

Assessing impact of forest landscape restoration on the erosion of agricultural land in sub-Saharan Africa Mékrou's watershed

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Introduction

- Soil erosion is one of the foremost challenges confronting agricultural productivity.
- Studies have explored the potential of Forest Landscape Restoration (FLR) practices to mitigate the adverse effects of soil erosion.
- However, it's crucial to recognise that the efficacy of these practices may vary across different contexts and environments.

Objectives

- Our primary objective is to evaluate the impact of FLR initiatives on reducing soil erosion in agricultural lands within the Head of Mékrou Watershed (TBVM) in Benin.
- Specific objective was to characterize soil for K-factor

Methods

- This poster presents part of a PhD research conducted in the Mékrou watershed, Benin. The watershed was chosen as an ideal case study to assess the impact of Forest Landscape Restoration (FLR) initiatives on soil erosion due to its susceptibility to erosion from steep slopes.
- It primarily includes observational data from two field visits: an initial exploratory visit and a subsequent soil sampling visit to measure the K-factor, a parameter which will be used in the Revised Universal Soil Loss Equation (RUSLE) for estimating soil erosion.
- Samples of 23 points were collected using a systematic grid-based approach and 9 other points collected using a targeted sampling strategy for lab soil analysis that will be undertaken to analyze in depth FLR impacts on erosion.

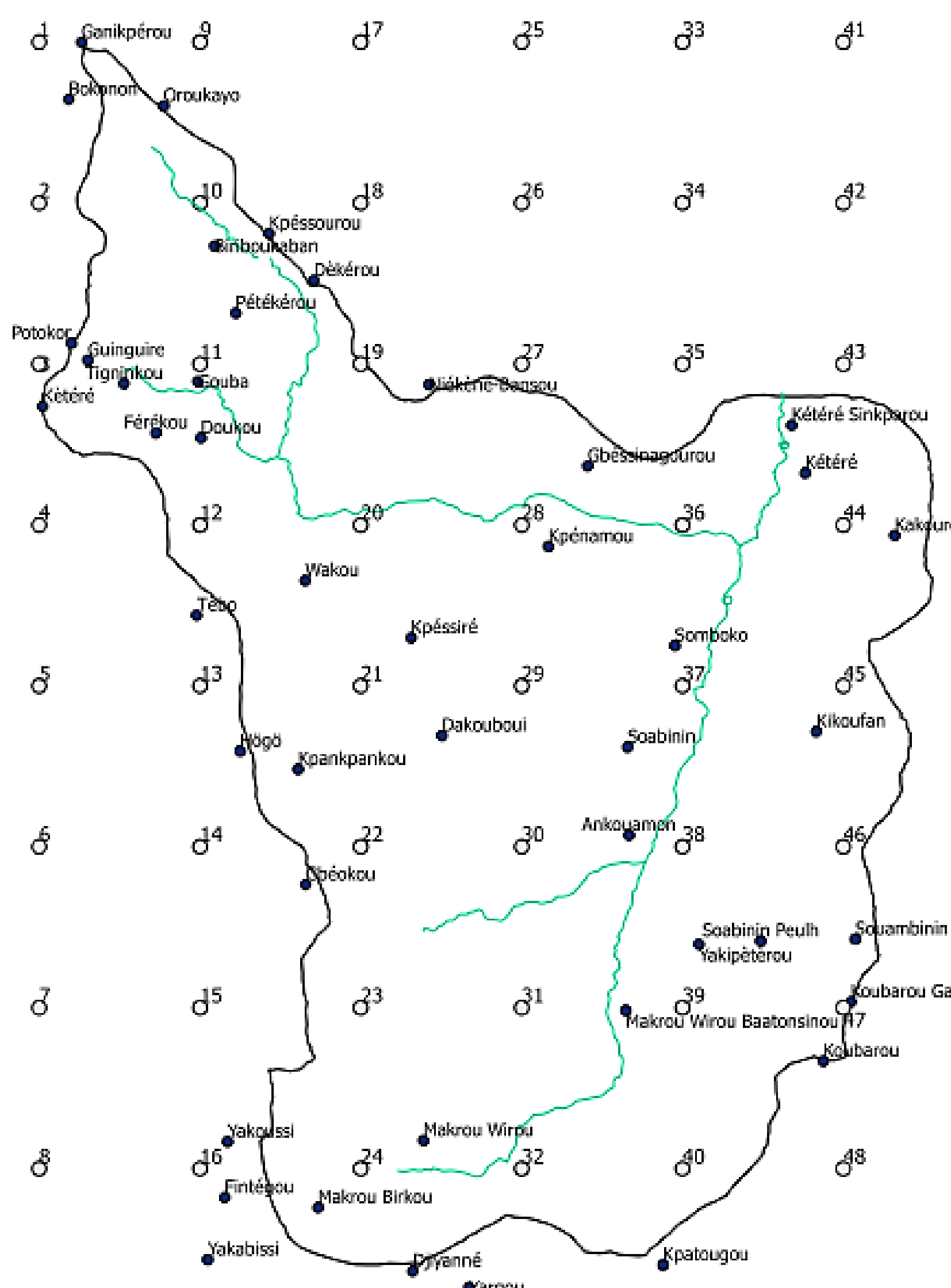


Figure 2: Map of the head of Mékrou watershed showing sampling grids

Results

- The predominant soil type in the area is Luvisols with ferric characteristics.
- Key forest landscape restoration practices include reforestation, planting trees to protect riverbanks, and agroforestry.
- Field observations indicate that areas undergoing forest landscape restoration experience less erosion.



Photo 1: Gully due to erosion in crop land without protection in Mékrou's watershed

Conclusion

- Forest Landscape Restoration practices have significant potential to reduce soil erosion.
- Erosion mitigation is particularly pronounced in forest plantations relative to other forms of FLR practices.

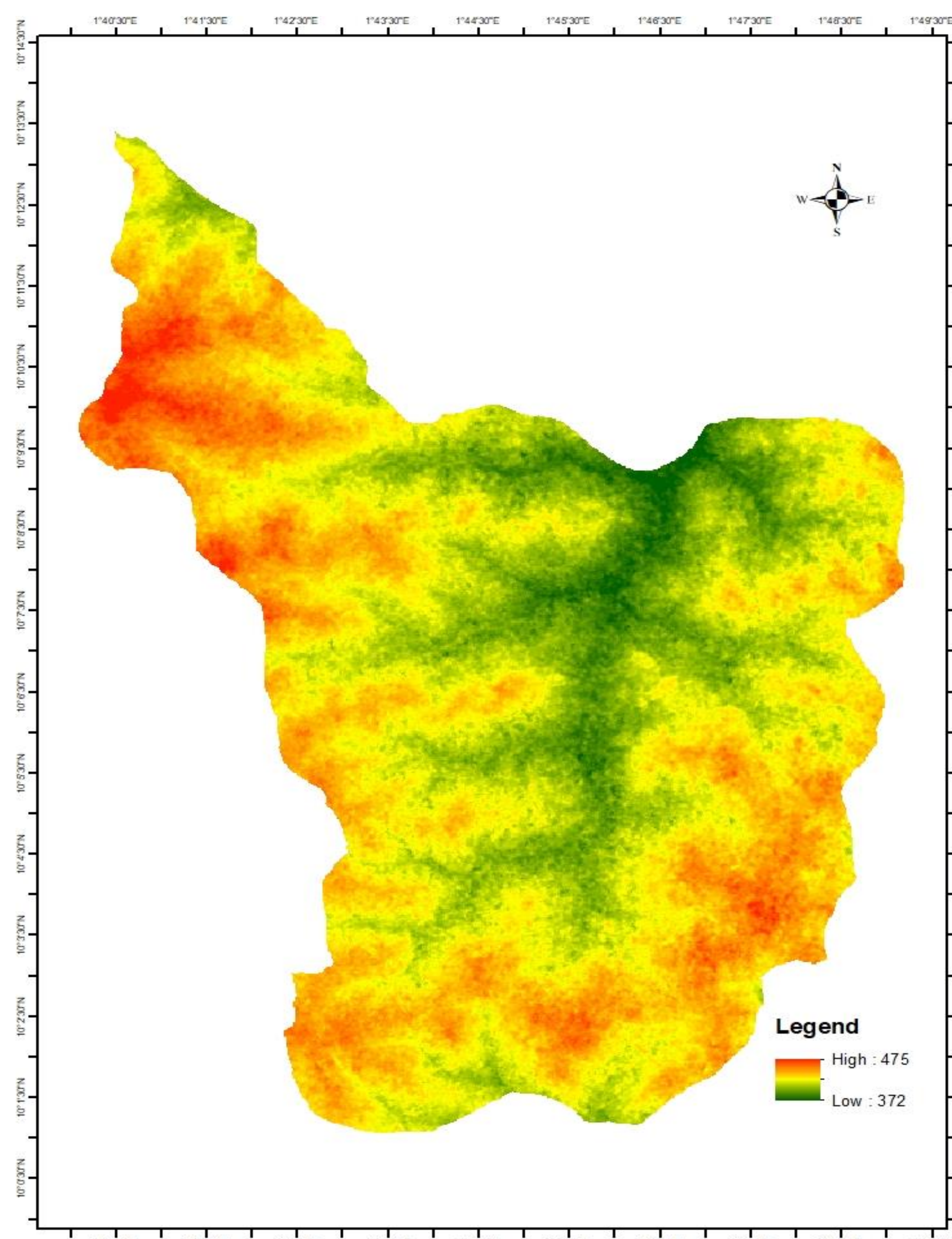


Figure 1: Digital Elevation Model of the head of Mékrou watershed