

**DRY DIPTEROCARP FOREST AS A BARRIER TO GIBBON
DISPERSAL: A SURVEY IN PHU PHAN NATIONAL
PARK, NORTHEAST THAILAND**

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ABSTRACT

A brief survey for primates through the southern part of Phu Phan National Park, Northeast Thailand, failed to reveal any gibbons. Local residents confirmed the absence of any gibbons in the Phu Phan Mountains. The park includes over 100 square km of dry evergreen forest which appears very suitable for gibbons. We believe that their absence is due to the failure of gibbons (*Hylobates lar*) in the Petchabun Range to the west to disperse across the more open dry dipterocarp forest that surrounds and isolates the Phu Phan Mountains.

INTRODUCTION

Dry dipterocarp forest (Figure 1) is a very dry and open deciduous forest with dense ground vegetation containing numerous grasses and herbs. Tree species found in it include *Shorea obtusa*, *Dipterocarpus obtusifolius* and *Pentacme siamensis* (NEAL, 1967). It receives an annual rainfall of below 1250 mm with the dry season lengthening to 6 months. It is the only major kind of forest in which gibbons have not been found in Thailand (MARSHALL ET AL., 1972). In Northeast Thailand, even though dry dipterocarp forest has occupied 60-70 percent of the forest area, mixed deciduous and dry evergreen forests can also be found. This paper reports on a brief primate survey within a part of the Phu Phan National Park that was expected to support a population of gibbons. Our results suggest that the wide area of dry dipterocarp forest surrounding the Phu Phan Mountains has been a barrier to the dispersal of gibbons.

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STUDY AREA AND METHODS

During February 19-20, 1981, we hiked 32 km through the forest in the southern part of Phu Phan National Park (Figure 3). We carried maps, compasses, binoculars, cameras and a tape recorder to be ready to record any gibbons found. We also interviewed numerous local persons and national park officials to obtain evidence for the presence of gibbons.

Phu Phan National Park was established June 6, 1973. It covers an area of 699 square km and is the largest national park in Northeast Thailand. It is located about 17°N latitude and 104°E longitude. At headquarters near the foot of the mountain it receives about 1484 mm (range 1083-2011 mm) of rain on the average. Most of this rainfall occurs during May to October; August is the wettest month with 331 mm (SONNJAI, 1980). Dry dipterocarp, mixed deciduous and dry evergreen forests are all found in the park (BONNOM, 1979). The dry dipterocarp forest covers an area of about 270 square km in the northern and southern parts. The dry evergreen forest includes 113 square km in the southern part around the junctions of Sakhon Nakhon, Kalasin and Nakhon Phanom Provinces. Our survey hike crossed this area. Mixed deciduous forest lies between the dry dipterocarp and evergreen forests and has an area of 101 square km.

Phu Phan National Park and adjacent forested hill areas are widely known to contain an important base of the Thai Communist Party and consequently the park is very difficult to protect.

RESULTS

Our hiking route followed the dotted line in Figure 3, beginning where the highway passes over the top of the ridge at point 0. Between points 0 and 2, it followed the ridge northwest at 500-550 m in elevation. The route can be divided into five sections. The first section, 4 km from point 0 to 1, followed an old logging road where trees have been selectively removed. Section 1-2 (9 km), passed through tall undisturbed dry evergreen forest. Although this forest is taller, denser and greener than many forests in western Thailand which support gibbons, none were seen or heard. Section 2-3 of the hike (9 km) descended through mostly tall bamboo forest. Section 3-4 (5 km), covered on the second day, passes up to 500 m in elevation and



Figure 1. Dry dipterocarp forest near headquarters of Phu Phan National Park. This forest type once covered most of the area of Northeast Thailand and still covers about half of the park area (photo by S. Srikosamatara).



Figure 2. Dry evergreen forest on the ridge where three provinces meet : Kalasin, Sakhon Nakhon and Nakhon Phanom (photo by S. Srikosamatara).

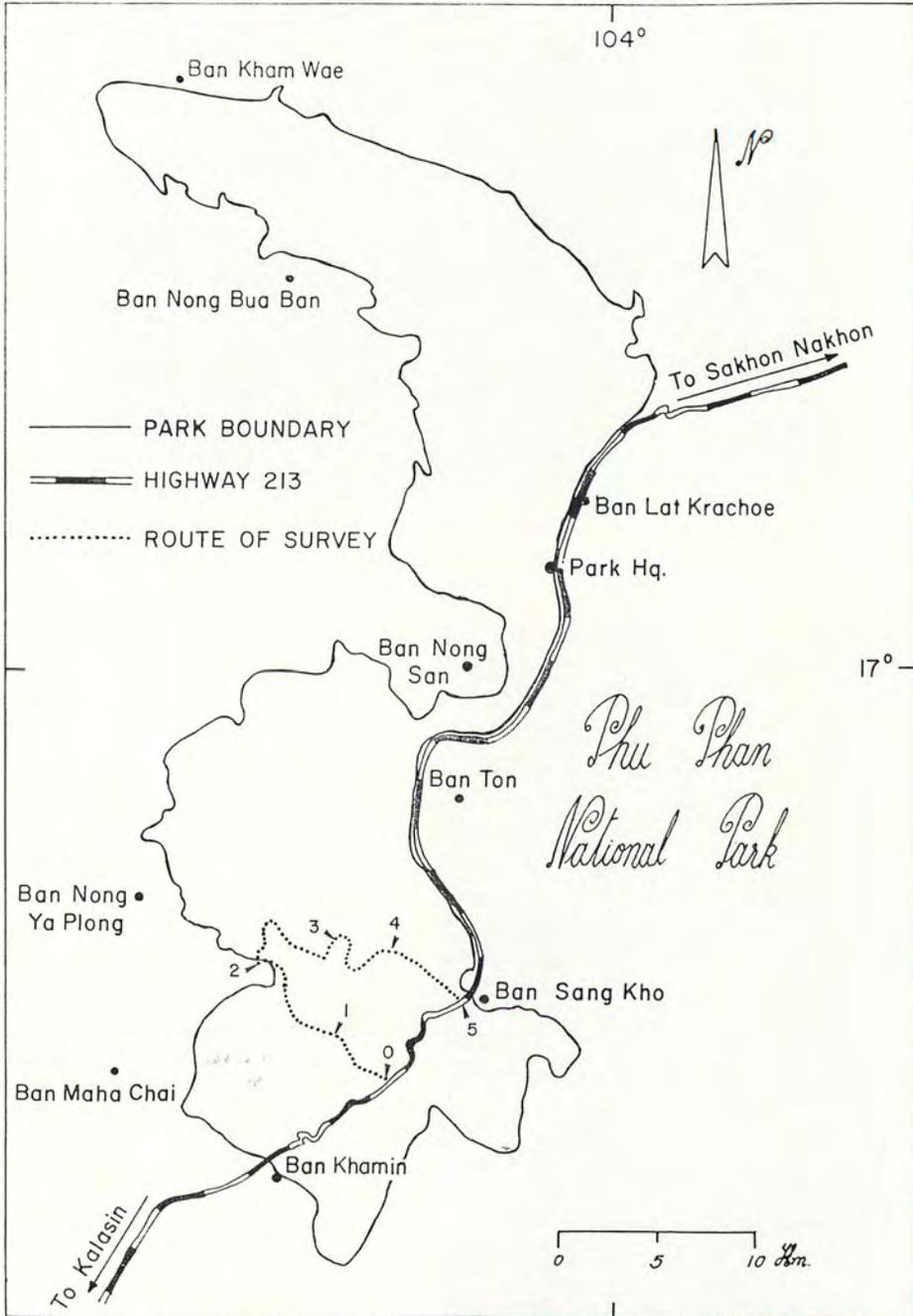


Figure 3. Map of Phu Phan National Park, Northeast Thailand.

down again through more evergreen forest. Still no gibbons were detected. Section 4-5 (5 km), descending gradually into lowlands to 300 m of elevation, passed through patches of forest being cut and readied for burning, and new fields of cassava and rice. This area will probably not survive the axes of slash-and-burn farmers in need of new land.

The local farmers do not understand the value of establishing a national park and see no benefits in it for themselves. Consequently, relations with the park personnel are poor and enforcement of regulations is light for fear of upsetting the villagers too much and perhaps driving them over to the Communist side.

No gibbons or monkeys were detected on the trip, but tracks of wild pigs (*Sus scrofa*), barking deer (*Muntiacus muntjak*), and sambar (*Cervus unicolor*) were seen. Signs of elephants were not noted but they are reported to be in the park. Our local guides, who have hunted in the area all their lives, and the Chief Official of Phu Phan Park, Mr. Sanha, with 19 years of experience in the area, all confirmed the absence of gibbons in the region. One of our two guides, Mr. Kathon, has lived in and travelled through the local forests for more than 20 years and helped the Royal Survey Department make the maps we used. It is inconceivable that these persons would have failed to detect gibbons if they had ever occurred there in recent times.

Two small zoos, one at the park headquarters and one at a nearby Thai Army facility, had one captive rhesus monkey (*Macaca mulatta*) and several pig-tailed macaques (*Macaca nemestrina*). These species therefore probably still occur in the forest.

DISCUSSION

As rivers are commonly barriers to the distribution of gibbons (GROVES, 1972; CHIVERS, 1977), the white-cheeked gibbon (*Hylobates concolor*) has probably not crossed the Mekong River to the north and east of the park, and the pileated gibbon (*Hylobates pileatus*) has probably not crossed the Mun River south of the park. The only other way gibbons could have reached the Phu Phan Mountains is for the white-handed gibbon (*Hylobates lar*) to have crossed the dry lowlands from the Petchabun Mountains. As shown in Figure 4, the evergreen forests in these mountains all lie at least 140 km to the west across a broad expanse of dry dipterocarp forest. If gibbons

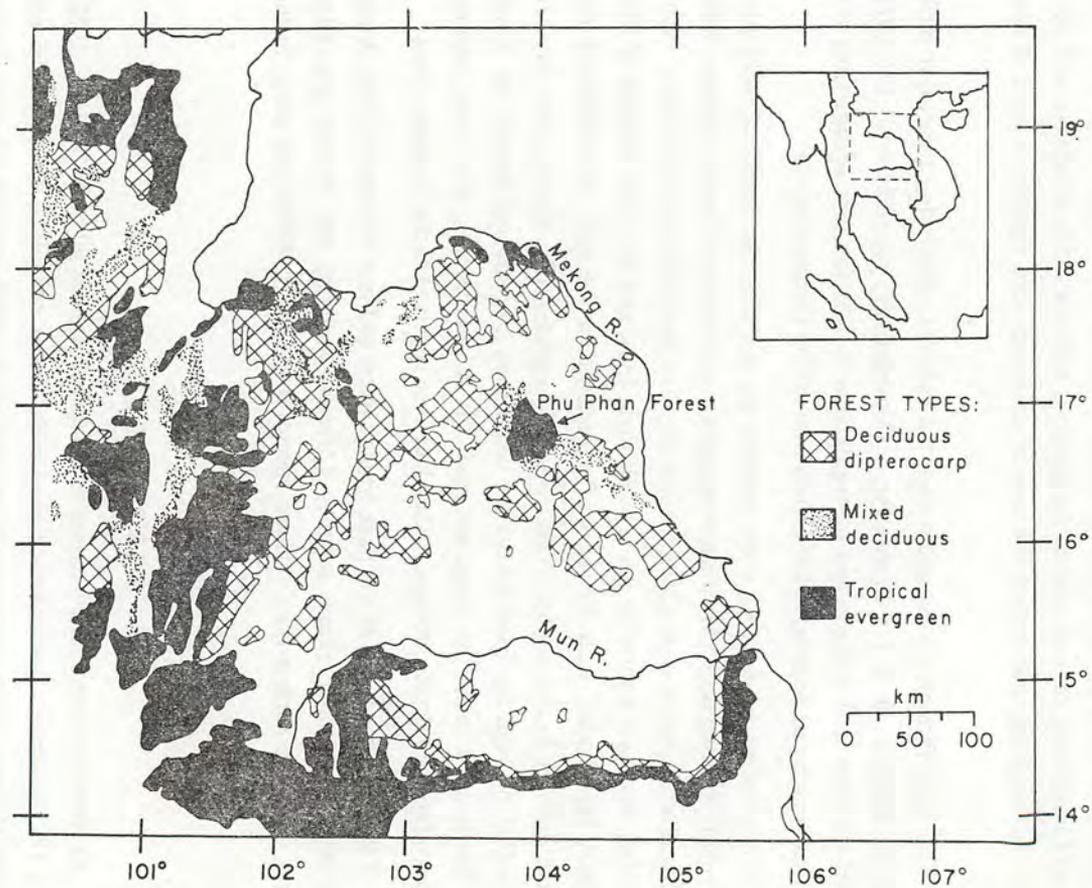


Figure 4. Distribution of forest types in Northeast Thailand. Data mostly from maps drawn by the Royal Forest Department from ERTS (satellite) images and older maps. The forest area is now much less extensive than shown.

ever occurred in this part of Northeast Thailand in the past, they evidently became extinct, perhaps due to climatic fluctuations, and have not been able to recolonize the area.

Gibbons normally travel about 1.0-1.5 km a day within their territories (PREUSCHOFT ET AL., in press), so at this rate it would take them at least 100-150 days to travel straight from the Petchabun Range to the Phu Phan Mountains. They usually set up territories near their parental groups (TILSON, 1981). It seems doubtful if they could survive such a long journey in the lowland forest. Although gibbons have been reported in dry dipterocarp forest in Cambodia (PFEFFER, 1969), it is not clear if they can survive with their territories wholly in this forest type.

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