

Koleopterologische Rundschau	72	113 – 122	Wien, Juni 2002
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Seventeen records of Noteridae and Dytiscidae new to the Ivory Coast, West Africa (Coleoptera: Noteridae, Dytiscidae)

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Abstract

Aquatic beetles in the families Noteridae and Dytiscidae have been collected by the first author from waters in the southern part of the Comoé National Park (Ivory Coast, West Africa). Records of 17 species new to the Ivory Coast, including three new for West Africa, are reported here. These are *Canthydrus koppi* WEHNCKE, *Hydrocanthus parvulus* GSCHWENDTNER, *Hyphydrus caryeris* GUIGNOT and *H. signatus* SHARP, *Hydroglyphus speculum* BRUNEAU DE MIRÉ & LEGROS, *H. intermedius* BISTRÖM and *H. angularis* (KLUG), *Yola enigmatica* OMER-COOPER, *Yolina chopardi* GUIGNOT, *Herophydrus sudanensis* GUIGNOT, *Copelatus epactus* GUIGNOT, *Eretes sticticus* (LINNÉ), *Hydaticus bivittatus* CASTELNAU, *Cybister mocquersyi* RÉGIMBART, *C. nigroolivaceus* ZIMMERMANN, *C. senegalensis* AUBÉ and *C. buqueti* AUBÉ. Based on literature data the distribution for each species is given and West African records are listed.

Key words: Coleoptera, Dytiscidae, faunistics, Ivory Coast, West Africa, new records, savannah.

Introduction

Afrotropical water beetles of the families Noteridae and Dytiscidae have been subjects for taxonomic studies since colonial times. Their faunistics still, however, is relatively unknown. The last comprehensive revision of these families in Africa (GUIGNOT 1959a, b; 1961b) gives the species distribution as known by the end of the 1950s. However, more detailed information on the distribution is indicated only for the less widespread species.

More or less extensive regional species lists on Noteridae and Dytiscidae in West African countries were elaborated for Mauritania (DEKEYSER & VILLIERS 1956; GUIGNOT 1952a; 1955a), Senegal (GUIGNOT 1956; 1961a; LEGROS 1972), Sierra Leone (FRANCISCOLO & SANFILIPPO 1986), Guinea Bissau (NILSSON et al. 1995), Burkina Faso and Mali (GUIGNOT 1943), Guinea (GUIGNOT 1955b; LEGROS 1954; 1958), Benin and Togo (GUIGNOT 1952b) and Nigeria (MEDLER 1980).

Data on the faunistics of Noteridae and Dytiscidae of the Ivory Coast are given by BILARDO & PEDERZANI (1978), FORGE (1979), FRANCISCOLO (1974) and GUIGNOT (1943) and are distributed in systematic or taxonomic publications (BILARDO & PEDERZANI 1979; BISTRÖM 1979; 1982; 1983; 1985; 1986; 1987; 1988a, b, c; 1996; GUIGNOT 1959a, b; 1961b).

An unpublished literature study of Noteridae and Dytiscidae by the first author for the Ivory Coast revealed a total of 162 species. The respective material had been collected in several parts of the country, covering the humid tropical south as well as the savannah belt in the north.

Since 1998 the first author has worked in the Comoé National Park, northern Ivory Coast, collecting data on the faunistics and ecology of water beetles. Among West African countries the Ivory Coast has received considerable attention from taxonomists working on Noteridae and

Dytiscidae. Nevertheless, this study revealed another 17 newly recorded species for the Ivory Coast including three previously unrecorded species for West Africa. These species are listed below and the records are discussed in relation to the species' known distribution.

Study sites

The Comoé National Park (08°3' - 09°4'N, 003°1' - 004°3'W) covers 11.500 km² at an altitude of about 250 m a.s.l. and comprises different vegetational zones from Guinea savannah in the south to Sudan savannah in the north (POILECOT 1991). The climate is characterised by a long dry season from about November to March/April, a mean annual precipitation of 950 mm and an annual average temperature between 25° C and 28° C (LINSENMAIR 1998). Vegetation on the ferruginous soil is of savannah-type interspersed with forest islands, while riverine forest borders the large rivers (POREMBSKI 1991). The longest Ivorian river, the Comoé (1.160 km) runs for 230 km from north to south through the park. During the rainy season the park is drained by a few rivers and numerous creeks, and savannah ponds of variable sizes are abundant. Towards the end of the dry season flow often ceases even in the Comoé River. The other rivers and creeks desiccate to a great extent or entirely like virtually all the ponds (RÖDEL 2000).

Different types of waters in the south-west of the National Park were sampled. Most specimens reported on here derive from rockpools in the riverbed of the permanent Comoé River (Crp). Additional material was sampled in the Kongo River (K). It is one of the major tributaries of the Comoé and is bordered by narrow gallery forest. The Lola Creek (L) drains directly into the Comoé and has open shrub vegetation along its banks. Three savannah ponds were sampled, two with a rocky bottom (Srp) and one with a sandy bottom (Ssp).

Materials and Methods

Beetles were collected from 1998 to 2000 during the dry season and the beginning of the rainy season. For sampling of the beetles in the rockpools of the Comoé River, the pools were entirely emptied, pouring the water through a net (mesh size 500 µm). In the other waters the beetles were caught either using dipnets (mesh size 500 µm and 1 mm) or funnel traps. Light trapping near the waters (Klt = on a bridge of the Kongo River; Llt = beside the Lola Creek) yielded additional material.

All specimens were sampled and sorted by the first author. Identification and nomenclature followed the most recent revisions (see below the genus names). Determination of species was checked by O. Biström (OB), A.N. Nilsson (AN) or F. Pederzani (FP). The number of specimens checked, locality and month/year of sampling as well as the taxonomists involved are given in the abbreviations following species' names. A collection of all species cited here is deposited in the Natural History Museum Vienna. Additional specimens remain in private collections of the authors and will be deposited in the Research Station of the Comoé National Park.

For purposes of discussion of species distribution, West Africa is defined as the region south of the Sahara from Mauritania and Senegal to Niger and Nigeria. Only species that had not yet been recorded in the Ivory Coast are listed and all published records for West Africa are cited. Additional unpublished records known to the authors are mentioned, if they add to the already published distribution.

Results and Discussion

Family Noteridae

Genus *Canthydrus* SHARP, 1882

Species of this genus occur in South-America, Australia, Asia and Africa with one of them reaching southern Europe (GUIGNOT 1959b). The latest revision of this genus was published by GUIGNOT (1959b).

Canthydrus koppi WEHNCKE, 1883

Material examined and identified by specialists: 1 ex. Crp 2/1999, det. FP.

GUIGNOT (1959b) gives West Africa as the distribution area of this species. Published records, however, only are from Senegal (GUIGNOT 1959b; LEGROS 1972) and Nigeria (MEDLER 1980). Unpublished records (det. Pederzani, in coll. FP) are from Chad (Bol: light trap, 21 exs., 11/1980, leg. Melandri), Cameroon (near Maroua: 15 exs., 7/1979, leg. Onore) and Niger (N'Dounga: light trap, 6 exs., 8/1980, leg. Leblanc). Additional unpublished material (leg. Endrödy-Younga, det. Wewalka, in coll. Wewalka) is from Nigeria (Samaru: light trap, 4 exs., 10/1969) and Ghana (Abundi, 60 km south of Ho: 6 exs., 12/1970; Ashanti Region, Kwadaso: light trap, 4 exs., 5/1969; Tamale: light trap, 3 exs. 8/1970; Nakpanduri, 75 km south of Bawku: light trap, 7 exs. 7/1979; Mole game reserve, Damongo: at light, 5 exs., 11/1970). The authors' finding, therefore, fills a gap in the knowledge on the distribution of this species.

Genus *Hydrocanthus* SAY, 1823

The African, Oriental and Australian species of this world-wide genus were assigned to the subgenus *Sternocanthus* GUIGNOT, 1948. The last revision of Afrotropical and Madagascan species is by GUIGNOT (1959b).

Hydrocanthus parvulus GSCHWENDTNER, 1930

Material examined and identified by specialists: 1 ex. Klt 3/1999, det. FP.

There are a few records from Southern (OMER-COOPER 1957) and Central Africa (GUIGNOT 1959b; PEDERZANI & ROCCHI 1982). In West Africa the species was recorded in Nigeria (MEDLER 1980). Unpublished records (det. Pederzani, in coll. FP) are known from Gabon (Makokou: 10 exs., 8/1983, leg. Bilardo). The authors' specimen from the Ivory Coast represents by far the westernmost record of this species.

Family Dytiscidae

Subfamily Hydroporinae AUBÉ, 1836

Genus *Hyphydrus* ILLIGER, 1802

The genus comprises about 100 species and is known from Europe, Asia, Australia and Africa (BISTRÖM 1982). It was last revised by BISTRÖM (1982).

***Hyphydrus caryeris* GUIGNOT, 1942**

Material examined and identified by specialists: 2 exs. Crp 2/1999, 5 exs. Crp 3/1999, det. OB.

The species is restricted to Central and West Africa (BISTRÖM 1982). In West Africa it is known from Senegal, Mali, Guinea, Ghana, Benin and Nigeria (BISTRÖM 1982). Beside the authors' recording more material is known from about the same latitude in the Ivory Coast (Mankono: 9 exs., 2/1980, leg. Evers, det. Wewalka, in coll. Wewalka).

***Hyphydrus signatus* SHARP, 1882**

Material examined and identified by specialists: 3 exs. K 3/1998, det. AN.

The species is widely distributed all-over Africa. From West Africa it is known only from Guinea and Sierra Leone (BISTRÖM 1982). The record in the Ivory Coast connects the West African records to those in Central Africa.

Genus *Hydroglyphus* MOTSCHULSKY, 1853

The 80 species in this genus occur in Europe, Asia, Australia and Africa (BISTRÖM 1988a). The 41 African species were revised by BISTRÖM (1986).

***Hydroglyphus speculum* BRUNEAU DE MIRÉ & LEGROS, 1963**

Material examined and identified by specialists: 5 exs. Crp 2/1999, det. OB.

Only a few records exist from Central and West Africa (BISTRÖM 1986). The latter are from Nigeria (BISTRÖM 1986) and Guinea Bissau (NILSSON et al. 1995). Earlier, but unpublished records of this species from the Ivory Coast exist (Mankono: 5 exs., 3/1980, leg. Evers, det. Wewalka, in coll. Wewalka). The records in the Ivory Coast lie in-between the published distant West African recordings and are a valuable addition to known distribution.

***Hydroglyphus intermedius* BISTRÖM, 1986**

Material examined and identified by specialists: 2 exs. Crp 2/1999, det. OB.

This Central and West African species was recorded in West Africa in Senegal, Mauritania, Mali, Ghana and Nigeria (BISTRÖM 1986). Another record in the savannah belt of the Ivory Coast has not yet been published (Bandama River: 2 exs., 4/1980, leg. Evers, det. Wewalka, in coll. Wewalka).

***Hydroglyphus angularis* (KLUG, 1834)**

Material examined and identified by specialists: 1 ex. K 4/1998, 1 ex. Crp 2/1999, det. OB.

This species has previously been reported from the North African savannah and desert belt, in West Africa from Mauritania, Gambia, Senegal, Mali, Niger, Burkina Faso and Nigeria (BISTRÖM 1986) and Guinea Bissau (NILSSON et al. 1995). The record in Comoé National Park is the southernmost in West Africa.

Genus *Yola* GOZIS, 1886

With one exception the 39 species in this genus are confined to Asia and Africa (BISTRÖM 1988a). The 35 African species were recently treated by BISTRÖM (1983).

***Yola enigmatica* OMER-COOPER, 1954**

Material examined and identified by specialists: 4 exs. Crp 3/1999, det. OB.

This species lives in the savannah belt and is common in West Africa. Known records are from Mauritania, Senegal, Gambia, Mali, Burkina Faso, Niger, Nigeria (BISTRÖM 1983) and Guinea Bissau (NILSSON et al. 1995). The authors' record in Comoé National Park is located in the Guinea savannah and is the southernmost record of the species.

Genus *Yolina* GUIGNOT, 1936

The genus includes nine African species with one species also occurring in southwest-Asia (BISTRÖM 1988a). Determination followed BISTRÖM (1983).

***Yolina chopardi* GUIGNOT, 1950**

Material examined and identified by specialists: 1 ex. K 5/1998, 2 exs. Crp 3/1999, det. OB; 1 ex. Srp 5/1998, det. AN.

A species that is largely restricted to West Africa, where it is known from Ghana, Nigeria, Niger and probably Sierra Leone (BISTRÖM 1983), Guinea Bissau (NILSSON et al. 1995) and Guinea (GUIGNOT 1959a).

Genus *Herophydrus* SHARP, 1882

The genus includes 44 species in the Afrotropical, Oriental, and Palearctic regions (NILSSON 2001). BISTRÖM & NILSSON (2002) provide a world check list and a taxonomic revision as well as a cladistic analysis of the 39 African species.

***Herophydrus sudanensis* GUIGNOT, 1952**

Material examined and identified by specialists: 4 exs. Crp 3/1999, det. OB.

BISTRÖM & NILSSON (2002) report the species from Guinea-Bissau, Guinea, Mali, Chad, Ghana, Ivory Coast (referring to the author's specimens mentioned above), Nigeria, Sudan and probably Algeria.

Subfamily Colymbetinae ERICHSON, 1837

Note: RUHNAU & BRANCUCCI (1984) raised the former tribe Copelatini of the Colymbetinae to subfamily level, viz. Copelatinae.

Genus *Copelatus* ERICHSON, 1832

The genus with more than 400 species shows a world-wide distribution. A checklist for the 199 Afrotropical and Madagascan species of *Copelatus* known in 1996 with a review of published

penis drawings is given by NILSSON et al. (1996). Including those described by BILARDO & ROCCHI (1999), today 208 species are known.

***Copelatus epactus* GUIGNOT, 1948**

Material examined and identified by specialists: 1 ex. Llt 2/1999, det. FP.

The species was reported from Central Africa (PEDERZANI & ROCCHI 1982). There are no published records in West Africa, but the authors know unpublished material from Ghana (Tamale: light trap, 3 exs., 3/1970 and Brong-Ahafo region, Bui: light trap, 5 exs. 11/1965, leg. Endrödy-Younga, det. Wewalka, in coll. FP, coll. Hungarian Museum of Natural History and coll. Wewalka). The new record from the Ivory Coast extends the distribution area of the species further west.

Subfamily Dytiscinae LEACH, 1817

Genus *Eretes* CASTELNAU, 1833

The genus includes only one species in Australia and one species in all the other biogeographic regions (FRANCISCOLO 1979). LARSON et al. (2000), however, suggest that all New World specimens belong to a third species.

***Eretes sticticus* (LINNÉ, 1767)**

Material examined and identified by specialists: 2 exs. K 4/1998, det. AN; 1 ex. Crp 2/1999, det. FP.

Although this species is widespread all-over Africa and common in West Africa, namely Mauritania (DEKEYSER & VILLIERS 1956; GUIGNOT 1952a; 1955a), Senegal (LEGROS 1972), Burkina Faso (GUIGNOT 1943), Niger (GUIGNOT 1950), Nigeria (MEDLER 1980) and Guinea Bissau (NILSSON et al. 1995), records have never been published for the Ivory Coast. Besides this record in Comoé National Park the authors know of another unpublished record from the western Ivory Coast (Monts de Dans; 1 ex. 6/1998 leg. Moretto, det. Pederzani, in coll. FP). Regarding West Africa, these records are the southernmost of this species.

Genus *Hydaticus* LEACH, 1817

About 150 species are known in this world-wide distributed genus (NILSSON et al. 1995). Determination followed GUIGNOT (1961b), who revised the 60 African species.

***Hydaticus bivittatus* CASTELNAU, 1834**

Material examined and identified by specialists: 1 ex. Crp 3/1999, det. FP.

The distribution of this species covers the Ethiopian region and Madagascar (GUIGNOT 1961b). In West Africa it is known from Senegal (OMER-COOPER 1965), Guinea Bissau (NILSSON et al. 1995), Guinea (GUIGNOT 1956), Burkina Faso (GUIGNOT 1943) and Nigeria (MEDLER 1980). The authors' record extends the known West African distribution further south.

Genus *Cybister* CURTIS, 1827

The genus is largely confined to the Old World tropics and includes about 100 species (NILSSON et al. 1995). The 48 African species are reviewed by GUIGNOT (1961b).

***Cybister mocquerysi* RÉGIMBART, 1895**

Material examined and identified by specialists: 1 ex. Ssp 5/2000, 1 ex. Srp 6/2000, det. FP.

The species occurs in Central and West Africa. In the latter records are from Nigeria (MEDLER 1980), Mali, Guinea and Sierra Leone (GUIGNOT 1961a). The authors' record in the Ivory Coast give another link between the known west and central African records.

***Cybister nigroolivaceus* ZIMMERMANN, 1928**

Material examined and identified by specialists: 1 ex. Srp 4/2000, det. FP.

The species is known from Central Africa (GUIGNOT 1961b) and was recorded from West Africa in Guinea Bissau (NILSSON et al. 1995). The record in the Ivory Coast confirms the West African distribution and links to the Central African records.

***Cybister senegalensis* AUBÉ, 1838**

Material examined and identified by specialists: 1 ex. K 3/2000, det. FP.

The species occurs in entire Africa (GUIGNOT 1961b). In West Africa the only records are from Senegal (LEGROS 1972), Guinea Bissau (NILSSON et al. 1995) and Nigeria (MEDLER 1980). Further findings in West Africa connecting the few known records are likely.

***Cybister buqueti* AUBÉ, 1838**

Material examined and identified by specialists: 1 ex. Srp 4/2000, det. FP.

Rare in the entire continental Africa (GUIGNOT 1961b), it had not yet been recorded in West Africa.

Acknowledgements

Norbert Reintjes was supported by a scholarship of the Deutscher Akademischer Austauschdienst (DAAD). Research permission in the Ivory Coast was kindly given by the "Ministère de l'Agriculture et des Ressources Animales" and the "Ministère de la Recherche Scientifique de Côte d'Ivoire", Abidjan. The study was enabled through logistics provided by the Department of Animal Ecology and Tropical Biology, University of Würzburg, headed by Prof. Dr. K.E. Linsenmair. The research camp in Comoé National Park was built with funds from Volkswagen Stiftung. Dr. O. Biström and Dr. A.N. Nilsson contributed in species determination and Dr. G. Wewalka provided data on unpublished records. Dr. M. Balke, B.K. Kunz and Dr. M.-O. Rödel made helpful comments on previous drafts of the manuscript and J.P. Geraghty checked the manuscript linguistically. These supports are gratefully acknowledged.

Résumé

Des coléoptères aquatiques Noteridae et Dytiscidae ont été récoltés par le premier auteur dans les eaux du sud du Parc National de la Comoé (Côte d'Ivoire, Afrique de l'Ouest). Ce travail annonce la découverte de 17 espèces nouvelles pour la Côte d'Ivoire, dont trois espèces nouvelles pour l'Afrique de l'Ouest. La liste contient: *Canthydrus koppi* WEHNCKE, *Hydrocanthus parvulus* GSCHWENDTNER, *Hyphydrus caryerius* GUIGNOT et *H. signatus* SHARP, *Hydroglyphus speculum* BRUNEAU DE MIRÉ & LEGROS, *H. intermedius* BISTRÖM et *H. angularis* (KLUG), *Yola enigmatica* OMER-COOPER, *Yolina chopardi* GUIGNOT, *Herophydrus sudanensis* GUIGNOT, *Copelatus epactus* GUIGNOT, *Eretes sticticus* (LINNÉ), *Hydaticus bivittatus* CASTELNAU, *Cybister mocquerysi* RÉGIMBART, *C. nigroolivaceus* ZIMMERMANN, *C. senegalensis* AUBÉ et *C. buqueti* AUBÉ. La distribution générale de chaque espèce, reposant sur une analyse bibliographique poussée, est présentée; elle est plus particulièrement détaillée pour l'Afrique de l'Ouest.

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