

Khanchai Prasanaï 2012: Ecology of Rehabilitated Hog Deer (*Axis porcinus* Zimmermann, 1780) in Phu Khieo Wildlife Sanctuary, Chaiyaphum Province.
Doctor of Philosophy (Forestry), Major Field: Forestry, Faculty of Forestry.
Thesis Advisor: Assistant Professor Ronglarp Sukmasuang, Ph.D. 246 pages.

This study focused on the field study of existing hog deer introduced into Thung Ka Mung (TKM) of Phu Khieo Wildlife Sanctuary, Chaiyaphum Province during 1983 to 1992 and 8 newly released hog deer (3 stags and 5 hinds), which were released in November 2007 to rehabilitate the existing population. The purposes of this study were to 1) study population characteristics of the released hog deer, 2) investigate the newly released hog deer's adaptabilities and determine forage species, carrying capacity, inter-specific relationship and probability of species geographic distribution, genetic diversity and 3) analyze the population viability and evaluate the appropriate initial population size.

The result showed that the population density of hog deer in TKM was 2.03-2.04 individuals/ha (SD = 1.25). The total population determined by total counting in October 2009 was 127 individuals. The average group size was 9.57 individuals. The hog deer preferred forming a group (91.5%) than being solitary (8.5%). Breeding season of hog deer is between May and October with the highest peak occurred during July and September. The potential predators observed by camera trap and direct sighting were Asian wild dogs, Burmese pythons, Asiatic jackals, leopard cats and clouded leopards. The mortality rate of the existing hog deer in TKM during the study period was 18.1%.

The newly released hog deer showed substantial improvement in their physical condition six months after being released. Three female hog deer gave birth to four fawns, but only two fawns (a female and a male) survived. Most observed behaviors of the existing population comprised feeding, lying, walking, and running, and ruminating, which occupied almost 98% of the observed time, were similar between males and females in both wet and dry seasons. The newly released male, which is the only male survived, showed a better adaptability to the new habitat than the females. The distribution range of the first year was larger than the second year for every newly released hog deer. Hog deer foraged at least 56 forage species, most of which were grasses. Phek in Thai name, *Vietnamosasa pusilla* alone comprised 21.07% of the hog deer's diet. The carrying capacities of TKM grassland was 272 individuals estimated by forage availability in dry season. The habitat sharing was found among 4 ungulate species. They were composed of sambar deer, barking deer, wild boar, and elephant. The species geographic probability distribution study indicated that the saltlick has high effect for ungulates in TKM.

Genetic analysis from fecal pellet group samples from both groups showed 4 different haplotypes. The population viability analysis has indicated the sustainability of the population after more than 50 years from the initial year. The population does not exhibit sensitivity to an increase or decrease in carrying capacity. The probability of survival of the population is sensitive to mortality rate and initial population size and sex ratio. The probability of survival of more than 90% can be achieved from the initial population of 10 (5:5), 9 (3:6), and 8 (2:6) for male:female ratios of 1:1, 1:2, and 1:3 respectively.

Student's signature

Thesis Advisor's signature