Zoological Aspects of SMRL Studies

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Objective : To provide information on the native fauna to those departments whose work on human diseases in Thailand involves natural reservoir hosts.

Background : In support of studies on Japanese encephalitis, now concluded, an intensive capture-mar-kand release program of birds and mammals necessitated delving into taxonomy and accumulation of a scientific vertebrate collection. Groups which particularly needed clarification on species-limits and which species live in Thailand were rats, mice, and gibbons.

Progress : Taxonomic revisions were concluded, based on morphology, ecology, distribution, karyology, and additionaly, for the gibbons, analysis of tape-recordings of their songs.

Rat hosts of fleas and chiggers subject to systemic poisons (which do not harm the rat) were identified for the Department of Entomology. **Rattus rattus** in the forest was the principal host of chiggers; whereas in the town, **R. exulans** and **R. rattus** had fleas. During trapping at Paktongchai the field mouse, **Mus cervicolor**, was discovered living in houses at the market.

A study of natural hosts of filarial worms by Department of Veterinary Medicine was supported through identifying the various rodents and **Tupaias** which naturally harbored the worms. These included **Rattus sabanus, R. berdmorei, R. surifer, R. bukit, R. neilli** (which we found at Saiyok-a large extension of known range for this newly discovered species), **R. koratensis** and **R. rattus.** They are easily identified in life, except for the last two. Unfortunately, the conditions of the experiement denied us access to examination of the carcasses to ascertain the number of mammae (12 in **koratensis,** 10 in **rattus**). Of the many dozens of each species that were sacrificed in order to obtain the adult worms we received only 6 skulls, which are necessary for the identification. All from Sakaerat, they all had the characteristic skull of **Rattus koratensis** although 4 of them had been identified as **R. rattus** by the veterinary field team. Taxonomic studies of native mice included sending live colonies to Laboratory of Cell Biology, National Cancer Institute, where Dr. Michael Potter found biochemical traits distinguishing the various species. There, a type C virus of leukemia was discovered in our **Mus caroli**, which is the same as that in gibbons, and different from that of the laboratory mouse. NCI's expanding search for the virus led to an agreement for full-time support of SMRL personnel in collecting and shipping to NCI native live mice, especially those species which share forest habitats with gibbons, such as **Mus shortridgei, M. pahari, M. cookii** and **Mus cervicolor popaeus**. Shipments of about 100 mice per month to NCI were reportedly received in good condition.

We initiated the programmed release of conditioned gibbons from the laboratory colony to a safe forest area at Saiyok, Kanchanaburi Province through the cooperation of the Protein Expansion Project (Ministry of Defense). Of the twelve animals so far liberated, all took immediately to the trees and found natural food and water. We conclude that domestic-reared gibbons instinctively revert to a natural life and need not be extensively rehabilitated. The only problem is that tame, human-oriented animals have to be taken far enough into the hills so that they will not follow people back to civilization. The release program did not include breeding pairs.

References and Publications :

Lieber, MM., C.J. Sherr, G.J. Todaro, R.E. Benveniste, R. Callahan and H. G. Coon. Isolation from the Asian Mouse **Mus caroli** of an Endogenous Type C Virus Related to Infectious Primate Type C Viruses. Pro. Nat. Acad. Sci. USA 72 : 2315-2319, 1975.