

Dusky striped squirrel *Funambulus sublineatus* as a part of mixed-species bird flocks

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Mixed-species bird flock composition and structure changes in response to forest habitats and geographical locations (Shridhar *et al.* 2009). It has been hypothesized that mixed flocks evolve due to the increased benefits of foraging and reduced costs of predation (Greenberg 2000; Sridhar *et al.* 2009; Oommen & Shanker 2009). On certain occasions, small mammals form part of the mixed-species bird flocks, which are a characteristic feature in South, and South-East Asia (Nimnuan *et al.* 2004; Goodale *et al.* 2009). However, not many reports are available on the association of small mammals like treeshrews, squirrels with the avian component of mixed flocks from India (Goodale *et al.* 2009; Sridhar & Sankar 2008; Oomen & Shanker 2009). In the present note, we report the presence of dusky striped squirrel *Funambulus sublineatus* (Fig. 1) in mixed-species insectivorous bird flocks in the selection-felled forests of Kodayar (8°32'N 77°21'E; 1300 m above sea level) in Kalakad Mundanturai Tiger Reserve (KMTR), Tamil Nadu, India.

On the afternoon of 20 August 2010, while walking through a riparian forest fragment habitat in Upper Kodayar, a mixed-species insectivorous bird flock was sighted, which was led by a dusky striped squirrel. The flock comprised individuals of Quaker Tit-Babbler *Alcippe poioicephala*, Grey-headed Flycatcher *Culicicapa ceylonensis* (Fig. 2), and a Greater Racket-tailed Drongo *Dicrurus paradiseus* led by a dusky striped squirrel. The flock was spread in the under-storey and mid-storey regions. The birds fed on the insects flushed by the squirrel as it gleaned on tree bark. We observed the flock for around ten minutes, till it disappeared in the woods.

One of us (RV) has been studying bird communities in this area and has observed the dusky striped squirrel in mixed-species flocks on 23 different occasions. Of the observed mixed foraging associations between squirrels, and other bird species, bark gleaning insectivorous species such as Velvet-fronted Nuthatch *Sitta frontalis*, and Common Flameback *Dinopium javanense* were detected only on two of those occasions. The Quaker Tit-Babbler and Grey-headed Flycatcher were detected in all the flocks. The Greater Racket-tailed Drongo was a participant on 16 occasions. A total of 17 species were associated with these flocks.

These observations suggest that the mixed flocks probably associate with the dusky striped squirrel in the absence of bark-gleaners like woodpeckers and nuthatches, which form an important part of a mixed-species insectivorous bird flock in the region. We observed dusky striped squirrel being at the forefront and followed by the birds. However, previous studies show that



Fig. 2. Grey-headed Flycatcher *Culicicapa ceylonensis*.

the Quaker Tit-Babbler is the leader species in mixed-species flocks (Goodale *et al.* 2009; Sridhar & Sankar 2008), which probably attracted other species by calling. It might be possible that Quaker Tit-Babblers formed flocks and led them to exploit the foraging dusky striped squirrel by following it.

Research efforts are needed to study the behaviour and role of the dusky striped squirrels in mixed-species flocks and elucidate species-specific associations and assessment of interactions between all members of these flocks.

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Fig. 1. Dusky striped squirrel *Funambulus sublineatus*.