

Chapter 5

Macroinvertebrate fauna in streams draining Ajenjua Bepo and Mamang River Forest Reserves, Eastern Region, Ghana

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SUMMARY

In streams like those draining the Ajenjua Bepo and Mamang River forest reserves, available organic matter is processed by organisms including macroinvertebrates. Since different groups of invertebrates react differently to changes in habitat caused by deforestation, erosion, poor water quality, etc., the presence or absence of different invertebrate groups can illustrate the extent of degradation within study areas. The two forest reserves surveyed are located in watersheds which are tributaries of the Pra River. Among the three sites associated with Mamang River, the highest number of taxa (19 families) was found at Site 1 (Mamang at Mamanso). Of the sites associated with Ajenjua Bepo, the highest number of taxa (19 families) was recorded at Site 4 (Afosu at Afosu). The most common families in the survey were the Chironomidae, Baetidae and Dytiscidae. Some species recorded were those adapted to polluted waters. The occurrence of the families of Gastropoda in streams associated with the two reserves is of medical importance as some species of these families are hosts of schistosomiasis in Southern Ghana. Sanitation in nearby settlements should be improved and dense vegetation cover of headwaters must be maintained to insure that streams, to the extent possible, flow throughout the year to enable inhabitation by species of Plecoptera, Trichoptera, Tricorythidae, etc. which were not seen during the present study.

INTRODUCTION

In the aquatic environment, macroinvertebrates are the taxon most commonly used in assessing water quality (Wiederholm 1980, Abel 1989). They are appropriate for rapid assessment because their basically sedentary nature allows effective spatial analyses of pollutants or perturbations (Abel 1989). Also, they are very common and can therefore be affected by environmental perturbations in many different types of aquatic systems and in habitats within those waters (Lenat et al. 1980). Furthermore, their relatively long life cycles compared to other invertebrate groups allow elucidation of temporal changes caused by disturbance or habitat degradation (Lenat et al. 1980).

Nutrient processing in an aquatic ecosystem involves complex physical and biological interactions (Merritt et al. 1984). In streams like those draining Ajenjua Bepo and Mamang River, the available organic matter (allochthonous input) coming from the forest vegetation is processed by organisms including macroinvertebrates. The macroinvertebrates, as secondary producers, therefore contribute to community energy flow in the aquatic environment. Macroinvertebrates are eaten by certain species of fish and adult aquatic insects also contribute to food webs within the terrestrial community. Aquatic macroinvertebrates are an integral part of the river environment and, as such, require protection. Macroinvertebrates are a diverse group of organisms whose constituent sub-groups react differently to changes in the habitat caused by deforestation, erosion, poor water quality, etc. As a result, the presence or absence of different invertebrates can be used to understand the extent of degradation within a study area.

The macroinvertebrate biodiversity of the streams in Ajenjua Bepo and Mamang River in the Eastern Region of Ghana were assessed in August 2006. The purpose of the study was to collect data on the status of macroinvertebrate species of the study area in order to make recommendations on their protection and management.