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NEW RECORDS OF NOTERIDAE AND DYTISCIDAE (COLEOPTERA) FROM ZANZIBAR (TANZANIA)

The material for this paper is the author's research during the expedition to Zanzibar in January—February, 2014. The Zanzibar Archipelago includes a group of islands off the coast of the mainland Tanzania in the Indian Ocean (Zanzibar, Pemba etc.). Zanzibar (Unguja) is the major island of the Zanzibar Archipelago. It is located in the subequatorial physical-geographical belt. The beetles were collected in the Mwera river and canals in rice paddies. During the research, 10 species of water Adephaga (from 2 families, 8 genera) from Unguja island were found. 9 species of Dytiscidae and 1 species Noteridae from Zanzibar are presented. The largest number of species (5) was reported from the subfamily Hydroporinae.

For the first time *Canthydrus notula* (Erichson, 1843), *Bidessus sharpi* Régimbart, 1895, *Clypeodytes meridionalis* Régimbart, 1895, *Hydroglyphus farquharensis* (Scott, 1912), *Uvarus gschwendtneri* (Guignot, 1942), *Hydrovatus acuminatus* Motschulsky, 1859, *Laccophilus adpersus* Boheman, 1848 are recorded for Unguja island and the Zanzibar Archipelago fauna. All these species were found on the mainland Tanzania.

The article describes the habitats of all species of aquatic beetles on Zanzibar, as well as the habits of species of the difficult to diagnose genus *Laccophilus* (*L. adpersus*, *L. continentalis* Gschwendtner, 1935 and *L. cf. canthydroides* Omer-Cooper, 1957).

Key words: Insecta; Coleoptera; Noteridae; Dytiscidae; fauna; Zanzibar; Tanzania.

Fig. 8. Ref.: 8 titles.

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НОВЫЕ УКАЗАНИЯ NOTERIDAE И DYTISCIDAE (COLEOPTERA) ИЗ ЗАНЗИБАРА (ТАНЗАНИЯ)

Материалом для данной статьи послужили исследования автора во время экспедиции на Занзибар в январе—феврале 2014 года. Занзибарский архипелаг включает группу островов у побережья материковой Танзании в Индийском океане (Занзибар, Пемба и т. д.). Занзибар (Унгуджа) — главный остров Занзибарского архипелага. Он расположен в субэкваториальном физико-географическом поясе. Жуки были собраны в реке Мвере и каналах на рисовых чеках. В ходе исследований было обнаружено 10 видов водных Adephaga (из 2 семейств, 8 родов) с острова Унгуджа. 9 видов Dytiscidae и 1 вид Noteridae были отмечены на Занзибаре. Наибольшее количество видов (5) было зарегистрировано из подсемейства Hydroporinae.

Впервые *Canthydrus notula* (Erichson, 1843), *Bidessus sharpi* Régimbart, 1895, *Clypeodytes meridionalis* Régimbart, 1895, *Hydroglyphus farquharensis* (Scott, 1912), *Uvarus gschwendtneri* (Guignot, 1942), *Hydrovatus acuminatus* Motschulsky, 1859, *Laccophilus adpersus* Boheman, 1848 отмечены для фауны острова Унгуджа и Занзибарского архипелага. Все эти виды встречаются на материковой части Танзании.

В статье проиллюстрированы места обитания всех видов водных жуков, а также габитус представителей трудного в диагностическом плане рода *Laccophilus* (*L. adpersus*, *L. continentalis* Gschwendtner, 1935 и *L. cf. canthydroides* Omer-Cooper, 1957).

Ключевые слова: Insecta; Coleoptera; Noteridae; Dytiscidae; фауна; Занзибар; Танзания.

Рис. 8. Библиогр.: 8 назв.

Introduction. The Zanzibar Archipelago is a group of islands off the coast of the mainland Tanzania in the Indian Ocean. The Zanzibar or Unguja is major island of the Zanzibar archipelago. It is located in the subequatorial physical-geographical belt (zone). The area of the island is 1 660 km². The Zanzibar climate is a tropical monsoon.

There are no generalizing papers on either the fauna of Noteridae and Dytiscidae or of Unguja island or the fauna of water beetles of the Zanzibar Archipelago for now [1—5].

Unfortunately, our studies in 2014 were also of one-time nature against the background of other fragmentary data on the fauna of water beetles. Moreover, we visited Unguja during the dry season, when most of the water bodies dried up. Although we managed to make some findings of Noteridae and Dytiscidae on the island. Little diversity during the dry season was also noted for other families of water beetles (Spercheidae and Hydrophilidae) [6].

Materials and methods. The material for this article was the author's collection during the expedition to Zanzibar in January and February, 2014.

The collection of water beetles was carried out with the use of a Balfour-Brown hydrobiological net (Figure 1). Beetles were fixed in 70 %-alcohol. The material is in the author's collection.

The material was examined with the use of a Nikon SMZ-745T stereomicroscope.

Habitus photographs were taken with the use of Nikon D5100 with Nikon 60 mm 1:2.8G Macro Lens. The figures were prepared with the help of Photoshop CS5 program.

Results and discussion. During the research, 10 species of water Adephaga (from 2 families, 8 genera) from Unguja island were found. Below is an annotated list of these species, their localities and distribution are indicated.

Family Noteridae

Subfamily Noterinae

Tribe Hydrocanthini

Canthydrus notula (Erichson, 1843) (Figures 1, 4)

Material examined. Africa, Tanzania, Zanzibar, Mwera vill., the Mwera river, 31.01.2014, leg. Ryndevich S. K., 2 specimens; Zanzibar, W Mwera vill., rice paddies, canal, 6.02.2014, leg. Ryndevich S. K., 1 specimen.

Distribution. Widespread through-out Africa [7]. New record for Zanzibar (Unguja).

Family Dytiscidae

Subfamily Hydroporinae

Tribe Bidessini

Bidessus sharpi Régimbart, 1895 (Figure 2)

Material examined. Africa, Tanzania, Zanzibar, Mwera vill., the Mwera river, 31.01.2014, leg. Ryndevich S. K., 1 specimen; same data but 06.02.2014, leg. Ryndevich S. K., 1 specimen.

Distribution. Widespread to Western, Central, Eastern and Southern Africa [7; 8]. New record for Zanzibar (Unguja).

Clypeodytes (Clypeodytes) meridionalis Régimbart, 1895 (Figure 1)

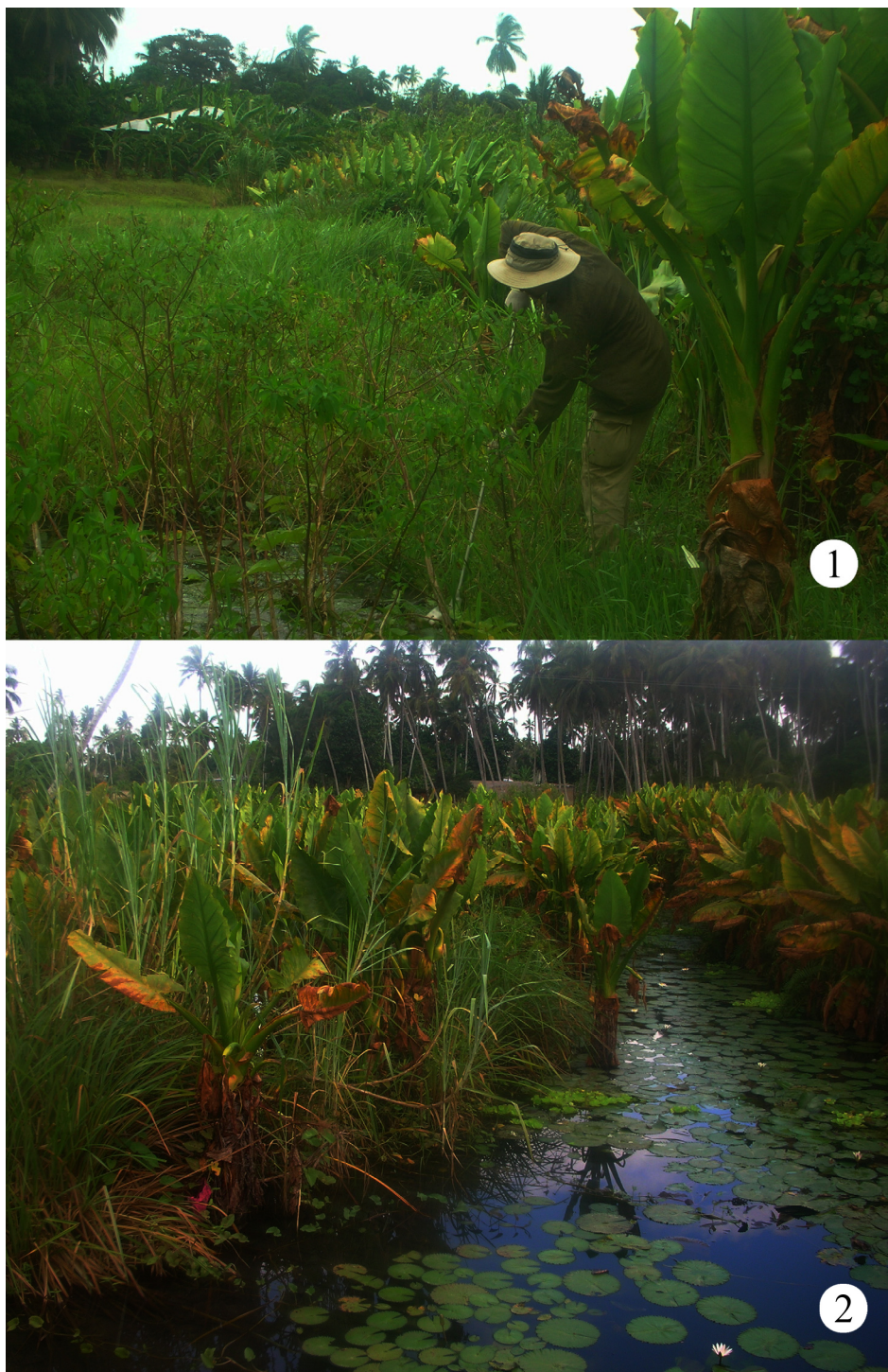
Material examined. Africa, Tanzania, Zanzibar, Mwera vill., the Mwera river, 06.02.2014, leg. Ryndevich S. K., 1 specimen.

Distribution. Widespread to Western, Central, Eastern and Southern Africa [7; 8]. New record for Zanzibar (Unguja).

Hydroglyphus farquharensis (Scott, 1912) (Figure 4)

Material examined. Tanzania, Zanzibar, W Mwera vill., rice paddies, canals, 03.02.2014, leg. Ryndevich S. K., 6 specimens; same data but 06.02.2014, 13 specimens.

Distribution. Widespread to Eastern and Southern Africa [7; 8]. New record for Zanzibar (Unguja).



Figures 1—2. — Mwera river: 1 — collection of water beetles in the river collected by using a Balfour—Brown hydrobiological net, habitat of *Clypeodytes meridionalis* Régimbart; 2 — habitat of *Canthydrus notula* (Erichson), *Bidessus sharpi* Régimbart, *Hydrovatus acuminatus* Motschulsky, *Hydaticus servillianus* Aubé and *Laccophilus continentalis* Gschwendtner

Рисунки 1—2. — Река Мвера: 1 — сбор водных жуков в реке с помощью гидробиологического сачка Бальфура—Брауна, местообитание *Clypeodytes meridionalis* Régimbart; 2 — местообитание *Canthydrus notula* (Erichson), *Bidessus sharpi* Régimbart, *Hydrovatus acuminatus* Motschulsky, *Hydaticus servillianus* Aubé и *Laccophilus continentalis* Gschwendtner



Figures 3—4. — The Mwera river (3) and canals in rice paddies (4): 3 — habitat of *Hydrovatus acuminatus* Motschulsky, *Hydaticus servillianus* Aubé, *Laccophilus* cf. *canthyroides* Omer-Cooper; 4 — habitat of *Canthydrus notula* (Erichson), *Bidessus sharpi* Régimbart, *Hydroglyphus farquharensis* (Scott), *Uvarus gschwendtneri* (Guignot), *Laccophilus adspersus* Boheman and *L. continentalis* Gschwendtner

Рисунки 3—4. — Река Мвера (3) и каналы на рисовых чеках (4): 3 — местообитание *Hydrovatus acuminatus* Motschulsky, *Hydaticus servillianus* Aubé, *Laccophilus* cf. *canthyroides* Omer-Cooper; 4 — местообитание *Canthydrus notula* (Erichson), *Bidessus sharpi* Régimbart, *Hydroglyphus farquharensis* (Scott), *Uvarus gschwendtneri* (Guignot), *Laccophilus adspersus* Boheman и *L. continentalis* Gschwendtner

***Uvarus gschwendtneri* (Guignot, 1942)** (Figure 4)

Material examined. Tanzania, Zanzibar, W Mwera vill., rice paddies, canal, 06.02.2014, leg. Ryndevich S. K., 3 specimens.

Distribution. Widespread to Central, Eastern and Southern Africa [7; 8]. New record for Zanzibar (Unguja).

Tribe Hydrovatini

***Hydrovatus acuminatus* Motschulsky, 1859** (Figures 2, 3)

Material examined. Tanzania, Zanzibar, Mwera vill., Mwera river, 29.01.2014, Ryndevich S. K., 1 specimen; same data but 31.01.2014, 1 specimen.

Distribution. Widespread in Paleogea (Afrotropical and Oriental Regions) [7; 8]. New record for Zanzibar (Unguja).

Subfamily Dytiscinae

Tribe Hydaticini

***Hydaticus servillianus* Aubé, 1838** (Figures 2, 3)

Material examined. Tanzania, Zanzibar, Mwera vill., Mwera river, 29.01.2014, Ryndevich S. K., 1 specimen; same data but 31.01.2014, leg. Ryndevich S. K., Lundyshev D. S., 3 specimens.

Distribution. Widespread to Western, Central, Eastern and Southern Africa [7; 8], Zanzibar (Unguja) [3].

Subfamily Laccophilinae

Tribe Laccophilini

***Laccophilus adspersus* Boheman, 1848** (Figures 4, 5)

Material examined. Africa, Tanzania, Zanzibar, W Mwera vill., rice paddies, canal, 06.02.2014, leg. Ryndevich S. K., 1 specimen.

Distribution. Western, Central, Eastern and Southern Africa [5; 8]. New record for Zanzibar (Unguja).

Remarks. The collected specimen is juvenile. Body length of the specimen is 3.8 mm (Figure 5).

***Laccophilus continentalis* Gschwendtner, 1935** (Figures 2, 4, 6)

Material examined. Africa, Tanzania, Zanzibar, Mwera vill., the Mwera river, 31.01.2014, leg. Ryndevich S. K., 2 specimens; Zanzibar, W Mwera vill., rice paddies, canal, 06.02.2014, leg. Ryndevich S. K., Lundyshev D. S., 4 specimens.

Distribution. Western, Eastern and Southern Africa. Zanzibar (Unguja and Pemba) [5].

Remarks. The species was collected in the Zanzibar Archipelago in the 1950s [5; 8]. Body length of the collected specimens 3.8—4.0 mm (Figure 6).

***Laccophilus cf. canthydroides* Omer-Cooper, 1957** (Figures 3, 7, 8)

Material examined. Africa, Tanzania, Zanzibar, Mwera vill., the Mwera river, 29.01.2014, leg. Ryndevich S. K., 1 specimen.

Distribution. Central, Eastern and Southern Africa. Zanzibar (Unguja) [5; 8].

Remarks. In Afrotropical region the genus *Laccophilus* includes valid 105 species from 17 species groups. Currently, 7 species of the genus *Laccophilus* are known from the Zanzibar Archipelago, including the islands of Ugunja and Pemba [5]. Most species are difficult to distinguish on habitus and can only be identified accurately if males are present. *Laccophilus canthydroides* Omer-Cooper was record from Zanzibar (Mangapwani, collected in 1955). My specimen is a female. All signs indicate closeness to *L. canthydroides* (elytral base and humeral region with a vague pale spot, structure of the apical ventrite of female). However, it is possible to reliably distinguish this species (for example, *Laccophilus inornatus* Zimmermann, 1926 etc.) from related species only in the presence of males. The female has clear microsculpture of the elytra in the form of irregular elongated and oval cells (Figure 8). Body length of the specimen is 3.7 mm (Figure 7).



Figures 5—8. — Habitus and elytral microsculpture of *Laccophilus*: 5 — *L. adspersus* Boheman; 6 — *L. continentalis* Gschwendtner; 7 — *L. cf. canthydroides* Omer-Cooper; 8 — microsculpture of the elytra base of *L. cf. canthydroides*

Рисунки 5—8. — Габитус и микроскульптура надкрылий *Laccophilus*: 5 — *L. adspersus* Boheman; 6 — *L. continentalis* Gschwendtner, 7 — *L. cf. canthydroides* Omer-Cooper; 8 — микроскульптура основания надкрылий *L. cf. canthydroides*

Conclusion. As a result of the research new finds for ten species of the water Adephaga (9 species of Dytiscidae and one species Noteridae from Zanzibar) are presented. For the first time *Canthydrus notula* (Erichson, 1843), *Bidessus sharpi* Régimbart, 1895, *Clypeodytes meridionalis* Régimbart, 1895, *Hydroglyphus farquharensis* (Scott, 1912), *Uvarus gschwendtneri* (Guignot, 1942), *Hydrovatus acuminatus* Motschulsky, 1859, *Laccophilus adspersus* Boheman, 1848 are recorded for Unguja island and the Zanzibar Archipelago fauna.

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