

# BIFA6\_032 Communications Output

## Blogposts



In the early days of March this year, TEE Lab project officer Mark Yim travelled to Oxford University Museum of Natural History (OUMNH) in the UK for a week to examine their dung beetle collections and to determine the efforts necessary to integrate their collections into our GBIF project: "[Mobilising data on ecologically important insects in Malaysia and Singapore](https://teelabntu.wixsite.com/home/post/examining-the-dung-beetle-collections-at-oxford-university-museum-of-natural-history)".

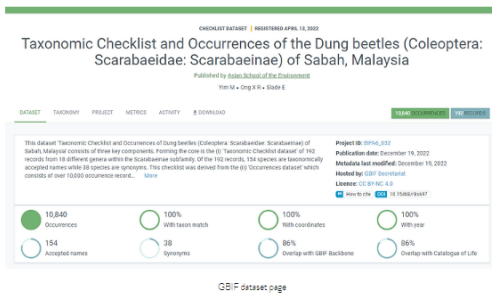


**[BLOG POST]** (GBIF-BIFA) Examining the Dung Beetle Collections at Oxford University Museum of Natural History

31 March 2023

<https://teelabntu.wixsite.com/home/post/examining-the-dung-beetle-collections-at-oxford-university-museum-of-natural-history>

Note: This trip to Oxford is in place of our original plan to visit Helsinki.



This occurrence dataset attempts at providing documentation of all known occurrence of dung beetles in Sabah, Malaysia and will be updated as new occurrences are discovered. The data from this occurrence dataset were obtained from published taxonomic papers, ecological papers and published datasets containing extractable occurrence records for dung beetles in Sabah, Malaysia. Each record contains the species name, followed by information such as, event date, individuals, elevation, locality and location remarks. References to the data source is also provided under the column associatedReferences. Each occurrence is linked back to the taxonomic checklist dataset using the column 'taxonID' and this ID can be used in the resources (extension) to locate the data source. Combined together, we hope that this taxonomic checklist and occurrence extension will aid users for future research in the dung beetles of Sabah.



**[BLOG POST]** (GBIF-BIFA) Taxonomic Checklist and Occurrences of the Dung Beetles in Sabah, Malaysia

10 Feb 2023

<https://teelabntu.wixsite.com/home/post/gbif-bifa-taxonomic-checklist-and-occurrences-of-the-dung-beetles-in-sabah-malaysia>

Note: This dataset has now been split for the checklist and occurrences to standalone.



BORNEENSIS Entomological Collection (top left) Eleanor and Li Yuen examining the dung beetle collection (top right) Marx examining dung beetle type specimens (bottom left) Xin Rui and Marx cataloging in progress (bottom right)

Throughout the week, we endeavored to determine the efforts necessary to integrate their dung beetle collection. This involved examining the type of data that is available for each specimen, creating a simple catalogue of their collection and also obtaining datasets both online and offline. We also had the exciting opportunity to examine several key type specimens and morphospecies which will serve as important reference to our work in the future.

*Engagement*



**[BLOG POST] (GBIF-BIFA) A Fruitful Week at ITBC-UMS BORNEENSIS Dung Beetle Collection in Sabah**

05 July 2022

<https://teelabntu.wixsite.com/home/post/examining-itbc-ums-s-borneensis-dung-beetle-collection-in-sabah>



Seminar poster (left) Marx presenting GBIF project to FRC staff (right)

**[BLOG POST] (GBIF-BIFA) Examining the Dung Beetle Collection at Forest Research Centre-Sepilok, Sabah**

13 July 2022

<https://teelabntu.wixsite.com/home/post/examining-the-dung-beetle-collection-at-forest-research-centre-sepilok-sabah>

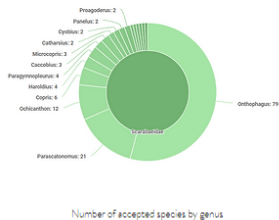
On one of the days, Marx Yim was invited to speak in a seminar that was open to all FRC staff and researchers. He spoke about our GBIF project "Mobilising data on ecologically important insects in Malaysia and Singapore" where he shared more about the objectives, function and application of GBIF and also about our project in-depth. This was followed by a Q&A session where queries regarding best practices for digitisation workflows, tools used in our project and how to publish on GBIF were discussed.

FRC Entomological Collection





This taxonomic checklist provides documentation of all described dung beetle species in Sabah, Malaysia and will be updated as new species are described. Currently, it contains a total of 192 records consisting of 154 accepted species and 38 synonyms. Biodiversity data found within this taxonomic checklist were obtained from published taxonomic papers, ecological papers and published datasets containing occurrence records for dung beetles in Sabah, Malaysia.



Each record not only contains the species name derived from literature, but also in-depth higher taxonomic classifications (e.g., genus, subgenus), authorship, taxonomic status, taxon rank, accepted names and original names. References of when the species name was first established along with the authoritative taxonomic reference are also given for each record.

## [BLOG POST] (GBIF-BIFA) Taxonomic Checklist of the Dung Beetles in Sabah, Malaysia

13 April 2022

<https://teelabntu.wixsite.com/home/post/gbif-bifa-taxonomic-checklist-of-the-dung-beetles-in-sabah-malaysia>



Processing a dung beetle (*Cathartus renaudoulii*) for imaging. Photo 2020 Mark Yim

The Tropical Ecology and Entomology (TEE) Lab is ecstatic to announce that we are embarking on a Global Biodiversity Information Facility (GBIF) project on "Mobilising data on ecologically important insects in Malaysia and Singapore". Funded by the Biodiversity Information Fund for Asia (BIFA) and supported by the Ministry of the Environment, Government of Japan (MOEJ), this project will be spearheaded by TEE Lab's PI, Dr. Eleanor Slade.



## [BLOG POST] (GBIF-BIFA) Mobilising Data on Ecologically Important Insects in Malaysia & Singapore GBIF Project By BIFA/MOEJ

1 November 2021

<https://teelabntu.wixsite.com/home/post/mobilising-data-on-ecologically-important-insects-in-malaysia-singapore-gbif-proj-funded-by-bifa>



# Guidebook

*Copris* (*Copris*) *agnus* Sharp, 1875  
*Copris sinicus* Hepe, 1842

**Microcopris**  
*Microcopris* *hidaiari* Ochi & Kon 1996  
*Microcopris* *dariae* (Harold, 1877)

**Caccobius**  
*Caccobius* *bawawensis* Ochi, Kon & Kikuta, 1997  
*Caccobius* (*Caccobius*) *binodulus* Harold, 1877

**Parascatonomus**  
*Parascatonomus* (*Pseudonthophagus*) *penicillatus* Harold, 1879  
*Parascatonomus* (*Necramator*) *semicupreus* Harold, 1877  
*Parascatonomus* (*Necramator*) *brachelli* Ochi, Kon & Barclay, 2008  
*Parascatonomus* (*Necramator*) *dius* Sharp, 1875  
*Parascatonomus* (*Necramator*) *surifex* Harold, 1877  
*Parascatonomus* (*Necramator*) *semiaureus* Lansberge, 1883  
*Parascatonomus* (*Conradidensum*) *rudis* Sharp, 1875  
*Parascatonomus* (*Necramator*) *sarawacus* Harold, 1877

**Onthophagus Group 1**  
*Onthophagus* (*Macrothophagus*) *diabolicus* Harold, 1877  
*Onthophagus* (*Onthophagus*) *inclusus* Harold, 1877  
*Onthophagus* *rotarius* Harold, 1877  
*Onthophagus* (*Onthophagus*) *angustatus* Boucomont, 1914  
*Onthophagus* (*Serrophorus*) *mulleri* Lansberge, 1883  
*Onthophagus* (*Onthophagus*) *aff. rutilans*  
*Onthophagus* (*Onthophagus*) *borneensis* Harold 1877

**Onthophagus Group 2**  
*Onthophagus* (*Onthophagiellus*) *aff. dolensae* Lansberge, 1885  
*Onthophagus* (*Panonthophagus*) *aff. hidaiari* Ochi & Kon, 1995  
*Onthophagus* (*Onthophagus*) *aff. falcatus* Boucomont, 1914  
*Onthophagus* (*Onthophagus*) *kawaharai* Ochi & Kon, 2007  
*Onthophagus* (*Paraphanaeomorphus*) *tridentibulatus* Ochi & Kon, 2008

## SEX DIFFERENCES

### Paragymnopleurus

Males have a bifurcated tibial spur on their forelegs, while in females, the tibial spur on their forelegs is sharply pointed. Due to burrowing behaviour this trait can be worn down and sometimes difficult to distinguish between the sexes.



### Styphnus/Ochicanthos

Spines are present on middle and posterior legs of males, while spines are absent in females. Female legs uniformly curved.



### Catharsius

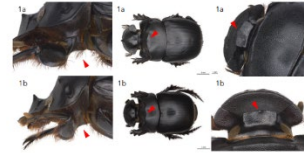
Males have a single head horn. Pronotal horns in major males are more distinct. Females have a well defined ridge across the head. Determining the sex of the smallest individuals is difficult without dissecting out the genitalia.



## Key to Catharsius

Key to species

1. a. Long erect hairs (setae) between forelegs on underside of thorax. Large males have anteriorly curved ridge between pronotal horns. Females have a slight ridge running posteriorly from a small protrusion at the middle of the clypeal ridge ..... **C. ranaoipauliani**
- b. Not very few hairs (setae) on between forelegs on underside of thorax. Large males with lateral ridge between pronotal horns. Females with only a small protrusion at the middle of the clypeal ridge (no ridge running posteriorly) ..... **C. dityacus**



It is to be noted that we have observed a gradient of character traits across different individuals in these two species. Thus, we stress that a combination of these traits should be used to ensure accurate identification of these two species.

## Parascatonomus



*Parascatonomus semiaureus*. Photo: Chien C. Lee

Species from this group are largely necrophagic, and are thus often found in carrion-baited or carnivore dung-baited pitfall traps. Most species in this group have a distinct bicoloured appearance, where their pronotum is shiny red or red/green and their elytra is brown or black.

## *Proagoderus watanabei* (Ochi & Kon, 2002)



CFTL: dorsal, lateral, ventral, frontal

Size	Colouration	Habitats
12 - 18.7 mm	Purple-brown	

**Identification.** *Proagoderus watanabei* is easily identified by its glossy purple-brown colouration, relatively large body size and general appearance. The granulation on its pronotum is elongated and roughly oval in shape. Both sexes have pronotum structuring, consisting of a depression flanked by ridges at the anterior of the pronotum. Both males and females have two head horns. There are three identified males: alpha, beta and gamma. The expression of its long and curvy head horns of alpha males are the greater as compared to beta males. Gamma males look similar to females. Large males have a single pronotal horn and substantial modification of pronotum structuring.

**Ecology.** Large diurnal tunneller. Generally found at highest abundance in disturbed habitats, but also common and often trapped within primary forest and oil palm plantations

**See.** References, Table 1, S/N 4