

Chapter 4

Dragonflies and damselflies (Odonata) of the Atewa Range, Ghana

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SUMMARY

Odonata were surveyed during a Rapid Assessment Program (RAP) survey of the Atewa Range Forest Reserve in Ghana. A total of 72 species were found in the streams and rivers that have their headwaters within the reserve (and associated standing water habitats), although only 31 (43%) were found strictly within the reserve's boundaries. Eight species were recorded in Ghana for the first time, of which six (75%) were recorded inside the reserve. Of these, *Atocorneura luxata* is the most significant discovery because: (1) it had not been described at the time and material taken during the RAP was included in its recently published description; (2) it is the only regionally threatened odonate found, being Red-listed as Vulnerable in western Africa; and (3) it confirms the nationally unique 'montane' character of the site. The results indicate a healthy watershed in the forest reserve and the surrounding area, with limited pollution and streambed erosion. This is confirmed by the presence of forest species even in more disturbed landscapes. If forest cover and natural stream morphology are retained, the present dragonfly fauna is expected to persist. However, if development activities were to entail the removal of vegetation or mineral deposits from the range, its capacity to store, buffer and filter rainwater would be seriously compromised, jeopardizing the reliable discharge of freshwater into the region's rivers; an essential resource for millions of Ghanaians and a rich biodiversity.

INTRODUCTION

Odonata (dragonflies and damselflies) are receiving increasing attention from scientists and the public. These graceful, colorful creatures are the quintessence of freshwater health. Due to their attractive appearance, dragonflies and damselflies can function as guardians of the watershed. They can be flagships for conservation, not only of water-rich habitats such as wetlands and rainforests, but also for habitats where water is scarce and, therefore, especially vital to the survival of life. Their sensitivity to structural habitat quality (e.g., forest cover, water clarity) and amphibious habits make Odonata well suited for evaluating environmental change in the long term (biogeography, climatology) and in the short term (conservation biology), both above and below the water surface (Corbet 1999).

Odonata larvae are excellent indicators of the structure and quality of aquatic habitats (e.g., water, vegetation, substrate), while adult Odonata exhibit high sensitivity with regards to the structure of their terrestrial habitats (e.g., degree of shading). As a consequence, Odonata show strong responses to habitat changes, such as those related to deforestation and erosion. Ubiquitous species prevail in disturbed or temporary waters, while habitats like pristine streams and swamp forests harbor a wealth of the more vulnerable and localized species. Different ecological requirements are linked to different dispersal capacities. Species with narrow niches disperse poorly, while pioneers of temporary habitats (often created by disturbance) are excellent colonizers. For this reason, Odonata have a potential use in the evaluation of habitat connectivity (Clausnitzer 2003, Dijkstra and Lempert 2003).

Odonata possess characteristics distinct from those of relatively well-studied taxonomic groups like plants, birds, mammals and butterflies. Therefore, their study supplements knowl-