

Predation of free-flying birds by the Racquet-tailed Treepie *Crypsirina temia*

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Ringkasan. Tangkar centrong *Crypsirina temia* memiliki persebaran yang luas di Indo-Cina termasuk Jawa dan Bali, tetapi sedikit diketahui jenis pakannya. Kami dalam tulisan ini membahas mengenai pengamatan pertama Tangkar centrong memakan burung yang lebih kecil, yaitu bondol dan cinenen, dan berusaha mencuri isi sarang dari tiga jenis burung yang memiliki sarang berbentuk kubah (burung-madu, manyar dan bondol) di Jawa. Perilaku memangsa ini sesuai dengan empat spesies tangkar dari genus *Dendrocitta* yang terdapat di India. Jenis lain yang dimakan adalah pupa serangga, ulat ngengat dan belalang. Namun tidak teramati memakan buah selama pengamatan kami.

Introduction and methods

The Racquet-tailed Treepie *Crypsirina temia* has a broad distribution from southeast Myanmar through northern Thailand to Laos, Cambodia and Vietnam, and in Indonesia (Java and Bali), but surprisingly little is known about its diet (Madge 2009). Most of the nine species of treepies in tropical Asia are considered omnivorous, feeding on insects, fruits and flowers, but several are also known to be carnivorous. The Racquet-tailed Treepie is known to feed on a variety of invertebrates, with a fondness for large beetles (MacKinnon *et al.* 2010), and is presumed to eat fruits and berries (Madge 2009).

From 29 May to 2 June 2014, NSB and ENRO observed two Racquet-tailed Treepies for a total of 16 h in the Jogja Adventure Zone (outbound and fishing areas), Bantul, Yogyakarta (07°47'49"S, 110°25'11"E), central Java. This area has a swamp which supports aquatic plants, water hyacinth, and lotus and other water lilies. The park is surrounded by trees including Tropical Almond *Terminalia catappa*, *Chisocheton* sp, *Ficus* sp and *Tectona grandis*. In addition, LN observed three individuals in the Wonorejo Mangrove Forest (ekowisata area) in Surabaya (07°19'32" S, 112°49'50" E), East Java, for 1.5 h on 30 June 2014. The habitat here was mainly mangroves, such as *Rhizophora mucronata*, *Bruguiera gymnorhiza*, and *B. cylindrica*, as well as *Hibiscus tiliaceus*.

Observations

During our observations, Racquet-tailed Treepies always foraged inside the foliage of small trees and shrubs, and in the middle layers of larger trees. At Jogja Adventure Zone, we observed the birds feeding on insect pupae twice. The first pupa was hanging on the branch of a tree (*Terminalia catappa*) at a height of c. 2.7 m. After excising the free end of the pupal case with its bill, the bird extracted the pupa and ate it (Plate 1, right). The second pupa was on the underside of a leaf of a tree (*Chisocheton* sp) c. 4.5 m from the ground (Plate 1, left), and again, the bird successfully extracted the pupa from the pupal case. One of the birds was also seen obtaining a moth caterpillar (Lepidoptera: Geometridae) from the leaves of an *Acacia* sp. at c. 5 m.

On one occasion we watched one of the treepies attacking a group of four juvenile White-headed Munias *Lonchura maja* that were perched in trees c. 3 m from the ground. The Treepie struck one of the munias with its beak, while the other munias escaped. Shortly afterwards the Treepie carried its victim in its beak to a perch in another tree. Here the Treepie pinned the prey to the branch with its left foot, and stabbed at its nape with its bill, presumably to kill it. Over the next 7 min, it plucked the feathers of the munia's chest and abdomen before removing and ingesting its internal organs (Plate 2).



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Plate 1. Racquet-tailed Treepie feeding on insect pupae in Jogja Adventure Zone, Central Java. Left: on leaves of *Chisocheton* sp. Right: on branch of *Terminalia catappa*.



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Plate 2. Racquet-tailed Treepie devouring a young White-headed Munia in Jogja Adventure Zone, Central Java. The munia shows wounds on its nape.

Over the five days, one or other of these Treepies was also seen attempting to rob the domed nests of three passerine species. One Treepie was observed hanging from a nest of Brown-throated Sunbirds *Anthreptes malacensis* c. 5 m from the ground on 31 May 2014. One minute later the male Sunbird appeared and harassed the Treepie while giving alarm calls, which attracted its mate. The Treepie retreated from the nest tree, but returned 35 min later, and soon thrust its bill into the nest entrance (Plate 3). After c. 90 sec the female Sunbird returned, and repelled the Treepie. We were unable to see if the Treepie was successful in taking an egg or nestling from the nest. Two days later, a Treepie was observed poking its head into the entrance of the same Sunbird nest, but it soon flew off. We did not see any Sunbirds at the nest.



Plate 3. Treepie attempting to rob nest of Brown-throated Sunbird at Jogja Adventure Zone, Central Java.

On the same day (2 June), a Treepie was observed dangling from the nest of a Baya Weaver *Ploceus philippinus* c. 7 m from the ground. Soon afterwards a group of Weavers landed nearby, and their presence or calls seemed to irritate the Treepie, which flew off. The Treepie then moved on to a nearby nest of Javan Munias *Lonchura leucogastroides*, c. 3.5 m from the ground. The bird thrust its bill and face into the nest entrance for 90 sec, after which it flew off. A pair of Javan Munias returned to the nest 2.5 min later, and one soon entered the nest, but left less than a minute later. We could not determine if the Treepie had eaten the Munia's eggs or young.

In the Wonorejo Mangrove Forest, a Treepie was observed eating two grasshoppers on a tree as low as 2 m from the ground. It spent c. 5 minutes preparing the second grasshopper, which was eaten whole except for the rear legs. Soon afterwards, another Treepie was seen devouring a juvenile Common Tailorbird *Orthotomus sutorius* in a tree (*Hibiscus tiliaceus*), c. 3 m from the ground (Plate 4). The Treepie spent c. 15 min preparing its prey for ingestion, during which time an adult Tailorbird hopped around it, giving presumed alarm calls. In addition a Pied Fantail *Rhipidura javanica* attacked the Treepie using its bill and feet while calling. There was a fantail nest within 10 m of the Treepie, but it is not known if the nest was active or whether the attacking bird was its owner. This harassment apparently prompted the Treepie to simply move to another branch in the same tree. It is not known how the Treepie captured its victim.

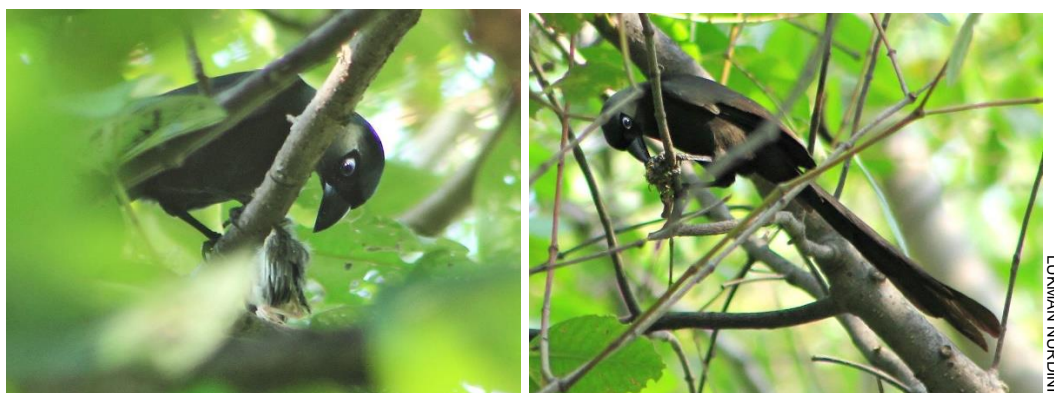


Plate 4. Racquet-tailed Treepie devouring a young Common Tailorbird at Wonorejo Mangrove Forest, East Java.

Discussion

Popular literature suggests that the Racquet-tailed Treepie is known only to feed on a variety of invertebrates, with a fondness for large beetles (Madge 2009). However, stomachs of specimens collected in Java during the early 1900s contained the remains of a Pied Fantail nestling, as well as ants, winged termites, grasshoppers, mantids, crickets, hawk moths (Sphingidae) and caterpillars (Becking 1989). Our observations of separate individuals at two sites in Java, approximately c. 270 km apart, suggest that this species preys on free-flying birds, as well as bird nestlings and Lepidopteran pupae. Both of the free-flying birds that were observed being eaten were young, and represented small species: White-headed Munia (11 cm) and Common Tailorbird (10 cm) (data from MacKinnon *et al.* 2010). In addition, we observed Treepies attempting to find and obtain nestlings, or possibly eggs, from the domed nests of three species (Brown-throated Sunbird, Baya Weaver and Javan Munia), though in at least two cases, unsuccessfully.

Treepies are mostly confined to the tropical and subtropical forests of South and Southeast Asia, and are believed to represent the oldest branch of the crow family (Corvidae) (Ericson *et al.* 2005). The nine species of treepies are divided between three genera, six belonging to the genus *Dendrocitta*. The Racquet-tailed Treepie has only one congener, the Hooded Treepie *C. cucullata* of Myanmar, which is reported to eat insects, such as grasshoppers, mantids and winged termites (Madge 2009), but is not known to eat vertebrates. Similarly, the monotypic Ratchet-tailed Treepie *Temnurus temnurus* of Indo-China is known only to eat insects. In contrast, all four Indian members of the genus *Dendrocitta* are reported to eat small vertebrates, as well as invertebrates and fruit. The Rufous Treepie *D. vagabundi* is known to take small rodents, bats, birds, lizards, snakes, frogs and birds' eggs and nestlings. It has been reported killing unhealthy small birds, such as the Indian Robin *Saxicoloides fulicatus*, Oriental White-eye *Zosterops palpebrosus*, Purple Sunbird *Cinnyris asiaticus* and Common Tailorbird (Madge 2009). Interestingly our observations of avian prey of the Racquet-tailed Treepie in Java included the last species, and potentially, nestlings of a sunbird.

The two remaining members of the genus *Dendrocitta* are confined to the Greater Sundas - the Bornean Treepie *D. cinerascens* and Sumatran Treepie *D. occipitalis*, once considered conspecific. Although little is known of the diet of the latter species, the Bornean Treepie is known to eat a large variety of insects and their larvae, as well as fruits and seeds, including rice and fallen grain, and is reported as scavenging for food scraps

around villages and on Mount Kinabalu, where it even follows humans (Madge 2009); but it has not yet been recorded eating birds. Thus it appears that our observations of Racquet-tailed Treepies preying on free-flying birds in Java represent the first such records among the three species of treepies found in Indonesia. Future studies of the Bornean and Sumatran Treepies may reveal that these species, like their Indian congeners, also indulge in bird predation.

Acknowledgements

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