Revision of the maculate species of the Anthracus annamensis group from the East Palaearctic and Oriental Regions. Part 2. A redescription of Anthracus nesophilus (ANDREWES, 1936) and six new species from Nepal, India and SE Asia (Coleoptera, Carabidae, Harpalini, Stenolophina)

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A b s t r a c t : Anthracus nesophilus (ANDREWES, 1936) is redescribed. Acupalpus haemorrhous LOUWERENS, 1952 is considered a junior synonym of Anthracus nesophilus. Six new maculate species of the Anthracus annamensis group are described: Anthracus philippinensis nov.sp. from the Philippines (type locality: Philippines: Luzon: Manila). A. anichtchenkoi nov.sp. from India and Nepal (type locality: India: Uttarakhand: 8 km NW Jaspur, 29°21'10,54"N, 78°48'30,99"E). A. sumatraensis nov.sp. from Sumatra (type locality: Indonesia: Sumatra: Sibolga, ca. 01°44'N, 98°47'E), A. hornburgi nov.sp. from Bangladesh and Myanmar (type locality: Bangladesh: Chittagong: Nasirabad, ca. 22°22'N, 91°49'E), A. javaensis nov.sp. from Java (type locality: INDONESIA: W Java, Situ Lembang, ca. 1500m, 15 km N Bandung, ca. 06°44'S, 107°35'E) and A. siamensis nov.sp. from Thailand and Laos (type locality: Thailand: Umphang, 500m, 16°04'N 98°53'E).

New distributional data are provided for *A. nesophilus* (ANDREWES, 1936): additional records for Java, first records for Sulawesi and Sumbawa.

K e y w o r d s : Carabidae, Harpalini, Stenolophina, *Anthracus*, redescription, new synonym, new species, first records, India, Nepal, SE Asia.

Introduction

The East Palaearctic and Oriental fauna of the *Anthracus annamensis* group comprises six known species which are characterized by maculate elytra. As I have stated previously (JAEGER 2015) there are various other undescribed taxa related to these species, which are externally very similar to each other, and can often not be differentiated by external characters, but differ in the shape and internal structures of the median lobe of the aedeagus.

This paper constitutes the second part of an ongoing revision of the maculate species of the *A. annamensis* group from the East Palaearctic and Oriental regions, the first part (JAEGER 2015) being on to new species from Nepal and adjacent areas. It provides a redescription of *Anthracus nesophilus* (ANDREWES, 1936) with notes on its synonymy and additional distribution data, and descriptions of six new species, two of those closely

allied to *A. nesophilus*, two closely related to *A. skalei* JAEGER, 2015 and two other species with which the relationships are not yet clear.

Material and Methods

The material examined is deposited in the following public institutions and private collections:

BMNH	Natural History Museum, London, Great Britain, Chr. Taylor, Cl. Gent and B. Garner
MHNG	Museum d'Histoire Naturelle, Geneva, Switzerland, Dr. I. Löbl and Dr. G. Cuccudoro
MMB	. Moravian Museum Brno, Czech Republic, Dr. P. Baňař
MNB	Museum für Naturkunde Berlin, Dr. J. Frisch
NHMB	Naturhistorisches Museum Basel, Switzerland, Dr. M. Brancucci (\dagger) and Dr. E. Sprecher
NHMW	Naturhistorisches Museum Wien, Austria, Dr. H. Schönmann and Dr. H. Schillhammer
NME	Naturkundemuseum Erfurt, Germany, DiplBiol. M. Hartmann
RMNH	Nationaal Naturhistorische Museum "Naturalis" (incl. collections of the former Zoölogisch Museum Amsterdam), Leiden, The Netherlands, F. van Assen, H. Huijbregts and B. Brugge
SDEI	Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany, Dr. L. Zerche and L. Behne
SMTD	. Senckenberg Museum für Tierkunde, Dresden, Germany, O. Jäger
cANI	. Coll. A. Anichtchenko, Daugavpils, Latvia
cBAE	Working collection M. Baehr in Zoologische Staatssammlung, München, Germany
cJAE	. Coll. B. Jaeger, Berlin, Germany
cKME	. Coll. R. Kmeco, Litovel, Czech Republic
cWRA	. Coll. D.W. Wrase, Berlin, Germany

Label data of examined type material are cited in full in the text, using a "/" to separate different lines of the label in question. If not otherwise stated labels are printed in black on white paper. Collecting data of revised non-type material are presented according to the following form: "locality, month. year, collector(s) (number of specimens – deposition)".

Measurements, as defined in JAEGER (2009: 1636), were taken at magnifications of 30 times (body length, elytra and pronotum partly) or 70 times (head and pronotum) using an ocular micrometer attached to a stereomicroscope Nikon SMZ 1500.

The following abbreviations were used in the text, table 1 and in the plates: BL - body length, HW - width of the head including eyes, HWbE - width of head between inner margins of eyes, PL - length of pronotum, PW - width of pronotum at its broadest point, EL - length of elytra, EW - width of elytra, HT - holotype and PT - paratype(s), hw - handwritten.

Microsculpture was examined at magnification of 100 times.

Dissections were made, using standard techniques; genitalia were preserved in Euparal on plastic cards which were pinned beneath the specimens from which they had been removed. Photographs were taken using equipment, software and methods described in JAEGER (2012: 274). Images of the habitus were produced using a fluorescent ring light with rather cold light (about 6800° Kelvin) which causes somewhat darker colours. Thus, the colours in these images may differ from those given in the colour descriptions, which were described using a typical light source with about 3200° Kelvin.

The distribution maps were generated using the mapping software simple mappr (© Dr D. Shorthouse).

Results

R e m a r k : The descriptions/redescriptions do not include the following characters defining the *A. annamensis* group except when these characters show distinct modifications or variation between different species: antennomere 2 sparsely pubescent, ligula quadrisetose, mentum and submentum fused, at least laterally, prosternum at middle portion with 4-6 biseriately arranged medium-long setae and in front of apical margin with a row of 6-12 medium-long setae, prosternal process with 1-5 distinct setae, abdominal sternite 4-6 with rather dense and long pubescence and sternite 6 with two apical setae in males and four in females. The species treated here share also the following features which are not repeated in the descriptions below: Macropterous. Pronotum with median line lightly impressed and impunctate, disappearing in front of basal and apical margin, baso-lateral impressions and other surface of pronotum impunctate. Elytra with scutellar striole long, basal pore at beginning of the latter and interval 3 in third quarter with one setiferous pore, adjoining stria 2.

Anthracus nesophilus (ANDREWES, 1936) (Figs 1-6, 24-34, 80)

Acupalpus annamensis BATES: ANDREWES 1930: 9 [partim, record from Java]

Acupalpus annamensis BATES: CSIKI 1932: 1255 [partim, record from Java]

Acupalpus annamensis BATES: ANDREWES 1933: 326 [partim, record from Java]

Acupalpus nesophilus ANDREWES, 1936: 219 (type locality: Indonesia: Java: Residency Kediri: Zuider Geb.: Popoh).

Acupalpus nesophilus ANDREWES: LORENZ 1998: 338, 2005: 359

Anthracus nesophilus ANDREWES: JAEGER 2015: 339

Acupalpus haemorrhous LOUWERENS 1952: 214-215 (type locality: Indonesia: Java: Depok near Bogor). Syn. nov.

Acupalpus haemorrhous LOUWERENS: LORENZ 1998: 338, 2005: 359

Anthracus haemorrhous LOUWERENS: JAEGER 2015: 339

Type material: Acupalpus nesophilus ANDREWES: <u>Holotype</u>: 13 (BMNH) labelled "POPOH / ZUIDER GEB. /OOST-JAVA." [hw, with red margin], "Ex Coll. / C.J. Louwerens", "Type" [red label], "Acupalpus / nesophilus / Type Andr. / H.E. Andrewes det." [first three lines hw Andrewes] and "Anthracus / nesophilus / (Andrewes, 1936) / det. B. Jaeger 2012".

"Type" [red label], "Acupalpus / nesophilus / Type Andr. / H.E. Andrewes det. [IIIst urree lines hw Andrewes] and "Anthracus / nesophilus / (Andrewes, 1936) / det. B. Jaeger 2012". <u>Paratypes</u>: 1 \circ (RMNH) labelled "C.J. LOUWERENS / Java 84 m / Toeloengagoeng", "Museum Leiden / ex. collection / C.J. Louwerens / rec. 1979", "Co /type." [circular label with green margin], "Acupalpus / nesophilus / Cotype Andr./ H.E. Andrewes det." [first three lines hw Andrewes], "type" [red label]. 13 (BMNH) with uncertain type status labelled "BOJOLANGOE /RES. KEDIRI / OOST JAVA", "Ex Coll. / C.J. Louwerens"; "Acupalpus / nesophilus / (over) Andr. / H.E. Andrewes det." [first three lines hw Andrewes], "immature" [back side of latter label], "H.E. Andrewes Coll. / B.M.1945-97.", "Acupalpus / nesophilus / vid. B.H. Garner, / 2012"; "? PARATYPE / Acupalpus / nesophilus / Andrewes, 1936 / des. B. Jaeger 2012" [red label] and "Anthracus / nesophilus / (Andrewes, 1936) / det. B. Jaeger 2012".

Notes on types: The type status of the latter paratype which is markedly immature remains doubtful

because it was not labelled "cotype" by Andrewes. However, it is obviously the immature specimen from Bojolangoe mentioned by Andrewes in the material section of the description. The remaining cotypes from "Bandoeng" and "Pakel" are not examined, they are should be deposited in the Museum Zoologicum Bogoriense, Bogor, Java, Indonesia.

Acupalpus haemorrhous LOUWERENS: <u>Holotype</u>: 1 d (RMNH) labelled "DEPOK / IV-1948 / C. v. Nidek", "Museum Leiden / ex. collection / C. J. Louwerens / rec. 1979", "Br. v. Nidek / Acupalpus sp. / det. C.J. Louwerens" [first two lines hw Louwerens], "Acupalpus / haemorrhous / type Louw. / det. C.J.Louwerens" [first three lines hw Louwerens], "type" [red] and "Acupalpus / nesophilus / Andrewes, 1936 / det. B. Jaeger 2012".

Notes on types and synonymy: The "Type" of A. haemorrhous disagrees in some points with the original description. LOUWERENS (1952: 214) stated the length of the single male specimen (holotype by monotypy) as 3.5 mm and the width as 1.8 mm, and he described the body colour as black with elytral apex and suture brown. According to my examinations the length of the specimen is 3.8 mm, the width 1.5, and the elytra have not only the apex and the suture, but also the basal area widely, but indistinctly reddish brown. The differences of length and width can be only explained by a typing error, because such a relation between length and width (index 1.94) is impossible for an Acupalpus species. I believe that the figures behind the points were confused when typing the manuscript. If so, the correct measurements are 3.8 mm for length and 1.5 mm for width, which agree with my results. Contrary to that it is more difficult to explain why LOUWERENS did not mentioned that the elytral base is also widely red brown. It is true that the red brown colour is not very distinct, but of the same kind as that of the elytral apex. Probably, the specimen was originally darker when described by LOUWERENS, and became lighter over the years, a phenomenon which I have already recognized in some other types of maculate species of the genera Acupalpus and Anthracus. Other smaller differences between the description and my own observations, depend obviously on a different view or estimations instead measurements, e.g. size of basal foveae, length of antennae, relation of elytral length and width.

Considering these explanations and the labelling of the specimen I suspect that it is the original type specimen studied by Louwerens. It represents a particular dark specimen, which falls in all other important external characters, as shape of head and pronotum, microsculpture of dorsal surface, and shape and internal structures of the aedeagus, in the range of variation of *A. nesophilus* and is here regarded a junior synonym of the latter.

A d d i t i o n a l M a t e r i a l e x a m i n e d : 95 specimens from the following localities:

I n d o n e s i a : <u>Java</u>: "Java", 1922 (3 – SMTD); Bantam, de Voss (2 - RMNH); Batavia, IX. 1947, v. Nidek (1 - RMNH); idem, but X. 1947, v. Nidek (1 - RMNH); idem, but VII. 1948 (1 - NHMW, 2 RMNH), idem, but IX. 1948 (1 - NHMW, 5 - RMNH); idem, but IX. 1949 (4 - RMNH); Djember, E. Java (1 - BMNH); Djokjakarta, Overbeck (2 - BMNH); G. Oengaran [= Gunung Ungaran], V. 1915, Drescher (1 - BMNH); idem, VI. 1907 (4 - RMNH); G. Slamat., VII. 1919, Drescher (1 - RMNH); Jakarta, II. 1989, Schillhammer (1 - NHMW); Karawang, 1975, Pusanagera & Hummelen (20 - RMNH, cJAE, cBAE); Kudus, VI. 1994, Kmeco (3 - cKME, cWRA, cJAE); Madura, Nierm. (2 - RMNH); Preanger, Bandoeng Dago, VII. 1930, Drescher (1 - BMNH); Semarang, Jacobson (1 - RMNH); idem, Drescher (1 - BMNH); idem, but XII. 1905, Drescher (7 - SMTD, cJAE); idem, but III. 1906 (4 - SMTD, cJAE); idem, but V. 1906 (7 - SMTD), idem, but VI. 1906 (3 - SMTD, cJAE); idem, VII. 1906 (2 - BMNH); Toegoe, Pasteur (1 - RMNH); Toeloengagoeng, 84 m, Louwerens (1 - BMNH); Weltevreden, I. 1919, Buitendijk (1 - RMNH); <u>Sulawesi</u>: Mak. [= Makassar], 235, Coll. Kraatz (1 - SDEI); Ujung Padang, VII. 1966, Schüle & Stüben (3 - cBAE); Zuid Celebes or Z. Celebes, Coll. Veth (4 - RMNH). - <u>Sumbawa</u>: B. Aroe Hassa, 2-5000', IX.X, Doherty (3 - BMNH).

R e d e s c r i p t i o n : General appearance as figured (Fig. 1-2). Body length 3.6-4.1 mm (HT 3.7, that of *A. haemorrhous* 3.8 mm); width 1.4-1.5 mm.

Shiny, pronotum weakly and elytra moderately iridescent. Head reddish to reddish brown, leaving clypeus and labrum paler, mandibles dark brown with inner margins and apices blackish. Pronotum mainly dark brown, rarely blackish, usually darker than head, with lateral margins, sometimes also base and apical quarter paler reddish or reddish brown. Elytra reddish or reddish brown, with each elytron having a large, more or less expanded blackish central macula, leaving first interval, lateral margin, apex and basal

third reddish. Legs and palpi yellowish brown, antennae with first two antennomeres yellowish, remaining ones more or less infuscated, often at middle with a fine indistinct dark stripe. Ventral surface mainly reddish brown, with epipleura often indistinctly paler. The holotype of *A. haemorrhous* (Fig 2) is generally darker than typical members of the species, with head and pronotum blackish to blackish brown, elytra mainly blackish brown leaving the basal third and a small area in front of the apex indistinctly dark reddish, legs brown.

Head (Figs 1-6) including eyes 0.75-0.81 times as wide as pronotum, with eyes moderately prominent (head 1.50-1.63 times as wide as head between eyes). Labrum weakly rounded or almost rectilinear at apical margin, sometimes somewhat sloped down to the right side. Mandibles medium sized, left mandible weakly obtuse at apex, not thickened or truncate. Antennae 2.30-2.51 times as long as pronotum and 0.84-0.94 times as long as elytra. Microsculpture on labrum and clypeus with distinct isodiametric to weakly transverse meshes, on frons and anterior half of vertex with very faintly impressed isodiametric meshes becoming more distinctly impressed at posterior half of vertex and sometimes somewhat transverse in front of pronotal apical margin.

Pronotum (Figs 1-6) 1.28-1.36 times as wide as long, 1.24-1.33 times as wide as head, widest in second quarter, lateral seta inserted at beginning of second quarter. Apical margin moderately to distinctly emarginated, anterior angles distinctly projecting forward, narrowly rounded at tips. Sides convex in anterior half and rectilinearly narrowed to posterior angles, which are obtuse and moderately rounded. Basal margin almost straight or weakly arcuate medially and oblique to posterior angles. Lateral furrows moderately wide anteriorly, widening posteriorly, where they are fused with the basolateral impressions. The latter medium sized and somewhat oblique, distinctly delimited from pronotal disc and median part of base, fused with basal and often also with lateral margins, sometimes vaguely separated from the lateral margin by an indistinct convexity. Anterior transverse impression obsolete, rarely suggested. Microsculpture on disc with lightly to moderately impressed, moderately transverse meshes, becoming finer and strongly transverse at sides, and more distinct and weakly transverse in basal and apical quarters. Baso-lateral impressions and lateral furrows with distinctly impressed, weakly transverse to almost isodiametric meshes.

Elytra (Fig. 1-2) with sides slightly widened posteriorly, widest just at or slightly posterior to middle, 1.48-1.57 times as long as wide, 2.58-2.80 times as long and 1.27-1.37 times as wide as pronotum. Elytral striae distinctly impressed and impunctate, intervals comparatively flat, narrowed and very weakly convex at apex. Microsculpture on scutellum and around basal pore with isodiametric meshes, on elytral intervals only with traces of very lightly impressed transverse lines.

Metepisterna long and narrowed posteriad, at inner margin about 1.4-1.5 times longer than wide at basal margin. Prosternum medially with 7-8 and in front of apical margin with 6 medium long setae (often broken resulting in insertion points difficult to observe). Prosternal process with 2-3 distinct setae.

Protarsomeres 1-4 of males markedly dilated and with distinct, biseriately arranged adhesive hairs on ventral surface. Protarsomere 4 markedly bilobed. Mesotarsomeres 1-4 moderately dilated with adhesive hairs on ventral surface. Mesotarsomere 4 moderately bilobed. In females pro- and mesotarsomeres unmodified.

Median lobe of aedeagus (Figs 24-34) large, usually moderately to strongly widened at right apical half (seen from figures 29-34), apical plateau long, only slightly narrowed to

the widely rounded apex. Internal sac with 2-6 medium sized, not closely arranged teeth in left apical half.

C o m p a r i s o n s a n d r e m a r k s : *Anthracus nesophilus* from Java, Sumbawa and S Sulawesi, *A. philippinensis* nov.sp. from the Philippines and *A. anichtchenkoi* nov.sp. from Nepal and northern India constitute a complex of closely related vicariant taxa which are characterized by the similar shape of the median lobe of the aedeagus which is markedly widened at right apical half and has a very long apical plateau which sides are only slightly narrowed to the widely rounded apex. The mentioned taxa are rather similar in general appearance and provide only partial differences to distinguish them by external characters. However, the median lobe of the aedeagus and its internal structures provide constant features to differentiate them.

A. nesophilus (ANDREWES) is most similar to *A. philippinensis* nov.sp. but differs from it by characters given under this species. From *A. javaensis* which is the only other known maculate species of the *A. annamensis* group occurring in Java, *A. nesophilus* can by distinguished by the different general appearance (Figs 1-2 and 19) with other body proportions (see ratios HW/PW, EL/PL and EL/EW) and the markedly different shape of the aedeagal median lobe with other internal structures (Figs 24-34 and 62, 68). From *A. sumatraensis* which is so far known only from Sumatra, but obviously more widely distributed, *A. nesophilus* differs by its darker pronotum, the more clearly marked elytral macula, other body proportions (see ratios PW/HW and EL/PL) and the different external shape and internal structures of the aedeagus (Figs 24-34 and 50-55)

Distribution: A. nesophilus is so far known from Java, S Sulawesi and Sumbawa (Fig. 80).

Anthracus philippinensis nov.sp. (Figs 7-9, 35-41, 80)

Acupalpus annamensis BATES: ANDREWES 1926: 346

Acupalpus annamensis BATES: ANDREWES 1930: 10 [record from Philippines]

Paratypes: 3 δ δ , 4 φ φ (BMNH) with same labels as the holotype, but 6 specimens additionally with "Acupalpus / anamensis / Bat. / det. Ing. Jedlička". 2 φ φ (BMNH) labelled "Philippine Is. / Coll. Bottcher/ B. M. 1929-201" [first line yellowish underlined] and "Philippine Islands / Manila / 2:XI:1914 / Coll. Bottcher" and 1 φ additionally with "Acupalpus / anamensis / Bat. / det. Ing. Jedlička". 5 δ δ , 3 φ φ (SMTD, cJAE) labelled "Luzon / Manila" [yellow label], "1924/ I" [yellow label] and "Staatl. Museum für / Tierkunde, Dresden", one φ additionally with "Anthracus / sp. / det. Dr. E. Schaub. [two first lines hw Schauberger]. 1 δ , 3 φ φ (SMTD) labelled "Luzon, Manila / 10. 1913 / leg. G. Boettcher", "Samml. O. Langen-/ han. Kauf 1931. 18" and "Staatl. Museum für / Tierkunde, Dresden". 28 δ δ , 37 φ φ (MNB, cJAE) "Philippinen / Manila, lux / leg. Boettcher". 1 δ (MNB) with same data, but on backside "10.5.1914" [hw]. 49 δ δ , 87 φ φ (MNB, cJAE) labelled "Philippinen / Manila, lux / 2.XI. 1914" [yellow label]. 1 δ (RMNH) labelled "Museum Leiden / LUZON, P.I. / Los Baños (Laguna) / campus, a.l. / 24.X. 1964 / J. T. Wiebes" [3rd and 4th line hw] and "Anthracus / nesophilus / (Andrewes, 1936) / det. B. Jaeger 2013". 1 δ , 1 φ (BMNH) labelled "Los Banos / P. I. Baker", "Ex Mus. / Coll. Agric. /Phil. Is." and "H.E. Andrewes Coll. / B.M. 1945-97", the φ additionally with labels "907" [hw] and "Acupalpus / annamensis / Bates / H.E. Andrewes det." [first three lines hw Andrewes]. 1 δ (NHMB) labelled "PHILIPPINES, 200 m / SW Panay, 8km E of / Bontol, 10.-11.Dec / Bolm lgt. 1990". 1 δ (NHMW) labelled "PHILIPPINES, 1600 m / Mindanao, 30km W of / MARAMAG, 28.-30. Dec / Bolm lgt. 1990". All paratypes additionally with my label "PARATYPE δ or φ / Anthracus / philippinensis sp. n. / des. B. Jaeger 2015" [red label].

A d d i t i o n a l M a t e r i a l : 4 specimens (MNB) from the Philippines labelled "Acc.No. 8433, Lot, Bu. of Sci., P.I." and "Collected by, J. Guerrero". They were excluded from the type series due to the lack of detailed locality data.

E t y m o l o g y : The species name refers to the known distribution of the species.

D e s c r i p t i o n : General appearance as figured (Fig. 7). Body length 3.2-3.7 mm (HT 3.4); width 1.3-1.5 mm.

Shiny, pronotum weakly, elytra moderately iridescent. Colour of upper surface usually paler than in *A. nesophilus* with head and pronotum reddish yellow, but clypeus and labrum paler, and mandibles with inner margins and apices blackish. Rarely, the pronotal disc is weakly infuscated leaving all margins widely reddish yellow. Elytra reddish yellow, with each elytron having a large dark brown central macula, expanding laterally to interval 8 and leaving basal and lateral quarter and first interval reddish yellow. Legs, palpi and first two antennomeres pale yellowish brown, antennomeres 3-11 moderately infuscated. Ventral surface mainly reddish brown, prosternum and epipleura somewhat paler, and pro- and metepisterna weakly infuscated.

Head, pronotum (Figs 7-9) and elytra (Fig. 7) very similar to those of the preceding species with no specific differences in shape or proportions.

Microsculpture of upper surface similar to that of *A. nesophilus*, but the microsculpture on the frons and anterior half of vertex sometimes almost lacking and on pronotal surface usually less distinct and more lightly impressed.

Metepisterna long and narrowed posteriad, at inner margin about 1.6 times longer than wide at basal margin. Prosternum medially with 5-6 and in front of apical margin with 8 medium long setae (often broken and then insertion points difficult to observe). Prosternal process with 2 distinct setae.

Protarsomeres and mesotarsomeres as in A. nesophilus.

Median lobe of aedeagus (Figs 35-41) similar to that of *A. nesophilus*, but smaller, somewhat more arcuate ventrad, and internal sac with 3-5 larger, more closely arranged teeth in central part.

C o m p a r i s o n s a n d r e m a r k s : *Anthracus philippinensis* nov.sp. is the only species of the *Anthracus annamensis* group so far known from the Philippines and represents a closely related vicariant of *A. nesophilus* from Java, Sulawesi and Sumbawa. It differs from the latter species by the absolutely smaller, ventrally more clearly curved median lobe of the aedeagus and its internal structures with a group of 3-5 larger, more closely and more centrally arranged teeth (see Figs 35-41 respectively 24-34). Externally both species are very similar and show no significant differences in shape of head, pronotum or elytra. However, in *A. philippinensis* the pronotum is usually reddish yellow, instead of dark reddish or blackish brown as in *A. nesophilus*, and the microsculpture on pronotal disc is often less distinctly impressed, but atypical specimens of both taxa show no significant differences in colour or microsculpture.

D i s t r i b u t i o n : A. *philippinensis* is so far known from the Philippine Islands of Luzon, Mindoro, Mindanao and Panay (Fig 80).

Anthracus anichtchenkoi nov.sp. (Figs 10-12, 42-49, 81)

Type material: <u>Holotype</u>: δ (MNB) labelled "N INDIA, Uttarakhand, / 22.-23.IV 2012, 8km NW / Jaspur, lake shore, / 29°21'10,54"N, 78°48'30,99"E, / A. Anichtchenko leg." and

"HOLOTYPE & / Anthracus / anichtchenkoi spec. nov. / des. B. Jaeger 2015". [red label] <u>Paratypes</u>: $2\delta \delta$, $1 \circ$ (cANI, cJAE) with same data as the holotype. 1δ (BMNH) labelled "Sarda, / Bengal. / F.W.C.", "H.G. Champion Coll. / B.M. 1953-156" and "Acupalpus / spec. / annamensis group / det. B. Jaeger 2010". 1δ (NME) labelled "NEPAL, Prov. Bheri / Nepalgunj, Hotel Batika, $28^{\circ}02,59'N$ / $81^{\circ}36,56'E$, 230m NN/ LF, 13.VII.1999 / leg. A. Weigel". $1\circ$ (NME) labelled "NEPAL, Prov. Bheri / Nepalgunj, Hotel Batika, $28^{\circ}02,59'N$ / $81^{\circ}36,56'E$, 230m NN/ 18.VI.1999, LF / leg. M. Hartmann". All paratypes additionally with my label: "PARATYPE δ or \circ / Anthracus / anichtchenkoi spec. nov. / des. B. Jaeger 2015" [red label].

E t y m o l o g y : The species is dedicated to Alexandr Anichtchenko, Daugavpils, Latvia, specialist on Lebiinae and other Carabids, who collected the holotype and a part of the paratypes of the new species.

D e s c r i p t i o n : General appearance as figured (Fig 10). Body length 3.1-3.7 mm (HT 3.4); width 1.2-1.7 mm.

Shiny, pronotum weakly, elytra moderately iridescent. Head and pronotum paler to darker yellowish brown (HT and PT from Jaspur) or reddish yellow (PT from Nepalgunj), with clypeus, labrum and mandibles somewhat paler (inner margin and apices blackish). Elytra darker to paler reddish yellow or yellowish brown, with each elytron having a more or less distinct dark or blackish brown central macula, expanding laterally to interval 5-7 in and leaving the first interval, as well as basal, lateral and apical part reddish yellow or yellowish brown. Legs, palpi and first two antennomeres pale yellow-ish brown, antennomeres 3-11 moderately infuscated. Ventral surface mainly reddish brown, proepisterna sometimes somewhat darker, and abdominal sternite 4-6 sometimes somewhat paler in central part.

Head (Figs 10-12) including eyes 0.81-0.86 times as wide as pronotum, with eyes rather large and distinctly prominent (head 1.63-1.72 times as wide as head between eyes). Labrum almost rectilinear at apical margin, sometimes weakly sloped down to the right side. Mandibles medium sized, left mandible rather sharp at apex, not thickened or truncate. Antennae 2.54-2.55 times as long as pronotum and 0.90-0.91 times as long as elytra. Microsculpture on labrum distinct and almost isodiametric, on clypeus isodiametric to weakly transverse, on frons and anterior half of vertex almost lacking or with traces of very lightly impressed isodiametric meshes, and on posterior half of vertex with lightly impressed isodiametric meshes, becoming weakly transverse in front of pronotal apical margin.

Pronotum (Figs 10-12) 1.30-1.32 times as wide as long, 1.17-1.23 times as wide as head, widest in second quarter, lateral seta inserted at beginning of second quarter. Apical margin almost rectilinear or only faintly emarginated, anterior angles narrowly rounded at tips, not or very weakly projecting forward. Sides convex in anterior half, rectilinearly narrowed to posterior angles, which are obtuse and rather widely rounded. Basal margin almost straight or weakly arcuate medially and oblique to posterior angles. Lateral furrows moderately wide anteriorly, becoming weakly widened at posterior third, where they are fused with the baso-lateral impressions. The latter medium sized and somewhat oblique, distinctly delimited from the pronotal disc and median part of base, fused with basal and lateral margins. Anterior transverse impression obsolete, rarely suggested. Microsculpture on disc with fine, moderately to lightly impressed, moderately to strongly transverse to almost isodiametric meshes.

Elytra (Fig. 10) with sides slightly to moderately widened posteriorly, widest just at or

slightly posterior to middle, 1.54-1.63 times as long as wide, 2.61-2.85 times as long and 1.29-1.40 times as wide as pronotum. Elytral striae distinctly impressed and impunctate, intervals rather flat, becoming somewhat narrowed and very weakly convex at apex. Microsculpture on scutellum and around basal pore with isodiametric meshes, on elytral intervals only with traces of very lightly impressed transverse lines.

Metepisterna long and narrowed posteriad, at inner margin about 1.5 times longer than wide at basal margin. Prosternum medially with at least 4 and in front of apical margin with 4 medium long setae (often broken and then insertion points difficult to observe). Prosternal process with at least 1 distinct seta.

Protarsomeres and mesotarsomeres as in A. nesophilus.

Median lobe of aedeagus (Figs 42-49) similar to that of *A. nesophilus*, but markedly smaller, less distinctly curved in central part, and internal sac with a vertical group of 12-15 medium sized teeth, with the first two teeth in apical part usually somewhat shifted to the right side (seen from Figs 46-49).

C o m p a r i s o n s a n d r e m a r k s : *Anthracus anichtchenkoi* nov.sp. is closely related to *A. nesophilus* and *A. philippinensis*. It differs from the former by the smaller median lobe of the aedeagus, with different internal structures (the group of teeth is arranged more central, with number of teeth more numerous and the two apical teeth shifted to right side). Externally it can be separated from *A. nesophilus* by the larger, more prominent eyes (HW/HWbE 1.63-1.72 in *A. anichtchenkoi* and 1.58-1.63 in *A. nesophilus*) and other correlated indices (HW/PW), the not or less emarginated pronotal apical margin, and often also by flatter elytral intervals. From *A. philippinensis* it can be distinguished by the internal structures of the aedeagus, which consist of smaller, more numerous, not very closely arranged teeth with first two apical teeth usually shifted to right side. Externally *A. anichtchenkoi* differs from *philippinensis* also by larger, more distinctly produced eyes (HW/HWbE 1.63-1.72 in *A. anichtchenkoi* and 1.57-1.63 in *A. philippinensis*) and related body proportions (e.g. HW/PW).

From *A. skalei* JAEGER, 2015, *A. weigeli* JAEGER, 2015 and two undescribed taxa closely related to *A. annamensis* (BATES) and *A. biplagiatus* (BOHEMAN), which belong to other species complexes but occur also in northern India and/or Nepal, partly sympatrically, *A. anichtchenkoi* differs by the peculiar shape of the apical plateau of the aedeagus and the different internal structures (Figs. 42-49, 74-79, and JAEGER 2015: 343).

Anthracus sumatraensis nov.sp. (Figs 13-15, 50-55, 80)

Type material: <u>Holotype</u>: δ (NHMW) labelled "Indonesia 1990 / leg. Schillhammer"; "N-Sumatra / 16. 2. / n-Sibolga" and "HOLOTYPE δ / Anthracus / sumatraensis sp. n. / des. B. Jaeger 2015" [red label].

<u>Paratypes</u>: $2\delta\delta$ (NHMW, cJAE) with same locality labels as the holotype and "PARATYPE δ / Anthracus / sumatraensis sp. n. / des. B. Jaeger 2015" [red label].

E t y m o l o g y : The species name refers to the known distribution of the species.

D e s c r i p t i o n : General appearance as figured (Fig. 13). Body length 3.6-3.9 mm (HT 3.9); width 1.4-1.5 mm.

Shiny, pronotum slightly, elytra moderately iridescent. Head and pronotum reddish yellow, with clypeus, labrum, and mandibles (inner margins and apices blackish) weakly paler. Elytra with same ground colour as head and pronotum, with each elytron having a large, indistinct dark brown central macula, expanding laterally to interval 5, 6 or 7, and leaving base, apex and first interval reddish yellow. Legs and palpi pale yellowish brown, antennae with first two antennomeres yellowish brown, remaining ones weakly infuscated. Ventral surface mainly reddish brown, sometimes abdominal sternites and epipleura slightly paler.

Head (Figs 13-15) including eyes 0.81-0.83 times as wide as pronotum, eyes moderately prominent (head 1.59-1.65 times as wide as head between eyes). Labrum with apical margin linear but somewhat sloping down to the right side. Mandibles medium sized, left mandible rather sharp at apex, not thickened or truncate. Antennae moderately long, 2.52-2.62 times as long as pronotum and 0.90-0.92 times as long as elytra. Microsculpture on clypeus almost isodiametric, on labrum weakly transverse, on frons with very fine and lightly impressed and on vertex with moderately impressed isodiametric meshes becoming weakly transverse in front of pronotal apical margin.

Pronotum (Figs 13-15) 1.26-1.31 times as wide as long, 1.21-1.24 times as wide as head, widest in second quarter, lateral seta inserted a little posterior to beginning of second quarter. Apical margin almost rectilinear or very faintly emarginated, anterior angles narrowly rounded at tips, not or very weakly projecting forward. Sides convex in anterior half and rectilinearly narrowed to posterior angles, which are obtuse and moderately rounded. Basal margin weakly to moderately arcuate medially and oblique to posterior angles. Lateral furrows moderately wide anteriorly, becoming moderately widened in posterior third, where they are fused with the baso-lateral impressions. The latter medium sized and somewhat oblique, distinctly delimited from the pronotal disc and the somewhat depressed median part of base, fused with basal and lateral margins, the latter weakly reflexed. Anterior transverse impression obsolete, rarely suggested. Microsculpture on disc with lightly impressed, strongly transverse meshes, at baso-lateral impressions and lateral furrows with markedly impressed isodiametric meshes.

Elytra (Fig. 13) rather short, 1.53-1.57 times as long as wide, 2.75-2.91 times as long and 1.41-1.43 times as wide as pronotum. Sides moderately widened posteriorly, widest just posterior to middle. Subapical sinuation weak. Elytral striae distinctly impressed and impunctate, intervals rather flat, becoming weakly narrowed and weakly convex at apex. Microsculpture on scutellum and around basal pore isodiametric, on elytral intervals only with traces of very lightly impressed transverse lines.

Metepisterna long, distinctly narrowed posteriad, at inner margin about 1.5 times longer than wide at the basal margin. Prosternum medially with 6 and close to apical margin with a row of 6 medium long setae (often broken resulting in insertion points difficult to observe). Prosternal process with 1 distinct seta.

Pro- and mesotarsomeres 2-4 of males distinctly dilated. Protarsomere 4 markedly, mesotarsomere 4 weakly bilobed. Protarsomeres 1-4 and mesotarsomeres 2-4 of males with biseriately arranged adhesive hairs on ventral surface.

Median lobe of aedeagus (Figs 50-55) with general appearance as figured. Apical plateau with shape rather variable, moderately long and moderately narrowed to apex (dorsal aspect), the latter somewhat thickened, with no distinct hook (lateral aspect). Internal structures composed of 3 larger subapical teeth, 1-2 smaller teeth in medial portion and 1-2 smaller teeth in basal half.

C o m p a r i s o n s : Anthracus sumatraensis nov.sp. is the only maculate species so

far known from Sumatra. It differs from *A. nesophilus* and *A. javaensis* nov.sp. from Java by characters given under these species. From *A. siamensis* nov.sp. which is the most closely distributed species from SE Asian mainland, *A. sumatraensis* can be separated by the different external shape and internal structures of the median lobe of the aedeagus (Figs 50-55, 63-67, 69-73), the elytra, which are broader relative to pronotum (ratio EW/PW >1.40, in *A. siamensis* < 1.39), and the colour of head and pronotum which is usually paler and/or the elytral macula which are only indistinct and not clearly marked as in *A. siamensis*.

D i s t r i b u t i o n : A. sumatraensis nov.sp. is so far known only from the type locality in northern Sumatra (Fig 80).

Anthracus hornburgi nov.sp. (Figs 16-18, 56-61a, 81)

Acupalpus annamensis BATES: ANDREWES 1947: 8 (specimens from Rangoon partim.) *Acupalpus annamensis* BATES: LANDIN 1954: 457 (specimens from Rangoon partim.)

T y p e m a t e r i a l : <u>Holotype</u>: δ (MMB) labelled "East Pakistan (EP 22) / Chittagong, Nasirabad / H.S., on light, 18.-22. / leg. Fr. Dvořák X.1970", "Moravian museum / Collectio / F. Dvořák" and "HOLOTYPE δ / Anthracus / hornburgi sp. n. / des. B. Jaeger 2015" [red label].

"HOLOTYPE δ / Anthracus / hornburgi sp. n. / des. B. Jaeger 2015" [red label]. <u>Paratypes</u>: $2\delta \delta$, $1 \circ$ (cWRA, cJAE) labelled "MYANMAR (Yangon) / Pègū / 60km NNE Yangon / $17^{\circ}19'N/96^{\circ}28'E$ (lux) / 22.XI.2003 M.Hornburg", "COLL. WRASE / BERLIN". $2\delta \delta$ (BMNH, ZIN) labelled "RANGOON / BURMA / 1/12 Malaise", one δ additionally with "Acupalpus / annamensis Bat. / H.E. Andrewes det." and "St. Petersburg / Zool. Inst.", and the δ other additionally with "Brit. Mus. / 1947-14." 1δ (BMNH) labelled "Tharrawady / Burma", "H.E. Andrewes Coll. / B.M. 1945-97." and "Acupalpus / spec. / annamensis group / det. B. Jaeger 2010". All paratypes additionally with my label "PARATYPE δ or \circ / Anthracus / hornburgi sp. n. / des. B. Jaeger 2015" [red].

Remarks: One of the paratypes from Pègū is moderately immature with pronotum markedly deformed, and the paratypes from Rangoon are moderately to markedly immature.

E t y m o l o g y : The species is dedicated to Michael Hornburg, Berlin, Germany, specialist on Jewel beetles who collected some of the paratypes of the species.

D e s c r i p t i o n : General appearance as figured (Fig. 16). Body length 2.9-3.5 mm (HT 3.5); width 1.1-1.4 mm.

Shiny, pronotum slightly, elytra moderately iridescent. Head darker reddish yellow, with clypeus, labrum and mandibles (inner margins and apices blackish) paler, and pronotum paler reddish yellow. Elytra with same ground colour as pronotum, with each elytron having a large dark brown central macula, expanding laterally to interval 7, and leaving base, apex and first interval reddish yellow. Legs and palpi pale yellowish brown, antennae with first two antennomeres yellowish brown, remaining ones very weakly infuscated. Ventral surface more or less uniformly pale reddish brown, with epipleura paler.

Head (Figs 16-18) including eyes 0.81-0.86 times as wide as pronotum, with eyes moderately prominent (head 1.63-1.69 times as wide as head between eyes). Labrum with apical margin almost linear, but somewhat sloped down to the right side. Mandibles medium sized, left mandible moderately sharp at apex, not thickened or truncate. Antennae moderately long, 2.48-2.75 times as long as pronotum and 0.90-0.93 times as long as elytra. Microsculpture on clypeus almost isodiametric, on labrum almost isodiametric to weakly transverse, on frons with very fine and very lightly impressed, on vertex with moderately impressed isodiametric meshes becoming weakly transverse in front of pronotal apical margin.

Pronotum (Figs 16-18) 1.33-1.39 times as wide as long, 1.17-1.23 times as wide as head,

widest in second quarter, lateral seta inserted at beginning of second quarter. Apical margin almost rectilinear or very faintly to moderately emarginated, anterior angles narrowly rounded at tips, usually weakly, in one paratype (Fig 17) markedly projecting forward. Sides convex in anterior half and rectilinearly narrowed to posterior angles, which are obtuse and more or less widely rounded. Basal margin almost rectilinear or weakly arcuate medially, and oblique to posterior angles. Lateral furrows moderately wide anteriorly, becoming widened in posterior third, where they are fused with the baso-lateral impressions. The latter medium sized and somewhat oblique, distinctly delimited from the pronotal disc and the somewhat depressed median part of base, fused with basal and lateral margins, the latter somewhat reflexed. Anterior transverse impression obsolete or suggested. Microsculpture on disc with very lightly impressed, moderately transverse meshes becoming more distinct at apical quarter, and at baso-lateral impressions and lateral furrows with distinct isodiametric meshes.

Elytra (Fig. 16) rather short, 1.51-1.59 times as long as wide, 2.74-2.95 times as long and 1.30-1.41 times as wide as pronotum. Sides moderately widened posteriorly, widest just posterior to the middle. Subapical sinuation very faint. Elytral striae distinctly impressed and impunctate, intervals rather flat, becoming weakly narrowed and weakly convex at apex. Microsculpture on scutellum and around basal pore isodiametric, on elytral intervals rather obsolete, only with traces of very lightly impressed transverse lines.

Metepisterna long, distinctly narrowed posteriad, at inner margin about 1.5-1.6 times longer than wide at basal margin. Prosternum medially with at least 4 and close to apical margin with a row of 6-7 medium long setae (often broken resulting in the insertion points difficult to observe). Prosternal process with 2 distinct setae.

Pro- and mesotarsomeres 2-4 of males distinctly dilated. Protarsomere 4 markedly, mesotarsomere 4 weakly bilobed. Protarsomeres 1-4 and mesotarsomeres 2-4 of males with biseriately arranged adhesive hairs on ventral surface.

Median lobe of aedeagus (Figs 56-61) moderately large, with general appearance as figured. Apical plateau moderately long, somewhat triangular, distinctly narrowed to the narrowly rounded apex (dorsal aspect), the latter with a small hook (lateral aspect). Internal structures composed of 2-3 large teeth in left apical half, 3-4 large to medium sized teeth in right apical half, and an accumulation of 2-4 smaller teeth in basal half.

C o m p a r i s o n s : *Anthracus hornburgi* nov.sp. occurs sympatrically with *A. skalei* JAEGER, 2015 and *A.* spec. 1 (near *A. biplagiatus* (BOHEMAN), at Bangladesh, Chittagong, and with *A.* spec. 2 (near *A. annamensis* (BATES) at Myanmar, Pègū and Rangoon. It differs from all mentioned taxa by its characteristic median lobe of the aedeagus with apical plateau longer and somewhat triangular, and/or the presence of large subapical teeth in the internal sac (see Figs 56-61, 74-79). From *A.* spec. 1 it can be also distinguished by the markedly dilated protarsomeres of males, instead of only very lightly dilated, and by the elytra, which are usually shorter relative to pronotal length (EL/PL < 2.96, in *A.* spec. 1 > 2.99), and from *A.* sp. 2 also by the shape of the pronotum which is usually less distinctly narrowed to pronotal base. From *A. skalei* it differs also by the different proportion of the pronotum (PW/PL >1.32 in *A. hornburgi*, <1.33 in *A. skalei*). However, there are no reliable characters to differentiate atypical females of all three taxa at this time.

A. hornburgi is also rather similar to *A. siamensis* nov.sp. from Thailand and Laos. It differs from this species by the external shape and internal structures of the aedeagus (see Figs 56-61, 63-67 and 69-73).

D i s t r i b u t i o n : A. hornburgi nov.sp. is so far known from Myanmar and Bangladesh (Fig. 81)

Anthracus javaensis nov.sp. (Figs 19-20, 62, 68, 80)

Type material: <u>Holotype</u>: δ (NHMW) labelled "INDONESIA: W Java / Situ Lembang, ca. 1500m / 15 km N Bandung / lg. Schuh 7.8.1994" and "HOLOTYPE δ / Anthracus / javaensis sp. n. / des. B. Jaeger 2015". [red label]

E t y m o l o g y : The species name refers to the known distribution of the species.

D e s c r i p t i o n : General appearance as figured (Fig. 19). Body length 4.0 mm; width 1.55 mm.

Shiny, pronotum weakly, elytra moderately iridescent. Head dark brown, with clypeus reddish brown, labrum and mandibles reddish yellow (inner margins and apices of the latter blackish). Pronotum darker than head, dark to blackish brown, with lateral furrows paler in basal half. Elytra dark reddish yellow, with each elytron having a very large almost blackish central macula, expanding laterally to interval 8, and leaving base, apex and first interval reddish yellow. Legs and palpi pale yellowish brown, antennae with first two antennomeres yellowish brown, remaining ones moderately infuscated. Ventral surface mainly brown to reddish brown, with proepisterna markedly darker brown, metepisterna and lateral parts of abdominal sternites moderately darker brown, epipleura reddish brown.

Head (Figs 19-20) including eyes 0.86 times as wide as pronotum, with eyes moderately prominent (head 1.61 times as wide as head between eyes). Labrum with apical margin linear but somewhat sloped down to the right side. Mandibles medium sized, left mandible rather short and somewhat obtuse at apex, but not thickened or truncate. Antennae moderately long, 2.46 times as long as pronotum and 0.86 times as long as elytra. Microsculpture on clypeus and labrum distinct and almost isodiametric, partly weakly transverse, on frons with very lightly impressed (partly obliterated) and on vertex with moderately impressed isodiametric meshes becoming weakly transverse in front of pronotal apical margin.

Pronotum (Figs 19-20) 1.30 times as wide as long, 1.27 times as wide as head, widest in second quarter, lateral seta inserted a little posterior to beginning of second quarter. Apical margin almost rectilinear, anterior angles narrowly rounded at tips, weakly projecting forward. Sides convex in anterior half and rectilinearly narrowed to posterior angles, which are obtuse and moderately rounded. Basal margin very weakly convex medially and moderately oblique to posterior angles,. Lateral furrows moderately wide in anterior half becoming only slightly wider in posterior quarter where they are fused with baso-lateral impressions. Baso-lateral impressions medium sized, distinctly delimited from the convex pronotal disc and the weakly depressed medial part of base, flattened to basal and lateral margins. Anterior transverse impression suggested. Microsculpture on disc with moderately impressed moderately transverse meshes, becoming weakly impressed and strongly transverse at sides, at baso-lateral impressions and lateral furrows with distinctly impressed isodiametric to weakly transverse meshes.

Elytra (Fig. 19) rather long, 1.59 times as long as wide, 2.84 times as long and 1.39 times as wide as pronotum. Sides weakly widened posteriad, widest just posterior to middle. Subapical sinuation weak. Elytral striae distinctly impressed and impunctate, intervals

rather flat, becoming weakly narrowed and moderately convex at apex. Microsculpture on scutellum and around basal pore isodiametric, on elytral intervals only with traces of very lightly impressed transverse lines.

Metepisterna long, distinctly narrowed posteriad, at inner margin about 1.6 times longer than wide at basal margin. Prosternum medially with 5 and close to apical margin with a row of 8 medium long setae. Prosternal process with 1 distinct seta.

Protarsomeres 1-4 of males markedly and mesotarsomeres 2-4 moderately dilated. Protarsomere 4 markedly and mesotarsomere 4 moderately bilobed. Pro- and mesotarsomeres 1-4 of males with biseriately arranged adhesive hairs on ventral surface.

Median lobe of aedeagus (Figs 62, 68) large, with general appearance as figured. Apical lamella rather short and broad, not narrowed (dorsal aspect), the apex abruptly bent upward (lateral aspect). Internal structures composed of 3 larger subapical teeth, and three medium sized teeth in basal half.

R e m a r k s a n d C o m p a r i s o n s : *A. javaensis* nov.sp., *A. siamensis* nov.sp. from Laos and Thailand and *A. skalei* JAEGER from Nepal, NE India, Bhutan and Bangladesh represent a complex of closely related, allopatrically distributed taxa which are characterized by a similar shape of the median lobe of the aedeagus with apex short in dorsal view and abruptly bent dorsad in lateral view. The species of this complex are partially very similar in general appearance, but can be distinguished by constant different internal structures of the aedeagus. *A. javaensis* nov.sp. is the largest species of this complex and differs from *A. siamensis* and *A. skalei* by its large size, usually also by some body proportions (see HW/PW, EW/PW, EL/PL) and the different internal structures of the aedeagus (Figs. 62-75). From *A. nesophilus* which occurs also in western Java it can be separated by characters given under this species. From *A. sumatraensis* it differs by the dark head and pronotum, larger size, some body proportions (HW/PW, EL/EW), and the different external shape and internal structures of the median lobe of the aedeagus (Figs. 62, 68, 50-55).

D i s t r i b u t i o n : A. *javaensis* sp.n. is so far known only from the type locality in western Java (Fig. 80).

Anthracus siamensis nov.sp. (Figs 21-23, 63-67, 69-73, 80)

Type material: <u>Holotype</u>: δ (NHMB) labelled "THAI, 26.IV.-6.V.1991 / UMPHANG 500m / 16°04'N 98°53'E / Vit Kubáň leg.", "Thailand' 91/"Thanon Thong Chai" / D. Král & V. Kubáň" and "HOLOTYPE δ / Anthracus / siamensis sp. n. / des. B. Jaeger 2015" [red label]. <u>Paratypes</u>: $2\delta \delta$ (NHMB,) with same labels as the holotype. 1 δ labelled "THAI 28/4-6/5.91 / UMPHANG river / 16°07'N 99°00'E / lgt. D.Král 1000m" and "Thailand' 91/"Thanon Thong Chai" / D. Král & V. Kubáň". 1 δ labelled "THAI 28/4-6/5.91 / UMPHANG 500m / 16 04'N 98°53'E / David Král lgt." and "Thailand' 91/"Thanon Thong Chai" / D. Král & V. Kubáň". 1 δ labelled "THAILAND 7.XI.86 / prov. Chiang Mai / Chiang Mai 320m / P. Schwendinger". $6\delta \delta$, 1 φ (NHMB, cJAE) labelled "LAOS-C; BOLI KHAM XAI prov. / PAKKADING; ~300m; / 18°20'N 104°00'E; / P. Pacholátko leg.: 1-2.vi.2001". $2\delta \delta$ (NHMB, cJAE) labelled "LAOS, 24-29.iv.2001 / Khammouan prov. / 18°07'N 104°29'E, / Ban Khoun Ngeun / -200m, Vit Kubáň elg." All paratypes additionally with my label "PARATYPE δ or φ / Anthracus / siamensis sp. n. / des. B. Jaeger 2015" [red].

A d d i t i o n a 1 M a t e r i a 1 e x a m i n e d : $1 \circ \varphi$ with same data as the holotype, and $4 \circ \varphi \circ \varphi$ with same data as the male paratypes from Pakkading. These females probably belong to *A*. *siamensis*, but differ externally more or less from the males from the same localities. They were excluded from the type series, because it cannot be ruled out that they belong to another similar species occurring sympatrically in Laos, Thailand or Myanmar.

E t y m o l o g y : The species name refers to the known distribution of the species.

D e s c r i p t i o n : General appearance as figured (Fig. 21). Body length 3.2-3.7 mm (HT 3.7 mm); width 1.3-1.4 mm.

Shiny, pronotum slightly, elytra moderately iridescent. Head and pronotum either dark brown to dark reddish brown, or paler reddish brown, with clypeus, labrum, and mandibles (inner margins and apices blackish) reddish yellow. Elytra paler than head and pronotum, paler to darker reddish yellow, with each elytron having a large blackish or dark brown central macula, expanding laterally to interval 7 or 8, and leaving base, apex and first interval reddish yellow. Legs and palpi pale yellowish brown, antennae with first two antennomeres yellowish brown, remaining ones moderately infuscated. Ventral surface mainly dark brown or dark reddish brown, with prosternum, epipleura, and sometimes medial part of abdominal sternites moderately paler.

Head (Figs 21-23) including eyes 0.78-0.83 times as wide as pronotum, with eyes moderately to distinctly prominent (head 1.61-1.71 times as wide as head between eyes). Labrum almost rectilinear or weakly rounded at apical margin, often somewhat sloped down to the right side. Mandibles medium sized, left mandible rather sharp at apex, not thickened or truncate. Antennae moderately long, 2.42-2.57 times as long as pronotum and 0.87-0.93 times as long as elytra. Microsculpture on clypeus distinct and almost isodiametric, on labrum weakly transverse, on frons with very lightly impressed (sometimes partly obliterated) and on vertex with moderately impressed isodiametric meshes becoming weakly transverse in front of pronotal apical margin.

Pronotum (Figs 21-23) 1.30-1.35 times as wide as long, 1.20-1.28 times as wide as head, widest in second quarter, lateral seta inserted a little posterior to beginning of second quarter. Apical margin almost rectangular or weakly emarginated, anterior angles narrowly rounded at tips, not, or weakly to moderately projecting forward. Sides convex in anterior half and rectilinearly narrowed to posterior angles, which are obtuse and weakly to moderately rounded. Basal margin sometimes rectilinear, sometimes weakly arcuate medially, and moderately to markedly oblique laterally. Lateral furrows moderately wide anteriorly, becoming weakly widened at posterior quarter, where they are fused with the baso-lateral impressions. Baso-lateral impressions medium sized, distinctly delimited from the convex pronotal disc and the weakly depressed medial part of base, flattened to basal and lateral margin. Anterior transverse impression almost obsolete. Microsculpture on disc with weakly impressed, moderately to strongly transverse meshes, and at baso-lateral impressions and lateral furrows with distinct weakly transverse meshes.

Elytra (Fig. 21) rather long, 1.53-1.61 times as long as wide, 2.71-2.85 times as long and 1.31-1.38 times as wide as pronotum. Sides weakly widened posteriad, widest at or just posterior to middle. Subapical sinuation weak. Elytral striae distinctly impressed and impunctate, intervals rather flat, becoming weakly narrowed and moderately convex at apex. Microsculpture on scutellum and around basal pore isodiametric, on elytral intervals only with traces of very lightly impressed transverse lines.

Metepisterna long and distinctly narrowed posteriad, at inner margin about 1.5 times longer than wide at basal margin. Prosternum medially with 6 and close to apical margin with a row of 9-10 medium long setae (often broken and then insertion points difficult to observe). Prosternal process with 1-2 distinct setae.

Protarsomeres 1-4 of males moderately and mesotarsomeres 2-4 weakly dilated. Protar-

somere 4 markedly and mesotarsomere 4 moderately bilobed. Protarsomeres and mesotarsomeres 1-4 of males with biseriately arranged adhesive hairs on ventral surface.

Median lobe of aedeagus (Figs 63-67, 69-73) moderately large, with external shape as figured. Apical lamella rather short, not markedly narrowed (dorsal aspect), the apex abruptly bent upward (lateral aspect). Internal structures composed of one large apical tooth usually orientated to left side (lateral aspect), 0-3 medium-sized subapical teeth, 1-3 small teeth in medial portion and 1-2 small and tall teeth somewhat beneath.

C o m p a r i s o n s : *A. siamensis* nov.sp. is closely related to *A. javaensis* nov.sp. and *A. skalei* JAEGER, 2015 and obviously represents a closely related eastern vicariant of the latter. Both species are very similar in general appearance, microsculpture and body proportions which do not provide reliable differences to distinguish them. However, they differ by constant differences in the arrangement of teeth in the internal sac of the aedeagus (see Figs 62-75, 74-75) and partly also by the darker colour of head and pronotum (only darker specimens of *A. siamensis*).

A. siamensis is also very similar in general habitus to *A. hornburgi* nov.sp. which occurs in the adjacent areas of Myanmar, and to *A. annamensis* (BATES) and closely related taxa which occur in Myanmar, Laos and Thailand, at Chiang Mai even sympatrically. *A. siamensis* differs from *A. hornburgi* nov.sp. by the aedeagal characters given under this species, and from *A. annamensis* s.l. (Figs 78-79) by the different external shape of the median lobe of the aedeagus with the peculiar shape of the apex in lateral aspect and the different internal structures with large apical and subapical teeth (in *A. annamensis* and closely related taxa apex simple without any hook and teeth markedly smaller and with different arrangement). Externally there are often no reliable differences to differentiate *A. siamensis* from *A. hornburgi* and *A. annamensis* (incl. closely related taxa) but darker specimens differ from these taxa by their dark brown head and pronotum.

D i s t r i b u t i o n : A. siamensis nov.sp. is so far known from Thailand and Laos (Fig. 80).

Acknowledgements

I thank all curators and colleagues mentioned in the material section for the loan of the material. I am also very grateful to Paul Aston, Hongkong for the linguistic improvement of the manuscript.

Zusammenfassung

Nachdem in einer vorangegangenen Veröffentlichung bereits zwei neue Arten aus Nepal und angrenzenden Gebieten beschrieben wurden, enthält der vorliegende Beitrag den zweiten Teil einer schrittweisen Revision der ostpaläarktischen und orientalischen Arten der Anthracus annamensis-Gruppe, die sich durch gemakelte Flügeldecken auszeichnen. Für Anthracus nesophilus (ANDREWES, 1936) werden eine Redeskription sowie neue Daten zur Verbreitung (weitere Nachweise von Java, Erstnachweise für Sumbawa und Sulawesi) vorgelegt. Acupalpus haemorrhous LOUWERENS, 1952 wird als jüngeres Synonym zu A. nesophilus (ANDREWES, 1936) gestellt. Sechs neue Arten werden beschrieben: Anthracus philippinensis nov.sp. von den Philippinen (Locus typicus: Philippinen: Luzon: Manila), A. anichtchenkoi nov.sp. aus Indien und Nepal (Locus typicus: Indien: Uttarakhand: 8 km NW Jaspur, 29°21'10,54"N, 78°48'30,99"E), A. sumatraensis nov.sp. von Sumatra (Locus typicus: Indonesien: Sumatra: Sibolga, ca. 01°44'N, 98°47'E), A.

hornburgi nov.sp. aus Bangladesh und Myanmar (Locus typicus: Bangladesh: Chittagong: Nasirabad, ca. 22°22'N, 91°49'E), *A. javaensis* nov.sp. von Java (type locality: Indonesien: W Java, Situ Lembang, ca. 1500m, 15 km N Bandung, ca. 06°44'S, 107°35'E) und *A. siamensis* nov.sp. aus Thailand und Laos (Locus typicus: Thailand: Umphang, 500m, 16°04'N 98°53'E).

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Figs 1-2: Anthracus nesophilus (ANDREWES, 1936). Habitus. (1) A. nesophilus, HT, (2) A. haemorrhous (LOUWERENS, 1952), HT.



Figs 3-6: Anthracus nesophilus (ANDREWES, 1936). Head and pronotum. (3) Java, Bandoeng, (4-5) Java, Batavia, (6) Java, Djember.



Figs 7-9: *Anthracus philippinensis* nov.sp. Habitus, head and pronotum. (7) PT, Philippines, Panay, E Bontol, (8) HT, (9) PT, Philippines, Mindoro, E Puerto Galera, Sabang.



Figs 10-12: Anthracus anichtchenkoi nov.sp. Habitus, head and pronotum. (10) HT, (11) PT, India, Jaspur, (12) PT, Nepal, Nepalgunj.



Figs 13-15: Anthracus sumatraensis nov.sp. Habitus, head and pronotum. (13) HT, (14-15) PT, Sumatra, Sibolga.



Figs 16-18: Anthracus hornburgi nov.sp. (16, 18) HT, (17) PT, Myanmar, Pegu.



Figs 19-20: Anthracus javaensis nov.sp. Habitus, head and pronotum. (19-20) HT.



Figs 21-23: Anthracus siamensis nov.sp. Habitus, head and pronotum. (21) HT, (22, 23) PT, Laos, Pakkading.



Figs 24-28: Anthracus nesophilus (ANDREWES, 1936). Median lobe of aedoeagus, lateral aspect. (24) Sulawesi, Ujung Pandang, (25) HT, A. haemorrhous, (26, 28) Java, Batavia, (27), HT, A. nesophilus.



Figs 29-34: Anthracus nesophilus (ANDREWES, 1936). Median lobe of aedoeagus, dorsal aspect. (29) Java, Gunung Slamat, (30, 32, 33) Java, Batavia, (31) HT, A. haemorrhous, (34) HT, A. nesophilus.



Figs 35-41: *Anthracus philippinensis* nov.sp. Median lobe of aedoeagus, lateral and dorsal aspect. (35, 38) PT, Philippines, Mindoro, E Puerto Galera, (36, 40) PT, Philippines, Panay, E Bontol, (37, 39) PT, Philippines, Luzon, Los Banos.



Figs 42-49: Anthracus anichtchenkoi nov.sp. Median lobe of aedoeagus, lateral and dorsal aspect. (42, 45, 47, 49) PT, India, Jaspur, (43, 46) HT, (44, 48) PT, Nepal, Nepalgunj.



Figs 50-55: Anthracus sumatraensis nov.sp. Median lobe of aedoeagus, lateral and dorsal aspect. (50, 52, 53, 55) PT, (51, 54) HT.



Figs 56-61: Anthracus hornburgi nov.sp. Median lobe of aedoeagus, lateral and dorsal aspect. (56, 59) HT, (57, 58, 60, 61) PT, Myanmar, Pegu, (61a) PT, Myanmar, Tharrawaddy.



Figs 62-67: Median lobe of aedoeagus, lateral aspect. *Anthracus javaensis* nov.sp. (62) HT and *A. siamensis* nov.sp. (63, 64, 67) PT, Laos, Pakkading, (65) HT, (66) Thailand, Ban Khoun.



Figs 68-73: Median lobe of aedoeagus, dorsal aspect. Anthracus javaensis nov.sp. (68) HT and A. siamensis nov.sp. (69) PT, Thailand, Umphang, (70, 73) PT, Laos, Pakkading, (71) HT, (72) Thailand, Ban Khoun.



Figs 74-79: Median lobe of aedoeagus, lateral and dorsal aspect. *Anthracus skalei* JAEGER (**74**) PT, Bangladesh, Nasirabad, (**75**) PT, India, Kurseong, *A. spec.* 1 near *A. biplagiatus* (BOHEMAN) (**76**, **77**) Bangladesh, Nasirabad, *A. spec.* 2 near *A. annamensis* (BATES) (**78,79**) Myanmar, Pegu.



Fig 80: Distribution: *A. nesophilus* (ANDREWES) (triangles), *A. javaensis* nov.sp. (white star), *A. sumatraensis* nov.sp. (square) *A. philippinensis* nov.sp. (circle), *A. siamensis* nov.sp. (black star).



Fig 81: Distribution: A. anichtchenkoi nov.sp. (circle), A. hornburgi nov.sp. (star).

species	number	BL	HW/HWbE	AL/PL	AL/EL	HW/PW
A. weigeli	10	3.1-3.4 (3.2)	1.55-1.68 (1.63)	2.55-2.75 (2.64)	0.89-0.95 (0.92)	0.83-0.86 (0.84)
A. nesophilus	10	3.6-3.9 (3.7)	1.58-1.63 (1.60)	2.33-2.51 (2.41)	0.87-0.94 (0.91)	0.75-0.79 (0.77)
A. philippinensis	10	3.2-3.7 (3.5)	1.57-1.63 (1.60)	2.34-2.50 (2.42)	0.87-0.91 (0.89)	0.78-0.82 (0.80)
A. anichtchenkoi	5	3.1-3.7 (3.4)	1.63-1.72 (1.68)	2.54	0.91	0.81-0.86 (0.84)
A. skalei	10	3.6-3.9 (3.7)	1.59-1.68 (1.63)	2.37-2.57 (2.47)	0.85-0.91 (0.89)	0.81-0.83 (0.82)
A. siamensis	10	3.2-3.7 (3.6)	1.61-1.71 (1.65)	2.42-2.57 (2.50)	0.87-0.93 (0.90)	0.78-0.83 (0.81)
A. javaensis	1	4.0	1.61	2.46	0.86	0.86
A. hornburgi	9	2.9-3.5 (3.3)	1.63-1.69 (1.66)	2.48-2.75 (2.66)	0.90-0.93 (0.92)	0.81-0.86 (0.83)
A. sumatranus	3	3.6-3.9 (3.7)	1.59-1.65 (1.63)	2.52-2.62 (2.58)	0.90-0.92 (0.91)	0.81-0.83 (0.81)
		WH/Md	J4/M4	EW/PW	EL/PL	EL/EW
A. weigeli	10	1.17-1.20 (1.18)	1.24-1.31 (1.28)	1.33-1.40 (1.37)	2.79-2.95 (2.86)	1.60-1.66 (1.63)
A. nesophilus	10	1.27-1.33 (1.30)	1.28-1.34 (1.32)	1.27-1.35 (1.32)	2.58-2.70 (2.65)	1.48-1.56 (1.53)
A. philippinensis	10	1.22-1.28 (1.25)	1.27-1.33 (1.31)	1.33-1.41 (1.36)	2.63-2.80 (2.70)	1.49-1.56 (1.53)
A. anichtchenkoi	5	1.17-1.23 (1.19)	1.30-1.32 (1.31)	1.29-1.40 (1.35)	2.61-2.85 (2.77)	1.54-1.63 (1.57)
A. skalei	10	1.20-1.23 (1.22)	1.27-1.32 (1.29)	1.33-1.38 (1.35)	2.74-2.83 (2.78)	1.56-1.62 (1.59)
A. siamensis	10	1.20-1.28 (1.24)	1.30-1.35 (1.32)	1.31-1.38 (1.34)	2.71-2.85 (2.78)	1.53-1.61 (1.58)
A. javaensis	1	1.27	1.30	1.39	2.84	1.59
A. hornburgi	9	1.17-1.23 (1.21)	1.33-1.39 (1.35)	1.30-1.41 (1.36)	2.74-2.95 (2.86)	1.51-1.59 (1.56)
A. sumatranus	3	1.21-1.24 (1.23)	1.26-1.31 (1.30)	1.41-1.43 (1.42)	2.75-2.91 (2.84)	1.53-1.57 (1.55)

species of the Aanthracus annamensis group Table 1. Variation of ratios among male specimens of selected maculate 1396

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Digitale Literatur/Digital Literature

Zeitschrift/Journal: Linzer biologische Beiträge

Jahr/Year: 2015

Band/Volume: 0047_2

Autor(en)/Author(s): Jaeger Bernd

Artikel/Article: Revision of the maculate species of the Anthracus annamensis group from the East Palaearctic and Oriental Regions. Part 2. A redescription of Anthracus nesophilus (ANDREWES, 1936) and six new species from Nepal, India and SE Asia (Coleoptera, Carabidae, Harpalini, Stenolophina) 1361-1396