



Tracking the migration of Albatross butterflies (*Appias* sp) in Sri Lanka

Among insects, butterfly migration is an eye-catching behaviour that occurs around the world (Dissanayake *et al.* 2022). The mass migration of butterflies is little understood (WWF 2023). In Sri Lanka, mass migrations of butterflies were recorded in the past, but they are now rare (Weerakoon & Ranawana 2021). Although those large migrations have not been observed during the past decades, more isolated small migrations do still occur occasionally. However, no definite direction of flight has been identified for these migrations except for point observations of directions (van der Poortan & van der Poortan 2016). It is unclear in most instances where the butterfly migrations in Sri Lanka begin and end. Therefore, here we report observations on the migrations of two butterflies, the lesser Albatross (*Appias galene* Felder & Felder, 1865) and common Albatross (*A. albina swinhoei* Moore, 1905) during the inter-monsoonal period from March to April 2023. Observations were made at 60 random locations to determine the starting point and the directions of migration (Fig. 1).

On 6 March 2023, we observed a large group of butterflies swarming over Thalawakele ($6^{\circ}54'52.2''N$, $80^{\circ}42'20.4''E$) and Kandy ($7^{\circ}17'33.7''N$, $80^{\circ}37'32.0''E$). Immediately, we began to gather information from 58 other locations from 6 March to 1 April 2023. In every location, the direction of butterfly flight and the average number of butterflies passing the observation location per minute were recorded and ranked with colour codes. Rankings were: white = 1–20 butterflies, yellow = 21–30 butterflies, orange = 31–50 butterflies, and red = more than 50 butterflies. These rankings were marked on a map of Sri Lanka with arrowheads. Arrowheads are pointed in the observed direction of migration at the observation point. The flight speed of migrating butterflies was calculated by counting the time taken by 10 individual butterflies to pass 10 m at each observation location.

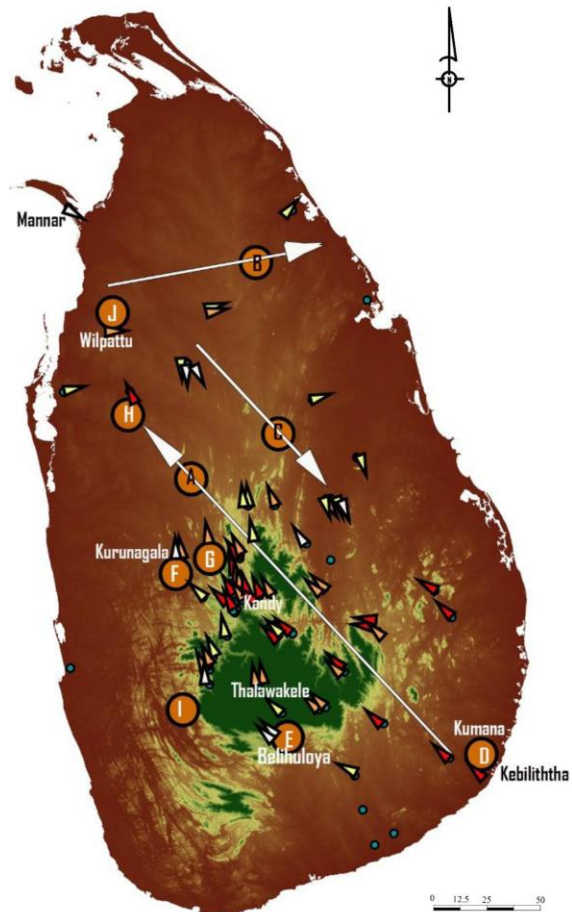


Figure 1. A map of Sri Lanka marked with locations where Albatross butterfly migration was recorded. Recording sites are marked with blue spots. The colour of arrowheads represents the number of butterflies recorded per minute.

After marking all observations on the map, three major migratory directions were identified (Fig. 1): (A) from southeast to northwest, (B) from east to west in the northern part of the country, and (C) from north to south in the eastern part of the country. In addition, (D) at Kebiliththa in Kumana National Park ($6^{\circ}36'26.2''N$, $81^{\circ}31'59.8''E$), several hundreds of Albatross butterflies were observed moving in a northwest direction. This suggests that Kumana National Park in the southeast could be a breeding location for these butterflies. Some migrations also took place at (E) Belihuloya

(6°42'16.7"N, 80°47'15.6"E), (F) Kurunegala (7°28'45.4"N, 80°21'49.6"E), (G) Ridi Viharaya (7°32'12.2"N, 80°29'25.8"E), and (H) Rajanganaya (8°11'32.9"N, 80°8'55.9"E).

With all these observations, it is clear that most Albatross butterflies migrate towards the northwest of the country. This finding is different from the traditionally common understanding and previous records (d'Abbrera 1998) that these Albatross butterflies migrate towards (I) Adam's Peak (6°48'42.1"N, 80°29'57.1"E). The host plants of Albatross butterflies are *Drypetes gardneri* and *Drypetes sepiaria* (Putranjivaceae) (Jayasinghe *et al.* 2014). These host plants are mainly concentrated in low-country dry zone areas including the observed starting point (D) of the migration in 2023. These plants are not common in the hill country, but further northwest at (J) Wilpattu National Park (8°27'56.2"N, 80°3'37.5"E) these host plants are common and this area might be the destination of the migrants.

The average speed of flight observed during this study was 11km/h. The direct distance from Kumana National Park through the central mountain to Wilpattu National Park is 280 km. If the migrants fly 8 hours each day (08.00 to 16.00 h) without stopping they will travel 88 km. Accordingly, they could reach Wilpattu National Park within 3 days. In reality, assuming stops for feeding and adverse weather conditions (e.g. headwinds) the migration from Kumana to Wilpattu is more likely to take 4 days or more.

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