



ORIGINAL ARTICLE

Spatial Distribution Analysis of Scrub Typhus in Korea

Hong Sung Jin ^a, Chaeshin Chu ^b, Dong Yeob Han ^{c,*}

^aDepartment of Mathematics, Chonnam National University, Gwangju, Korea.

^bDivision of Epidemic Intelligence Service, Korea Centers for Disease Control and Prevention, Osong, Korea.

^cDepartment of Marine and Civil Engineering, Chonnam National University, Yeosu, Korea.

Received: December 16, 2012
Revised: December 20, 2012
Accepted: December 21, 2012

KEYWORDS:

GIS,
Korea,
land category,
scrub typhus,
spatial analysis

Abstract

Objective: This study analyzes the spatial distribution of scrub typhus in Korea.

Methods: A spatial distribution of *Orientia tsutsugamushi* occurrence using a geographic information system (GIS) is presented, and analyzed by means of spatial clustering and correlations.

Results: The provinces of Gangwon-do and Gyeongsangbuk-do show a low incidence throughout the year. Some districts have almost identical environmental conditions of scrub typhus incidence. The land use change of districts does not directly affect the incidence rate.

Conclusion: GIS analysis shows the spatial characteristics of scrub typhus. This research can be used to construct a spatial-temporal model to understand the epidemic *tsutsugamushi*.

1. Introduction

Tsutsugamushi disease, or scrub typhus, is a vector transmitted infectious and febrile illness caused by *Orientia tsutsugamushi* bacteria. It is transmitted to humans through larvae bites of different species of trombiculid mites. The habitat of mites is located in low trees and bushes. However, this vector can live in many different areas, even in sandy and mountainous deserts [1]. Scrub typhus was known in Japanese folklore to be

associated with the jungle mite or chigger, which was named "dangerous bug" (*tsutsugamushi*) [2].

Scrub typhus is a militarily important disease which caused thousands of cases in the Far East during the Second World War. In Korea, eight cases were reported among the US troops during the Korean War. Soldiers were exposed to chigger bites in forest areas during the military operation [3].

In Korea, there were no cases for more than 30 years following the Korean War. In 1985, the infection

*Corresponding author.

E-mail: hozilla@chonnam.ac.kr

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/3.0>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

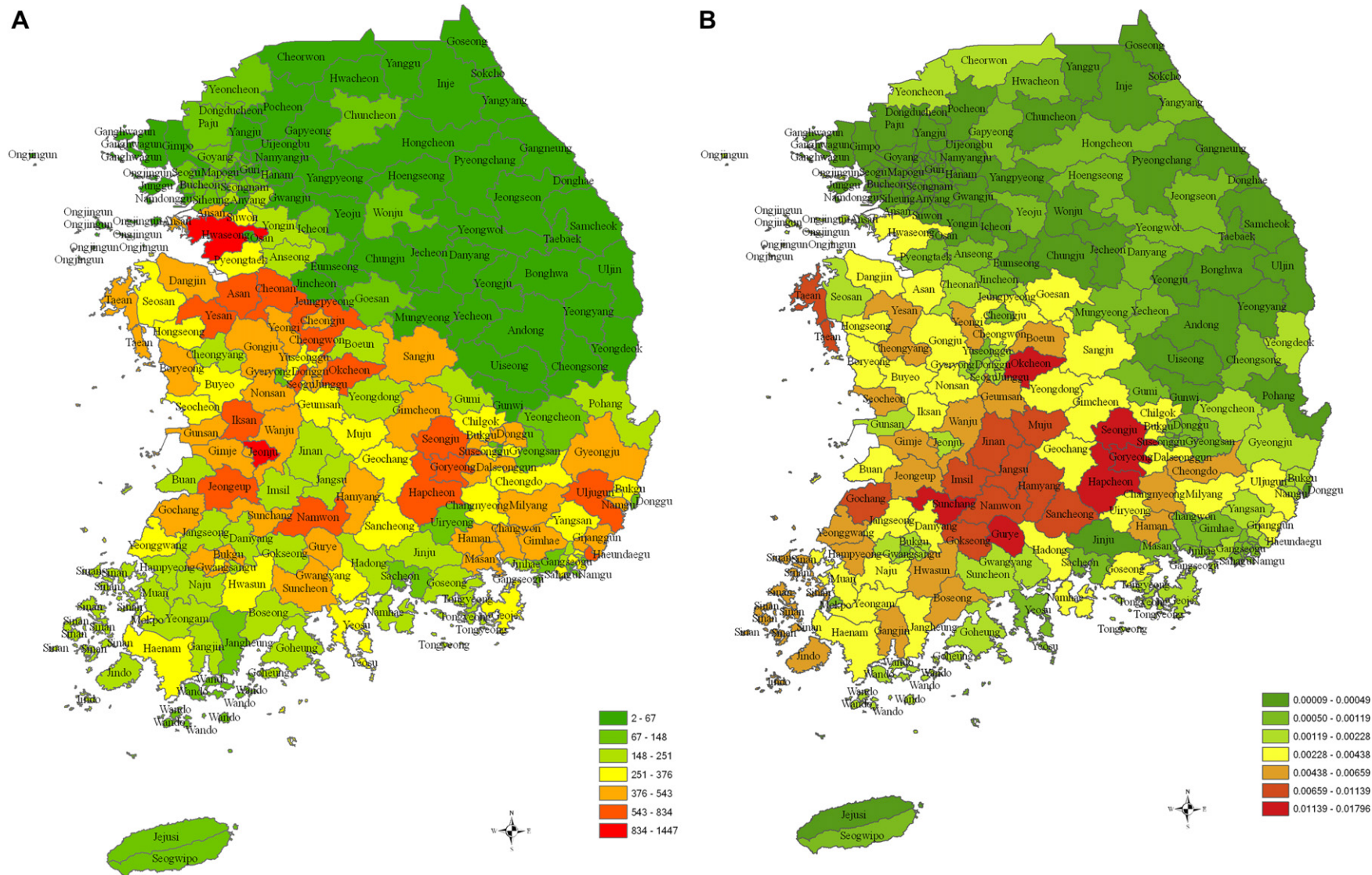


Figure 1. (A) Incidence map by districts; (B) incidence rate map by districts per capita.

Download English Version:

<https://daneshyari.com/en/article/4202101>

Download Persian Version:

<https://daneshyari.com/article/4202101>

[Daneshyari.com](https://daneshyari.com)