

The Gibbon Group in the Fragmented Area Adjacent Pasoh's Forest Reserve, Negeri Sembilan, Malaysia

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Abstract

One isolated white-handed gibbon group in the fragmented area at the west of the Pasoh forest, near by the Simpang Pertang town was conduct to study from December 2004 – December 2005 under the project 'Habitat range and behavior of primates in relation to the canopy and forest structures in Pasoh forest and the adjacent area' the group consist with 5 individuals. The group was limited in the 8 ha (app.) privately land surrounding with the human infrastructure and plantation. Human activities at and around the site such as forest collecting things, plantation duties, garbage dumping, firework on every ceremonies events and wild bore hunting were considered as the threatening factors to the group. Living under such pressure, with small food resources, high levels of human activities and lack of suitable sanctuary cover, their behavior has changed from that of the formal gibbon's intrinsic habits to non-vocalization, diminutive alarm call, bipedal traveling in daily foraging and unexpected feeding; fruit of of *Melastoma* sp. a shrub, and *Harvea brasillensis* were consumed. To studies their behavior, the gibbon group was followed continuously 3 days each interval, human activities were monitored on weekend basis and the feces was collected to plant in nursery for studied fruit trees species consumed by them. We will present data on the gibbon's activities over a 28-hours contacted with the group, focusing on the behavior related to the habitats structure and the human's activities in the site.

Keywords: white-handed gibbon, fragmented area, brachiation, vocalization, human activities and Pasoh forest reserve.

Introduction

The white-handed gibbon (*Hylobates lar*) the laser apes true arboreal, brachiating locomotion living in small monogamous group occupies home rang 30-50 ha and maintain territory by vocalization. From their ecology gibbons considering as the animal that play the importance roles in the tropical forest in inducing regeneration and distribution of tree species their occurrence could indicate the wealthy of rainforest. The white-handed gibbon is the common species disperses through Southeast Asia from Burma, south western Yunnan, Thailand, Malaysia Peninsula and North Sumatra their presence in closed canopy evergreen forests, including the lowland evergreen forest, lower montane evergreen forest, semi-evergreen forest and mixed evergreen/deciduous forest (Carpenter 1940, Brockelman 1975 1984, Treesucon 1984 Whittington 1990). Although the 2004 IUCN Red Data Book lists their status as LR/nt (lower risk categories /near threatened sub-categories), considering the habitat loss to cultivate, commercial logging and illegal hunting their status will be going to threatened soon. In this paper we will present the gibbon's activities in 28 hours contacted with the group on the relation to the forest structure and the human impact on their behaviors.

Materials and Methods

Study area:

The study was conducted in the fragmented area (195216N, 325300E or 2.98N 102.25 E) at the west of the Pasoh forest reserved, near by the Simpang Pertang town, Negeri Sembilan state of Malaysia (fig.1) This gibbon group was limited in the privately land approximately 8 ha surrounding with the human infrastructure and plantation. This area is isolated from the nearest forest, the Seriting forest reserve by about 1 km, because of plantations and strip of high voltage line, the existent gibbon's group presumed it was left behind some day ago before forest converted. The site is a small hilly, 120-160 m a.s.l. (above mean sea level) In the north border contiguously with the household, the Chinese burial place, a pond 50 x 10 m along, Oil palm and rubber plantation surround on north east side, the west is the chicken farm and the grassy and the small tree stand path , at the vertex of place the repeating telephone signal tower was set thus, for the maintenances duties of telephone company the non-asphalt road was made through the site divided the area to 5 patches. On the south which confront to the Seriting forest reserve was combine with the large number of *Harvea brasillensis* .

This area the forest was markedly evergreen forest included with 814 trees ≥ 30 cm DBH (mean = 101 trees/ha) the former of the forest is quite rich trees biodiversity from more than 170 species the forest profile were divide to mainly 3 level, Emergent layer > 35 m height, the second layer 15-35 m height, and the third is 2-10 m of young plant and shrub.

Data were collected the combine of sampling census; specific and sequence instantaneous. The human's activities in the forest were observed. The study period in 2004 was between June, September, October and November, there were 28 h of behaviors observation seen with the animals.

Result

Group composition

the group consist with 5 individuals; one pair of adult male and female, one sub-adult male, one juvenile, and one infant all members are in dark brown- furred, the ages of the adult pair with roughly approximate they were more than 16 years old. The infant first seen was on

December, 2003 the aged 2 month approximately, Sub-adult which couldn't identifies sex on the first was clarify with the forced by the adult male of the group on the month of September.

Activities related to canopy level

Foraging

After long period overnight with no food in their stomach the gibbon group started to feeding in the early morning around 0600-0700 am they leave sleeping tree to the nearest food tree eat the fruit, young leave or some insect they found they spent the time around 10-20 min then the female will lead to resting tree follow by the group member the tallest tree with have the big crown cover was always chosen, while the female and infant sit quiet on strength branch the male and juvenile would play the chase game they swung around the upper canopy, by sub-adult was sat on the different trees this time was a bout 15-40 min. On the misty day the sunbath were occurred on the emergent trees adult male was most using the top of the canopy by the rest were using lower branch. After sunbath and morning resting (using in term of morning activities) they move to the food trees the member were scattered to find the food as young leave, liana shoot, insect and or even the mature leave. During foraging it seem as all level of forest was using depend on the food resources in the scarce fruit period on November, 2004 the second canopy layer and the third canopy layer were the main foraging level as we found the seed of the Indian rhododendron *Melastoma* sp. small shrub growing along the shoulder in their fecal and one of the fig trees 5 m high which its fruit attached through base stem were consumed. The resting during the daytime, the second layer of the tree was selected during the resting the members were joined together except sub-adult they sitting on the same branch and some time grooming behaviour were happened. Sleeping behaviour time shown here is mean to the sleeping in the day time it occurred on afternoon the gibbons were selected the dense canopy to hide from the sun heat they may laid down on the branch or sitting.(Fig 2)

Travelling

As the site was set the 5 m width non-asphalt road through the places plus the road shoulder along it made the gap 10 m large it made the difficulty for the brachiation animal, but it not a barrier, they have to adjust themselves to pedal movement (Fig 3) for fulfil their living in each day foraging to the alternate site the movement was rapidly in 30 sec for each individual female with carry her infant were the first followed with male, juvenile and the last sub-adult, time interval for each individual to across the road take 1-2 min each with the sub-adult was more 5 min

Calling and alarm call

Though they were hearing a sonorous singing of the several gibbon groups from the Serting forest reserve 0800-1000 h, but in this group seem as this behavior were destitution. Alarm call happened when animal detected observer was very diminutive alarmed 30 sec – 7 min length then they fled.

Human activities in which effect to the gibbon behaviour

As the site was much closed to the town and it still the forest so it considered as resources for people to collect the thing e.g. parkia pods, herbs, honey bee, poles for orchard and hunting. By the way the telephone repeating signal on the top of the place and rubber plantation in the south part of site still has operation. From very high activities of human and the firework from all ceremony was implicate effected to the gibbons behavior in this site too.

Discussion

Food resources: Though the trees composition in the site were very high but the species which can used as the food resource were very few this can confirmed from the matter in their feces with found the seed of the shrub and rubber gum and from observed that they have consume the leave in the large amount.

Movement: Gibbon is the true arboreal animals which never come down the tree brachiating help them to travel practically for foraging and escape from the animal of pray rapidly the pedal movement is non-natural and very risk to hunted from terrestrial predator.

Calling: The call is the important behaviour for the monogamous life style they use calling to communicate with the neighbour group to define their territory the lack of calling in the morning is may from they have no point to define their territory but when the group of the gibbon from the Serting forest reserve made the call in the morning this group come to the confront site and listened to those call intensively some time the sub-adult try to made such as the short call and when come to see their diminutive alarm call this is clearly they were effected from the human activities in the site especially hunting.

Conclusion

Food resources and the suitable sanctuary cover are basically consequences of the animal life. Living under such pressure, with small food resources, high levels of human activities and lack of suitable sanctuary cover, their behavior has changed from that of the formal gibbon's intrinsic habits to non-vocalization, diminutive alarm call, bipedal traveling in daily foraging and un-expected feeding from all these factors it may could implied as the group can adjust themselves to all limit factors but some day soon the group would possibly disappeared.

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Literature cited

- Brockelman, W. Y. 1975 . Gibbon populations and their conservation in Thailand. Nat. Hist. Bull. Siam Soc. 26(2): 133-157.
- Brockelman, W. Y. 1984. Distribution and composition of gibbon groups in the *Hylobates lar* – *H. pileatus* contact zone, Khao Yai National Park. Dept. of Biology, Mahidol Univ., Bangkok.9 p.
- Carpenter, C. R. 1940. Field study in Siam of the behavior and social relations of the gibbon (*Hylobates lar*). Comparative Psychology Monographs. 16(5):1-121.
- Treesucon, U. 1984. Social development of young gibbons(*Hylobates lar*) in Khao Yai National Park Thailand. M.S. thesis, Mahidol Univ., Bangkok.
- Whittington, C. L. 1990. Seed dispersal by white-handed gibbons (*Hylobates lar*) in Khao Yai National Park, Thailand. Nat. Hist. Bull. Siam Soc. 39:111-122.

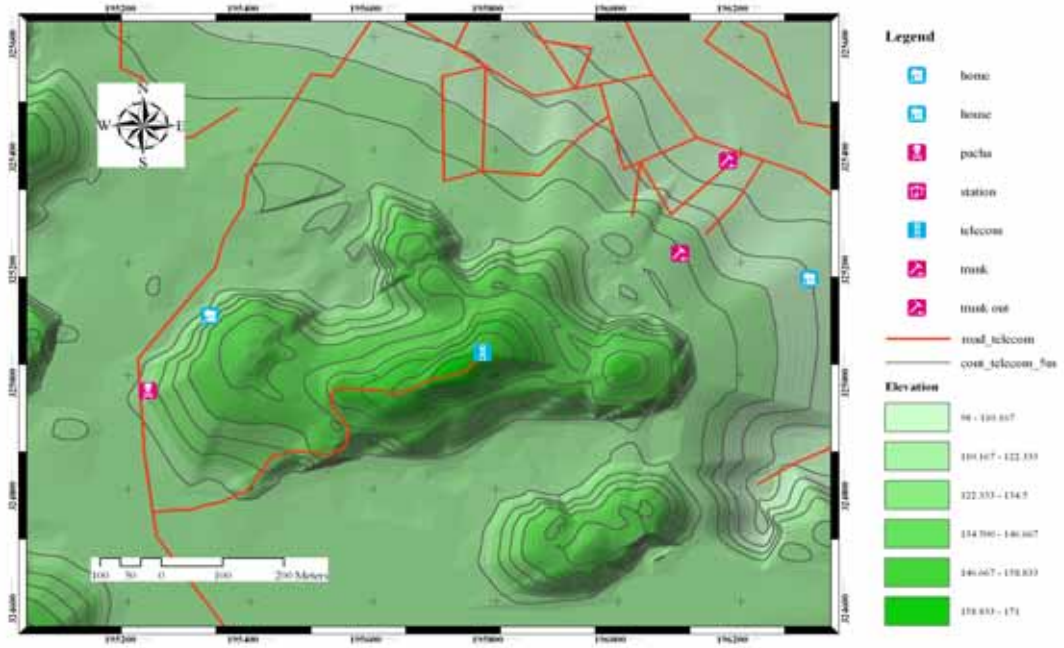


Figure 1 the study site: fragmented forest

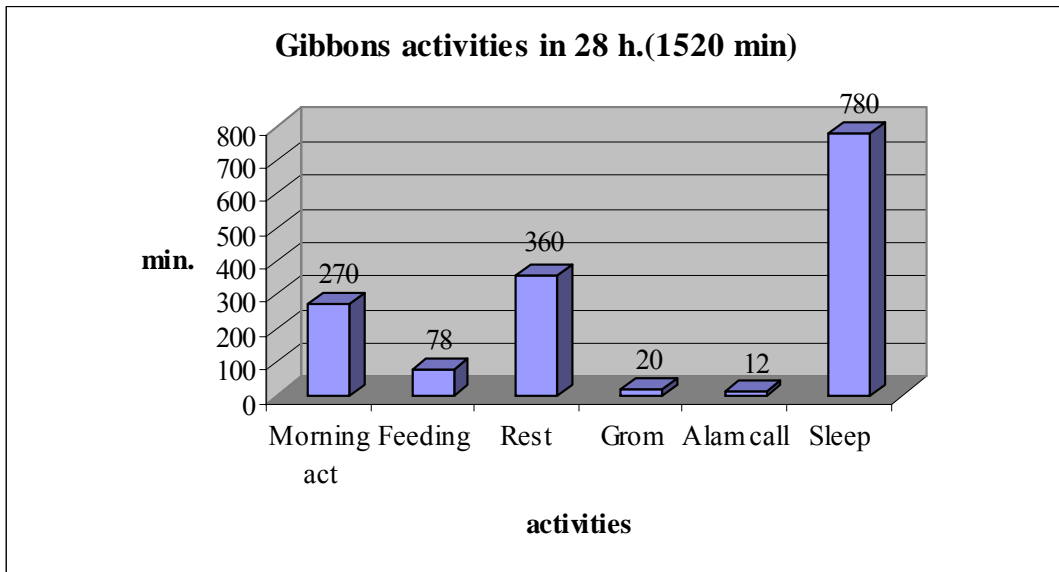


Figure 2 The gibbons activities in 28 h contact



Fig 3 the pedel movement of the gibbon in the fragmented forest