

SHORT COMMUNICATION

Sympatry Between White-Handed Gibbons (*Hylobates lar*) and Pileated Gibbons (*H. pileatus*) in Southeastern Thailand

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ABSTRACT. White-handed gibbons (*Hylobates lar*) are not known to occur to the east or southeast of Bangkok. The reliably documented localities of *H. lar* nearest to this area are about 120 km northeast of Bangkok. There, in the Kao Yai National Park, is the only known zone of contact between *H. lar* and the pileated gibbon (*H. pileatus*), another species of the so-called lar group. Unpublished documents dating from 1925 indicate, however, that sympatry between these two species may also have existed in the region of Sriracha, about 80 km southeast of Bangkok. Therefore, a large zone of overlap in the distribution of the two species may originally have existed. In most parts of this hypothetical zone, gibbon habitat appears to have been destroyed, with the Khao Yai Park possibly representing the last remnant of the once large contact zone.

Key Words: Gibbons; White-handed gibbon; Pileated gibbon; Sympatry; *Hylobates lar*; *Hylobates pileatus*.

INTRODUCTION

White-handed gibbons (*Hylobates lar*) and pileated gibbons (*H. pileatus*) are two species of the so-called *lar* group (GROVES, 1972; MARSHALL et al., 1984), and have an almost completely allopatric distribution: Whereas *H. pileatus* is restricted to southeastern Thailand and adjacent Kampuchea, *Hylobates lar* is known to occur in three isolated geographic areas: (1) Southwestern China, Thailand and lower Burma; (2) West Malaysia; and (3) Northern Sumatra (e.g. CHIVERS, 1977; GROVES, 1972; MA et al., 1988; MARSHALL & SUGARDJITO, 1986).

In most gibbon taxa with adjacent areas of distribution, these areas are separated by major rivers (e.g. MARSHALL & SUGARDJITO, 1986; MARSHALL et al., 1984). Gibbons usually avoid open water, and large streams probably act as efficient barriers to their distribution (e.g. MORRIS, 1943; PARSONS, 1940, 1941). The same may once have applied to *H. lar* and *H. pileatus*, which both occur in Thailand (Fig. 1), but much of the relevant area is already completely deforested. The Mun River may have served as the northern barrier to the distribution of the pileated gibbon (with *H. lar* occurring to the north), and the Takhong River, a tributary to the Mun River, probably served as a barrier to the northeast (BROCKELMAN & GITTINS, 1984; MARSHALL & SUGARDJITO, 1986; MARSHALL et al., 1984).

The only known zone of contact between *Hylobates lar* and *H. pileatus* occurs in the Khao Yai National Park, at the headwaters of the Takhong River, about 120 km northeast of Bangkok (MARSHALL et al., 1972). Here, limited hybridization between the two species occurs in a narrow zone of sympatry (BROCKELMAN, 1978; BROCKELMAN & GITTINS,

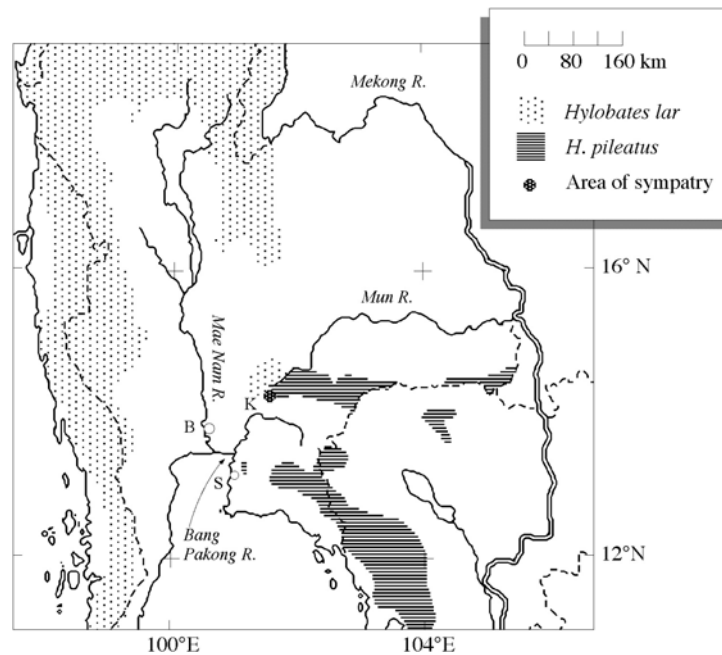


Fig. 1. The approximate present distribution of *H. lar* and *H. pileatus* in southeastern Thailand and adjacent regions. Reference: BROCKELMAN & GITTINS (1984, p. 499). Abbreviations: B: Bangkok; K: Khao Yai National Park; S: Sriracha.

1984; BROCKELMAN & SCHILLING, 1984; MARSHALL & BROCKELMAN, 1986; MARSHALL & SUGARDJITO, 1986; MARSHALL et al., 1984).

It is unknown, however, what separated the two species south of Khao Yai: The area from the headwaters of the Takhong River south- and southwestward to the coast is usually indicated as a large, “gibbon-free” area on most range maps (e.g. CHIVERS, 1977; CHIVERS & GITTINS, 1978; GROVES, 1972; MARSHALL et al., 1972).

In a range map published by CREEL and PREUSCHOFT (1984), the distributions of *Hylobates lar* from the west and *H. pileatus* from the east are pushed up on both sides to the Mae Nam River, which flows from north to south, and via Bangkok to the coast. These authors apparently consider the Mae Nam as the original common boundary between lar and pileated gibbons. A different solution was proposed by BOURRET (not dated, but approximately 1946): In his range map, the species boundary is drawn east of the Mae Nam, and more or less matches the lower course of the Bang Pakong River (not illustrated in BOURRET’s map). A similar view has also been proposed more recently by BROCKELMAN: “South of Khao Yai Park lie rice fields which extend to the Gulf (of Thailand), and we will never know what separated the species in this region; perhaps it was the Bang Pakong River which drains into the northeastern corner of the Gulf. Possibly there was a broad zone of interspecific contact in the upper reaches of the river” (BROCKELMAN, 1978, p. 317; see also BROCKELMAN & GITTINS, 1984, p. 504).

As a result of habitat destruction, the former distribution of gibbons in the region south of Bangkok and south of the Khao Yai Park remains a mystery. An important observation relating to this question was made by Dr. R. A. SPAETH, who died in 1925, shortly after having begun a study on gibbon reproduction in southeastern Thailand: “Reynold A. Spaeth,

who devoted some months to an intensive study of problems of reproduction in the gibbons of Siam and whose life was sacrificed to the risk of tropical research, left notes on which Mrs. Spaeth has based a most interesting description of 'The tree-walkers of the tropics' " (YERKES & YERKES, 1929, p. 59). Unfortunately, neither his notes nor the manuscript by his widow, Mrs. SPAETH-TAUSSIG, have been published. Some relevant information in these unique documents will be presented and discussed in the present report.

MATERIALS

Only a few excerpts of Mrs. SPAETH's manuscript were quoted by YERKES and YERKES (1929). Fortunately, copies of three pages of Dr. SPAETH's notes (Spaeth, 1925), the manuscript written by Mrs. SPAETH (SPAETH-TAUSSIG, 1925) and several letters of her correspondence are still preserved both at the Yerkes Regional Primate Research Center in Atlanta and at the Yale University Library in New Haven (U.S.A.). An additional copy of Dr. SPAETH's notes (SPAETH, 1925) was also located in the A. H. Schultz Archives at the Anthropological Institute of Zürich University (Switzerland). Dr. SPAETH's notes (1925) mainly relate to the gibbons he collected together with a native hunter from May 26 to June 2, 1925 in Sriracha (Chon Buri Province). Sriracha (or Si Racha) is situated about 80 km southeast of Bangkok (see Fig. 1); the UNITED STATES BOARD ON GEOGRAPHIC NAMES (1966) reports its coordinates as 13°10'N, 100°56'E.

Most gibbon skulls and fetuses collected by Spaeth in Sriracha, as well as portrait photographs of several of the specimens, are today preserved in the A.H. Schultz Collection stored at the Anthropological Institute of Zürich University. A detailed catalogue of the Spaeth Collection will be presented elsewhere (GEISSMANN, 1991).

RESULTS

The three preserved pages of Dr. SPAETH's notes individually list the gibbons collected at Sriracha as well as the context of these encounters with wild gibbons. The most relevant observation, for the purpose of the present paper, concerns female *No. 11*: "Female gibbon, young. 5/31/25/. Associated with one older female, two males and a white handed gibbon. The last paid little attention to #11 and to the other female. Probably mere chance that they were all feeding together on 'Khadon' fruit. (Large seed, small, white, very sour flesh.)" (SPAETH, 1925, p. 2). The same observation is retold in similar words by SPAETH-TAUSSIG (1925, p. 3).

The field observation cited above apparently documents the coexistence of two species of gibbons at Sriracha as late as 1925. One male was a white-handed gibbon (*H. lar*), the others, although not explicitly identified as such by the SPAETHS, were pileated gibbons (*H. pileatus*). Perhaps, this was so obvious to SPAETH that he did not mention it in his notes (which were probably not intended for publication). It can be reasonably assumed that all gibbons not specifically identified by Spaeth were pileated gibbons for the following reasons: (1) Museum specimens from Nong Khor (or Ban Nong Kho) near Sriracha have independently been identified as pileated gibbons by CHASEN (1935, p. 32), GROVES (1972, p. 68), Kloss (1929, p. 118), MARSHALL and SUGARDJITO (1986, p.182), and WEITZEL et al. 1988, p. 28). (2) Portrait photographs of several gibbons (one infant male, one juvenile female, one juvenile/subadult female, and three adult females) collected by SPAETH in Sriracha were identified as *H. pileatus* by the present author (GEISSMANN,

1991), on the basis of fur characteristics which are typical of this species but absent in lar gibbons. Such characteristics have been described, for instance, by GROVES (1972), and MARSHALL and SUGARDJITO (1986). One adult male (no photograph available) can also be identified as *H. pileatus* by the description of SPAETH (1925): “#1. Male gibbon. Black with white ring about face and white hairs on perineum.” Male pileated gibbons are known to have a conspicuous white genital tuft not present in white-handed gibbons (e.g. MARSHALL & SUGARDJITO, 1986). (3) Gibbons are known to produce long bouts of species-specific vocalizations (e.g. HAIMOFF, 1984; MARSHALL & MARSHALL, 1976; MARSHALL & SUGARDJITO, 1986). A description of the vocalizations of gibbons in Sriracha can be found in SPAETH-TAUSSIG (1925, p. 3): “To the Siamese the gibbons’ cry may sound like ‘Pua, Pua’ but to the European it is more like ‘Wup, wup, wu-u-u’ going up in the scale and gathering in volume and shrillness until it ends in a very high trill. Dr. Spaeth described the initial ‘wup, wup’ as ‘pumping sounds,’ as tho the animals were gathering steam for the final trill. The males, he said, made more of the pumping sounds and ended with a shorter trill than the females. As he wished particularly to collect females, he found it very convenient to be able to distinguish the sexes by the call.” This description quite closely fits the song of pileated gibbons, but not that of lar gibbons. In the former species, females are known to produce accelerated series of notes ending in a long trill and occasionally biphasic hoots, whereas males usually utter series of biphasic hoots with occasional short trills (e.g. GEISSMANN, 1984; MARSHALL & SUGARDJITO, 1986). Lar females, by contrast, are not known to produce trills, and occasional trills of lar males have been recognized as such by few authors only (e.g. RAEMAEEKERS et al., 1984). (4) Sriracha was the headquarters of a field virology project in the 1960’s. A pair of captive *H. pileatus* there had been captured at the south end of a small railroad going southeast from Sriracha a few kilometers into the forest (J. T. MARSHALL, personal communication). In addition, MARSHALL tape-recorded wild pileated gibbons at the forest of Khao Khieo (or Khao Khiew; Chon Buri Province), which is on the northeast side of the reservoir lake at Sriracha (see also BROCKELMAN, 1975: his forest area No. 6; and MARSHALL & SUGARDJITO, 1986, p. 184: their *pileatus*-locality No. 2).

DISCUSSION

Although pileated gibbons (*Hylobates pileatus*) were the predominant species in Sriracha, SPAETH reported having observed at least one white-handed gibbon (*H. lar*) at the same locality (SPAETH, 1925; see also SPAETH-TAUSSIG, 1925). White-handed gibbons (*H. lar*) were not previously known to occur to the east or southeast of Bangkok. Because gibbons are frequently kept as pets in Thailand (e.g. SPAETH-TAUSSIG, 1927), one could object that this white-handed gibbon could have been brought to Sriracha from elsewhere and then escaped from captivity. This interpretation does not seem very likely because SPAETH (1925) does not appear to be in the slightest surprised to see a white-handed gibbon in Sriracha. One would expect him to have mentioned that this was the only white-handed gibbon observed in Sriracha, if such had been the case. It was the observation that a family group and a possibly lone animal were peacefully feeding together on the same tree which apparently was unusual to the observer.

Another objection would be that SPAETH may have overlooked the diagnostic pale corona and the white genital tuft of an adult or subadult male pileated gibbon and thus misidentified the animal for a white-handed gibbon. Because SPAETH does not describe the

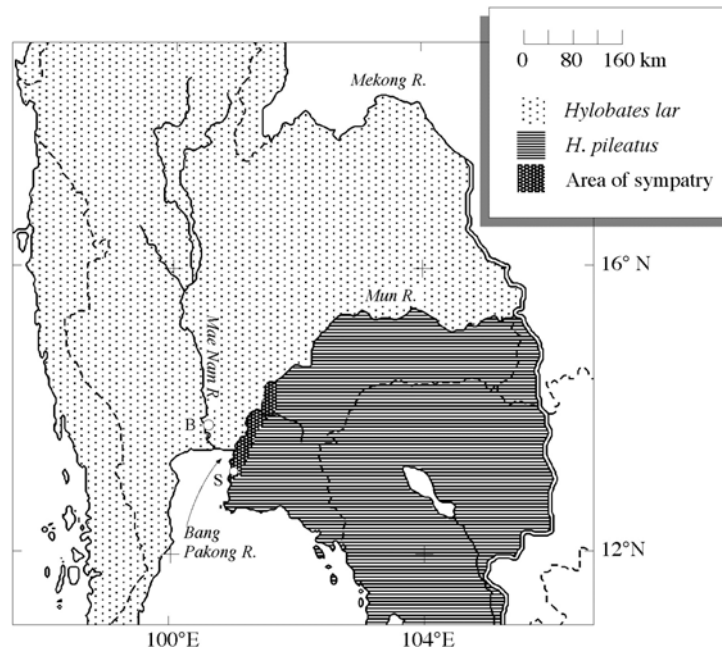


Fig. 2. Estimated original distribution of *H. lar* and *H. pileatus* in southeastern Thailand and adjacent regions, based on data in GROVES (1972), MARSHALL and SUGARDJITO (1986), MARSHALL et al. (1972), and SPAETH (1925). (See Fig. 1 for explanation of abbreviations.)

characteristics he used to identify the two species, his identifications cannot be checked. Although SPAETH's notes indicate that he had seen all, and had shot most, age and sex classes of pileated gibbons, we do not know how familiar he was with lar gibbons. As pet gibbons were frequently kept in Bangkok at that time — "...there are hundreds of them in the compounds of Bangkok" (SPAETH-TAUSSIG, 1925) — SPAETH must have had some opportunity to examine white-handed gibbons, at least in captivity.

The unpublished documents quoted in this article suggest that, about 65 years ago, at least some white-handed gibbons (*H. lar*) occurred east of the opening area of both the Mae Nam and of the Bang Pakong Rivers in Southeast Thailand. If white-handed gibbons were able to spread across these rivers even in the opening area (where the rivers are broadest), neither river is likely to have acted as an efficient eastern boundary of this species' distribution (although each may have reduced gene flow to some degree). Therefore, it is possible that sympatry between *H. lar* and *H. pileatus* not only existed in the region of Sriracha (about 80 km southeast of Bangkok), and in the Kao Yai Park (about 120 km northeast of Bangkok), but also in the whole area in between (Fig. 2). This hypothetical belt of sympatry (and possibly some hybridization) between the two species may originally have existed over a distance of perhaps 120 km. Habitat destruction has probably led to its almost complete disappearance, with the Khao Yai Park possibly representing the last remnant of the once much larger contact zone.

This interpretation must, however, be treated with caution, as it is based on the sighting of only one lar gibbon at Sriracha. Therefore, it would be important to have additional observations of lar gibbons from that region. However, the Khao Khieo Wildlife Sanctuary (Chon Buri Province) is probably the only forest where some gibbons may still exist within

or close to the hypothetical area of sympatry at Sriracha. Because BROCKELMAN (1975) estimated the Khao Khieo population of pileated gibbons to be small already 15 years ago, the possibility of finding any remnants of an even smaller population of white-handed gibbons there must be extremely remote today.

CONCLUSIONS

(1) Up until at least 65 years ago, white-handed gibbons, *H. lar*, probably still occurred in Sriracha, east of the opening area of both the Mae Nam and of the Bang Pakong Rivers in Southeast Thailand.

(2) In historical time, probably neither river acted as the eastern boundary of the distribution of this species.

(3) In the area around Sriracha, *H. lar* apparently lived in sympatry with, but at lower density than, pileated gibbons, *H. pileatus*. Sriracha is about 120 km to the south of Kao Yai Park, the only other area of sympatry between *H. lar* and *H. pileatus* so far known.

(4) It is possible that both areas were once part of one large area of overlap in the distribution of the two species. Today, due to habitat destruction, the Khao Yai Park may be the last remnant of this area of sympatry. It is unknown whether *H. lar* still survives in the wild anywhere to the southeast of Bangkok.

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