Small mammals from Miri, northeastern region of Sarawak, Malaysian Borneo: note on new locality records

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Abstract: Small mammal surveys were conducted at Niah National Park, Lambir Hills National Park and Gunung Mulu National Park, Miri Division, in the northeastern region of Sarawak, using ground-level and canopy mist-nets, harp traps, and cage traps. The main objective of these surveys was to assess small mammal diversity in the northeastern region of Sarawak. Gunung Mulu National Park recorded the highest diversity of small mammals with 29 species, followed by Niah National Park with 19 species, and Lambir Hills National Park, 17 species. These surveys revealed nine new locality records for Miri, including eight bat species (Dyacopterus spadiceus, Megasorops vetmorei, Nycteris tragata, Hipposideros cineraceus, Hesperopterus blanfordi, Kerivoula pellucida, Murina suilla and Myotis muricola) and a squirrel (Sundasciurus brookei). Megasorops vetmorei is also reported for the first time in Sarawak.

Keywords: Borneo; diversity; Chiroptera; Rodentia; Scandentia

INTRODUCTION
Borneo hosts a rich small mammal fauna, including at least 186 species from the orders Chiroptera, Dermoptera, Pholidota, Rodentia, and Scandentia (Payne et al. 1985). Although several studies have been conducted on these faunas in Sarawak (e.g., Jayaraj et al. 2005; Khan et al. 2006; Khan et al. 2008; Mohd-Azlan et al. 2005; Mohd-Ridwan et al. 2011; Jayaraj et al. 2011; McArthur 2012; Azhar et al. 2013), their occurrence in the northeastern division of this state remains poorly known. With an area of approximately 26,777 km², the city of Miri, which is located in the northeastern part of Sarawak, harbors eight out of the 25 national parks (NP) found in this state. Miri also holds a wide range of habitats, from hill dipterocarp forest to karstic areas.

The Melinau Limestone Formation, in Gunung Mulu NP, extends 38 km in length and 8 km in width, and is one of the largest limestone massifs in the world, acting as a boundary between Miri and Limbang divisions in Sarawak (Wilford 1964). This karstic environment contains more than 10 caves, including Deer Cave, Lagan Cave, and the world’s largest chamber, Sarawak Chamber. Niah Cave, in Niah NP, serves as the main habitat for swiftlets and bat species within the national park area (Medway 1997). In this study, we present results from surveys carried out at Niah NP, Lambir Hills NP, and Gunung Mulu NP.

Surveys in protected areas are crucial for conservation and management purposes, particularly in regions experiencing prominent rates of deforestation (Fuller et al. 2004; Sodhi et al. 2004; Curran et al. 2004; Sodhi and Brook 2006). It has been suggested that if the current deforestation pace continues, approximately 40% of the bat species within Southeast Asia will be extinct by the end of this century (Kingston 2010). Thus, there is a need to document species distribution in this region, especially in areas identified as biodiversity hotspots, like Borneo, where information on small mammals is still scarce.

MATERIALS AND METHODS
Sampling sites
Surveys were conducted in three national parks in the Miri Division of Sarawak (Figure 1). Permission to conduct