

BODY OF REPORT

SEATO Medic Study No. 107 Field Studies on Rickettsial Diseases in Thailand

Project No. 3A 025601 A 811 Military Medical Research Program
S. E. Asia

Task 01: Military Medical Research Program
S. E. Asia

Subtask 01: Military Medical Research Program
SEASIA (Thailand)

Reporting Installation: US Army-SEATO Medical Research Laboratory
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Division of Special Projects

Department of Rickettsiae

Period Covered by Report: 1 April 1964 to 31 March 1965

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Reports Control Symbol: MEDDH-288

Security Classification: UNCLASSIFIED

Objective:

1. To determine the distribution of Rickettsial Diseases in Thailand.
2. To determine the seasonal variation of Scrub Typhus in various parts of Thailand selected for their military importance.

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3. To determine the species of chiggers, ticks and fleas which may serve as vector of the rickettsiae and the mammals which serve as their reservoir and alternate hosts in Thailand.

4. To serve as consultative laboratory if requested.

Description: Small mammals and their ectoparasites (chiggers, ticks and fleas) are collected for identification and recovery of rickettsiae.

Suspected human cases in field areas are bled for serological studies and isolation attempts.

Progress: Leptotrombidium chiggers are suspected to be vectors of scrub typhus in Thailand. The rate of isolation of scrub typhus rickettsiae was correlated with the predominance of this chigger. Almost all of the chiggers were L. deliensis, except in one area, Khao Yai, where they were mostly identified as L. akamushi.

An attempt to study patients suspected to be infected with rickettsiae is in progress. Information given by local physicians indicates the possibility that human disease due to rickettsiae infection is subclinical or abortive in type and usually escapes recognition by the attending physician.

Field Studies Areas: Chiengrai, Udorn, Nongkai, Nakorn Panom and Ubol were selected for seasonal studies. Three trips for each area are being conducted and should be finished soon.

The trip to the southern part of Thailand, including Yala, Pattanee and Narathivas was included after the original planning. The weather in this part quite resembles that of Malaysia.

Host range of Scrub typhus throughout Thailand:

<u>R. rattus</u>	<u>Tupaia glis</u>
<u>R. rajah</u>	<u>Bandicota indica</u>
<u>R. exulans</u>	<u>Menetes berdmorei</u>
<u>R. berdmorei</u>	<u>Herpestes javanica</u> *
<u>R. niviventer</u>	<u>R. cremoriventer</u> *

* New host range report for Thailand.

Known distribution of Scrub typhus in Thailand (see map)

<u>Province</u>	<u>District</u>
Chiengmai	Sarapee Sumpatong Muang

	Hod ** Sa-Murng
Chiengrai *	Mae Chan *** Chieng San Mae Sai
Udorn *	Muang Nong-Bua-Lumpu
Nongkai *	Muang Nong-Sang
Nakorn Panom *	Tha-u-tane Tat-phanom, Muang
Ubol *	Pibulmungsaharn Khong Chiam
Nakornrajsima	Khao Yai
Bangkok	Prakanong
Samutprakarn	Pra-Padaeng
Samutsakorn	Muang
Chanburi	Pong-Nam-Ron
Pattanee	Ya-Ring
Yala	Yaha Muang
Narathivas	Muang Ra-ngae

- * Seasonal studies
- ** One strain of Fievre Boutonneuse recovered
- *** On strain of Murine Typhus recovered.

Summary: Small mammals and ectoparasites (chiggers, ticks and fleas) were collected in various provinces during the past 6 months.

Forty-eight strains of rickettsiae identified as Scrub Typhus were recovered from the mammalian tissues (as stated in Table 1). Eighteen strains of Scrub Typhus

were also isolated from chiggers, chiefly Leptotrombidium deliense (as stated in in Table 2).

An attempt to isolate rickettsiae from ectoparasites (except chiggers) and human blood were unsuccessful during the past 6 months (as stated in Tables 3, 4, 5, 6 and 8).

Table 1

RICKETTSIAL ISOLATION - SMALL MAMMALS

Locality	Date of Collection	No. of Animals Examined	No. of Tissue Pools *	No. of Pools Positive
Samutsakorn	6-16 Oct	12	12	0
Udorn, Nongkai	11-29 Nov	234	71	26
Nakorn Panom	29 Nov-24 Dec	176	55	3
Ubol	10-19 Jan	92	36	6
Yala, Pattanee	5-10 Feb	145	45	8
Narathivas	13-20 Feb	100	31	5
TOTAL		759	250	48

* Livers and spleens

Table 2
RICKETTSIAL ISOLATION - CHIGGERS

Locality	Date of Collection	No. of Pools *	No. of Pools Positive
Udorn, Nongkai	11-29 Nov	24	16
Nakorn Panom	29 Nov-24 Dec	1	0
Ubol	10-19 Jan	16	0
Yala, Pattanee	5-10 Feb	4	0
Narathivas	13-20 Feb	4	2
TOTAL		49	18

Table 3
RICKETTSIAL ISOLATION - TICKS

Locality	Date of Collection	No. of Pools	Pools Positive
Udorn, Nongkai and Nakorm Panom	11 Nov-24 Dec	19	0
Ubol	10-19 Jan	4	0
Yala, Pattanee	5-10 Feb	7	0
Narathivas	13-20 Feb	0	0
TOTAL		30	0

Table 4
RICKETTSIAL ISOLATION - FLEAS

Locality	Date of Collection	No. of Pools	Pools Positive
Udorn, Nongkai and Nakorn Panom	11 Nov-24 Dec	12	0*
Ubol	10-19 Jan	0	0
Yala, Pattanee	5-10 Feb	1	0
Narathivas	13-20 Feb	0	0
TOTAL		13	0

* Still in progress

Table 5
RICKETTSIAL ISOLATION - LICE

Locality	Date of Collection	No. of Pools	Pools Positive
Udorn, Nongkai and Nakorn Panom	11 Nov-24 Dec	5	0
Ubol	10-19 Jan	1	0
Yala, Pattanee	5-10 Feb	6	0
Narathivas	13-20 Feb	0	0
TOTAL		12	0

Table 6
RICKETTSIAL ISOLATION - MITES

Locality	Date of Collection	No. of Pools	Pools Positive
Udorn, Nongkai and Nakorn Panom	11 Nov-24 Dec	2	0
Ubol	10-19 Jan	3	0
Yala, Pattanee	5-10 Feb	6	0
Narathivas	13-20 Feb	3	Still in Progress
TOTAL		14	0

Table 7
RICKETTSIAL INVESTIGATION - HUMANS

Locality	Date of Collection	Total Exam.	Isolates	Serological Reaction
Samutsakorn	6-26 Oct	8	Negative	Negative
Military Replacement Training Center (Prachuab)	6 Oct-23 Dec	39	Negative	Negative
Udorn, Nongkai	11-29 Nov	5	Negative	Negative
Nakorn Panom	29 Nov-24 Dec	6	-	Not finished
Border Police, Ubol	10-19 Jan	11	-	Not finished
Yala, Pattanee	5-10 Feb	3	Negative	Not finished
Narathivas	13-20 Feb	1	-	Not finished
TOTAL		73	1	0