

Survey of Tick—Borne Viruses in Thailand

Principal Investigators : Douglas J. Gould, Ph.D.
 Franklin H. Top, LTC, MC
 Joe T. Marshall, Ph.D.
 Dhebanom Muangman, M.D.
 Panita Tanskul, M.Sc.
 Robert E. Weaver, SFC

OBJECTIVE: To isolate and identify viral agents from tick species collected in Thailand.

BACKGROUND: Over 50 species of ticks have been collected by SMRL personnel in the past few years from 37 provinces of Thailand; 10 of these species have been recorded as attacking human beings. Several arbovirus diseases of public health importance are transmitted to man through ticks. Most prominent have been the tick—borne encephalitis complex of Group B arboviruses, Congo group arboviruses and the Kemerovo group viruses. Viruses of these groups have been defined as etiologic agents in outbreaks of meningo—encephalitis and hemorrhagic fever. No surveys for tick—borne viruses have previously been made in Thailand, and only two arboviruses—Nyamanini and Pathumthani viruses—have been isolated from ticks collected in Thailand.

PROGRESS: During this period a total of 10,888 ticks were collected from six provinces (i.e., Chiangmai, Mae Hong Son, Nakhon Nayok, Nakhon Ratchasima, Pathumthani and Prachinburi), identified and pooled for virus isolation attempts. Included in the 709 pools tested were 28 species of ticks—belonging to the genera *Amblyomma*, *Aponomma*, *Argas*, *Boophilus*, *Dermacentor*, *Ixodes*, *Haemaphysalis* and *Rhipicephalus* (Table 1). The largest numbers of ticks tested belonged to the genera *Boophilus* and *Haemaphysalis*, respectively. Various collection techniques were employed during this period, but the largest numbers of ticks collected were removed from trapped wild mammals and birds and from domestic animals. A total of 1205 small mammals and 262 birds were trapped and examined for ticks. Approximately 400 domestic animals, including buffalo, cattle, goats and dogs, were examined for ticks. Finally, a total of 2262 ticks were also collected resting on vegetation or in the vicinity of avian rookeries.

Six unidentified, ether sensitive viral agents were isolated from pools of *Argas robertsi* collected in the vicinity of nests of Night Herons (*Nycticorax nycticorax*) in Nakhon Nayok province. Thus far, no viruses have been recovered from ticks removed from mammals or birds trapped during this period.

Table 1. Ticks collected in Thailand and tested for viral agents, 1972 - 73.

Species	No. of Pools	No. of Ticks
<i>Amblyomma</i> sp	7	16
<i>A. testudinarium</i>	1	1
<i>Aponomma</i> sp.	3	11
<i>A. lucasi</i>	2	28
<i>Argas</i> sp.	0	0
<i>A. pusillus</i>	3	90
<i>A. robertsi</i>	12	130
<i>Boophilus</i> sp.	2	5
<i>B. microplus</i>	197	2,931
<i>Dermacentor</i> sp.	1	4
<i>D. auratus</i>	22	49
<i>D. atrosignatus</i>	4	6
<i>Ixodes</i> sp.	5	10
<i>I. granulatus</i>	20	33
<i>Haemaphysalis</i> sp.	52	2,661
<i>H. anomala</i>	20	567
<i>H. atherurus</i>	1	2
<i>H. bandicota</i>	104	1,177
<i>H. canestrinii</i>	1	4
<i>H. cornigera</i>	18	563
<i>H. heinrichi</i>	75	1,106
<i>H. lagrangei</i>	12	145
<i>H. obesa</i>	6	12
<i>H. semensis</i>	6	130
<i>H. wellingtoni</i>	7	19
<i>Rhipicephalus</i> sp.	38	176
<i>R. h. haemaphysaloides</i>	71	693
<i>R. sanguineus</i>	19	319
Total	709	10,888