

GRASSLAND DYNAMICS AND THEIR RELATION TO MAASAI GRAZING PATTERNS IN LONGIDO DISTRICT, TANZANIA

esmee.l.mulder@gmail.com

By: Esmée Mulder

www.linkedin.com/in/esmee-mulder-tud

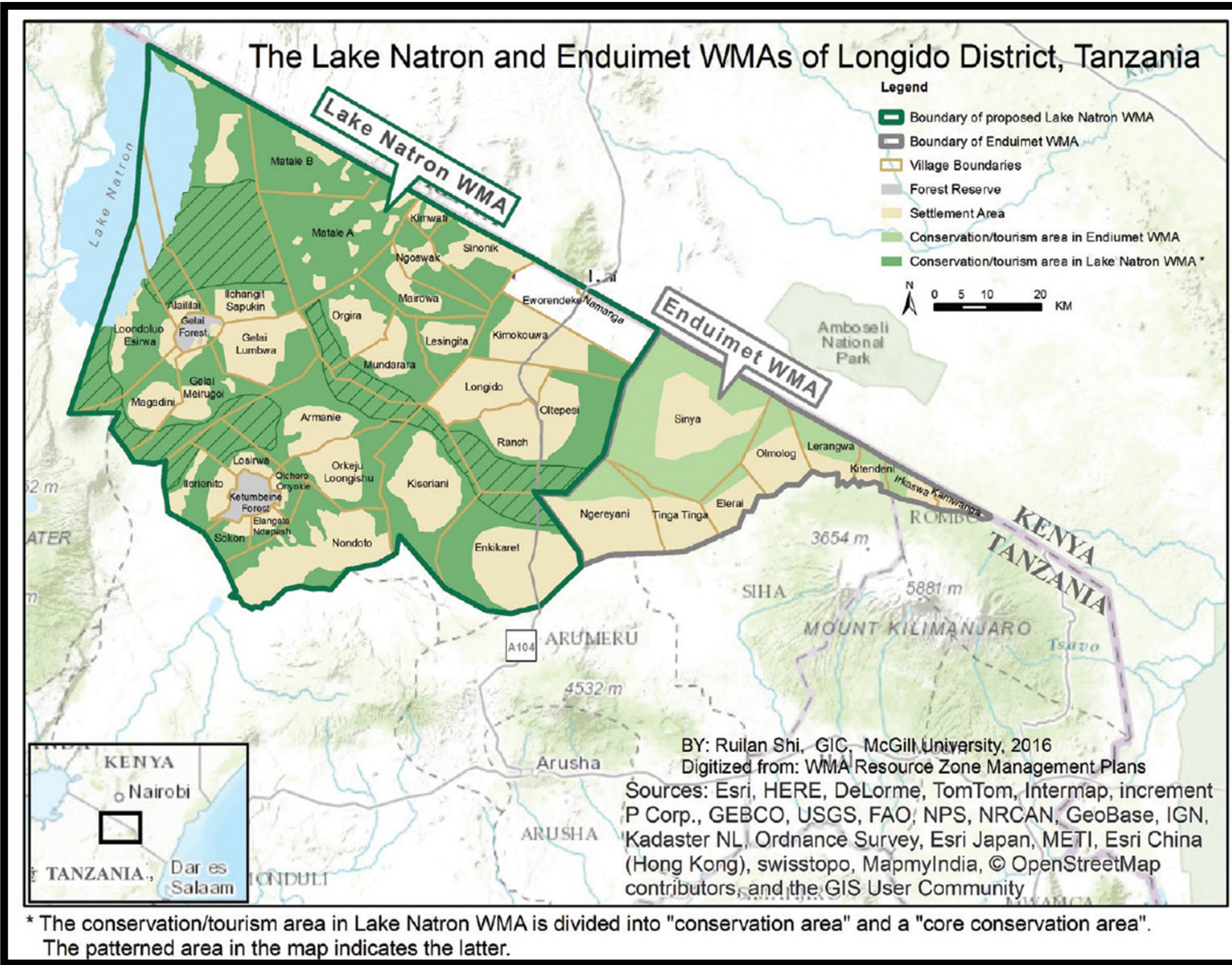
ABSTRACT

Misconceived policies due to misunderstanding and misinterpreting grassland dynamics, negatively impact pastoralists around the world¹. In various regions this has led to conflicts between conservationists and pastoralists². This research aims to use remote sensing (RS) to analyse the dynamics of the savanna ecosystem in Longido District, Northern Tanzania. To obtain a better understanding of the causes behind the fluctuations, the trend will be compared to climatic, demographic and wildlife population data. Ultimately, a framework will be proposed of how RS data can be used in sustainable land management and pastoralist-conservationist conflict resolutions.

GOALS

1. Analyse grassland dynamics over time and space in Longido District
2. Due to climate fluctuations or anthropogenic factors?

STUDY AREA



- Area Longido: ±8,000 km²
- Climate: Hot semi-arid
- Overcast: 35-70%
- Annual Rainfall: 600 mm
- Dry season: Jun-Oct
- Average temp: 20.3°C
- Ethnic group: Maasai

PROBLEM

- Land-use management conflicts between conservationists, pastoralists, and policy makers
- Preparation for restrictive grazing policies threatening Maasai livelihood
- Ecosystem dynamics unknown to policy makers
- Causes of potential dynamics assumed to be anthropogenic but may well be climatic.

WHY?



PROPOSED METHODOLOGY



1. Earth Observation
- I. Optical Data
- II. Microwave Data
- III. Precipitation Data
2. In-depth Interviews

- What is the trend in grassland
- ☐ Extent
- ☐ Density
- ☐ Seasonality

Analysis of dynamics both temporally and spatially



SOCIETAL RELEVANCE

- Support creation of sustainable land policies
- Support managing pastoralist-conservationist conflicts
- Contribute to making RS a valuable and accessible data source for low-income communities worldwide.

KEY REFERENCES

1. Eddy, I. M. S. *et al.* Integrating remote sensing and local ecological knowledge to monitor rangeland dynamics. *Ecological Indicators* 82, 106–116 (2017).
2. Homewood, K., Kristjanson, P. & Trench, P. C. Changing Land Use, Livelihoods and Wildlife Conservation in Maasailand. in *Staying Maasai?* (eds. Homewood, K., Kristjanson, P. & Trench, P. C.) 5, 1–42 (Springer New York, 2009).
3. Svoray, T., Perevolotsky, A. & Atkinson, P. M. Ecological sustainability in rangelands: the contribution of remote sensing. *International Journal of Remote Sensing* 34, 6216–6242 (2013).