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AN ORNITHOLOGICAL SURVEY OF GUNUNG MULU NATIONAL PARK, SARAWAK, MALAYSIAN BORNEO

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ABSTRACT.—Mount Mulu, an isolated 2,376 m peak in eastern Sarawak, Malaysian Borneo, has not been thoroughly surveyed for bird species since shortly after the creation of Mount Mulu National Park in 1974. The Park is of particular interest for its isolation, spectacular limestone structures, bat flights, and extensive primary forest that ranges from near sea level to the mountain's peak. We spent 2.5 months surveying, observing, and mist-netting birds in the Park and recorded 244 species across its elevational gradient from 50–1,850 m, including 32 species new to the 1979–82 Mt. Mulu checklists. Here, we report the elevational range of each species we observed, compare our list with these earlier Mt. Mulu checklists compiled 25 years ago, and comment on unique observations. *Received 4 May 2015. Accepted 28 October 2015.*

Key words: biogeography, checklist, mist net, montane avifauna, Mt. Mulu, point count, Sundaland.

The island of Borneo is home to 373 of the 671 resident land-bird species found in Sundaland, including 52 endemics (Sheldon et al. 2015). Biologists have long been interested in the forces responsible for this remarkable diversity and particularly why so many of the endemics are montane. Gunung (Mount) Mulu is a 2,376-m peak in eastern Sarawak (Fig. 1) surrounded by a 528-km² national park established in 1974 (Anderson et al. 1982). The Park is covered almost entirely by primary forest, with the minor exception of the floodplain areas around its headquarters. Although Mt. Mulu itself is a sandstone massif, the area surrounding it contains large limestone karst formations, including dramatic peaks, pinnacles, and caves to the north and west. These formations include some of the largest and longest caves in the world and are home to a remarkable number of bats, swiftlets, and endemic arthropods.

Several teams have conducted research on Mt. Mulu in the past, but one of the most comprehensive studies was a 16-month survey of the Park's geology, sociology, and biology by the Royal Geographic Society (RGS) in 1977–1978 (Hanbury-Tenison and Jermy 1979). This team of >145 scientists, assistants, guides, and porters

catalogued, mapped, and studied the geology, flora, fauna, and anthropology of Mt. Mulu National Park shortly after the Park's designation, resulting in a comprehensive park management plan (Anderson et al. 1982). As part of the RGS expedition, birds were surveyed from 1 April–7 May 1978 (Wells et al. 1979). Since then, research on a smaller scale has been conducted throughout the Park, including some with an avian focus (McCormick 1979). However, bird occurrence has never been examined quantitatively, nor have specimens with comprehensive, modern data and preserved tissues been collected on the mountain.

Over the past few decades, Borneo has been experiencing rapid land use changes, with deforestation resulting from timber harvest and conversion of forest land to plantations, particularly oil palm (*Elaeis guineensis*; Sodhi et al. 2008, Wilcove et al. 2013). Borneo continues to lose forest cover at one of the highest rates in SE Asia (Miettinen et al. 2011). The area surrounding Mt. Mulu National Park, except in the country of Brunei, has all been logged and most has been converted to oil palm. Thus, the Park is largely an island representing an extremely valuable remnant of what used to be widespread rainforest.

Mt. Mulu National Park is an ideal location for bird research, because it features an elevational gradient of primary forest from near sea level to 2,376 m. Thus, it is expected to comprise most of the rainforest species of Borneo, including both lowland and montane specialists. Mt. Mulu is also located in a key region of Borneo for phylogeographic studies. It is near or within a bird transition zone, in which differentiated lowland (Lim et al.

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