

# **Effective survey methods for the elusive data deficient black flying squirrel (*aeromys tephromelas*) in Sabah, Malaysia facilitate first vocalisation record**

## **ABSTRACT**

Flying squirrels are nocturnal gliding mammals native to forest habitat and range broadly in size from 24 g up to 1.5 kg. There are 52 species worldwide, 95% of which are native to Asia, yet most research focuses on the three species found in North America. With minimal data on Asiatic flying squirrels, obtaining ecological data is key for improving conservation efforts. In February and March of 2023, a nocturnal survey was conducted at the Rainforest Discovery Centre (RDC), at the edge of primary forest in Sepilok, Sabah. To improve detection chance, the study included multiple specialised monitoring equipment including red-light headtorches, a thermal camera and an audible-ultrasonic microphone. Three giant flying squirrel species were observed, most notably the black flying squirrel, which is so understudied that its extinction risk has not been assessed. This study also provided the first documented vocalisation event for this species, with 106 calls within a frequency range of 0.75–2.69 kHz and an average duration of 1.4 s. With flying squirrels reliant on trees, deforestation across their distribution poses a major threat. Therefore, this study both highlights the urgency for assessing the black flying squirrel's extinction risk and understanding their role in the ecosystem.