

Preliminary Result on the Impact of Anthropogenic Noise on Understory Bird Population in Primary Forest of Gaya Island

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Abstract : Gaya Island of Sabah is known for its wildlife and marine biodiversity. It has marks itself as one of the hot destinations of tourists from all around the world. Gaya Island tourism activities have contributed to Sabah's economy revenue with the high number of tourists visiting the island. However, it has led to the increased anthropogenic noise derived from tourism activities. This may greatly interfere with the animals such as understory birds that rely on acoustic signals as a tool for communication. Many studies in other parts of the regions reveal that anthropogenic noise does decrease species richness of avian community. However, in Malaysia, published research regarding the impact of anthropogenic noise on the understory birds is still very lacking. This study was conducted in order to fill up this gap. This study aims to investigate the anthropogenic noise's impact towards understory bird population. There were three sites within the Primary forest of Gaya Island that were chosen to sample the level of anthropogenic noise in relation to the understory bird population. Noise mapping method was used to measure the anthropogenic noise level and identify the zone with high anthropogenic noise level ($> 60\text{dB}$) and zone with low anthropogenic noise level ($< 60\text{dB}$) based on the standard threshold of noise level. The methods that were used for this study was solely mist netting and ring banding. This method was chosen as it can determine the diversity of the understory bird population in Gaya Island. The preliminary study was conducted from 15th to 26th April and 5th to 10th May 2015 whereby there were 2 mist nets that were set up at each of the zones within the selected site. The data was analyzed by using the descriptive analysis, presence and absence analysis, diversity indices and diversity t-test. Meanwhile, PAST software was used to analyze the obtain data. The results from this study present a total of 60 individuals that consisted of 12 species from 7 families of understory birds were recorded in three of the sites in Gaya Island. The Shannon-Wiener index shows that diversity of species in high anthropogenic noise zone and low anthropogenic noise zone were 1.573 and 2.009, respectively. However, the statistical analysis shows that there was no significant difference between these zones. Nevertheless, based on the presence and absence analysis, it shows that the species at the low anthropogenic noise zone was higher as compared to the high anthropogenic noise zone. Thus, this result indicates that there is an impact of anthropogenic noise on the population diversity of understory birds. There is still an urgent need to conduct an in-depth study by increasing the sample size in the selected sites in order to fully understand the impact of anthropogenic noise towards the understory birds population so that it can then be in cooperated into the wildlife management for a sustainable environment in Gaya Island.

Keywords : anthropogenic noise, biodiversity, Gaya Island, understory bird

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