

## Trogidae, Hybosoridae and Scarabaeidae: Dynamopodinae (Coleoptera: Scarabaeoidea) of Somaliland

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**Abstract.** We present the results of a field survey of scarabaeoid groups Hybosoridae, Trogidae and Scarabaeidae: Dynamopodinae in Somaliland. We obtained the studied material on the basis of a research project focused on the arthropod fauna of the Somaliland (2017–2022). We recorded seven species of the family Trogidae, three species of the family Hybosoridae and one species of the subfamily Dynamopodinae. The species *Omorgus (Afromorgus) gemmatus* (A. G. Olivier, 1789) (Trogidae), *Hybosorus ruficornis* Boheman, 1857 and *Phaeochroops beccarii* Harold, 1871 (both Hybosoridae), and *Orubesa plicifrons semenowi* (Arrow, 1911) (Dynamopodinae) represent the first country records from Somaliland. Material of the species *Omorgus (Afromorgus) expansus* (Arrow, 1900) represents the first published specimen other than the holotype. We created distribution maps and presented photographs of the dorsal habitus of all species studied.

**Key words.** Distribution, faunistics, scarab beetles, Somalia, Horn of Africa, Afrotropical Region.

### INTRODUCTION

This study is one part of the results generated during the Czech-Somaliland inter-university research project focused on the arthropod fauna of the Somaliland (2017–2022). It is dealing with scarab beetle groups Trogidae, Hybosoridae, and Dynamopodinae. So far, three other papers have been published on the basis of this project, concerning Cetoniinae (Král et al. 2019), Ochodaecidae (Sommer et al. 2020), and Melolonthinae (Bezděk et al. 2023).

The scarab beetles (Scarabaeoidea) are an enormously large and diversified group of beetles adapted to live in a variety of habitats. Some of them exhibit parental care and sociality, some are myrmecophilous, termitophilous or ectoparasitic. Scarabaeoidea belong to the most popular insects among naturalists due to their large-length bodies, one or more extravagant horns on the head and pronotum (mostly in Bolboceratidae, Geotrupidae, and Scarabaeidae), large mandibles (in Lucanidae), bright colours (Scarabaeidae: Cetoniinae and Rutelinae) and interesting life histories. They form a distinctive and evidently monophyletic cosmopolitan coleopteran group comprising about 2,600 genera and more than 35,000 species are known so far (cf. e.g., Scholtz & Grebennikov 2016). The group is represented in the Somaliland and adjacent areas by subterranean forms feeding on roots or soil organic matter (Glaresidae, Hybosoridae, Scarabaeidae: Aphodiinae, Chironinae, Dynamopodinae, Eremazinae, Melolonthinae, Orphninae or Rutelinae), or forms associated with rotting wood (Scarabaeidae: Dynastinae, Cetoniinae, Valginae), fungi (Bolboceratidae, Ochodaecidae), carcasses (Trogidae) or excrements (Scarabaeidae: Scarabaeinae, Aphodiinae).

Trogidae represents a relatively small group of beetles with 342 extant species in seven genera and two subfamilies (Schoolmeesters 2023). The family is unique among Scarabaeoidea since adults and larvae of all species feed primarily on keratin. They are among the last insects that visit carcasses and various other animal remains. Adults stridulate but larvae do not. Eggs are usually laid beneath the carcass and larvae drag pieces of skin and hairs into their vertical tunnels beneath it. Some species have been recorded feeding on bat guano (e.g., Strümpher et al. 2014, 2016, Scholtz & Grebennikov 2016).

Hybosoridae is a relatively small family, living all over the world. They are relatively heterogeneous scarab beetles. The group currently includes five subfamilies with 78 genera and 722 species and subspecies. Little is known about hybosorid biology. Adults and larvae usually exhibit a different food strategy. Adults feed on dung, carrion, fungi, and rotting wood. Larvae have been collected in decomposing plant material, soil or in dead wood (e.g., Basílio 2023, Hřůzová et al. 2023, Schoolmeesters 2023).

Dynamopodinae with monotypic genus *Orubesa* Reitter, 1895 contains several poorly known, morphologically uniform species, occurring from Senegal, through North Africa (Morocco and Libya) to Sudan, and across the Arabian Peninsula to Iran, Iraq, Middle Asia, Afghanistan and Pakistan. They are easily recognisable by the unique shape of meso- and metatibial terminal spurs (calcaria), which are roughly fringed at the apex. Immature stages are not yet known and

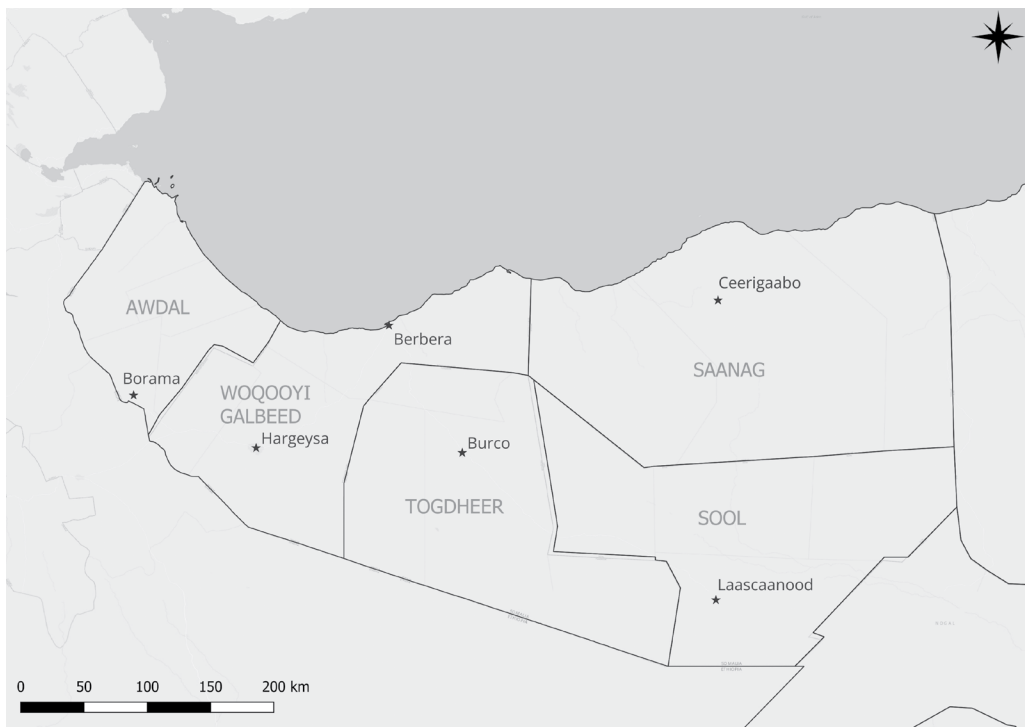


Fig. 1. Map of Somaliland with the administrative regions and their capitals marked.

we know almost nothing about their biology. They are very often attracted to light sources (e.g., Král & Bezděk 2016, Tauzin 2016, Krell 2021).

Only scarce records of scarabaeoid beetles of above groups were available from Somaliland. Those were usually based on singletons and accidental samplings and occasional regional surveys (Lansberge 1882, Gahan 1896, Müller 1939, 1942, Endrődi 1962, 1970, Pittino 2005, 2011) or in the list of material in a revision work or monograph (Haaf 1953, 1954, Scholtz 1980, Kuijten 1983, 1986, Tauzin 2016, Krell 2021).

This contribution is dedicated to our colleague and friend Daniel Frynta (Charles University, Prague, Czechia), a prominent zoologist, on the occasion of his 60th birthday.

## MATERIAL AND METHODS

The study is based on altogether 847 specimens of the mentioned taxonomic groups. The material was collected mainly by DK and DS and also by other members of the expeditions (see Acknowledgements chapter, for details) during the research project focused on the arthropod fauna of the Somaliland (expeditions during 2017–2022). Specimens were examined with an Olympus SZ61 stereomicroscope, measurements were taken with an ocular grid. The habitus photographs were taken using a Canon EF-S 60 mm f/2.8 Macro USM lens attached to a Canon EOS 70D camera. Partially focused images of each specimen were combined using Zerene Stacker (Zerene Systems LLC, Richland, USA). All pictures were digitally enhanced using Adobe Photoshop CC. Distribution maps were produced and edited in QGIS 3.22.0. For map layers, free levels 0–1 data from Global Administrative Areas (<http://www.gadm.org>, ver. 2., combined with Stamen Terrain Background (<http://www.maps.stamen.com>) were used. For distribution maps, were used present data by the authors.

Information in quotation marks indicates the original spelling. Our remarks and additional comments are placed in brackets (“[ ]”). By countries of the Horn of Africa we mean Djibouti, Eritrea, Ethiopia and Somalia (including Somaliland). If “Sudan” is mentioned in the distribution of individual species, it means both Sudan and South Sudan, which declared independence only recently (2012), and so it is impossible to find out which country exactly it is in most citations.

The species are arranged alphabetically in the systematic account. The nomenclature follows Schoolmeesters (2023). Family/subfamily group names classification is adopted from Bouchard et al. (2011).

The material is stored in the collections of the National Museum, Prague, Czechia (curator Jiří Hájek), some voucher samples are in the collection of David Sommer, Prague, Czechia and Lucie Hrůzová, Prague, Czechia.

## RESULTS

### Trogidae: Omorginae

#### *Omorgus (Afromorgus) denticulatus* (A. G. Olivier, 1789)

(Figs. 2A, 5)

PUBLISHED RECORDS. Gahan (1896: 451): “Somaliland”; Scholtz (1980: 51): “Burao”, “Berbera”, “Daghabur”.

MATERIAL EXAMINED (276 specimens). **Awdal**: Borama, Amoud University Campus, 9°56'50"N 43°13'23"E, ca. 1400 m a. s. l., 12.–28. vii. 2021, 140 spec., D. Král & D. Sommer lgt.; Jidhi, S of school env., 10°37'14"N 43°04'08"E, ca. 450 m a. s. l., 15.–17. vii. 2021, 39 spec., D. Král & D. Sommer lgt.; S of Habaas, 10°24'40"N 42°48'45"E, ca. 850 m a. s. l., 17.–18. vii. 2021, 18 spec., D. Král & D. Sommer lgt.; Gargoorey, school, 10°14'25"N 43°03'05"E, ca. 1230 m a. s. l., 18.–19. vii. 2021, 1 spec., D. Král & D. Sommer lgt.; NW of Xoorey, 10°10'59"N 43°21'49"E, ca. 840 m a. s. l., 22.–23. vii. 2021, 9 spec., D. Král & D. Sommer lgt.; Ruqi, S of school, 9°58'01"N 43°25'35"E, ca. 1130 m a. s. l., 25.–26. vii. 2021, 5 spec., D. Král & D. Sommer lgt. **Sanaag**: Gar Adag, 9°29'21"N 46°52'01"E, ca. 780 m a. s. l., 9. x. 2021, 3 spec., P. Kabátek lgt.; 17 km SE of Huhuul, 9°54'34"N 46°50'00"E, ca. 890 m a. s. l., 10. x. 2021, 23 spec., P. Kabátek lgt. **Togdheer**: Burao, Egal hotel env., 9°33'24"N 45°32'00"E, ca. 1050 m a. s. l., 20.–21. viii. 2018, 2 spec., P. Kabátek, D. Král & D. Sommer lgt.; NW of Shanshacade, school, 8°39'36"N 45°56'00"E, ca. 800 m a. s. l., 29.–31. viii. 2018, 7 spec., P. Kabátek, D. Král & D. Sommer lgt.; E of Shanshacade, water pool, 8°39'37"N 45°57'24"E, ca. 800 m a. s. l., 10.–11. vi. 2022, 3 spec., D. Král & D. Sommer lgt. **Woqooyi Galbeed**: Las Geel, 9°46'48"N 44°26'43"E, ca. 1050 m a. s. l., 3.–5. ix. 2017, 6 spec., D. Král lgt.; NW of Sheikh, 9°56'36"N 45°11'00"E, ca. 1430 m a. s. l., 6.–7. ix. 2017, 3 spec., D. Král lgt.; SW of Awbarkhadle by road, 9°39'48"N 44°15'48"E, 1130 m a. s. l., 2. ix. 2018, 3 spec., P. Kabátek, D. Král & D. Sommer lgt.; NE of Mandera, wadi, 9°57'54"N 44°42'30"E, ca. 780 m a. s. l., 2. ix. 2018, 1 spec., P. Kabátek, D. Král & D. Sommer lgt.; S of Cali-Haidh, 10°01'07"N 43°46'53"E, ca. 1090 m a. s. l., 23.–24. vii. 2021,

1 spec., D. Král & D. Sommer lgt.; Agabar, school, 9°55'19"N 43°55'17"E, ca. 930 m a. s. l., 24.–25. vii. 2021, 6 spec., D. Král & D. Sommer lgt.

**DISTRIBUTION.** This species is widely distributed in East African countries (Kenya, Sudan, Tanzania and Uganda). We also know it from the countries of the Horn of Africa, so far from Djibouti and Somalia including Somaliland (Scholtz 1980, Zidek 2013, 2017, Schoolmeesters 2023).

**COLLECTION CIRCUMSTANCES.** Most of the specimens were collected individually on carcasses and remnants of feathers and fur, less then using a light source.

### *Omorgus (Afromorgus) expansus* (Arrow, 1900)

(Figs. 2B, 8)

**PUBLISHED RECORDS.** Arrow (1900: 22): "Somalia" [type locality]; Scholtz (1980: 57): "Central & East Somaliland" [locality label of holotype].

**MATERIAL EXAMINED** (1 specimen). **Togdheer:** E of Shanshacade, waterholes, 8°39'30"N 45°57'24"E, ca. 790 m a. s. l., 30. viii. 2018, 1 ♂, at light, P. Kabátek, D. Král & D. Sommer lgt.

**DISTRIBUTION.** So far known only from Somalia (including Somaliland). Our material represents the first published specimen other than the holotype and confirms occurrence in Somaliland.

**COLLECTION CIRCUMSTANCES.** The only collected specimen was attracted using a light source.

### *Omorgus (Afromorgus) gemmatus* (A. G. Olivier, 1789)

(Figs. 2C, 6)

**PUBLISHED RECORDS.** None.

**MATERIAL EXAMINED** (45 specimens). **Awdal:** Borama, Amoud University Campus, 9°56'50"N 43°13'23"E, ca. 1400 m a. s. l., 12.–28. vii. 2021, 1 spec., D. Král & D. Sommer lgt.; Jidhi, S of school env., 10°37'14"N 43°04'08"E, ca. 450 m a. s. l., 15.–17. vii. 2021, 11 spec., D. Král & D. Sommer lgt.; S of Habaas, 10°24'40"N 42°48'45"E, ca. 850 m a. s. l., 17.–18. vii. 2021, 6 spec., D. Král & D. Sommer lgt.; NW of Xoorey, 10°10'59"N 43°21'49"E, ca. 840 m a. s. l., 22.–23. vii. 2021, 2 spec., D. Král & D. Sommer lgt. **Togdheer:** Beerato, 9°21'29"N 45°03'59"E, ca. 990 m a. s. l., 9.–10. vi. 2022, 12 spec., D. Král & D. Sommer lgt. **Woqooyi Galbeed:** Dacar-Budhuq, 9°35'48"N 44°10'40"E, ca. 1200 m a. s. l., 28. viii. 2017, 4 spec., D. Král lgt.; Las Geel, 9°46'48"N 44°26'43"E, ca. 1050 m a. s. l., 28.–30. viii. 2017, 5 spec., D. Král lgt.; SW of Awbarkhadle by road, 9°39'48"N 44°15'48"E, 1130 m a. s. l., 2. ix. 2018, 4 spec., P. Kabátek, D. Král & D. Sommer lgt.

**DISTRIBUTION.** A species widespread in eastern and northwestern Africa including the western part of the Sahel (Chad, Mali, Mauritania, Niger, Nigeria, Senegal and Sudan), from where it reaches Egypt and the Arabian Peninsula. From the countries of the Horn of Africa, it is recorded from Eritrea, Ethiopia, Djibouti and Somalia (Scholtz 1980, Zidek 2013, 2017, Schoolmeesters 2023). Confirmation occurrence in Somaliland.

**COLLECTION CIRCUMSTANCES.** Most of the specimens were collected individually on carcasses and remnants of feathers and fur, less then using a light source.

### *Omorgus (Afromorgus) niloticus* (Harold, 1872)

(Figs. 2D, 7)

**PUBLISHED RECORDS.** Scholtz (1980: 55): "Berbera".

**MATERIAL EXAMINED** (134 specimens). **Awdal:** Borama, Amoud University Campus, 9°56'50"N 43°13'23"E, ca. 1400 m a. s. l., 12.–28. vii. 2021, 37 spec., D. Král & D. Sommer lgt.; same data, but 6.–25. vi. 2022, 1 spec.; S of Habaas, 10°24'40"N 42°48'45"E, ca. 850 m a. s. l., 17.–18. vii. 2021, 4 spec., D. Král & D. Sommer lgt.; Gargoorey, school, 10°14'25"N 43°03'05"E, ca. 1230 m a. s. l., 18.–19. vii. 2021, 4 spec., D. Král & D. Sommer lgt.; NW of Xoorey, 10°10'59"N 43°21'49"E, ca. 840 m a. s. l., 22.–23. vii. 2021, 4 spec., D. Král & D. Sommer lgt.; Ruqi, S of school, 9°58'01"N 43°25'35"E, ca. 1130 m a. s. l., 25.–26. vii. 2021, 4 spec., D. Král & D. Sommer lgt. **Sanaag:** S of Yufle by



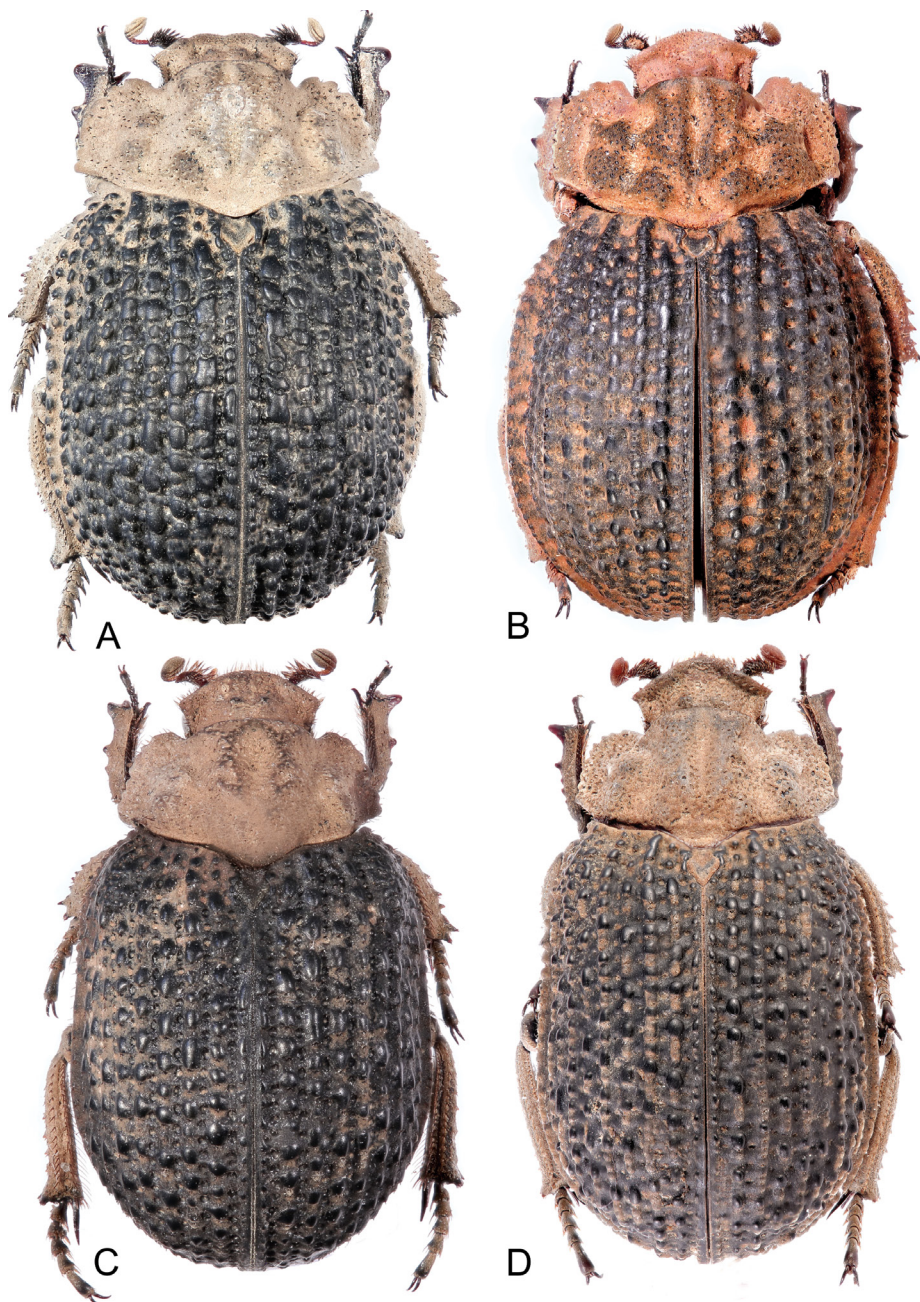


Fig. 2. Habitus in dorsal view. A – *Omorgus (Afromorgus) denticulatus* (A. G. Olivier, 1789), 17 mm, Borama 2021; B – *O. (A.) expansus* (Arrow, 1900), 20 mm, Shanshacade; C – *O. (A.) gemmatus* (A. G. Olivier, 1789), 14 mm, Beerato; D – *O. (A.) niloticus* (Harold, 1872), 16 mm, Borama 2022. Not to scale.

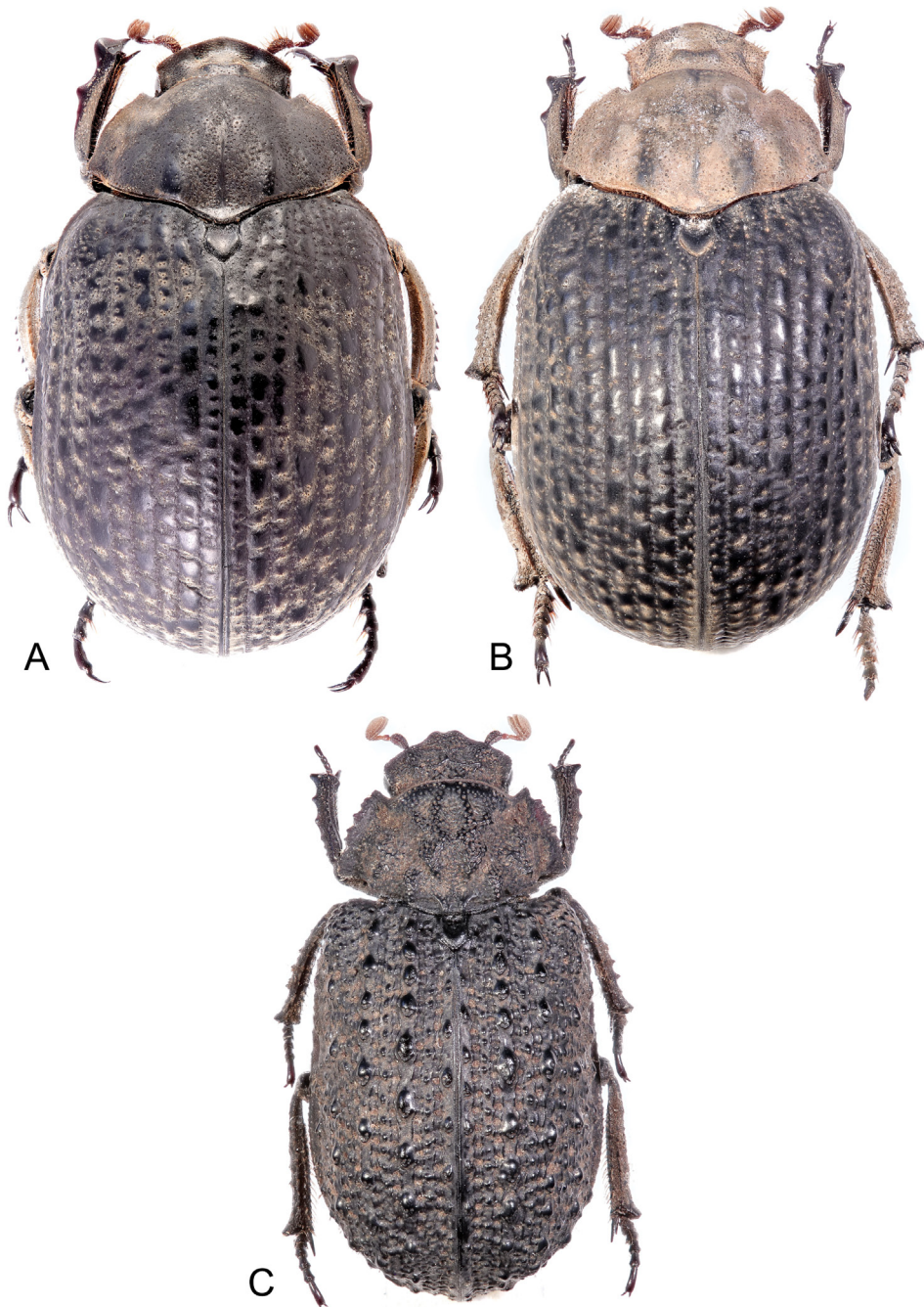


Fig. 3. Habitus in dorsal view. A – *Omorgus (Afromorgus) procerus* (Harold, 1872), 19 mm, Jidhi; B – *O. (A.) squalidus* (A. G. Olivier, 1789), 18 mm, Lascanood; C – *Phoberus squamiger* (Roth, 1851), 10 mm, Daallo forest. Not to scale.



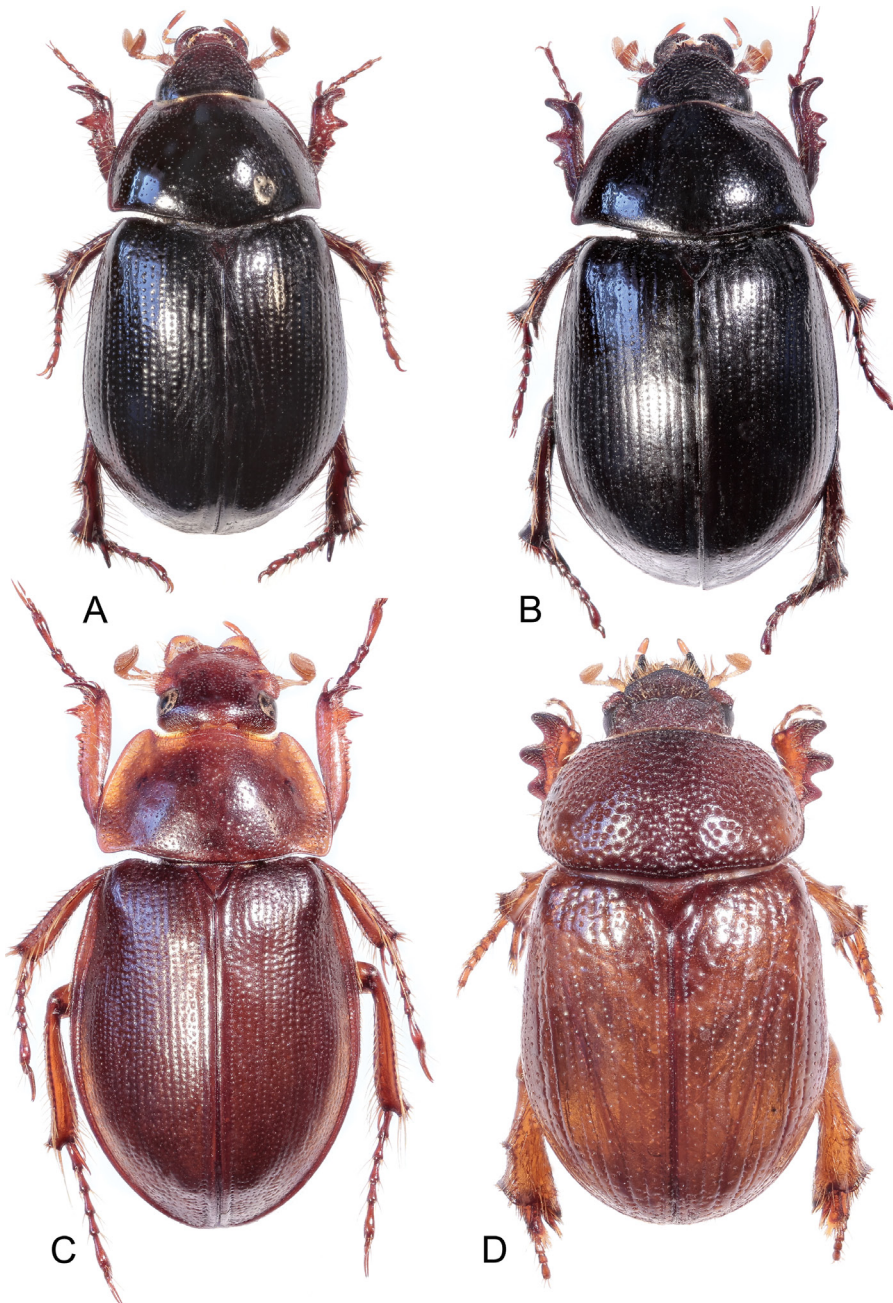


Fig. 4. Habitus in dorsal view. A – *Hybosorus illigeri* Reiche, 1853, 8 mm, Gar Adag; B – *H. ruficornis* Boheman, 1857, 10 mm, Gar Adag; C – *Phaeochrous beccarii* Harold, 1871, 10 mm, Beerato; D – *Orubesa plicifrons semenowi* (Arrow, 1911), 8 mm, Jidhi. Not to scale.

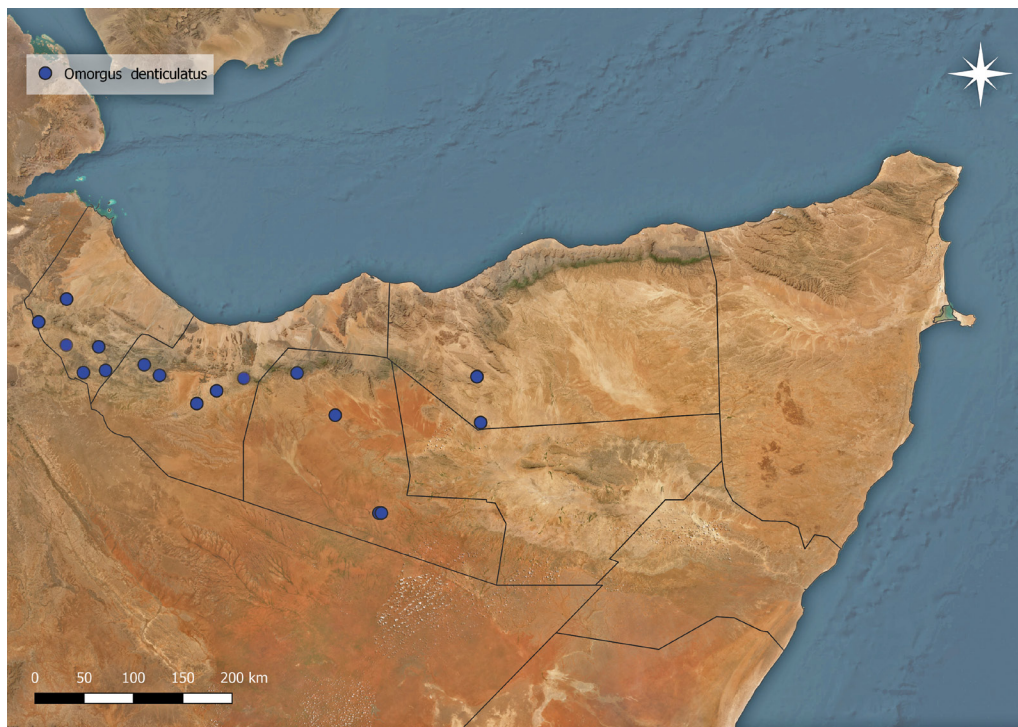


Fig. 5. Sketch map of Somaliland with known distribution of *Omorgus (Afromorgus) denticulatus* (A. G. Olivier, 1789).

road, 10°18'08"N 47°10'53"E, ca. 1760 m a. s. l., 1. ix. 2017, 2 spec., D. Král lgt.; 17 km SE of Huhuul, 9°54'34"N 46°50'00"E, ca. 890 m a. s. l., 10. x. 2021, 14 spec., P. Kabátek lgt. **Sool**: Lascanood, Hamdi Hotel, 8°29'03"N 47°22'38"E, ca. 680 m a. s. l., 7.–8. x. 2021, 8 spec., P. Kabátek lgt. **Togdheer**: NE of Inaafmadow by road, 9°09'30"N 45°58'49"E, ca. 860 m a. s. l., 1. ix. 2017, D. Král lgt., 3 spec.; NW of Shanshacade, school, 8°39'36"N 45°56'00"E, ca. 800 m a. s. l., 29.–31. viii. 2018, 12 spec., P. Kabátek, D. Král & D. Sommer lgt.; Beerato, 9°21'29"N 45°03'59"E, ca. 990 m a. s. l., 9.–10. vi. 2022, 2 spec., D. Král & D. Sommer lgt.; E of Shanshacade, water pool, 8°39'37"N 45°57'24"E, ca. 800 m a. s. l., 10.–11. vi. 2022, 1 spec., D. Král & D. Sommer lgt. **Woqooyi Galbeed**: Toon, 9°23'30"N 44°07'09"E, 1270 m a. s. l., 8. ii. 2017, 1 spec., D. Král lgt.; Dacar-Budhuq, 9°35'48"N 44°10'40"E, ca. 1200 m a. s. l., 28. viii. 2017, 2 spec., D. Král lgt.; Las Geel, 9°46'48"N 44°26'43"E, ca. 1050 m a. s. l., 28.–30. viii. 2017, 3 spec., D. Král lgt.; NW of Sheikh, 9°56'36"N 45°11'00"E, ca. 1430 m a. s. l., 6.–7. ix. 2017, 3 spec., D. Král lgt.; SW of Awbarkhadle by road, 9°39'48"N 44°15'48"E, 1130 m a. s. l., 2. ix. 2018, 1 spec., P. Kabátek, D. Král & D. Sommer lgt.; NE of Mandera, wadi, 9°57'54"N 44°42'30"E, ca. 780 m a. s. l., 2. ix. 2018, 1 spec., P. Kabátek, D. Král & D. Sommer lgt.; S of Cali-Haidh, 10°01'07"N 43°46'53"E, ca. 1090 m a. s. l., 23.–24. vii. 2021, 5 spec., D. Král & D. Sommer lgt.; Agabar, school, 9°55'19"N 43°55'17"E, ca. 930 m a. s. l., 24.–25. vii. 2021, 19 spec., D. Král & D. Sommer lgt.; Laas Dhuure, 10°10'30"N 45°59'04"E, ca. 540 m a. s. l., 11. x. 2021, 3 spec., P. Kabátek lgt.

**DISTRIBUTION.** The species is recorded from East Africa (Kenya, Tanzania and Uganda), Sudan, and from the countries of the Horn of Africa – Djibouti, Eritrea, Ethiopia and Somalia including Somaliland (Scholtz 1980, Zidek 2013, 2017, Schoolmeesters 2023).



COLLECTION CIRCUMSTANCES. Most of the specimens were collected individually on carcasses and remnants of feathers and fur, less then using a light source.

***Omorgus (Afromorgus) procerus* (Harold, 1872)**  
(Figs. 3A, 8)

PUBLISHED RECORDS. Scholtz (1980: 35): “Dir Plain, Burao”, “Berbera”.

MATERIAL EXAMINED (9 specimens). **Awdal:** Jidhi, S of school env., 10°37'14"N 43°04'08"E, ca. 450 m a. s. l., 15.–17. vii. 2021, 2 spec., D. Král & D. Sommer lgt.; Gargoorey, school, 10°14'25"N 43°03'05"E, ca. 1230 m a. s. l., 18.–19. vii. 2021, 1 spec., D. Král & D. Sommer lgt.; Ruqi, S of school, 9°58'01"N 43°25'35"E, ca. 1130 m a. s. l., 25.–26. vii. 2021, 2 spec., D. Král & D. Sommer lgt. **Woqooyi Galbeed:** Las Geel, 9°46'48"N 44°26'43"E, ca. 1050 m a. s. l., 28.–30. viii. 2017, 1 spec., D. Král lgt.; Agabar, school, 9°55'19"N 43°55'17"E, ca. 930 m a. s. l., 24.–25. vii. 2021, 3 spec., D. Král & D. Sommer lgt.

DISTRIBUTION. Widespread species in the western part of the Sahel (Burkina Faso, Chad, Mali, Niger, Nigeria, Senegal and Sudan). To the northeast it reaches Egypt and the Arabian Peninsula. From countries of the Horn of Africa recorded from Ethiopia and Somalia including Somaliland (Scholtz 1980, Zidek 2013, 2017, Schoolmeesters 2023).

COLLECTION CIRCUMSTANCES. Most of the specimens were collected individually on carcasses and remnants of feathers and fur, less then using a light source.

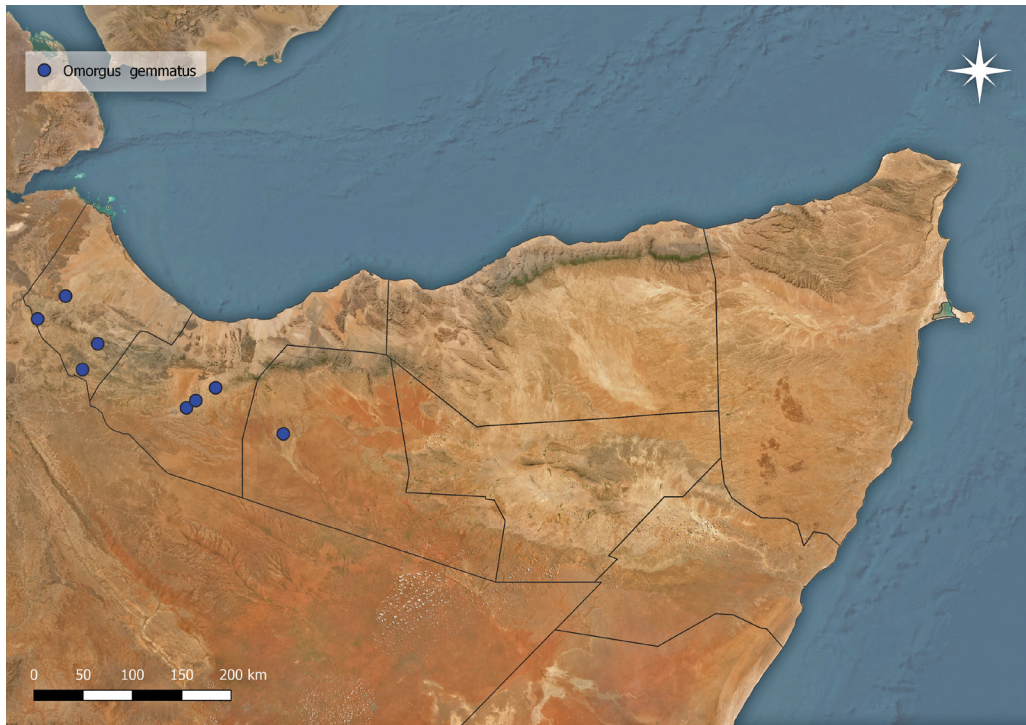


Fig. 6. Sketch map of Somaliland with known distribution of *Omorgus (Afromorgus) gemmatus* (A. G. Olivier, 1789).

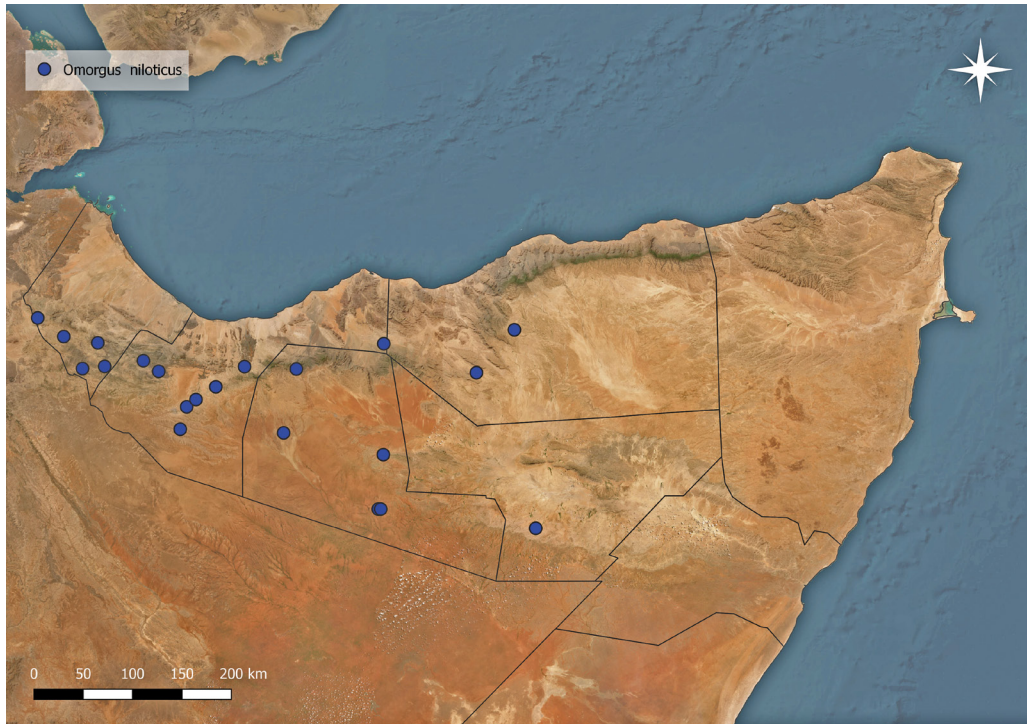


Fig. 7. Sketch map of Somaliland with known distribution of *Omorgus (Afromorgus) niloticus* (Harold, 1872).

***Omorgus (Afromorgus) squalidus* (A. G. Olivier, 1789)**  
(Figs. 3B, 9)

PUBLISHED RECORDS. Scholtz (1980: 24): “Erigavo”.

MATERIAL EXAMINED (17 specimens). **Awdal:** Borama, Amoud University Campus, 9°56'50"N 43°13'23"E, ca. 1400 m a. s. l., 12.–28. vii. 2021, 5 spec., D. Král & D. Sommer lgt.; Jidhi, S of school env., 10°37'14"N 43°04'08"E, ca. 450 m a. s. l., 15.–17. vii. 2021, 1 spec., D. Král & D. Sommer lgt.; Ruqi, S of school, 9°58'01"N 43°25'35"E, ca. 1130 m a. s. l., 25.–26. vii. 2021, 2 spec., D. Král & D. Sommer lgt. **Sanaag:** Gar Adag, 9°29'21"N 46°52'01"E, ca. 780 m a. s. l., 9. x. 2021, 2 spec., P. Kabátek lgt. **Sool:** Lascanood, Hamdi Hotel, 8°29'03"N 47°22'38"E, ca. 680 m a. s. l., 7.–8. x. 2021, 1 spec., P. Kabátek lgt. **Togdheer:** NW of Shanshacade, school, 8°39'36"N 45°56'00"E, ca. 800 m a. s. l., 29.–31. viii. 2018, 1 spec., P. Kabátek, D. Král & D. Sommer lgt. **Woqooyi Galbeed:** Agabar, school, 9°55'19"N 43°55'17"E, ca. 930 m a. s. l., 24.–25. vii. 2021, 5 spec., D. Král & D. Sommer lgt.

**DISTRIBUTION.** This species is known from almost all Afrotropical areas including Madagascar, it penetrates to the north through the Sahel to Algeria and Egypt. Recorded from all countries of the Horn of Africa – Djibouti, Eritrea, Ethiopia and Somalia including Somaliland (Scholtz 1980, Zidek 2013, 2017, Pittino 2011, Schoolmeesters 2023).

**COLLECTION CIRCUMSTANCES.** Most of the specimens were collected individually on carcasses and remnants of feathers and fur, less then using a light source.

**Trogidae: Troginae**

***Phoberus squamiger* (Roth, 1851)**  
(Figs. 3C, 9)

PUBLISHED RECORDS. Scholz (1980: 99): “Hargeisa”.

MATERIAL EXAMINED (1 specimen). **Sanaag**: Daallo forest, base camp, 10°45'36"N 47°18'12"E, ca. 2180 m a. s. l., 2.–3. ix. 2017, 1 ♂, D. Král lgt.

DISTRIBUTION. Widespread species in southern and eastern Africa. To the north it extends to the Arabian Peninsula. From the countries of the Horn of Africa, we still know it from Ethiopia and Somalia including Somaliland (Scholtz 1980, Pittino 2005, Zidek 2013, 2017, Schoolmeesters 2023).

COLLECTION CIRCUMSTANCES. The only collected specimen was attracted using a light source.

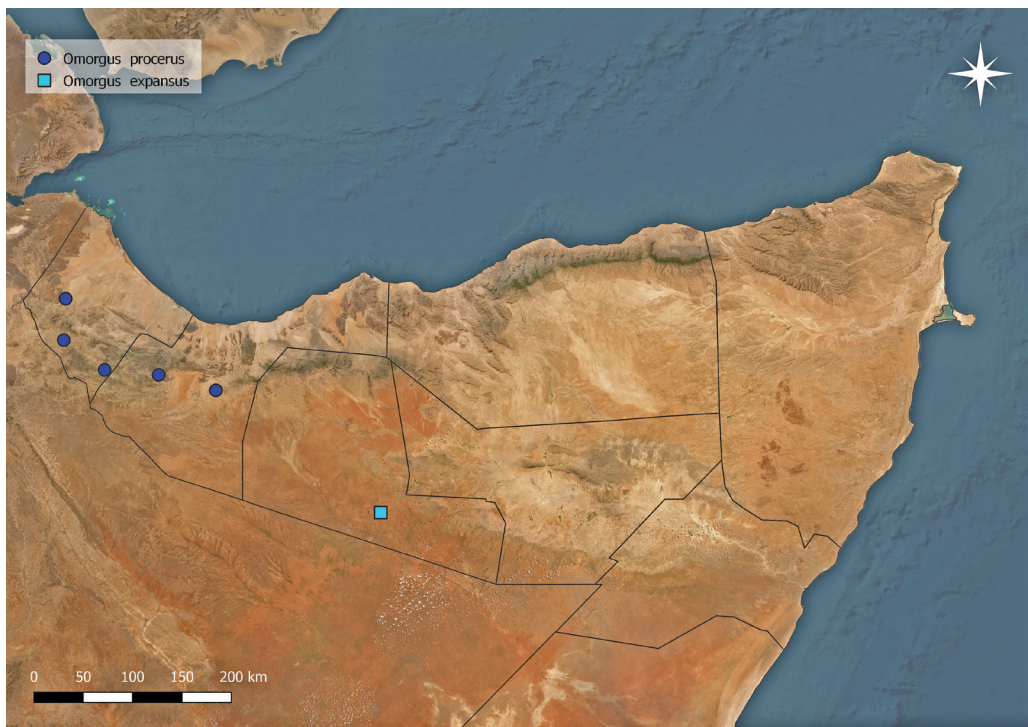


Fig. 8. Sketch map of Somaliland with known distribution of *Omorgus (Afromorgus) procerus* (Harold, 1872) and *O. (A.) expansus* (Arrow, 1900).



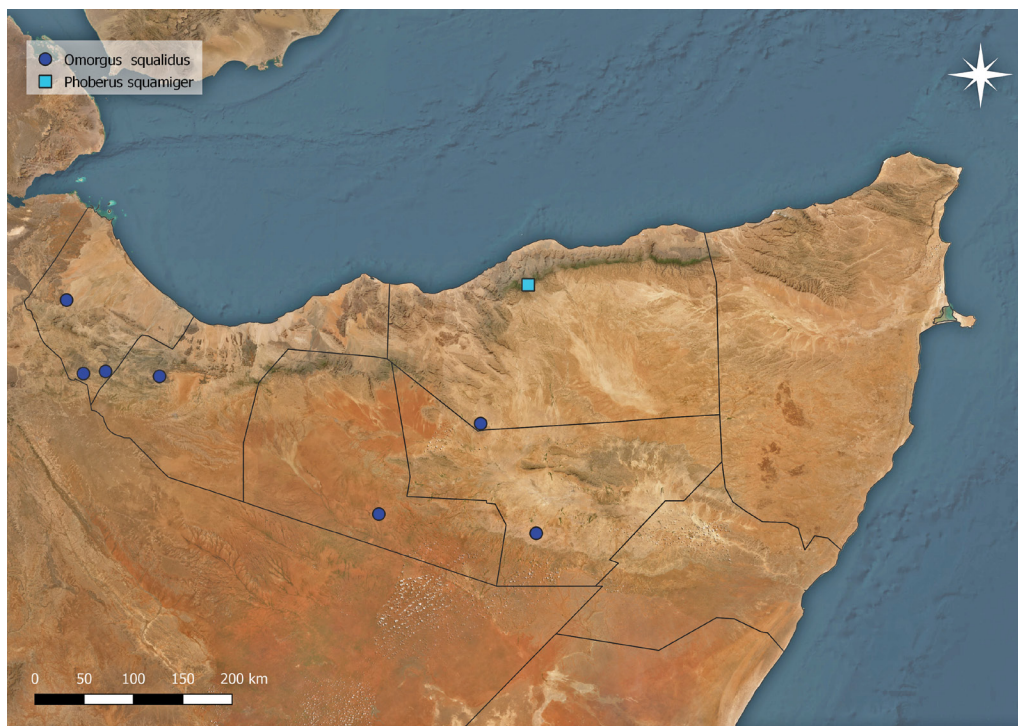


Fig. 9. Sketch map of Somaliland with known distribution of *Omorgus (Afromorgus) squalidus* (A. G. Olivier, 1789) and *Phoberus squamiger* (Roth, 1851).

## Hybosoridae: Hybosorinae

### *Hybosorus illigeri* Reiche, 1853

(Figs. 4A, 10)

**PUBLISHED RECORDS.** Lansberge (1882: 23): “Somaliland” [type locality of *Hybosorus nitidus* Lansberge, 1882, synonymized with *H. illigeri* by Kuijten 1983]; Gahan (1896: 451): “Somaliland”; Endrődi (1970: 73): “Daragodleh”, “Hargeisa”. **MATERIAL EXAMINED** (338 specimens). **Awdal:** Borama, Amoud University Campus, 9°56'50"N 43°13'23"E, ca. 1400 m a. s. l., 9.–13. ix. 2017, 11 spec., D. Král lgt.; same data, 28. vii. 2021, 1 spec., D. Král & D. Sommer lgt.; Jidhi, S of school env., 10°37'14"N 43°04'08"E, ca. 450 m a. s. l., 15.–17. vii. 2021, 8 spec., D. Král & D. Sommer lgt.; S of Habaas, 10°24'40"N 42°48'45"E, ca. 850 m a. s. l., 17.–18. vii. 2021, 121 spec., D. Král & D. Sommer lgt.; Gargoo-rey, school, 10°14'25"N 43°03'05"E, ca. 1230 m a. s. l., 18.–19. vii. 2021, 21 spec., D. Král & D. Sommer lgt.; NW of Xoorey, 10°10'59"N 43°21'49"E, ca. 840 m a. s. l., 22.–23. vii. 2021, 90 spec., D. Král & D. Sommer lgt.; W of Ruqi, 9°57'18"N 43°23'41"E, ca. 1210 m a. s. l., 26. vii. 2021, 1 spec., D. Král & D. Sommer lgt. **Togdheer:** Beerato, 9°21'29"N 45°03'59"E, ca. 990 m a. s. l., 9.–10. vi. 2022, 61 spec., D. Král & D. Sommer lgt.; E of Shanshacade, water pool, 8°39'37"N 45°57'24"E, ca. 800 m a. s. l., 10.–11. vi. 2022, 1 spec., D. Král & D. Sommer lgt. **Woqooyi Galbeed:** S of Cali-Haidh, 10°01'07"N 43°46'53"E, ca. 1090 m a. s. l., 23.–24. vii. 2021, 23 spec., D. Král & D. Sommer lgt.

**DISTRIBUTION.** Species with an extremely wide distribution, extending from southern parts of Europe to the Arabian peninsula, India, and Africa including Madagascar. It has been also introduced to



large parts of the United States and in some Caribbean islands, Mexico, Nicaragua and Venezuela (Allsopp 1984, Kuijten 1983, Ocampo & Ballerio 2006, Ballerio & Bezděk 2016, Schoolmeesters 2023). From Africa, this species is known from almost all Palearctic and Afrotropical regions, including Madagascar and the Mascarenes. From countries in the Horn of Africa, we have data from Eritrea, Ethiopia, and Somalia including Somaliland (Kuijten 1983, Schoolmeesters 2023). COLLECTION CIRCUMSTANCES. All material was collected using a light source. Several times (Beerato, Jidhi) we observed some specimens in the vicinity of a light trap while feeding on wounded or dead termites and flies.

***Hybosorus ruficornis* Boheman, 1857**  
(Figs. 4B, 10)

PUBLISHED RECORDS. None.

MATERIAL EXAMINED (2 specimens). **Sanaag**: 3 km SW of Gar Adag, 9°28'19"N 46°51'27"E, ca. 770 m a. s. l., 9. x. 2021, 2 spec., at light, P. Kabátek lgt.

DISTRIBUTION. This species is widespread in southern and eastern Africa (Mozambique, Tanzania and Kenya), north to the countries of the Horn of Africa, from where it is still known from

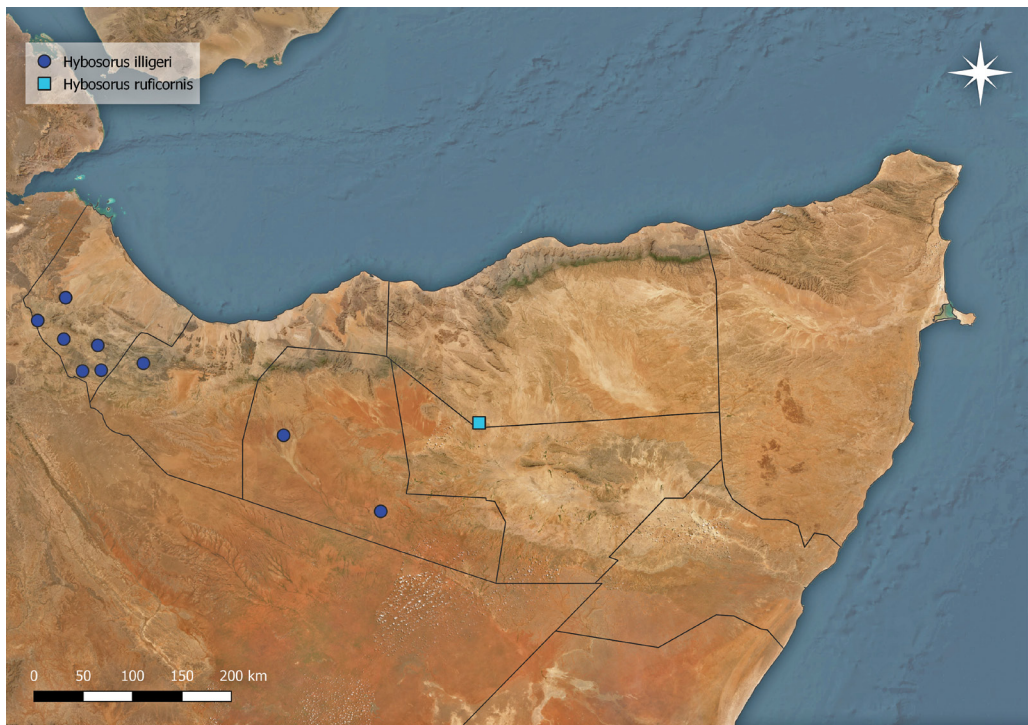


Fig. 10. Sketch map of Somaliland with known distribution of *Hybosorus illigeri* Reiche, 1853 and *H. ruficornis* Boheman, 1857.

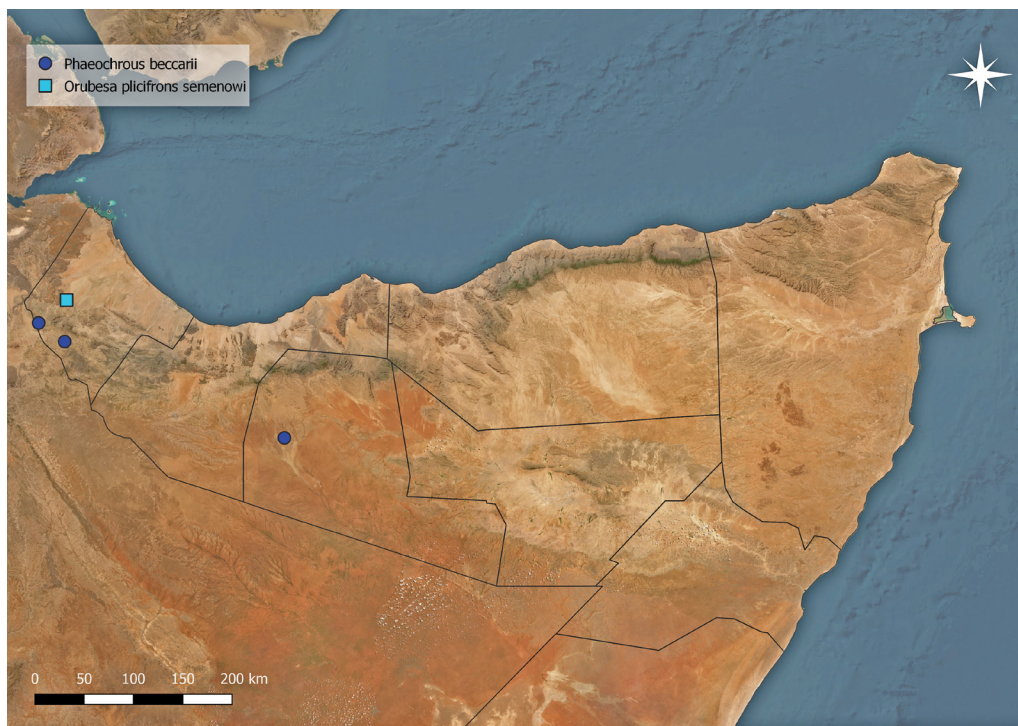


Fig. 11. Sketch map of Somaliland with known distribution of *Phaeochrous beccarii* Harold, 1871 and *Orubesa plicifrons semenowi* (Arrow, 1911).

Somalia (Gedo province) (Kuijten 1983, Schoolmeesters 2023). Our findings represent the first country record from Somaliland.

COLLECTION CIRCUMSTANCES. All material was collected using a light source.

***Phaeochrous beccarii*** Harold, 1871  
(Figs. 4C, 11)

PUBLISHED RECORDS. Kuijten (1986: 37): “Somalia [with no specific data]”.

MATERIAL EXAMINED (23 specimens). **Awdal**: S of Habaas, 10°24'40"N 42°48'45"E, ca. 850 m a. s. l., 17.–18. vii. 2021, 15 spec., D. Král & D. Sommer lgt.; Gargoorey, school, 10°14'25"N 43°03'05"E, ca. 1230 m a. s. l., 18.–19. vii. 2021, 5 spec., D. Král & D. Sommer lgt. **Togdheer**: Beerato, 9°21'29"N 45°03'59"E, ca. 990 m a. s. l., 9.–10. vi. 2022, 3 spec., D. Král & D. Sommer lgt.

DISTRIBUTION. This species is widely distributed in East Africa, reaching the countries of the Horn of Africa to the north (Djibouti, Eritrea, Ethiopia and Somalia – with no specific data). Outside this area, it is also known from Chad, Madagascar, Kenya, Niger, Senegal, Sudan and Yemen





Fig. 12. Landscape near Borama (2021). A – habitat of *Omorgus (Afromorgus) denticulatus* (A. G. Olivier, 1789), *O. (A.) gemmatus* (A. G. Olivier, 1789), *O. (A.) niloticus* (Harold, 1872), *O. (A.) procerus* (Harold, 1872), *O. (A.) squalidus* (A. G. Olivier, 1789) and *Hybosorus illigeri* Reiche, 1853; B – *O. (A.) niloticus*, *in vivo*, mating attempt (Borama 2021, after rain); C – *O. (A.) denticulatus* – *in vivo*, active specimens, the left specimen in opening of hole for larvae (Borama 2021, after rain). Photos by D. Král.

(Kuijten 1986, Ballerio & Bezděk 2016, Schoolmeesters 2023). Our findings represent the first concrete records from Somaliland and the whole Somalia.

COLLECTION CIRCUMSTANCES. All material was collected using a light source.





Figs. 13, 14. 13 (top) – *Omorgus (Afromorgus) denticulatus* (A. G. Olivier, 1789), *in vivo*, Borama (2021). Photo by D. Král. Fig. 14 (below) – *O. (A.) procerus* (Harold, 1872), *in vivo*, Borama (2021). Photo by D. Král.



Fig. 15. Landscape of Daallo forest near base camp (2017), habitat of *Phoberus squamiger* (Roth, 1851). Photo by D. Král.

### Scarabaeidae: Dynamopodinae

#### *Orubesa plicifrons semenowi* (Arrow, 1911) (Figs. 4D, 11)

PUBLISHED RECORDS. None.

MATERIAL EXAMINED (1 specimen). **Awdal:** Jidhi, S of school env., 10°37'14"N 43°04'08"E, ca. 450 m a. s. l., 15.–17. vii. 2021, 1 spec., D. Král & D. Sommer lgt.

**DISTRIBUTION.** The species is described from Sudan (type locality: “White Nile”) by Arrow (1911). From Africa, it is so far known from the countries of the Horn of Africa (Djibouti and Ethiopia) and Libya (Fezzan region). It is also widely distributed in the Arabian Peninsula (Oman, Saudi Arabia, United Arab Emirates, and Yemen), Iraq and southwestern Iran (Král & Bezděk 2016, Tauzin 2016, Král & Batelka 2017, Krell 2021, Schoolmeesters 2023). First country record from Somaliland and the whole Somalia.

**COLLECTION CIRCUMSTANCES.** The only collected specimen was attracted using a light source.





Fig. 16. Landscape near Shanshacade (2018). Habitat of *Omorgus (Afromorgus) denticulatus* (A. G. Olivier, 1789), *O. (A.) expansus* (Arrow, 1900), *O. (A.) niloticus* (Harold, 1872), *O. (A.) procerus* (Harold, 1872), *O. (A.) squalidus* (A. G. Olivier, 1789) and *Hybosorus illigeri* Reiche, 1853. Expedition participants from left to right: Daniel Frynta, Petra Frýdlová (with *Trachylepis* skink), David Sommer and David Král collecting trogidis; the carcass belongs to the one-humped camel. Photo by T. Mazuch.

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