

Sexual behavior activity of timor deer (*cervus timorensis*) in various types of grouping paddock

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Study on reproductive biology of deer plays an important role for supporting conservation program. One specific characteristic of deer stag is the antler. Antler development stages period plays the most important role in determining the reproductive activities of adult timor deer stags (Bubenik *et al.* 2002; Handarini *et al.* 2004; Loudon *et al.* 1988; Willard and Rande1 2002; Woodford 1991). An experiments on reproductive biology of this animal was aimed to study the sexual behavior of this animals in various grouping paddocks to manage the deer breeding system.

This research was conducted for 16 months (started from June 2002 until September 2003) on five adult timor deer hinds (three until six years of age, average body weight of 40 to 60 kg) and three adult timor deer stags (three until five years, average body weight of 80 to 105 kg). The animals were classified in three grouping paddocks : 1. One group of stags in a paddock. Data were collected about 12 hours per day (at 6 a.m. to 6 p.m.) for three months. 2. Hinds in one group paddock (for two months) and in individual paddock (for three months) and 3. Stag-hind pairs paddock (for two months). Data were collected using the focal sampling method of Martin and Batesan (1993).

Observation on stags grouped in one paddock showed various features including: rutting (the period of maximum reproductive activity, rubbing the vegetation with their neck or antler), roaring (its frequency increases preceding a fight), interest in hinds (they would approach fences separating them from the hinds), striking the fence, sparing (fighting mode of boxing or complex of display), wallowing, rolling, scrape its feet on the ground sometimes using its antlers and make muddy mess, cover their antler with bush, preputial palpitation with or without urine spraying which is used as a scent marker, flehmen (lip curl), stretching its head, blowing and flattening of its noses, erection, mounting other stags (homosexual mount), follow other stags, smelling perineal regions of other stags.

This behavior was also observed in previous work by Ismail (2002). The sexual behavior of stags changed abruptly at hard antler stages and showed the dominance display. They showed preference homosexual behavior including mounting other stags in sub ordinate hierarchy, sometimes they showed erection with or without ejaculation. This phenomenon indicated no hind in the paddock, observed by Tomaszewska *et al.* 1991; Haigh dan Hudson 1993).

Estrus signs of hinds in individual paddock showed that the hinds stood still when their back are pushed down (100%), redness of vulva (average 96.12%) and only 43.18% showed vaginal discharge. Hinds approaching estrus may spend an increasing amount of time paying attention to the stag. Hinds in estrus in the grouping paddock showed sexual signs such as uneasiness (13.42 times/day), striking out special voices (9.62 times/day). This estrus signs are more frequent than

non estrus hinds (about 2.56 times/day and 1.93 times/day). When they are kept separated from the stags and in the estrus phase they would approach and ran along the fence which separating them from the stag.

Observation on stag-hind pairs paddock showed interaction of hinds in estrus with the stag. This is the best indicator of their reproductive state. Sexual behavior of the stag consisted of stretching of the head (about 12.11 times/day), flehmen (19.33/day) and nose blowing and flattening (11.33 times/day). Hinds in estrus showed higher frequency of urination (about 25.11 times/day) than non estrus ones. Hinds and stag may be seen approaching one another. The stag always following and rubbing his neck on the back region of the hind. Urination as the sexual sign of hinds stimulated the stag which licked the urine (about 18.44 times per day) and genital region of the hind (about 32.78 times/day). Finally the hind would yield for the stag. She took several steps backward with her tail raised and the stag would mount the hind and lay over her back. Short mount occurred several times and the actual moment of breeding took place only a few seconds. These results were supported by previous report by Haigh and Hudson (1993). The general result from three treatments indicated that timor deer are more easily handled, aggression and dangerous action are rare (except for males during the hard antler period) and respond to continuous handling.

It is concluded that the sexual behavior of stags in the group paddock is dominated by stretching his head, following other stag, mounting and erection. The sexual behavior of hinds in the group paddock is dominated by striking out special voices, nervous, urination, approach and stay near fences which separating them from the stag. Hinds in estrus phase in individual paddock are dominated by striking out special voices, swelling, redness and sticky of the vulva, stand still when it is pushed down on the back. The sexual behavior of stag-hind pairs in common paddock is dominated by licking the genital region of hinds which is correlated with high urination frequency of hinds in estrus.

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