

Krittayaphon Penchart 2011: Genetic Diversity of Selected Pheasant Species in Captive Condition. Master of Science (Forest Biological Science), Major Field: Forest Biological Science, Department of Forest Biology. Thesis Advisor: Assistant Professor Ronglarp Sukmasuang, Ph.D. 116 pages.

The study of genetic diversity of selected pheasant species in captive condition was conducted at Bang La Mung, Phu Kieo, Khao PraTap Chang and Huai Kha Khaeng Wildlife Breeding Stations during September 2009 and August 2010. The objectives were to investigate the pheasant genetic diversity and phylogenetic relationships among the species. The polymerase chain reaction (PCR) technique around the control region of the mtDNA was used. Base sequences to investigate the genetic difference of the pheasant species were used. Two hundred and forty eight blood samples were collected in total from 8 pheasant species, and used to analyze. The results showed that 9 haplotypes were found from 45 Siamese Fireback samples, 6 haplotypes were found from 61 Kalji Pheasant samples, 8 haplotypes were found from 62 Silver Pheasant samples, and 13 haplotypes were found from 51 Red Jungle fowl samples. Two haplotypes were found from 5 Crested Fireback samples, 3 haplotypes from 3 Great Argus samples, 9 haplotypes were found from 15 Green Peafowl samples and 5 haplotypes were found from 6 Grey Peacock-Pheasant samples. Genetic diversity of the species were 0.842 (SD=0.028) for Siamese Fireback, 0.793 (SD=0.026) for Kalji Pheasant, 0.825 (SD=0.025) for Silver Pheasant, 0.872 (SD=0.024) for Red Jungle fowl, 0.400 (SD=0.237) for Crested Fireback, 1.000 (SD=0.272) for Great Argus, 0.848 (SD=0.088) for Green Peafowl and 0.933 (SD=0.122) for Grey Peacock-Pheasant. The results from phylogenetic tree studies that compared with the same species in the GenBank and with the outgroup species found that all haplotype of Siamese Fireback, Kalji Pheasant, Crested Fireback, Grey Peacock-Pheasant and Great Argus in this study were new, and composed of 9, 6, 2, 5, and 3 haplotypes respectively. Furthermore, this study found that 7 out of 8 haplotypes of Silver Pheasant had never been recorded in the GenBank. Whereas found that 12 out of 13 haplotypes of Red Jungle fowl had never been recorded in the GenBank that were collected from Japan, Laos, Sri Lanka, Zimbabwe, India and Vietnam. The results of this study are useful to understand genetic diversity of the pheasant species in the four captive breeding stations. Some management aspects of the captive species to improve genetic diversity were also recommended in this study.

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Student's signature

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Thesis Advisor's signature