Thesis Title	Population Dynamics of *Aedes* (*Finlaya*) *niveus* group and Transmission Dynamics of *Wuchereria bancrofti* in Tha Song Yang District, Tak Province, Thailand.
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ABSTRACT

Population densities of *Aedes* (*Finlaya*) *niveus* group, the vector of bancroftian filariasis, fluctuated in monthly collections at Tambon Mae Tan, Tha Song Yang District, Tak Province. The number of adult females caught outdoor was higher than that indoor, and the

highest densities for both outdoor and indoor collections were at their peaks during the period of 18.00-20.00 hours. These results indicated that these mosquitoes exhibited exophilic behaviour and crepuscular feeder. However, the density of *Ae.(Finlaya) niveus* group was influenced by monthly rainfall and relative humidity, with the major peak of population between May 1989 and July 1989 (the rainy season). The average number of microfilariae showed a significant positive correlation (r=0.83) with the total number of *Ae.(Finlaya) niveus* group.

Surveys for *W. bancrofti* in the study area revealed that the microfilarial rates were 7.2 % and 7.3 %, respectively. Males exhibited higher rates of infection than females, 3:1 and 2:1, respectively, in the age groups of 34-45 (20.0 %) and 56-80 (14.3 %). Bancroftian filariasis in the study area indicated a periodicity index (D) of 45.5 and the best estimate peak hour (K) at 20.6 (8.36 pm), which could be determined as nocturnally sub-periodic strain of *W. bancrofti*.

Investigation on the developmental stages of *W.*

bancrofti in the laboratory-bred *Ae.*(*Finlaya*) *niveus* group in the cool season revealed that the infective stage was firstly found in the tenth day and completed on the thirteenth day after feeding with carrier's blood meal.

Microscopic observations of the microfilariae and the infective larvae of *W. bancrofti* revealed that spines of microfilariae at the first transverse annulation were absent and the tail end showed slightly constriction. In the infective stage larva,the characters which are used for differentiating species, such as the two bubble-like ventro-lateral papillae and one dorso-terminal papilla were similar in size, but the grooves around their base were absent. An important character which was discovered in this investigation was the appearance of small papilliform process at the left side of the posterior region, between the anus and the tail end of the infective larva of *W. bancrofti.*

Scanning electron microscopy of the eggs of *Ae.* (*Finlaya*) *albolateralis* and *Ae.* (*Finlaya*) *niveoides,* members of *Ae.* (*Finlaya*) *niveus* group, indicated that The important characteristics used for differentiating species were the structure of the exochorion of eggs, the structure of studs in the exochorionic cells, the number of studs in each exochorionic cell and the structure of the cell walls.