

Predation by Pig-tail Macaques (*Macaca nemestrina*) on Bulbuls at Khao Yai National Park, Thailand

*Kihoko Tokue*¹

In general, tropical avian populations seem to suffer from greater nest predation pressure than their temperate counterparts (MARTIN, 1996). However, the paucity of empirical data from the tropics makes such comparisons difficult. Thus, more studies of nesting success in the tropics are needed to increase our understanding of avian population dynamics (LACK, 1954; RICKLEFS, 1969). Even though failure rates in the tropics may typically average as high as 70% (ROBINSON *ET AL.*, 2000), predation events are rarely recorded and thus predators are rarely identified.

Vertebrate prey taken by nonhuman primates includes amphibians, mammals, reptiles and nestling birds (BUTYNSKI, 1982). Brown lemurs (*Eulemur fulvus*) have been reported to prey on the Madagascar flycatcher (*Terpsiphone mutata*) nestlings (MIZUTA, 2002), and olive baboons (*Papio anubis*) have been sighted taking nestlings of the African white-backed vulture (*Gyps africanus*) (HASSAN, 2001). Nest predation by pig-tailed macaques has long been suspected due to higher nest failure incidents after troops of macaques pass through nesting areas, but so far no direct observations have been reported (ROUND *ET AL.*, unpublished data). Here I report on observation of pig-tailed macaques (*Macaca nemestrina*) depredating nests of two bulbul species (*Pycnonotus melanicterus* and *Alophoixus pallidus*) at Khao Yai National Park, central Thailand.

The pig-tail macaque (family Cercopithecidae) is the only one of the five species of macaques found in Thailand that occurs in Khao Yai National Park (LYNAM *ET AL.*, 2006). Pig-tail macaques are mostly frugivorous (74%), but take other foods including buds, seeds, insects and small mammals (LEKAGUL & MCNEELY, 1977; CALDECOTT, 1986). Typical groups can fluctuate in number from 25 to 50 individuals (BERNARD, 2006), which matches group sizes reported for other Indo-Chinese areas (CROCKET & WILSON, 1980; WILSON & WILSON, 1980; OI, 1996). A mean group size of 8 to 23 individuals of pig-tail macaques has been reported elsewhere in Thailand, in Phu Khieo Wildlife Sanctuary (BORRIES *ET AL.*, 2002).

The events reported here were observed during a project monitoring the nesting biology of several open-cup nesting species (babblers, bulbuls, monarchs etc.) in the Mo Singto Forest Dynamics Plot (BROCKELMAN, 1968), Khao Yai National Park, Thailand, (14° 26' N, 101° 22' E). The incidents took place on 17 March 2005 while I was observing a black-crested bulbul nest and on 29 June 2006 while observing a nest of puff-throated bulbul.

A black-crested bulbul nest was found on 16 March and observed on the afternoon of that day (1313–1613 h) and on the following day (0921–1200 h) to record nestling provisioning behavior. The nest was located on a fork of a sapling 2 m above ground, in close proximity to 2-m tall rattans facing a gap created by fallen trees. The nest contained at least two nest-

¹ Department of Life Sciences, Rikkyo University, 3-34-1 Nishi-ikebukuro, Toshima-Ku, Tokyo 171-8501 Japan. Received 5 January 2007; accepted 20 June 2007

lings still naked, probably less than four days old. There was a conspicuous perch near the nest 5 m high where adults would land before coming to the nest. There was no undergrowth within a 3-m radius of the perch. I observed the nest from a distance of 15 m behind a dense growth of vines.

On 17 March, at 1150 h, I heard the vocalizations and movements of macaques passing through the area. The adult bulbul started to brood the young at 1155 h, but left the nest out of sight at 1156 h as the macaque troop noisily moved through the area. At 1200 h an adult macaque moved to the unattended nest, scooped up both young with one hand and ate the young while sitting on a branch next to the nest within one minute. There was no hesitation as the monkey approached the nest which suggests that it knew its location. During the event, neither of the adult birds, which were out of sight, made alarm calls or attempted to attack the macaque.

The puff-throated bulbul nest was found on 22 June and the first egg was detected in the nest on 25 June. The nest was located in the fork of a sapling about 2.5 m from the ground near a stream. The area was dense with vines on the south side of the nest but was rather open on the north side facing the stream. The nest was observed for 2 hours on 27 June (0800–1000 h), and again on 29 June from 1200 h until the depredation event took place. There were two eggs in the nest during the watch on June 27 (0800–1000 h) but when the nest was checked on June 29 (1200–1349 h) only one egg remained and no adults were seen nearby. At 1239 h one adult bird was seen foraging near the nest, but did not come to the nest. At approximately 1320 h, a troop of macaques started to move into the area from the north, crossing the stream and moving through the foliage of overhanging trees and dense vines. Many macaques passed near the nest (within about 1–2 m) but did not approach it. At 1341 h an adult macaque shook the nest branch vigorously, approaching from above. Then at 1342 h it took the egg, ate it and left. During this time there were no alarm calls from the birds.

These are the first reported sightings of macaques depredating nests in this region, although such predation has been previously suspected from evidence such as bird nests dislodged or contents missing soon after macaque troops have passed through an area (P. D. ROUND, unpublished). Interestingly, the predation of nestlings and the egg did not result in nest destruction; the macaques removed the contents without dislodging the nest. However, the author also has seen macaques snatch nest-like ferns and other nest-like plant materials and look inside as if to look for eggs or nestlings.

Even though the evidence is preliminary, two conclusions may be drawn from these observations. Although nest destruction is not necessarily an indication of actual nest predation, macaques have been reported to seize and discard nests without showing any interest in the nest material itself. Secondly, macaques seem at least occasionally to actively search for bird nests while searching for fruits and insects. Investigations are currently underway in Khao Yai to assess the extent to which macaques rob nests by monitoring nests and by following macaques while they forage.

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