

## OCCURRENCE OF *ORIENTIA TSUTSUGAMUSHI* IN SMALL MAMMALS FROM THAILAND

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Extensive sampling of small mammals was conducted in eight provinces of Thailand between September 9, 1992 and April 29, 2001. A total of 3,498 specimens representing 22 species were collected. Eighty-eight percent (3,089 of 3,498) of the animals were collected from a region in Chiangrai Province, which is commonly recognized as endemic for human scrub typhus. Blood and tissue samples from each animal were tested for the presence of *Orientia tsutsugamushi*, the etiologic agent of scrub typhus. The predominant species collected were *Rattus rattus* (53%, n = 1,863), *R. losea* (18%, n = 638), *Bandicota indica* (16%, n = 564), and *R. exulans* (4%, n = 146). *Orientia tsutsugamushi* was detected in 10 of the 22 species of mammals that included *R. bukit* (25% infected, 1 of 4), *R. rattus* (23%, 419 of 1,855), *R. argentiventer* (22%, 5 of 23), *R. berdmorei* (22%, 2 of 9), *R. losea* (13%, 82 of 638), *B. indica* (9%, 52 of 564), *R. koratensis* (8%, 1 of 12), *B. savilei* (3%, 1 of 30), *R. exulans* (1%, 2 of 146), and *Tupaia glis* (2%, 1 of 49). Infected animals were found in Chiangrai (18% infected, 563 of 3,084), Bangkok (11%, 1 of 9), Sukothai (3%, 1 of 30), and Nonthaburi (1%, 1 of 69) Provinces. The implications towards scrub typhus maintenance and transmission are discussed.

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## POSSIBLE SCRUB TYPHUS COINFECTIONS IN THAI AGRICULTURAL WORKERS HOSPITALIZED WITH LEPTOSPIROSIS

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Possible coinfections with *Orientia tsutsugamushi* the causative agent of scrub typhus, were prospectively evaluated in rice farmers hospitalized with leptospirosis in Northeast Thailand. Of 22 adults with leptospirosis diagnosed by the microscopic agglutination test, 9 also had serologic evidence of scrub typhus. Of 9 individuals with possible coinfections, 5 had signs or symptoms typical of scrub typhus and atypical of leptospirosis. Patients who appeared to have mixed infections had significantly higher median platelet counts and significantly lower median serum bilirubin and creatinine concentrations ( $P < 0.05$ , Mann-Whitney  $U$  test) than did individuals with leptospirosis alone. One patient with serologic evidence of scrub typhus and leptospirosis was treated only with penicillin, to which scrub typhus is not sensitive. Respiratory distress worsened during therapy, and the patient died of respiratory failure. Physicians should consider the possibility of scrub typhus infection in leptospirosis patients who respond poorly to treatment or who have atypical disease manifestations.

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