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Five new species of the *Anthracus annamensis* group from the Philippines and India (Coleoptera, Carabidae, Harpalini, Stenolophina)

Bernd JAEGER

A b s t r a c t : Five new species of the *Anthracus annamensis* group are described from the Philippines and India: *Anthracus darlingtoni* nov.sp. (type locality: Philippines: Leyte: Plains of NE Leyte), *A. mindanaoensis* nov.sp. (type locality: Philippines: Mindanao: Davao del Norte: Madaum R. Tagum), *A. brevipennis* nov.sp. (type locality: Philippines: Leyte: Plains of NE Leyte), *A. nathani* nov.sp. (type locality: India: Tamil Nadu: Karikal territory, Kurumbagaram), and *A. leyteensis* nov.sp. (type locality: Philippines: Leyte: Plains of NE Leyte).

New distribution data are presented for: *Anthracus philippinensis* JAEGER, 2015 (additional records for Luzon and first record for Leyte) and *A. anichtchenkoi* JAEGER, 2015 (first and southernmost record from the Indian state of Tamil Nadu).

K e y w o r d s : Stenolophina, *Anthracus*, new species, new records, Philippines, India.

Introduction

The *Anthracus annamensis*-group comprises 18 species from the Oriental region, including southern China (JAEGER 2012, 2015a, b). Most oriental members of the species group are known from continental Asia, including seven from mainland South East Asia, and five from the Indian subcontinent. In contrast, only five species are hitherto known from the SE Asian islands, including four species from the Sunda Islands and only one from the Philippines.

However, our recent study of so far unrevised collections from the Philippines, mainly those of the famous Carabidologist P. J. Darlington, revealed that the island fauna of SE Asia is still poorly understood. These collections comprise four new species from the Philippines which are described below. Also, this contribution provides the description of one new immaculate species of the *Anthracus annamensis* group from southern India, and new distribution records for *Anthracus philippinensis* JAEGER, 2015 and *A. anichtchenkoi* JAEGER, 2015.

Material and Methods

Types and material examined are deposited in the following institutions and private collections:

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MCZ..... Museum of Comparative Zoology, Harvard University, Cambridge, USA
MFNB ..... Museum für Naturkunde Berlin, Germany
NME..... Naturkundemuseum Erfurt, Germany
cJAE..... Coll. B. Jaeger, Berlin, Germany
cWRA ..... Coll. D.W. Wrase, Berlin, Germany

Citations of label data, measurements, dissection procedures and preparation of images follow methods described in JAEGER (2009, 2012).

The following abbreviations were used in the text, table 1 and in the plates: BL – body length, HW – maximum 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, PT – paratype, PTs – paratypes, and hw – handwritten.

Results

Anthracus darlingtoni nov.sp. (Figs 1-7, 9-12)

T y p e m a t e r i a l : Holotype: ♂ (MCZ) labelled "Plains of / NE Leyte Is., P.I. / Nov '44-Jan '45 / Darlington"; "square – impunct. / det. Darlington / at B.M. 1947-48 / Notes p."[first line hw] and "HOLOTYPE ♂ / Anthracus / darlingtoni nov.sp. / des. B. Jaeger 2017" [red label].
Paratypes: 3♂♂, 3♀♀ (MCZ, cJAE) with same locality label as the holotype, and additionally labelled "PARATYPE ♂ or ♀ / Anthracus / darlingtoni nov.sp. / des. B. Jaeger 2017" [red label].

E t y m o l o g y : The species is named in memory of P. J. Darlington, Jr., famous carabidologist and zoogeographer, who collected this and other new species in the Philippines.

D e s c r i p t i o n : General appearance as figured (Fig. 1). Body length 3.7-4.2 mm (HT 4.2 mm); width 1.5-1.7 mm.

Shiny, pronotum weakly, elytra moderately iridescent. Head blackish brown or dark reddish brown, with clypeus paler reddish brown, and labrum and mandibles (inner margins and apices of the latter blackish) reddish yellow or yellowish brown. Pronotum blackish brown, dark brown or dark reddish brown, with lateral margins and hind angles, often also base and apical margin paler. Elytra blackish brown to almost black leaving base, apex, lateral margin and first interval paler reddish. Legs, palpi and first two antennomeres pale yellowish brown, remaining antennomeres slightly infuscated. Ventral surface with pro- and metasternum, epipleura and posterior margins of abdominal sternites paler reddish brown, other parts blackish brown.

Head (Figs 1-3) including eyes moderately broad (HW/PW: 0.72-0.78), with eyes moderately prominent (head 1.61-1.70 times as wide as head between eyes). Labrum slightly rounded at apical margin. Mandibles medium sized, not markedly prolonged and curved, left mandible moderately sharp at apex, not thickened or truncate. Antennae moderately long relative to pronotal (AL/PL: 2.32-2.45) and elytral length (AL/EL: 0.78-0.84). Microsculpture on labrum almost isodiametric, on clypeus weakly transverse, on anterior half of head obliterated, or partly with traces of lightly to very lightly impressed isodiametric meshes, and on posterior half with lightly impressed isodiametric meshes, becoming moderately transverse in front of pronotal anterior margin.

Pronotum (Figs 1-3) weakly transverse, 1.21-1.27 times as wide as long, 1.29-1.39 times

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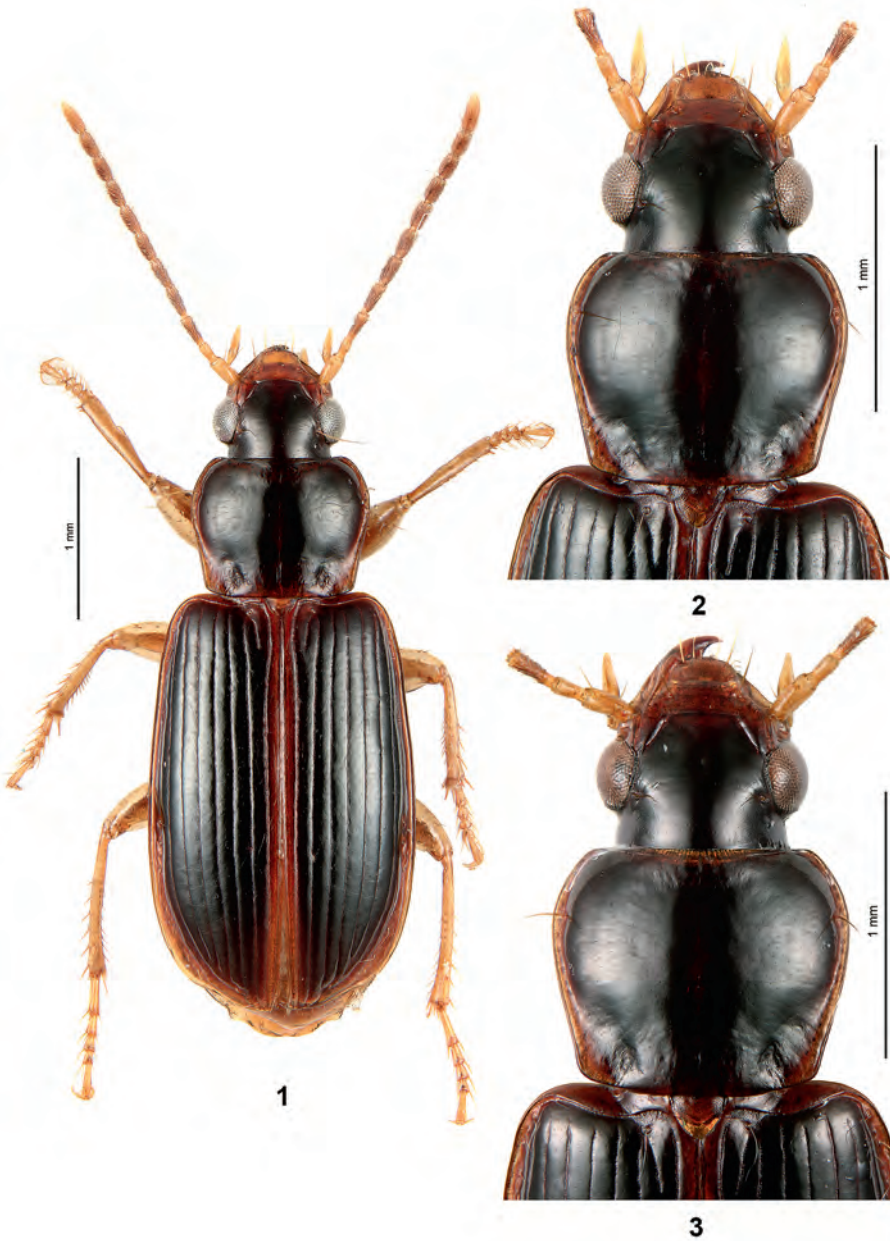

Figs 1-3: *Anthracus darlingtoni* nov.sp. Habitus, head and pronotum. (**1**) HT; (**2-3**) PTs.

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as wide as head, widest in second quarter, lateral seta inserted about at beginning of second quarter. Apical margin moderately emarginate with anterior angles weakly to moderately projecting forward and narrowly rounded at tips. Sides weakly rounded to anterior angles, and from widest point rectilinearly narrowed to posterior angles, or very faintly sinuate in front of the latter, which are well marked and narrowly rounded at tips. Basal margin very slightly concave, almost rectilinear or weakly arcuate medially, slightly to moderately oblique to posterior angles. Lateral furrows evenly narrow or gradually widened in apical half, becoming markedly widened at posterior third, where they fuse with the baso-lateral impressions. Baso-lateral impressions medium sized, clearly delimited from pronotal disc and the somewhat depressed median part of base, flattened to basal and lateral margin, the latter slightly reflexed. Baso-lateral impressions and other parts of pronotal surface impunctate. Median line fine, disappearing before reaching basal and apical margins. Anterior transverse impression suggested or obliterated. Microsculpture on disc with lightly impressed strongly transverse meshes, at baso-lateral impressions and lateral furrows with clearly impressed isodiametric to weakly transverse meshes.

Elytra (Fig. 1) moderately long, 1.53-1.60 times as long as wide, 2.84-3.01 times as long and 1.47-1.55 times as wide as pronotum, with sides weakly to moderately widened posteriad, widest somewhat posterior to middle. Subapical sinuation moderate, apical tip of each elytron rather sharp and in some specimens denticulate. Elytral striae distinctly impressed and impunctate, scutellar striole long. Intervals rather flat to weakly convex on disc, becoming very slightly narrowed and moderately convex at apex. Basal pore at beginning of scutellar striole present, interval 3 in third quarter with one setiferous pore, adjoining stria 2. Microsculpture on scutellum isodiametric, on elytral intervals almost obsolete, only occasional traces of very lightly impressed transverse lines are visible. Macropterous.

Metepisterna at inner margin about 1.5 times longer than wide at basal margin. Prosternum medially with 5-6, and in front of apical margin with a row of 6-8 longer setae. Prosternal process posteriorly with 2 long and distinct setae. Abdominal sternites IV-VI with distinct and rather dense pubescence, in sternite IV often with a small smooth area laterally. Last visible sternite of males faintly concave at apex, and that of females almost rectilinear or very faintly convex, at apical margin with 2 longer setae in males and 4 in females.

Protarsomeres 1-4 of males markedly dilated and with distinct, biseriately arranged adhesive hairs on ventral surface. Protarsomere 4 moderately bilobed. Mesotarsomeres 1-4 of males moderately dilated and with adhesive hairs on ventral surface, mesotarsomere 4 weakly bilobed. In females pro- and mesotarsomeres unmodified. Male profemora somewhat thickened in relation to females, but without numerous long and fine setae on the upper inner margin.

Median lobe of aedeagus (Figs 4-7, 9-12) very large, with apical portion rather long and narrow in dorsal aspect (Figs 9-12). In lateral aspect only slightly curved ventrad with apex curved dorsad (Figs 4-7). Internal sac (lateral aspect) composed of 1 large and 1-2 smaller subapical teeth, and in medial portion with one group of 1 larger and 6-8 smaller teeth arranged ventrally, and one group of 1 larger and 5 smaller teeth arranged dorsally.

C o m p a r i s o n s : *A. darlingtoni* nov.sp. belongs to the *Anthracus annamensis* group and represents one of the three species with immaculate elytra which are now known

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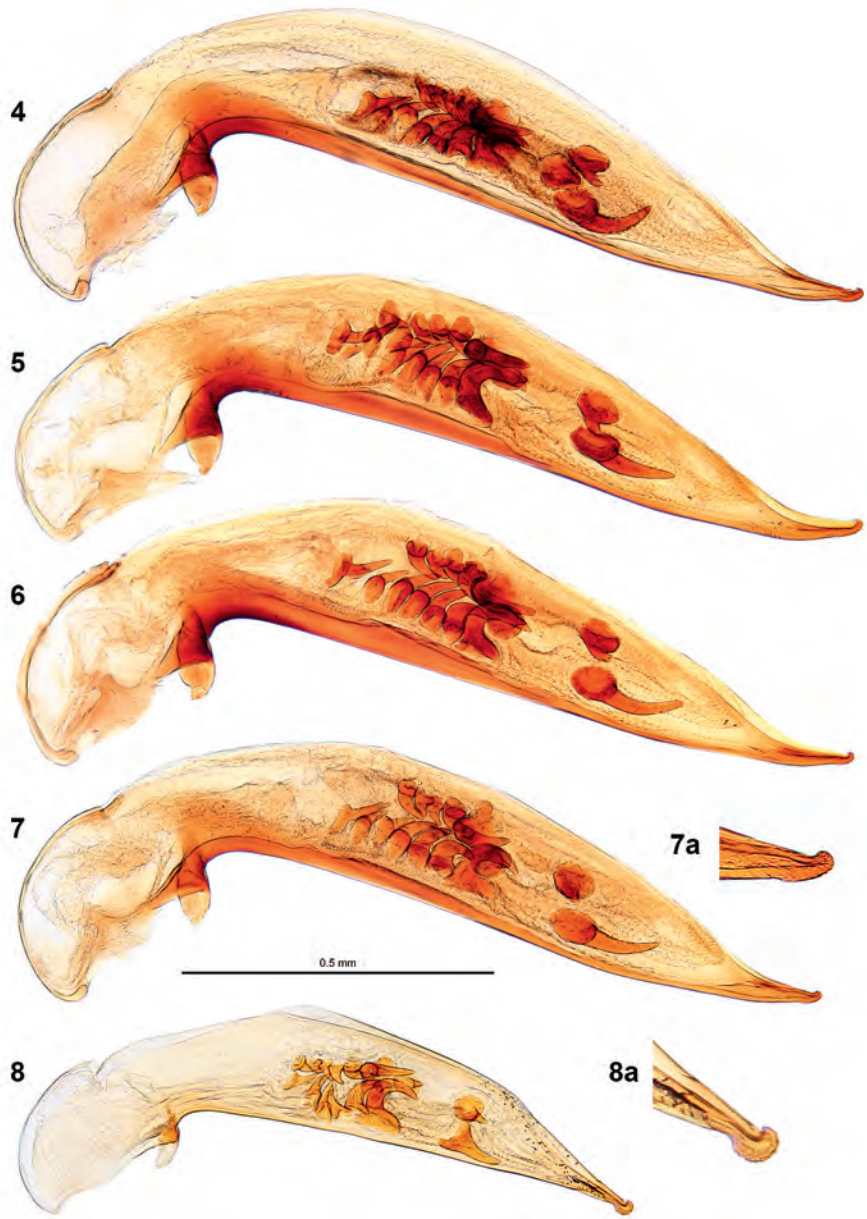

Figs 4-8: Median lobe of aedeagus, lateral aspects. *Anthracus darlingtoni* nov.sp. (**4**) HT, (**5-7a**) PTs. *A. mindanaoensis* nov.sp., (**8, 8a**) HT.

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from the Philippines. It is rather similar to *A. mindanaoensis* nov.sp. in general appearance (at least to one of the female paratypes) and in the internal structures of the aedeagus, but it differs from the latter markedly by the large size of the median lobe of the aedeagus with other shape in lateral aspect (Figs 4-7, 12 respectively 8, 14), particularly of the apex (7a, 8a). Externally *A. darlingtoni* can be separated from *A. mindanaoensis* by larger size (with a small overlap), broader elytra and pronotum, and related proportions (e.g. EW/PW and PW/HW). However, the variation range of these characters is not yet clear, and therefore more material, particularly of *A. mindanaoensis*, is needed to verify these differences. From *A. brevipennis* nov.sp. which occurs sympatrically at the type locality "Plains of NE Leyte" it can be distinguished at a first glance by the completely different habitus (Fig. 1, 18), but also by the extended pubescence of abdominal sternite IV (smooth, or only with single hairs in *A. brevipennis*), and the different size, shape and internal structures of the aedeagus.

From all other immaculate Oriental species of the *A. annamensis* group which occur in India, continental SE Asia and the Sunda Islands, *A. darlingtoni* can be easily separated by its different habitus, and the shape and internal structures of aedeagus.

Distribution: *A. darlingtoni* is so far known only from the Philippine island of Leyte. Because the species has fully developed hind wings it is probably more widely distributed, at least in the Philippines.

Anthracus mindanaoensis nov.sp. (Figs 8, 13, 14, 15-17)

Type material: Holotype: ♂ (MCZ) labelled "Madaum R. Tagum / Mar 20-27 1931 / At trap lantern", "Davao Province / Mindanao, P. I. / C.F. Clagg coll", "C.E. White / Collection" and "HOLOTYPE ♂ / Anthracus / mindanaoensis nov.sp. / des. B. Jaeger 2017" [red label].
The holotype is slightly teneral, with left antennomeres 7-11 and right antennomeres 8-11 missing.
Paratypes: 2 ♀♀ (MCZ) with same locality labels as the holotype, but one specimen additionally with "det. Darlington / at B.M. 1947-48 / Notes p.". All paratypes also labelled "PARATYPE ♀/ Anthracus / mindanaoensis nov.sp. / des. B. Jaeger 2017" [red label].

Etymology: The species name refers to the distribution of the species.

Description: General appearance as figured (Fig. 15). Body length 3.5-3.8 mm (HT 3.8 mm); width 1.3-1.4 mm.

Shiny, pronotum weakly, elytra moderately iridescent. Head, pronotum and elytra mainly dark brown (1 PT) or pale brown (HT + 1 PT), but clypeus paler reddish brown, labrum and mandibles (inner margins and apices of the latter blackish) pale reddish yellow or yellowish brown, pronotal lateral margins, hind angles and base, and elytral lateral margin and first interval pale reddish yellow or yellowish brown. Legs, palpi and antennomeres pale yellowish brown, or antennomeres 3-11 slightly infuscated (1 PT). Ventral surface mainly brown to yellowish brown, with head and proepisterna somewhat darker and epipleura somewhat paler.

Head (Figs 15-17) including eyes very broad (HW/PW: 0.78-0.80), with eyes moderately prominent (head 1.66-1.70 times as wide as head between eyes). Labrum rectilinear or slightly rounded at apical margin. Mandibles medium sized, not markedly prolonged and curved, left mandible moderately sharp at apex, not thickened or truncate. Antennae moderately long relative to pronotal length (AL/PL: 2.27-2.33) and rather short relative to elytral length (AL/EL: 0.78-0.80). Microsculpture on labrum almost isodiametric, on clypeus isodiametric to weakly transverse, on anterior half of head obliterated, or occa-

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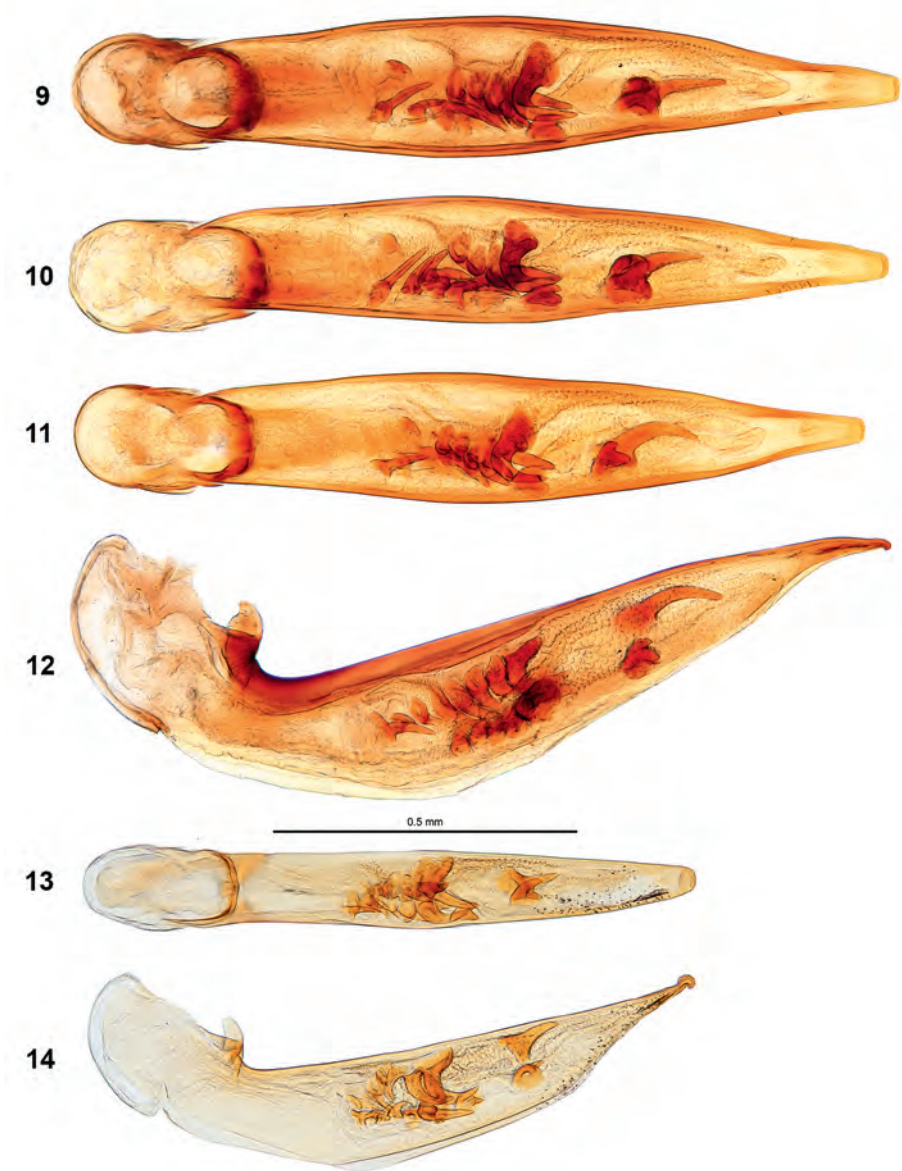
sionally with traces of lightly to very lightly impressed isodiametric meshes, and on posterior half posterior to eyes with lightly impressed isodiametric meshes, becoming moderately transverse in front of pronotal anterior margin.



Figs 9-14: Median lobe of aedeagus, dorsal and lateral aspects. *Anthracus darlingtoni* nov.sp. (**9-12**) PTs. *A. mindanaoensis* nov.sp. (**13-14**) HT.

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Pronotum (Figs 15-17) weakly transverse, 1.22-1.25 times as wide as long, 1.25-1.28 times as wide as head, widest in second quarter, lateral seta inserted about at beginning of second quarter. Apical margin almost straight or weakly emarginate. Anterior angles narrowly rounded at tips, weakly projecting forward. Sides weakly rounded to anterior angles, from widest point rectilinearly converging to posterior angles, or very faintly sinuate front of the latter, which are well developed and narrowly rounded at tips. Basal margin very slightly concave, almost rectilinear or weakly arcuate medially, and slightly oblique to posterior angles. Lateral furrows evenly narrow in apical half, becoming weakly widened in posterior third, where they are fused with the baso-lateral impressions. Baso-lateral impressions small to medium sized, clearly delimited from pronotal disc and the scarcely depressed median part of base, flattened to basal and lateral margin. Baso-lateral impressions and other parts of pronotal surface impunctate. Median line fine, disappearing before reaching basal and apical margins. Anterior transverse impression almost obliterated, or suggested. Microsculpture on disc with traces of very lightly impressed strongly transverse meshes, at baso-lateral impressions with weakly to moderately impressed isodiametric to moderately transverse meshes.

Elytra (Fig. 15) rather long,1.58-1.63 times as long as wide, 2.91-2.92 times as long and 1.44-1.48 times as wide as pronotum, with sides weakly widened posteriad, widest somewhat posterior to middle. Subapical sinuation weak, apical tip of each elytron rather sharp, in one specimen with a small dent. Elytral striae distinctly impressed and impunctate, scutellar striole long. Intervals rather flat to weakly convex on disc, becoming very slightly narrowed and moderately convex at apex. Basal pore at beginning of scutellar striole present, interval 3 in third quarter with one setiferous pore, adjoining stria 2. Microsculpture on scutellum isodiametric, on elytral intervals almost obsolete, only here and there traces of very lightly impressed transverse lines rudiments visible. Macropterous.

Metepisterna at inner margin about 1.6 times longer than wide at basal margin. Prosternum medially with 6, and in front of apical margin with a row of 6-8 longer setae. Prosternal process posteriorly with 1 long and distinct seta. Abdominal sternites IV-VI with distinct and rather dense pubescence, in sternite IV often with a small smooth area laterally. Last visible sternite of males faintly concave, and that of females almost rectilinear or very faintly convex at apex, at apical margin with two 2 setae in males and 4 in females.

Protarsomeres 1-4 of males moderately dilated and with distinct, biseriately arranged adhesive hairs on ventral surface. Mesotarsomeres 2-4 of males weakly dilated and with adhesive hairs on ventral surface. Pro- and mesotarsomere 4 of males not bilobed. In females pro- and mesotarsomeres unmodified. Male profemora not noticeable thickened in relation to females, and without numerous long and fine setae on upper inner margin.

Median lobe of aedeagus (Figs 8, 13-14) moderately large, with apical portion moderately long and gradually converging to the moderately broad tip (Fig 13). In lateral aspect only slightly curved ventrad with apical part rather straight (Figs 8, 14) and tip of apex with peculiar shape (8a). Internal sac (lateral aspect) composed of 1 large and 1 smaller subapical tooth, and in medial portion with one group of 2 larger and 6 smaller teeth arranged ventrally, and one group of 1 smaller, 1 larger, and 5 smaller teeth arranged dorsally.

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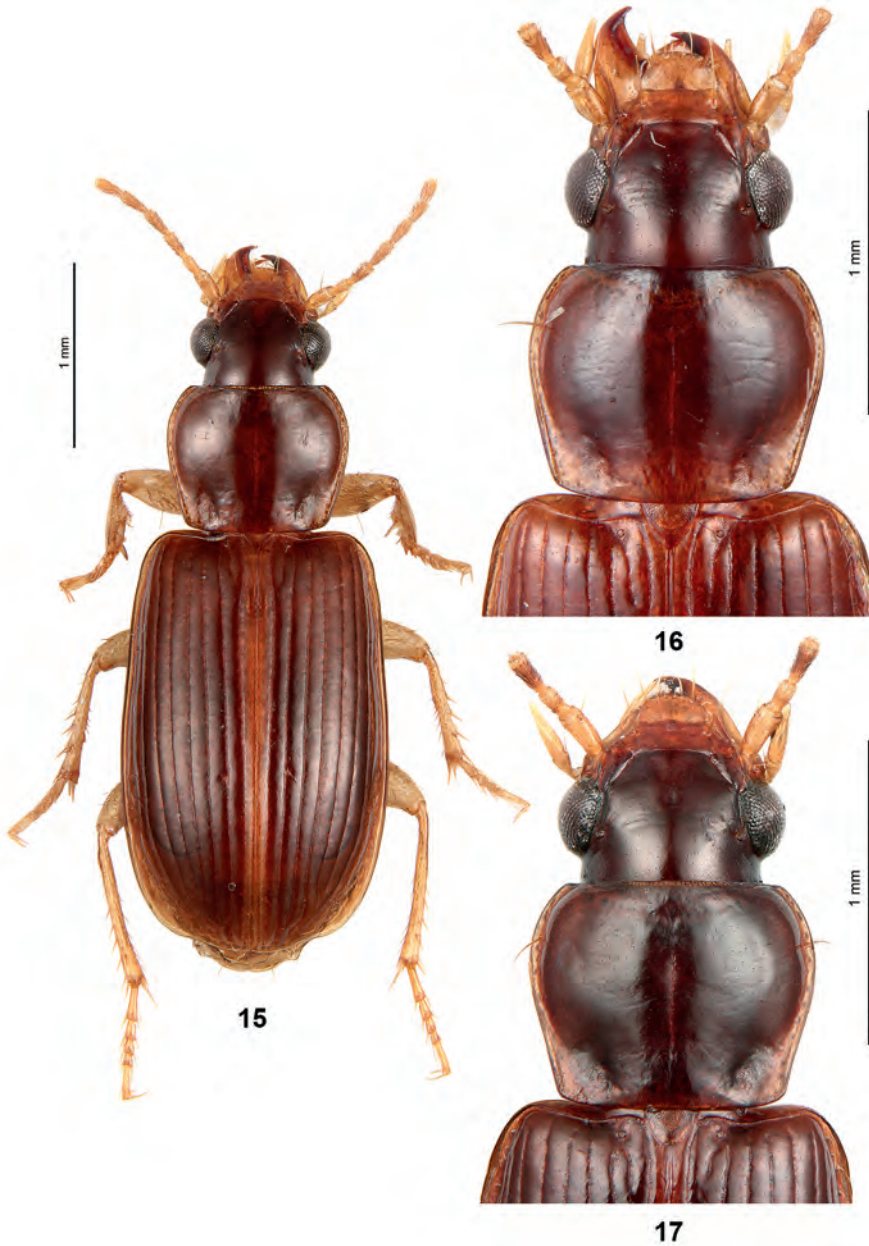

Figs 15-17: *Anthracus mindanaoensis* nov.sp. Habitus, head and pronotum. (**15**) HT, (**16-17**) PTs.

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N o t e s o n v a r i a t i o n : The holotype and one of the female paratypes agree quite well in external characters, particularly in the shape the pronotum (Figs 15-16). In contrast to that the second female has a slight sinuation in front of hind angles and their elytral tips are slightly denticulate. In these respects the specimen resembles on members of *A. darlingtoni*, although the presence of a small denticle at elytral apical tips varies also in this species from present to absent. However, whilst *A. darlingtoni* is so far only known from Leyte, this female was collected together with the holotype and the second female paratype, and it agrees with those in other characters, as small size and various body proportions. Therefore I include it in the type series of *A. mindanaoensis*, however, more material of both species is needed to confirm the boundaries of these two species.

C o m p a r i s o n s : *A. mindanaoensis* belongs to the *Anthracus annamensis* group and represents the smallest of the three immaculate species which are now known from the Philippines. It is somewhat similar to the preceding species in general appearance (at least to the somewhat aberrant female paratype, see fig. 17) but it differs from *A. darlingtoni* by characters given under this species. From *A. brevipennis* nov.sp. it can be easily distinguished by the completely different habitus, but also by the extended pubescence of abdominal sternite IV (smooth, or with some single hairs in *A. brevipennis*), the other chaetotaxy of male anal sternite, and the different size, shape and internal structures of the aedeagus.

From other immaculate Oriental species of the *A. annamensis* group which were revised some years ago (JAEGER 2012), and occur in India, continental SE Asia and the Sunda islands, *A. mindanaoensis* differs by smaller size, and/or other habitus with rather narrow pronotum and elytra, the different shape and internal structures of aedeagus.

D i s t r i b u t i o n : *A. mindanaoensis* is so far known only from the Philippine island of Mindanao. Because the species has fully developed hind wings it is probably more widely distributed, at least in the Philippines.

Anthracus brevipennis nov.sp. (Figs 18-26)

T y p e m a t e r i a l : Holotype: ♂ (MCZ) labelled "Plains of / NE Leyte Is., P.I. / Nov '44-Jan '45 / Darlington" and "HOLOTYPE ♂ / Anthracus / brevipennis nov.sp. / des. B. Jaeger 2017". Paratypes: 7♂♂, 2♀♀ (MCZ, cJAE) with same locality label as the holotype, 1♂ also with the label "~~det.~~ Darlington / at B.M. 1947-48 / Notes p.". All paratypes additionally labelled "PARATYPE ♂ or ♀ / Anthracus / brevipennis nov.sp. / des. B. Jaeger 2017".

E t y m o l o g y : The species name refers to the comparatively short elytra.

D e s c r i p t i o n : General appearance as figured (Fig. 18). Body length 4.0-4.6 mm (HT 4.3 mm); width 1.7-1.9 mm.

Shiny, pronotum weakly, elytra moderately iridescent. Upper surface mainly blackish brown to almost black, with clypeus, labrum and mandibles (inner margins and apices of the latter blackish), lateral margins, base and baso-lateral impressions of pronotum, lateral margin and first interval of elytra paler to darker reddish brown. Legs, palpi and first two antennomeres pale yellowish brown, remaining antennomeres more or less distinctly infuscated. Ventral surface mainly dark or dark reddish brown, but prosternum, often also metasternum, posterior margins of abdominal sternites and epipleura slightly paler.

Head (Figs 18-20) including eyes rather narrow (HW/PW: 0.66-0.69), with eyes moderately prominent (head 1.53-1.63 times as wide as head between eyes). Labrum slightly

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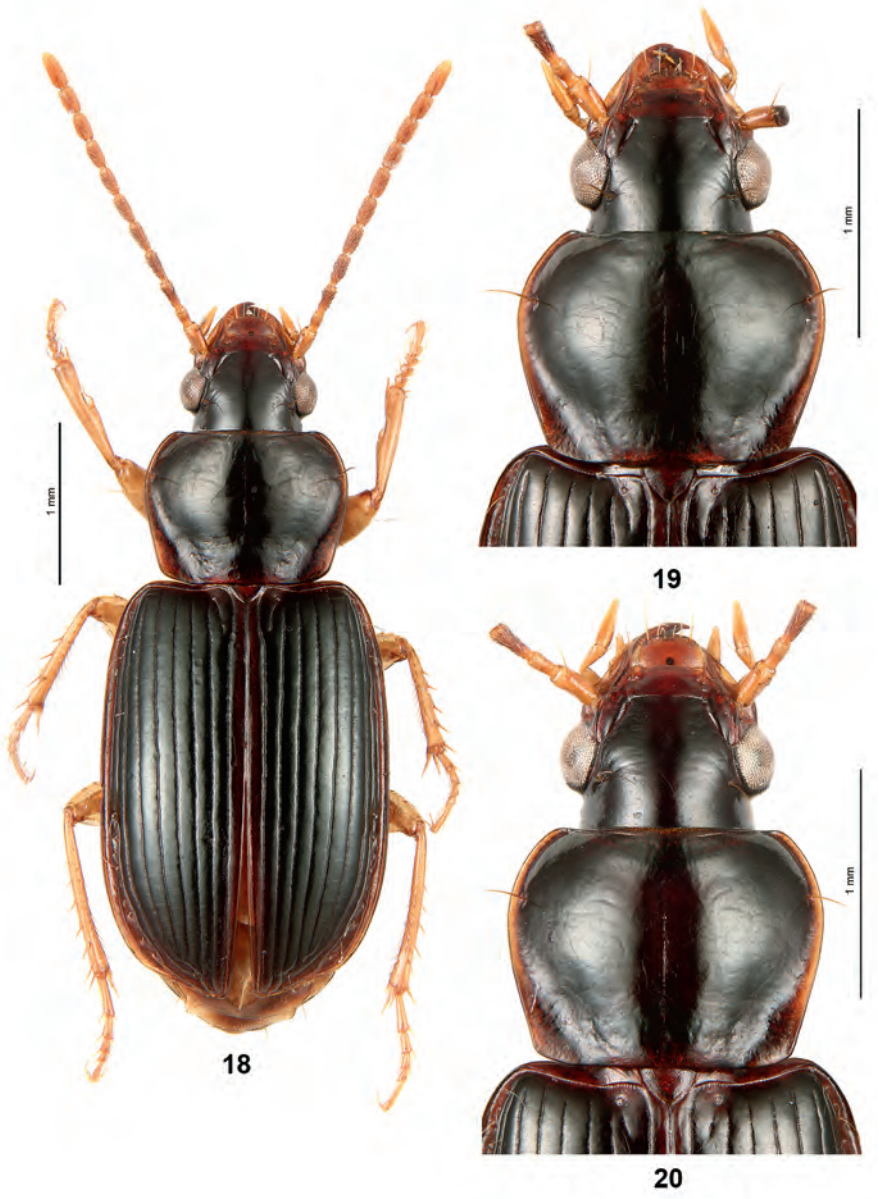

Figs 18-20: *Anthracus brevipennis* nov.sp. Habitus, head and pronotum. (**18**) HT, (**19-20**) PTs.

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rounded at apical margin. Mandibles medium sized, not distinctly prolonged and curved, left mandible moderately sharp at apex, not thickened or truncate. Antennae rather short relative to pronotal length (AL/PL: 2.07-2.27), and moderately long relative to elytral length (AL/EL: 0.74-0.85). Microsculpture on labrum almost isodiametric, on clypeus weakly transverse, on anterior half of head obliterated, or with traces of lightly to very lightly impressed isodiametric meshes, and on posterior half posterior to eyes with lightly impressed isodiametric meshes, becoming moderately transverse in front of pronotal anterior margin.

Pronotum (Figs 18-20) moderately transverse, 1.27-1.34 times as wide as long, 1.44-1.52 times as wide as head, widest in second quarter, lateral seta inserted somewhat posterior to beginning of second quarter. Apical margin clearly emarginate with anterior angles moderately projecting forward and narrowly rounded at tips. Sides markedly rounded to anterior angles, from widest point rectilinearly narrowed to posterior angles, or very faintly sinuate in front of the latter, which are more or less well marked, and more or less widely rounded at tips. Basal margin almost rectilinear medially, slightly to moderately oblique to posterior angles. Lateral furrows evenly narrow anterior to lateral seta, and posterior to the latter first gradually, later markedly widened, and fused with the baso-lateral impressions. Baso-lateral impressions rather large and deep, markedly prolonged forward along sides, clearly and obliquely delimited from pronotal disc and median part of base, flattened to basal and lateral margin, that latter is somewhat reflexed. Baso-lateral impressions and other parts of pronotal surface impunctate. Median line fine, disappearing before reaching basal and apical margins. Anterior transverse impression obliterated. Microsculpture on disc with traces of lightly impressed dense and strongly transverse meshes, at baso-lateral impressions and lateral furrows with moderately impressed moderately transverse meshes.

Elytra (Fig. 18) rather short, 1.44-1.51 times as long as wide, 2.61-2.79 times as long and 1.35-1.43 times as wide as pronotum, with sides almost parallel or weakly widened posteriad, widest about at middle. Subapical sinuation weak to moderate, apical tip of each elytron narrowly rounded. Elytral striae distinctly impressed and impunctate, scutellar striole moderately long. Intervals slightly convex on disc, becoming very slightly narrowed and moderately convex at apex. Basal pore at beginning of scutellar striole present, interval 3 in third quarter with one setiferous pore, adjoining stria 2. Microsculpture on scutellum isodiametric, on elytral intervals only occasional traces of very lightly impressed transverse lines rudiments visible. Macropterous.

Metepisterna at inner margin about 1.4 times longer than wide at basal margin. Prosternum medially with 5-6, and in front of apical margin with a row of 6 longer setae. Prosternal process posteriorly with 1 long, distinct seta. Abdominal sternite IV smooth or with few single setae, sternites V-VI with distinct and moderately dense pubescence. Last visible abdominal sternite of males and females almost rectilinear at apex, at apical margin with 4 longer setae in both sexes.

Protarsomeres 1-4 of males markedly dilated and with distinct, biseriately arranged adhesive hairs on ventral surface. Protarsomere 4 markedly bilobed. Mesotarsomeres 1-4 of males moderately dilated and with adhesive hairs on ventral surface, mesotarsomere 4 weakly bilobed. In females pro- and mesotarsomeres unmodified. Male profemora somewhat thickened in relation to females, but without a row of numerous long and fine setae at upper inner margin.

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Figs 21-26: *Anthracus brevipennis* nov.sp. Median lobe of aedeagus, dorsal and lateral aspects. (**21-25**) PTs, (**26**) HT.

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Median lobe of aedeagus (Figs 21-26) rather large, with apical portion rather long and gradually converging to the narrowly rounded apex (Figs 24-25). In lateral aspect only slightly curved ventrad with apical portion more or less straight (Figs 21-23, 26), and apical tip with peculiar shape (Fig. 22a). Internal sac (lateral aspect) composed of 1 medium sized and 1 large subapical teeth, followed by a group of 2 larger and 7-8 smaller teeth, arranged dorsally, and ventrally with 1 or 2 larger teeth at middle and 1 large elongate tooth basally, or in one specimen (Fig. 22) additionally with 3 medium sized teeth between them.

C o m p a r i s o n s : *A. brevipennis* n. sp belongs to the *Anthracus annamensis* group and represents the largest of the three immaculate species which are now known from the Philippines. It differs from these species and also from all other immaculate Oriental taxa of the species group by its peculiar habitus, with its broad body, the characteristic pronotal shape with large baso-lateral impressions, the quadrisetose anal sternite of males, and the specific and different shape of the median lobe, and internal structures of the aedeagus. From most species it can be also separated by the missing or strongly reduced pubescence of abdominal sternite IV.

D i s t r i b u t i o n : *A. brevipennis* is so far known only from the Philippine island of Leyte. Because the species has fully developed hind wings it is probably more widely distributed, at least in the Philippines.

Anthracus nathani nov.sp. (Figs 27-35)

T y p e m a t e r i a l : Holotype: ♂ (MCZ) labelled "Kurumbagaram / Karikal Ter. / S. INDIA III-51 / P. S. Nathan" and "HOLOTYPE ♂ / Anthracus / nathani nov.sp. / des. B. Jaeger 2017".
The holotype is in fair condition (left mesotarsomares 4-5, right mesotarsomeres 1-5 and right metarsomeres 1-5 missing). However, it is the only male specimen within the type series which is only slightly teneral and therefore selected to be the holotype.
Paratypes: 7♂♂, 7♀♀ (MCZ, cJAE) with same locality label data as the holotype." 1♂, 3♀♀ (MFNB) labelled "Süd-Indien / Jan. 1951" and "Coll. H. Korge / Karikal Territory". 2♀♀ same data but "Süd-Indien / Mai 1951". 1♂ (NME) labelled "India/Tamil Nadu/ / Mettukuppam by / Neyveli (Cudalore) / 5.1.-1.3.2008 / leg. F. Burger Lux". All paratypes additionally labelled "PARATYPE ♂ or ♀/ Anthracus / nathani nov.sp. / des. B. Jaeger 2017" [red label]. Most paratypes are slightly to moderately immature.

E t y m o l o g y : The species in named in memory of P.S. Nathan, who collected this and other interesting Stenolophina species in southern India.

D e s c r i p t i o n : General appearance as figured (Fig. 27). Body length 3.2-3.5 mm (HT 3.8 mm); width 1.2-1.4 mm.

Shiny, pronotum weakly, elytra moderately to iridescent. Head and pronotum reddish yellow or pale reddish brown, with clypeus, labrum and mandibles (inner margins and apices of the latter brown) and pronotal lateral margins paler. Elytra mainly dark brown, with first interval, lateral margin, sometimes also apex and base paler reddish yellow. Legs, palpi and first or first two antennomeres yellowish or pale yellowish brown, remaining antennomeres slightly infuscated. Ventral surface mainly reddish yellow to yellowish brown with head slightly darker, and prosternum, epipleura and sternites partly paler.

Remark: The colour description is based on the holotype and two other darker paratype specimens, most other specimens of the type series are slightly moderately immature. It maybe that fresh completely mature specimens are generally darker (as described here).

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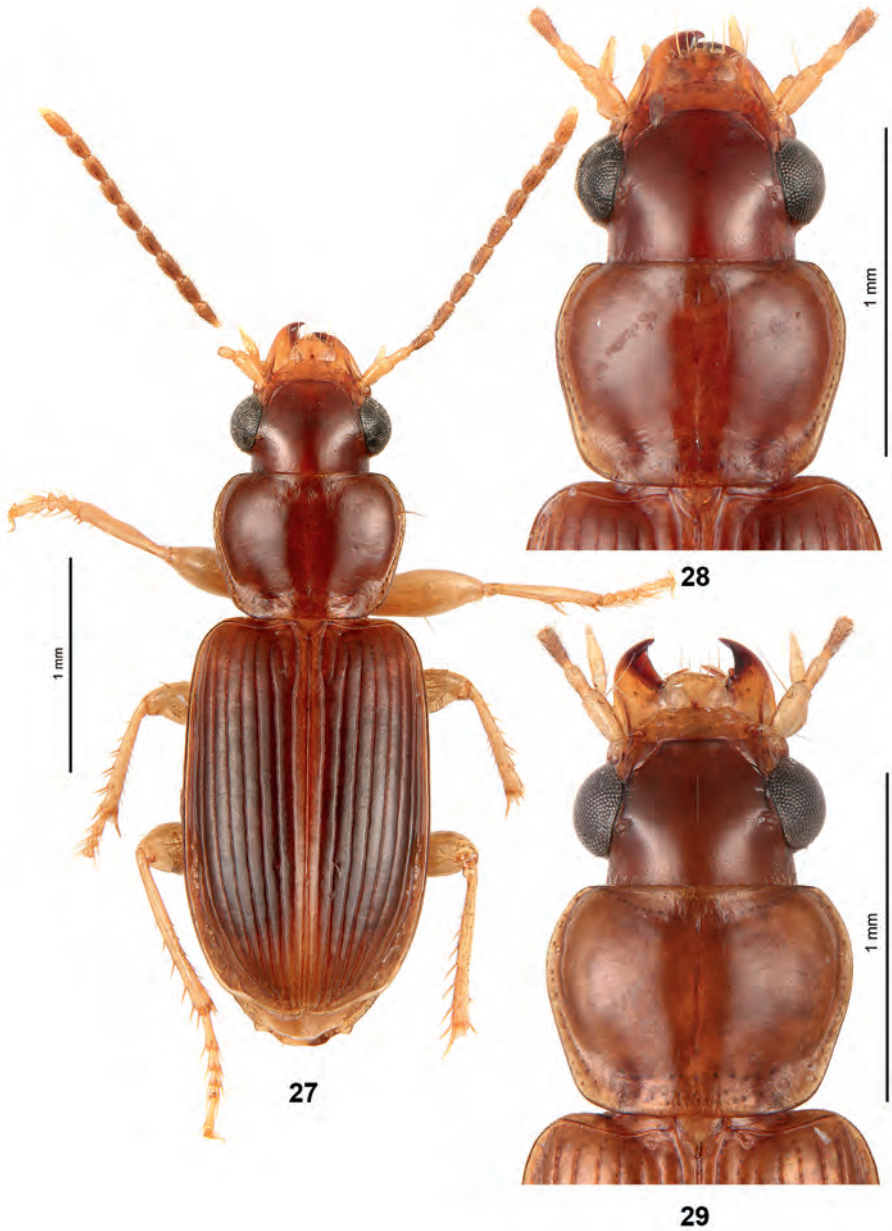

Figs 27-29: *Anthracus nathani* nov.sp. Habitus, head and pronotum. (**27**) HT, (**28**) PT, India, Kurumbagaram, (**29**) PT, India, Mettukuppam.

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Head (Figs 27-29) including eyes rather broad (HW/PW: 0.82-0.86), with eyes markedly prominent (head 1.63-1.76 times as wide as head between eyes). Labrum rectilinear or slightly rounded at apical margin. Mandibles medium sized, not distinctly prolonged and curved, left mandible moderately sharp at apex, not thickened or truncate. Antennae rather long relative to pronotal (AL/PL: 2.41-2.62) and elytral length (AL/EL: 0.87-0.94). Microsculpture on labrum almost isodiametric, on clypeus isodiametric to weakly transverse, on anterior half of head partly obliterated, or partly with traces of lightly to very lightly impressed isodiametric meshes, and on posterior half posterior to eyes with lightly impressed isodiametric meshes, becoming moderately transverse in front of pronotal anterior margin.

Pronotum (Figs 27-29) moderately transverse, 1.26-1.33 times as wide as long, 1.15-1.23 times as wide as head, widest in second quarter, lateral seta inserted more or less at beginning of second quarter. Apical margin almost straight or very weakly emarginate. Anterior angles narrowly rounded at tips, not or very slightly projecting forward. Sides moderately rounded to anterior angles, from widest point rectilinearly narrowed to posterior angles, which are rather widely rounded at tips. Basal margin almost rectilinear or weakly arcuate medially, and slightly oblique to posterior angles. Lateral furrows evenly narrow in apical half, becoming weakly widened in posterior third, where they are fused with the baso-lateral impressions. Baso-lateral impressions medium sized, clearly delimited from pronotal disc and median part of base, flattened to basal and lateral margin, the latter sometimes slightly reflexed. Baso-lateral impressions and other parts of pronotal surface impunctate. Median line fine, disappearing before reaching basal and apical margins. Anterior transverse impression obliterated. Microsculpture on disc with traces of lightly impressed moderately transverse meshes, at medial portion of base and apex with more moderately impressed weakly transverse and at baso-lateral impressions with moderately impressed almost isodiametric to weakly transverse meshes.

Elytra (Fig. 27) rather long, 1.56-1.64 times as long as wide, 2.69-2.89 times as long and 1.30-1.38 times as wide as pronotum, with sides weakly widened posteriorly, widest about at middle. Subapical sinuation very weak, apical tip of each elytron moderately sharp, but not denticulate. Elytral striae distinctly impressed and impunctate, scutellar striole long. Intervals rather flat on disc, becoming very slightly narrowed and moderately convex at apex. Basal pore at beginning of scutellar striole present, interval 3 in third quarter with one setiferous pore, adjoining stria 2. Microsculpture on scutellum isodiametric, on elytral intervals almost obsolete, only here and there traces of very lightly impressed transverse lines rudiments visible. Macropterous.

Metepisterna at inner margin about 1.5 times longer than wide at basal margin. Prosternum medially with 4-5, and in front of apical margin with a row of 7-8 longer setae. Prosternal process posteriorly with 2 longer and distinct setae. Abdominal sternites IV-VI with distinct and rather dense pubescence, in sternite IV often with a small smooth area laterally. Last visible sternite faintly ermarginate at apex, at apical margin with 2 longer setae in males and 4 in females.

Protarsomeres 1-4 of males moderately dilated and with distinct, biseriately arranged adhesive hairs on ventral surface. Protarsomere 4 markedly bilobed. Mesotarsomeres 1-4 of males weakly dilated and with adhesive hairs on ventral surface. Mesotarsomere 4 moderately bilobed. In females pro- and mesotarsomeres unmodified. Male profemora slightly thickened in relation to females, without a row of numerous long and fine setae at upper inner margin.

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Figs 30-35: *Anthracus nathani* nov.sp. Median lobe of aedeagus, dorsal and lateral aspects. (**30, 30a**) PT, India, Mettukuppam, (**31, 33**) PT, India, Karikal ter., (**32, 35**) PT, India, Kurumbagaram, (**34**) HT.

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Median lobe of aedeagus (Figs 30-35) small, with apical portion rather long and broad, and apex widely rounded in dorsal aspect (Figs 33-34). In lateral aspect moderately curved ventrad with apical part rather straight (Figs 30-32) and tip of apex with peculiar shape (Fig 30a.) Internal sac composed of one accumulation of 3-10 smaller teeth in upper basal half, sometimes also with 1-2 smaller teeth in lower apical half, and in apical third with a group of small but distinct spines.

C o m p a r i s o n s : *A. nathani* nov.sp. belongs to the *Anthracus annamensis* group and represents, together with *A. derogatus* (WALKER, 1858) from Sri Lanka and *A. indicus* JAEGER, 2012 from the Indian state of Maharashtra, the smallest species with immaculate elytra, and the fourth immaculate taxon which become known from India and Sri Lanka. It differs from *A. indicus* and *A. derogatus*, at a first glance by larger and markedly produced eyes (index HW/HWbE > 1.62 in *A. nathani*, and < 1.55 in *A. derogatus* and *A. indicus*), the different shape of pronotum, the elytra which are markedly longer relative to pronotal length (index EL/PL > 2.68, instead of < 2.65 in the other species) and finally by the completely different external shape und internal structure of the median lobe of the aedeagus. From *A. schuhi* JAEGER, 2012, the remaining immaculate species known from India, *A. nathani* can be separated by smaller size, different colour of upper surface (head and pronotum reddish yellow to reddish brown, instead of blackish brown), other body proportions and different shape and internal structures of the median lobe of the aedeagus.

All other species with immaculate elytra of the *A. annamensis* occur father East in continental SE Asia, Indonesia or the Philippines, and differ from *A. nathani* by larger size and/or different colour and body proportions, and finally by the different shape and internal structures of the median lobe of the aedeagus (see here and JAEGER 2012).

D i s t r i b u t i o n : *A. nathani* is so far known only from the Tamil Nadu state in southern India, but it is obviously more widely distributed, at least in southern India.

Anthracus leyteensis nov.sp. (Figs 36-44)

T y p e m a t e r i a l : Holotype: ♂ (MCZ) labelled "Plains of / NE Leyte Is., P.I. / Nov '44-Jan '45 / Darlington" and "HOLOTYPE ♂ / Anthracus / leyteensis nov.sp. / des. B. Jaeger 2017".
Paratypes: 15♂♂, 7♀♀ (MCZ, cJAE) with same locality label as the holotype, 1 ♂ additionally with the label "~~det.~~ Darlington / at B.M. 1947-48 / Notes p." 1♀ (MCZ) labelled "Tarragona, Leyte / P.I., IX-9-1945 / C.L. Remington / "at light" [hw]. 1♂ (cWRA) labelled "PHILIPPINES Mindanao Isl. / (Aguasan del Sur Prov.) / Aguasan marsh, Bayugan, / Mambalii, rest of lowland swamp"; rainforest/rice field, 25 m / N 08°11'52.2"/E 125°56'98.4" / 25./26.IX.2011 / S. Neumann & J.H. Lourens"; "prosternum / schütter/fein / behaart / prost. process glatt" and "COLL. WRASE / BERLIN". All paratypes additionally labelled "PARATYPE ♂ or ♀/ Anthracus / leyteensis nov.sp. / des. B. Jaeger 2017".

E t y m o l o g y : The species name refers to the type locality.

D e s c r i p t i o n : General appearance as figured (Fig. 36). Body length 3.7-4.2 mm (HT 4.1 mm); width 1.5-1.7 mm.

Shiny, pronotum and elytra moderately iridescent. Head reddish yellow or reddish brown, clypeus and labrum often somewhat paler, reddish yellow, and inner margins and apices of mandibles blackish. Pronotum either darker than head, or of same colour, reddish yellow, or dark reddish brown to dark brown, if darker than head, lateral margins and base, sometimes also a small stripe along median line more or less widely paler. Elytra reddish brown, with each elytron having a large blackish or blackish brown central macula, expanding laterally to interval 7 or 8, and leaving base, apex and first interval

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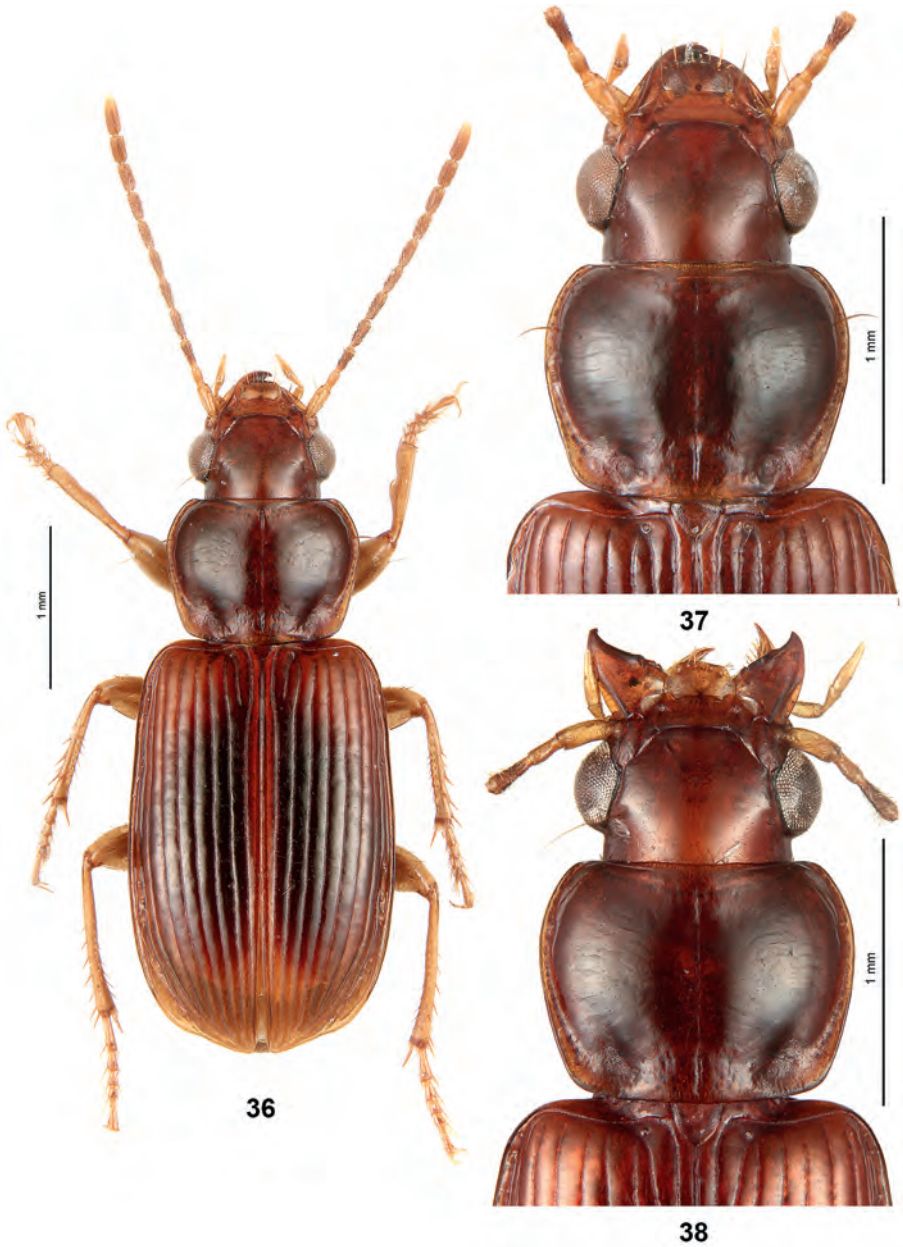

Figs 36-38: *Anthracus leyteensis* nov.sp. Habitus, head and pronotum. (**36**) PT, Leyte, (**37**) HT, (**38**) PT, Mindanao.

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reddish brown. Legs, palpi and first two antennomeres yellowish brown, remaining antennomeres slightly infuscated. Ventral surface with head, prosternum, abdomen and epimera reddish yellow or pale reddish brown, other parts dark reddish brown.

Head (Figs 36-38) including eyes moderately broad (HW/PW: 0.77-0.82), with eyes moderately prominent (head 1.56-1.62 times as wide as head between eyes). Labrum slightly rounded at apical margin. Mandibles medium sized, not distinctly prolonged and curved, left mandible rather obtuse at apex, but not markedly thickened or truncate. Antennae moderately long relative to pronotal (AL/PL: 2.28-2.52), and elytral length (AL/EL: 0.78-0.88). Microsculpture on labrum almost isodiametric to weakly transverse, on clypeus weakly transverse, on anterior half of head partly obliterated, partly with very lightly impressed isodiametric meshes, on posterior half posterior to eyes with lightly impressed isodiametric meshes, becoming moderately transverse in front of pronotal anterior margin.

Pronotum (Figs 36-38) moderately transverse, 1.26-1.35 times as wide as long, 1.23-1.30 times as wide as head, widest in second quarter, lateral seta inserted about at beginning of second quarter. Apical margin almost rectilinear or slightly emarginate with anterior angles weakly projecting forward and narrowly rounded at tips. Sides moderately rounded to anterior angles, from widest point rectilinearly narrowed to posterior angles, which are more or less well marked, and more or less widely rounded at tips. Basal margin almost rectilinear, or very slightly convex medially, moderately oblique to posterior angles. Lateral furrows evenly narrow in anterior two thirds, and in posterior third rather markedly widened and fused with the baso-lateral impressions. Baso-lateral impressions small to moderately large and deep, clearly delimited from pronotal disc and the slightly depressed median part of base, flattened to basal and lateral margin. Baso-lateral impressions and other parts of pronotal surface impunctate. Median line fine, disappearing before reaching basal and apical margins. Anterior transverse impression at least suggested. Microsculpture on disc with traces of lightly impressed strongly transverse meshes, at baso-lateral impressions and lateral furrows with moderately impressed moderately transverse meshes.

Elytra (Fig. 36) rather short, 1.50-1.56 times as long as wide, 2.78-2.94 times as long and 1.38-1.49 times as wide as pronotum, with sides weakly widened posteriorly, widest about at middle. Subapical sinuation weak to moderate, apical tip of each elytron narrowly rounded. Elytral striae distinctly impressed and impunctate, scutellar striole long. Intervals slightly convex on disc, becoming narrowed and moderately convex at apex. Basal pore at beginning of scutellar striole present, interval 3 in third quarter with one setiferous pore, adjoining stria 2. Microsculpture on scutellum isodiametric, on elytral intervals only here and there traces of very lightly impressed transverse lines rudiments visible. Macropterous.

Metepisterna at inner margin about 1.5 times longer than wide at basal margin. Prosternum medially with 5-6, and in front of apical margin with a row of 6-8 longer setae. Prosternal process posteriorly with 2 distinct setae. Abdominal sternites IV-VI with distinct and dense pubescence, in sternite IV often reduced laterally. Last visible sternite of males faintly emarginate and that of females almost rectilinear or very faintly emarginate at apex, at apical margin with 2 longer setae in males and 4 in females.

Protarsomeres 1-4 of males markedly dilated and with distinct, biseriately arranged adhesive hairs on ventral surface. Protarsomere 4 markedly bilobed. Mesotarsomeres 1-4 of males moderately dilated and with adhesive hairs on ventral surface, mesotarsomere 4

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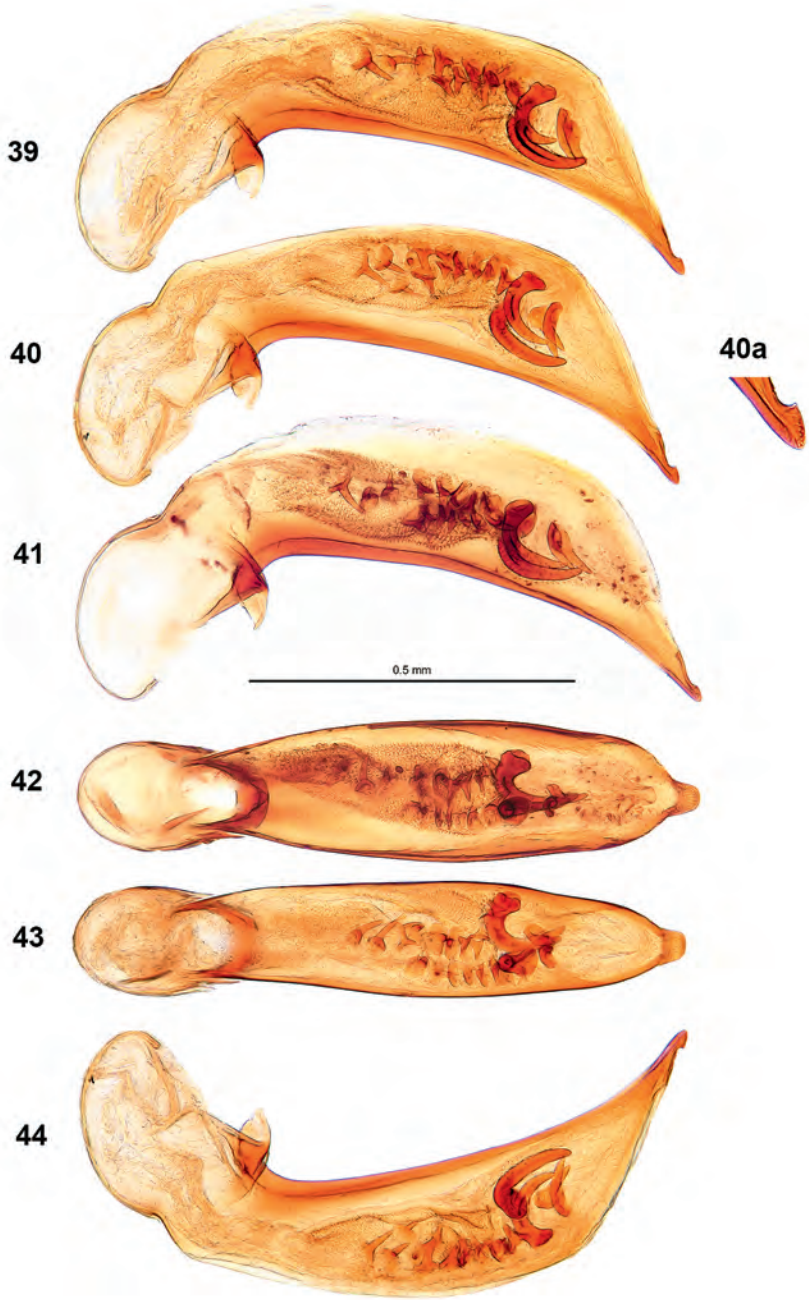

Figs 39-44: *Anthracus leyteensis* nov.sp. Median lobe of aedeagus, dorsal and lateral aspects. (**39**) HT, (**40, 43, 44**) PTs, Leyte, (**41, 42**) PT, Mindanao.

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moderately bilobed. In females pro- and mesotarsomeres unmodified. Male profemora not thickened in relation to females, without a row of numerous long and fine setae at upper inner margin.

Median lobe of aedeagus (Figs 39-44) rather large, with apical portion rather broad and short, with apex narrowly rounded in dorsal aspect (Figs 42-43). In lateral aspect distinctly curved and apex with a distinct hook (Fig. 40a). Internal sac composed of 2 small and 2 large subapical teeth (Figs 39-41), and one longitudinal row of 7-9 medium sized teeth at middle and one longitudinal row of 4-6 medium sized teeth at right side (Figs 42-43).

C o m p a r i s o n s : *A. leyteensis* nov.sp. belongs to the *Anthracus annamensis* group and represents the second maculate species of this group becoming known from the Philippines. In general appearance, it is very similar to *A. philippinensis* JAEGER, 2015, which occurs sympatrically at least at Leyte, and probably also in Mindanao and other Philippine islands. It differs from this species usually by its darker colour, particularly of the pronotum and head, which are mostly dark brown or dark reddish brown and more rarely reddish yellow (as in *A. philippinensis*), the larger size (*A. leyteensis* usually > 3.9 mm, *A. philippinensis* < 3,8 mm), the pronotal lateral furrows which are clearly widened in basal quarter, instead of being more less evenly narrow, and the elytra which are longer relative to pronotal length. Besides both species differ markedly in the shape of the median lobe and its internal structures. Due to the latter characters *A. leyteensis* is obviously not closely related to *A. philippinensis*, but probably to other maculate species known from Indonesia and continental SE Asia. From these species, it differs by its large size and/or different colour and body proportions, or the other shape and internal structures of the median lobe of the aedeagus.

D i s t r i b u t i o n : *A. leyteensis* is so far known from the Philippine islands of Leyte and Mindanao.

Anthracus anichtchenkoi JAEGER, 2015

M a t e r i a l e x a m i n e d : India: Tamil Nadu: Coimbatore, I-II.1934, P.S. Nathan (1♂, 4♀♀ - MCZ); same data but IV. 1934 (5♂♂, 5♀♀ - MCZ, cJAE); same data but VII.1934 (1♂ - MCZ).

The species was recently described from northern India (Uttarakhand and West Bengal) and Nepal (JAEGER 2015: 1368). The revision of additional material revealed that *A. anichtchenkoi* is much more widely distributed and occur also further south of the known localities in southern India (see records above) and further east in southern Pakistan (AHMED & JAEGER in prep.).

Anthracus philippinensis JAEGER, 2015

M a t e r i a l e x a m i n e d : Philippines: Luzon: Batangas & vic., V. 945, Darlington (1♀ - MCZ); Central Plains of Luzon Is., II.-IX. 1945, Darlington (12♂♂, 13♀♀ - MCZ); Los Banos, VI. 1919, Weston (8♂♂, 8♀♀ - MCZ); Manila, II.-III.1912 (4♂♂, 1♀ - MCZ); Mt. Makiling, VI. 1966, 500 ft., Morse (1♂ - MCZ). – Leyte: Plains of NE Leyte Is., XI.1944-I.1945, Darlington (2♂♂ - MCZ).

The species was recently described from the Philippine islands of Luzon, Mindanao, Mindoro and Panay. Here additional records from Luzon and a first record from the island of Leyte can be provided.

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Zusammenfassung

Fünf neue Arten aus der *Anthracus annamensis*-Gruppe werden von den Philippinen und aus Indien beschrieben: *Anthracus darlingtoni* nov.sp. (locus typicus: Philippinen: Leyte: Plains of NE Leyte), *A. mindanaoensis* nov.sp. (locus typicus: Philippinen: Mindanao: Davao Province: Madaum R. Tagum), *A. brevipennis* nov.sp. (locus typicus: Philippinen: Leyte: Plains of NE Leyte), *A. nathani* nov.sp. (locus typicus: Indien: Tamil Nadu: Karikal territory, Kurumbagaram) und *A. leyteensis* nov.sp. (locus typicus: Philippinen: Leyte: Plains of NE Leyte).

Neue Verbreitungsdaten werden für *Anthracus philippinensis* JAEGER, 2015 (weitere Nachweise von Luzon und Erstnachweis für Leyte) und *A. anichtchenkoi* JAEGER, 2015 (erster und südlichster Nachweis aus dem Indischen Bundesstaat Tamil Nadu) vorgelegt.

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Table 1: Variation of ratios among species the *A. annamensis*-group

species	Number	BL	HW/HWbE	AL/PL	AL/EL	HW/PW
A. darlingtoni	4♂♂	3.9-4.2 (4.1)	1.61-1.69 (1.65)	2.33-2.45 (2.40)	0.82-0.84 (0.83)	0.72-0.76 (0,74)
A. darlingtoni	3♀♀	3.7-4.0 (3.9)	1.64-1.70 (1.66)	2.32-2.42 (2.38)	0.78-0.83 (0.80)	0.76-0.78 (0.77)
A. mindanaoensis	1♂	3.8	1.70			0.78
A. mindanaoensis	2♀♀	3.5-3.7 (3.6)	1.66-1.66 (1.66)	2.27-2.33 (2.30)	0.78-0.80 (0.79)	0.78-0.80 (0.79)
A. brevipennis	8♂♂	4.0-4.6 (4.3)	1.53-1.63 (1.56)	2.16-2.27 (2.20)	0.79-0.85 (0.83)	0.66-0.69 (0.67)
A. brevipennis	2♀♀	4.2-4.6 (4.4)	1.53-1.55 (1.54)	2.07-2.15 (2.11)	0.74-0.79 (0.76)	0.66-0.68 (0.67)
A. nathani	10♂♂	3.2-3.5 (3.3)	1.66-1.75 (1.72)	2.41-2.62 (2.55)	0.90-0.94 (0.92)	0.82-0.86 (0.84)
A. nathani	9♀♀	3.2-3.5 (3.4)	1.63-1.76 (1.68)	2.44-2.56 (2.49)	0.87-0.90 (0.88)	0.84-0.86 (0.85)
A. leyteensis	10♂♂	4.0-4.2 (4.1)	1.56-1.62 (1.59)	2.39-2.52 (2.45)	0.85-0.88 (0.86)	0.77-0.81 (0.79)
A. leyteensis	8♀♀	3.7-4.2 (4.1)	1.56-1.62 (1.58)	2.28-2.44 (2.36)	0.78-0.84 (0.81)	0.80-0.82 (0.81)
species	**Number**	**PW/HW**	**PW/PL**	**EW/PW**	**EL/PL**	**EL/EW**
A. darlingtoni	4♂♂	1.32-1.39 (1.35)	1.21-1.27 (1.24)	1.47-1.54 (1.50)	2.84-3.00 (2.90)	1.53-1.59 (1.57)
A. darlingtoni	3♀♀	1.29-1.31 (1.30)	1.24-1.24 (1.24)	1.49-1.55 (1.51)	2.93-3.01 (2.97)	1.57-1.60 (1.58)
A. mindanaoensis	1♂	1.28	1.22	1.46	2.92	1.61
A. mindanaoensis	2♀♀	1.25-1.28 (1.26)	1.23-1.25 (1.24)	1.44-1.48 (1.46)	2.91-2.92 (2.92)	1.58-1.63 (1.60)
A. brevipennis	8♂♂	1.44-1.52 (1.49)	1.27-1.34 (1.30)	1.35-1.42 (1.39)	2.61-2.74 (2.67)	1.44-1.51 (1.48)
A. brevipennis	2♀♀	1.47-1.52 (1.50)	1.30-1.31 (1.30)	1.38-1.43 (1.41)	2.72-2.79 (2.76)	1.49-1.49 (1.49)
A. nathani	10♂♂	1.17-1.23 (1.19)	1.26-1.33 (1.30)	1.30-1.35 (1.33)	2.69-2.83 (2.76)	1.56-1.63 (1.60)
A. nathani	9♀♀	1.15-1.18 (1.17)	1.27-1.33 (1.29)	1.30-1.38 (1.34)	2.72-2.89 (2.82)	1.58-1.64 (1.61)
A. leyteensis	10♂♂	1.25-1.30 (1.27)	1.26-1.34 (1.31)	1.38-1.44 (1.42)	2.78-2.90 (2.84)	1.50-1.56 (1.53)
A. leyteensis	8♀♀	1.23-1.25 (1.24)	1.27-1.35 (1.32)	1.41-1.49 (1.45)	2.85-2.94 (2.90)	1.50-1.55 (1.53)

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