Geospatial Technology Services

presents...

The GIS Expo Explorer

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http://datalab.tufts.edu
Expo Explorer: Tufts GIS Poster Search Tool

- Interactive Web Application
- Search over 1200 GIS posters & research projects
- How are faculty, staff and students using it?
  - Applications/Topics
  - Methodologies
  - Data Sources
  - Design Principals
Tufts Student GIS Expo Explorer

**FILTERS**
- 2007 to 2017

**LIMIT YOUR SEARCH**
- Show Only Expo Winners
- Course
- Student Department
- Student School
- Topic
- Subtopic
- Method

**RESULTS**
- Battle For Pasture: potential for Livestock to competitively exclude wildlife near Northern Tanzania's National Parks
- Rice Brings Lights: Biomass Electrification Suitability in Cambodia
- A Tree for Jumbo: Reforesting the Tufts University President's Lawn to Historic Levels

**Link to Expo Explorer**
Questions?

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Results:

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A Tree for Jumbo: Reforesting the Tufts University President's Lawn to Historic Levels
Leptospirosis Exposure Risk Analysis, Thailand

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Leptospirosis in Thailand

Leptospirosis is an infectious disease caused by bacteria of the genus Leptospira. Transmission of the bacteria, known as leptospires, involves contact with contaminated water. Leptospirosis is spread in the form of infected host animals, and maintained in the environment due to chronic multiplication in carrier animals such as rats and cattle. The bacteria persist in certain environmental conditions that can liberate outside their aquatic habitats due to protective interactions with other bacteria and biofilm formation (Hallum et al. 2016). It is transmitted to humans through infection of cuts and abrasions, most commonly via contamination of water used for bathing, drinking, or food preparation, and a drop in water quality (State of Alaska 2016). Leptospirosis was first reported in Thailand in 1944 and since then the proportion of the population with leptospirosis increased from 0.1% in 1990 to 0.8% in 2014 with an incidence of 125 cases per 100,000 population and increased high. An average of 85% of cases are reported between 10-14 years old with highest levels in males, typical working class in Thailand, 2007. It presents the burden of economic loss due to drop in healthy working age compounded by the decrease in cattle, sheep and goat with associated yield.

Although it has been established that the disease is one of great environmental influence within Thailand, there has been a negative impact on the environment caused by leptospirosis within the country. Results have not found high levels of pathogenic leptospirosis in the water bodies, however, exposure to the sampling is being done in Bangkok where the clinical incident is low (Jatuporn et al. 2016). A weighted vulnerability analysis is performed using the infection rates from the leptospirosis bacteria in contaminated water and habitat type. The analysis is done in order to inform researchers and the public on how the country is most vulnerable to the risk of environmental leptospirosis in order to limit exposure and target sampling efforts. Animal sampling is already being performed in order to provide risk within the country. This analysis will only give researchers a broad view of leptospirosis risk within the country, but the results will be directly applied to clinical sampling efforts during May and June 2016.

Methods

Vulnerability analysis

The calculation was performed using a weighted analysis. The method used for weight of each factor

risk factors by the direct exposure to leptospirosis

Leptospirosis bacteria in contaminated water

Infection rates from the leptospirosis bacteria in contaminated water and habitat type

Animal sampling efforts during May and June 2016

Conclusions

The average vulnerability score within the country is 2.7, the value is the risk for the top 10 provinces with the highest exposure. The results pertain to the risk for the top 10 provinces with the highest exposure. The results will be used to inform and direct sampling efforts within the top 10 provinces of Thailand. The model can be used to target regions for leptospirosis risk, and to inform researchers on the risk factors that are most influential to the risk of leptospirosis within the country. The model can be used to target regions for leptospirosis risk, and to inform researchers on the risk factors that are most influential to the risk of leptospirosis within the country.
Quintessential One Health: A Bovine Tuberculosis Risk Analysis in South Africa