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A Study of Bushfires in a Ghanaian Coastal Wetland. I. Impact on Small Mammals

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Abstract

The study was undertaken at the Muni-Pomadze wetlands near Winneba in the Central Region of Ghana. The main objective of the study was to investigate the impact of bushfires on the small mammal community of this coastal wetland, since this has long-term negative implications for the biodiversity, ecotourism potential and the socio-economic well-being of the people of the area. The methodology involved the monitoring of the relative abundance and diversity of the small mammal community on burnt and unburnt habitats of the area using live-trapping. There were 268 captures of four rodent and one insectivore species, notably *Tatera kemp* (Kemp's gerbil), *Lemniscomys striatus* (spotted zebra mouse), *L. barbarus* (striped zebra mouse), *Mastomys erythroleucus* (multimammate mouse) and *Crocidura crosse* (white-toothed shrew). Kemp's gerbils were the most dominant species captured (87%), followed by spotted zebra mice (7.0%). Multimammate mice and the white-toothed shrew were captured on only the unburnt plots, while the others occurred on both plots. There was significantly higher relative abundance and species diversity on the unburnt than the burnt plots, and sexual activity was also generally higher on the unburnt plots. Breeding activity of the rodents was at its highest towards the beginning of the rains in May/June. The results indicated a general degradation of the wetland habitat as a result of rampant bushfires. The relative abundance, diversity and biomass of the small mammals populations were also negatively affected. It is, therefore, recommended that reforestation, as well as public education and awareness programmes should be initiated in the area. Local participation in biodiversity conservation initiatives should also be enhanced.

Introduction

The Muni-Pomadze wetlands, located near Winneba in the Central Region of Ghana, is one of the five internationally-recognized coastal wetlands (Ramsar sites) in Ghana. This is because of its importance as a habitat for resident and migratory water birds (wadlers, terns, etc.) (Ntiama-Baidu & Gordon, 1991). Its importance also stems from its use as the traditional hunting grounds of the local Effutu people during their annual "Aboakyer" Festival, which is of immense socio-economic benefit both locally and nationally (Wilson, 1963; Wyllie, 1968). Unlike the other four internationally-recognized coastal wetlands, the Muni-Pomadze wetland appears to be especially vulnerable to bushfires, because of its

significantly more extensive (98%) dry land coverage (Amatekpor, 1994). The widespread practice of deliberate setting of bushfires by the local people, especially during the dry season, could also be a factor. The area also represents one of the high risk areas for bushfires in the Central Region (Gboloo, 1998). Unfortunately, such unsustainable human use and the apparent neglect of the wetland have resulted in its degradation over the years, with the town of Winneba no longer "situated among trees" as Dickson (1969) put it. The current situation, if allowed to persist, will result in the loss of rich biodiversity from the wetland, with its attendant adverse effect on its ecotourism potential.

Bushfires have been defined as "fires set