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New species of the genus *Pachyrhynchus* Germar, 1824 (Coleoptera: Curculionidae) from Mindanao, Philippines

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Pachyrhynchus banglas sp. nov. and *P. esperanza* sp. nov., two new species of the Entiminae Pachyrhynchini genus *Pachyrhynchus* Germar, 1823 (Curculionidae) from the Philippines, Mindanao Island, are described. Diagnosis of each taxon is provided, and habitus photographs and illustrations of male and female genitalia are given. The authors also propose a new taxonomical arrangement of two species groups: *Pachyrhynchus amabilis* species group and *Pachyrhynchus schoenherri* species group. The new synonymy: *Pachyrhynchus elegans* Waterhouse, 1842 (= *P. eos* Heller, 1924, **syn. n.**) is also established.

Key words: taxonomy, Pachyrhynchini, new species, new synonymy, Mindanao, broad-nosed weevils, genital morphology, taxonomical arrangement.

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INTRODUCTION

Even if the Philippine fauna of Curculionidae Pachyrhynchini was studied by several authors till the beginning of the 20th century, it is still poorly known, the works by Heller and Schultze being yet the reference texts to the taxonomy of the tribe, and this is especially true for some of the less sampled areas like the interior of the island of Mindanao. In recent years the *Pachyrhynchus* fauna of the island has attracted the attention of entomologists bringing to the description of new species (Yoshitake, 2012; Rukmane & Barðevskis, 2016; Rukmane, 2016; Cabras & Rukmane, 2016).

Following the study of material belonging to the genus *Pachyrhynchus*, two new species were identified, and they are described herein.

MATERIAL AND METHODS

This study was based on specimens deposited in the following collections:
CFS - private collection of Franco Sandel, Miane, Italy
DUBC - Daugavpils University Beetle Collection, Daugavpils, Latvia
KUM - the Kyushu University Museum, Fukuoka, Japan
MBLI - private collection of Maurizio Bollino, Lecce, Italy
NIAES - National Institute for Agro-Environmental Sciences, Tsukuba, Japan
SMTD - Senckenberg Natural History Collections, Dresden, Germany

The laboratory research and measurements have been carried out using Nikon AZ100, Nikon SMZ745T, Zeiss Stereo Lumar V12 digital stereomicroscopes, and NIS - Elements 6D software. The illustrations, as well as the treatment of the genitals, were identical to those described in Bollino and Sandel (2017).

Label data are cited *verbatim*. In the text we used the following symbols and abbreviations:
/ = different lines
// = different labels
LB = body length, from the apical margin of pronotum to the apex of elytra
LE = elytral length, from the level of the basal margins to the apex of elytra
LP = pronotal length, from the base to apex along the midline
LR = length of the rostrum
WE = maximum width across the elytra
WP = maximum width across the pronotum
WR = maximum width across the rostrum

RESULTS

***Pachyrhynchus banglas* sp. nov.** (figs. 1a-1d)

Diagnosis. *Pachyrhynchus banglas* belongs to the *Pachyrhynchys amabilis* species group (see taxonomical notes below), and differs from all other species of the group for its elytral ornamentation.

Type material. Holotype, Male **(**figs. 1a-1b): Philippines Islands / Mindanao - Bukidnon Pr. / Kabanglasan : XI-2014 / Coll. Franco Sandel (typed on white card); HOLOTYPE / *Pachyrhynchus esperanza* / Bollino, Sandel & Rukmane 2017 (typed on red card) presently in CFS, will be deposited in SMTD.

Paratypes (37 males, 26 females): 3 males, Philippines - Mindanao / Cabanglasan - Bukidnon / III-IV.2013 / m 800-1000 - Lg. local people / coll. M. Bollino; 2 males, Philippines - Mindanao / Cabanglasan - Bukidnon / XII.2014-I.2015 / lg. local people - coll. Bollino; 2 males, Philippines - Mindanao / Cabanglasan - Bukidnon / XI.2014 / coll. Bollino; 1 male, Philippines - Mindanao / San Fernando - Bukidnon / X.2013 / lg. local people - coll. Bollino; 1 male, Philippines - Mindanao / Cabanglasan / (Bukidnon) / IX-XI.2016 / coll. M. Bollino; 4 females, Philippines - Mindanao / San Fernando - Bukidnon / X.2013 / lg. local people - coll. Bollino; 1 male, Philippines - Mindanao / Cabanglasan / (Bukidnon) / IX-XI.2016 / coll. M. Bollino, all in MBLI; 1 male, Philippines, Mindanao, Bukidnon, Intavas, VII. 2014; 2 males, Philippines, Mindanao, Bukidnon, Cabanglasan, VI. 2014; 2 males, 1 female, same data, but VII. 2014; 2 males, same data, but VIII. 2014; 1 male, same data, but XI. 20114; 1 male, same data, but VII. 2015; 1 male, same data, but VIII. 2015; 3 females, same data, but X. 2015; 2 males, 1 female, same data, but XI. 2015; 1 male, 1 female, same data, but VIII. 2016; 1 male, same data, but IX. 2016, all in DUBC; 3 males, 2 females, [PHILIPPINES: Mindanao], Northern Mindanao region, Bukidnon, Malaybalay / Cabanglasan, Summit Mountain, X. 2013, native collector leg. (Hiraku Yoshitake Collection), all in NIAES; 1 female, Philippines, Mindanao,/Bukidnon, San Fernando,/ III. 2014,/ Local collector, (Munetoshi Maruyama Collection); 1 male, Philippines, Mindanao,/Bukidnon, Cabanglasan,/V 2014/ Local collector, (Munetoshi Maruyama Collection); 2 females,

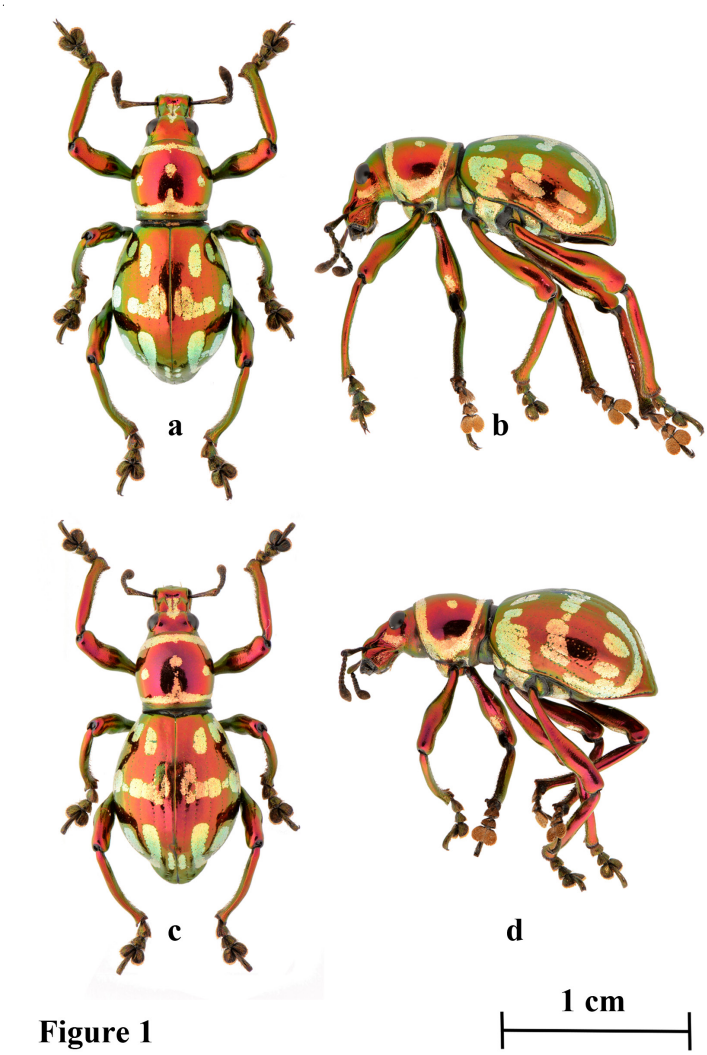

Figure 1

Figure 1- a: *Pachyrhynchus banglas* Holotype dorsal view; b: idem, lateral view, c: *Pachyrhynchus banglas* female dorsal view; d: idem, lateral view

Philippines, Mindanao,/ Bukidnon, Cabanglasan,/ VIII 2014/ Local collector, (Munetoshi Maruyama Collection), all in KUM; 2 males, 1 female, Philippines - Mindanao / Bukidnon: Kabanglasan / 800/1000 mt.- 03-VI-2013 / Coll. Franco Sandel; 2 males, Philippines Islands / Mindanao - Bukidnon Pr. / Kabanglasan: XII-2013 / Coll. Franco Sandel; 1 male, 1 female, Philippines Islands / Mindanao - Bukidnon Pr. / Kabanglasan: I-2015 / Coll. Franco Sandel; 2 males, 3 females, Philippines Islands / Mindanao - Bukidnon Pr. / Kabanglasan: IX-2014 / Coll. Franco Sandel; 1 male, Philippines Islands / Mindanao - Bukidnon Pr. / Kabanglasan: IX-2014 / Coll. Franco Sandel; 1 male, 1 female, Philippines Islands / Mindanao - Bukidnon Pr. / Kabanglasan: X-2014 / Coll. Franco Sandel; 1 male, 4 females, Philippines Islands / Mindanao - Bukidnon Pr. / Kabanglasan: XI-2014 / Coll. Franco Sandel; 1 male,

Philippines Islands / Mindanao - Bukidnon Pr. / Kabanglasan: XII-2015 / Coll. Franco Sandel, all in CFS.

Description

Male. Measurements (holotype): LB: 11.6; LE: 7.3; WE: 5.5; LP: 3.8; WP: 3.9; LR: 2.0; WR: 1.7.

Integument dark shiny red. Body surface strongly shiny, except underside with weaker luster; markings formed by glossy golden green to golden yellow round recumbent scales.

Rostrum longer than wide (LR/WR 1.17) without pubescence on dorsum, weakly bulging on apical half, with deep triangular impression on basal half extending to frons; lateral parts covered with golden yellow scales and golden long hairs before antennal scrobes, and golden hair-like scales after antennal scrobes, with long golden hairs near apex. Scape clavate, covered with setae; first antennomere longer than wide, other antennomeres subspherical and with long brown setae and short pubescence. Head glabrous, finely punctured; eyes relatively large, strongly prominent from outline of head.

Prothorax subspherical, approximately the same width and length (WP/LP 1.06), widest just basal of middle; minutely punctured; golden green and yellow continuous scale line on basal, lateral and apical margins; longitudinal patch of round scales in middle near base merged with basal line along margin; on median transverse line one dorso-lateral round spot on each side and one larger spot in the middle of pronotal discus.

Legs stout; femora strongly clavate, with scale-type hairs and golden green and yellow scales on anterior subapical part; tibiae incurved apically, with mucrones on all legs, sparsely minutely pubescent and fringed with long brown setae along internal margin; tarsus with long, light brown setae.

Elytra subovate (LE/WE: 1.62) glabrous, coarsely punctate-striate. Each elytron with the following thirteen scaly markings of golden green/yellow round scales: 1) subapical spot on interval I, 2) large antemedian spot on intervals I-II, 3) sub-basal and antimedian spots on interval III, 5) an arched spot with apical convexity starting postmedially at interval III and reaching the postmedian portion of marginal area; 6) antimedian spot on interval IV, 7) large postmedian spot on intervals IV- V, 8) antimedian spot on interval VI, 9-11) sub-basal, antimedian and postmedian spots on interval VII, 12) long stripe all along interval VIII, 13) large spot covering humeral area and extended to sub-basal portion of marginal area.

Elytra wider than prothorax (WE/WP 1.4), nearly twice as long as prothorax (LE/LP 1.9); widest in the middle, then strongly narrowed to faint subapical constrictions and rounded at apices.

Sterna and venter sparsely covered with fine light-coloured hairs in addition to minute pubescence, with markings of glossy yellow-gold round scales; intercoxal parts of prosternum covered with yellow scales; metasternum nearly totally covered of round yellow scales with gold shining; smaller scaly patches on ventrites I and II. Median portion of ventrite I with several small tubercles.

Genitalia as illustrated (figs. 3a-3d)

The everted endophallus (figs. 5b and 6b) of *P. banglas* has the same structure of that of other species belonging to the same species group, *P. zamboanganus* being unique in differing in the shape of basal medio-ventral diverticulum. Whether the shape of the basal medio-ventral diverticulum in *P. zamboanganus* is a plesiomorphic or apomorphic character state remains to be determined, but it is not unlike that *P. zamboanganus* and other species included under the same group share an immediate common ancestor. The extreme morphological similarity between the reproductive apparatus of different species

belonging to the same group allow to presume that it does not constitute a reproductive barrier, even if we can assume that other barriers to gene flow (geographic isolation or changes in chromosomes, within others) are active. Anyway, lacking evidences of the existence of barriers to gene flow, we prefer to use the phylogenetic species concept (Wheeler and Platnick, 2000), which defines species as „the smallest aggregation of populations diagnosable by a unique combination of character states". This concept is less restrictive than the biological species concept because eventual breeding between individuals of different species does not pose a problem.

Female. Dimensions: LB:12.5; LE: 8.9; WE: 5.5; LP: 3.6; WP: 3.8; LR: 2.1; WR: 1.8.
Larger than male. Elytra more strongly elongate apically. Ventrites I and II slightly inflated. Otherwise, essentially as in males.

Genitalia as illustrated (figs. 3e-3g).

Distribution

The new species is apparently restricted to central Bukidnon.

Etymology

The new species is named after the Banglas tree, an endemic tree species that inhabits and grows abundantly and distinctively only around Cabanglasan, which literally means „place that has plenty of Banglas".

Taxonomical notes

The species of the genus *Pachyrhynchus* were tentatively arranged in groups by both Heller (1912) and Schultze (1923 and 1924). Even if grouping by Schultze is far more acceptable than that by Heller, we consider both groupments as artificial, each group including an heterogeneous set of species. Thus we here start to introduce groups including a more homogeneous set of taxa, all sharing the same morphological characters.

Pachyrhynchus banglas n. sp. appears to belong to a group of related species that we here name the *amabilis* species group, and which, at best of our knowledge, is restricted to mainland Mindanao. The species of this presumably monophyletic group share the following combination of morphological characters:
1. Integument dark glowing red, with more or less marked green tinge.
2. Eyes strongly convex from outline of head.
3. Prothorax subspherical, with sides straightly dilated from constricted base.
4. Prothorax with a scale band along anterior margin and another along posterior margin united at lateral margins, the latter discally somewhat denticulated.
5. Endophallus with the same shape.

To this newly defined group are assigned the following species, in order of the year of description.

1. *Pachyrhynchus amabilis* Schultze, 1922
   TL: Mindanao Isl., Prov. Bukidnon, Lindaban. Type in SMTD, examined.

2. *Pachyrhynchus chamissoi* Schultze, 1922
   TL: Mindanao Isl., Prov. Bukidnon, Lindaban. Type in SMTD, examined.

3. *Pachyrhynchus pseudamabilis* Yoshitake, 2012
   TL: Philippines, Mindanao Isl., Mt. Apo. Type in NIAES.

4. *Pachyrhynchus subamabilis* Yoshitake, 2012
   TL: Mt. Apo, S. Mindanao Isl., Philippines. Type in NIAES.

   Note. The type locality is most probably wrong, and derived by a mislabelling of the type specimen. As underlined by Yoshitake (2016), "not a

few of the [*Pachyrhynchus*] specimens distributed have been provided insufficient or even incorrect data by local collectors and dealers". Even if the Apo Range has been intensively sampled by local collectors in recent years, we never studied a single example of *Pachyrhynchus subamabilis* from that area, thus we may assume the species is absent. On the contrary, we examined long series of specimens belonging to this species and collected near Wao, Lanao del Sur. Moreover, we had the opportunity to examine a couple of specimens perfectly matching the holotype and collected at S. Vicente, 20 km S of Cagayan de Oro (Bukidnon).

5. *Pachyrhynchus zamboanganus* Yoshitake, 2012

TL: Philippines,West Mindanao Isl., Zamboanga del Norte Province. Type in NIAES.

Note. The holotype has no more data than "Zamboanga del Norte Province", while the series in our reference collections were collected near Tampilisan and Labuan (Zamboanga del Norte Province).

6. *Pachyrhynchus tikoi* Rukmane, 2016

TL: Philippines,Mindanao Isl., Bukidnon, Cabanglasan. Type in DUBC, examined.

7. *Pachyrhynchus banglas* **sp. nov.**

TL: Philippines, Mindanao Isl., Bukidnon, Kabanglasan.

***Pachyrhynchus esperanza* sp. nov.** (figs. 2a-2d)

Diagnosis. *Pachyrhynchus esperanza* belongs to the *Pachyrhynchys schoenherri* species group (see taxonomical notes below), differing from all other species of the group for its elytral ornamentation. The most similar species belonging to the same group is *Pachyrhynchus nitcisi* Rukmane & Barsevskis, 2016, from which the new species differs in having an average smaller size, a different endophallus, a small round spot on each side of median portion of prothorax (the same spot is elongate in *P. nitcisi*), an elytral axially elongate postmedian parasutural spot which apparently lacks in *P. nitcisi*, being it in the latter always merged with the nearby postmedian lateral one.

Type material. Holotype, Male (figs. 2a-2b): Philippines - Mindanao / Esperanza - Agusan del Sur / August 2012 / legit local people - coll. Bollino; (typed on white card); HOLOTYPE / *Pachyrhynchus esperanza* / Bollino, Sandel & Rukmane 2017 (typed on red card) presently in MBLI, will be deposited in SMTD.

Paratypes (42 males, 41 females): 8 males, 11 females, same data as holotype; 2 males, 5 females, Philippines - Mindanao / Esperanza - Agusan del Sur / I. 2013 / legit local people - coll. Bollino; 1 female, Mindanao / Agusan del Sur - Esperanza / XII.14-I.15 / coll. Bollino; 1 male, 1 female, Philippines - Mindanao / San Miguel - Surigao del Sur / XII.2014-I.2015 / lg. local people - coll. Bollino; 1female, Philippines - Mindanao / Sibagat / (Agusan del Sur) / IX-XI.2016 / coll. Bollino, all in MBLI; 1 male, 4 females, Philippines, Mindanao, Agusan Del Sur, Sibagat, XI. 2015; 1 male, 1 female, idem, XII. 2015; 1 female, idem, I. 2016; 1 male, idem, V. 2016; 2 male, idem, VIII. 2016; 1 male, idem, IX. 2016; 1 male, Bukidnon, Cabanglasan, XI. 2015; 1 female, Bukidnon, Valencia, I. 2016; 1 male, 1 female, Surigao Del Sur, Esperanza, VII. 2014; 1 male, 1 female, idem, VIII. 2014; 1 male, idem, VIII. 2016; 1 male, idem, IX. 2016, all in DUBC; 3 males, 2 females, [PHILIPPINES: Mindanao], Caraga region, Agusan del Sur, Talacogon, X. 2013, native collector leg. (Hiraku Yoshitake Collection), all in NIAES; 1 female, Philippines: Mindanao,/ Agusan del Sur,/ VIII. 2012,/ Local collector (Munetoshi Maruyama Collection); 2

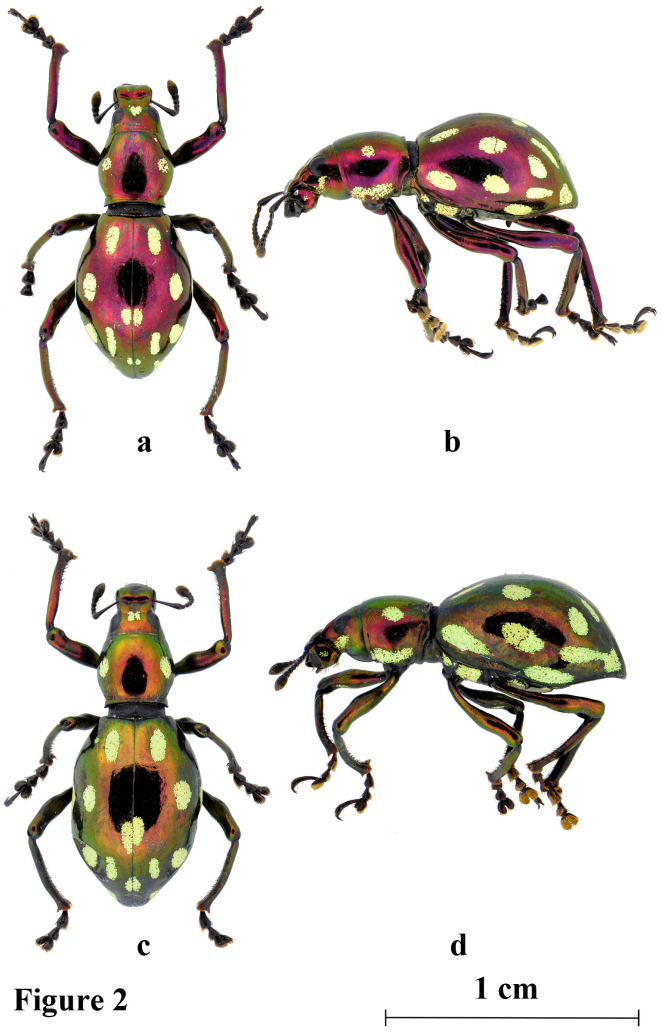

Figure 2

Figure 2 - a: *Pachyrhynchus esperanza* Holotype dorsal view; b: idem, lateral view, c: *Pachyrhynchus esperanza* female dorsal view; d: idem, lateral view

males, Philippines: Mindanao,/ Agusan del Norte, Esperanza, V. 2014,/ Local collector, (Munetoshi Maruyama Collection); 1 female, Philippines / Esperanza, Agusan, Del / Norte Mindanao / X. 2015, Local collector, (Munetoshi Maruyama Collection); 1 female, Philippines: Mindanao, / Esperanza, Agusan, Del / Norte, X. 2015, / Local collector, (Munetoshi Maruyama Collection), all in KUM; 9 males, 5 females, Philippines - Mindanao / Agusan del Norte Prov. / Esperanza: VII-2012 / Coll. Franco Sandel; 4 males, 3 females, Philippines - Mindanao / Agusan del Norte Prov. / Esperanza: I-2013 / Coll. Franco Sandel; 1 male, Philippines - Mindanao / Agusan del Norte Prov. / Esperanza: XI-2014 / Coll. Franco Sandel; 1 female, Philippines - Mindanao / Agusan del Norte Prov. / Sibagat: XII-2012 / Coll. Franco Sandel, all in CFS

Description

Male. Measurements: (holotype) LB: 10.0; LE: 6.5; WE: 4.5; LP: 3.0; WP: 3.0; LR: 1.7; WR: 1.5.
Integument carmine. Body surface strongly shiny, except underside. Light yellow markings of round scales on elytra, pronotum and head.

Rostrum nearly as wide as long (wide/length 1.1) without pubescence on dorsum, with deep ovate impression on basal half, weakly bulging on apical half; each side of rostrum with very few hair-like scales and setae, long, rare setae on labrum; pale yellow ovate scale margins on lateral sides of rostrum and genae. Antennal scape longer than wide, apically widest, strongly latero-laterally flattened; antennal segment 1 elongate, nearly twice long as wide, with the basal third restricted and the remaining two thirds dilated; other segments subspherical, with sparse short setae and pubescence; apical antennomere club-shaped, nearly twice long as wide. Head glabrous, minutely punctured; forehead with shallow impression and a median spot of round, pale greenish yellow scales; eyes relatively small, not prominent from outline of head.

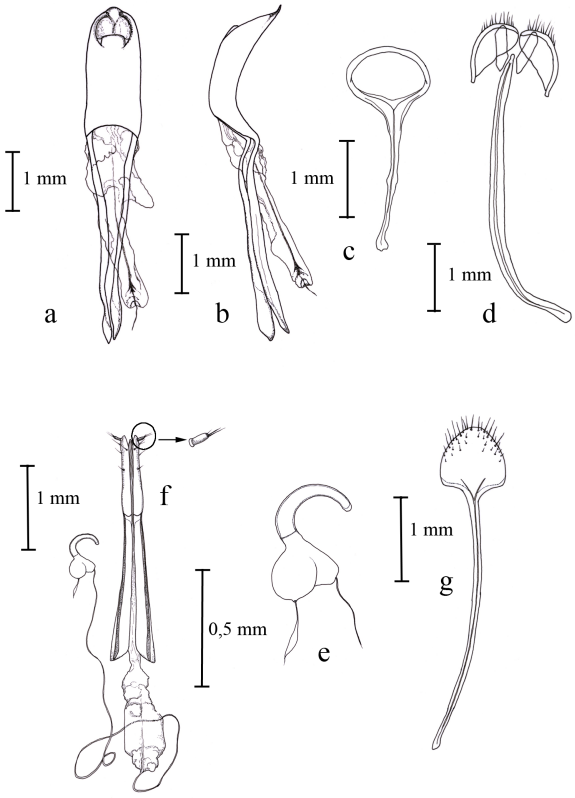

Fig 3. Male genitalia and female terminalia of *Pachyrhynchus banglas* sp. nov. a: penis in dorsal view; b: idem in lateral view; c: sternite IX in dorsal view; d: tegmen in dorsal view; e: spermatheca; f: ovipositor in dorsal view; g: sternite VIII in ventral view

Prothorax elliptical, maximum transverse diameter basal of middle, narrowest before apical margin, as wide as long, shiny, minutely punctured, with pale green scale spot on each side of median portion of prothorax; patch of pale green round scales on anterior portion of lateral margin.

Legs stout; femora clavate, with rare pubescence near base and posterior margins, minutely punctured; tibiae laterally flattened, serrate along internal margins, incurved apically, mucronate at apices, with long hairs along internal margin and minutely pubescent; tarsus with elongate, narrow claws, approximately 0.8 times its length, with brown long setae on all dorsal parts, and light brown hairs on ventral side.

Elytra elongate (LE/LB: 0.7), longer than wide (LE/WE: 1,26), wider than prothorax (WE/WP: 1,5), more than two times longer than prothorax (LE/LP: 2,15); widest in the middle, then strongly narrowed and rounded at apex; elytra with smooth intervals and sparse puncture; dorsal convexity highest in the middle. Each elytron with eleven round or elongate pale green scale spots: 1) two elongate basal spots, one median, one lateral; 2) two round spots on median portion, one median, one lateral; 3) elongate spot before lateral margin, between median and apical portion; 4) one round and two elongate subapical spots; 5) triangular spot on apical

margin; 6) two small round parasutural spots, one postmedian and one subapical.

Sterna and venter sparsely covered with fine light-coloured hairs in addition to minute pubescence, with markings of glossy green-yellow round scales; intercoxal parts of prosternum with yellow scales; metasternum with lateral spots of round yellow scales with golden shining; small scaly patches on ventrites I and II. Ventrite I with wrinkled central portion.

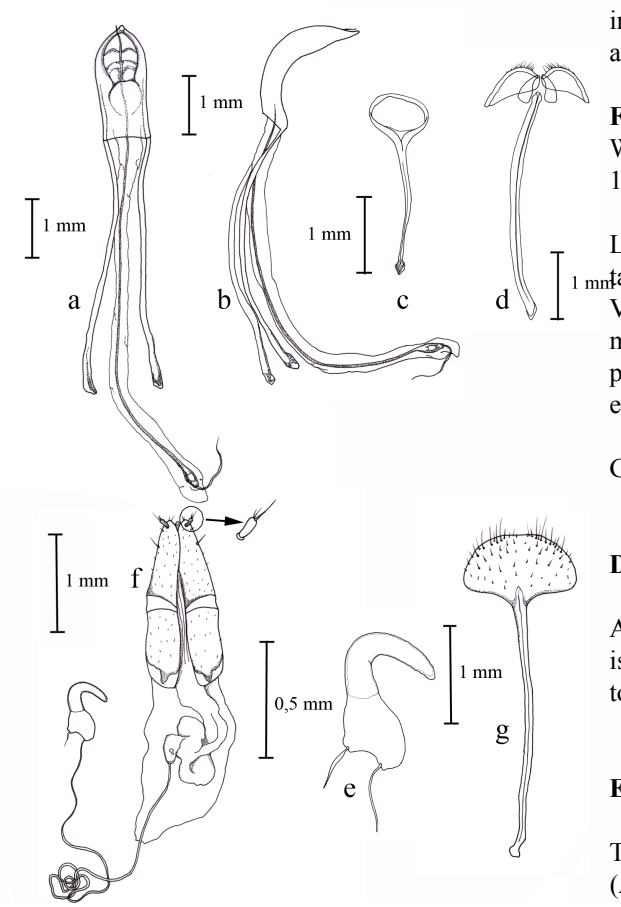

Fig 4. Male genitalia and female terminalia of *Pachyrhynchus esperanza* sp. nov. a: penis in dorsal view; b: idem in lateral view; c: sternite IX in dorsal view; d: tegmen in dorsal view; e: spermatheca; f: ovipositor in dorsal view; g: sternite VIII in ventral view

Genitalia as illustrated (figs. 4a-4d).

All species of the the *Pachyrhynchys schoenherri* species group (see taxonomical notes here below) have the same pattern of the endophallus either in lateral and in ventral view, with a bulbous baso-ventral diverticulum and a large dilatation along the flagellar diverticulum. *Pachyrhynchus esperanza* is the only species which differs from other taxa of the group as it does not have the bulbous baso-ventral diverticulum, and has only a small dilatation along the flagellar diverticulum. We can not state if this difference is a primitive or derived character state, but it seems that the involved species all derive from a common ancestor.

Female. Dimensions: LB: 12.6; LE: 7.3; WE: 5.8; LP: 2.9; WP: 3.3; LR: 1.4; WR: 1.6.

Larger than male; elytra wider and less tapered. Ventrites I and II slightly inflated. Ventrite V widely shallowly depressed along margins, with obtuse triangular laminate projection in middle of apex. Otherwise, essentially as in males.

Genitalia as illustrated (figs. 4e-4g).

Distribution

At best of our knowledge, the new species is distributed from Bukidnon northeastward to Surigao del Sur.

Etymology

The new species is called after Esperanza (Agusan del Sur) from where a nice series was examined. Moreover, the term "Esperanza" is of Spanish origin and means "hope" for peace and serenity to return throughout the island of Mindanao.

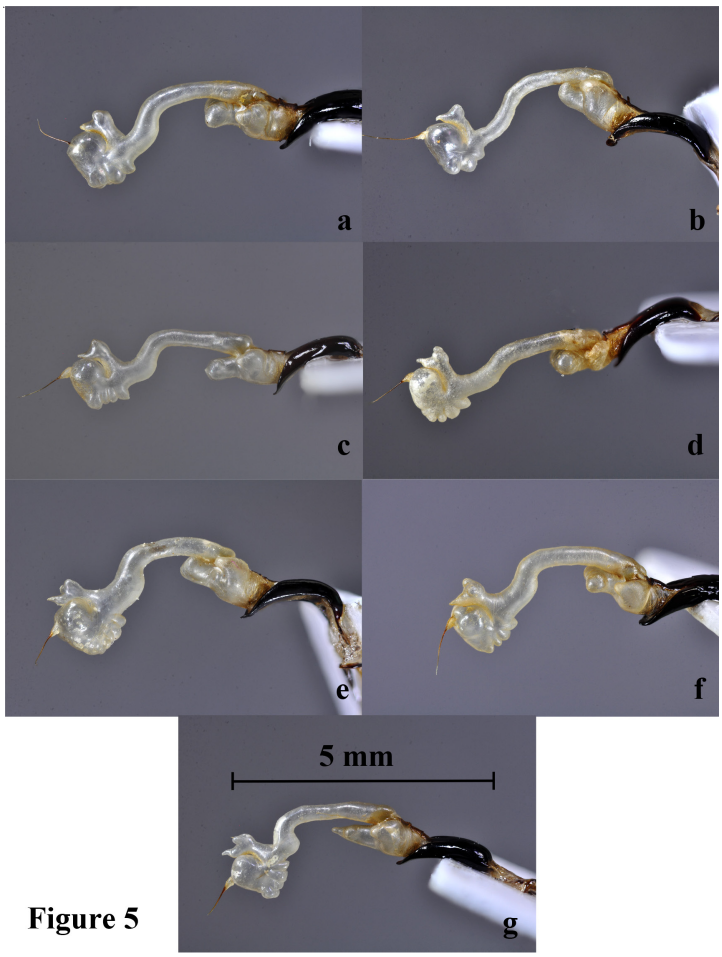

Figure 5

Fig. 5 - endophallus in lateral view. a: *Pachyrhynchus amabilis*; b: *P. banglas*; c: *P. chamissoi*; d: *P. pseudoamabilis*; e: *P. subamabilis*; f: *P. tikoi*; g: *P. zamboanganus*

Taxonomical notes

Pachyrhynchus esperanza sp. nov. shows morphological relationships with a small group of species distributed within the greater Mindanao Pleistocene Aggregate Island Complex (PAIC), which includes Samar, Leyte, Bohol, Siargao, Bucas Grande, Dinagat, Basilan and mainland Mindanao. We define here it as the *schoenherri* species group. Species of this group share the following combination of morphological characters:

1. Integument dark glowing red, with few green tinge.
2. Eyes weakly convex from outline of head.
3. Prothorax subspherical, with sides strongly straightly dilated from very strongly constricted base.
4. Prothorax with a pair of scaly patches on both sides of middle of pronotum.
5. Each elytron with at least the following scaly markings: two basal spots (one median, one lateral); two spots on median portion (one median, one lateral); one postmedian and

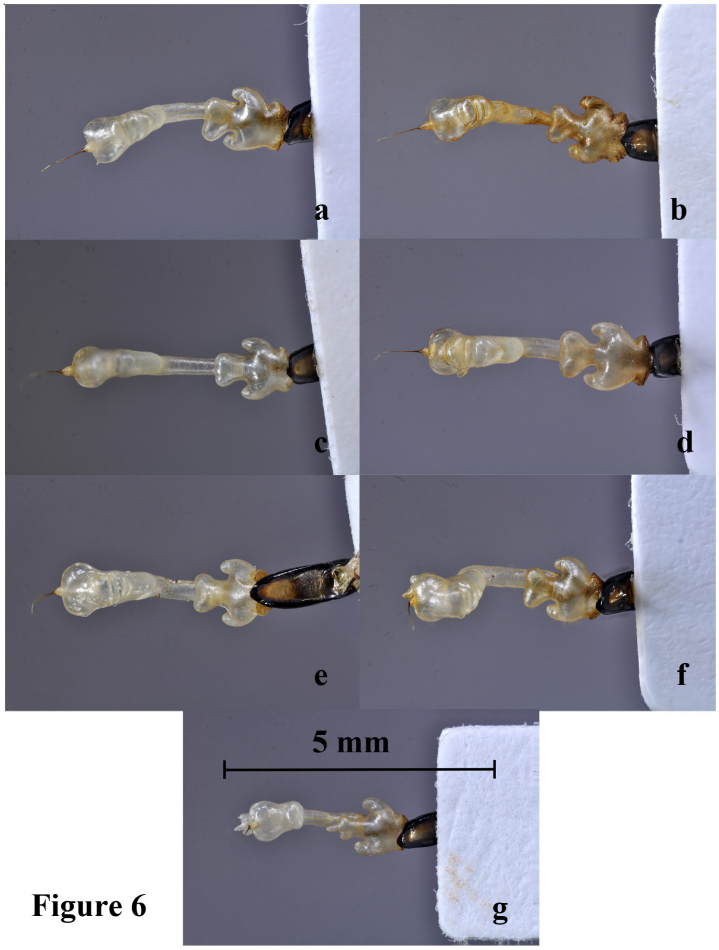

Figure 6

Fig. 6 - endophallus in ventral view. a: *Pachyrhynchus amabilis*; b: *P. banglas*; c: *P. chamissoi*; d: *P. pseudoamabilis*; e: *P. subamabilis*; f: *P. tikoi*; g: *P. zamboanganus*

one subapical spot; one postmedian and one subapical parasutural spot.

To this newly defined group are assigned the following species, in order of the year of description:

1. *Pachyrhynchus schoenherri* Waterhouse, 1841

TL: Philippines, [Leyte]. Type in BMNH, examined.

Note. Recently collected specimens from the island of Leyte perfectly match the holotype of *P. schoenherri*, except the colour of the spots, which in the holotype are green, whereas in our specimens spots are greenish yellow. Specimens with either yellow or green spots usually occur in related species like *P. apoensis*, *P. corpulentus*, *P. nitcisi* and *P. esperanza,* so we can assume that it happens also in *P. schoenherri*.

2. *Pachyrhynchus elegans* Waterhouse, 1842

TL: Philippines, [Northern Samar]. Type in BMNH, examined.

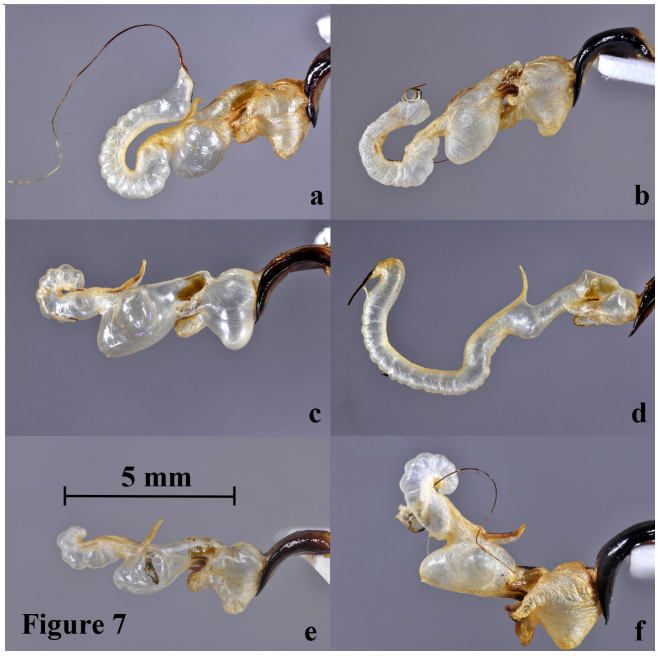

Fig. 7 - endophallus in lateral view. a: *Pachyrhynchus apoensis*; b: *P. corpulentus*; c: *P. elegans*; d: *P. esperanza*; e: *P. nitcisi;* f: *P. schoenherri*

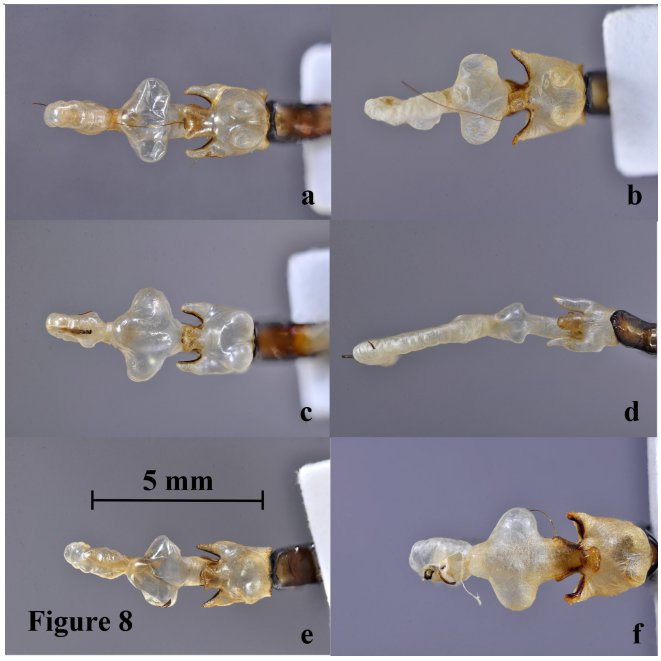

Fig. 8 - endophallus in ventral view. a: *Pachyrhynchus apoensis*; b: *P. corpulentus*; c: *P. elegans*; d: *P. esperanza*; e: *P. nitcisi;* f: *P. schoenherri*

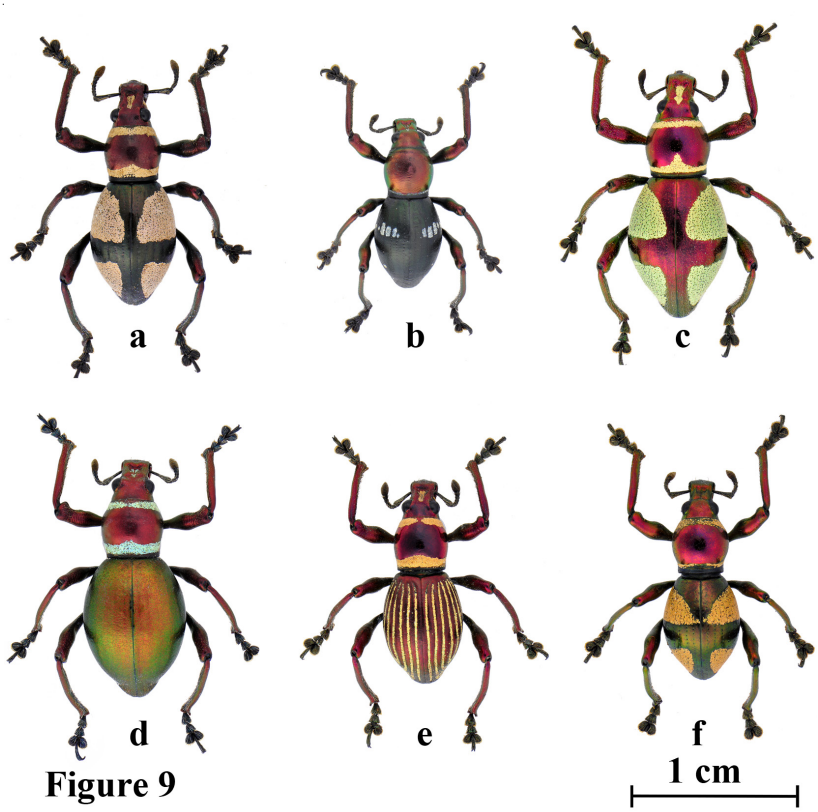

Figure 9

Fig. 9- Other species of the *Pachyrhynchus amabilis* species group. a: *P. amabilis*; b: *P. chamissoi*; c: *P. pseudoamabilis*; d: *P. subamabilis*; e: *P. ticoi*; f: *P. zamboanganus*

= *Pachyrhynchus eos* Heller, 1924 **n. syn.**

TL: Insula Samar. Type in SMTD, examined.

Note. Many specimens of this taxon were recently obtained from Northern Samar, thus we restrict the type locality to the northern part of this island. In Central Samar all specimens match the pattern of *P. eos* Heller, 1924, while in Northern Samar rare specimens matching in various degree the pattern of *P. eos* coexists with much more frequent *P. elegans* typical specimens. Having found no more differences between both taxa than the pattern of elytral spots, we consider them as conspecific. We justify the presence of the two "forms" (so called only for dialectical convenience) because *P. elegans* appears involved in a Müllerian mimicry with other *Pachyrhynchus* species, within others. In fact, *P. elegans* coexists with *P. samarensis* Schultze, 1923 and *P. latifasciatus* Waterhouse, 1842 in Northern Samar, while the *P. eos* form shares the same habitat with *P.* cf. *speciosus* and *P. regius boronganus* Schultze, 1934 in Central Samar. Finally, it is worth noting that both *P. elegans* and *P. latifasciatus* have been recently collected in the same Northern Samar locality, and both taxa were

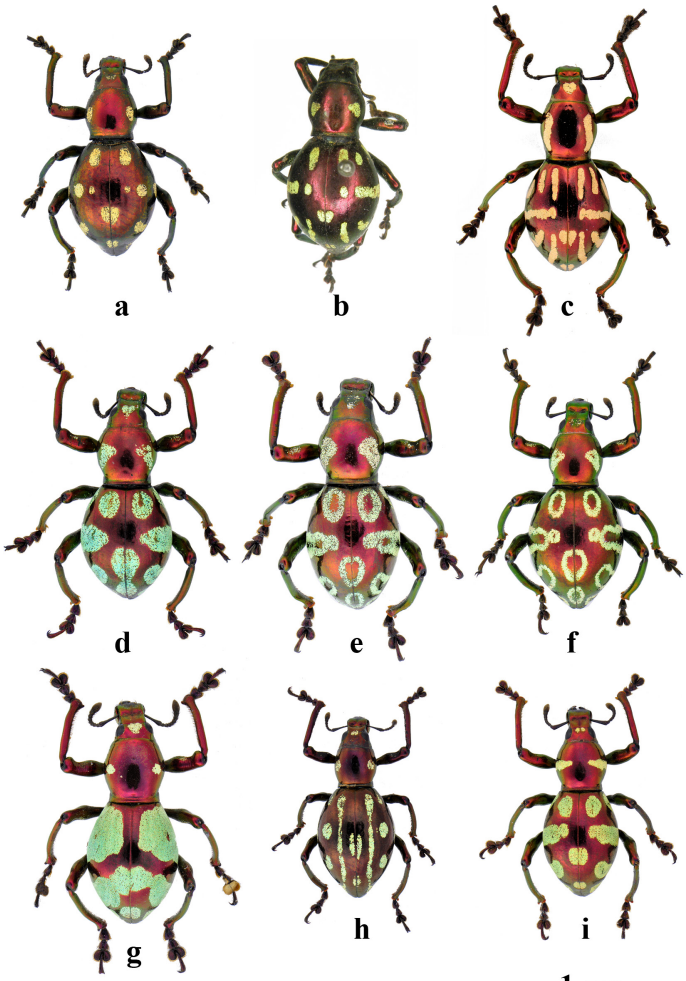

Figure 10

Fig. 10- Other species of the *Pachyrhynchus schoenherri* species group. a: *P. schoenherri*; b: *P. ardentius* (HT, in SMTD); c: *P. corpulentus*; d: *P. elegans* (Northern Samar); e: *P. elegans* (Northern Samar); f: *P. elegans* (Central Samar); g: *P. apoensis*; h: *P. esperanza* (individual form); i: *P. nitcisi*

described by Waterhouse based on Cuming's material supposedly collected in the same locality.

3. *Pachyrhynchus ardentius* Schultze, 1919
TL: Siargao Island. Type in SMTD, examined.

4. *Pachyrhynchus corpulentus* Schultze, 1922
TL: Mindano, Bukidnon, Lindaban [sic!]. Type in SMTD, examined.
Note. This taxon was described by Schultze (1922) as a subspecies of *P. ardentius*, but Yoshitake (2012: 32) upgraded it to species level, and we agree with his opinion.

5. *Pachyrhynchus apoensis* Yoshitake, 2012
TL: Mindanao, Mt. Apo. Type in NIAES.
= *Pachyrhynchus pseudoapoensis* Rukmane & Barðevskis, 2016
TL: Luzon Isl., North Luzon. Type in DUBC, examined.

6. *Pachyrhynchus nitcisi* Rukmane & Barsevskis, 2016
TL: Mindanao, Sarangani, Malungon. Type in DUBC, examined.

7. *Pachyrhynchus esperanza* **sp. nov.**
TL: Mindanao, Agusan del Sur, Esperanza.

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