

To the knowledge of genus *Pachyrhynchus* Germar, 1824 (Coleoptera: Curculionidae: Pachyrhynchini) species from SMNH (Stockholm, Sweden), with description of a new species from the Sibuyan Island (Philippines)

Anita Rukmane

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A new species of the genus *Pachyrhynchus* Germar, 1824 (Coleoptera: Curculionidae: Pachyrhynchini) from Sibuyan Island (Philippines) is described and illustrated: *P. sibuyanensis* sp. nov. This new species is similar in general appearance to *P. moniliferus* Germar, 1824, but differs from it by several morphological characteristics (see differential diagnosis). Additionally to the description of the new species data of the *Pachyrhynchus* species from the Swedish Museum of the Natural History, Stockholm, Sweden (SMNH) is provided and listed. Diagnosis, description, and photographs of the male and female habitus as well as illustrations of male and female genitalia together with a distribution map of the new species is included.

Key words: Pachyrhynchini, *Pachyrhynchus*, Sibuyan, Philippines, new species, taxonomy.

Anita Rukmane. Daugavpils University, Institute of Life Sciences and Technology, Coleopterological Research Center, Vienības Str. 13, Daugavpils, LV - 5401. Latvia; e-mail: anitakraslava@inbox.lv

INTRODUCTION

The genus *Pachyrhynchus* Germar, 1824, with distribution centre at the Philippine Archipelago, has already been well studied in the previous past years (Bollino et al 2017; Rukmane & Cabras 2018). With more than 150 species (Rukmane 2018), taxonomy of the genus has gone far away from establishments done in the past century (Schultze 1923). Yet, as beetles of the genus *Pachyrhynchus* remain commercial, 21st century collections are created mainly from the material bought from the local collectors. As for the past century, majority of the museum material was collected by H. Cuming, such as the collections

from Senckenberg Natural History Collections (SMTD) and the Swedish Museum of the Natural History, Stockholm, Sweden (SMNH). If we look back, Chevrolat was the one who revised the SMNH Pachyrhynchini material. Even if Chevrolat described several new taxa of the genus *Pachyrhynchus*, a big part of them has been synonymised by Schultze who worked with the same material collected by H. Cuming. During my visit to the SMNH I had the opportunity to study the Pachyrhynchini collection and determine all *Pachyrhynchus* species stored there. Here I provide a list of the species from the SMNH, big part of which is the type material earlier described by Chevrolat and later synonymised

by Schultze. Such data can serve as useful information for further taxonomical and biogeographical studies of the genus *Pachyrhynchus*.

Sibuyan is the second largest island in an archipelago comprising Romblon Province, Philippines. According to geological data, the island has never been connected with any part of the Philippine archipelago, which makes its beetle fauna especially interesting. Surrounded by the Sibuyan Sea, the island has two mayor peaks – Mt. Guiting-Guiting (2,058 metres), which also has a National Park status and Mt. Nailog (789 metres). Because of predominance of steep slopes on the Island, much of the original forest remained untouched, covering 33% or 140 square kilometres of the land area. However, plenty of the lower altitude forest has been logged or burn-farmed for industrial needs (Olsson & Knudsen 2004). The forest area of Mt. Guiting-Guiting National Park is generally intact, and includes the entire elevational gradient from lowland dipterocarp forest and mangroves, through montane forest to mossy forest, which is the favourable habitat for beetles of the genus *Pachyrhynchus* and other members of the tribe Pachyrhynchini (Cabras et al. 2017). As for previous studies, no species of the genus *Pachyrhynchus* has ever been recorded from Sibuyan Island or Romblon Province. During the examination of *Pachyrhynchus* material from the SMNH, four specimens were labelled with distribution on Sibuyan Island, Romblon Province. This article presents the first record of Pachyrhynchini from Sibuyan Island, Romblon Province, which, obviously, is new for science.

MATERIAL AND METHODS

The study was based on specimens deposited at the Swedish Museum of the Natural History, Stockholm, Sweden (SMNH). The methods and equipment used in this study were the same as explained in Rukmane (2018). The type specimens of the new species described in this paper are temporary preserved in the Daugavpils University, Study and Research Center “Ilgas” (DUBC),

but after publishing of this paper they will be returned to the SMNH.

Label data are cited *verbatim*. In the text the following symbols and abbreviations were used:

/ = different lines

// = different labels

Number of specimens examined is written in brackets after citation of the label.

RESULTS

Pachyrhynchus sibuyanensis sp. nov.

(Fig. 1A, 1B, 2)

Type material. Holotype: Male (Fig. 1A) “PHILIPPINES / ROMBLON / 1984” (white rectangular card, written by hand); “NHRS-JLKB / 000065431” (white rectangular card, printed); “HOLOTYPE / Male / *Pachyrhynchus sibuyanensis* Rukmane, 2019 / det. Rukmane A. 2019” (red rectangular card, printed)

Paratypes (2 males, 1 female): “PHILIPPINES / ROMBLON / 1984” (white rectangular card, written by hand); “NHRS-JLKB / 000065432” (white rectangular card, printed); “PARATYPE / Male / *Pachyrhynchus sibuyanensis* Rukmane, 2019 / det. Rukmane A. 2019” (red rectangular card, printed). “C. PHILIPP. / SIBUYAN / L. ROMBLON 1982” (white rectangular card, written by hand); “NHRS-JLKB / 000065434” (white rectangular card, printed); “PARATYPE / Male / *Pachyrhynchus sibuyanensis* Rukmane, 2019 / det. Rukmane A. 2019” (red rectangular card, printed). “C. PHILIPP. / SIBUYAN / L. ROMBLON 1982” (white rectangular card, written by hand); “NHRS-JLKB / 000065433” (white rectangular card, printed); “PARATYPE / Female / *Pachyrhynchus sibuyanensis* Rukmane, 2019 / det. Rukmane A. 2019” (red rectangular card, printed).

Distribution: Philippines, Romblon province, Sibuyan Island (Fig. 3).

Description. Male. LB: 10.6–11.2 (holotype 11.2; mean 10.87); LP: 3.3–3.5 (holotype 3.5; mean 3.4); WP: 3.3–3.8 (holotype 3.8; mean 3.57); LE: 7.4–8.2 (holotype 8.2; mean 7.8); WE: 4.6–5.0 (holotype 5.0; mean 4.8); LR: 1.9 (holotype 1.9; mean 1.9); WR: 1.8–1.9 (holotype 1.8; mean 1.83). N = 3 for all measurements. Dorsal habitus as shown in Fig. 1A.

Integument black. Body surface strongly shiny, underside with weaker lustre. Different markings of the round recumbent iridescent pale yellow scales on elytra, prothorax, rostrum and femur. Head sub glabrous; forehead weakly punctured, less than two times as wide as eye width; eyes relatively small, weakly prominent from the outline of the head. Antennae with glossy surface, mingled with long, light hairs in all length; scape relatively slender, shorter than funicle; funicular segment I more than twice as long as wide, 1.5 times longer than II; segment II 1.5 times/ as long as wide, nearly 2 times as long as III; segments III – V sub equal in length and width, equal in length and width, slightly shorter than segment VI; segment VI bigger, slightly longer than wide, shorter and smaller than segment VII; segment VII slightly longer than wide; club sub ellipsoidal, 1.5 times as long as wide, nearly as long as funicular segments V to VII combined. Forehead without scally markings, weakly punctured, very weakly expressed. Rostrum longer than wide (LR/WR: 1.06); basal part of the rostrum minutely pubescent; dorsum weakly punctured, with moderately deep triangular concavity on basal part and shallow longitudinal medial groove from the middle of the rostrum to middle of the forehead; shallow transverse groove along midline of the rostrum; two triangular shape scally patches inside concavity, patches interrupted by longitu-

dinal groove; weak apical bulge that flattish dorsally, with a pair of oblique elliptic shallow depressions on the middle; dorsal contour of forehead and rostrum moderately arched in basal half, generally declined to midline and weakly rising to apical 2/3 after gradually declined to apex; patch of scally markings on genae.

Prothorax with the following markings: 1) transverse line along sub apical margin in all length; 2) big patch of scales along each of the lateroventral parts; 3) two elongated scally patches from the medial part of the pronotum to base, reaching basal $\frac{3}{4}$, patches redirected laterally; Sub globular, wider than long, WP/LP: 1.09; weakly punctured; dorsal contour highest slightly before middle apically; sides gradually rounded; basal margin expressed, weakly arched basally. Each elytron with the following scally markings: 1) elongated scally patch along interval III, from basal 1/5 to basal 4/5; 2) thick transverse line along midline, from lateral margin to suture; 3) longitudinal line along interval III to IV from the midline to apex where line arches along lateral margin of elytra from apex to midline, where line connects with the transverse line; 4) longitudinal patch of scales along interval IX to lateral margin, from basal 1/5 to basal 4/5; scutellum expressed; elytra strongly shiny, sub ellipsoidal, LE/WE: 1.64, wider than prothorax, WE/WP: 1.32, more than twice as long as prothorax, LE/LP: 2.34; moderately punctured with even intervals; dorsal contour highest just in the middle; sides gradually extending from base, widest just in the middle, then gradually narrowed to apex.

Legs slender, strongly shiny; femur near apical end with few general scales along internal margin; Genitalia as illustrated (Fig. 2).

Female. LB: 13.0; LP: 3.8; WP: 4.0; LE: 9.1; WE: 6.0; LR: 2.0; WR: 1.9. N = 1. Dorsal habitus as shown in Fig. 1B.

Rostrum slightly longer than wide; LR/WR: 1.05; prothorax wider than long; WP/LP: 1.05; elytra wider than in male; LE/WE: 1.52, wider than prothorax; WE/WP: 1.5.

Differential diagnosis. In the general appearance the new species is similar to *P. moniliferus* Germar, 1824 but differs by various morphological features: 1) prothorax less rounded than in *P. moniliferus*; 2) different scally markings on the prothorax; 3) scutellum of the new species expressed; 4) femur near apical end without stripe

of scally markings; 5) base of elytra of the new species narrower as compared to highest with of elytra; 6) rostrum of then new species wider, with two scally patches on apical depression; together with unique distribution of the new species that, according to available data, is limited to Sibuyan Island.

Etymology. This new species is named after Sibuyan Island which is the only known locality of this new species.

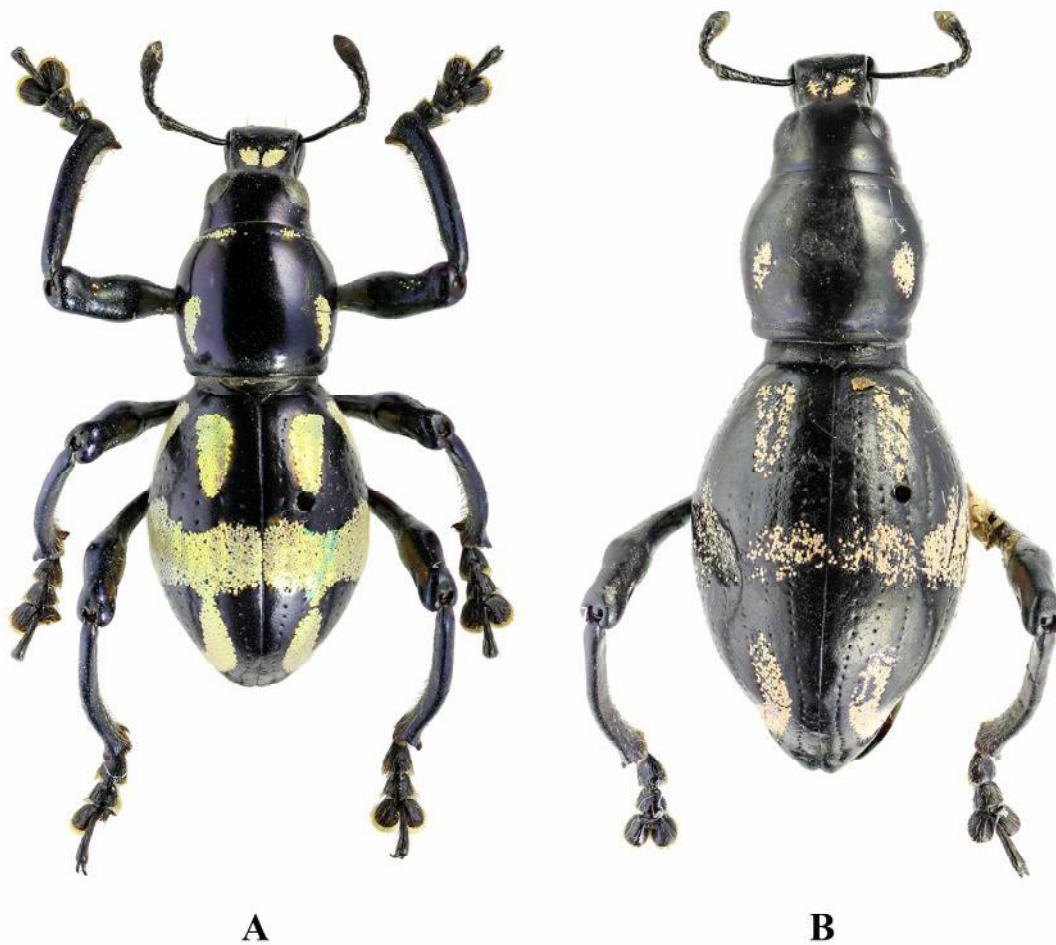


Fig. 1. Dorsal habitus of *P. sibuyanensis* sp. nov.; A – male; B – female.

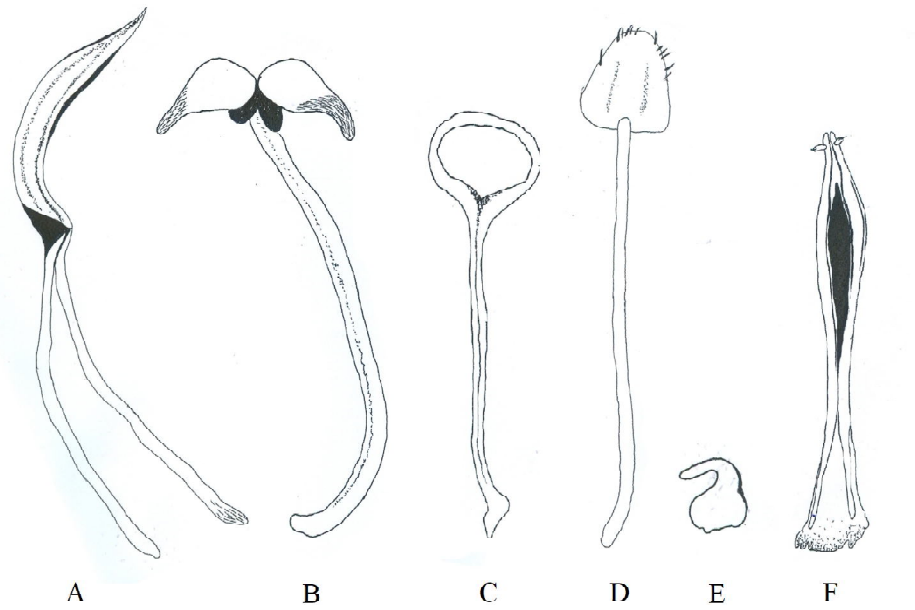


Fig. 2. Male genitalia and female terminalia of *P. sibuyanensis* sp. nov., holotype, male: A–C; paratype, female: D–F; A – aedeagus in lateral view; B – sternite IX in dorsal view; C – tegmen in dorsal view; D – sternite VIII in ventral view; E – spermatheca; F – apex of ovipositor in dorsal view. Scale: 1.00 mm.

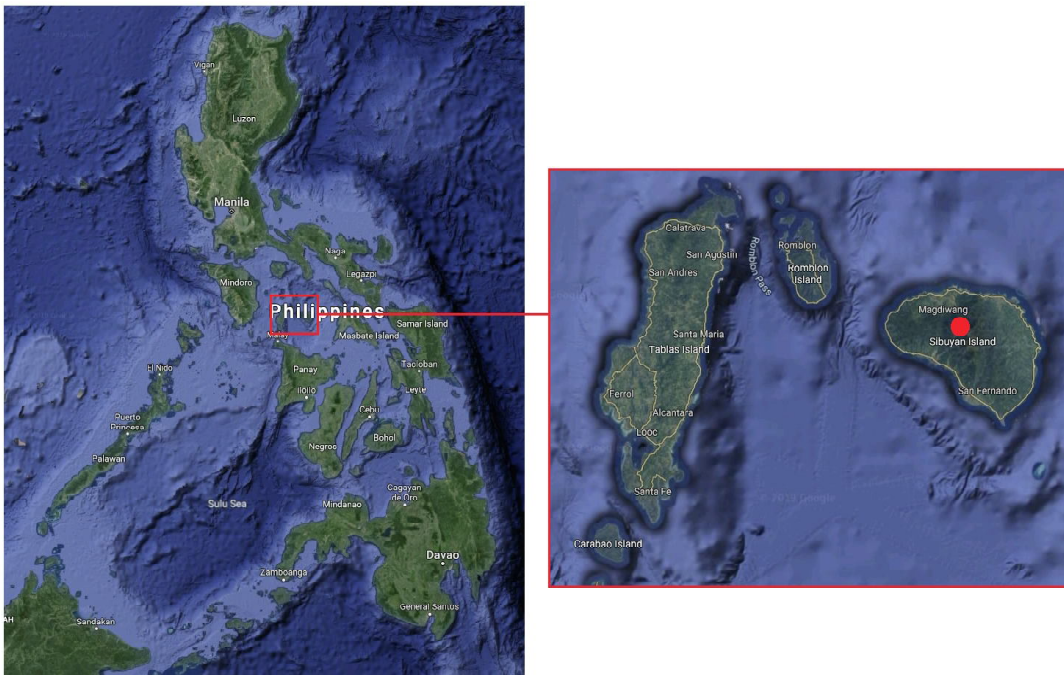


Fig. 3. Distribution map of the *P. sibuyanensis* sp. nov. (marked with red)

SMNH *Pachyrhynchus* species list

1. *Pachyrhynchus amabilis* Schultz, 1922

Philippines / Mindanao / 1977 / (1); Philippines / Mindanao, Zamboanga / 04. 1989 / (1)

2. *Pachyrhynchus anititchenkoi* Rukmane & Barševskis, 2016

Philippines / Mindanao, Zamboanga / 1991 / (1)

3. *Pachyrhynchus annelifer* Heller, 1912

Philippines / Luzon, Baguio / 07. 1986 / (5)

4. *Pachyrhynchus annulatus* Chevrolat, 1881

Philippines / Luzon, Mt. Province / 1987 / (1)

5. *Pachyrhynchus apicatus* Schultz, 1922

Philippines / Marinduque / 1974 / (1); Philippines / Luzon / 1975 / (1)

6. *Pachyrhynchus ardentius* Schultz, 1919

Philippines / Mindanao, Mt. Apo / 02. 1976 / (2)

7. *Pachyrhynchus argus* Pascoe, 1873

Philippines / Luzon, Manilla / (3); Philippines / Luzon, Baguio / 1986 / (4)

8. *Pachyrhynchus chlorites* Chevrolat, 1881

TYPE / Philippines / (1); Philippines / Luzon, Manilla / (4)

9. *Pachyrhynchus circulatus* Pascoe, 1873

Philippines / Catanduanes / (2)

10. *Pachyrhynchus congestus* Pascoe, 1873

= *luteoguttatus* Chevrolat, 1841; TYPE / Philippines / (1)

Philippines / Luzon, Manilla / (5); Philippines / Luzon, Baguio / 1957 / (1); Philippines / Luzon, Mt. Province / 1986 / (4)

11. *Pachyrhynchus corpulentus* Schultz, 1922

Philippines / Mindanao, Zamboanga / 1991 / (1)

12. *Pachyrhynchus croesus* Oberthur, 1879

TYPE / Sangir / (1)

13. *Pachyrhynchus dohrni* Behrens, 1887

Philippines / Luzon, Manilla / (1)

14. *Pachyrhynchus disgestus* Heller, 1929

Philippines / Luzon, Mt. Province / 1986 / (2)

15. *Pachyrhynchus dubiosus* Schultz, 1922

Philippines / Luzon, Mt. Banahao / (1); Philippines / Luzon, Mt. Province / 1987 / (3)

16. *Pachyrhynchus erichsoni* Waterhouse, 1841

Philippines / Mindanao, Surigao / 1983 / (7)

17. *Pachyrhynchus forsteni* Snellen van Vollenhoven, 1864

Tirrate / (2)

18. *Pachyrhynchus gemmatus* Waterhouse, 1841

Philippines / (1); Philippines / Luzon, Manilla / (4); Philippines / Luzon, Mt. Province / 06. 1990 / (2)

19. *Pachyrhynchus gloriosus* Faust, 1895

Philippines / Negros Island / 07. 05. 1984 / (1)

20. *Pachyrhynchus halconensis* Schultze, 1922

Philippines / Mindoro, Mt. Halcon / 1987 / (1)

21. *Pachyrhynchus hirokii* Yoshitake, 2012

Philippines / Mindanao / 1976 / (2)

22. *Pachyrhynchus inclytus* Schultze, 1924

= *ignipes* Chevrolat, 1841; TYPE / Philippines / (2)

Philippines / (2); Philippines / Luzon, Manilla / (3); Philippines / Luzon, Mt. Province / (3)

23. *Pachyrhynchus jugifer* Waterhouse, 1841

Philippines / Luzon, Manilla / (8); Philippines / Panay, Capiz / 03.08.1986 / (1)

24. *Pachyrhynchus lorquini* Chevrolat, 1881

TYPE / Philippines / (2); Philippines / Marinduque, Mt. Malindig / 1991 / (2)

25. *Pachyrhynchus moniliferus* Germar, 1824

= *mandarinus* Chevrolat, 1841; TYPE / Philippines / Luzon / (2); TYPE / Ind. or China / (3); Philippines / (6); Philippines / Luzon / (2), Philippines / (14); Philippines / Luzon / (1); Philippines / Luzon, Manilla / (40); Philippines / Luzon / Laguna / Mt. Makiling / 06. 1981 / (1); Philippines / Marinduque / 12. 1972 / (3); Philippines / Marinduque / 03. 1973 / (2); Philippines / Marinduque / 03. 1974 / (2); Philippines / Bohol Island / 1985 / (2); Philippines / Negros Island / 1984 / (4)

26. *Pachyrhynchus multipunctatus* Waterhouse, 1841

= *auroguttatus* Chevrolat, 1841; TYPE / Philippines / Luzon / (1)

TYPE / Philippines / (1); TYPE / Philippines / Luzon, Manilla / (1); Philippines / Luzon, Manilla / (3); Philippines / Bohol Island / 27. 06. 1984 / (2)

27. *Pachyrhynchus negrosensis* Schultze, 1924

Philippines / Negros Island / 06. 1990 / (1)

28. *Pachyrhynchus nobilis* Heller, 1912

Philippines / Luzon, Mt. Prov. / 1987 / (9)

28.1. *Pachyrhynchus nobilis yamianus* Kano, 1929

Formosa / 1965 / (3)

29. *Pachyrhynchus occidentalis* Rukmane, 2017

Philippines / Mindanao / 03. 1985 / (1)

30. *Pachyrhynchus orbifer* Waterhouse, 1841

= *pretiosus* Chevrolat, 1841; / TYPE / Philippines / (10); TYPE / Philippines / Luzon, Manilla / (1); Philippines / (2)

= *fahraei* Chevrolat, 1841; TYPE / Philippines / (7)

TYPE / Philippines / (3); Philippines / (30); Philippines / Luzon / (4); Philippines / Luzon, Manilla / (8); Philippines / Luzon / 1975 / (3); Philippines / Luzon / 1979 / (3); Philippines / Luzon, Mt. Province / 1986 / (2); Philippines / Mindanao, Surigao / 1983 / (6)

30.1. *Pachyrhynchus orbifer* ssp. *gemmans* Chevrolat, 1841

TYPE / Philippines / Luzon, Manilla / (7); Philippines / (9)

31. *Pachyrhynchus perpulcher* Waterhouse, 1841

Philippines / Batanes / 07. 1984 / (2)

32. *Pachyrhynchus pinorum* Pascoe, 1871

= *subersatus* Chevrolat, 1841; TYPE / Philippines

Philippines / Luzon / (4); Philippines / Luzon, Mt. Makiling / 05. 1957 / (3)

33. *Pachyrhynchus postpubescens* Schultze, 1922

Philippines / Bohol Island / 27. 06. 1984 / (4); Philippines / Mindanao, Mt. Apo / 02. 1976 / (2)

34. *Pachyrhynchus pulchellus* Behrens, 1879

Philippines / Luzon / 12. 1987 / (1); Philippines / Luzon, Manilla / (1)

35. *Pachyrhynchus reicherti* Schultze, 1929

Philippines / Mindoro / 1981 / (1)

36. *Pachyrhynchus reticulatus* Waterhouse, 1841

TYPE / Philippines / (1); Philippines / (3); Philippines / Luzon, Manilla / (4); Philippines / Marinduque, Boac / 1972 / (4)

37. *Pachyrhynchus rufopunctatus* Waterhouse, 1842

Philippines / (2)

38. *Pachyrhynchus rukmanee* Rarševskis, 2016

Philippines / Marinduque / 05. 1985 / (1)

39. *Pachyrhynchus sanchezi* Heller, 1912

Philippines / Mindanao, Surigao / 1983 / (2)

40. *Pachyrhynchus sarcitis* Behrens, 1887

Philippines / (1); Philippines / Batanes / 07. 1984 / (2)

41. *Pachyrhynchus semperi* Heller, 1912

Philippines / Batanes / 07. 1984 / (1)

42. *Pachyrhynchus shavrinii* Rukmane & Barševskis, 2016

Philippines / Luzon / 1989 / (1)

43. *Pachyrhynchus smaragdinus* Behrens, 1887

Philippines / Mindanao, Misamis / 05. 1957 / (1); Philippines / Mindanao, Surigao / 1983 / (4); Philippines / Mindanao, Surigao / 1989 / (1)

44. *Pachyrhynchus sonani* Kano, 1930

Formosa / 1965 / (3)

45. *Pachyrhynchus speciosus* Waterhouse, 1841

TYPE / Philippines / (1); Philippines / Samar Island / (1); Philippines / Mindanao / 02. 1977 / (4); Philippines / Mindanao, Surigao / 06. 1983 / (4); Philippines / Mindanao, Surigao / 11. 1983 / (4)

46. *Pachyrhynchus subamabilis* Yoshitake, 2012

Philippines / Mindanao / 1977 / (2)

47. *Pachyrhynchus tobafolius* Kano, 1929

Japan / (2); Formosa / (1)

48. *Pachyrhynchus torresi* Rukmane, 2018

Philippines / Mindanao, Zamboanga / 1989 / (1)

49. *Pachyrhynchus tristis* Heller, 1912

Philippines / Luzon, Mt. Province / 1985 / (1)

50. *Pachyrhynchus venustus* Waterhouse, 1841

Philippines / (3); Philippines / Luzon, Manilla / (6)

51. *Pachyrhynchus viridans* Heller, 1912

Philippines / Negros Island / 12.07. 1984 / (2); Philippines / Sibuyan Island / 1982 / (3)

52. *Pachyrhynchus zebra* Schultze, 1917

Philippines / Luzon, Baguio / (4)

DISCUSSION

A total of 52 species had been identified from the SMNH *Pachyrhynchus* material, 7 species are synonyms described by Chevrolat, 6 species belong to type series material of the valid species. The majority of the material belongs to species described in the past century, with only 7 out of 52 determined species that are described from 2012 to 2018. This is the result of discoveries of new *Pachyrhynchus* localities on various sites of the Philippine archipelago in the recent

years. Big part of the material is labelled with the distribution at Manilla, which give no distribution information as previously the locality of Manilla had the meaning of the entire Philippine archipelago. For example, *P. jugifer* Waterhouse, 1841 that is known to be endemic of the Panay Island (as proven by various records from new collection material) is labelled with distribution at Manilla. The fact, that one species described from the old museum material is new to science only proves that it is very important to review material stored in old *Pachyrhynchus* collections.

Such data is complimentary and necessary for a complete revision of the genus *Pachyrhynchus*.

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