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Daily Activity And Microhabitat Preference of Sambar Deer (*Cervus Unicolor* Kerr, 1792) In The University of Lampung Sanctuary

(Aktifitas Harian dan Preferensi Mikrohabitat Rusa Sambar (*Cervus Unicolor* Kerr, 1792) di Penangkaran Universitas Lampung)

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ABSTRAK. Kajian tentang aktifitas harian dan preferensi mikrohabitat terhadap ekor rusa sambar telah dilakukan di Penangkaran Universitas Lampung dengan metode *scanning*. Kondisi umum areal penangkaran diamati dengan metode *rapid assessment*. Pencatatan vegetasi penyusun habitat dilakukan dengan pengamatan kuadran setiap satu meter. Aktivitas tertinggi yang dilakukan adalah aktivitas makan (45,8%), diikuti aktivitas tidur (30,6 %) dan istirahat (23,7 %). Preferensi mikrohabitat rusa sambar meliputi area bervegetasi semak alang-alang untuk aktivitas tidur dan istirahat, dan area bervegetasi rumput, semak dan pohon untuk aktivitas makan.

Keywords : sambar deer, *Cervus unicolor*, daily activity, microhabitat preference, feeding, sleeping and resting activities

ABSTRACT. The study to learn the daily activity and microhabitat preference of sambar deer was conducted in the University of Lampung Sanctuary by scanning method. The general condition of the sanctuary was observed by rapid assessment method, vegetation registration was noted by one meter-quadrant. The highest daily activity proportion were feeding (45.8%), followed by sleeping (30.6%) and resting (23.7%) respectively. Sambar microhabitat preferences included *Imperata*- bushed areas for sleeping and resting activities and areas with grasses, shrubs and trees for feeding activity.

Kata kunci : rusa sambar, *Cervus unicolor*, aktivitas harian, mikrohabitat, makan, aktivitas istirahat dan tidur.

INTRODUCTION

An alarming worldwide extinction of animal species is taking place as a result of the activities of the increasing global human population. Despite substantial efforts, there are thousands of species threatened by extinction, including sambar deer, *Cervus unicolor* Kerr 1792, an Indonesian endangered species, characterized by rapid decline due to illegal hunting and trade, as well as habitat loss and degradation. Sustaining viable populations of wildlife species requires the maintenance of habitat, as well as an understanding of the behavior of individual species (Pukazhenthi *et al*., 2006).

When species become critically endangered, *ex-situ* recovery programs are the usual first line of defense. The concept of ex-situ management of small captive populations with a view to re-introducing them into the wild is attracting increasing interest. Responding the conservation needs and looking for the benefits from wildlife resources found on the natural land, the University of Lampung launched sambar deer sanctuary located within campus in 2004.

Some studies have been done related on sanctuary prospect and its captive animals such as horse, deer, Sumatran tiger (Harnal, 2002; King and Gurnell, 2005; Okello, 2005; Zhou, 2004) but knowledge of sambar deer behavior in captivity, especially its daily activity and microhabitat preference is limited, yet information about this important life stage is critical to developing effective conservation strategies and the successful sanctuary management. This study was conducted to investigate the daily activities and microhabitat preference of captive sambar deer in the University of Lampung Sanctuary.

METHOD

The three month- research was done on three captive sambar deer, Lingga (male), and two female sambar Kiki and Bimbi, in 1.7 ha of the University of Lampung Sanctuary (Figure 1) by direct observation and 10

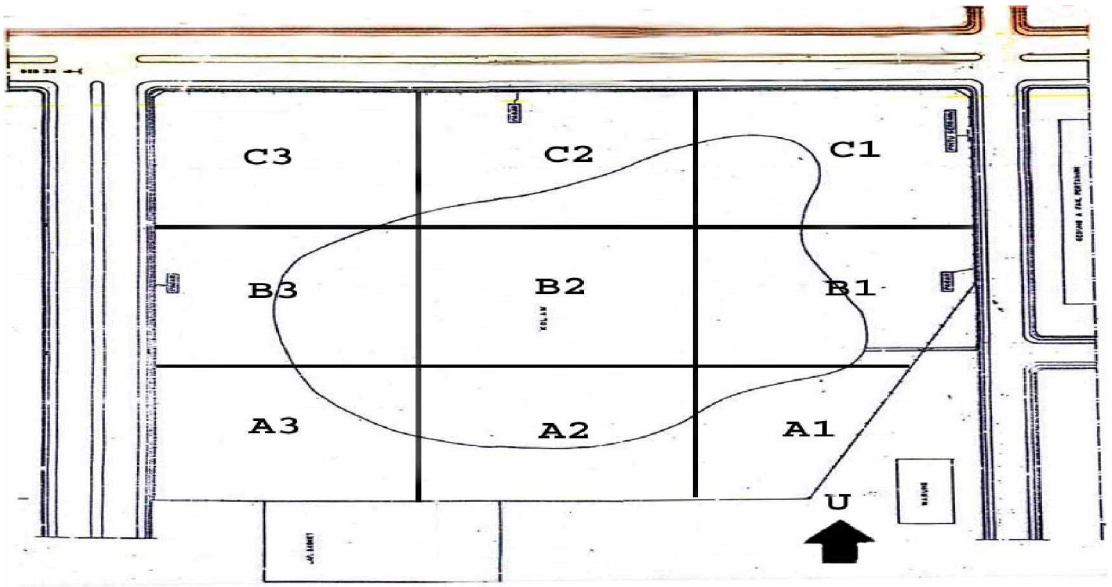
minute-interval scanning methods to observe their daily activities and choices on microhabitats. Rapid assessment, modified from habitat assessment by Brower (1990), was applied to categorize the vegetation distribution in the area. To observe the microhabitat preference and daily activity, sanctuary area was divided into nine plots based on vegetation types (open grass; grass with trees; shrubs with *Imperata*; *Imperata* with trees; grass, shrubs and trees). The grasses in the area consist of *Axonopus compressus*, *Imperata cylindrica*, *Pennisetum purpureum* and *Cynodon dactylon.* The shrubs include *Stachytarpheta cayennensis*, *Salacca sp*, *Crotalaria anagyroides*. The trees consist *Acacia auriculiformis*, *Terminalia cattapa*, *Jatropa gossipifolia*, *Cocos nucifera*, *Tectonus grandica*, and *Bauhinia purpurea.*

Activities recorded include feeding, resting and sleeping activities. Feeding activities include reaching, taking and putting the food into the mouth. Resting activities are non movement such as grooming, laying down, bathing and sitting.

RESULTS AND DISCUSSION

Daily activities of captive sambar deer

The three sambar deer demonstrated both day and night of the daily activities which agreed with the sambar behavior found in the wild (Suzuki *et al.*, 2006). The daily activity started at 09.00 and ended at 23.00. In between 18.00 to 22.00, they roamed in grass area to shrubs-tree area, and started at 03.00 the movement was done vice versa. At 06.00 they oved to *Imperata* area and slept. At 09.00 they went to area especially with trees for feeding activity and possibly looked for shelter against the sun. In general the daily activity patterns of three sambar deer were similar. The highest activity was feeding (45.8%), followed by sleeping (30.6%) and resting (23.7%) respectively (Table 1).



A1: open grass
A2: grass with trees
A3: bushes with *Imperata*
B1: grass with trees
B2: fresh water pond
B3: grass, bushes and shelter
C1: grass, *Imperata* and trees
C2: grass, bushes and trees
C3: grass, bushes and trees

Figure 1. Plot divison on the research area of the University of Lampung Sanctuary (adopted from Proyek Peningkatan Perguruan Tinggi (P2T) University of Lampung by scale 1: 5)

All three sambar often did the activities together, but Lingga, the male sambar did the resting and sleeping activities alone, as Lekagul and McNeely (1988) stated the male sambar is usually solitary. Generally feeding activity was conducted almost the all day long, especially at 09.00 - 12.00, continued at 16.00, 18.00 - 22.00 and 03.00 - 06.00, with the highest at 10.00 - 11.00, 16.00 - 17.00, 18.00 - 19.00 and between 03.00 - 04.00 (Figure 2). Overall all three sambar started their feeding activities at 09.00, and the highest activities recorded at 18.00.

The highest sleeping activity was between 14.00 - 15.00, and 01.00-02.00 with long sleeping between

22.00 and 03.00 (Figure 3). Meanwhile resting activities were done frequently in between feeding activities with the most carried out at 15.00 - 16.00 and 02.00 - 03.00 (Figure 4).

Table 1. Daily activities of sambar deer

No.	Individual of sambar	Sex	Feeding activity (%)	Sleeping activity (%)	Resting activity (%)
1.	Lingga	Male	45.8	33.3	21
2.	Kiki	Female	45.8	29.2	25
3.	Bimbi	Female	45.8	29.2	25
Average			45,8	30,6	23,7

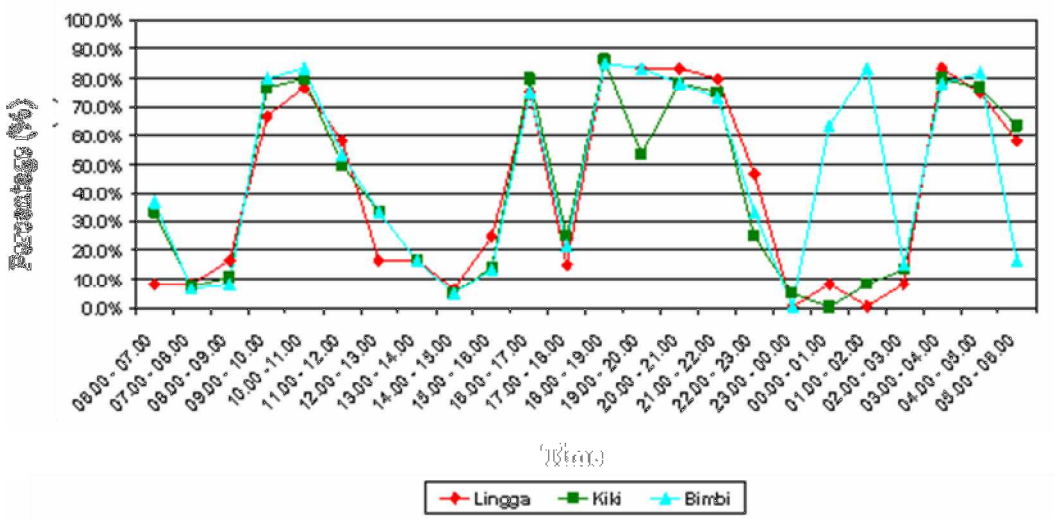


Figure 2. Feeding activities of sambar deer in the University of Lampung Sanctuary

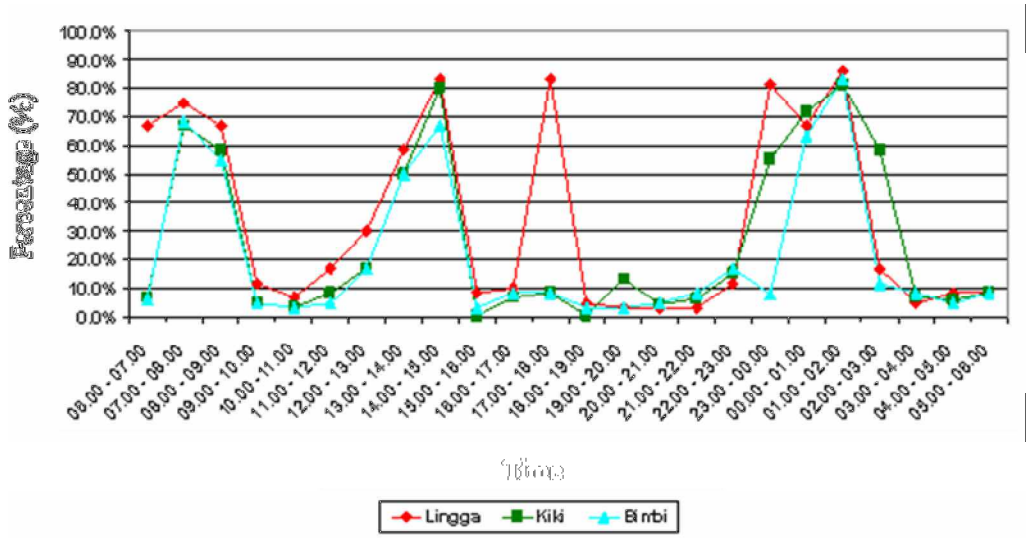


Figure 3. Sleeping activities of sambar deer in the University of Lampung Sanctuary

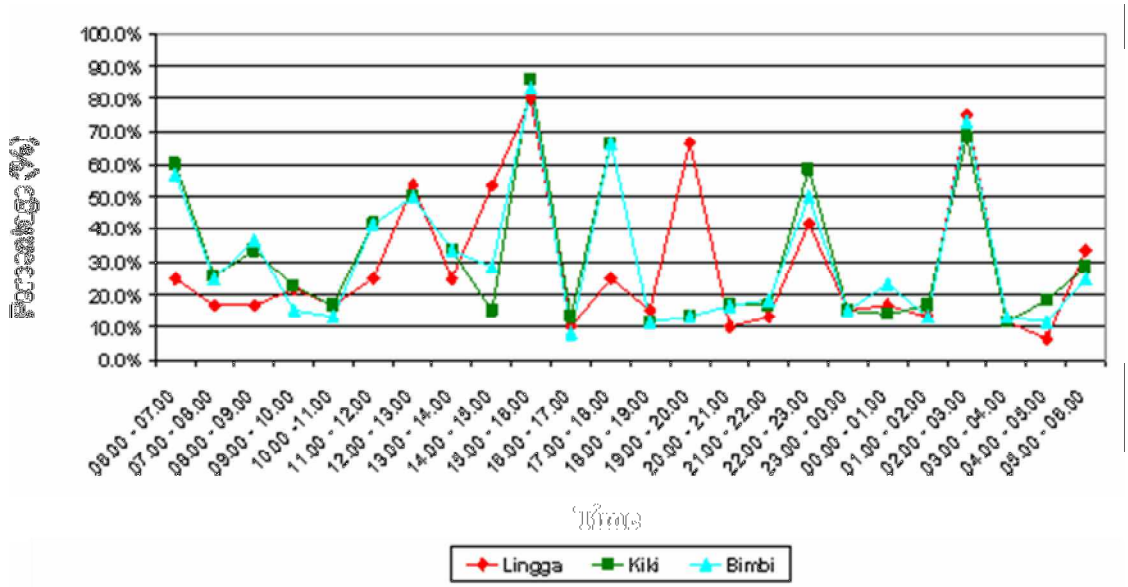


Figure 4. Resting activities of sambar deer in the University of Lampung Sanctuary

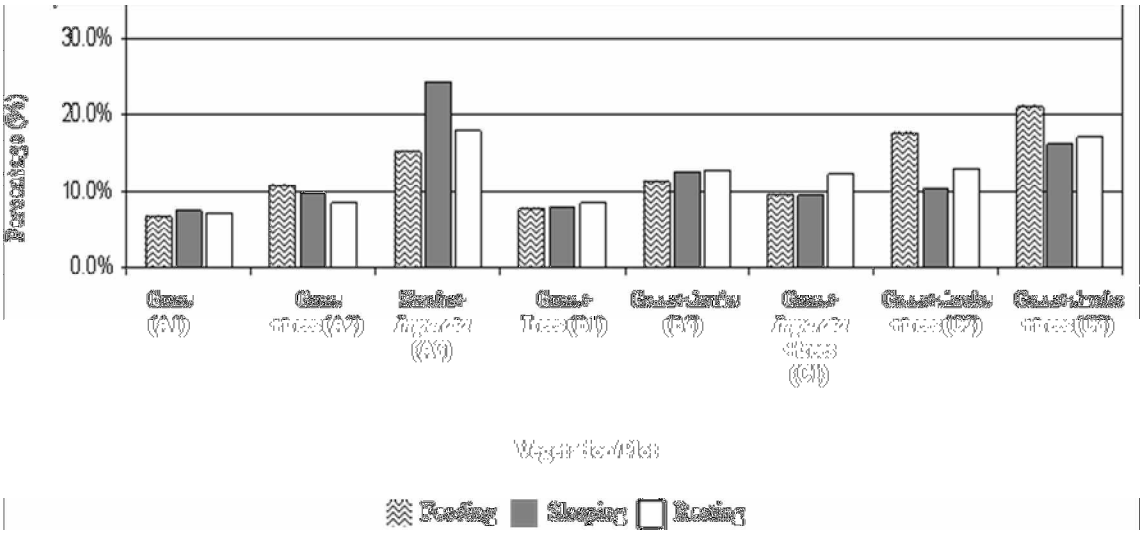


Figure 5. The microhabitat use of sambar deer in the University of Lampung sanctuary

Sleeping activities was observed at 07.00, 12.00 - 15.00 and 23.00 - 02.00 and they tended to do it in the *Imperata* areas during the day and in the bushes, grass with trees areas during the night. Resting activities were observed at 05.00, 15.00, especially for bathing in the pond, and 17.00.

Microhabitat Preferences

Generally all the areas were used by three sambar deer, and areas with grass, shrubs and trees were for feeding activity (21.0%) (Figure 5). It is possible due to the variety of its plant species. Sambar in the sanctuary fed randomly on all vegetation in the area. This is agreed with Semiadi dan Nugraha (2004) as stated the sambar fed in almost all the green vegetation in its area and well adapted with the food change.

The areas with shrubs and *Imperata* were used for sleeping (26.5%) and resting (23.3%). The least used areas were the one with few or lack of trees. Individually, Kiki used areas with grass, shrubs and

trees for feeding activity (20.9%), shrubs with *Imperata* for sleeping (29.2%) and resting (25.7%). The least area used was grass and few trees. The other two sambar showed the similar tendency on microhabitat use. Bimbi occupied areas with grass, shrubs and trees for feeding activity (21.0%), bushes and *Imperata* for sleeping (24.7%) and resting (20.0%). The least areas used were open grass. Lingga took areas with grass, shrubs and trees also for feeding activity (20.9%), shrubs and *Imperata* for sleeping (25.0%) and resting (24.0%). (Figure 6, 7, and 8).

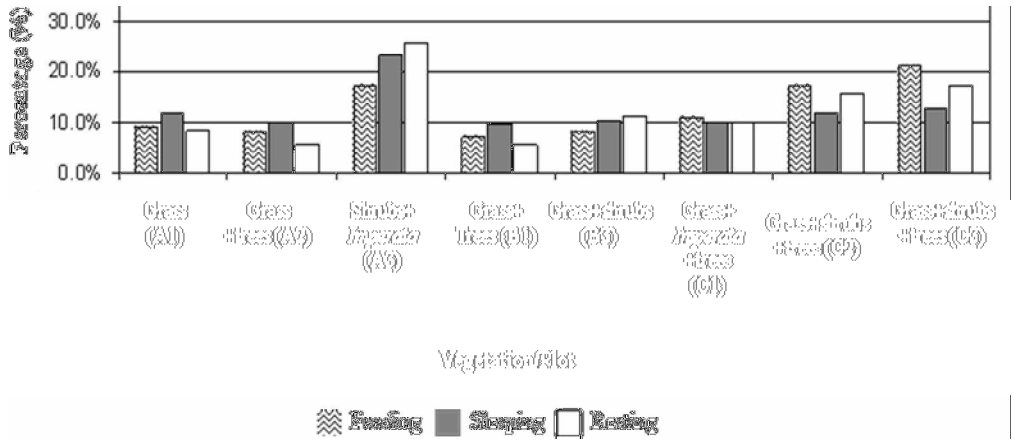


Figure 6. The use of microhabitat by sambar Kiki in The University of Lampung sanctuary

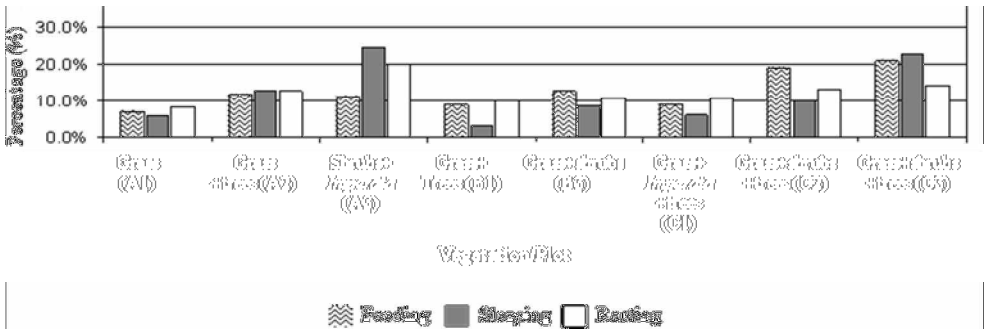


Figure 7. The use of microhabitat by sambar Bimbi in The University of Lampung sanctuary

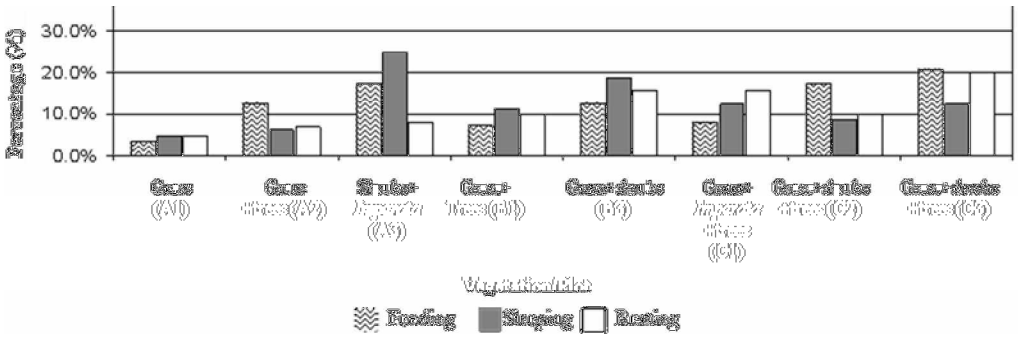


Figure 8. The use of microhabitat by sambar Lingga in The University of Lampung sanctuary

The least areas used were shrubs with *Imperata*. Overall, areas which were lack of cover were ignored. It may be lack of shelter and small variety of food plants. This behavior was similar to sambar in the wild which has preference for cover provided by trees or shrubs (Green, 1987). Based on their behavior patterns and microhabitat use that is related to their natural behavior, it is important for maintaining the local diversity in University of Lampung sanctuary, and managing the location suitable for establishment of a wildlife sanctuary.

CONCLUTION

It is concluded that the highest activity of captive sambar deer in the University of Lampung Sanctuary is feeding (45.8%), followed by sleeping (30.6%) and resting (23.7%) respectively. The microhabitat preference of captive sambar deer in the University of Lampung sanctuary is areas with grass, bushes and trees for feeding activity and areas with shrubs and *Imperata* for sleeping and resting.

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