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# CHECKLIST OF *PACHYRHYNCHUS* GERMAR, 1824 (COLEOPTERA: CURCULIONIDAE: PACHYRHYNCHINI) SPECIES OF ZMUC (NATURAL HISTORY MUSEUM OF DENMARK, UNIVERSITY OF COPENHAGEN)

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Presented here is a checklist for the Pachyrhynchus species available in Natural History Museum of Denmark, University of Copenhagen (ZMUC). A total of 25 valid species and two subspecies was listed, encompasses of 17% the total Pachyrhynchus species number known to genus Pachyrhynchus, respectively.

Key words: *Pachyrhynchus*, museum material, taxonomy, determination, Philippines.

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## INTRODUCTION

Currently genus *Pachyrhynchus* comprises 145 described species (Rukmane 2018). Early monographs and scientific papers described genus *Pachyrhynchus* in detail (Schultze 1923, Barševskis 2016).

On account of observable aspect of weevils of genus *Pachyrhynchus*, they are favourable material for beetle collection collectors all over the globe, and presents in majority of world's biggest museum coleoterological collections, with total of 43.5% of type species located in SMTD, 16.5% in NHML and 13% in DUBC.

Although such collections as SMTD and NHML are continuously observed by several foreign experts of this genus, collections with smaller number of specimens and lack of type species remain unexplored. Estimated number of coleoptera specimens stored in ZMUC compiles 4000000 specimens.

This report provides a reference point for those wishing to identify weevils of genus *Pachyrhynchus* and is additional source for a future systematic revision. It is based on a checklist of genus *Pachyrhynchus* (Rukmane 2018), and includes 25 species and two subspecies available in ZMUC. Although the family is well – defined, there is some uncertainty regarding to distribution of some species. For example, according to material from ZMUC, most of species distribution is labelled as ''Luzon Island, Manilla'', even for those species where type species distribution is Mindanao island. This leads to doubts of truthfulness of such labels. In this paper, specimens with such labels are noted as ''label doubtful''.

## MATERIALS AND METODS

Species were identified by using species description and taxonomic keys for genus *Pachyrhynchus* (Rukmane 2016, Chen & Lin 2017, Bollino et al. 2017) and examination of type specimens from SMTD – Senckenberg Natural History Collections of Dresden (Germany) and NHML – Natural History Museum of London (United Kingdom).

All species included herein were eventually deposited in the ZMUC – Natural History Museum of Denmark, University of Copenhagen. Fig.s with pictures of dorsal habitus and attached labels are added for each of herein recorded species, Fig. nr. 1, 2, and 3 respectively.

## RESULTS

1. ***Pachyrhynchus argus*** Pascoe, 1873 (Fig. nr. 1A)
Material: Philippines, Luzon Island (1 ♂, 1 ♀), Manilla (1 ♀). Total: 3 ex.
2. ***Pachyrhynchus chlorites*** Chevrolat, 1881 (Fig. nr. 1B)
Material: Philippines, Luzon Island (1 ♂, 3 ♀). Total: 4 ex.
3. ***Pachyrhynchus congestus*** Pascoe, 1873 (Fig. nr. 1C)
Material: Philippines (2 ♂, 1 ♀), Luzon Island, Manilla (1 ♂). Total: 4 ex.
4. ***Pachyrhynchus congestus ssp. ocellatus*** Schultze, 1924 (Fig. nr. 1D)
Material: Philippines, Luzon Island (1 ♂, 1 ♀). Total: 2 ex.
5. ***Pachyrhynchus cruciatus*** Schultze, 1923 (Fig. nr. 2A)
Material: Philippines, Luzon Island (2 ♂), Manilla (1 ♂). Total: 3 ex.
6. ***Pachyrhynchus dohrni*** Behrens, 1887 (Fig. nr. 1E)
Material: Philippines, Luzon Island (1 ♂, 2 ♀). Total: 3 ex.
7. ***Pachyrhynchus gemmatus*** Waterhouse, 1841 (Fig. nr. 1G)
Material: Philippines, Luzon Island (1 ♂, 2 ♀), Manilla (1 ♀). Total: 4 ex.
8. ***Pachyrhynchus inclytus*** Schultze, 1924 (Fig nr 1H)
Material: Philippines, Luzon Island (1 ♂, 1 ♀). Total: 2 ex.
9. ***Pachyrhynchus jugifer*** Waterhouse, 1841 (Fig. nr. 1J)
Material: Luzon Island, Manilla (1 ♂, 3 ♀). Total: 4 ex.
10. ***Pachyrhynchus lorquini*** Chevrolat, 1881 (Fig. nr. 1K)
Material: Philippines, Luzon Island (1 ♂, 1 ♀). Total: 2 ex.
11. ***Pachyrhynchus moniliferus*** Germar, 1824 (Fig. nr. 1L)
Material: Philippines (2 ♂, 2 ♀), Luzon Island (3 ♀), Manilla (13 ♂, 13 ♀); China (2 ♀, label doubtful); Palaos (1 ♂, label doubtful). Total: 36 ex.
12. ***Pachyrhynchus morotaiensis*** Snellen van Vollenhoven, 1864 (Fig. nr. 1F)
Material: Indonesia, Molucas (1 ♂); 2 ♀ without label. Total: 3 ex.
13. ***Pachyrhynchus multipunctatus*** Waterhouse, 1841 (Fig. nr. 2B)
Material: Philippines (1 ♂, 2 ♀). Total: 3 ex.
14. ***Pachyrhynchus nobilis*** Heller, 1912 (Fig. nr. 2C, D)
Material: Philippines, Luzon Island (2 ♂). Total: 2 ex.
15. ***Pachyrhynchus ochroplagiatus*** Heller, 1912 (Fig. nr. 2E)
Material: Philippines (1 ♀). Total: 1 ex.
16. ***Pachyrhynchus orbifer*** Waterhouse, 1841 (Fig. nr. 2F)
Material: Philippines (1 ♀), Luzon Island (1 ♂, 1 ♀), Manilla (3 ♂, 3 ♀); Indonesia, Molucas (1 ♂, label doubtful). Total: 10 ex.
16.1. ***Pachyrhynchus orbifer ssp. gemmans*** Chevrolat, 1841 (Fig. nr. 2G)
Material: Philippines, Luzon Island (1 ♂, 2 ♀), Manilla (4 ♂, 3 ♀); New Guinea (2 ♀, label doubtful); 1 ♀ without label. Total: 13 ex.
17. ***Pachyrhynchus pinorum*** Pascoe, 1873 (Fig. nr. 2H)
Material: Philippines (2 ♂, 3 ♀). Total: 5 ex.
18. ***Pachyrhynchus pulchellus*** Behrens, 1887 (Fig. nr. 2I)
Material: Philippines, Luzon Island (1 ♂); Indonesia, Molucas (1 ♂, label doubtful). Total:

2 ex.

19. ***Pachyrhynchus reticulatus*** Waterhouse, 1841 (Fig. nr. 2J)
Material: Philippines (2 ♂), Luzon Island, Manilla (1 ♂, 1 ♀). Total: 4 ex.

20. ***Pachyrhynchus rufopunctatus*** Waterhouse, 1841 (Fig. nr. 2K)
Material: Philippines, Luzon Island, Manilla (1 ♂, 2 ♀). Total: 3 ex.

21. ***Pachyrhynchus rugicollis*** Waterhouse, 1841 (Fig. nr. 2L)
Material: Philippines (2 ♂), Luzon Island (1 ♀), Manilla (1 ♀); 1 ♀ unlabelled. Total: 5 ex.

Fig. 1: A – *P. argus*; B – *P. chlorites*; C – *P. congestus*; D – *P. congestus* ssp. *ocellatus*; E – *P. dohrni*; F – *P. morotaiensis*; G – *P. gemmatus*; H – *P. inclytus*; I – *P. yamianus*; J – *P. jugifer*; K – *P. lorquini*; L – *P. moniliferus.*


Fig. 3. A – *P. smaragdinus*; B – *P. speciosus*; C – *P. tobafolius*; D – *P. zamboanganus.*

22. ***Pachyrhynchus smaragdinus*** Behrens, 1887 (Fig. nr. 3A)
Material: Philippines, Luzon Island (2 ♂, 1 ♀), Manilla (1 ♂. Total: 3 ex.

23. ***Pachyrhynchus speciosus*** Waterhouse, 1841 (Fig. nr. 3B)
Material: Philippines, Luzon Island, Manilla (1 ♂, label doubtful). Total: 1 ex.

24. ***Pachyrhynchus tobafolius*** Kano, 1929 (Fig. nr. 3C)
Material: Formosa, 1963 (2 ♂, 2 ♀). Total: 4 ex.

25. ***Pachyrhynchus zamboanganus*** Yoshitake, 2012 (Fig. nr. 3D)
Material: Philippines, Mindanao Island, Zamboanga del Norte, 25. II. 1998 (3 ♂, 5 ♀). Total: 8 ex.

26. ***Pachyrhynchus yamianus*** Kano, 1929 (Fig. nr. 1I)
Material: Formosa, 1963 (1 ♀). Total: 1 ex.

**Total:** 25 species, 135 specimens.

## DISSCUSION

According to original type species localities (type specimens observed by author in SMTD and NHML museum collections), original distribution of *Pachyrhynchus moniliferus* is Luzon, while

Fig. 2. A – *P. cruciatus*; B – *P. multipunctatus;* C, D – *P. nobilis*; E – *P. ochroplagiatus*; F – *P. orbifer ssp. gemmatus*; G – *P. orbifer;* H – *P. pinorum*; I – *P. pulchellus*; J – *P. reticulatus*; K – *P. rufopunctatus*; L – *P. rugicollis.*

part of material from ZMUC is labelled as China (2 ♀) and Palaos (1 ♂) which is clearly doubtful as weevils from genus *Pachyrhynchus* show high level of endemism and one particular species tend to inhabit single island. Part of *Pachyrhynchus orbifer* specimens are labelled as Molucas (1 ♂) and New Guinea (2 ♀) for *P. orbifer* ssp. *gemmans,* respectively, which also is questionable as originally this species is distributed on Luzon. Similarly with *P. pulchellus* which is originally distributed on Luzon island, and part of material from ZMUC is labelled as Molucas (1 ♂), in order with *P. speciosus* which is distributed on Mindanao Island, with subspecies distributed on Mindanao PAIC, while one specimen from ZMUC is labelled as Luzon, Manilla (1 ♂). Three species were labelled with distribution range of Philippines (*P. multipunctatus, P. ochroplagiatus, P.pinorum*), those species, according to literature and observed material from SMTD, NHML and DUBC are distributed only on Luzon island.

Related to increasing anthropogenic impact and climate change, faunistic research is essential for analysing biodiversity of Philippines and also for compassionating processes occurring in nature. Data from faunistic research are important as to fundamental sciences, either to applied sciences such as agriculture, ecology, forestry and environmental protection. Such data and making a checklist are the most crucial steps to evaluate the data available and suitable for use by general public and scientists.

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