Environmental factors and the risk of urinary schistosomiasis in Ile Oluji/Oke Igbo Local Government Area of Ondo State.

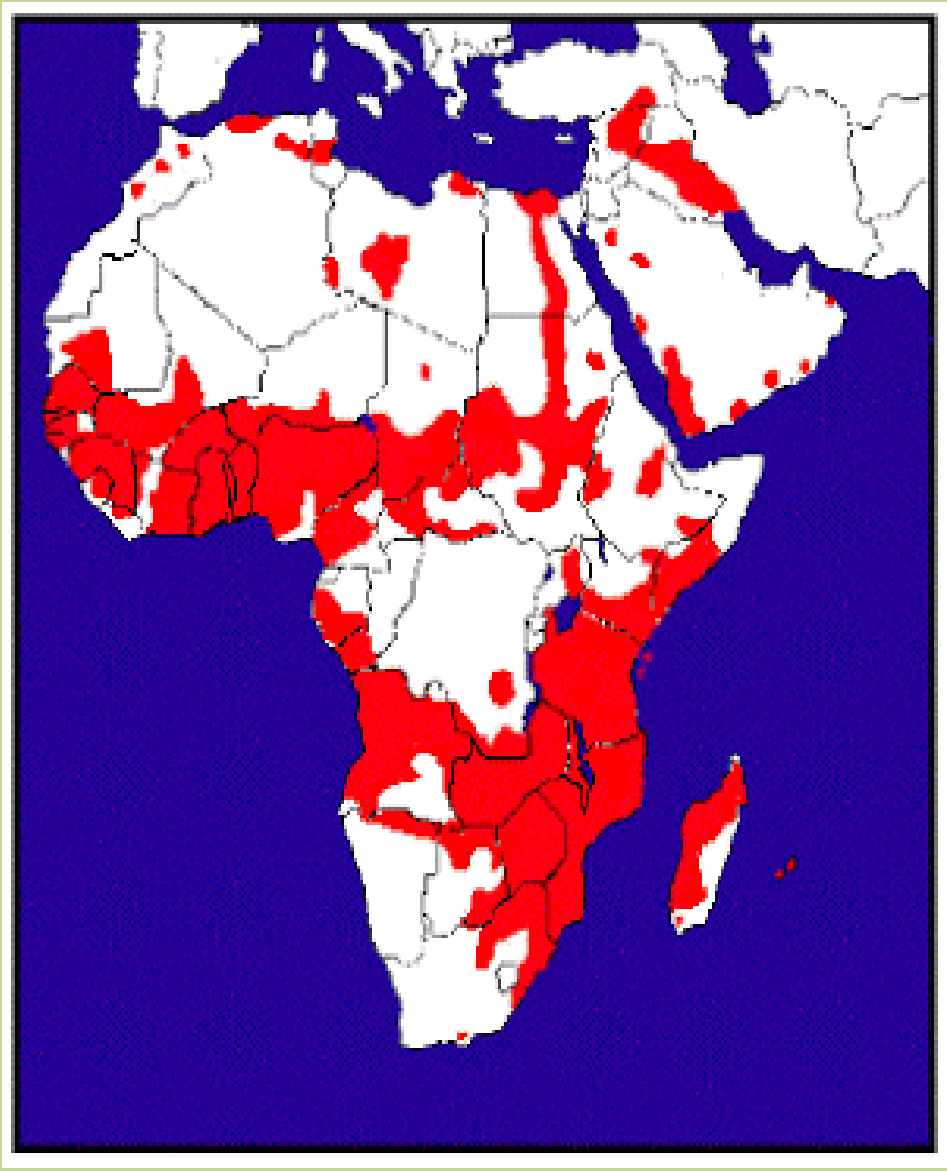
By

Oluwaremilekun O. Ajakaye
Department of Crop, Soil &Pest Mgt. Rufus Giwa Polytechnic, Owo, Ondo state. Nigeria

INTRODUCTION

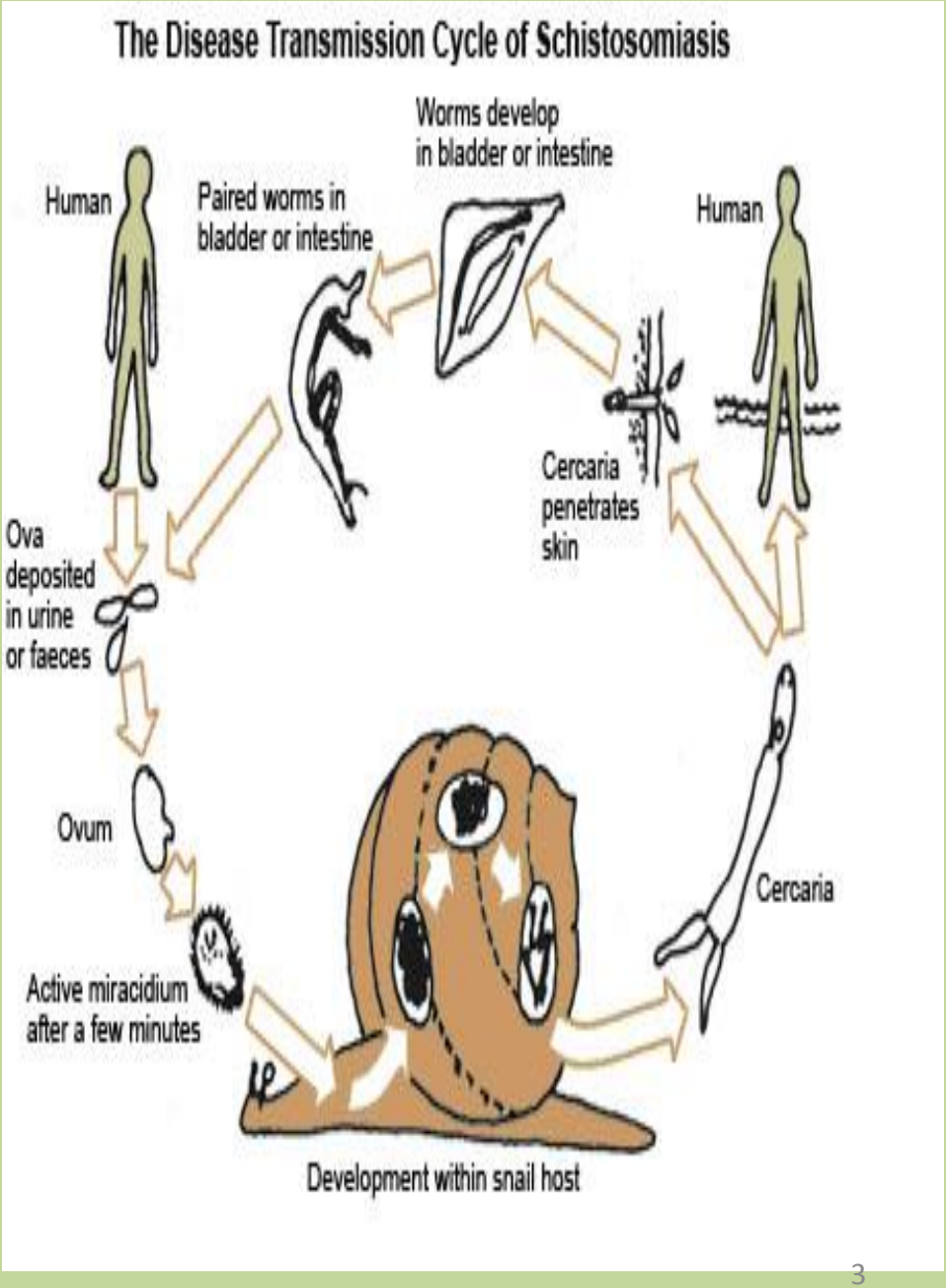
Schistosomiasis remains a major water related disease in Nigeria.

One of the hindrances to effective control of the disease is the lack of reliable data on the geographical distribution of the disease.

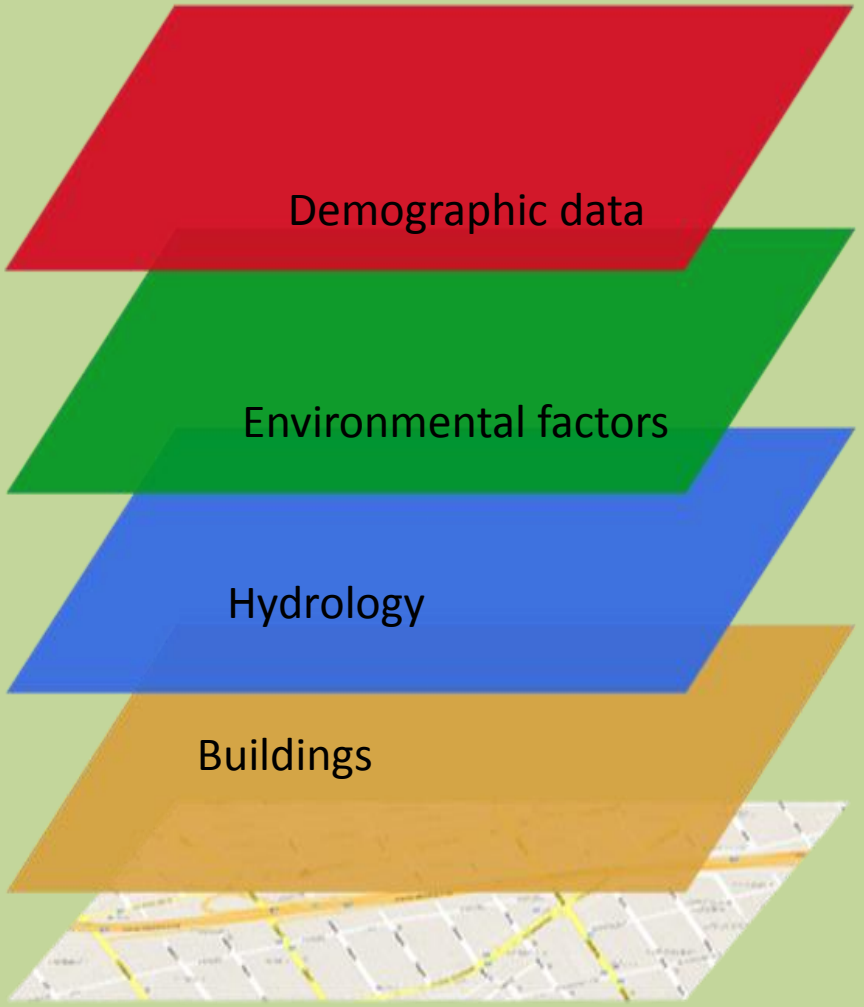


Global distribution of S. haematobium infections

For successful transmission of schistosomiasis, suitable climatic conditions and biological events must coincide; hence its distribution and prevalence are greatly influenced by environmental factors affecting the population of snail intermediate hosts and human hosts.



Geographical Information Systems (GIS) are increasingly being used in epidemiological and ecological studies of schistosomiasis. In order to effectively plan, monitor and assess the efficacy of control programs and interventions, geographic information system can be applied to determine spatial patterns of infection, populations at risk and predict likely disease outbreaks at local and global levels.



OBJECTIVES

The objectives of this study are to

- Create a local suitability risk map of urinary schistosomiasis and
- Analyse the correlation of environmental factors to prevalence of schistosomiasis in the study area

Study Area

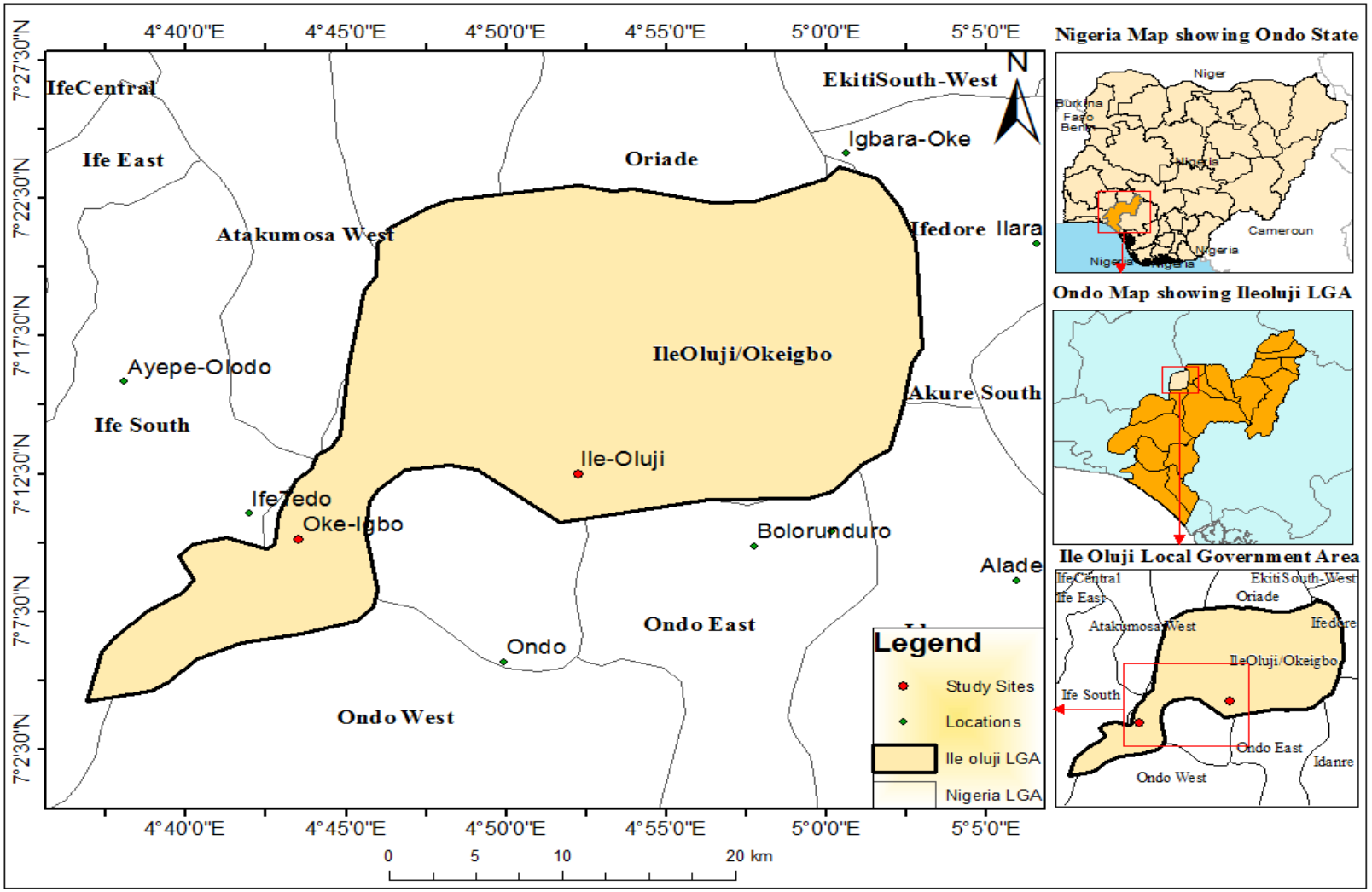


Figure 1: Ile Oluji/Oke Igbo LGA of Ondo State

MATERIALS AND METHODS.

DATASET REQUIRED

Remotely sensed data

- Landsat imagery of different years
- Thermal band of satellite imagery
- Normalised difference vegetation Index (NDVI)
- High resolution imagery (Ikonos)

Fieldwork data

- Questionaire
- Coordinate of field work data using GPS

ANALYSES TO PERFORM

- Parasitological analysis of urine samples.

Analysis in GIS software

- Proximity analyses
- Spatial statistics (regression analyses, Geographically weighted regression)
- Classification (supervised)
- NDVI
- Thermal conversion from landsat
- Extraction of earth features (digitizing)
- Interpolation using geostatistical analyst

RESULTS

Prevalence and infection pattern based on households

From the 526 households screened, 123 (23.4%) were positive for schistosomiasis infection. (Table 1)

Table 1: Household Prevalence of *S. haematobium* infection.

No of Buildings	No examined	No (%) infected
Ile Oluji	153	31(20.3)
Oke Igbo	373	92(24.7)
Total	526	123(23.4)

The environmental factors that govern the frequency and transmission dynamics of schistosomiasis analyzed in this study includes elevation, land use, NDVI, rainfall, slope and temperature.

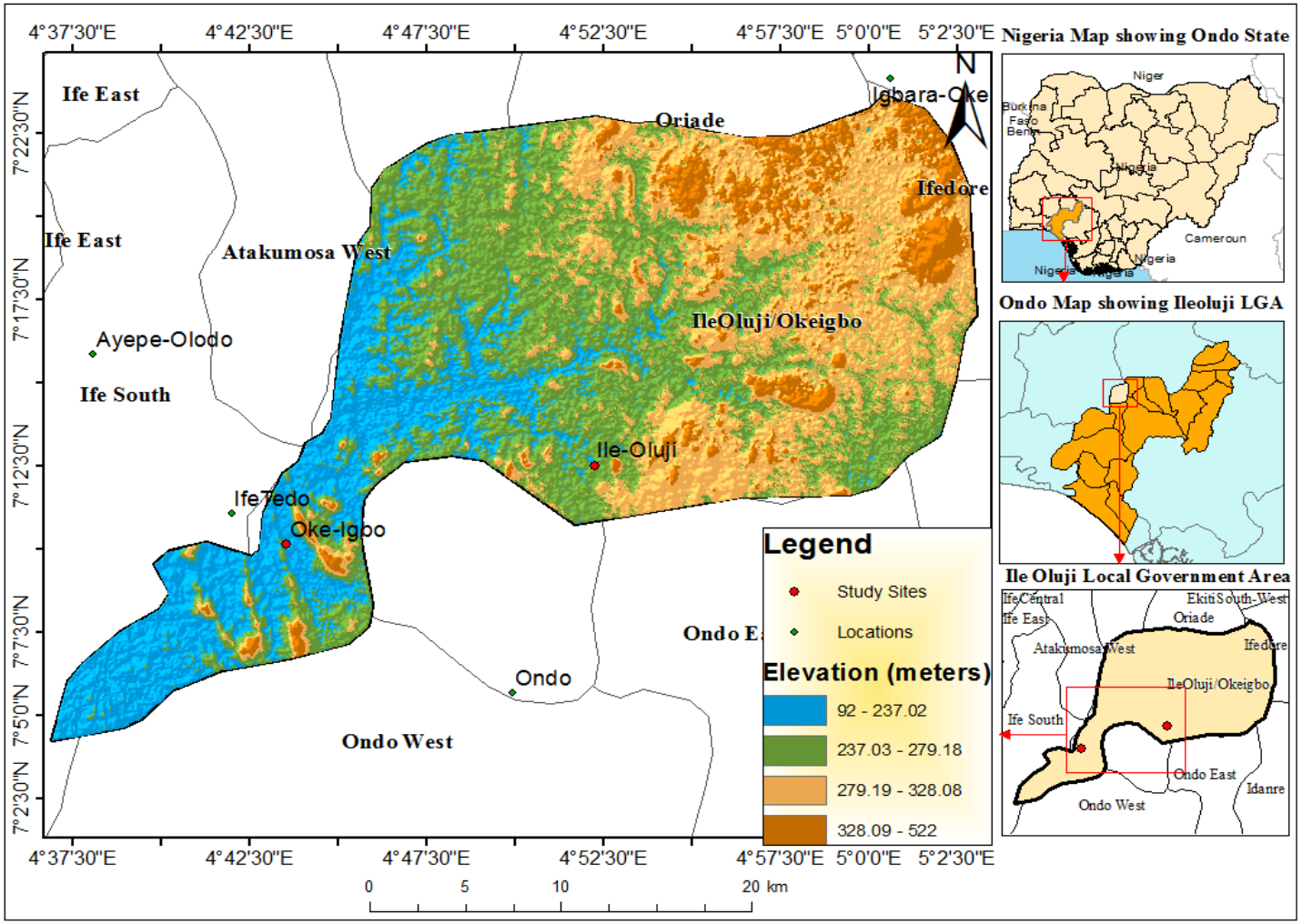


Figure 2: Elevation map of the study area

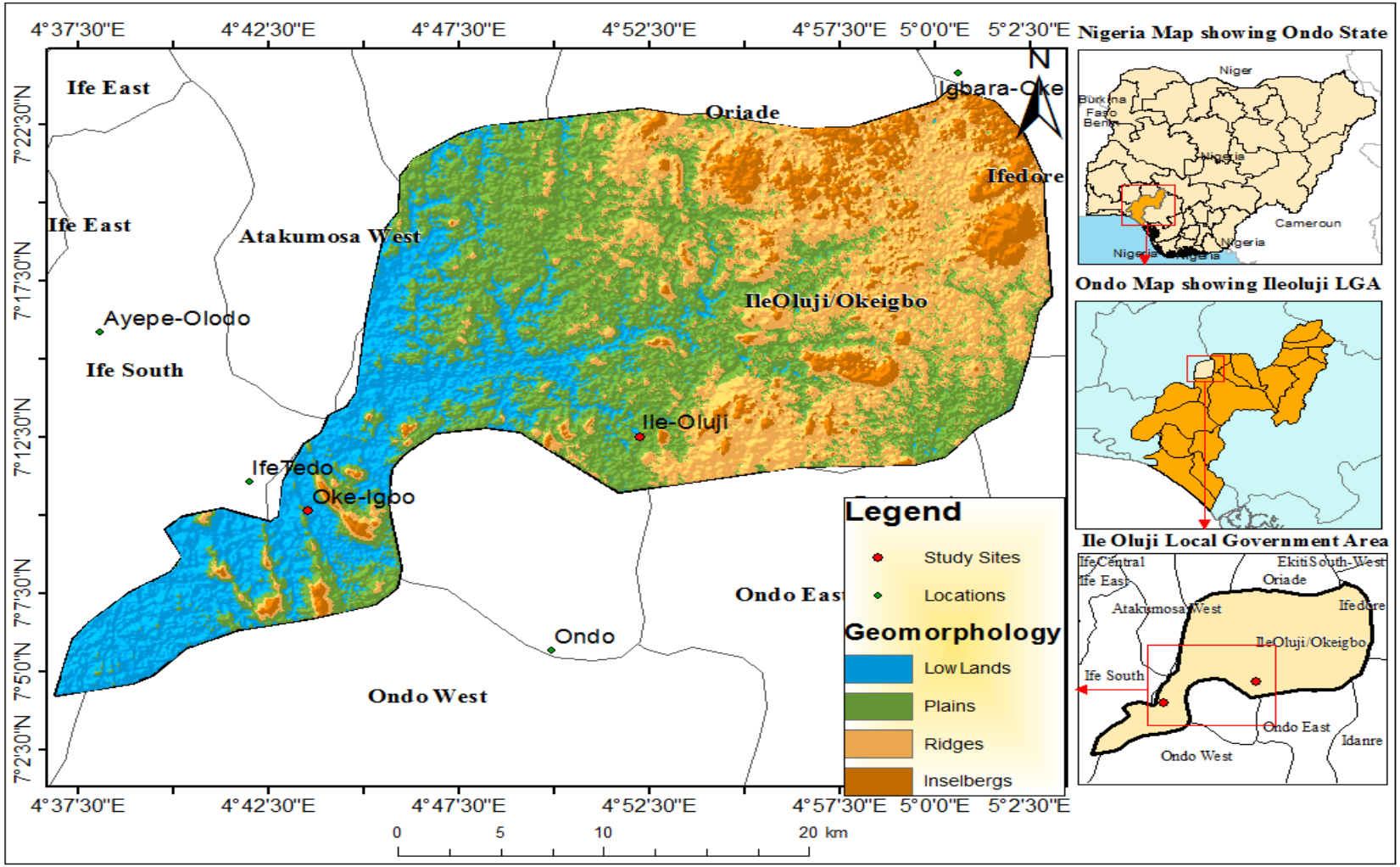


Figure 3: Geomorphological classification of the study area.

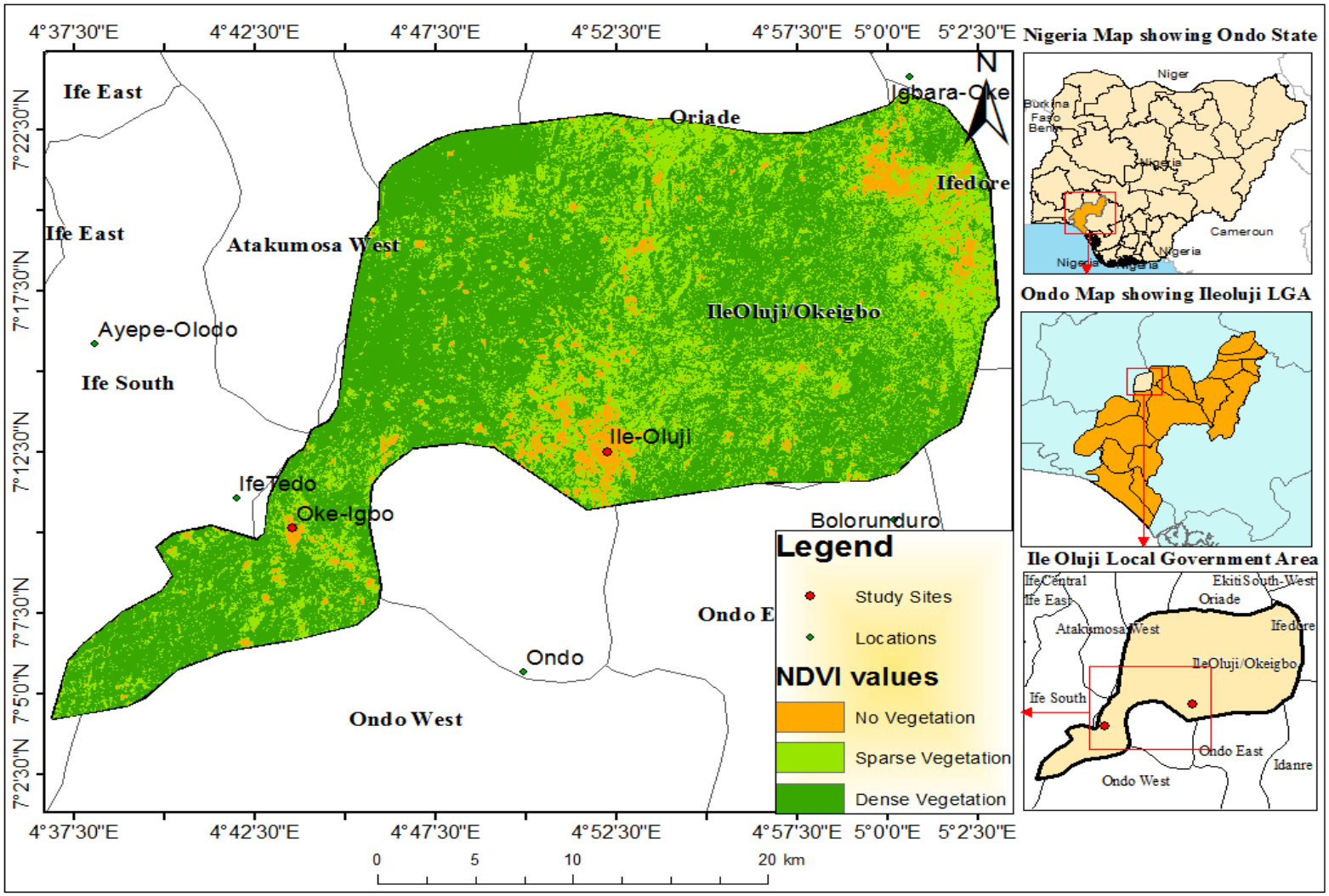


Figure 4: Vegetation map of the study area

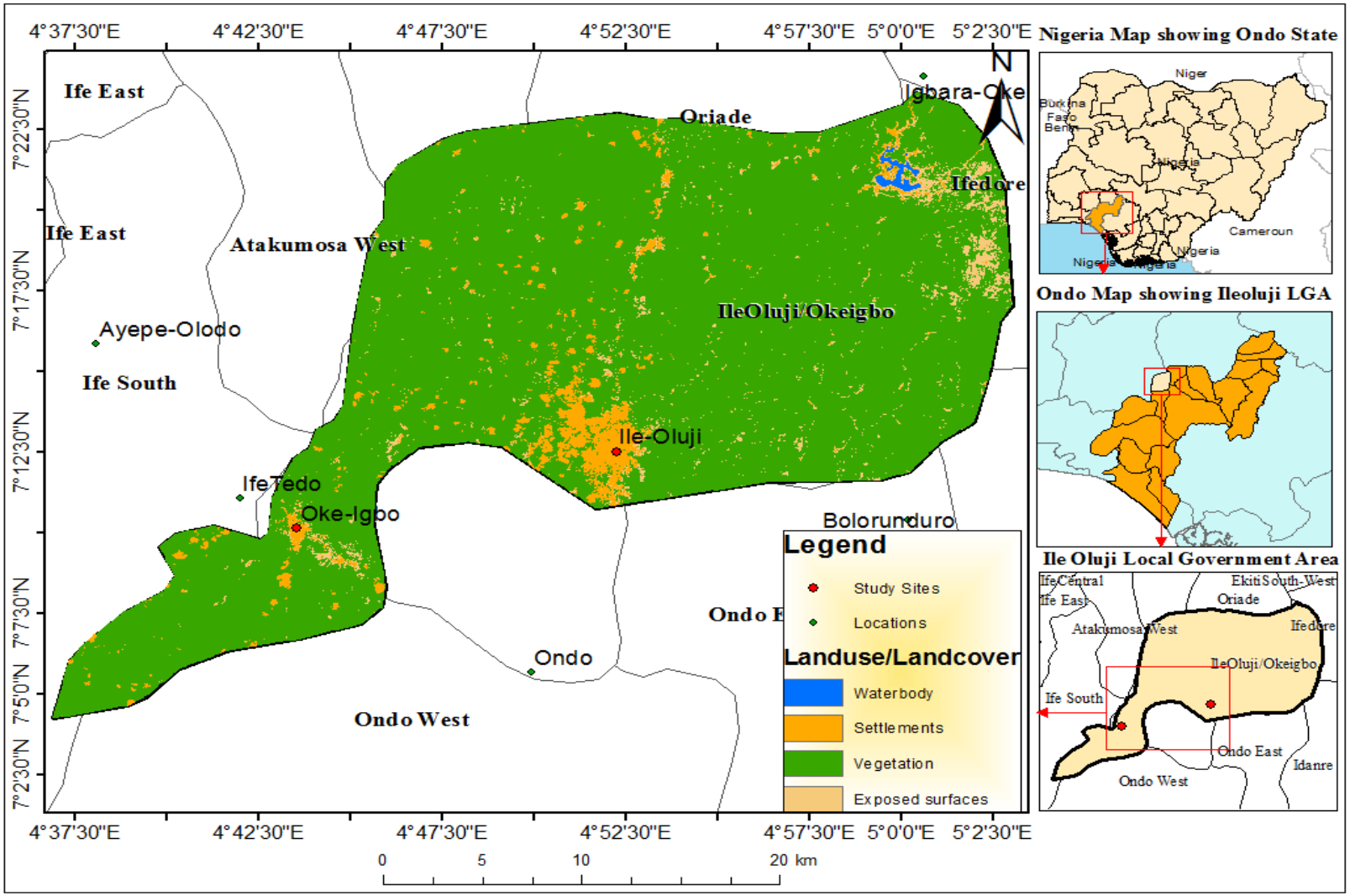


Figure 5: Land use map of the study area

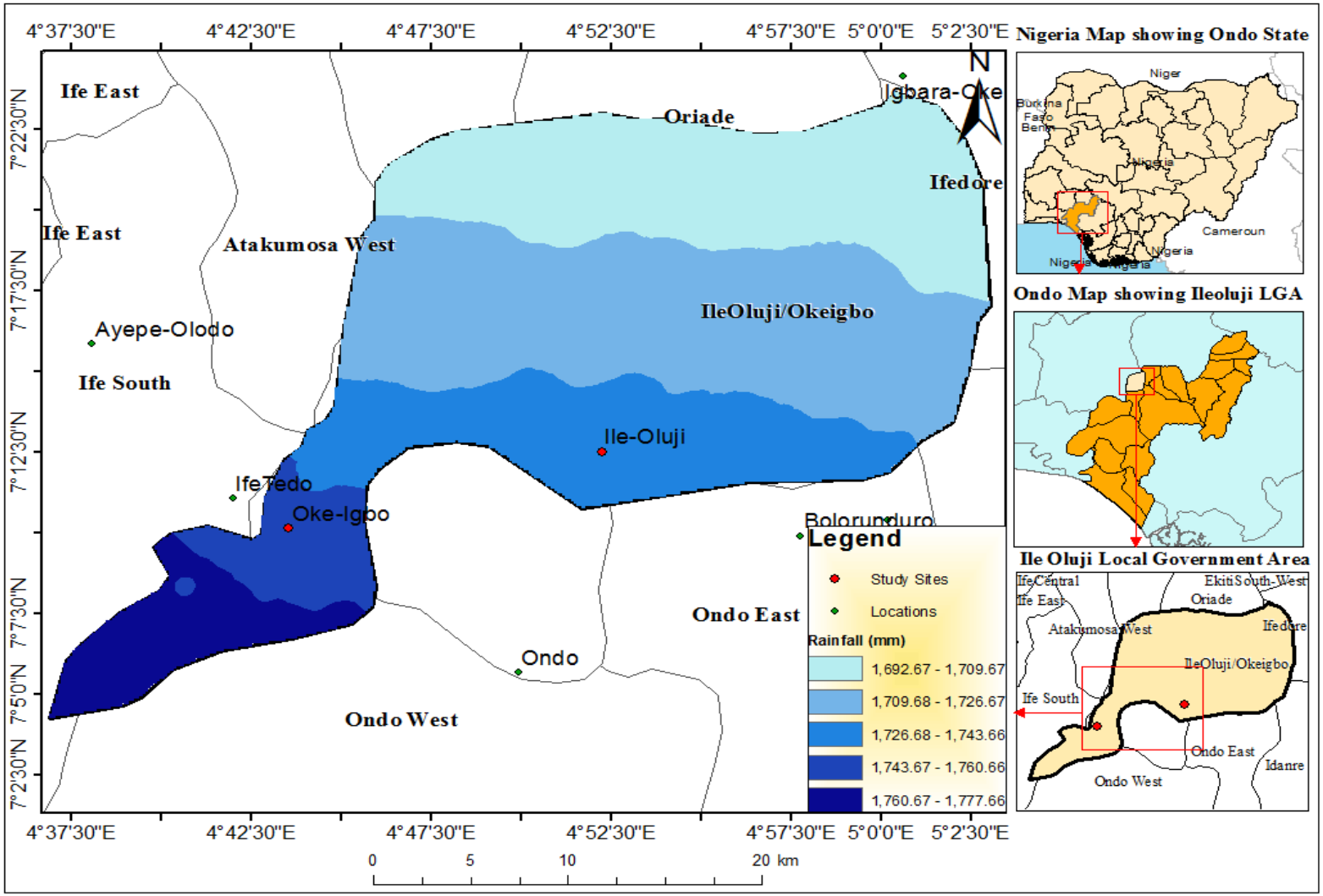


Figure 6: Rainfall pattern of the study area

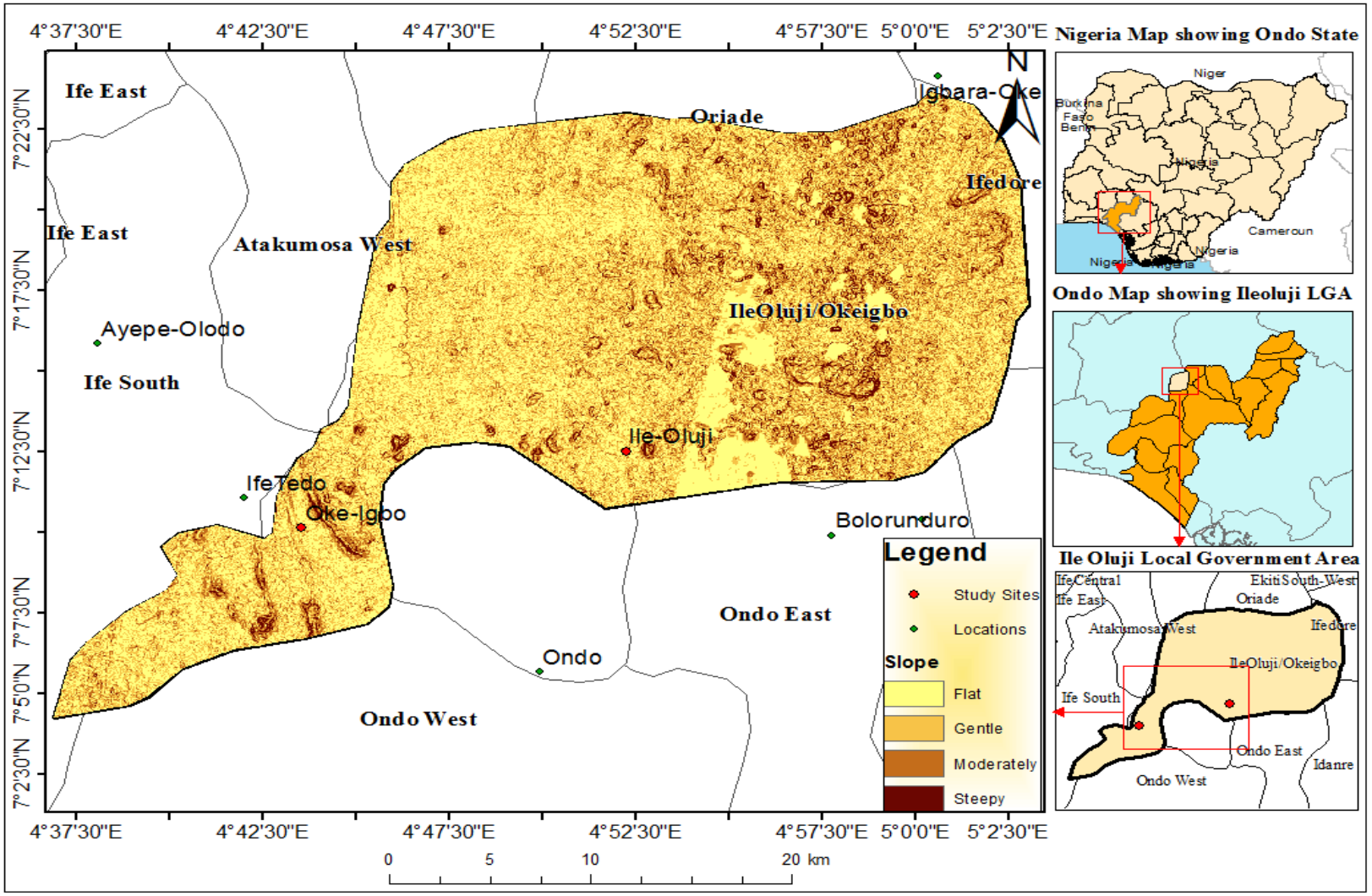


Figure 7: Slope map of the study area

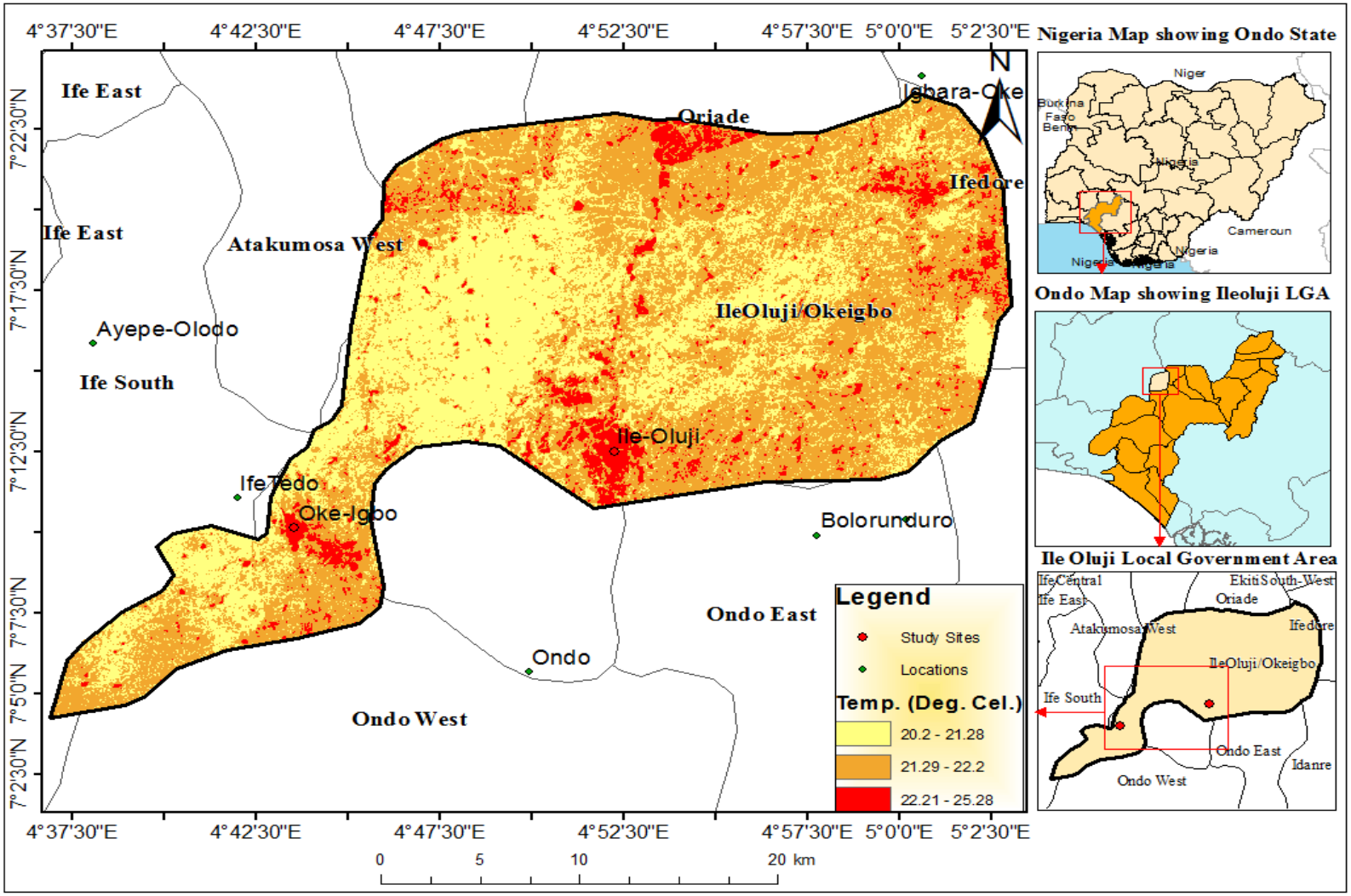


Figure 8: Temperature map of the study area

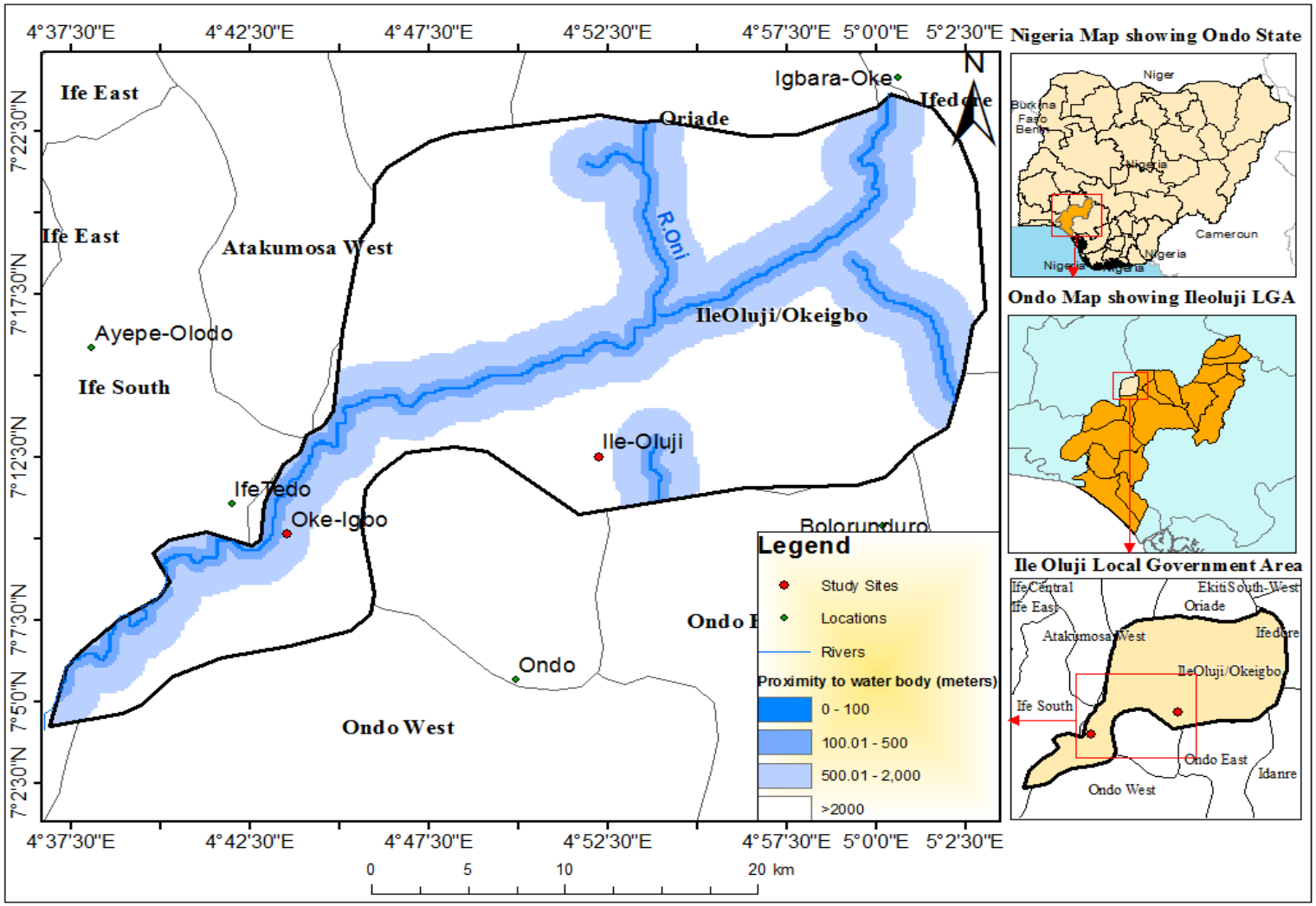


Figure 9: Proximity to water body

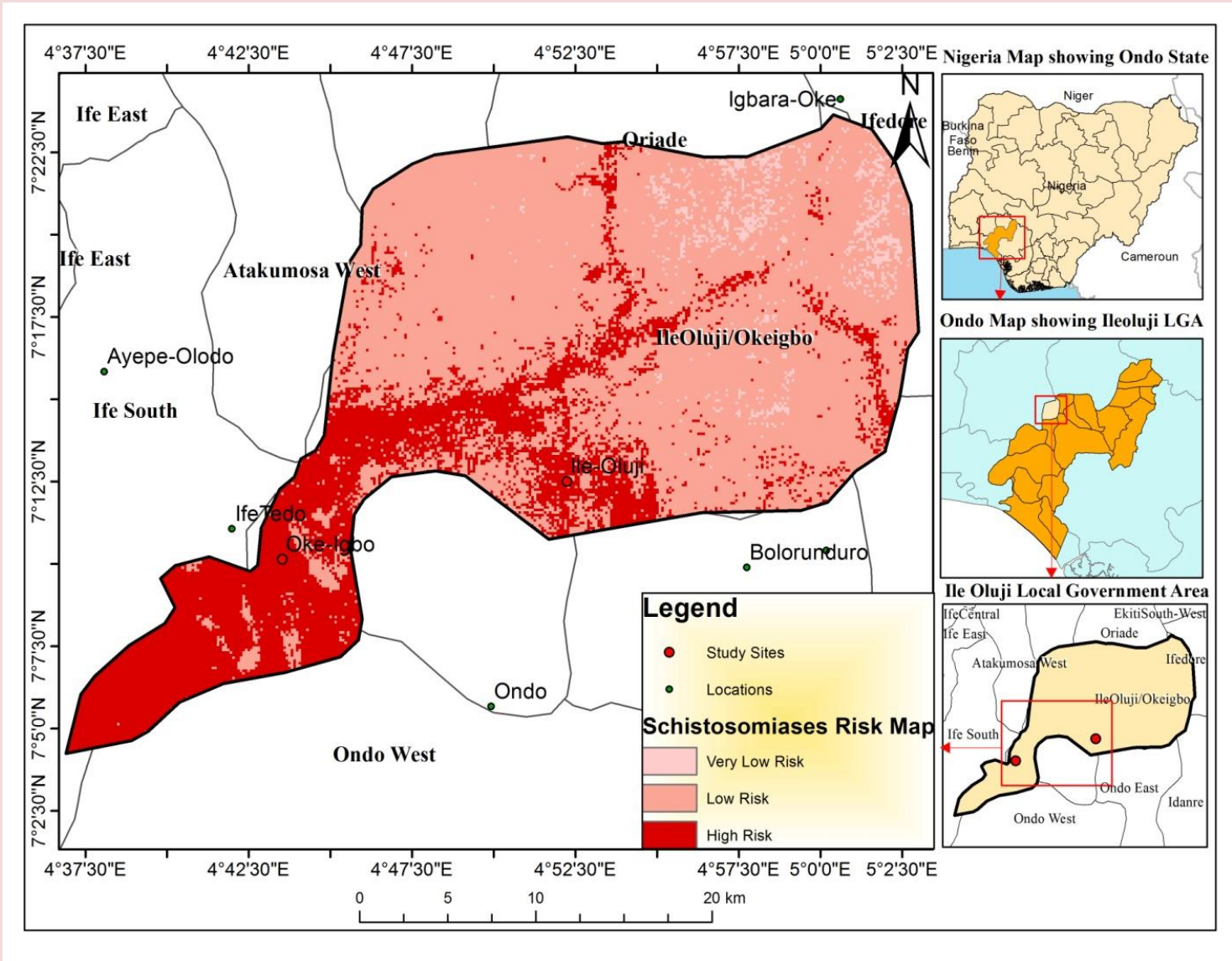


Figure 10: Schistosomiasis Risk Map

Correlation of Environmental Factors to Prevalence in the Study area

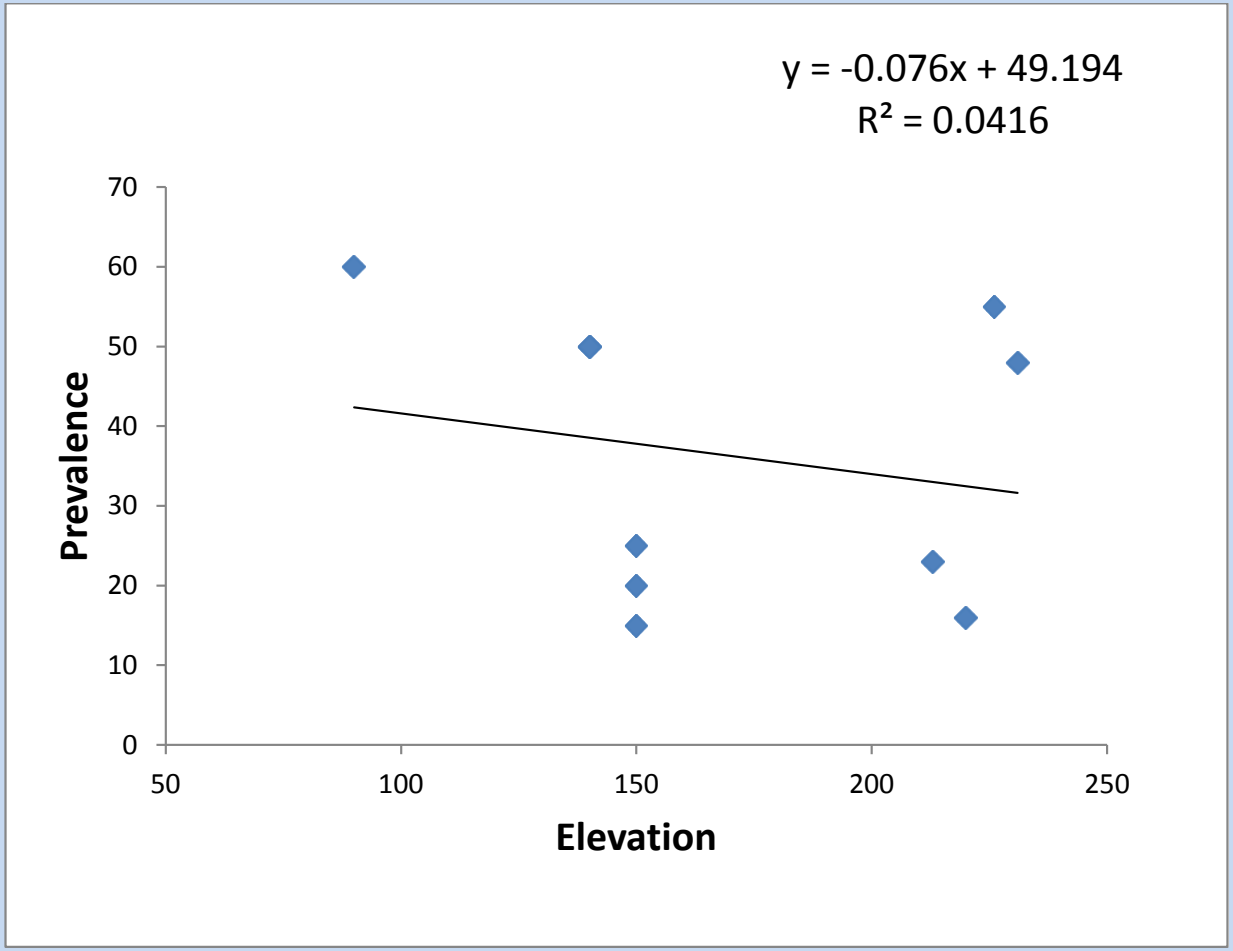


Figure 11: Graph of prevalence against elevation.

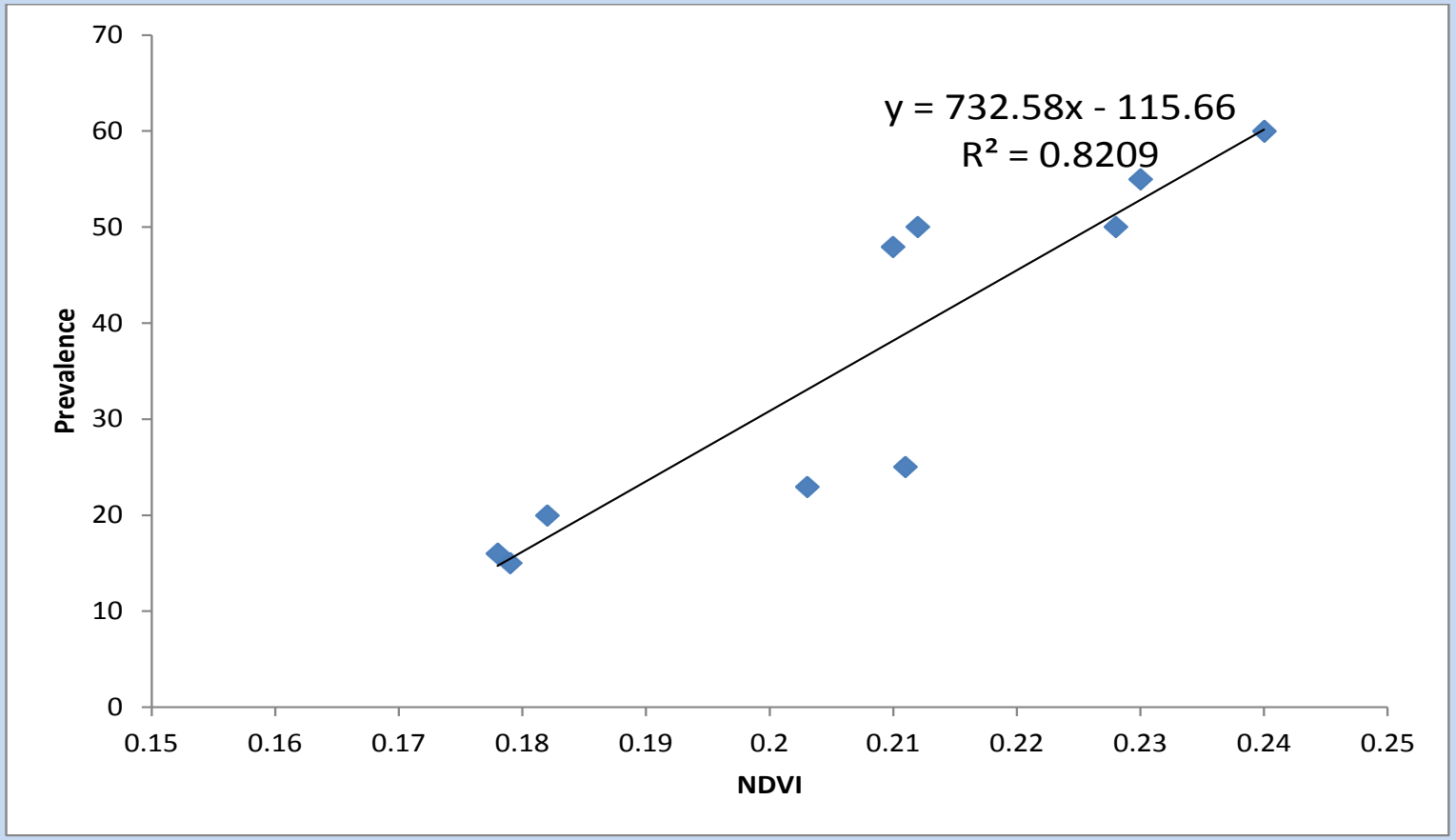


Figure 12: Graph of prevalence against NDVI.

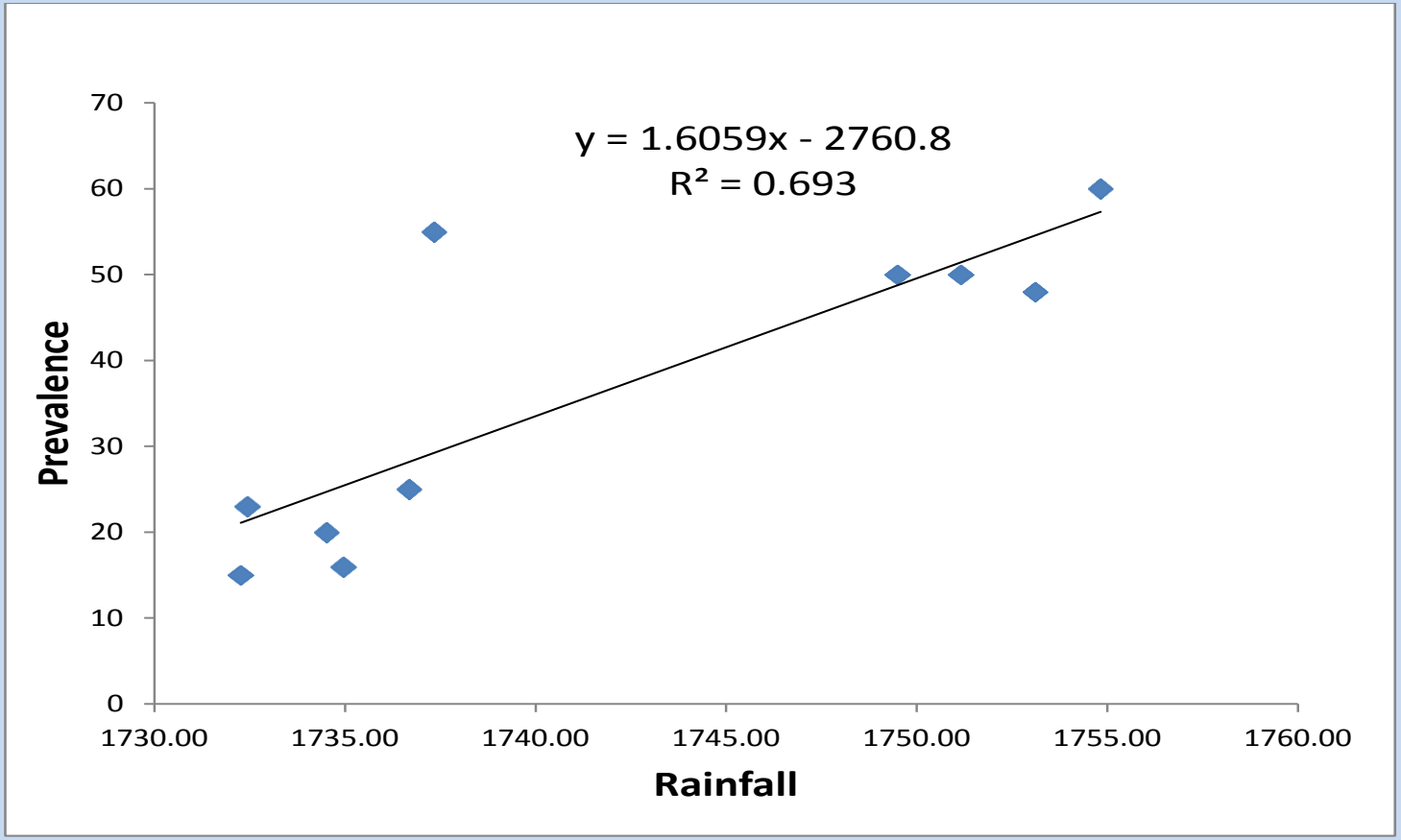


Figure 13: Graph of prevalence against rainfall.

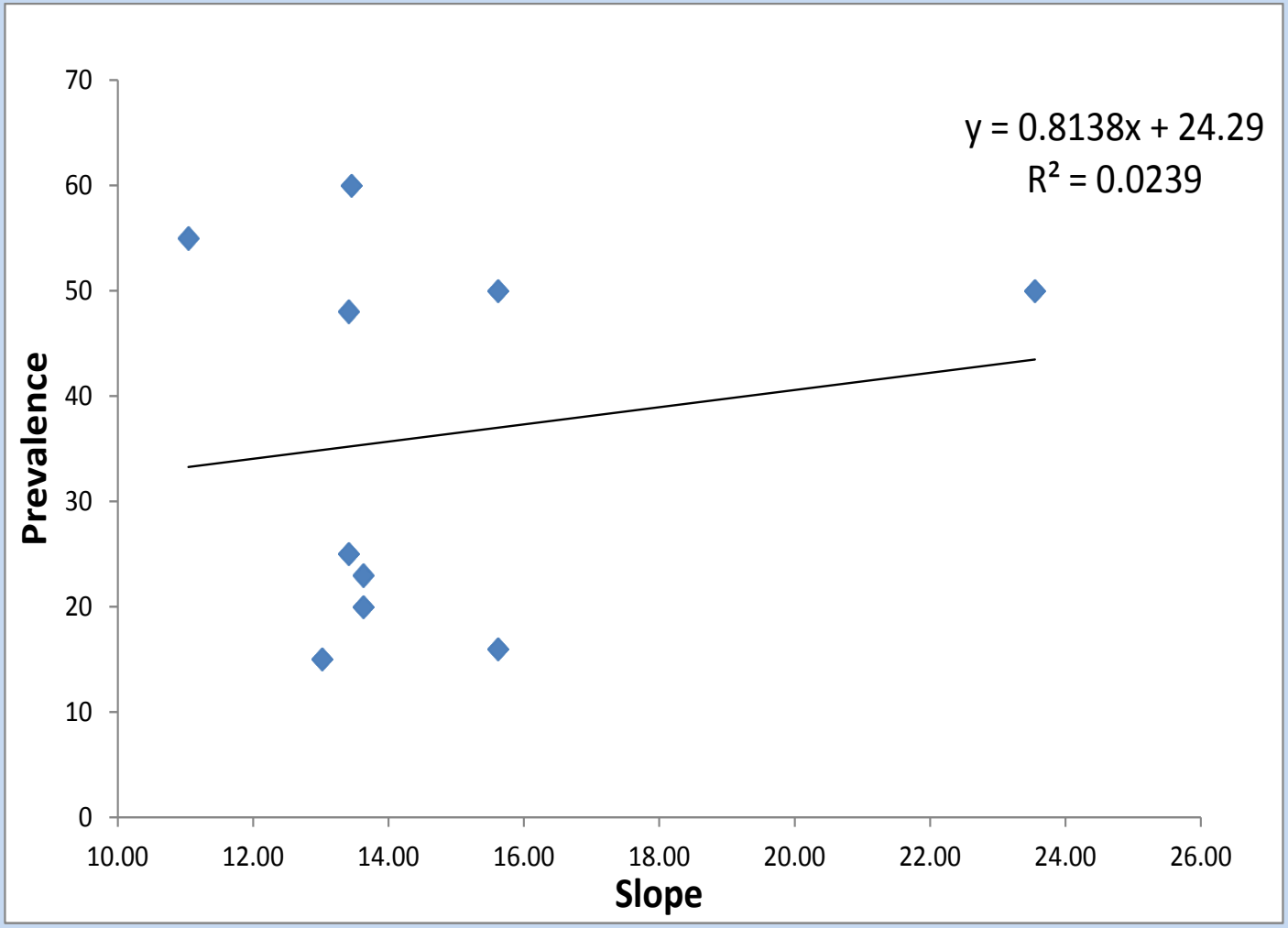


Figure 14: Graph of prevalence against slope.

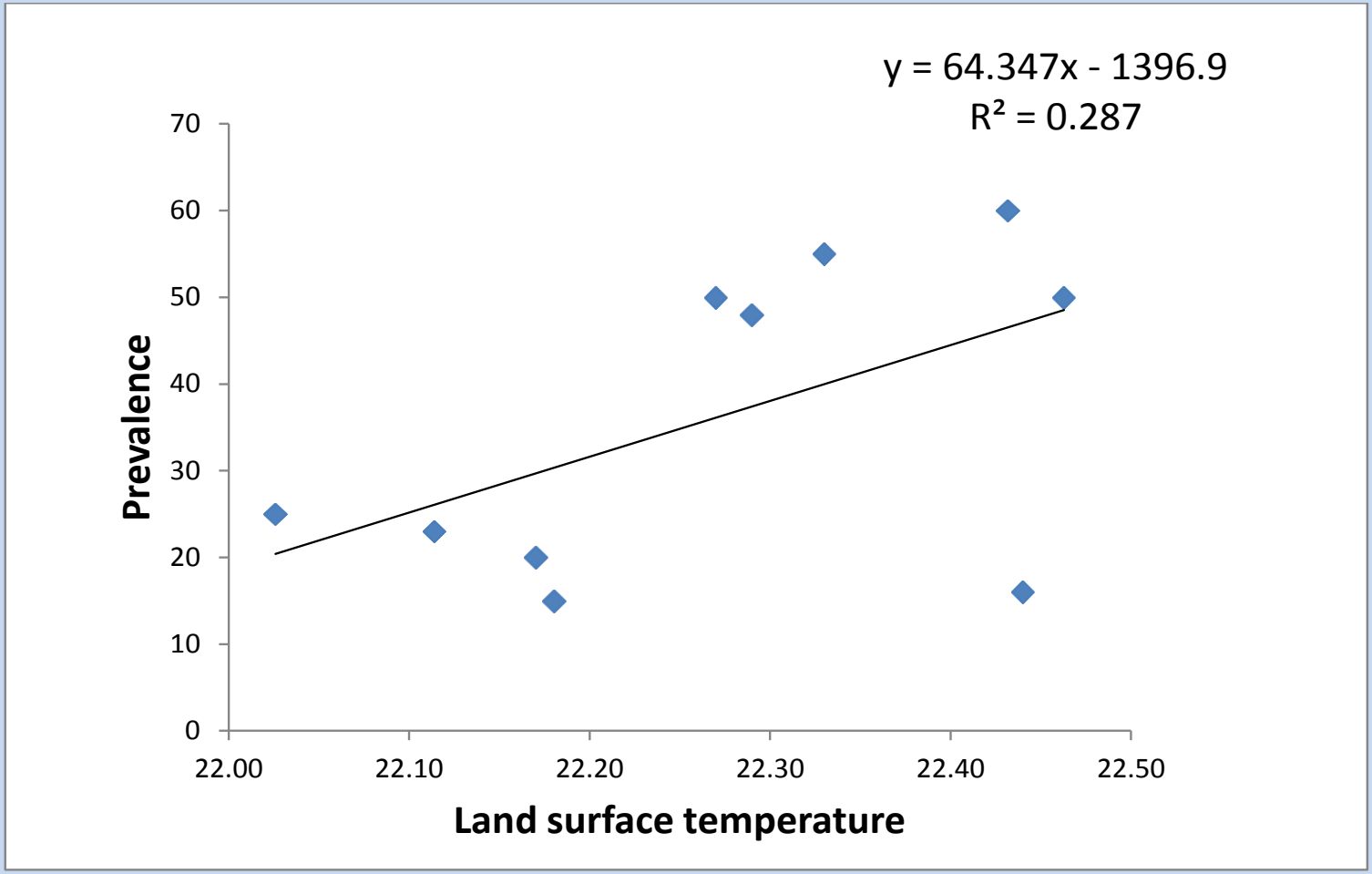


Figure 15: Graph of prevalence against temperature.

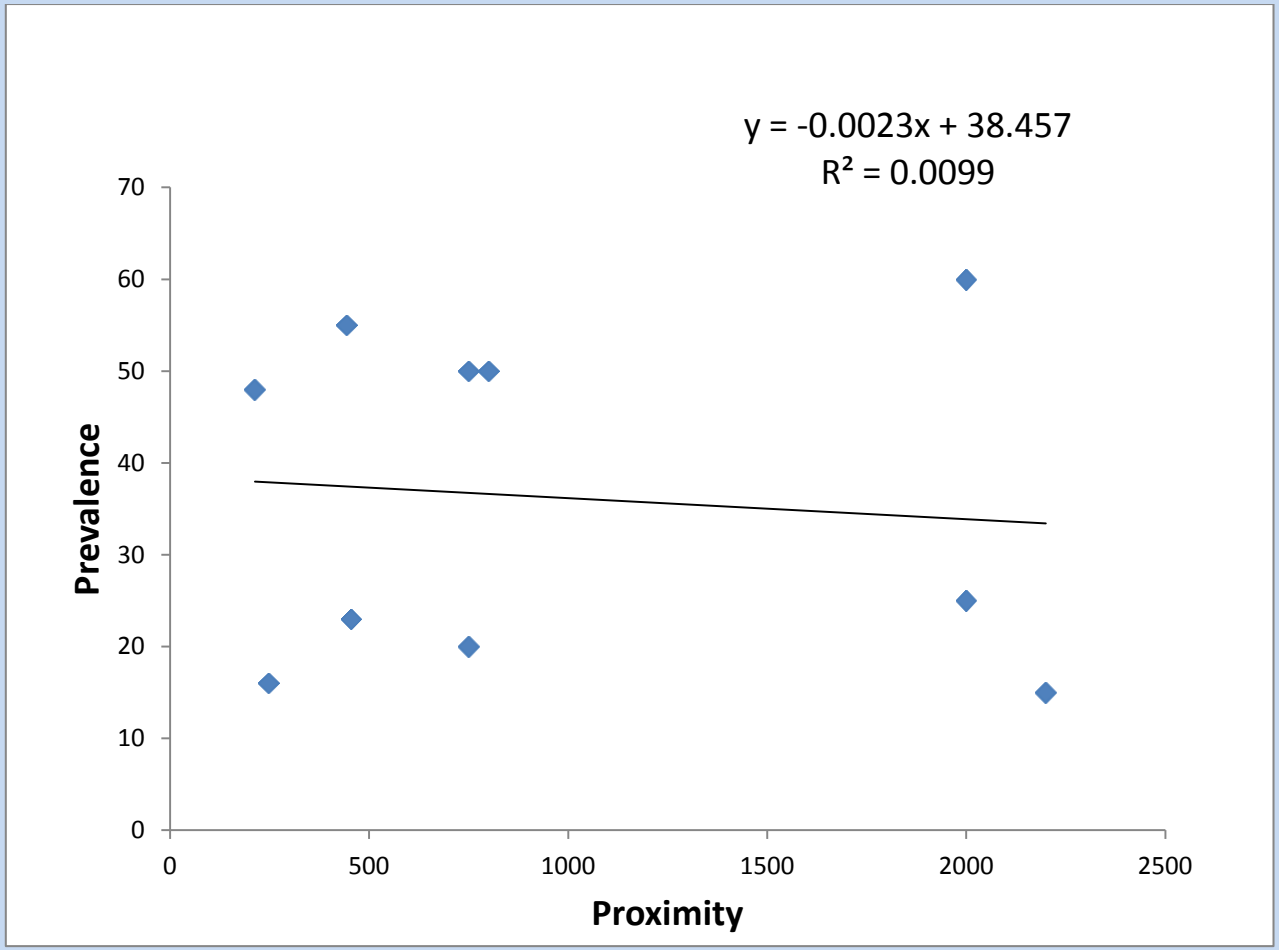


Figure 16: Graph of prevalence against proximity to water

CONCLUSION

The integration of disease, spatial and environmental data enhances a better understanding of the epidemiology of schistosomiasis. The risk map produced in this study is useful in planning, monitoring and evaluation of schistosomiasis control. The endemic local government in this research is still in need of effective control.


RUFUS GIWA
OLYTECHNIC OWO


IKOGOSI
WARM SPRING RESORT
AMAZING BY NATURE
You are welcome
THANKS FOR LISTENING