# New species and new records of click beetles of the genera Girardelater Schimmel, 1999, Procraerus Reitter, 1905 and Xanthopenthes Fleutiaux, 1928 from the Oriental Region (Coleoptera, Elateridae, Elaterini and Megapenthini) <br> Giuseppe Platia, Edoardo Pulvirenti 

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# New species and new records of click beetles of the genera Girardelater Schimmel, 1999, Procraerus Reitter, 1905 and Xanthopenthes Fleutiaux, 1928 from the Oriental Region (Coleoptera, Elateridae, Elaterini and Megapenthini) 

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Keywords:

Coleoptera; Elateridae; Elaterini; Megapenthini; Girardelater; Procraerus; Xanthopenthes; taxonomy; new species; new records; description;

Cambodia; India; Indonesia; Laos; Malaysia; Nepal; Philippines; Thailand; Vietnam; Oriental Region.

## Introduction

This paper reports the results of a study of some click beetles of the genera Girardelater Schimmel, 1999 (Elaterini), Procraerus Reitter, 1905 and Xanthopenthes Fleutiaux, 1928 (Megapenthini) from different countries of the Oriental Region. The paper is based on the revisions of the species of these genera published by our late colleague Rainer Schimmel from the years 1999 to 2005. We have recognized twenty-four undescribed species and found new geographic records for twenty-five species. A key to the known species of the genus Girardelater Schimmel, 1999 and a check-list of the species is given.

## Material and methods

Measurements. - Body length is measured along the midline from the anterior margin of frons to apex of the elytra; width is measured across the broadest part of the body. Pronotal length is measured along the midline; the width is at the broadest part, usually at hind angles.
Abbreviations. - The names of institutions, museums and collections providing material for this study are abbreviated as follows:
CPG, collection of G. Platia, Gatteo (Italy);
CPR, collection of E. Pulvirenti, Roma;
IRSNB, Institut Royal des Sciences Naturelles, Bruxelles (Dr. J. Constant);
NHRS, Swedish Museum of Natural History, Stockholm (Dr. B. Viklund).

## Results

## Tribe Elaterini Leach, 1815 <br> Girardelater nepalensis n. sp.

(Fig. 1, 22, 54)
ZooBank: http://zoobank.org/17A9391D-7098-450B-A993-477F7C65E0FE
Holotype, ${ }^{\text {on, }}$, Nepal, Palpa Distr., Tansen, 5-14.VII.2012, Li Jingke (CPG).
Diagnosis. - Species near G. porrectus (Fleutiaux, 1918) for the strong punctuation of pronotum but with longer antennae and with a mid-longitudinal, fine carina on clypeus.

Description. - Male.
Moderately shiny.
Coloration. - Entirely blackish with vague reddish shades at the base of pronotum and around the scutellum, antennae and legs ferruginous; covered with dense, recumbent, semierect at the sides of body, erect on the antennal articles, yellow-fulvous pubescence.

Head. - Eyes wide as the anterior margin of pronotum. - Frons flat from the vertex to the apex of the eyes with very thickened anterior margin sub-horizontally protruding above the clypeus. - Frontal-clypeus space not constricted and with a mid-longitudinal, fine, carina. - Punctuation very strong with punctures umbilicate and contiguous. - Antennae extending by two articles the apices of posterior angles of pronotum serrated from the fourth article on; second article sub-cylindrical, just shorter than the third sub-conical; second and third taken together clearly shorter than the fourth

## Reviewer:

José Luis Zapata de la Vega (Madrid, Espagne) -
(1.28x shorter); fourth-tenth triangular with the fourth longer than the following, last a little longer, sub-ellipsoidal. (Fig. 22).

Pronotum. - 1.19 x wider than long, widest at the apices of the posterior angles, convex, rather flat on the central part of the disk, sides from the middle suddenly narrowing to the apex, distinctly sinuate before the posterior angles, the latter long, acute, divergent, with a short but prominent carina directed inside. - Lateral margins complete and in the first half well apparent in a dorsal view. - Punctuation strong and uniformly distributed on all the surface; punctures umbilicate, on the central disk with shortest intervals, sub-ovate giving to the surface a sub-striate appearance, towards the sides round, umbilicate and contiguous at the extremities.

Scutellum. - Strongly declivous, sub-rectangular, ridged at the base, slightly convex, densely and strongly punctured.

Elytra. - 3.1x longer than pronotum and 2.55 x longer than wide, convex. - Sides sub-parallel from the base to the middle then gradually tapering to the apices.

Prosternal process. - Immediately bent behind the procoxal cavities, cuneiform, not emarginate at apex.

Aedeagus. - As in the Fig. 1 (length 1.875 mm ).
Size. - Length 15.5 mm ; width 4.0 mm .
Female. - Unknown.
Etymology. - The name is derived from Nepal where the species was collected.

## Girardelater riesei n. sp.

(Fig. 2, 23, 55, 56)
ZooBank: http://zoobank.org/9655926F-5E2C-4DAB-9DE6-664B108F1B8A
Holotype, ${ }^{\lambda}$, Vietnam, Ky Son, Nghe An Province, 1-10.VII.2010, Li Jingke (CPG).
Paratypes, 11 ex. ( $8 \delta^{\lambda}, 3$ ) (IRSNB, CCW, CPG, CPR)

- $2 \delta^{\lambda}$, same data as Holotype;
- Thailand (2 ${ }^{\top}, 3$ ) ):

W Thailand, Nam Tok, 14-18.V.2004, Sv. Bílý;
Loei, Na Haeo, 17.V.2003, J. Constant \& K. Smets, light trap.

- Cambodia (4 ${ }^{\top}$ ), Pursat Prov., Phnom Samkos W.S., 15.IV.2005, K. Smets \& I. Var, light trap.

Diagnosis. - A species near G. horaki Schimmel, 1999 separated essentially for the intermediate antennal articles more serrate.

Description. - Male.
Moderately shiny.
Coloration. - Entirely blackish with vague reddish shades at the base of pronotum and around the scutellum, antennae and legs ferruginous; covered with dense, recumbent, semierect at the sides of body, erect on the antennal articles, yellow-fulvous pubescence.

Head. - Eyes wide as the anterior margin of pronotum; frons flat from the vertex to the apex of the eyes with very thickened anterior margin subhorizontally protruding above the clypeus; frontal-clypeus space not constricted, without a mid-longitudinal, fine, carina; punctuation very strong with punctures umbilicate and contiguous. - Antennae exceeding by two articles the apices of posterior angles of pronotum, serrated from the fourth article on; second article sub-cylindrical, just shorter than the third sub-conical; second and third, taken together, clearly shorter than the fourth ( 1.35 x shorter); fourth-tenth triangular with the fourth longer than the following, last a little longer, sub-ellipsoidal (Fig. 23).

Pronotum. - 1.14 x wider than long, widest at the apices of the posterior angles, convex, sides from the middle suddenly narrowing to the apex, distinctly sinuate before the posterior angles, the latter long, acute, divergent, with a short but prominent carina directed inside; lateral margins complete and in the first half well apparent in a dorsal view; punctuation strong and uniformly distributed on all the surface; punctures umbilicate, on the central disk with shortest intervals, subovate giving to the surface a sub-striate appearance, towards the sides round, umbilicate and contiguous at the extremities.

Scutellum. - Strongly declivous, sub-rectangular, ridged at the base, slightly convex, densely and strongly punctured.

Elytra. - 3.x longer than pronotum and 2.6x longer than wide, convex; sides sub-parallel from the base to the middle then gradually tapering to the apices; striae well marked and punctured; interstriae flat, very densely punctured.

Aedeagus. - As in the Fig. 2 (length 1.81 mm ).
Size. - Length 13.7-15.5 mm; width 3.5-3.9 mm (males).
Female. - Notably different from the male, larger and more convex body with shorter antennae not reaching the apices of posterior angles of pronotum, with articles slightly serrated from the fourth and second and third articles, taken together, longer than the fourth. - Length 15.0-16.5 mm; width 4.0-4.2 mm (females).

Etymology. - The species is dedicated to the Memory of the elaterologist colleague and friend Sergio Riese that in the years sent us material for study.

## Girardelater schimmeli n. sp.

(Fig. 3, 24, 57)
ZooBank: http://zoobank.org/41F282BA-0EFD-47AE-850A-C7213F12CDF4
Holotype, ${ }^{\lambda}$, Thailand, Chiang Mai Prov., 7 km S of Doi Chiang ( $19^{\circ} 48^{\prime} 55^{\prime \prime} \mathrm{N} / 99^{\circ} 34^{\prime} 45^{\prime \prime} \mathrm{E}$ ), $1600 \mathrm{~m}, 16-18 . V .2009$, L. Dembický (CCW).

Diagnosis. - A species near $G$. werneri Schimmel, 1999 for the spaced punctuation on pronotum, it can be separated for the longer antennae and the bicoloured body without a big contrast.

## Description. - Male.

Very shiny.
Coloration. - Bicoloured without a great contrast; entirely blackpiceous including antennae, with nearly all the surface of pronotum and prosternum dark red; legs dark-brown; covered with short, moderately dense, blackish pubescence.

Head. - With the eyes wide as the anterior margin of pronotum; frons deeply impressed from the middle to the anterior margin, the latter subarcuate, strongly thickened, sub-horizontally protruding above the clypeus; frontal-clypeus space not constricted and with a mid-longitudinal, fine, carina; punctuation very strong with punctures umbilicate with shortest, shiny intervals. - Antennae exceeding by nearly two articles the apices of the posterior angles of pronotum, serrated from the fourth article on; second article sub-cylindrical, long as wide, third sub-conical, just longer than the second; second and third, taken together much more shorter than the fourth ( 1.4 x shorter); fourth and following triangular with the fourth a little longer; fifth-tenth sub-equal in length, gradually slenderer; last longer than the previous, ellipsoidal asymmetrically constricted before the apex (Fig. 24).

Pronotum. - 1.19 wider than long, widest at the apices of the posterior angles, convex, with a very short and shallow mid-longitudinal impression on the basal slope; sides from the middle suddenly narrowing to the apex, distinctly sinuate before the posterior angles, the latter long, acute, at the extremities not divergent, with a short but prominent carina directed inside; lateral margins complete and in the first half well apparent in a dorsal view; punctuation moderate; punctures deep, simple or slightly umbilicate, on the disk with variable, very shiny intervals, on average equal to smaller than their intervals, extremely fine at base.

Scutellum. - Strongly declivous, sub-rectangular, ridged at the base, rounded at apex, flat, densely punctured.

Elytra. - 3.3x longer than pronotum and 2.7 x longer than wide, convex; sides regularly tapering from the base to the apices, the latter obliquely truncate with a vestige of spine; striae very superficial and punctured, gradually obsolescent and few apparent after the middle; interstriae extremely flat with very fine punctures.

Prosternal process. - Immediately bent behind the procoxal cavities, cuneiform, not emarginate at apex.

Aedeagus. - As in the Fig. 3 (length 1.62 mm ).

Size. - Length 15.0 mm ; width 3.6 mm .
Female. - Unknown.
Etymology. - The species is dedicated to the Memory of our colleague Rainer Schimmel that established the genus.

## Checklist of the known species of Girardelater Schimmel, 1999

G. diploconoides (Candèze, 1875)

Philippines; Indonesia: Mentawei Is.; Myanmar.
G. horaki Schimmel, 1999

Thailand.
G. Iongicornis Schimmel, 1999

Philippines.
G. nepalensis Platia \& Pulvirenti n. sp.

Nepal.
G. porrectus (Fleutiaux, 1918)

Cambodia; Laos.
G. riesei Platia \& Pulvirentin. $\mathbf{n}$ s.

Vietnam; Thailand; Cambodia.
G. sabahensis Schimmel, 2003

Malaysia: Sabah.
G. schimmeli Platia \& Pulvirenti n. $\mathbf{s p}$.

Thailand.
G. surigaoensis Schimmel, 1999

Philippines; Malaysia: Sabah, Trusmadi Mts., $1500 \mathrm{~m}, 6 . \mathrm{V} .2008$, A. Gorodinski ( $1 \delta$ det. Schimmel) (CPG). New for Malaysia.
G. werneri Schimmel, 1999

India: Assam; Nepal: Syangya Distr., Kahule vill., 7 Km E Syangia, $1600 \mathrm{~m}, 26$. VII.1995, G. Csorba ( $1 \AA$ compared with the specimen of Assam det. Schimmel) (CPG). New for Nepal.

## Tribe Megapenthini Gurjeva, 1973 <br> Procraerus toegoensis n. sp.

(Fig. 4, 25, 58)
ZooBank: http://zoobank.org/EF2A7CEE-0C69-472A-9363-D4EBBDD8EC1A
Holotype, ${ }^{\lambda}$, Indonesia, W Java, Toegoé, 1902, ex. coll. Oberthür (IRSNB).
Paratypes, 3 ex. ( $2 \delta^{\top}, 1$ ¢ ), same data as holotype (IRSNB, CPG).
Diagnosis. - A species of the P. babai-group sensu Schimmel, 1999, near P. weissi Schimmel, 2003 from Sumatra, for the general shape and colour, it can be separated for the longer antennae and the shiny surface of pronotum.
Description. - Male.
Shiny.
Coloration. - Entirely dark-ferruginous with vague dark shades around the base of pronotum and scutellum; covered with fine, recumbent, yellow-fulvous pubescence.

Head. - Frons convex on the vertex, flat on the middle, slightly impressed before the anterior margin, the latter arcuate, sub-horizontally projected above the clypeus, this with a mid-longitudinal carina; punctures coarse, simple or vaguely umbilicate with shortest, shiny intervals. - Antennae long, exceeding by four articles the apices of the posterior angles of pronotum, slightly serrated from the fourth article on, longitudinally carinate from the third to the seventh, only a vestige of dark mid-longitudinal line from the eight to the last articles; second article sub-cylindrical, third sub-conical, twice longer than the second, taken together a little shorter than the fourth; fourth-tenth sub-triangular, more than three times longer than wide, last sub-ellipsoidal. (Fig. 25).

Pronotum. - 1.2 x longer than wide, widest at the apices of the posterior angles, convex with a mid-longitudinal, narrow and shallow depression from the middle to the basal slope; sides nearly regularly tapering from the base to
the apices, posterior angles long, acuminate, not divergent unicarinate; carina raised and directed inside, lateral margins complete and visible in a dorsal view in the first half; punctuation uniformly distributed, on the disk punctures deep, simple, with short, shiny intervals, a little denser towards the sides.

Scutellum. - Tongue-shaped, ridged at base, convex, finely punctured.
Elytra. - 2.7 x longer than pronotum and $3 . \mathrm{x}$ longer than wide, moderately convex; sides from the base moderately and regularly tapering to the apices, the latter obliquely and slightly concave with a vestige of outer spine; striae well marked and punctured, interstriae flat and densely punctured.

Prosternal process. - Running sub-horizontal behind the procoxal cavities, cuneiform, not emarginate at apex.

Aedeagus. - As in the Fig. 4 (length 1.0 mm ).
Female. - Very similar to the male, only with shorter antennae nearly reaching the apices of the posterior angles.
Size. - Length 9.2-9.3 mm; width 1.87-1.93 mm.
Etymology. - The name is derived from Toegoé, the locality of Java where the species was collected.

## Procraerus borneoensis n. sp.

(Fig. 5, 26, 59)
ZooBank: http://zoobank.org/9F904319-00ED-425E-9402-770A7500FEB0
Holotype, $\AA^{\top}$, Indonesia, East Borneo, Pajau River, E. Mjöberg (NHRS).
Diagnosis. - A species of the P. asper-group sensu Schimmel, 1999, allied to P. rugipennis (Candèze, 1889) from Sumatra, it can be separated for the longer antennae and slenderer aedeagus.

## Description. - Male.

Very moderately shiny.
Coloration. - Head, pronotum, scutellum dark-brown with vague blackish shades; elytra just a little lighter too with vague blackish shades; prosternum blackish, propleura, thorax and abdomen dark ferruginous; antennae dark brown with the apices of the last article yellowish; legs yellowish; covered with dense, recumbent, yellow-fulvous pubescence.

Head. - Frons convex from the vertex to near the anterior margin where is slightly impressed, anterior margin , shiny, regularly curved, directed downwards and just protruding above the clypeus; punctures strongly umbilicate, contiguous or with shortest intervals. - Antennae exceeding by about one article the apices of the posterior angles of pronotum, slightly serrated from the fourth article on; second and third articles sub-cylindrical and subequal in length, taken together, clearly shorter than the fourth; fourthtenth triangular with the fourth a little longer than the following, longitudinally carinate, last longer than the previous, sub-ellipsoidal. (Fig. 26).

Pronotum. - Long as wide, widest at the apices of the posterior angles, convex, with a wide but shallow mid-longitudinal depression on the basal slope; sides from behind the middle gradually and regularly tapering to the apices, very slightly sinuate to the posterior angles, the latter long, very acuminate, slightly divergent, bicarinate; carinae at the same level, the inner shorter, directed forwards and parallel to the outer, the latter a little longer, gradually diverging from the lateral margins, this complete and visible in a dorsal view only in the first thirds of its length; punctuation coarse and very dense, punctures strongly umbilicate on all the surface, contiguous or with shortest intervals.

Scutellum. - Tongue-shaped, ridged at base, convex and punctured.
Elytra. -2.8 x longer than pronotum and 2.8 x longer than wide, convex; rather flattened on the disk; sides very gradually but regularly tapering from the base to the apices, these entire but crenulate; striae regularly marked and punctured; interstriae flat with rough surface.

Aedeagus. - As in the Fig. 5 (length 0.9 mm ).
Size. - Length 7.5 mm ; width 1.81 mm .
Female. - Unknown.
Etymology. - The name is derived from Borneo, where the species was collected.

## Key to the known species of Girardelater Schimmel, 1999 (males)

1. Pronotal punctuation moderate, punctures more or less spaced ..... 2

- Pronotal punctuation strong, punctures always umbilicate and contiguous ..... 5

2. Elytral apex obliquely truncate ..... 3

- Elytral apex slightly emarginate, bidentate ..... 4
- Elytral apex tridentate diploconoides (Candèze, 1875)

3. Unicoloured brownish with dense yellow-fulvous pubescence and short antennae not reaching the apices of posteriorangles of pronotumwerneri Schimmel, 1999

- Bicoloured without big contrast species with very fine and blackish pubescence and longer antennae exceeding byabout two articles the apices of posterior angles of pronotumschimmeli n. sp.

4. Longer antennae exceeding by 2.5 antennomeres the apices of posterior angles of pronotum longicornis Schimmel, 1999

- Shorter antennae extending only by one article the apices of posterior angles of pronotum surigaoensis Schimmel, 1999

5. Clypeus without mid-longitudinal carina ..... 6

- Clypeus with fine and complete mid-longitudinal carina nepalensis n. sp.

6. Longer and robust antennae exceeding by two articles the apices of the posterior angles of pronotum ..... 7

- Shorter and slender antennae just exceeding the apices of posterior angles of pronotum porrectus (Fleutiaux, 1918)7. Intermediate antennal articles (VI-VII) dilated about 1.7 x longer than wideriesei $\mathbf{n} . \mathbf{s p}$.- Intermediate antennal articles (VI-VII) slender, about 2.5x longer than widehoraki Schimmel, 1999
It is not included G. sabahensis Schimmel, 2003 described on a specimen $q$. According to the description the species presentsspaced punctures on pronotum and bidentate apices of elytra, so can be compared with G. longicornis and G. surigaoensis butis immediately separated by the large size $(16.7 \mathrm{~mm})$.


## Procraerus duffetsorum n. sp.

(Fig. 6, 27, 60)
ZooBank: http://zoobank.org/C0EC165D-24B9-429A-BB7B-78C996985724
Holotype, đ, Malaysia, Sabah, Danum Valley, 70 km W of Lahad Datu, Main trail East, 150 m, 4.XII.1989, M. J. \& J. P. Duffets (CPG).
Diagnosis. - Species of the P. babai-group sensu Schimmel, 1999, allied to $P$. triangulum Schimmel, 1999 from Mindanao (Philippines) as it is the second species among the Procraerus genus with the third antennal article triangular, it can be separated for the darker colour with unicoloured elytra and the narrower body.

Description. - Male.
Shiny.
Coloration. - Entirely brownish with the extremities of the anterior angles and the base of pronotum lighter, yellowish; antennae and legs ferruginous; covered with dense, recumbent, semierect at sides, yellowfulvous pubescence.

Head. - Frons convex with suprantennal carinae directed anteriad and downwards $v$-shaped and merging vertically with the clypeus; punctuation uniformly distributed, punctures deep, simple with shortest, shiny intervals. - Antennae nearly reaching the apices of posterior angles of pronotum, serrated from the third article on; second article small, cylindrical, long as wide, third-tenth sub- triangular1.5x longer than wide just shorter than the fourth; fourth-tenth triangular, slightly concave at the apices, subequal in length, more serrated, last just longer, sub-ellipsoidal, asymmetrically and slightly constricted before the apex. (Fig. 27).

Pronotum. - Long as wide, at the middle and the apices of posterior angles, convex with a short, impressed, mid-longitudinal line from the middle to the beginning of the basal slope sides from the middle very gradually tapering to the anterior margin, backwards parallel to the apices of the posterior angles, the latter long, acuminate, not divergent with a well apparent but not raised carina slightly diverging from the lateral margins, the latter complete and well visible in the first
half in a dorsal view; punctuation uniformly distributed, punctures deep, simple, always with shortest, shiny intervals.

Scutellum. - Tongue-shaped, ridged at base, convex, punctured.
Elytra. - 2.7 x longer than pronotum and 2.7 x longer than wide, convex; sides sub-parallel from the base to the middle then very gradually tapering to the apices, these rounded; striae well marked and punctured on all the surface, interstriae flat, punctured with a rough surface. Prosternal process slender, bent immediately behind the procoxal cavities, running horizontally after the middle, pointed and not emarginate at apex.

Tarsal segments. - Decreasing regularly in length, claw simple.
Aedeagus. - As in the Fig. 6 (length 1.15 mm ).
Size. - Length 10.5 mm ; width 2.65 mm .
Female. - Unknown.
Ecological notes. - Canopy rainforest, at light.
Etymology. - The species is dedicated to the collectors M. J. \& J. P. Duffets.

## Procraerus angulatus n. sp.

(Fig. 7, 28, 50, 61, 62)
ZooBank: http://zoobank.org/9F03E95C-154F-4D88-8E36-DCC7CB13DA58
Holotype, ${ }^{\lambda}$, Indonesia, East Borneo, Pajau River, E. Mjöberg (NHRS).
Paratype, $1+$, same data as Holotype (NHRS).
Diagnosis. - The species belonging to the P. asper-group sensu Schimel, 1999 can be compared to P. stolarczyki Schimmel, 2004 from Sabah for the general shape and size, it can be separated by the longer antennae and the angulated sides of pronotum.


Fig. 1-21. Aedeagus in dorsal view.

1. Girardelater nepalensis n. sp. 2. Girardelater riesei n. sp. 3. Girardelater schimmeli n. sp. 4. Procraerus toegoensis n. sp.
2. Procraerus borneoensis n. sp. 6. Procraerus duffetsorum n. sp. 7. Procraerus angulatus n. sp. 8. Procraerus giardinii n. sp.
3. Procraerus acuminiformis n. sp. 10. Procraerus subinfumatus n. sp. 11. Procraerus javanus n. sp. 12. Procraerus smetsi n. sp. 13. Procraerus grootaerti n. sp. 14. Procraerus mindanaoensis n. sp. 15. Xanthopenthes manettii n. sp. 16. Xanthopenthes tamilensis $\mathbf{n}$. sp. 17. Xanthopenthes viklundi n. sp. 18. Xanthopenthes cambodianus n. sp. 19. Xanthopenthes constanti $\mathbf{n} . \mathbf{s p}$. 20. Xanthopenthes nigerrimus n. sp. 21. Xanthopenthes lemoulti n. sp.

## Description. - Male.

Moderately shiny.
Coloration. - Head and pronotum brown with vague blackish shadings, elytra blackish with base and fourth-sixth interstriae yellowish for all its length; antennae blackish with the first three articles yellowish, legs lighter, yellow; covered with moderate, yellow-fulvous pubescence.

Head. - Frons moderately convex, flat before the anterior margin, the latter shiny, sub-arcuate, directed downwards and just protruding above the clypeus; punctures umbilicate and contiguous. - Antennae exceeding by one article the apices of the posterior angles of pronotum, serrated from the fourth article on; second article sub-cylindrical, third sub-conical, subequal in length, taken together just shorter than the fourth; fourth-tenth subtriangular, the third longer than the following, last sub-ellipsoidal. (Fig. 28).

Pronotum. - 1.15 x wider than long, widest at the apices of the posterior angles, convex, with a short and moderate mid-longitudinal impression at the basal slope; sides dilated behind the middle and suddenly tapering to the apices, sub-parallel before the posterior angles, the latter long, acuminate, not divergent, unicarinate; carina short and diverging from the lateral margins, the latter and in the first third well visible in a dorsal view; punctuation coarse and uniformly distributed; punctures umbilicate with shortest intervals to contiguous on all the surface (Fig. 50).

Scutellum. - Shield-shaped, ridged at base, flat, rounded at the apex, densely punctured.

Elytra. - 2.7x longer than pronotum and 2.35 x longer than wide, convex; sides widest at the middle, apices entire, striae well punctured, interstriae flat with wrinkled surface.

Aedeagus. - As in the Fig. 7 (length 1.0 mm ).

Size. - Length 6.3 mm , width 1.87 mm .
Female. - Body larger and more convex, antennae shorter. - Length 8.1 mm , width 2.5 mm .

Etymology. - The name is referred to the shape of pronotum, in the male dilated after the middle.

## Procraerus giardinii $\mathbf{n}$. sp.

(Fig. 8, 53, 63)
ZooBank: http://zoobank.org/B7213AA0-3CC1-467B-9555-4C142BDBD91B
Holotype, ${ }^{\lambda}$, Malaysia, Sarawak, Batu Tiban (Tibang Mount), 1400 m , E. Mjöberg (NHRS).

Diagnosis. - Species of the P. asper-group sensu Schimmel 1999, that can be compared with $P$. pauper (Candèze, 1878) it is easily separated for the shape of pronotum with mid-longitudinal depression, longer and divergent posterior angles, elytra notably tapering from base to the apices.

## Description. - Male.

## Moderately shiny.

Coloration. - Head and pronotum brown, elytra yellowish particularly around the base and the middle part of the disk, vaguely blackish after the middle towards the apices; covered with dense, recumbent, yellowish pubescence.

Head. - Frons moderately convex, anterior margin simple, shiny, moderately arcuate, directed downwards and just protruding above the
clypeus; punctuation coarse with punctures strongly umbilicate, with shortest intervals or contiguous. - Antennae mutilated.

Pronotum. -1.17 x wider than long, widest at the apices of the posterior angles, convex with a mid-longitudinal, narrow depression, from the anterior third shallow to the basal slope where is deeper, sides from the middle suddenly tapering to the apices, distinctly sinuate before the posterior angles, the latter, long, acuminate, strongly divergent, unicarinate; carina well distinct, short, slightly divergent from the lateral margins, the latter complete and distinctly visible in the first half in a dorsal view; punctuation very dense and uniformly distributed; punctures umbilicate, with shortest, shiny, intervals or contiguous on all the surface. (Fig. 53).

Scutellum. - Shield-shaped, ridged at base, slightly convex, strongly punctured.

Elytra. - 3.1x longer than pronotum and 2.7 x longer than wide, just narrower than the pronotum at base, sides notably and regularly tapering from the base to the apices, the latter rounded and with a trace of mucron; striae regularly marked and punctured, interstriae flat to sub-convex with finer punctuation.

Aedeagus. - As in the Fig. 8 (length 1.75 mm ).
Size. - Length 11.0 mm , width 2.9 mm .
Female. - Unknown.
Etymology. - This taxon is dedicated to the paleobotanist Marco Giardini for his central contribution in the botanical education of the second author, who is a dear friend of him.

## Procraerus abdominalis n. sp.

(Fig. 47, 51, 64)
ZooBank: http://zoobank.org/CF269A33-33A3-4B5D-B040-31184D45417D
Holotype,, , Malaysia, Sarawak, Batu Tiban (Tibang Mount), 1700 m , E. Mjöberg (NHRS).

Diagnosis. - A species of the P. asper-group sensu Schimmel, 1999, that can be compared with the P. epitrotus (Candèze, 1865), it can be separated for the strongly umbilicate punctuation of pronotum and the reddish abdominal sternites. (Fig. 47).

Description. - Female.
Moderately shiny.
Coloration. - Head, pronotum, scutellum, first two elytral and from the sixth to the sides striae, epipleura, prosternum and thorax, blackpiceous; abdomen all reddish; legs yellowish with darkened tarsi; covered with moderate, yellowish pubescence.

Head. - Frons convex, anterior margin simple, shiny, arcuate, in the middle just protruding above the clypeus; punctures strongly umbilicate, with shortest intervals or contiguous. - Antennae mutilated.

Pronotum. - Long as wide, widest at the apices of the posterior angles, very convex, abruptly sloping at sides and base, with a short, mid-longitudinal depression on the basal slope; sides sub-parallel, in the anterior third notably tapering, slightly sinuate immediately before the posterior angles, the latter, short, acuminate, just divergent, unicarinate; carina short and slightly diverging by the lateral margins, the latter complete and visible in the first half in a dorsal view; punctuation very dense and uniformly distributed, strongly umbilicate contiguous or with shortest intervals on all the surface (Fig. 51).

Scutellum. - Shield-shaped, ridged at base, slightly sinuate at sides, rounded at apex, flat, roughly punctured.

Elytra. -2.97 x longer than pronotum 2.58 x longer than wide, a little widest than pronotum at base, convex; sides widest at the middle, apices rounded with a very short spine; striae deeply and regularly punctured, interstriae sub-convex, very finely punctured.

Size. - Length 8.75 mm ; width 2.37 mm .
Male. - Unknown.
Etymology. - The name is derived because of the abdominal sternites with colour different by the remaining integuments.

## Procraerus acuminiformis n. sp.

(Fig. 9, 29, 52, 65)

ZooBank: http://zoobank.org/2ECF6A98-A036-45D6-A6AF-FEB186172E76

Holotype, ${ }^{\lambda}$, Indonesia, Sumatra, Dolok, 2000 m, E. Mjöberg (NHRS).
Diagnosis. - A species of the P. babai-group sensu Schimmel, 1999, well distinct from all other for the shape of the posterior angles of pronotum long and very acuminate.

## Description. - Male.

Very shiny.
Coloration. - Entirely yellowish only with the antennae a little darker; covered with dense, recumbent, yellow-fulvous pubescence.

Head. - Frons flat on the vertex, flat from the middle to the anterior margin, the latter simple, shiny, arcuate, directed downwards and just protruding above the clypeus; punctuation dense, punctures deep, simple, with short, variable, very shiny intervals. - Antennae exceeding by more than three articles the apices of the posterior angles of pronotum, very slightly serrated from the fourth article on; second article sub-cylindrical, third sub-conical, subequal in length, taken together very shorter than the fourth; fourth-tenth conical, very elongate, last sub-ellipsoidal, pointed to the apex (Fig. 29).

Pronotum. - Long as wide, widest at the apices of the posterior angles, convex on the anterior half and abruptly sloping at sides, less convex in the posterior half, gradually sloping at sides and base, sides parallel from the middle to the anterior margin, slightly dilated in the basal half, sinuate before the posterior angles, the latter long, extremely acuminate, strongly divergent and carinate; carina very fine, not raised, in the first half nearly confused with the lateral margins then gradually diverging; from the beginning of the carina we can see a vestige of a second carina directed inside; lateral margins complete and visible for about the two thirds of its length in a dorsal view; punctuation moderate; punctures deep, simple or very slightly umbilicate, spaced with intervals equal to larger than their diameters on all the surface. (Fig. 53).

Scutellum. - Shield-shaped, ridged at bas, pointed at apex, convex, punctured.

Elytra. - 3.1x longer than pronotum and 3.0 longer than wide, convex; sides widest at the middle; apices entire; striae finely and densely punctured, interstriae flat with sub-rugose surface.

Aedeagus. - As in the Fig. 9 (length 1.0 mm ).
Size. - Length 8.6 mm , width 1.93 mm .
Female. - Unknown.
Etymology. - The name is derived from the very acute posterior angles of pronotum.

## Procraerus subinfumatus n. sp.

(Fig. 10, 30, 66, 67)
ZooBank: http://zoobank.org/A501C2A6-CAB7-48AC-BAD6-BC9E59C50929
Holotype, đ̊, Indonesia, W Sumatra, Singalang, III. 1991 (CPG);
Paratypes, 8 \& (CPG, CPR).

- 1 q, same data as Holotype, 1000 m, IV.1991;
- 4 S, W Sumatra, Mt. Talang, II-IV.1991;
- 2 q, W Sumatra, Harau Valley, II.1991;
- 1 早, W Sumatra, Mt Merapi, 1000 m, IV. 1991.

Diagnosis. - A species of the $P$. dorsalis-group sensu Schimmel, 1999, allied to $P$. infumatus (Candèze, 1880) for the general shape and size, it can be separated by the shorter antennae, more convex and densely punctured pronotum, less elongate elytra.


Fig. 22-43. Antennae.
22. Girardelater nepalensis n. sp. 23. Girardelater riesei n. sp. 24. Girardelater schimmeli n. sp. 25. Procraerus toegoensis n. sp.
26. Procraerus borneoensis n. sp. 27. Procraerus duffetsorum n. sp. 28. Procraerus angulatus n. sp. 29. Procraerus acuminiformis n. sp. 30. Procraerus subinfumatus n. sp. 31. Procraerus javanus n. sp. 32. Procraerus indicus n. sp. 33. Procraerus smetsi n. sp. 34. Procraerus grootaerti n. sp. 35. Procraerus mindanaoensis n. sp. 36. Procraerus sikkimensis n. sp. 37. Xanthopenthes manettii n. sp. 38. Xanthopenthes tamilensis n. sp. 39. Xanthopenthes viklundi n. sp. 40. Xanthopenthes cambodianus n. sp. 41. Xanthopenthes constanti n. sp. 42. Xanthopenthes nigerrimus n. sp. 43. Xanthopenthes lemoulti n. sp.

## Description. - Male.

## Moderately shiny.

Coloration. - Head, the great part of pronotum, antenna from the fourth article, first and lateral intervals from the sixth of elytra and underbody dark-brown; posterior angles of pronotum and base of propleura, remaining parts of elytra and legs, yellowish, covered with dense, yellowish pubescence.

Head. - Frons convex, flat and slightly impressed before the anterior margin, the latter regularly arcuate and just protruding above the clypeus; punctures strongly umbilicate, contiguous or with shortest intervals. - Antennae exceeding by one article the apices of the posterior angles of pronotum, slightly serrated from the fourth article on; second article sub-cylindrical, third sub-conical, a little longer than
the second, taken together, as long as the fourth; fourth-tenth subtriangular, slender, on average 2.3 x longer than wide, longitudinally carinate; last longer, sub-ellipsoidal. (Fig. 30).

Pronotum. -1.05 x wider than long, widest at the apices of the posterior angles, strongly convex; sides regularly tapering from the posterior angles to near the apices; posterior angles long, acuminate, not divergent, unicarinate; carina very near and parallel for nearly all its length to the lateral margins, the latter just visible in the first thirds of its length in a dorsal view; punctuation very coarse and uniformly distributed except before the posterior angles, punctures umbilicate and contiguous on all the surface.

Scutellum. - Strongly declivous, tongue-shaped, longitudinally convex, pointed at apex, punctured.

Elytra. -2.7 x longer than pronotum and 2.7 x longer than wide, convex, rather flattened on the disk, sides widest at the middle then very gradually tapering to the apices, the latter very slightly and obliquely truncate; striae well marked and regularly punctured; interstriae, flat to sub-convex, with rough surface.

Aedeagus. - As in the Fig. 10 (length 0.62 mm ).
Size. - Length 5.1 mm , width 1.31 mm .
Female. - Very similar to male with a moderate variability in the colours of the integuments, the pronotum can be entirely reddish, the body is more convex, the antennae are shorter not reaching the apices of the posterior angles. - Length $5.3-5.6 \mathrm{~mm}$; width $1.45-1.47 \mathrm{~mm}$.
Etymology. - The name is derived by the similarity with $P$. infumatus (Candèze, 1880).

## Procraerus javanus n. sp.

(Fig. 11, 31, 68)
ZooBank: http://zoobank.org/E937EE8A-5B46-4707-8933-AF4510E50E36
Holotype, $\widehat{ } 1$, Indonesia, W Java, Soekaboemi, ex. coll. Le Moult (IRSNB).
Diagnosis. - A small species of the $P$. dorsalis-group sensu Schimmel, 1999, comparable to $P$. subinfumatus n. sp. from Sumatra, separated for the shorter antennae, a vestige of a second inner carina on the posterior angles of pronotum, shorter elytra compared to pronotum.

Description. - Male.
Moderately shiny.
Coloration. - Great part of head, pronotum, scutellum, the first two and the last lateral striae of elytra dark brown; anterior margin of head, anterior pars of pronotum with the posterior angles, the remaining pars of elytra, yellowish; covered with dense, yellowfulvous pubescence.

Head. - Frons convex, flat immediately before of the anterior margin, the latter perfectly arcuate, directed downwards, projected above the clypeus; punctures strong, umbilicate, contiguous. Antennae nearly reaching the apices of posterior angles of pronotum, serrated from the fourth article on, second article sub-cylindrical, third sub-conical, subequal in length, taken together, as long as the fourth; fourth-tenth triangular, on average 2.2 x longer than wide, last subellipsoidal. (Fig. 31).

Pronotum. - Long as wide, widest at the apices of the posterior angles, convex, with a vestige of mid-longitudinal depression on the basal slope; sides from behind the middle regularly tapering to the apices, sub-parallel to the posterior angles, the latter long, very acuminate, very slightly divergent, bicarinate; outer carina fine, longer slightly diverging from the lateral margins, inner carina shorter, just visible and sub-parallel to the first; lateral margins complete, in the first half visible in a dorsal view; punctuation coarse, punctures umbilicate with shortest intervals or contiguous on all the surface, except before the posterior angles where is very fine.

Scutellum. - Tongue-shaped, ridged at base, slightly convex, densely punctured.

Elytra. -2.5 x longer than pronotum and 2.5 x longer than wide, convex; sides nearly regularly tapering from the base to the apices, the latter truncate; striae deeply punctured, interstriae sub-convex, very finely punctured.

Aedeagus. - As in the Fig. 11 (length 0.66 mm ).
Size. - Length 5.41 mm , width 1.5 mm .
Female. - Unknown.
Etymology. - The name is derived from Java, the island where the species was collected.

## Procraerus indicus n. sp.

(Fig. 32, 44, 69)
ZooBank: http://zoobank.org/12F0BB38-1A66-41F3-8242-5850F064B84B
Holotype, $\varphi$, India, Tamil Nadu, Ainamalai Hills, Kalamparai, 4200 Fts, V. 1980 (CPG).

Diagnosis. - We can compare this species of the $P$. babai-group sensu Schimmel, 1999 with P. coomani (Fleutiaux, 1940) from Vietnam and Thailand but it is immediately separated for the longer pronotum with opaque surface.

## Description. - Female.

Moderately shiny only on the head and elytra;
Coloration. - Head and nearly all the pronotum dark brown; base of pronotum, elytra, underbody, antennae and legs yellowish; covered with dense, recumbent yellow-fulvous pubescence.

Head. - Frons convex, anterior margin simple, arcuate, in the middle touching the clypeus, frons-clypeal furrow constricted in the middle; punctures umbilicate, contiguous or with shortest, shiny intervals. - Antennae not reaching for about one article the apices of posterior angles of pronotum, slightly serrated from the fourth article on; second article sub-cylindrical, third sub-conical, the second just shorter than the third, taken together, as long as the fourth; fourth-tenth sub-triangular, slender, on average 2.5 x longer than wide, last as long as the previous, sub-ellipsoidal (Fig. 32).

Pronotum. - 1.12x longer than wide, widest at the middle and at the apices of posterior angles, very convex, abruptly sloping at sides and base; sides from the middle very gradually tapering to the apices, sub-parallel to the posterior angles, the latter long, acuminate, not divergent, unicarinate; carina sharp, clearly diverging from the lateral margins and directed inwards; lateral margins complete and in the first third visible in a dorsal view; punctuation uniformly distributed, punctures round, slightly umbilicate with intervals on average equal to their diameters and strongly shagreened so that the surface appears opaque.

Scutellum. - Strongly declivous, tongue shaped, slightly convex with shagreened surface.

Elytra. - 2.7x longer than pronotum and 2.9x longer than wide, convex; sides sub-parallel from the base to the middle then gradually tapering to the apices, the latter very slightly and obliquely directed to the suture with a vestige of spine.

Last visible abdominal sternite. - Very slightly emarginate at apex. (Fig. 44).

Size. - Length 9.0 mm , width 2.06 mm .
Male. - Unknown.
Etymology. - The name is derived from India, the state where the species was collected.

## Procraerus smetsin. sp.

(Fig. 12, 33, 70)
ZooBank: http://zoobank.org/08F449F3-5B60-450B-B4A9-588A199289DF
Holotype, ${ }^{〔}$, Thailand, Loei, Na -Haeo (field res. stat.), 15-19.V.2003, J. Constant, K. Smets \& P. Grootaert, light trap (IRSNB).

Paratype, $1 \jmath^{\lambda}$, same data as Holotype (CPG).
Diagnosis. - A species of the P. asper-group sensu Schimmel, 1999, near P. burmensis Schimmel, 1999 for the same pattern of integuments colour and size, it can be separated by the not subparallel sides, shorter and less divergent posterior angles of pronotum, elytral apices entire.

Description. - Male.
Moderately shiny.
Coloration. - Bicoloured; head, antennae from the fourth article, pronotum, scutellum, sutural elytral striae and underbody black; the great


Fig. 44-53. Procraerus \& Xanthopenthes sp.
Fig. 44-46. Last abdominal visible sternite. 44. Procraerus indicus n. sp. 45. Xanthopenthes cambodianus $\mathbf{n}$. sp. 46. Xanthopenthes viklundi $\mathbf{n}$. sp.
Fig. 47. Abdomen. Procraerus abdominalis n. sp.
Fig. 48-49. Elytral apex. 48. Procraerus sikkimensis n. sp. 49. Xanthopenthes manettii n. sp.
Fig. 50-53. Pronotum. 50. Procraerus angulatus n. sp. 51. Procraerus abdominalis n. sp. 52. Procraerus acuminiformis n. sp. 53. Procraerus giardinii n. sp.
part of elytra yellowish, the legs ferruginous; covered with dense yellowish pubescence.

Head. - Frons triangularly impressed from the middle to the anterior margin, the latter arcuate, in the middle always distinct but downloading to touch the clypeus; punctures strongly umbilicate, contiguous. - Antennae exceeding by two articles the apices of the posterior angles of pronotum, serrated from the fourth article on; second and third articles, small, globous, subequal in length, taken together, 1.5 x shorter than the fourth; fourth-tenth triangular, gradually slenderer, fourth-seventh less twice longer than wide, the following $2.5-3 \mathrm{x}$ longer, the last very elongate, sub-ellipsoidal, asymmetrically constricted before the apex (Fig. 33).

Pronotum. - Pronotum long as wide, widest at the apices of the posterior angles, strongly convex with a short mid-longitudinal impression on the basal slope; sides from the middle very gradually and regularly tapering to the apices, sub-sinuate before the posterior angles, the latter, acuminate, slightly divergent, sharply uni-carinate; carina short, subparallel to the lateral margins, the latter, complete and just visible in the first third of its length in a dorsal view; punctuation very coarse and dense, punctures clearly umbilicate, contiguous or with shortest shagreened intervals giving to the surface an opaque appearance.

Scutellum. - Shield-shaped, ridged at base, flat, densely punctured.
Elytra. - 2.45 x longer than pronotum and 2.5 x longer than wide, convex; sides from the base nearly regularly and gradually tapering to the apices, the latter entire; striae well marked and punctured, interstriae flat, densely punctured with a shiny and sub-rugose surface.

Aedeagus. - As in the Fig. 12 (length 1.53 mm ).
Size. - Length $9.0-9.4 \mathrm{~mm}$, width $2.31-2.37 \mathrm{~mm}$.

## Female. - Unknown.

Etymology. - The species is dedicated to one of the collectors, K. Smets.

## Procraerus grootaertin. sp.

(Fig. 13, 34, 71)
ZooBank: http://zoobank.org/49515EC4-1C9B-4B89-99D7-34AA3C5CF0F8
Holotype, ${ }^{\lambda}$, Thailand, Pethburi, Huai Sat Yai, 20.III.2001, P. Grootaert (IRSNB).
Paratype, $1{ }^{\lambda}$, Kanchanabur Prov., Sai Yok Nat. Park, 4-5.VI.2003, J. Constant \& K. Smets (CPG).

Diagnosis. - A species of the $P$. asper-group sensu Schimmel, 1999, comparable to $P$. parallelus Schimmel, 2003 for the general shape and size, it can be separated for the shinier body, bicoloured elytra, longer pronotum with posterior angles longer and most divergent, sub-parallel elytra.

Description. - Male.
Shiny.
Coloration. - Head, antennae, pronotum, scutellum, underbody and legs ferruginous, elytra lighter, yellowish, vaguely darkened along the suture and laterally after the sixth intervals; covered with dense, partially erect on elytra and sides of body, yellow pubescence.

Head. - Impressed in the middle, anterior margin in the middle very fine, always distinct, directed downwards to nearly touching the clypeus; punctures strongly umbilicate, contiguous. - Antennae reaching the apices of posterior angles of pronotum, serrated from the fourth article on; second and third articles, small, globous, subequal in length, taken together as long as the fourth; fourth-tenth triangular gradually slenderer, fourth-sixth less than twice longer than wide, seventh-tenth more twice longer than wide, the last a little longer, ellipsoidal. (Fig. 34).

Pronotum. - 1.09-1.14x longer than wide, widest at the apices of the posterior angles, convex, with a short mid-longitudinal impression on the basal slope; sides regularly and moderately arcuate, sinuate before the posterior angles, the latter long, acuminate, divergent, unicarinate; carina sharp, short and directed inside.

Scutellum. - Shield-shaped, ridged at base, slightly convex, densely punctured.

Elytra. - 2.55x longer than pronotum and 2.7 x longer than wide, convex; sides perfectly parallel from the base to behind the middle then gradually tapering to the apices, the latter rounded and entire; striae well punctured, interstriae densely punctured, with wrinkled, shiny surface.

Aedeagus. - As in the Fig. 13 (length 1.37 mm ).
Size. - Length $7.5-8.7 \mathrm{~mm}$, width $1.75-2.06 \mathrm{~mm}$.
Female. - Unknown.
Etymology. - The species is dedicated to P. Grootaert, Head Department of Institut Royal des Sciences Naturelles, Bruxelles.

## Procraerus mindanaoensis n. sp.

(Fig. 14, 35, 72)
ZooBank: http://zoobank.org/FF689C24-073C-42DD-977E-716E9405E58A
Holotype, ${ }^{\lambda}$, Philippines, Mindanao, South Cotabato prov., Lake Sebu, $124^{\circ} 42^{\prime} \mathrm{E}, 6^{\circ} 13^{\prime} \mathrm{N}, 700 \mathrm{~m}, 26 . \mathrm{I} .1998$, P. Lays (IRSNB).
Diagnosis. - A species of the P. asper-group sensu Schimmel, 1999 comparable with P. gracilicornis Schimmel, 1999 too from Mindanao but larger, with shorter antennae and slenderer paramera in aedeagus.

## Description. - Male.

Moderately shiny.
Coloration. - Head, pronotum, scutellum and underbody darker, brown-ferruginous; elytra, antennae and legs lighter, yellowferruginous; covered with fine, yellowish pubescence.

Head. - Frons flat, anterior margin in the middle prolonged to nearly touching the clypeus; clypeal space obsolete in the middle; punctures strong, umbilicate, contiguous. - Antennae exceeding by one article the apices of the posterior angles of pronotum, serrated from the fourth article on; second article sub-cylindrical, third sub-conical, subequal in length, taken together 1.31 x shorter than the fourth; fourth-tenth triangular gradually slenderer with a vestige of mid-longitudinal carina, last sub-ellipsoidal. (Fig. 35).

Pronotum. -1.09 x longer than wide, widest at the apices of the posterior angles, convex, with a very shallow and short mid-longitudinal depression in the basal slope; sides sub-parallel from behind the middle to nearly the anterior margin, slightly sinuate before the posterior angles, the latter, acuminate, slightly divergent, unicarinate; carina short, very fine, just visible, lateral margin complete and only in the first third of its length visible in a dorsal view; punctuation uniformly distributed on all the surface, very dense; punctures superficial, clearly umbilicate with shortest, shiny intervals to contiguous.

Scutellum. - Sub-rectangular, flat, coarsely punctured.
Elytra. - 2.7x longer than the pronotum and 2.8x longer than wide, convex; rather flattened on the disk; sides sub-parallel from the base to behind the middle then gradually tapering to the apices, the latter entire with a vestige of spine; striae well distinct and punctured; interstriae flat and densely punctured.

Prosternal process. - Cuneiform, immediately bent behind the procoxal cavities.

Aedeagus. - As in the Fig. 14 (length 1.52 mm ).
Size. - Length 11.2 mm , width 2.62 mm .
Female. - Unknown.
Etymology. - The name is derived from Mindanao Island where the species was collected.

## Procraerus sikkimensis n. sp.

(Fig. 36, 48, 73)
ZooBank: http://zoobank.org/EDF59B6F-5C3B-4EF3-A8D6-66DDDFBE2EF2
Holotype,, , India, Sikkim, ex. coll. Oberthür (IRSNB).
Diagnosis. - A species of the altitudinum- group sensu Schimmel, 1999, can be compared with P. kathmandulis (Ohira \& Becker, 1974) from Nepal and Sikkim from which is


Fig. 54-67. Habitus.
54. Girardelater nepalensis n. sp. (15.5 mm). 55-56. Girardelater riesei $\mathbf{n} . \mathbf{s p} . \widehat{\gamma}$ 우 ( $14.6 \mathrm{~mm}, 16.5 \mathrm{~mm}$ ). 57. Girardelater schimmeli $\mathbf{n}$. sp. ( 15 mm ).
58. Procraerus toegoensis n. sp. $(9.2 \mathrm{~mm})$. 59. Procraerus borneoensis n. sp. $(7.5 \mathrm{~mm}) . \mathbf{6 0}$. Procraerus duffetsorum n. sp. ( 10.5 mm ).

61-62. Procraerus angulatus n. sp. ${ }^{\top} \neq(6.3 \mathrm{~mm}, 8.1 \mathrm{~mm})$. 63. Procraerus giardinii $\mathbf{n} . \mathbf{s p} .(11 \mathrm{~mm})$. 64. Procraerus abdominalis $\mathbf{n}$. $\mathbf{s p}$. $(8.7 \mathrm{~mm})$.
65. Procraerus acuminiformis n. sp. ( 8.6 mm ). 66-67. Procraerus subinfumatus n. sp. ${ }^{\hat{\prime}}$ 中 ( $5.1 \mathrm{~mm}, 5.4 \mathrm{~mm}$ ).
separated for the third antennal article longer than the second and the moderately emarginate apex of elytra.

Description. - Female.
Moderately shiny.
Coloration. - Head, sides of pronotum, base and sides of elytra, from the sixth interstriae, blackish; the remaining parts brownish; covered with dense, recumbent yellowish pubescence.

Head. - Frons convex, anterior margin regularly curved, simple, directed downwards and just projecting above the clypeus; punctures simple or slightly umbilicate with shortest intervals. - Antennae reaching the apices of the posterior angles of pronotum, slightly serrated from the third article on; second article sub-cylindrical, third sub-conical, 1.7x longer than the second, sculptured as the following, taken together a little longer than the fourth; fourth-tenth sub-triangular, the fourth longer than the following, third-fifth with a vestige of mid-longitudinal carina, the last sub-ellipsoidal (Fig. 36).

Pronotum. - 1.12x longer than wide, widest at the apices of the posterior angles, strongly convex, abruptly sloping at sides, nearly vertically at base with a vestige of shallow mid-longitudinal depression on the basal slope; sides from base to the anterior margin regularly and moderately tapering; posterior angles long, acuminate, not divergent, uni-carinate; carina short but sharp and diverging from the lateral margins, the latter complete and visible for the first half in a dorsal view; punctuation regularly distributed, punctures on the disk simple or slightly umbilicate, with intervals on average equal to a little smaller than their diameters and feebly micro-reticulated, towards the base and the sides gradually more clearly umbilicate and with intervals clearly shagreened giving to the surface an opaque appearance.

Scutellum. - Tongue shaped, slightly convex, densely punctured.
Elytra. - 2.7x longer than pronotum and $3 x$ longer than wide, convex, rather flattened on the central disk; sides sub-parallel for the first half then very gradually tapering to the apices, the latter very scarcely emarginate (Fig. 48); striae regularly marked and punctured, interstriae flat with wrinkled surface.

Size. - Length 10.5 mm , width 2.5 mm .
Male. - Unknown.
Etymology. - The name is derived from the country where the species was collected, Sikkim.

## New geonemic records for species of Procraerus Reitter, 1905 from the indomalayan region.

Procraerus colonicus (Fleutiaux, 1928)
Schimmel, 1999: 120; 2005: 306.

## Material examined (6 ex.) (CPG)

Thailand

- Doi Suthep, 24-29.IV.1993, Pacholátko \& Dembický;
- Mae Hong Son, Ban Huai Po, 30.IV-5.V.1992, Dembický;
- Mae Hong Son, Ban Huai Po, 1.15.V.1991, 800-1600 m, S. Bílý;
- Doi Pui, Chiang Mai, 30.IV.-I.V.1988;
- Samoeng, Chiang Mai, 4.V.1988.

Distribution. - Laos. New for Thailand.
Procraerus coomani (Fleutiaux, 1940)
Schimmel, 1999: 58; 2005: 292.
Material examined, 1 , Thailand, Chiang Dao, Ban San Pakia, 5-10.V.2004, S. Bily. (det. Schimmel) (CPG).

## Distribution. - Vietnam. New for Thailand.

Procraerus duporti (Fleutiaux, 1918)
Schimmel, 1999: 122; 2005 : 307.
Material examined, 1 §, Cambodia: near Siem Reap, 2005, I. Var, Malaise trap (I.R.S.N.B).
Distribution. - Vietnam. New for Cambodia.

Procraerus epitrotus (Candèze, 1865)
Schimmel, 1999: 123; 2005: 307.
Material examined, 60 ex. ( ( \& \& \&) (CPG, CPR)
Thailand

- Pak Kong to Nakhon Ratchashima, III.1989.

Indonesia

- Sumatra, Padong Pajang, 13.V.1991, R. Cermak;
- W Sumatra, VII. 1991 ;
- W Sumatra, Sago Mt, 1000 m, III.IV.1991;
- W Sumatra, Singgalang, 1200-1800 m, II.1991;
- W Sumatra, Merapi, IV.1991;
- W Sumatra, Harau Valley, II.1991, S. Jakl.

Distribution. - Vietnam; Singapore; Borneo (without loc.). New for Thailand and Indonesia.

Procraerus infumatus (Candèze, 1880)
Schimmel, 1999: 106; 2005: 304.
Material examined, 3 ex. ( $2 \widehat{o}^{\lambda}, 1$ ¢ $)$ (CPG)
Indonesia

- W Java, Tjibodas, IX.1938, De Vos tot, Nederveen Cappel;
- Lombok Island, Anfenam, 9.II.1980, B. Osella (det. Schimmel).

Distribution. - Indonesia, Sumatra. New for Java and Lombok.
Procraerus jacosus (Candèze, 1881)
Schimmel, 1999: 132 (Procraerus pauper); 2003: 192; 2005: 308.
Material examined, $2 \not \subset$ (CPG)
Indonesia

- Java, without locality, ex F.C. Drescher coll; Sumatra, Boekit Gabah, IV.1919, H. Lucht, ex F.C. Drescher coll. (det. Schimmel).

Distribution. - W Malaysia: Malacca. New for Indonesia.
Procraerus javanensis Schimmel, 1999
Schimmel, 1999: 84; 2005: 300.
Material examined, 2 ex. ( ${ }^{\top}$ Q) (CPG)

- 1 §̃, Indonesia, Bali Is., Iljmanuk, 27.V.1959, B. Pisarski \& J. Proszynski. (det. Schimmel);
- 1 \&, Bali, Kuta env., 27.XII.1985, L. Saltini.

Distribution. - Indonesia, Java. New for Bali Island.
Procraerus preussi Schimmel, 1996
Schimmel, 1996: 286; 2005: 297, 309.
Material examined, 1 \& Indonesia, Java, Soekaboemi, ex. coll. Le Moult (IRSNB).

Distribution. - Malaysia: Sabah. New for Indonesia.
Procraerus singularis Schimmel, 1999
Schimmel, 1999: 67; 2005: 297.
Material examined, 1 \& , Indonesia, Sumatra, Prapat, 1400 m , IIIIV, E. W. Diehl. (det. Schimmel) (CPG).

Distribution. - W Malaysia. New for Indonesia: Sumatra.

## Xanthopenthes manettii $\mathbf{n}$. sp.

(Fig. 15, 37, 49, 74)
ZooBank: http://zoobank.org/AE10FD7B-B378-4EDE-B019-FAE4C2376837
Holotype, ${ }^{3}$, Indonesia, South Sulawesi, Rantepao env., South slope of Mt. Sesean, 1300-1600 m, 3.IV.1999, Bečvář \& Zábransky (CPG).


Fig. 68-80. Habitus.
68. Procraerus javanus n. sp. ( 5.4 mm ). 69. Procraerus indicus n. sp. $(9.0 \mathrm{~mm})$. 70. Procraerus smetsi n. sp. ( 9.3 mm ). 71. Procraerus grootaerti n. sp. $(8.7 \mathrm{~mm})$. 72. Procraerus mindanaoensis $\mathbf{n}$. $\mathbf{s p}$. $(11.2 \mathrm{~mm})$. 73. Procraerus sikkimensis $\mathbf{n} . \mathbf{s p} .(10.5 \mathrm{~mm})$.
74. Xanthopenthes manettii n. sp. $(15 \mathrm{~mm})$. 75. Xanthopenthes tamilensis $\mathbf{n}$. $\mathbf{s p} .(8.4 \mathrm{~mm})$. 76. Xanthopenthes viklundi $\mathbf{n} . \mathbf{s p} .(9.2 \mathrm{~mm})$.
77. Xanthopenthes cambodianus $\mathbf{n}$. $\mathbf{s p}$. $(8.0 \mathrm{~mm})$. 78. Xanthopenthes constanti $\mathbf{n} . \mathbf{s p} .(9.6 \mathrm{~mm})$. 79. Xanthopenthes nigerrimus $\mathbf{n} . \mathbf{s p} .(13 \mathrm{~mm})$.
80. Xanthopenthes lemoulti $\mathbf{n}$. sp. ( 11.2 mm ).

Diagnosis. - A species of the $X$. miser-group sensu Schimmel, 1999, that can be compared with $X$. girardi Schimmel, 1999, too from Sulawesi, for the long antennae, it can be separated by the greater size and particularly for the elytral apices slightly emarginate.
Description. - Male.
Moderately shiny.
Coloration. - Entirely yellow-brown with vague, not well delimited, black maculae on the disk and sides of pronotum, disk of elytra in the humeral areas and after the middle; only the legs are lighter, yellowish; covered with dense, decumbent, yellowish pubescence.

Head. - Frons flat, anterior margin complete, sub-arcuate, directed downwards and just protruding above the clypeus; frontal-clypeal space not constricted and with a vestige of mid-longitudinal carina; punctuation coarse, punctures clearly umbilicate, contiguous or with shortest, shagreened intervals. - Antennae very long, exceeding of four articles the apices of posterior angles of pronotum, slightly serrated from the third article on; second article small, globous, long as wide, third-tenth subtriangular, gradually slenderer, longitudinally sub-carinate; third shorter than the fourth; second and third, taken together, shorter than the fourth; last very slender, longer than the previous, with sub-parallel sides and asymmetrically constricted before the apex. (Fig. 37).

Pronotum. - Pronotum 1.07 longer than wide, widest at the apices of the posterior angles, very convex on the disk, abruptly sloping at sides, nearly vertically at base with a short, deep impression on the basal slope; sides very moderately and regularly arcuate, sinuate before the posterior angles, the latter vey elongate, acuminate, divergent, bicarinate; carinae at the same level, the inner shorter, the outer longer and slightly diverging from the lateral margins, the latter very fine, complete and not visible on a dorsal view; punctuation very dense and uniformly distributed; punctures on the disk simple with shortest, moderately shagreened intervals, gradually denser and clearly umbilicate towards the sides with shortest shagreened intervals.

Scutellum. - Very declivous, tongue-shaped, moderately convex, densely and roughly punctured.

Elytra. -2.7 x longer than pronotum and 2.9 x longer than wide, convex; sides sub-parallel from base to behind the middle then gradually tapering to the apices, the latter very slightly emarginate and very shortly spiniform (Fig. 49); striae regularly punctate-striate, interstriae sub-convex and densely punctured.

Prosternal process. - Gradually bent behind the procoxal cavities, not emarginate at the apex.

Aedeagus. - As in the Fig. 15 (length 2.0 mm ).
Size. - Length 15.0 mm , width 3.43 mm .
Female. - Unknown.
Etymology. - This taxon is dedicated to the ornithologist Claudio Grispigni Manetti, a dear friend of the second author, for his support during the search for the equipment necessary for the preparation of the illustrations of this work.

## Xanthopenthes tamilensis n. sp.

(Fig. 16, 38, 75)
ZooBank: http://zoobank.org/238BD6D3-602E-47D3-8D5E-90ADA42F5CD1
Holotype, ${ }^{\lambda}$, India, Tamil Nadu, Ainamalai Hills, Topslip, 2500 ft., V. 1977 (CPG).

Diagnosis. - A small species of the $X$. birmanicus -group sensu Schimmel, 1999, similar to $X$. modestus (Candèze, 1859) from India but easily separated for the longer antennae and male genitalia.
Description. - Male.
Moderately shiny.
Coloration. - Entirely brownish with antennae and legs lighter, yellowferruginous; covered with dense, recumbent, yellow-fulvous pubescence.

Head. - Frons moderately convex, just impressed before the anterior margin, the latter thickened, arcuate, directed downwards and just protruding
above the clypeus; frontal-clypeal space, not constricted with a vestige of midlongitudinal carina; punctures umbilicate, contiguous or with shortest intervals. - Antennae exceeding by three articles the apices of the posterior angles of pronotum, slightly serrated from the third article, second article subcylindrical, long as wide, third sub-conical, 2.1x longer than the second; second and third, taken together, as long as the fourth; articles fourth-tenth sub-triangular gradually slenderer, longitudinally carinate, on average 2.1 x longer than wide, last a little longer and sub-ellipsoidal. (Fig. 38).

Pronotum. - Long as wide, widest at the apices of the posterior angles, very convex on the disk, abruptly sloping at the sides, vertically sloping at base with a deep, short mid-longitudinal impression on the basal slope; sides nearly regularly tapering from the base to the apices, posterior angles long, acuminate, not divergent, bicarinate; carinae at the same level, the inner shorter, the outer longer and slightly diverging from the lateral margins, the latter very fine, complete and just visible in the first third on a dorsal view; punctuation very dense and uniformly distributed, punctures umbilicate, with shortest, shagreened intervals.

Scutellum. - Very declivous, tongue-shaped, slightly convex, densely punctured.

Elytra. -2.7 x longer than pronotum and 2.7 x longer than wide, convex, rather flattened on the central part of the disk, sides perfectly parallel from the base to the middle, then regularly tapering to the apices, the latter entire, regularly rounded; striae regularly.

Prosternal process. - Just bent behind the procoxal cavities and running horizontal after the middle with apex not emarginate.

Aedeagus. - As in the Fig. 16 (length 1.3 mm ).
Size. - Length 8.4 mm , width 2.09 mm .
Female. - Unknown.
Etymology. - The name is derived from Tamil Nadu, the Indian state where the species was collected.

## Xanthopenthes viklundi n. sp.

(Fig. 17, 39, 46, 76)
ZooBank: http://zoobank.org/A8CE859F-A8AB-4674-A55B-A87C09C108AB
Holotype, đ̋, Laos, Luang Nam, Tha Nam Ha NBCA, Lakkhammai village, 30.IV.2005, N. Jönsson, T. Malm \& B. Viklund, at light (NHRS).
Paratypes, 9 ex. ( 8 § , 1 ㅇ) (CPG, NHRS)

- 5 § ${ }^{\lambda}$, same data as Holotype.
- 2 §, 1 个, Thailand, 100 km NE Nan Doi Phu Kha N.P., 20.25.IV.2004, F. Pavel.
-1 O$^{1}$, Vietnam, Vinh Phuc Prov., Tam Dao, 1200 m, 19-22.VI.2014, M. Hauser \& N . von Ellenrieder.

Diagnosis. - A species of the X. birmanicus -group sensu Schimmel, 1999 for the general shape and colour very allied to X. klausnitzeri Schimmel from Thailand, for the shape of the last sternite in the male, a character not discussed in the original description of the surnamed species, it can be separated for the more robust body, longer antennae and elongated aedeagus.

## Description. - Male.

Moderately shiny.
Coloration. - Head and the greater part of pronotum except for the basal slope and the posterior angles, around of scutellum, blackish; all the remaining parts including antennae and legs, yellow-ferruginous; covered with dense, recumbent, fulvous pubescence.

Head. - Frons convex on the vertex, flat from the middle to the anterior margin, the latter complete, simple, sub-arcuate, directed downwards and just protruding above the clypeus; punctuation strong, punctures umbilicate with shortest intervals to contiguous. - Antennae very long, exceeding by nearly four articles the apices of the posterior angles of pronotum, slightly serrated from the third article on: second article sub-cylindrical, short, as long as wide, third sub-conical, fourth-tenth sub-triangular, longitudinally carinate; second and third, taken together, long as the fourth; fourth-tenth gradually slenderer,
last a little longer than the previous, sub-ellipsoidal, slightly constricted before the apex. (Fig. 39).

Pronotum. - Just longer than wide to long as wide, widest at the apices of the posterior angles, convex, abruptly sloping at sides, nearly vertically on the basal slope; sides from the base nearly and regularly narrowing to the apices; posterior angles long, acuminate, not or very slightly divergent, bicarinate; carinae short but sharp and diverging; lateral margins complete and in the first half visible on a dorsal view; punctuation coarse and uniformly distributed except for the basal slope; punctures umbilicate, on the disk with shortest, sub-shiny intervals, gradually denser and with shagreened intervals towards the sides.

Scutellum. - Strongly declivous, tongue-shaped, rather acuminate at the apex, flat or slightly convex, densely punctured.

Elytra. -2.5 x longer than wide and 2.7 x longer than wide, convex; sides sub-parallel in the first half then gradually tapering to the apices, the latter rounded to very slightly truncated; striae regularly punctured, interstriae flat, densely punctures, sometimes with rough surface.

Prosternal process. - Just bent behind the procoxal cavities and running horizontal after the middle with apex not emarginate.

Last visible sternite. - Impressed at sides. (Fig. 49).
Aedeagus. - As in the Fig. 17 (length 1.56 mm ).
Female. - Extremely similar to the male in the colour of the integuments, with short antennae and sub-parallel sides of pronotum.

Size. - Length 9.0-10.5 mm, width 2.25-2.56 mm.
Etymology. - The species is dedicated to one of the collectors, B. Viklund that sent us some material for study.

## Xanthopenthes cambodianus n. sp.

(Fig. 18, 40, 45, 77)
ZooBank: http://zoobank.org/6CBB6FC7-E301-4BA9-828E-AAEAE6176389

Holotype, đ̂, Cambodia, Pursat Prov., Phnom Samkos W.S. Pramaoy, 13.IV.2005, K. Smets \& I. Var. (IRSNB).

Paratypes, 18 ex. (IRSNB, CPG, CPR)

- 17 Ø, same data as holotype;
-1 , Angkor, Preah-Khan Temple, 31.V.2003, J. Constant \& K. Smets, light trap.

Diagnosis. - A species of the $X$. birmanicus-group sensu Schimmel, 1999 allied to $X$. niehuisi Schimmel, 1999 from Thailand, for the general shape and size, it can be separated for the narrower body, shorter antennae and the very elongate aedeagus.

Description. - Male.
Moderately shiny.
Coloration. - Entirely dark-brown to yellow-brown, generally with the basal slope of pronotum and elytra lighter but with big contrast; covered with dense, recumbent, yellow-fulvous pubescence.

Head. - Frons convex on the vertex, flat from the middle, anterior margin regularly curved and just protruding above the clypeus; punctures umbilicate, with shortest intervals to contiguous. - Antennae exceeding by two articles the apices of posterior angles of pronotum, slightly serrated from the third article; second article small, globous, long as wide, third-tenth sub-triangular, slender, longitudinally carinate; second and third, taken together, just longer than the fourth; last long as the previous, sub-ellipsoidal. (Fig. 40).

Pronotum. - 1.06-1.09x longer than wide, widest at the middle and at the apices of the posterior angles, very convex, abruptly sloping at sides, nearly vertically at the basal slope; sides sub-parallel from the base to near the anterior margin, posterior angles acuminate, very slightly divergent, bicarinate; carinae short, the inner more apparent; lateral margins complete and visible in a dorsal view in the first thirds of its length; punctuation uniformly distributed, punctures very slightly umbilicate on the disk, with very short, more or less shagreened intervals, clearly umbilicate towards the sides but with short and clearly shagreened intervals.

Scutellum. - Very declivous, tongue-shaped, slightly convex and roughly punctured.

Elytra. - 2.4-2.5 longer than pronotum and 2.6-2.7 longer than wide, a little narrower than pronotum at base, convex; sides subparallel from the base to the middle, then very gradually tapering to the apices, the latter regularly rounded; striae regularly marked and punctured; interstriae flat with surface appearing microgranulate.

Last abdominal visible sternite. - Sinuate at sides before the apex. (Fig. 45).

Aedeagus. - As in the Fig. 18 (length 1.35 mm ).
Female. - Body more convex; antennae shorter not reaching the apices of posterior angles of pronotum.

Size. - Length 7.0-9.0 mm, width 1.68-2.12 mm.
Etymology. - The name is derived from the country where the species was collected.

Ecological notes. - Forest edge, at light trap.

## Xanthopenthes constanti n . sp.

(Fig. 19, 41, 78)
ZooBank: http://zoobank.org/1D8F240A-2007-422A-9ECB-B95B1F933CE5
Holotype, $\begin{gathered} \\ \\ \text {, }\end{gathered}$ Thailand, Loei, Na-Haeo (field res. stat.), 15-19.V.2003, J. Constant, K. Smets \& P. Grootaert, light trap (IRSNB).
Paratype, $\delta^{\lambda}$, same data as holotype (CPG).
Diagnosis. - A species $X$. birmanicus -group sensu Schimmel, 1999, that for the impressed last visible sternite can be compared to $X$. viklundi n. sp., it is separated by the uniformly blackish colour, shorter antennae and aedeagus.

Description. - Male.
Moderately shiny.
Coloration. - Entirely blackish with antennae and legs ferruginous; covered with dense, yellow fulvous pubescence.

Head. - Frons flat, slightly impressed only immediately before the anterior margin, the latter regularly curved, sub-horizontally a little projecting above the clypeus, punctures umbilicate, with shortest intervals or contiguous. - Antennae exceeding by three articles the apices of posterior angles of pronotum, serrated from the fourth article on; second article globous, long as wide, third subconical, fourth-tenth sub-triangular, gradually slenderer, longitudinally carinate; second and third taken together long as the fourth; last lacking. (Fig. 41).

Pronotum. - 1.10-1.13x longer than wide, widest at the apices of the posterior angles, very convex, abruptly sloping at sides and base; sides very gradually and regularly tapering from the base to the anterior margin; posterior angles long, acuminate, not divergent, bicarinate; carinae short, equal in length, diverging anteriorly; lateral margin complete and not visible in a dorsal view; punctuation dense, uniformly distributed; punctures on the disk small, slightly umbilicate with shortest, shiny intervals, larger and clearly umbilicate towards the sides with shortest, shagreened intervals to contiguous.

Scutellum. - Strongly declivous, tongue-shaped not ridged at base, flat to sub-convex, strongly punctured.

Elytra. - 2.3.2.35x longer than pronotum and 2.6-2.65x longer than wide, narrower than pronotum at base, convex, rather flattened on the disk; sides sub-parallel from the base to the middle then very gradually tapering to the apices, the latter regularly rounded; striae regularly marked, interstriae flat with a microgranulate surface.

Last visible sternite. - Slightly impressed at sides before the apex, this thickened.

Aedeagus. - As in the Fig. 19 length 1.37 mm ).
Size. - Length 9.5-9.8 mm, width 2.31-2.37 mm.
Female. - Unknown.
Etymology. - Dedicated to J. Constant of the IRSNB that sent us material for study.

## Xanthopenthes nigerrimus n. sp.

(Fig. 20, 42, 79)
ZooBank: http://zoobank.org/494D272C-D5FF-45D8-99BD-0EA64AFF892B
Holotype, ô, Thailand, Loei, Na-Haeo (field res. stat.), 15-19.V.2003, J. Constant, K. Smets \& P. Grootaert, light trap; Loei, Na Haeo, forest clearing, light trap, 16.V.2003, Constant \& Smets (IRSNB).
Paratypes, 9 ex. ( $7 \delta^{\lambda}, 2$ Q $)$, same data as Holotype. (CPG, IRSNB).
Diagnosis. - A blackish species of the X. lugubris-group sensu Schimmel, 1999, that can be compared to $X$. unicarinatus (Fleutiaux, 1918) but is immediately separated for the bicarinate angles of pronotum and toothed paramera in aedeagus.

Description. - Male.
Very moderately shiny.
Coloration. - Entirely blackish with antennae brown and legs ferruginous; covered with dense, recumbent, yellow-fulvous pubescence.

Head. - Frons very slightly impressed in the middle, anterior margin, curved, moderately thickened, sub-horizontally a little projected above the clypeus; punctures strongly umbilicate, contiguous. - Antennae exceeding by about two articles the apices of posterior angles of pronotum, serrated from the third article on; second small, globous, third sub-conical, fourth-tenth subtriangular, longitudinally carinate; second and third, taken together, long as the fourth; last sub-ellipsoidal. (Fig. 42).

Pronotum. - 1.05-1.06x longer than wide, widest at the apices of the posterior angles, strongly convex with a vestige of a very shallow median impression immediately before the basal slope; sides sub-parallel, tapering immediately before the anterior margin, slightly sinuate before the posterior angles, the latter, long, acuminate just divergent, bicarinate; carinae short, the inner more sharp, the outer at a lower level and very fine; lateral margins complete, not visible in a dorsal view; punctuation very coarse and dense; puncture umbilicate, with shortest intervals to contiguous on all the surface.

Elytra. - 2.9x longer than pronotum and 2.7 x longer than wide, as wide as the pronotum at base, strongly convex; sides very gradually and regularly tapering from the base to behind the middle; apices rounded; striae well marked, interstriae flat, with rough, microgranulated surface.

Aedeagus. - As in the Fig. 20 (length 2.18 mm ).
Size. - Length 11.2-14.7 mm, width 2.81-3.5 mm.
Female. - Shorter antennae not reaching the apices of posterior angles of pronotum, pronotum more convex, slightly dilated in the anterior third. - Length 12.5 mm ; width 3.0 mm (female).

Etymology. - The name is derived from the black integuments colour of the species.

## Xanthopenthes lemoulti $\mathbf{n}$. sp.

(Fig. 21, 43, 80)
ZooBank: http://zoobank.org/F10B7D7F-F6F1-4E32-A2AD-4777D413D414
Holotype, ${ }^{\lambda}$, Indonesia, W Java, Soekaboemi, ex. coll. Le Moult (IRSNB).
Diagnosis. - A species of the X. miser-group sensu Schimmel, 1999, similar in the general shape, size and colour to $X$. miser (Candèze) but distinct for the shorter antennae and the lack also as a vestige of a second carina on the posterior angles of pronotum.

Description. - Male.
Moderately shiny.
Coloration. - Entirely brown-ferruginous with dense, recumbent yellowish pubescence.

Head. - Frons flat, just impressed in the middle before the anterior margin, the latter arcuate, in the middle just protuding above the clypeus; punctures coarse, umbilicate, contiguous - Antennae exceeding by one article the apices of the posterior angles of pronotum, serrated from the third article on; second atticle small, globous, long as wide; third sub-triangular, twice longer than wide, second and third, taken together, a little longer than the fourth; fouth-tenth triangular, gradually slenderer, from twice to a little
longer than wide, with a vestige blackish mid-longitudinal line, not carinate; last a little longer, sub-ellipsoidal, constricted before the apex. (Fig. 43).

Pronotum. - 1.06x longer than wide, widest at the apices of the posterior angles, strongly convex, abruptly sloping at sides and base, sides from behind the middle very slightly and regularly tapering to the apices, just sinuate before the posterior angles, the latter long, acuminate, very slightly divergent, unicarinate, carina short and directed inside; lateral margins complete and visible only in the first half in a dorsal view; punctuation uniformly distributed, punctures on the disk slightly umbilicate with shortest intervals, gradually denser, strongly umbilicate and contiguous towards the sides.

Scutellum. - Tongue-shaped, ridged at base, slightly convex, roughly punctured.
Elytra. - 2.64 x longer than pronotum 2.5 x longer than wide, convex; sides subparallel in the first half then very gradually tapering to the apices, the latter rounded; striae regularly marked and punctured, interstriae flat, densely punctured.

Prosternal process. - Sub-horizontal behind the procoxal cavities, pointed and not emarginate at apex.

Aedeagus. - As in the Fig. 21 (length 1.62 mm ).
Size. - Length 11.2 mm , width 2.93 mm .
Female. - Unknown.
Etymology. - Dedicated to the Memory of the French entomologist E. Le Moult from which collection come the species.

New geonemic records for some species of genus Xanthopenthes Fleutiaux, 1928.

## Xanthopenthes apicatus Schimmel, 1999

Schimmel, 1999: 229; 2005 : 342.

## Material examined (IRSNB, CPG).

- 1 §, Laos, Bolikhamsay prov., Phou Khao Kouay NBCA, Tad Leuk Waterfall, $280 \mathrm{~m}, 11-12 . \mathrm{IV} .1988$, O. Merkl \& G. Csorba.
$-1 \delta^{\lambda}, 1$ ㅇ, Cambodia, Kirirom Nat. Park, 21-22.IV.2005, K. Smets \& I. Var, Pine forest; Phnom Kulen, 24.V.2003, J. Constant \& K. Smets.


## Distribution. - Thailand. New for Laos and Cambodia.

Xanthopenthes ardjoenicus (Candèze, 1882)
Schimmel, 1999: 185; 2005: 333.
Material examined. - 1 §, Malaysia, Borneo, Mt. Tibang, 1700 m , E. Mjöberg (NHRS).

Distribution. - Indonesia, Java, Sumatra, Engano. New for Borneo.

## Xanthopenthes birmanicus (Candèze, 1888)

Schimmel, 1999: 187; 2005: 86, 126, 334.
Material examined. - 1 §̂, Laos, Dong Dok, 20.III.1990, E. Kandorosy (det. Schimmel) (CPG).

Distribution. - Laos, Myanmar, Thailand, Vietnam.
Xanthopenthes dembickyi Schimmel, 1999
Schimmel, 1999: 209; 2005: 339.
Material examined. - $1+$, Cambodia, Siem Reap Prov., Angkor. Preah Kahn, 28.III.5.IV.2005, I. Var (IRSNB).

Distribution. - Thailand. New for Cambodia.
Xanthopenthes helferi Schimmel, 1999
Schimmel, 1999: 210; 2005: 339.
Material examined. - 15 ex. $\delta \circ$ (IRNSB, NHRS, CPG, CPR)

- Laos, Luang Nam, Tha Nam Ha NBCA, Lakkhammai village, 30.IV.2005, N. Jönsson, T. Malm \& B. Viklund, at light.
- Cambodia, Pursat Prov., Phnom Samkos W.S. Pramaoy, 13.IV.2005, K. Smets \& I. Var.

Distribution. - Myanmar. New for Laos and Cambodia.
Xanthopenthes kubani Schimmel, 1999
Schimmel, 1999: 213; 2005: 339.
Material examined. - $1 \AA^{\lambda}$, Cambodia, Siem Reap Prov., Angkor Preah Kahn, 28.III-5.IV.2005, I. Var, Malaise trap (IRSNB).

Distribution. - Thailand. New for Cambodia.
Xanthopenthes longicollis Schimmel, 1999
Schimmel, 1999: 189; 2005: 336.
Material examined. - 1 入̂, Cambodia, without locality, ex. Oberthur coll. (IRSNB).

Distribution. - Thailand. New for Cambodia.

## Xanthopenthes lugubris (Candèze, 1888)

Schimmel, 1999: 213; 2005: 340.
Material examined. 9 ex. ( $5{ }^{\lambda}, 4$ ¢ $)$ (IRSNB, NHRS, CPG)
Laos

- Luang Namtha Nam Ha NBCA, Lakkhammai village, 30.IV.2005, N. Jönsson, T. Malm \& B. Viklund, at light;
- Namtha Distr., Lakkhammai, 5-9.V.2007, M. Pejcha. Cambodia: Siem Reap Prov., Angkor Preah Kahn, 28.III-5.IV.2005, I. Var, Malaise trap;
Vietnam
- Tay Ninh, Cochincine, X. 1923.

China

- Yunnan-Fou, San-nen-Kai.

Distribution. - Myanmar. New for Laos, Cambodia, Vietnam and China.

Xanthopenthes niehuisi Schimmel, 1999 Schimmel, 1999: 191; 2005: 336.

Material examined. -4 ex. ( 2 §, 2 Q ), Cambodia, Pursat Prov., Phnom Samkos W.S. Pramaoy, 13.IV.2005, K. Smets \& I. Var (IRSNB, CPG).

Distribution. - Thailand. New for Cambodia.
Xanthopenthes novakorum Schimmel, 1999
Schimmel, 1999: 249; 2005: 345.
Material examined. - $1 q$, Indonesia, W Sumatra, Harau Valley, III. 1992 (compared with paratype).
Distribution. - Thailand; W Malaysia. New for Indonesia.
Xanthopenthes piceus (Fleutiaux, 1889)
Schimmel, 1999. 215; 2005: 340.

[^0]Distribution. - Vietnam. New for Thailand, Laos and Cambodia.

Xanthopenthes preussi Schimmel, 1999
Schimmel, 1999: 216; 2005: 340.
Material examined. - 1 §̂, Vietnam, Lam Dong Prov., Suoi Loc Chau, 5 km E of Bao Loc, 24.X.1988, S. Mahunka \& T. Vasarhelyi (det. Schimmel) (CPG).

Distribution. - Thailand; Myanmar (Tenasserim). New for Vietnam.
Xanthopenthes rugosus Schimmel, 1999
Schimmel, 1999: 193; 2005: 342.
Material examined. - 3 §', Cambodia, Kampor Prov., Bokor N.P., 270 m, 22.I.2006, G. Csorba, L. Duval \& G. Ronkay (CPG).

Distribution. - Thailand; W Malaysia. New for Cambodia.
Xanthopenthes unicarinatus (Fleutiaux, 1918) Schimmel, 1999: 219; 2005 : 341.

## Material examined. - 6 ex. (2 ${ }^{\lambda}, 4$ ) (CPG)

Thailand

- Mae Hong Son, 1000 m, 16.23.VI.1993, Y. Schneider;
- Mae Hong Son, Ban Huai Po, 1600-2000 m, J. Horak;
- 100 km NE Nan Doi Phu Kha N.P:, 20.25.IV.2004, F. Pavel;
- Samoeng, Chiang Mai, 4.V.1988;
- Khon Kaen, Si Chomphu, 250 m, 16.V.2011. (det. Schimmel).


## Distribution. - Laos; Vietnam. New for Thailand.

Xanthopenthes unicoloratus Schimmel, 1999
Schimmel, 1999: 257; 2005: 346.
Material examined. - 2 ex. ( $\left.1 \begin{array}{c}\lambda \\ , 1 \\ 1\end{array}\right)$ - Cambodia, Kirirom Nat. Park, 21.IV.2005, K. Smets \& I. Var (IRSNB).
Ecological notes. - Pine Forest, at light trap.
Distribution. - Thailand. New for Cambodia.

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[^1][^2]
## Résumé

Platia G. \& Pulvirenti E., 2023. - Nouvelles espèces et nouveaux signalements de taupins des genres Girardelater Schimmel, 1999, Procraerus Reitter, 1905 et Xanthopenthes Fleutiaux, 1928 de la Région Orientale (Coleoptera, Elateridae, Elaterini et Megapenthini). Faunitaxys, 11(31): 1 - 18.
Un total de 24 nouvelles espèces appartenant aux genres Girardelater Schimmel, 1999 (Elaterini) (3) (Népal, Thaïlande, Vietnam, Cambodge), Procraerus Reitter, 1905 (Megapenthini) (14) (Philippines, Indonésie, Malaisie, Thaïlande, Inde ) et Xanthopenthes Fleutiaux, 1928 (Megapenthini) (7) (Indonésie, Laos, Vietnam, Cambodge, Thaïlande) sont décrites de la Région Orientale. Une clé du genre Girardelater Schimmel est donnée. De nouvelles citations sont données pour 25 espèces des genres Girardelater Schimmel (2), Procraerus Reitter, 1905 (9) et Xanthopenthes Fleutiaux, 1928 (14).

Mots-clés. - Coleoptera, Elateridae, Elaterini, Megapenthini, Girardelater, Procraerus, Xanthopenthes, taxonomie, nouvelle espèce, nouvel enregistrement, description, Cambodge, Inde, Indonésie, Laos, Malaysie, Népal, Philippines, Thailande, Vietnam, Région orientale.

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# Faunitaxys 

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## SOMMAIRE

Nouvelles espèces et nouveaux signalements de taupins des genres Girardelater Schimmel, 1999, Procraerus Reitter, 1905 et Xanthopenthes Fleutiaux, 1928 de la Région Orientale (Coleoptera, Elateridae, Elaterini and Megapenthini).

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## CONTENTS

New species and new records of click beetles of the genera Girardelater Schimmel, 1999, Procraerus Reitter, 1905 and Xanthopenthes Fleutiaux, 1928 from the Oriental Region (Coleoptera, Elateridae, Elaterini and Megapenthini).

Giuseppe Platia \& Edoardo Pulvirenti 1-18


## Illustration de la couverture :

Le Nang Yai est un théâtre d'ombres populaire du centre de la Thaïlande, où de grands personnages (marionnettes) sont projetés sur un écran blanc et manipulés par des acteurs cachés en dessous de l'écran. Les marionnettes appelées Hun sont manipulées par en dessous. Leurs mouvements sont à l'origine des danses dans les théâtres Khon et Lakhon.
Auteur: Steve Evans

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[^0]:    Material examined. -41 ex. $\delta \uparrow$ (IRSNB, CPG, CPR)
    Thailand

    - Chiang Dao, 350 m, 9.14.V.1991, D. Kral (det. Schimmel);
    - Chiang Mai, Fang, 1.VII.1990.

    Laos

    - Oudomxay, Houykhom Xai distr., 5-14.Vi.2009, Li Jingke;
    - Vientiane Mun., Nam Ngum river, Lao Pako, 50 km NW Vientiane, 14-19.V.2007, M. Pejcha.
    Cambodia
    - Pursat Prov., Phnom Samkos W.S. Pramaoy, 13.IV.2005, K. Smets \&
    I. Var; Siem Reap, 25.V.2005, J. Constant \& K. Smets, at light.

[^1]:    Author contributions ${ }^{(1)}$
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    Descriptors. - GP \& EP
    Article proofreading. - GP
    Bibliographic work. - GP \& EP
    Material study. - GP \& EP
    Author of the figures. - EP

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