*-group may well deserve to be established as a different genus in the future. *I. flavicollis* is suggested as its sister group in the present molecular tree, for which no morphological support was found.

The *I. pallidicolor* species group was treated under as a single species by CHAMPION (1919). It includes, however, a number of morphologically distinct species, clearly separable by the shape of their male genitalia, size and colour pattern. These are *I. inapicalis*, *I. coomani* Pic, 1931, *I. dohertyi* Pic, 1912, *I. maculicornis* Pic, 1925 and a number of undescribed species. Their main synapomorphy is the peculiar shape of the 6th ventrite in males, which has a pair

of deep incisions at the apical margin. The *pallidicolor* species group is shown to be monophyletic in the present phylogeny. A clade of pale coloured *Idgia*, mainly from Laos (“Indochina-1”) was a sister to this clade. Morphological support for the “Indochina-1” clade and its relationship to the *pallidicolor*-group is lacking.

The genus *Lobonyx* currently comprises 11 species (MAYOR 2007; CONSTANTIN 2009). *Eulobonyx* Kraatz, 1882 was placed as a junior subjective synonym (PIC 1937; CONSTANTIN 2009). As only one species was available for the present study, the monophyly of the genus could not be tested. However, its position as sister group to a clade including *Prionocerus* and *Idgia* supports MAJER's (1987) and BOCAKOVA et al.'s (2012) findings.

4.2. Genetic divergence and species identification

Genetic divergence within beetle families is relatively poorly understood, and only a few papers provide quantitative data on genetic variation within and between species of a clade (e.g. MEIER et al. 2008; HENDRICH. et al. 2010; RIEDEL et al. 2010). Our study has shown that there is little overlap in genetic variation between the infra- and interspecific levels (see Table 3). This suggests a match to some extent between traditional and molecular taxonomy. Inter- and intraspecific *cox1* variation within Prionoceridae is comparable to observed variation in Australian Dytiscidae (HENDRICH. et al. 2010) but not as observed in tropical weevils (RIEDEL et al. 2010). For example, the smallest observed interspecific divergence was 16.5% in a genus *Trigonopterus* (RIEDEL et al. 2010) substantially above the minimum recorded in this study (3.7%).

Generally observed morphological species boundaries were all congruent with clades in our analysis, with one possible exception in *Idgia inapicalis*. The two samples of *I. inapicalis* included in our analyses were placed into the same clade with its close relative *I. pallidicolor*, suggesting they are close relatives or potentially the same taxon (*cox1* divergence 3.7–4.7%). It is likely these two species are separate given they show morphological differences in the structure of the male genitalia. Further taxonomic work and a broader geographical sampling will be required to investigate molecular and morphological variation in *I. inapicalis* and *I. pallidicolor*. Our study provided interesting results for *Idgia* n.sp.1 (“Indochina-1 clade”). It was possible to assign the female from Laos to the male from South China based on molecular data, which would have been difficult to achieve by morphology – given male genitalia is an important diagnostic tool. Also, a larval specimen from Central Laos was shown to likely belong to the same species (*cox1* divergence 2.1%). Other larval specimens collected in Laos were shown to be closely related (*cox1* divergence 5.2%) and may belong to a single species, but unfortunately could not be associated with any of the species represented by adults in our study. Using mitochondrial DNA sequences (“Barcoding”) to facilitate identification of holometabolous insect larvae is a relatively new technique, already successfully applied in a number of beetle families, e.g. Dytiscidae (MILLER et al. 2005), Elmidae (CURIEL & MORRONE 2012), Cerambycidae (LIM et al. 2013) and Chrysomelidae (GARCÍA-ROBLEDO et al. 2013). Overall, our data provide a strong foundation to assign prionocerid specimens to subfamilies and genera, and in some cases to species.

4.3. Diurnality vs. nocturnality

Nocturnality appears to be a relatively common life history strategy in beetles, and evolutionary transition between diurnality and nocturnality seems to be frequent. However, the presence of nocturnality in many prionocerids is an exceptional trait within the predominantly diurnal melyrid lineage. Only a small number of species in the melyrid lineage, mostly Malachiidae, were reportedly found at light traps or collected by sampling during night-time (label data of museum specimens and own observations). It is therefore interesting to understand how many transitions between nocturnality and diurnality have occurred in Prionoceridae and what are the possible causal factors.

The ancestral state reconstruction (Fig. 3) suggests the common ancestor of Prionoceridae to be likely a diurnal species. All species of the clade including *Lobonyx* and the *Idgia flavirostris* group are assumed to be diurnal. The ancestral state for Prionocerinae, however, was very probably nocturnal with this evolutionary event being an important step towards the presence of nocturnality in a majority of Prionocerinae species. Furthermore, at least two evolutionary transitions from nocturnality back to diurnal life style occurred within Prionocerinae. These clades are *Prionocerus*, the *Idgia oculata*-species group plus *I. flavicollis* and probably the African clade of *Idgia*, including *I. fulvicollis*. Although we cannot reject the hypothesis that either nocturnal or diurnal species are monophyletic (both BI and PA topology tests were not significant) – suggesting a single evolutionary transition – and unconstrained ancestral state reconstructions based on optimal trees suggest multiple transitions. Multiple changes back to diurnality may reflect an evolutionary advantage of diurnal habits for at least some species, possibly associated with flower/pollen feeding behaviour. Very large eyes, as a trait associated with nocturnality, are still present in at least some diurnal species (genus *Prionocerus*). Further research is required to understand the causal factors for the multiple transitions in prionocerids.

4.4. Biogeography

Extant members of Prionoceridae are distributed in the Oriental, Afrotropical and Palaeartic biogeographic regions, with two species extending to the Australian Region (New Guinea) (Fig. 4), being absent from Madagascar, Australia and the whole Western Hemisphere. A recently described Eocene prionocerid larva from Canada (LAWRENCE et al. 2008) suggests that they were more widely distributed in the past. One species of Oriental origin, *Prionocerus coeruleipennis*, even extends to parts of Melanesia and Micronesia in the Pacific (WITTMER 1958; GEISER 2010). Within the Palaeartic, prionocerids are limited to areas of warmer climate: The Mediterranean basin, the Near East, the Arabian Peninsula, Central Asia, the Himalayas, South and Central China and the southernmost islands of Japan (Yaeyama Is.). Within the Afrotropics, they extend to most regions, except the Southwest (Angola, Namibia, western South Africa), but are not rich in species. In summary, Prionocerids are most widespread and species-rich within the Oriental (Indo-Malayan) region, which is suggestive

of their origin in this region. Our tree provides the first opportunity to investigate such biogeographic patterns from a historical perspective.

Our ancestral state reconstruction of the geographic area of origin based on the BI tree is shown in Fig. 5. The analysis suggests Indochina as the most likely region of origin of Prionoceridae. Both in terms of numbers of species and major lineages, this is one of the most diverse areas (based on observed museum specimens – M. Geiser, unpublished data). However, this result may be due to taxon sampling, which in our study is strongly biased towards some geographic areas (in particular Laos). Species from other species-rich areas, e.g. India, are poorly represented. In some common and widespread species (e.g. *Prionocerus coeruleipennis*), the sampling is also biased towards Indochinese specimens, which may not always reflect their true area of origin. A wider sampling of taxa and geographic localities within species will be necessary to provide a critical test to our hypotheses.

Among the two major lineages of Prionoceridae, Lobonychinae are most diverse along the East Palaearctic-Oriental faunal border, particularly in the Himalayas and southern China (CONSTANTIN 2009; M. Geiser, unpublished data). A more comprehensive species sampling within *Lobonyx* would be necessary to draw conclusions about the relationships of western (e.g. *Lobonyx aeneus*) and eastern Palaearctic species, in order to determine their likely area of origin. Prionocerinae, on the other hand, is mainly a tropical group, showing three distinct centers of species diversity in the following areas: The Western Ghat mountain system in South India, the Indochinese Peninsula and Sundaland (CHAMPION 1919; Geiser, unpublished data). China also has a relatively rich fauna, but with many species restricted to the southernmost parts, adjacent to Laos and Vietnam (YANG et al. 2012). The present analyses suggest a relatively recent dispersal of Prionoceridae to both Sub-Saharan Africa and the Arabian Peninsula, achieved independently by at least two lineages (“Indochina-Indonesia-Africa” and “Sundaland-Arabia”), both originating in the Oriental region. Morphological studies (M. Geiser, unpublished data) suggest a monophyletic origin of the prionocerid fauna in Subsaharan Africa, with the exception of *Idgia apicalis* (Gerstaecker, 1871) and *Prionocerus coeruleipennis*, the latter being probably an anthropogenic introduction (CHAMPION 1919; GEISER 2010). The present study highlights not only a large diversity of species, but also of major lineages, within two global hotspots: Indo-Burma and Sundaland (MYERS et al. 2000).

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Fig. 1. Bayesian inference tree of Prionoceridae and cleroid outgroup taxa, based on dataset {3} : *cox1*, *cox2*, *trnL*, *18S* and *28S* data (3475 base pairs) of 82 samples (32 ingroup species) included. Nodes with posterior probability support of 0.95 or higher are marked with a black dot. Branch lengths correspond to genetic distances.

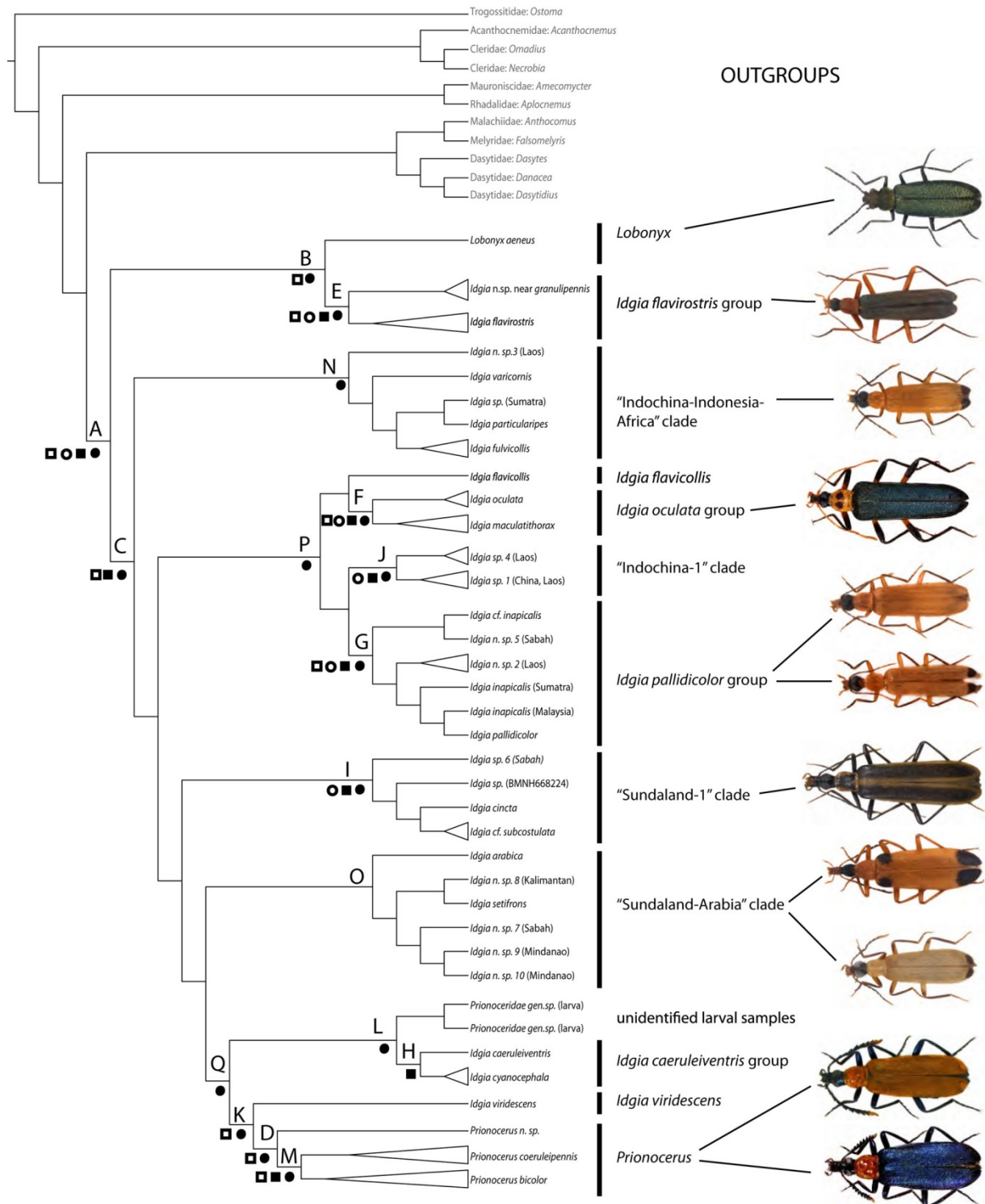


Fig. 2. Bayesian inference tree (condensed from Fig. 1) showing relationships of species, species groups and genera. Clades with good support in either BI, ML or PA analyses are indicated with letters A–Q. Supporting posterior probability pp and bootstrap values for these clades are shown in Supplementary Table 2. Full circles: Nodes supported in BI with pp-values > 0.95. Full squares: Nodes supported in ML with bootstrap values > 90. Empty circles: Nodes supported in PA with bootstrap values > 90. Empty squares: Nodes with additional morphological support. Typical representative of each clade are figured. From top to bottom: *Lobonyx aeneus*, *Idgia flavirostris*, *Idgia varicornis*, *Idgia oculata*, *Idgia n.sp.2*, *Idgia pallidicolor*, *Idgia cincta*, *Idgia sp. prope arabica*, *Idgia setifrons*, *Prionocerus n.sp.*, *Prionocerus coeruleipennis* (not to scale).

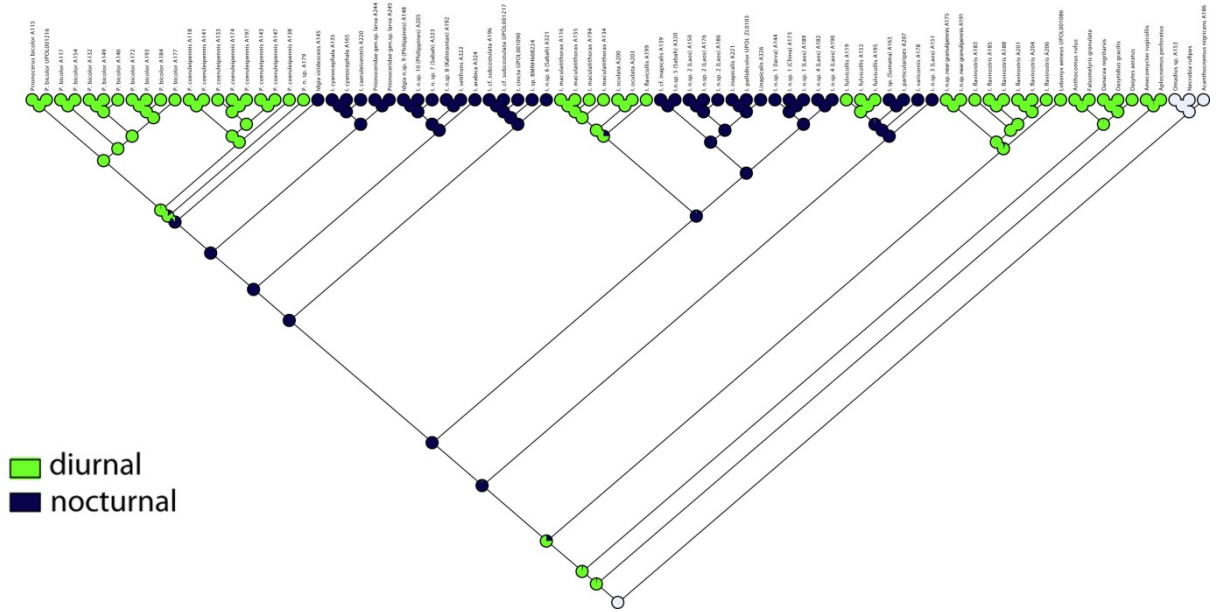
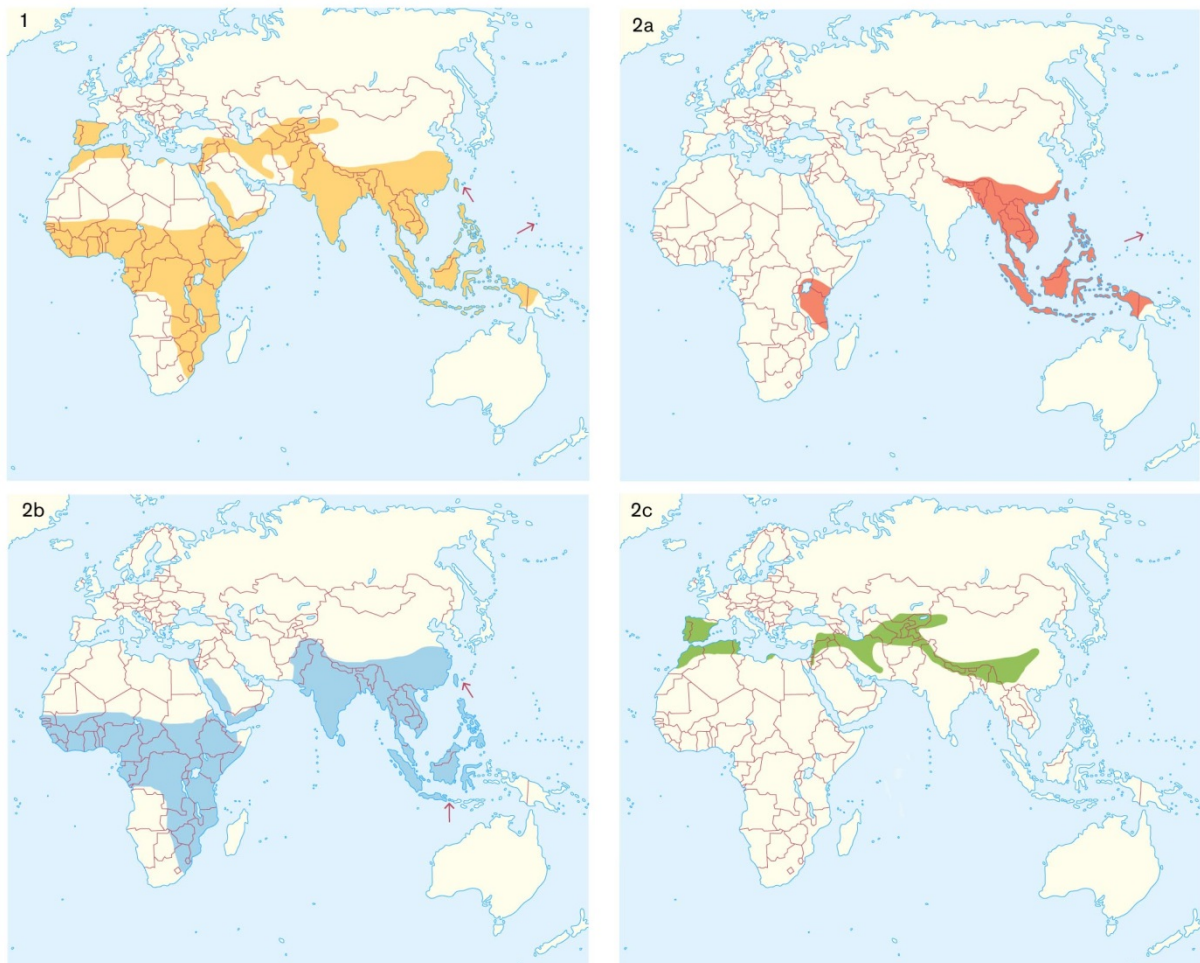


Fig. 3. Ancestral state reconstruction of life history strategies within Prionoceridae and closely related outgroups (melyrid lineage). Circles at each node indicate the probability of the common ancestor to be either diurnal (green) or nocturnal (black). *Idgia fulvicollis* is here assumed to be a diurnal species, because it clearly has diurnal relatives (MARSHALL 1902).



Supplementary Fig. 4. Contemporary distribution of Prionoceridae (A) and the three described genera: *Prionocerus* (B), *Idgia* (C) and *Lobonyx* (D). Dubious records are omitted. Prionoceridae are limited to the Old World.

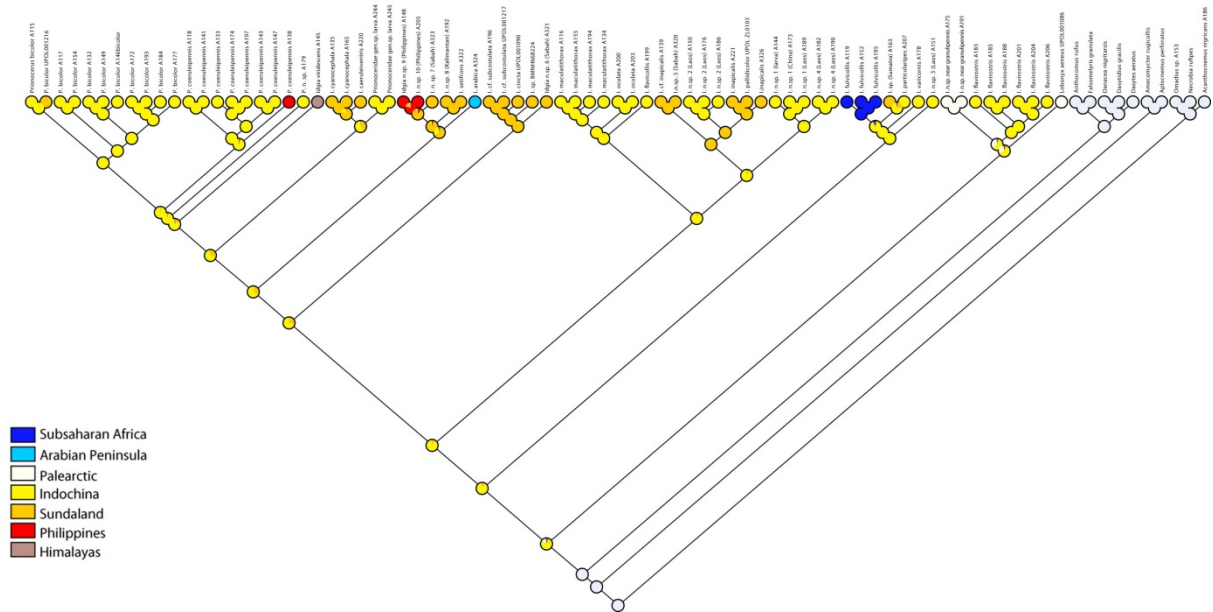


Fig. 5. Ancestral state reconstruction of the biogeographic origin of clades within Prionoceridae. Circles at each node indicate the probability of the common ancestor to be either African (dark blue), Arabian (light blue), Palearctic (white), Indochinese (yellow), from Sundaland (orange), from the Philippines (red) or Himalayan (brown). Species from subtropical lowlands of southern China are assigned to Indochina, while those from temperate mountain forest in China are counted as Palearctic.

Supplementary Table 1. *cox1* sequence divergence percentages found between samples. Values were calculated using the HKY85 model of sequence evolution: See separate file (CD).

Note: The names for clades of Prionoceridae mentioned in chapter VI are here left the same as in the version submitted for publication. In chapters IV and V of this dissertation, two of these clades have been given new names: *Bigdia*, n. gen., which corresponds to the "*Idgia oculata* species group" and *Palpolobonyx* n. gen., which corresponds to the "*Idgia flavirostris* species group". As these two genus names are not yet published at the time of writing, it wasn't possible to use them in the manuscript submitted to Arthropod Systematics and Phylogeny. At the species level, the following taxa mentioned in chapter VI as "new species" have been given new names in chapters III and IV: "*Idgia* n. sp. 1 (Yunnan, Laos)" = *I. difficilis* n. sp., "*Idgia* n. sp. 2 (Laos)" = *I. karelmajeri* n. sp., "*Idgia* n. sp. 3 (Laos)" = *I. brancuccii* n. sp.; "*Idgia* n. sp. 4 (Laos)" = *I. mekongensis* n. sp., "*Idgia* n. sp. near *granulipennis*" = *Palpolobonyx yuxiae* n. sp.

Chapter VII Conclusions

Alpha-Taxonomy

The two taxonomic chapters of this study add a total of 23 new species and two new genera to the family Prionoceridae. At the same time, eight species are synonymised and one "variety" is elevated to species rank. This brings the total number of described Prionoceridae to 174. The number of Worldwide prionocerid species has therefore increased by about 10%, whereas the number of the Indochinese subregion has been almost doubled, from 24 to 47. This does not yet include the seven putative new species treated here, which were left unnamed because of insufficient material. The scope of chapter III was limited to Laos, Vietnam and Cambodia, which excluded at least a further 13 undescribed species found in other parts of the Indochinese subregion (unpublished data). For alpha-taxonomy, a logical next step would therefore be a revision of *Idgia* and *Bigdia* species in Thailand, Burma and South China.

As the taxon names in Chapter VI already suggests, a rather large number of new prionocerids have already been detected from areas outside Indochina, but their description lies beyond the scope of this work. Of course, the still unrevised parts of *Idgia* will not only yield new species, but also new synonymies and changes in status of certain taxa.

For *Palpolobonyx*, the number of species can be expected to increase by at least the three putative new species mentioned in chapter IV. These are included in the key, so they should be recognisable. More material and especially male specimens will be essential to describe these taxa, and possibly a few more, which were still not represented in the collections studied here. In general, *Palpolobonyx* doesn't seem to be a very large genus and the number of additional new species can be expected to be rather moderate, in contrast to *Idgia*.

Species delimitations were found to be all quite clear-cut in *Idgia* and *Bigdia*, as well as earlier in *Prionocerus* (Geiser, 2010a). The characters of the male terminalia (aedeagus and last two abdominal segments) turned out to be very useful diagnostic tools with little infraspecific variability and very clear interspecific differences. This was not so clear in some *Palpolobonyx*, where it turned out to be difficult to distinguish between infraspecific variability and characters of closely related species. Especially the species *P. flavirostris* and the complex of *P. gressitti* and *P. simillimus* would benefit from further taxonomic studies, taking into account other character complexes and, if possible, molecular data and/or morphometric analyses.

Overall, the species numbers can be expected to go further up with every revision, and Prionoceridae certainly contains more than 250 species. Many of these species are already present in museum collections, awaiting description. One of the aims of this thesis was to increase knowledge of the Indochinese region. For the alpha-taxonomic work outlined here, the Eastern Indochinese fauna should now be at a state of knowledge where identification is easily possible and this work will hopefully provide a solid foundation for subsequent taxonomic work.

Phylogeny and generic classification

The phylogeny of Prionoceridae at a generic level is still far from being completely understood, despite the large amount of new data provided in this work. The basal split between Lobonychinae and Prionocerinae, as already proposed by Majer (1987) seems to be fairly well supported now, by morphological as well as molecular data.

Lobonychinae had to be re-defined following the inclusion of *Palpolobonyx*, but appears to be a monophyletic group. The monophyly of the Palearctic genus *Lobonyx* was not tested here, but earlier Majer (1987) suspected this genus to not be monophyletic. It would certainly be interesting to compare the eastern Palearctic members of *Lobonyx* to the type species, *L. aeneus* and the morphologically quite divergent *L. gracilis* Reitter, 1872 from North Africa, but this is currently beyond the scope of

this work. The phylogenetic position and monophyly of *Palpolobonyx* has already been discussed in chapter IV and the morphological findings were congruent with its position in the molecular tree in chapter VI.

Within Prionocerinae, the current generic taxonomy is still insufficient. A major finding of this dissertation is the delimitation of a monophyletic group, using both morphological and molecular characters, which was here described as a new genus, *Bigdia* (termed "*Idgia oculata* group" in chapter VI). Molecular data also suggested *Prionocerus* to be monophyletic, but this finding was based only on a small subset of the described species. *Idgia* is clearly not monophyletic, but the exact relationships between various clades of *Idgia*, *Bigdia* and *Prionocerus* remain poorly known.

Although *Prionocerus* was nested deep within *Idgia* in the molecular tree (chapter VI), it does not seem reasonable at the moment to merge these two genera and treat them as synonyms.

The work outlined in this study provides a good starting point for understanding phylogenetic relationship in Prionoceridae but further research is needed for both morphology and molecular data. On the one hand, the taxon and gene sampling used for the molecular phylogeny in chapter VI was rather limited. An increased number of sampled species, as well as an increased quantity of genetic data per species (up to whole-genome sequencing) would certainly help to understand the prionocerid tree of life, fill in the gaps and possibly even correct some errors in the tree presented here. On the other hand, the genetic tree showed a number of rather well-supported clades, such as "Sundaland-1", "Indochina-1" or "Indonesia-Indochina-Africa", but no morphological support for these grouping was found so far. It would be interesting to look specifically for morphological characters which could support at least some of these clades. If these clades can be supported by newly found morphological characters, it would easily be possible to describe some of them as new genera (or subgenera). A complete re-classification of "*Idgia*" following rigorous phylogenetic methods would be an ultimate goal, which is beyond the scope of this dissertation.

The search for further morphological character complexes at a generic level is problematic in this group of beetles, particularly given the weak sclerotisation of these "malacoderm" beetles and their reduction of many external cuticular features. Such morphological characters are often used as genus-level characters in other Coleoptera families (e.g. Slipinski, 1990; McHugh, 1993; Reid, 2000). Further detailed morphological analyses would be necessary in order to conduct a morphological analysis of characters within a cladistic or statistical framework. Nevertheless, a number of novel characters were discovered, which proved to be useful to delimit taxa at the genus level (see key in chapter V). The following morphological character complexes have not been thoroughly tested during this study and might have potential to yield useful phylogenetic data: Wing venation, structure of the metendosternite, structures on the adult mouth parts, non-sclerotised parts of male and female genitalia, as well as all larval characters.

Because of limited material, it was not possible to screen any prionocerid larvae for useful characters to contribute towards and preliminary phylogeny. As these are rather well-sclerotised in comparison to related families (Gardner, 1919; Lawrence & Leschen, 2010), they can be expected to yield characters appropriate for understanding evolutionary relationships in this group. Also, larvae appear to be more long-lived than adults and could therefore be collected during a longer season. This could be further complemented by molecular identification of such larvae. The results of the molecular phylogeny in chapter VI clearly showed that it is possible to associate prionocerid larvae with their adult counterparts, based on mitochondrial DNA. Larvae could open great opportunities for morphological, phylogenetic as well as biological or ecological studies and field entomologists should be increasingly reminded to collect larval specimens instead of ignoring them. Overall, a complementary approach of molecular and morphological methods in the future, as adopted in this thesis, will likely yield further important data on the evolutionary relationships in this fascinating group of beetles.

Biogeography

Not a single published study has been analysing the geographic distribution of Prionoceridae and attempted to interpret these patterns. To do so requires a basic understanding of species and their distributions, which, as already outlined, is very incompletely understood. It is therefore not too

surprising that the work outlined in this thesis deals with a number of relatively fundamental questions about prionocerid biogeography. Among the most interesting findings are the following:

Firstly, the Indochinese subregion was shown to be one of the centers of prionocerid diversity, at species as well as genus level (see discussion in chapter III). The catalogue of previously described taxa (chapter II) still suggested the Ceylonese and Sundaland subregion to be by far the most species-rich. It appears now that this was partially biased by unequal collection and alpha-taxonomic effort. In fact, it appears now the Indochinese subregion has a species diversity about equal diversity to Sundaland, and harbours four of the five described genera., *Palpolobonyx* n. gen., *Bigdia* n. gen., *Idgia* and *Prionocerus*. It will be interesting in the future to understand the phylogenetic relationships amongst these areas and if species richness is correlated with area or ancestry.

Secondly, the molecular phylogeny and ancestral trait reconstruction in chapter VI provided some interesting insights into the Origin of various prionocerid clades. Most interestingly, the Afrotropical *Idgia* clade around *I. fulvicollis* was shown to be part of a larger clade of *Idgia* which originated in tropical Asia ("Indochina-Indonesia-Africa" clade). The clade including *Idgia arabica* from the southern Arabian Peninsula was shown to be derived from a different clade of Oriental *Idgia* ("Sundaland-Arabia" clade) than the expected African one. According to these data, it can be assumed that the subfamily Prionocerinae originated in the Oriental Region and spread to Africa subsequently, while the Arabian Peninsula was also populated independently from subsaharan Africa, but also from the Oriental Region.

Of the two monophyletic subfamilies of Prionoceridae, the Lobonychinae appears to have a mostly eastern Palearctic distribution. Following the new biogeographic regionalisation by Holt & al. (2013), it could be argued that *Palpolobonyx* is essentially a Sino-Japanese faunal element, which may have subsequently spread to the northern parts of Indochina. However, there are several species (*Palpolobonyx flavirostris*, *Idgia deusta*, *Idgia amplipennis*) crossing the proposed Sino-Japanese/Oriental faunal border. This suggests that the regionalisation proposed by Kreft & Jetz (2010) provides a better fit for Prionoceridae.

Generally speaking, Prionoceridae does not seem to have many small-scale endemics, but the majority of the species is restricted to one biogeographic subregion. As an example, of the 31 species treated in chapter III, 25 have not been found outside the Indochinese subregion (as defined in the introduction). Similarly, of the 13 species of *Palpolobonyx* treated in chapter IV, only one is known to occur in more than one subregion. For *Prionocerus*, Geiser (2010a) earlier showed two species (*P. bicolor* and *P. coeruleipennis*) to be very widespread, even crossing biogeographic regions, while the remaining six species had rather restricted distributions (always restricted to one subregion). Now, at the present state of knowledge, it can be confirmed that distributional patterns as in *P. coeruleipennis* (see Geiser, 2010a) are very unusual for prionocerids. This unusual distribution might lend support to the idea that this species acquired its distribution through anthropogenic dispersal, rather than natural causes, as already suggested by Champion (1919). Phylogenetic data will be able to best evaluate such a hypothesis by examining the timing of divergence between populations and whether this corresponds with the anthropocene, or some earlier period.

Ecology and life history

Similarly to the situation in biogeographic studies on Prionoceridae, the starting point for this study was with a very low level of knowledge. Very little was known about the ecology and life history of prionocerids.

In comparison to their closest relatives within the melyrid clade, one of the most unusual life history traits of Prionoceridae is widespread nocturnality. A large part of the species currently placed in *Idgia* shows adaptation to a nocturnal life-style, such as extremely enlarged eyes and a relatively pale colouration. According to the data gathered in chapter VI, it appears that the nocturnal species of *Idgia* do not form a monophyletic clade and that at least one transition from nocturnal to diurnal life history has occurred.

Another conspicuous trait of Prionoceridae is the short seasonal appearance of the adults, which they share with other "malacoderm" groups, such as Cantharidae (Brancucci & Mathey, 1980; Brancucci, 1983). This trait is of particular practical importance when planning field work to collect species of Prionoceridae, as well as other "malacoderms". The phenological data collected during this thesis

suggest that the majority of the Indochinese species are very unlikely to be found for most of the year, from July to February. The vast majority of *Idgia*, *Bigdia* and *Palpolobonyx* species have been collected exclusively in the late dry and early monsoon season, between March and June. In some species, such as several *Palpolobonyx* (see chapter IV), the seasonal activity period is even much shorter for males than for females. This provides a good explanation for the strong bias towards female specimens in most museum collections, most strikingly shown in the type series of *P. laosensis* n. sp. A similar phenology curve was reported for the cantharid *Tryptherus klapperichi* by Brancucci (1983).

Univoltinism seems to be the dominant reproductive strategy for prionocerids. Only a few species were found to have two distinct periods of adult activity, which indicates bivoltinism (see discussion in chapter VI).

In addition to comparing these life history traits, a large amount of ecological and phenological data has been gathered during this study and is summarised in chapters III and IV. As a general rule, Indochinese species of *Idgia*, *Bigdia* and *Palpolobonyx* are associated with forest habitats, in contrast to *Prionocerus bicolor* and *P. coeruleipennis*, which often occur in deforested areas and around settlements (Geiser, 2010a). The tolerance to forest degradation appears to be highly variable between prionocerid species. Unfortunately, field work in Laos between 2006 and 2012 showed that pristine primary forests are already today very hard to find and usually restricted to very remote areas, which are difficult to access with collecting equipment. Most of the collecting effort was therefore concentrated on "moderately degraded" old-growth forests, which often yielded a very rich prionocerid fauna, especially in montane altitudes (such as Mt. Phou Pane in NE Laos). In localities without any remaining fragments of old-growth forests (such as Ban Thachok in Xieng Khouang, Laos), the prionocerid fauna turned out to be rather depauperate and consisted mostly of some widespread species (such as *Idgia particularipes* and *I. varicornis*).

Two species, *I. suturalis* and *I. setifrons*, appear to be typical elements of coastal rain forests. Both of them have been collected at many localities across a large range during the 19th and early 20th century, but have rarely been collected in recent times. The lack of any recent collecting data from Indochina may be interpreted as a result of habitat destruction or degradation.

From a conservationist viewpoint, the statements made by Myers & al. (2000), Conservation International (2011) and can be largely confirmed for Prionoceridae. Indochina (i.e. the Indo-Burma biodiversity hotspot) is indeed one of the "hot spots" for Prionoceridae. It is exceptionally rich in species as well as higher clades and most of the species appear to be restricted to certain parts of this area. At the same time, the anthropogenic pressure on their habitats is enormous, and an increasingly large area of species-rich forests continues to be destroyed. Especially the higher altitudes of the Annamite range are being deforested at an alarmingly fast rate. Only between 2006 and 2012, the landscape in Laos was drastically changing from year to year and across large areas, even within the boundaries of protected areas. It has been shown in chapters III and IV that the montane forests of the northern Annamites yielded the largest numbers of species, including many with small distributional ranges. If conservation efforts for these areas are not increased, a considerable part of the World's prionocerid beetles, along with many other organisms, will soon face extinction, many even before they are described or even discovered.

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Publikationen

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