

Provenance and affinities of the Cambodian Laughingthrush *Garrulax ferrarius*

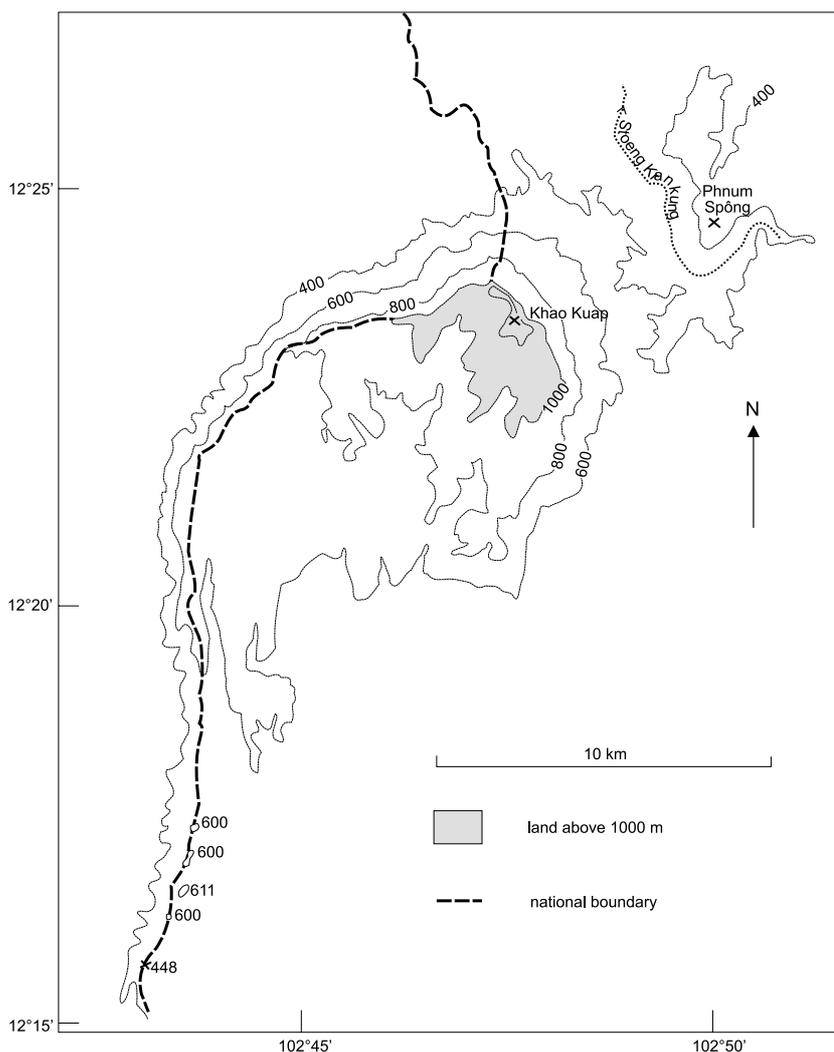
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This paper justifies the recent exclusion of Cambodian Laughingthrush *Garrulax ferrarius* from the Thai bird faunal list. It also presents taxonomic information which supports the treatment of *G. ferrarius* as a full species and examines its likely distribution limits. A few *G. ferrarius* may occur, or may formerly have occurred in SE Thailand, close to the Cambodian border. However, due to the very small area of suitable montane and submontane habitat, if present the population of *G. ferrarius* will be extremely small

INTRODUCTION

The taxon *Garrulax ferrarius* was described by Riley from two male specimens, collected by Hugh M. Smith at Kao Kuap, said to be near Krat, in south-east Siam on 27 December 1929 (Riley 1930). On the strength of this record, *Garrulax [strepitans] ferrarius* was listed for Thailand by Deignan (1963). However, the coordinates for the type locality given by Deignan (*op. cit.*), place it

as being firmly in Cambodia. Because most of the high elevation terrain within a 10 km radius of the type locality lies on the Cambodian side of the border, *Garrulax ferrarius* was therefore not shown as occurring in Thailand in Boonsong Lekagul and Round (1991), nor was it listed for Thailand by Robson (2000), on the same basis. This paper seeks to justify that decision; provide the taxonomic notes supporting the treatment of *G. ferrarius* as a full species, and examine in more detail its



likely distributional limits. The Thai-Cambodian border has been more or less off limits to biological exploration for the past three decades due to armed conflict. Even though the conflict has now ceased, most areas still remain unsafe to enter because of the continued presence of land-mines.

Following its discovery, *G. ferrarius* was treated as conspecific with White-necked Laughingthrush *G. strepitans* by Deignan (1963, 1964) until Robson (2000) re-elevated it to species status, along with other members of the *Garrulax strepitans* superspecies (Grey Laughingthrush *Garrulax maesi* from S and SW China and Tonkin; Rufous-cheeked Laughingthrush *Garrulax castanotis* from the northern and central Annamite mountains, and Hainan; Black-hooded Laughingthrush *Garrulax milleti* from the southern Annamites, and White-necked Laughingthrush *G. strepitans* from SW China, E Myanmar, N and W Thailand, and extreme NW Laos).

PROVENANCE: THE GEOGRAPHICAL FINDINGS

Riley (1938) stated that Kao Kuap belonged to 'a group of mountains the main chain of which extends eastward into Cambodia'. Under locality listings, Riley says 'Kao Kuap is a mountain near Cambodia, east of Krat'. For Krat he says 'Town on the Krat River'. He also gives an alternative spelling (Trad). The latter is well known as the town of Trat, from which the south-easternmost province of Thailand takes its name. Using conventional spelling for Thai names, Kao Kuap would now be spelt Khao (to signify the aspirated soft English *k*), meaning mountain; and Kuap, beginning with a hard unaspirated sound, rendered as *g* in English, which is a word not listed in Haas (1964) and for which the meaning is therefore obscure.

There has hitherto been some uncertainty over the precise location of Khao Kuap. The latitude and longitude given for Khao Kuap by Deignan (1963) was 12°25'N 102°50'E. Modern maps (RTSD 1971) place these coordinates about 4.5 km inside Cambodia. The name Khao Kuap cannot be found on modern maps, but a hill marked with the Cambodian name Phnum Spông (580 m elevation) lies at 12°24.5'N 102°50'E, about 0.5 km south of the latitude and longitude given, and would seem to be the closest match. *Phnum* is more conventionally spelt *Phnom* in transcriptions of the Khmer and we have used the latter spelling henceforth. Phnom Spông lies about 5 km ENE of the highest mountain in the immediate region (1,271 m), and is partly divided from it by the valley of the Stoeng Krankung. According to the itinerary given in Riley (1938), Smith also collected at both Khao Banthat (Kao Bantad) and Khao Saming (Kao Seming) on the same expedition, during 20 December 1929 to 1 January 1930. This makes it clear, therefore, that Khao Banthat was not an alternative name for Khao Kuap, though since the name Khao Banthat is often applied to the entire scarp where it delineates the Thai-Cambodian border, it is possible that Khao Kuap could be one of the subsidiary peaks of the Banthat range.

Khao Banthat was described as for Khao Kuap, 'mountain near Cambodia; east of Krat', and Khao

Saming as 'low mountain in coastal plain near Krat' (Riley 1938). Khao Saming is easily located, since present day Khao Saming District borders the edge of a large mangrove inlet about 17 km NW of Trat town.

Smith evidently passed Khao Banthat in order to reach Khao Kuap, since he collected specimens of Blue Pitta *Pitta cyanea* on Khao Banthat on two dates, 20 December and 29 December, straddling the 27 December collection date for the *Garrulax ferrarius* specimens (Riley 1938).

Consultation of an older map (RTSD, 1934) wherein Khao Kuap is clearly labelled (in Thai script), at 12°23.5'N 102°48.0'E, has now resolved the uncertainty. These coordinates tally almost exactly with those on RTSD (1971), wherein the mountain is labelled by the elevation 1,271 m (RTSD 1934 gives 1,263 m for the same peak) and the coordinates may be read as 12°23.5'N 102°47.5'E.

The summit of Khao Kuap lies inside Cambodia, the actual border being indicated ca. 1 km to the northwest, at the extreme NW edge of the summit ridge of Khao Kuap, at roughly 1,100 m. This, the highest point on the Thai-Cambodian border, which runs north-east to south-west at this point, bears the Khmer name Phnom Thom (Phnum Thom) on RTSD (1971). The summit ridge of Khao Kuap thus angles south-east, away from the border, past the summit itself, before bending to the south, and is contiguous with an extensive area (>100 km²) of plateau country in Cambodia at 400–800 m elevation, and which rises to a maximum elevation of 1,167 m.

On the same (1934) map there are also two peaks, roughly 6 km apart, labeled Khao Banthat: at 12°19.5'N 102°44'E; and at 12°16'N 102°44'E. These lie to the south of Khao Kuap, on that section of the border which runs north-south, and are 656 m and 568 m respectively, according to RTSD (1934); or roughly 600 m (precise elevation not marked) and 611 m in RTSD (1971). The name Khao Banthat is applied less precisely to the whole length of scarp on the more recent map.

Although, at the time Smith collected, the Thai-Cambodian border was more or less in the same place as shown by present maps, having apparently been settled by treaty with the French in 1907 (Winichakul 1994) it is likely, indeed probable, that seventy years ago villagers on both sides of the border paid scant attention to its precise position. In addition, Thai claims over the extreme western Cambodian provinces have never been entirely relinquished (Thailand again annexed parts of western Cambodia with the tacit approval of the Japanese during WW2). Such uncertainty could account for Khao Kuap and Khao Banthat being said to be in Siam, rather than identified as lying on the actual border, or a little inside Cambodia.

LIKELY RANGE AND HABITAT

Smith apparently left no clue as to the elevation at which he collected in the Trat/Cambodian border area. All other members of the *Garrulax strepitans* superspecies essentially inhabit moist montane, and upper sub-montane, forest, and it is reasonable to assume that *G. ferrarius* has similar ecological needs. While none of these species, so far as is known, occurs any significant distance

away from major mountain ranges, it is likely that, along with other montane species, their precise lower distributional limits vary locally, depending on topography and vegetation cover, perhaps being constrained only by the lower limit to which more or less unbroken moist evergreen forest extends. Even in highly seasonal N and W Thailand, where most plains and foothills forest was formerly deciduous or, at most, semi-evergreen, *G. strepitans* occurs down to only 500 m or so (Boonsong Lekagul and Round 1991). *G. castanotis* occurs down to 600 m in Laos (Duckworth *et al.* 1999) and even lower, to 400 m, on the more humid, and much less seasonal Vietnamese flank of the Annamites (Kalyakin and Korzun 1998).

Trat Province is one of the wettest and least seasonal parts of Thailand. The average annual rainfall for the period 1956–1985, measured at the Khlong Yai Meteorological Station, Trat, was 4,671 mm, with an average of 192.1 rainy days per year (Meteorological Department 1987). Due to this, the original vegetation over most of the area would once have been evergreen rainforest, so it is even conceivable that *G. ferrarius* may have occurred down to the level of the foothills, at ca. 200 m (most of the coastal plain would already have been converted to scrub and agricultural land, even during Smith's time). However, further evidence for a likely montane origin for Smith's *G. ferrarius* specimens comes from observations in the western Cardamom mountains in Cambodia during spring 2000, where *G. ferrarius* was only found at elevations of above 800 m (F. Steinheimer *in litt.*).

To summarize: the steep land along the western boundary of Khao Banthat (*sens. lat.*) more or less delineates the present national boundary. The border is placed at ca. 448–611 m elevation where it goes roughly north-south, closest to Trat town, and slightly higher, around 720 m a few km further north. From here on, the border swings slightly eastward to intersect with the Phnom Thom-Khao Kuap ridge, where it is positioned significantly higher, at roughly 1,100 m elevation. Thereafter the border continues north, rapidly losing elevation. Since the mountain slopes precipitously down to the plains on the entire Thai side of the border, from Phnom Thom southwards, there is only a tiny amount of montane (>1,000 m elevation) habitat (ca. 0.26 km²), and only, at most, about 10 km² of habitat at >400 m elevation along the whole ca. 22 km length of the border east of Trat town northwards to Phnom Thom. Such a small area of submontane and montane habitat on the Thai side would be unlikely to support a significant population of *G. ferrarius*.

The highest mountain in SE Thailand is Khao Soi Dao, the southern and northern peaks of which, Khao Soi Dao Tai (1,670 m) and Khao Soi Dao Nua (1,556 m), are at 12°56'N 102°12'E and 13°02'N 102°10'E, respectively. Khao Sabap (924 m) lies further south at 12°33'N 102°12'E. Although both Khao Soi Dao and Khao Sabap are isolated from the mountains further east, they both support a few south Indochinese endemics, including populations of *Arborophila [cambodiana] diversa* and *Lophura nycthemera lewisi*. In particular, Khao Soi Dao, which encompasses ca. 40 km² of land above the 1,000 m contour, and a further 144 km² of land between 600 m and 1,000 m (data held on file at Center for Conservation Biology, Mahidol

University), supports a relatively diverse montane bird fauna, containing populations of *Rhipidura albicollis*, *Brachypteryx leucophrys*, *Cochoa viridis*, *Myiomela leucura* and *Niltava grandis* among other species. Yet both Khao Sabap and Khao Soi Dao have been explored ornithologically without yielding any specimens of *Garrulax ferrarius*. In particular, 391 specimens of birds were collected on Khao Soi Dao Tai at elevations of 1,464 m down to 229 m during 25 February to 14 April 1966 (King 1966), and 1,328 others banded and released during the same period (McClure and Leelavit 1972), without detecting *Garrulax ferrarius*. In addition, PDR did not find *G. ferrarius* during a visit to the summit of Khao Soi Dao Tai during 6–9 December 2000. Smith and, later, Ben King, also collected on Khao Sabap, which is the type locality for *Arborophila [cambodiana] diversa*, without obtaining *Garrulax ferrarius* (Riley 1938, King 1966). This strongly indicates that *G. ferrarius* is absent from both Khao Soi Dao and Khao Sabap.

Other taxa described from Khao Kuap but which, like *G. ferrarius*, are apparently absent from Khao Soi Dao and Khao Sabap are Mountain Bulbul *Hypsipetes mccllellandii canescens* (listed in error for SE Thailand by Robson 2000), for which Smith obtained two specimens, on 24 and 26 December 1929 (Riley 1933), and Grey-chinned Minivet *Pericrocotus solaris nassovicus* Deignan (one male and one female collected on 24 December 1929; Riley 1938). While some bulbuls are dispersive, following fruiting or flowering trees, Mountain Bulbul does not appear to have been found anywhere below 800 m throughout its South-East Asian range, while *P. solaris* is also mainly montane. Although relatively little is directly known concerning the habitat and elevation range of *H. m. canescens*, the coincidence of these species being collected along with *G. ferrarius* suggests a montane or upper submontane origin for the latter, too.

Khao Banthat is the north-western outlier of the Cardamom Mountains, an area of over 4,000 km² of steep, moist forested upland, to which it is connected by a neck of submontane terrain, so it is not surprising that it may support a few species which are not found in smaller and more isolated mountains a short distance to the west.

The bird fauna of the Cardamom Mountains is currently the subject of renewed study following a field expedition conducted by Fauna and Flora International in early 2000 (Steinheimer *et al.* 2000).

TAXONOMIC AFFINITIES

Morphologically, *ferrarius* is like *Garrulax milleti* in overall plumage pattern, but has a browner hood (particularly throat and upper breast) and a darker and slatier-grey upper mantle and lower breast, with white on the sides of the neck being restricted to a large isolated spot (the white neck patch extends in a whitish band from the upper mantle to the lower breast in *milleti*). Both species share an expansion of the orbital skin behind the eye (a feature which, *contra* the illustrations in Boonsong Lekagul and Round (1991) and Robson (2000) is also shared with *G. strepitans*). However, the orbital skin is coloured bluish-white in *ferrarius* and *milleti*, and darker, bluish-slate in *strepitans*. Vocalizations are unlikely to shed any light on taxonomy in this case.

While it is possible that detailed analysis may detect some consistent minor differences among taxa, to the human ear the group calls appear to be indistinguishable among all members of the *G. strepitans* superspecies, consisting of a rapid maniacal laughter, introduced by a few dry *chuck* notes.

Although Delacour (1946) united all three forms, Deignan (1963, 1964) treated *milleti*, the form which more closely resembles *ferrarius*, as a full species, while placing *ferrarius* as a subspecies of the somewhat dissimilar *strepitans*. Neither author provided reasons for their respective treatments (Inskipp *et al.* 1996). In fact, the morphological differences between both *ferrarius* and *milleti* on the one hand, and *ferrarius* and *strepitans* on the other, should be sufficient for *ferrarius* to be separable from both in the field. Deignan's placing of *ferrarius* with *strepitans*, the less similar of the two, while treating the rather more similar *milleti* as a full species, in particular seems untenable. Since *ferrarius* is isolated from both *milleti* and *strepitans* by roughly 400 km of drier, lowland terrain, it would be more appropriate to treat these as three of five allospecies within a *G. strepitans* superspecies.

CONCLUSIONS

On the evidence previously available, and in any case since almost the entire summit ridge of Khao Kuap lies in Cambodia, the decision to omit *Garrulax ferrarius* from the Thai bird faunal listing in Boonsong Lekagul and Round (1991) was justified. However, given the proximity of the summit of Khao Kuap to the Thai border, Smith might easily have collected *G. ferrarius* on the Thai side. Whether the precise type locality is in Thailand or Cambodia seems irrelevant since the habitat was, continuous on both sides of the border, and it is certainly plausible that a few *G. ferrarius* occur, or formerly occurred, on the Thai side. Yet, owing to the extremely small amount of montane and submontane habitat, and the precipitous topography on the Thai side, which may perhaps make the habitat less suitable, the population, if any, in SE Thailand will be extremely small. The Thai-Cambodian border area in Chanthaburi and Trat provinces certainly deserves further investigation as soon as it becomes safe to enter it.

Since *G. ferrarius* is diagnosable on plumage from both *G. strepitans* and *G. milleti* and was originally described as a full species, in the absence of any new compelling evidence to the contrary, it seems preferable to continue to treat it as such.

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