TULISAN PENDEK

Mating behavior of Slow Loris (*Nycticebus coucang*) at Captivity
(Perilaku Kawin Kukang Sumatra (*Nycticebus coucang*) di Penangkaran)

Wartika Rosa Farida & Andri Permata Sari
Zoology Division, Research Center for Biology -LIPI
Jln. Raya Jakarta-Bogor KM 46, Cibinong 16911
Email: wrfarida@indo.net.id

Received: Aprl 2015, **Accepted**: Aprl 2015

Habitat loss and changes in land-use forests for plantations, mining, and settlement, as well as poaching, have caused the decline of wildlife populations in the tropical rainforest. One of the endangered wildlife of slow loris which has traditionally been traded as pet animals.

In Indonesia, slow loris has a status of protected under the Wildlife Protection Ordinance number 266 1931, the Decree of the Minister of Agriculture dated February 14, 1973 number 66/ Kpts/Um/2/1973, and ministerial decree number 301/Kpts.II/1991 dated June 10, 1991 subsequently amended by Government Regulation number 7 of 1999.

Since 2007, CITES (Convention on International Trade in Endangered Species of Wild Flora and Fauna) has incorporated all kinds of slow loris in Appendix I, which means that in international trade of slow loris, no longer allowed to trade in slow loris captured directly from nature, but must be from the cultivation of captivity. One of the efforts to save slow loris from extinction is through captive breeding efforts (*ex situ* conservation).

Captive breeding success is characterized by the development of slow loris population in captivity. In captivity, slow loris experiences habitat/environment change from the outdoors to limited conditions, including changes in the process of adaptation and mating behavior. Up to now, information about mating behavior of slow loris in captivity is still limited, but it is needed in the process of supervision/ management and handling of its reproduction. Therefore, it is necessary to study and do research the mating behavior of slow loris in captivity as a reference in the cultivation effort to address the problem of conservation, especially in zoo management techniques of slow loris.

This study aims to collect data of mating behavior of slow loris as a basis in captivity breeding management of slow loris.

Initial studies on the mating behavior of slow loris have been conducted for 15 days, starting from 19:00 until 05:00 in Small Mammals Captivity, Zoology Division, Research Center for Biology-LIPI, Cibinong. The research material was a pair of slow loris (males and females) aged about 2 years. During the study, the slow loris were placed in individual cages with wire counter-walled and concrete floor, which measures 3.86 m long, 2.10 m wide, and 2.60 m high. Each enclosure is equipped with place of feed / fruit, basin to place crickets, drinking water container, and the sleeping box was made of plywood with 2 entrances/exits which measures 32 cm long, 23 cm wide, and 20 cm high. In addition, the cage was also equipped with sticks / bamboo which are placed crossed, as a place for slow loris moving and playing. Pieces of bamboo trees complete with leaves placed in the enclosure to create an artificial habitat conditions and leafy shades. Feed and water given at 17:30. The feed wss composed of fruits, boiled sweet potatoes, boiled egg whites, crickets, and german caterpillars.

Direct visual observation method (Lachica & Aguilera 2005) to the mating activity was carried with the photo shooting from process approach to copulation (*intersupsio*). Data obtained were objectively tabulated and analyzed descriptively.

Initial observation on mating behavior and reproductive of slow loris is the introduction of

forms of male and female sex (Figure 1 and Figure 2). Reproduction was strongly related to age of ready to mate, sex ratio, length of gestation, birth spacing, etc. According to Izard *et al*. (1988), reproductive biology data of slow loris is still very little because of the rarity of successful breeding of slow loris in captivity. Furthermore it was reported that slow loris sex ratio of male:female was 1:1, age of female ready to reproduce is between 18-24 months, while male age is 17 months; estrous cycle of female is 29-45 days; long gestation ± 192.2 days; duration of breastfeeding (lactation) is 6 months.

The results of the research at the laboratory level indicate slow loris lives solitary and in small family (Hill 1937; Rasmussen 1986), whereas according to Wiens & Zimmerman (2003), slow loris live in pairs (monogamy), namely one male and one female.

Based on observations in captivity, female slow loris indicated by estrous more often voiced and

Figure 1. Genitals of male

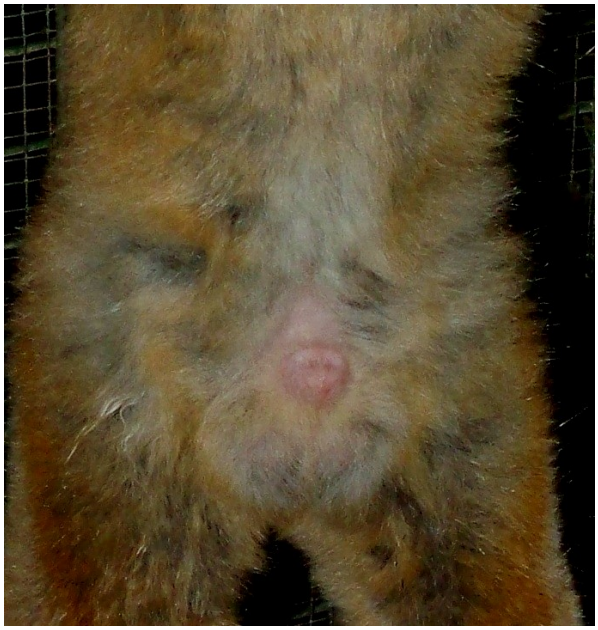

Figure 2. Genitals of female

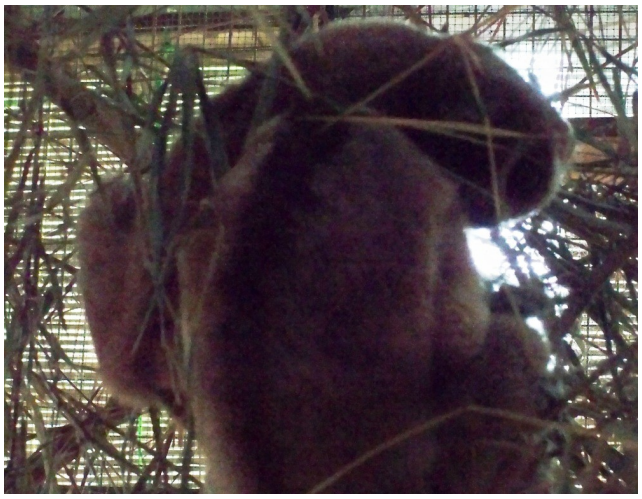

Figure 3. In the copulation process, since daylight male slow loris and its female appear together

its vagina area enlarged and reddened. It signaled to the male slow loris that the female slow loris are ready to mate. As reported by Manley (1966), while female slow loris estrous, it will often make voices, and its vagina area enlarged and reddened. Female slow loris will behave more aggressively in order to give signal to male slow loris that it is ready to mate.

Figure 4. Pre-copulation process (1)

Slow loris looks different from other primates, including the mating process, so that the reproductive biology interesting to study. In the mating process of slow loris, since daylight male and female look always together until copulation process (Figure 3 and Figure 4). Before copulation, the female slow loris voiced more active, looks more aggressive, and often turned to the male slow loris. Female slow loris takes more initiative to start the mating process. As reported by Fitch-Snyder & Jurke (2003), copulation was initiated by female slow loris. The copulation process of slow loris is rather

a)

b)

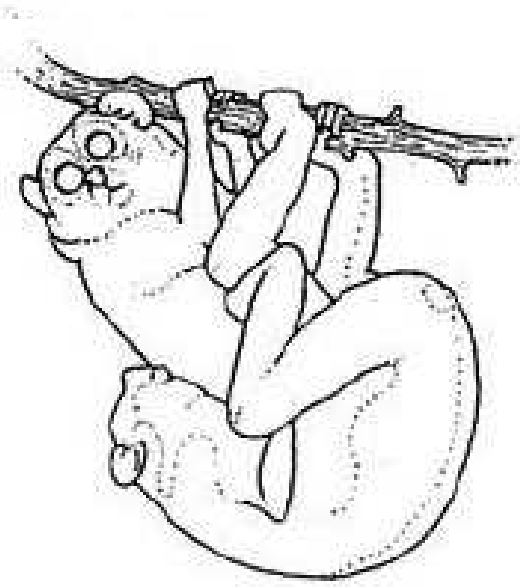

Figure 5. Copulation (a); copulation sketch (b) *)
Bottcher-Law *et al.* (2001)

unique, the female will depend its body on the horizontal dowel/bamboo and the male will hang on the body of the female (Figure 5a). During 15 days of observation, it is recorded that the activity of mating/copulation of slow loris occurred for four consecutive days. According to Izard *et al*. (1988), estrous cycle of female slow loris lasts 29-45 days, and copulation occurs on the same day. Copulation lasts for two to five consecutive days during estrous (Zimmermann 1989). As reported by Rasmussen (1986) in the process of copulation, the position of female is hanging on the roof of a wire cage or on a horizontal branch and male climbs while embracing the back side of the female and makes quick movements of thrusting.

In observation also seen, when the female slow loris is not willing to mate again, it will sound when approached by its male, followed by its sound of grunts, even the female will bite the male. This signifies that the female slow loris no longer wanted copulation.

Slow loris that have adapted well to a captive environment which has been enriched to resemble its habitat, can perform copulation so that gestation may occur in captivity.

REFERENCES

Bottcher-Law, L., H. Fitch-Snyder, J. Hawes, L. Larson, B. Lester, J. Ogden, H. Schulze, K. Slifka, I. Stalis, M. Sutherland-Smith & B. Toddes. 2001. *Management of lorises in captivity. A Husbandry manual for Asian Lorisines* (*Nycticebus* and *Loris* ssp.). Center for Reproduction of Endangered Species (CREZ) Zoological Society of San Diego, San Diego: xi + 110 p.

Fitch-Snyder, H. & M. Jurke. 2003. Reproductive patterns in pygmy lorises (*Nycticebus pygmaeus*): Behavioral and physiological correlates of gonadal activity. *Zoo Biology* 22 (1): 15–32.

Hill, WC. 1937. Treatment of the Slender Loris in Captivity. *Nature* 136: 85-88.

Izard, MK., KA. Weisenseel & RL. Ange. 1988. Reproduction in the Slow Loris *(Nycticebus coucang)*. *American Journal of Primatology* 16:331-339.

Lachica, M.. & JF. Aguilera. 2005. Energy expenditure of walk in grassland for small ruminants. *Small Rumin. Res.* 59*:*105–121

Manley, GH. 1966. Reproduction in Lorisoid primates. *Symposia of the Zoological Society of London* 15: 439-509.

Rasmussen, DT. 1986. Life History and Behavior of Slow Lorises and Slender Lorises: Implications for The Lorisine-Galagine Divergence. [Ph.D. Thesis]. Duke University, Durham, NC.

Wiens, F. & A. Zitzmann. 2003. Social dependence of infant slow lorises to learn diet. *International Journal of Primatology* 24 (5): 1007–1021.

Zimmermann, E. 1989. Reproduction, physical growth and behavioral development in slow loris (*Nycticebus coucang*, Lorisidae). *Human Evolution* 4: 171–179.