Benjarat Prompen 2010: Habitat Models of the Gaur (*Bos gaurus* H. Smith) in Phukhieo Wildlife Sanctuary, Chaiyaphum Province. Master of Science (Forest Biological Science), Major Field: Forest Biological Science, Department of Forest Biology.
Thesis Advisor: Associate Professor Yongyut Trisurat, D.Tech.Sc. 104 pages.

The study on modeling of the Gaur (*Bos gaurus* H. Smith) habitat was conducted in Phukhieo wildlife sanctuary, Chaiyaphum Province. This study aimed to predict the distribution of gaur and threats in the sanctuary using data obtained from patrolling and natural resources monitoring system during April 2006 – October 2007. The total patrol distance covers 968 kilometers in length. Distribution of gaur was analyzed by using Biomapper program, multiple logistic regression and nine ecological factors. The accuracy of distribution models was assessed using the area under curve of a receiver operating characteristic. In addition, the turnover rate (shifting distribution) between dry and wet seasons, and risk area of gaur were included.

The results showed that there were 562 presence points of gaur and 816 threat observations. The accuracies of distribution model derived from biomapper technique and multiple logistic regression were moderate. The predicted suitable areas for gaur cover 260 km^2 or 17% of study area, and 778 km^2 or 50% of study area, respectively. Turnover rate for gaur between dry and wet seasons was 40.65%. High threat areas cover approximately 317 km^2 or 20% of study area. There are five areas listed as critical threat, covering 65 km^2 or 4% of study area. Officials and rangers should put more efforts on protection and patrolling on these areas. The outcome of this research is useful for strengthening gaur conservation in Phukhieo wildlife sanctuary and to be used as a model for other protected area in Thailand.

Keywords: Gaur (*Bos gaurus* H. Smith), Habitat Models, Ecological Niche Factor Analysis, Multiple Logistic Regression

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