

USE OF GIS TO ASSESS RELATIVE RISK IN DIFFERENT BIOTOPES WITHIN ENDEMIC SCRUB TYPHUS AREAS IN NORTHERN AND CENTRAL THAILAND

Jones JW, Lerdthusnee K, Nigro J and Kiang R

GIS has been used extensively to analyze remotely-sensed data and to predict distributions of plant and animal species. In our study in northern Thailand, rodent-hosts and chigger vectors were collected from residential, rice field, forest edge, and forest habitats in areas highly endemic for scrub typhus. Vegetation distribution within each habitat was characterized. In each habitat we established rodent trap lines. Captured rodent specimens were identified to species and blood and tissue samples collected. All ectoparasites were removed from trapped rodents and chigger specimens will be collected for identification and for *Orientia* assay. Data was entered into a GIS which were used to define spatial relationships between rodent, vegetation, chigger and *Orientia* species.

53rd Annual Meeting of the American Society Tropical Medicine and Hygiene (ASTMH). Miami, Florida, USA. 7-11 November 2004.

Am J Trop Med Hyg. 2004; 70(4 suppl):64.

AN *IN VITRO* METHOD FOR EVALUATION OF REPELLENTS AGAINST *LEPTOTROMBIDIUM* (ACARI: TROMBICULIDAE) CHIGGERS, VECTOR OF SCRUB TYPHUS

Lerdthusnee K, Monkonna T, Khlaimanee N, Mungviriyaya S, Leepitakrat W, Debboun M, Coleman RE and Jones JW

Leptotrombidium chiggers are the vectors of *Orientia tsutsugamushi*, the agent that causes scrub typhus, a disease occurs throughout much of Asia and the Pacific region. Currently, there is no standard system for evaluating the efficacy of repellents against chiggers. Therefore, the main objective of this study is to establish a quantifiable method of evaluating the *In Vitro* efficacy of candidate repellents against chiggers. Three sets of *in vitro* experiments (“repellent zone, repellent band and toothpick/Q-tip”) were designed to evaluate 4 different repellents (i.e., DEET (n,n-diethyl-3-toluamide), DEPA (n,n-diethyl phenyl acetamide), AI3-28724-A (n,n-diethyl-3-bromo benzamide), and AI3-26929 (n,n-diethyl-3-methyl phenyl acetamide)) against *L. imphalum* chiggers. In the “repellent zone” experiment, a series of concentric circles (ranging from 0.5-4.5 cm in diameter) were drawn on Whatman No.1 filter paper. The innermost circle (0.5 cm in diameter) was designated as the repellent-treated zone. 5µl of a given repellent was applied to this zone. A single chigger was released onto the repellent-treated zone and the distance that the chigger moved was recorded. Results indicated that there was no significant difference in movement of the chiggers in the repellent treated-zone when compared with the controls. This model system was therefore ineffective for evaluating candidate repellents. In the “repellent band” experiment, plastic vials with a charcoal substrate were used to hold experimental chiggers. A narrow band (0.5 cm in width) of filter paper was treated with varying concentrations of a given repellent and placed in a plastic vial (just above the charcoal substrate). The movement