

ASSESSING LEPTOSPIROSIS RISK AND ENVIRONMENTAL CONTAMINATION AT GUNUNG LEDANG: EFFECTS OF RISING VISITOR NUMBERS AND RODENT POPULATION TRENDS

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ABSTRACT

*INTRODUCTION: Gunung Ledang, renowned for its natural beauty and challenging hikes, has become a high-risk zone for leptospirosis, a bacterial disease spread through water contaminated by rat urine. Increased visitor numbers, especially hikers and swimmers, have heightened the risk. OBJECTIVES: This study compares methodologies and outcomes from leptospirosis research conducted in 2014, 2017, and 2024, focusing on rat capture techniques, density estimation, and species identification. METHODOLOGY: In July 2024, at Gunung Ledang Waterfall Resort in Johor, Malaysia, 39 baited traps were set overnight at two locations, compared to 300 traps over three nights in previous studies, totaling 339 traps across all periods. Captured rats were assessed for species, sex, and size, while environmental water and soil samples were tested for pathogenic *Leptospira*. A leptospirosis risk assessment was conducted in natural recreational areas, followed by descriptive analyses to compare the findings across these three time intervals. RESULTS: High rat densities were observed, with *Rattus norvegicus* as the predominant species, and soil and water samples tested positive for pathogenic *Leptospira*. A 2024 Rodent Population Risk Assessment revealed high rodent populations, with a 15% abundance index at Lagenda and 36.8% at the Waterfall area, compared to 8.8%-12.2% in 2014 and 3.3% in 2017, indicating increased leptospirosis risk. Inadequate waste disposal and sanitation facilities for up to 29,760 monthly visitors further raised concerns about water and soil contamination. CONCLUSION: The recent revitalization of Gunung Ledang has resulted in a significant increase in visitor numbers, raising the risk of *Leptospira* contamination due to large rat populations and poor waste management. While encouraging tourists to manage their own waste could help improve sanitation and reduce leptospirosis outbreaks, challenges like inadequate infrastructure and low awareness persist. Educational campaigns, better waste disposal systems, and regular monitoring are essential for improving sanitation, controlling rodents, and protecting public health.*

Keywords: Leptospirosis, Environmental health, Rat density, Rodent population, Recreational sanitation
