

## **A Survey of Tonkin Snub-Nosed Monkeys (*Rhinopithecus avunculus*) in Northern Vietnam**

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### **Key Words**

*Rhinopithecus avunculus* · Distribution · Status · Conservation · Na Hang

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### **Introduction**

The Tonkin snub-nosed monkey (*Rhinopithecus avunculus*) is perhaps the most endangered primate species in Asia [1]. It is endemic to northern Vietnam and is in imminent danger of extinction due to its restricted distribution and the small sizes of its remaining populations [2–4]. Prior to the present survey, *R. avunculus* had been the subject of only one previous field study [5]. During a 5-month survey (from September 1993 to February 1994) of parts of the species' historic range, fewer than 100 animals were observed in two reproductively isolated populations in Na Hang Nature Reserve, northern Vietnam [5].

To ascertain whether these populations still survived, I conducted an 8-week survey of *R. avunculus* in Na Hang in 1998 [6]. My observations and their implications for the conservation of this rare and critically endangered [4] primate are discussed below.

### **Materials and Methods**

Na Hang Nature Reserve (22° 16–29' N, 105° 23–30' E) is located in Tuyen Quang Province in northern Vietnam (fig. 1). Surveys were conducted in both the northern, Tat Ke, and southern, Ban Bung, sectors of the reserve from August 5 to October 4, 1998. The two sectors are non-contiguous, with Tat Ke comprising 90 km<sup>2</sup> and Ban Bung 110 km<sup>2</sup> of rain forest on karst limestone formations interspersed with human use areas [7]. Line transect surveys were not feasible due to the difficulty of the terrain, short duration of the survey and low population density of the study species [8]. Instead,

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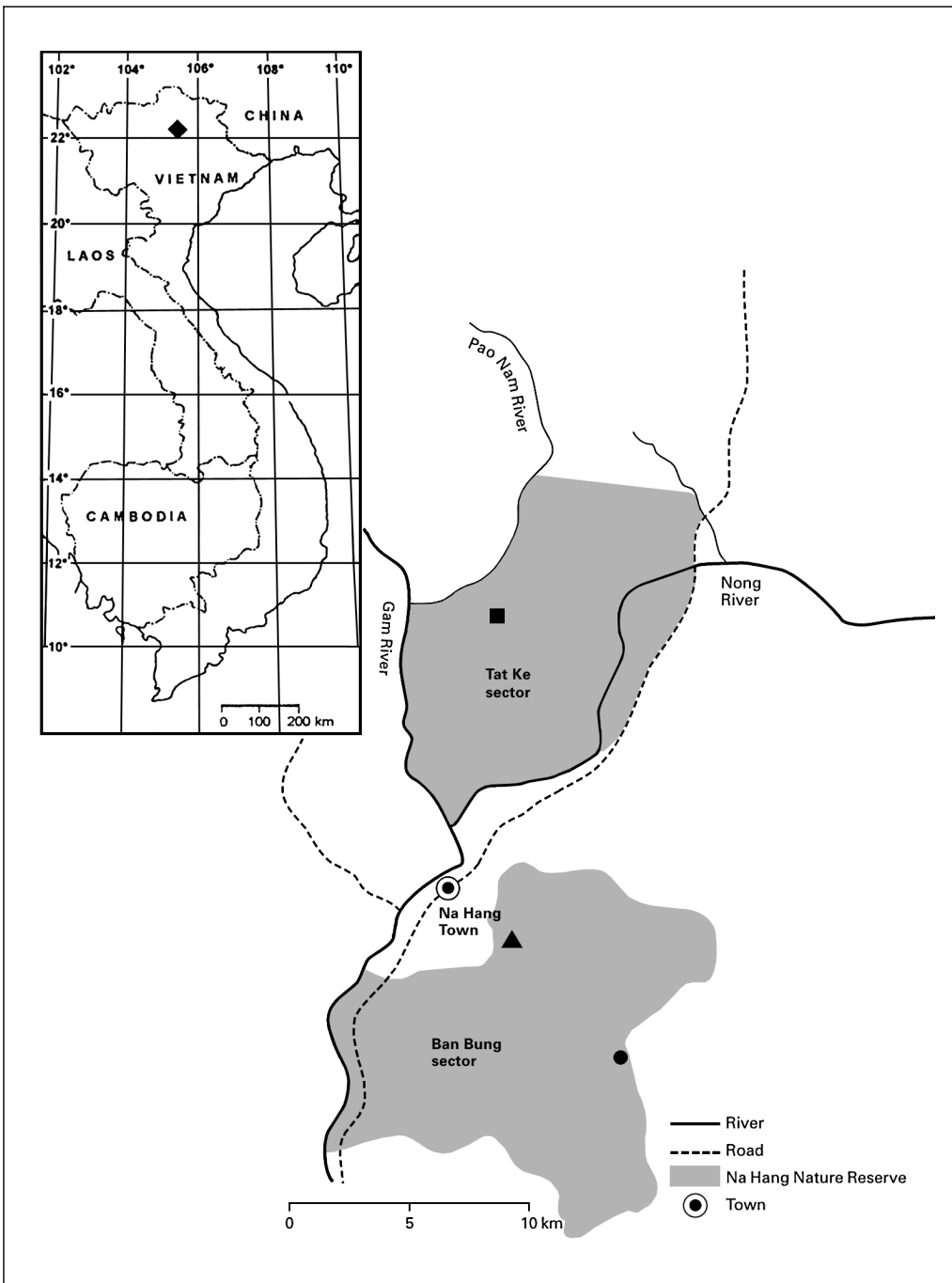
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**Fig. 1.** Na Hang Nature Reserve, showing sites mentioned in the text: ◆ = Na Hang Nature Reserve; ■ = Tat Ke; ▲ = Nam Trang; ● = Ban Bung.

watches, or all-day monitoring of the survey area from high peaks and ridge tops, were conducted in Tat Ke while walks, or opportunistic surveys on pre-existing paths, were undertaken in Ban Bung. Watches were conducted from points along the travelling route of *R. avunculus* where previous surveyors [5] most often encountered *R. avunculus* groups. Because no information was known about group distributions or travelling routes in Ban Bung sector, survey walks were undertaken along 12 different paths at 2 different localities (Ban Bung and Nam Trang proper) approximately 6.5 km apart.

Surveys began at around 7.00 h and ended at around 18.00 h. During each survey, all sightings of the monkeys were recorded and the time, distance from observer, number of individuals and behaviour of any *R. avunculus* observed were noted.

## Results

Watches were conducted on 16 days in Tat Ke and walks were undertaken on 11.5 days in Ban Bung and 5 days in Nam Trang. *R. avunculus* were encountered only in Tat Ke and were observed for a total of approximately 1.5 h on 4 separate occasions on August 11 and 13 1998. Three of the 4 observations lasted about 6 min each and involved sightings of 4–6 animals moving in single file. The other encounter, on August 11, began at 11.36 h and lasted 76 min. During this encounter, I observed a social unit of 1 adult male, 1 adult female and 2 large-bodied animals of unknown sex at a distance of 20 m. For the first half hour, all 4 animals stared, open-mouth threatened and called aggressively at me. Then, 2 animals moved away while the other 2 remained in sight and appeared relatively unconcerned about my presence for the next 46 min.

## Discussion

During my study, *R. avunculus* were found only in relatively undegraded forests in the northern sector. In contrast, the previous study [5] found *R. avunculus* in undegraded forests in both the northern and southern sectors. It is possible that *R. avunculus* survives in the southern sector but went undetected during my study, though it is also possible that the moderate to extensive human disturbance in Ban Bung and Nam Trang, respectively, over the past 5 years [R. Boonratana, pers. commun.] has led to the extirpation of the species in the southern sector of Na Hang. Further study is therefore needed to determine whether *R. avunculus* continues to survive in the southern sector.

Tonkin snub-nosed monkeys are reported to be threatened by habitat degradation and hunting pressure [3, 6, 9]. Although no direct observation of hunting occurred during the survey period, other evidence (e.g. human footpaths and temporary shelters in the forest) suggests that hunting probably continues to occur within *R. avunculus*'s range in Na Hang. In fact, a few local villagers interviewed admitted they would kill any *R. avunculus* encountered in the forest, although the species is probably too rare to be regularly hunted.

Wildlife under threat from hunting tend to be very shy when encountered by humans. Thus, it is surprising that the 4 *R. avunculus* I observed on August 11 did not flee upon first detecting me. Such prolonged encounters, in which the monkeys were aware of the observer, also occurred during the 1994 survey [R. Boonratana, pers. commun.]. These observations highlight the fact that the behaviour of *R. avunculus* when detected makes them extremely vulnerable to hunting.

Currently the highest priorities for the conservation of Tonkin snub-nosed monkeys are to reduce habitat degradation and to determine and reduce the level of hunting pressure faced by these monkeys. Further studies are needed to identify all possible areas of occupancy and to locate any remnant populations of *R. avunculus*. When the immediate threats to its survival are reduced, research on population size, structure and ecology will be needed to address the long-term conservation needs of the species. Such steps are imperative for the effective conservation and management of the remaining refugia and populations of *R. avunculus*.

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