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A Notable Movement and Sea-crossing in a Ringed Malaysian Pied Fantail *Rhipidura javanica*

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The power of flight imbues bird with extraordinary potential to travel long distances. Most long-distance movements are migratory: seasonal movements between (usually) a breeding area and a non-breeding area that may cover thousands of kilometers. Additionally birds, including non-migratory species, may also disperse opportunistically from their birthplace to other locations, taking them across a range of shorter distances. There is a wide literature on avian dispersal (e.g. Kendeigh, 1941; Greenwood & Harvey, 1982; Koenig *et al*., 1996; Paradis *et al*., 1998; Clark *et al*., 2004; Dale *et al*., 2005; Newton 2000, 2008; Cottee-Jones *et al*., 2016; Marzluff *et al*., 2016).

Most studies of dispersal have been from birds in temperate zones. Among tropical forest birds in Thailand, the median post-natal dispersal distance for cooperatively breeding Puff-throated Bulbuls *Alophoixus pallidus* of both sexes at Khao Yai was only 311 m (Sankamethawee *et al*. 2010). The median post-natal dispersal of juvenile males of the aggressively territorial White-rumped Shama *Kittacincla malabarica* at Sakaerat Environmental Research Station was 488 m, equivalent to six home ranges (Angkaew *et al*., 2019). On the other hand, Wells (1992 and *in litt*. to PDR) detected occasional longer distance dispersal in ostensibly resident forest bird species, mist-netted among nocturnal migrants, and documented the transient occurrence of numerous forest species in unsuitable scrub and plantation habitats around Kuala Lumpur, Malaysia. Birds in general are considered to show a high level of philopatry (site-faithfulness), and there are few dispersal movements of smaller resident landbirds recorded for distances greater than about 10 km (Kendeigh, 1941; Paradis *et al*., 1998). Studies of dispersal are, however, biased in favour of short-distance movements, since the greater the distance moved the lower the likelihood of detection of a marked dispersant. Longer distance dispersal events may be overlooked.

During an exploratory bird-ringing session at Khung Krabaen Non-Hunting Area, Chanthaburi Province, Thailand (12°31′12.6″N, 101°56′57.6″E), one of four Malaysian Pied Fantails *Rhipidura javanica* caught in mist-nets set in coastal secondary forest on 1 September 2017 already bore a ring. That ring (Department of National Parks no. 2A61172) had been fitted to the leg of a Malaysian Pied Fantail caught on Ko Man Nai (Man Nai Island), Rayong Province (12°36′43.2″N, 101° 41′17.4″E) on 11 March 2017. It was one of just nine individuals of that species ringed by us and our colleagues on that island during March-April that year. It was adult-plumaged, full-grown, at time of ringing, and considered to be in at least its second

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calendar-year. After initial capture it was subsequently retrapped on the island on three further occasions, the last on 14 April 2017.

The occurrence of this same Malaysian Pied Fantail at Khung Krabaen represents a straight-line dispersal distance across open sea of 30 km ESE. Man Nai Island lies ca. 5.5 km offshore, the shortest possible sea-crossing that could have been made by this individual. Assuming it had taken that latter, indirect, route, on reaching the mainland it would then have had to disperse approximately 50 km along the coast in order to reach Khung Krabaen (Fig. 1).

No movements were reported among 741 Malaysian Pied Fantails ringed in Malaysia, Singapore and Thailand combined during the 1963–1971 Migratory Animal Pathological Survey, MAPS, (MCCLURE & LEELAVIT, 1972; MCCLURE, 1974), nor among individuals subsequently ringed by the Universiti Malaya ringing scheme up until the mid-1990s (the period for which data were available: D. R. WELLS *in litt.* to PDR). Although the Malaysian Pied Fantail is, so far as known, non-migratory, it has spread widely in past decades from its ancestral habitat of mangroves and riverine forest edge (WELLS, 2007), in association with human cultivation and settlements, and has greatly expanded its range in Thailand throughout settled lowlands and river valleys, within the past decade reaching the northern plains around Chiang Mai (A. JEARWATTANAKANOK and R. KANJANAVANIT, *in litt.* to PDR, June 2018). Anecdotal reports of the speed with which open country bird species are able to colonize newly cleared areas in Southeast Asia, *etc*., are now widespread. Since suitable non-closed forest habitats would formerly have been sparse, and of limited extent, across the historical, pre-Anthropocene, Southeast Asian landscape, Malaysian Pied Fantails and other species that avoid the interior of terrestrial forests may therefore be predisposed to be opportunistically dispersive. A capacity for long-distance dispersal might be advantageous in birds in which either habitats or potential mates are patchily distributed across landscapes (DALE *ET AL*., (2005).

That the present individual should have undertaken a sea-crossing and, moreover, was already fully adult when first caught and ringed, was doubly surprising, since post-juvenile dispersal distances tend to be greater than those of adults (KENDEIGH, 1941). Additionally the Malaysian Pied Fantail population on the source island of Ko Man Nai was sparse, with no indication that population pressure might have driven dispersal. In general, though, fantails (Rhipiduridae) have shown a spectacular propensity to colonise islands of the Micronesian/Australo-Papuan region where most of the 45 species in the family are distributed (MAYR & MOYNIHAN, 1946; DICKINSON & CHRISTIDIS, 2014; WINKLER *ET AL*., 2015) at least some of which must have been reached by trans-oceanic dispersal.

Nonetheless, of 10 species of fantails for which dispersal data were available from the Australian Bird and Bat Banding Scheme, the average movement distance was only 1–3 km. The maximum recorded distance among 6,178 recovered Rufous Fantails *R. rufifrons* was only 27 km (ABBBS, 2018). However, a single individual of another fantail species, Grey Fantail *R. albiscapa,* with an average movement distance of 2 km from 1,343 recoveries, was recovered a spectacular 1,278 km from the place of ringing (ABBBS, 2018). Some populations of this species are known to be nomadic under the highly seasonal Australian environment (BOLES, 2018).

The wider application of ringing as a component of wild bird monitoring in Southeast Asia (implemented by more bird-ringers, both enthusiastic volunteers and academics/professional researchers, as already happens in Australia, North America, UK and many European countries) would yield more data on bird dispersal. A better appraisal of dispersal patterns within and among bird populations could also come through increased use of telemetry,

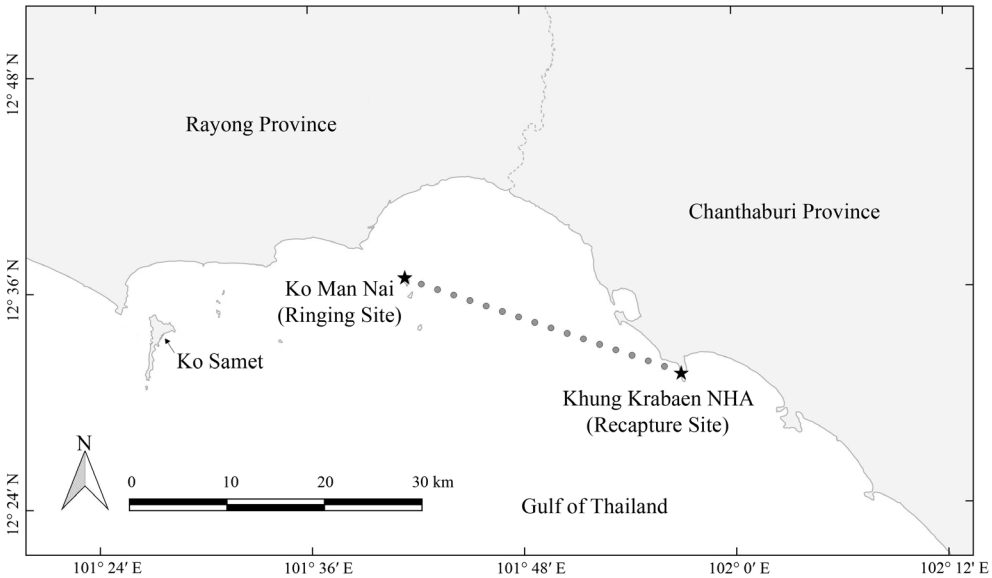

Figure 1. Location of sites of ringing and recapture of a Malaysian Pied Fantail *Rhipidura javanica* in southeastern Thailand.

satellite-tagging and geolocator studies of marked individuals, perhaps in combination with molecular methods (estimates of gene flow, using genetic markers, and isotopic identification of site of origin of dispersants, as suggested by Koenig *et al.* [1996] and Clark *et al.* [2004]).

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