

The first record and breeding attempt of Red-legged Crake *Rallina fasciata* at Khao Yai National Park, northeastern Thailand

Andrew J. Pierce^{1,2}, Jitwadee Khoonwongsa^{1,3} and Philip D. Round⁴

An unidentified nest with six eggs, found in the headquarters area of Khao Yai National Park on 18 June 2011, was subsequently established to be an active nest of Red-legged Crake *Rallina fasciata*. This constitutes the first record of the species in northeastern Thailand. We document this and additionally draw attention to other nest records known to us.

The Red-legged Crake has a distribution extending from North-west India through Myanmar, Indochina and much of Indonesia and the Philippines. It is found in wet areas of evergreen forest, forest edge, clearings, secondary growth, and occasionally cultivated areas of lowlands up to 800 m asl, although on passage it has been recorded up to 1,400 m asl (TAYLOR & VAN PERLO, 1998). In Thailand it is an uncommon resident and possibly winter visitor and passage migrant in the peninsular, and thought to be an uncommon breeding wet season visitor in the north and west (LEKAGUL & ROUND, 1991; WELLS, 1999) and resident or breeder in the South-east (ROBSON, 2008). However, like many other crakes its status is very poorly known owing to its secretive demeanour. Historical breeding records of Red-legged Crake in Thailand comprise a male collected from a nest with five eggs and a female from a nest with six eggs in July 1896, both from Tyching, Trang (RILEY, 1938). More recently nests were observed in Krabi, peninsular Thailand, and in Kanchanaburi, W. Thailand, and adults with juveniles at two different localities in Ban Makha, Kaeng Krachan District, Phetchaburi (c.12°51'N, 99°35' E) during July and September 2009 (J. GREGORY in litt. 2009; BCST unpublished.) (Table 1).

Our observations were made in the vicinity of the headquarters of Khao Yai National Park, Nakhon Nayok Province (14°26'N, 101°22'E) within 1 km of the Mo-Singto Forest Dynamics Plot (BROCKELMAN *ET AL.*, 2011; ROUND *ET AL.*, 2011). The nest was situated along the side of a small shallow stream in seasonally wet evergreen forest at 725 m asl. It was an untidy cup at the base of a horizontal frond of a spiny rattan (*Calamus* sp.) c. 40 cm up the bank from the stream and 30 cm off the ground. Following the discovery of the nest a small observation blind, which could be entered without being seen from the nest was set up, c. 10 m distant, and the adults, and their nesting behaviours, were observed.

The combination of bright red legs, broad red orbital ring, orange-brown head, neck and breast, black-and-white barred flanks, narrower black-and-white bars on the wing coverts, and an all-black bill in both adults confirmed the identification as Red-legged Crake. Further observations were made on subsequent days (Table 2) until 6 July when the nest was found to have been disturbed and three intact eggs were found beneath the nest. There were no

¹ Conservation Ecology Program, King Mongkut's University of Technology Thonburi, School of Bioresources and Technology, 49 Thakham, Bangkhunthien, Bangkok 10150.

² E-mail: andyp67@gmail.com

³ E-mail: khoonwongsa@gmail.com

⁴ Department of Biology, Faculty of Science, Mahidol University, Rama 6 Road, Bangkok 10400.

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signs of the adults and they were not seen subsequently. Predation, especially by Northern Pig-tailed Macaque *Macaca leonina*, was the most frequent cause of nest failure in the study area (PIERCE & POBPRASERT, 2007; 2013) but there were no predation incidents in which intact eggs of any species were found outside failed nests. This, and the damage to the nest, suggest that disturbance of the rattan in which the nest was sited, by a passing mammal, rather than predation, may have been the cause of failure. The remaining three eggs could have either rolled into the stream and been lost or scavenged. Measurements of the nest were not taken because it was too damaged, but it was composed mainly of dead twigs and pieces of dry rattan fronds with a lining of finer twigs and fine rootlets. The eggs were not collected but were pure white as documented elsewhere (e.g. SMYTHIES, 1986).

The minimum incubation period (18 June to 6 July) was 18 days, when the eggs were thought to be close to hatching. The incubation period for the closely related *R. tricolor* is given as 18–22 days (TAYLOR & VAN PERLO, 1998).

Since the adults were not individually recognizable and no changeovers at the nest were observed we could not determine whether one or both adults incubated. RILEY (1938), however, implies that both sexes incubate, as both a male and a female were caught on nests in southern Thailand. This is presumably the source for the statement that both sexes incubate in TAYLOR & VAN PERLO (1998).

All the past and recent documented breeding attempts have been in the wet season which concurs with other nesting records from the region including Myanmar (SMYTHIES, 1986) and Cambodia (HANDSCHUH *ET AL.*, in prep.)

Intensive surveys and nest studies have been undertaken in the Mo-Singto area of Khao Yai NP since 2001 (e.g. GALE *ET AL.*, 2009; PIERCE & POBPRASERT, 2007; ROUND *ET AL.*, 2011). These, together with the many opportunistic observations of visiting and local birdwatchers collated over almost 50 years, imply that the presence of Red-legged Crake is unlikely to have been previously overlooked around the national park headquarters. However, the lower elevations and more peripheral areas of the park have been far less well studied. Some other species typical of lower elevations (e.g. Hooded Pitta *Pitta sordida*, a wet season visitor), have recently been recorded breeding less than annually in or near the Mo-Singto study area while several other species have recently been added to the Khao Yai National Park avifauna (POBPRASERT *ET AL.*, 2008; ROUND *ET AL.*, 2011). It is unclear whether this record of Red-legged Crake represents a sporadic nesting event, unlikely to be repeated regularly, or whether it may represent an early stage of colonisation of the park headquarters area. Other species have been shown to be changing their distributions within the park, possibly in response to a warming climate (e.g. ROUND & GALE, 2008). Continued monitoring of the Khao Yai avifauna, as recommended by those authors, could assist in interpreting how the future biodiversity of the park is likely to be affected by climate-change and by the combination of edge effects, fragmentation and isolation.

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Table 1. Recent breeding records of the Red-legged Crake in Thailand.

Site	Province	Elevation (m)	Habitat	Date found	Contents/ circumstances
Ban Bang Tiew, Khlong Thom District	Krabi	80	Nest in Pandanus clump in cut over secondary forest	June 2001	Adult incubating
Ban Makha, Kaeng Krachan	Phetchaburi	c.150	Dry evergreen or mixed deciduous forest	19 July 2009	3 adults, 3 chicks visiting waterhole
Ban Makha, Kaeng Krachan	Phetchaburi	c.150	Edge of dry evergreen or mixed deciduous forest	16 Sep. 2009	Adult and 4 chicks visiting waterhole
Khao Yai	Nakhon Nayok	725	Evergreen forest	June-July 2011	6 eggs
Mahidol University Campus, SaiYok	Kanchanaburi	240	Nest on ground in sticks and leaf litter in dry, cut-over mixed deciduous secondary growth on limestone	August 2011	2 eggs

Table 2. Observations of a nest of Red-legged Crake at Khao Yai National Park, Thailand in 2011.

Date	Time	Activity
18 June	pm	Nest with 6 eggs found, no adults present
20 June	pm	Unidentified crake species incubating
21 June	17:20–18:30	Adult incubating; confirmed to be Red-legged Crake
22 June	06:30	Adult incubating
	06:52	Adult left nest, bathed in stream. A second Red-legged Crake seen close by
	07:12	Adult returns, adding a small twig to the nest before recommencing incubation
	07:38	Adult leaves nest; soft "OO-OO" calls nearby
	08:03	Adult returns to incubate
	08:14	Second adult stands on rim of nest but does not enter nest
	08:16	Both adults leave nest
	08:48	Adult returns to incubate
	09:10	Second bird briefly comes close to the nest but does not incubate
	10:16	Adult leaves nest; observations cease
24 June	12:16–13:10	No adults; soft "pek-pek-pek" calls heard nearby
25 June	09:22–09:46	No adults
	09:46–11:22	Adult incubating throughout
27–29 June	am	Adult incubating, brief checks
4, 5 July	am	Adult incubating, brief checks
6 July	am	No adults, nest disturbed and three intact eggs on the ground below nest

REFERENCES

- BROCKELMAN, W. Y., A. NATHALANG, AND G. A. GALE. 2011. The Mo Singto Forest Dynamics Plot, Khao Yai National Park, Thailand. *Nat. Hist. Bull. Siam Soc.* 57: 35–55.
- GALE, G. A., P. D. ROUND, A. J. PIERCE, S. NIMNUAN, A. PATTANAVIBOOL, AND W. Y. BROCKELMAN. 2009. A field test of distance-sampling methods for a tropical forest bird community. *The Auk* 126: 439–448.
- LEKAGUL, B. AND P. D. ROUND. 1991. *A Guide to the Birds of Thailand*. Saha Karn Bhaet, Bangkok.
- PIERCE, A. J., AND K. POBPRASERT. 2007. A portable system for continuous monitoring of bird nests using digital video recorders. *J. Field Ornithol.* 78: 322–328.
- PIERCE, A. J., AND K. POBPRASERT. 2013. Nest predators of southeast Asian evergreen forest birds identified through continuous video recording. *Ibis* 155: 419–423.
- POBPRASERT, K., A. J. PIERCE, AND P. D. ROUND. 2008. Four new bird records for Khao Yai National Park, Thailand. *BirdingASIA* 10: 98–99.
- RILEY, J. H. 1938. Birds from Siam and the Malay Peninsula in the United States National Museum collected by Drs. Hugh M. Smith and William L. Abbott. *U. S. Nat. Mus. Bull.* 172.
- ROBSON, C. 2008. *A Field Guide to the Birds of South-east Asia*. New Holland Publishers Ltd. U.K.
- ROUND, P. D., AND G. A. GALE. 2008. Changes in the status of *Lophura* pheasants in Khao Yai National Park, Thailand: a response to warming climate? *Biotropica* 40: 225–230.
- ROUND, P. D., A. J. PIERCE, W. SANKAMETHAWEE, AND G. A. GALE. 2011. The avifauna of the Mo Singto Forest Dynamics Plot, Khao Yai National Park, Thailand. *Nat. Hist. Bull. Siam Soc.* 57: 57–80.
- SMYTHIES, B. E. 1986. *The Birds of Burma*. Third edition. Nimrod Press, U.K.
- TAYLOR, B., AND B. VAN PERLO. 1998. *Rails: A Guide to the Rails, Crakes, Gallinules and Coots of the World*. Pica Press, Sussex.
- WELLS, D. R. 1999. *The Birds of the Thai-Malay Peninsula*. Vol. 1: Non-passerines. Academic Press, London.