Geographical and Spatial Analysis of *Loa loa* Prevalence in Endemic African Countries

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**Introduction**

*Loa loa*, also known as the “African Eye Worm,” is an arthropod borne disease prevalent throughout Africa. It is a filarial parasite that is often neglected and the habitat and transmission for breeding is shown to vary by many ecological/geographical factors (See Image 1). Negative implications with Onchocerciasis, another filarial parasite in conjunction with *Loa loa* make control and treatment difficult if not impossible. In a study focusing on 11 African countries, the spatial distribution was studied in conjunction with the prevalence of *Loa loa*. The goal of this project is to determine if geographical and environmental factors in certain areas of Africa correlate to *Loa loa* prevalence.

**Objective**

- To determine the spatial distribution of *Loa loa* prevalence and its relationship with riverine areas.
- To describe potential geographical/environmental attributes associated with high and low prevalence rates.

**Methodology/Data**

Data from a RAPLOA (Rapid Assessment Procedure for Loiasis) survey is available for dates between 2002-2010 in villages in 11 countries and shows geographical prevalence of eye worm history (Zoure et al, 2011). Geographical models displaying riverine hydrologic networks in 11 countries with known prevalence were created. Areas of high and low prevalence were analyzed further to describe geographical/environmental attributes.

**Conclusion**

The resulting findings of the survey in the 11 targeted countries suggest a association between *Loa loa* presence and riverine areas. We observed two patterns, the northern countries showed low prevalence rates whereas the southern countries have higher prevalence rates. Further comparative analysis on the Sahara Desert and ecological implications on *Loa loa* should be investigated. Additional status testing is difficult due to medicinal side affects when subjects are treated for Onchocerciasis in conjunction with *Loa loa*. Monitoring, implementation, statistical analysis and strengthening strategies should be addressed to promote safe and proper community directed treatment.

**References**


**Image 1**: *Loa loa* filarial worm and *Chrysops* vector (deerfly). Source: CDC (2010)