

PRELIMINARY NOTE ON SOME AQUATIC INSECTS IN THE OUÉMÉ VALLEY

Tchiboza, S.¹, Marsollier, L.², Heckman, C.W.³, Aubry, J.⁴ and Chauty, A.⁵

1. Research Center for Biodiversity and Soil (Cerget, www.web-africa.org/cerget)
04 B.p. 0385 Cotonou, Bénin. tchisev@yahoo.fr
2. Unit of Bacterial Genetics, Institut Pasteur, 75015 Paris, France.
3. 315 93rd Ave., S.W. Olympia, WA 98512-9101, U.S.A.
4. INSERM U.463, Institut de Biologie & Faculté de Pharmacie,
44035 Nantes, France
5. Centre de Traitement de l'ulcère de Buruli, BP 191 Pobè, Bénin.

ABSTRACT

During October 2003, we completed an exploratory mission to some locations in the Ouémé Valley to collect insects. A total of nine species and some specimens apparently belonging to the Elmidae and Odonata were collected during the mission. 'Dejoux et al., 1981' confirmed that the rare or poorly known species are sparsely distributed, and it is unlikely that they would be encountered within a small area.

Key Words: Insects aquatic, Ouémé Valley, Benin.

INTRODUCTION

There has been very little research on the aquatic insects of Benin. The results of only one study have been published and that was on the identification of the benthic arthropod families by Gnonhossou (2002), who performed a detailed study for a degree dissertation (DEA). During a mission to determine the vectors of *Mycobacterium ulcerans* in the environment, some random samples were taken by this research team in order to provide cursory information on the different aquatic insects collected.

THE STUDY AREA

The Ouémé Valley is located in the southern part of Benin at Ramsar site 1017 (Fig. 1). It has been assigned to the eastern complex of the humid zone of Benin and has a length of about 70 km and a width that varies from 6 to 9 km at its

northern end to 31 km toward the south. It covers an area of 86000 ha and is a mosaic of marshes and permanent lakes with seasonally flooded areas and a number of oxbow lakes.

The Ouémé River, the main water course in the Ouémé Valley, is of the Sudan type with a high water period between July and mid-October and a low water period from mid-October to the end of December. The Ouémé River drains a watershed of 47,000 km²,

Covering a large part of Benin from the source of the river in the North to Lake Nokoué to the west of Porto-Novo.

This deltaic plain has an extremely flat topography from Lake Nokoué to the confluence of the Ouémé and the Sô, 24 km to the north of the lake. The plain is cut only by the two channels of the delta and, locally, by dikes along their banks.

The climate is transitional equatorial with two rainy seasons, from March to July and September to November, and two dry seasons, in August and September and from November through March. The annual rainfall totals about 1200 mm, and the average temperature is about 27°C, with the humidity varying from 78% in January and February to 95% in September.

During the month of October 2003 aquatic insects were captured using a landing net and a night trap made up of white sheets, a loosely hanging bulb and an electric generator. The capturing took place in the morning and in the afternoon in the Ouémé River, its tributaries and the Plateau.

RESULTS AND DISCUSSION

Physical and chemical characteristics

The water temperature was about 27 °C, and the pH varied between about 6.88 and 8.06. A distinct spatial and temporal alteration was noted, resulting in a slight lowering of the value in September and October. There was no correlation between the pH and the salinity of the water, which varied between 1 to 2 ‰

The average value of oxygen concentration in the Ouémé Valley in 2004, was about 4.9mg/l or 66% of saturation.

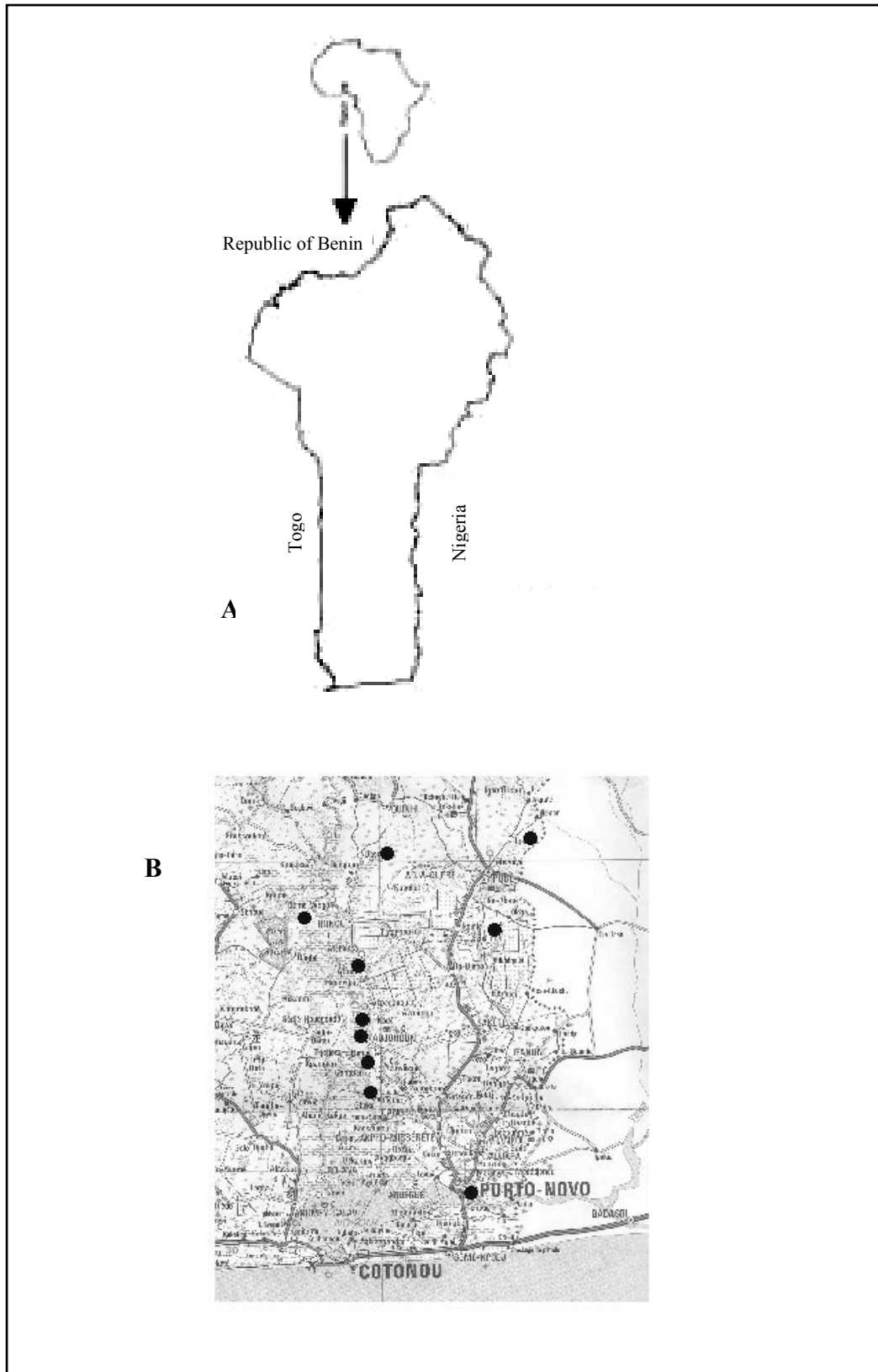


Fig. 1A : Location of Benin Republic; **B :** Study stations (●) along Ouémé River

Aquatic Insect Fauna

Order Hemiptera

Belostomatidae

Limnogeton fieberi Mayr, 1853.

This very widely distributed species is already known from two locations in the Ouémé Valley. In a culvert at Bonou, 13 specimens were collected, and an additional one was taken along the bank of the Ouémé River at Djassin. According to Dejoux *et al.* (1981), it is possibly abundant in the water bodies there or it may be encountered in the forested regions.

Diplonychus sp.

It is difficult to identify the larval stages of the relatively large number of species in this genus. The following specimens were collected: 1 in a culvert at Fouditi, 13 in a culvert at Bonou, 1 in the water source for the local communities at Gbada, 2 along the banks of the Ouémé River at Azowilisse-kadebou, and 4 in a seasonal wetland at Kode.

Belostoma cordofana (Mayr, 1853)



This is a very large belostomid. According to 'Dejoux *et al.* (1981), specimens have been collected frequently at lights, where they are plentiful. Of the specimens in our collection, 2 were collected in a culvert at Fouditi and 12 were found along the banks of the Ouémé River at Yokon.

Ranatridae

Ranatra sp.



The ranatrids have a much more elongated body than the nepids, and their legs are greatly elongated. 'Dejoux *et al.* (1981) pointed out that the ecology of the species is identical, and they inhabit similar habitats. Specimens were found in the following water bodies: 3 in a culvert at Fouditi, 3 in the drinking water source for the local communities at Etidan, 13 in a culvert at Bonou, 2 along the shore of the

Ouémé River at Avrankamè, 7 along the banks of the same river at Yokon, 1 at the water source for local communities located in a gallery forest at Agonvinou, and 12 in a culvert at Kode.

Nepidae

Laccotrephes sp.



This species is larger than *Laccotrephes ater*. One specimen was taken from a culvert at Fouditi, and one was collected from a seasonal water body at Igana. Three specimens were found along the bank of the Ouémé, one at Avrankamè and two others at Yokon.

Naucoridae

Macrocoris flavicollis ? (Signoret, 1861)



This is a very common species. Its size is moderate, and the abductors on the femora are greatly swollen. Specimens in the collection were taken at the following locations: 5 from a culvert and a temporary pool at Fouditi, 5 at Igana from a seasonal water body, 7 from a culvert at Bonou, 1 along the bank of the Ouémé

River at Avrankamè, 52 along the bank of the Ouémé River at Yokon, 22 from the water source for the communities at Gbada, 23 along the banks of the Ouémé at Azowilisse-kadebou, one from the water source for communities located in a gallery forest at Agonvinou, and 11 from a culvert at Kode.

Naucoris sp.



Unfortunately, all of the photos of these specimens are of poor quality. The species has a greenish coloration and a head that strongly resembles that of this genus in the family Naucoridae. The following specimens were collected: 1 in a seasonal pond at Fouditi, 5 in a culvert at Dasso, 1 along the banks of the Ouémé

River at Avrankamè, 1 along the banks of the same river at Yokon, 3 in the water source for the local communities at Gbada, 3 in a small stream in a gallery forest that serves as the only water source for the village, and two in the water sources for the local communities located in a gallery forest at Agonvinou.

Odonata

At the different sampling locations, 23 gomphid and 9 libellulid larvae were collected. ‘Tchiboza & Dijkstra., 2003’ inventoried 73 odonatan species in the humid zone of southern Benin and estimated from that study that there are more than 100 species in Benin.

Order Coleoptera

Dytiscidae

The majority of dytiscids inhabit standing water bodies.

Heterhydrus senegalensis (Laporte, 1835)



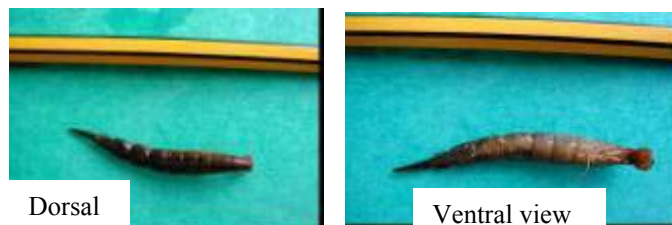
This dytiscid is very large and colored dull black. The following specimens were collected: 3 in a culvert at Fouditi, 1 at the water source for the local communities at Etidan, 1 in a culvert at Dasso, and one along the banks of the Ouémé River at Yokon.

Hydaticus flavolineatus Boheman, 1848



This species is easy to identify because of its large size and peculiar color patterns on its elytra. The males and female can also be distinguished by the pattern. Only one specimen was taken for the collection in a culvert at Dasso.

Elmidae



The larvae have lateral expansions of the abdomen limited to lamellae and gills on the last abdominal segment. It is limited to flowing water. Additional elmid larvae in this collection could not be identified because adults are lacking. One specimen was found in the water supply for communities near Etidan. Another was found in a culvert at Dasso, and one was found along the banks of the Ouémé River at Djassin.

CONCLUSION

Our results are very preliminary and are limited to a single collection. Dejoux *et al.* (1981) reported that numerous aquatic insects are always captured in light traps, and the catch is often rich in species, as well.

A thorough inventory would be necessary to determine the biodiversity of the aquatic insects in the Ouémé Valley.

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