



MONITORING MANGROVES AND PEATLANDS IN AFRICA



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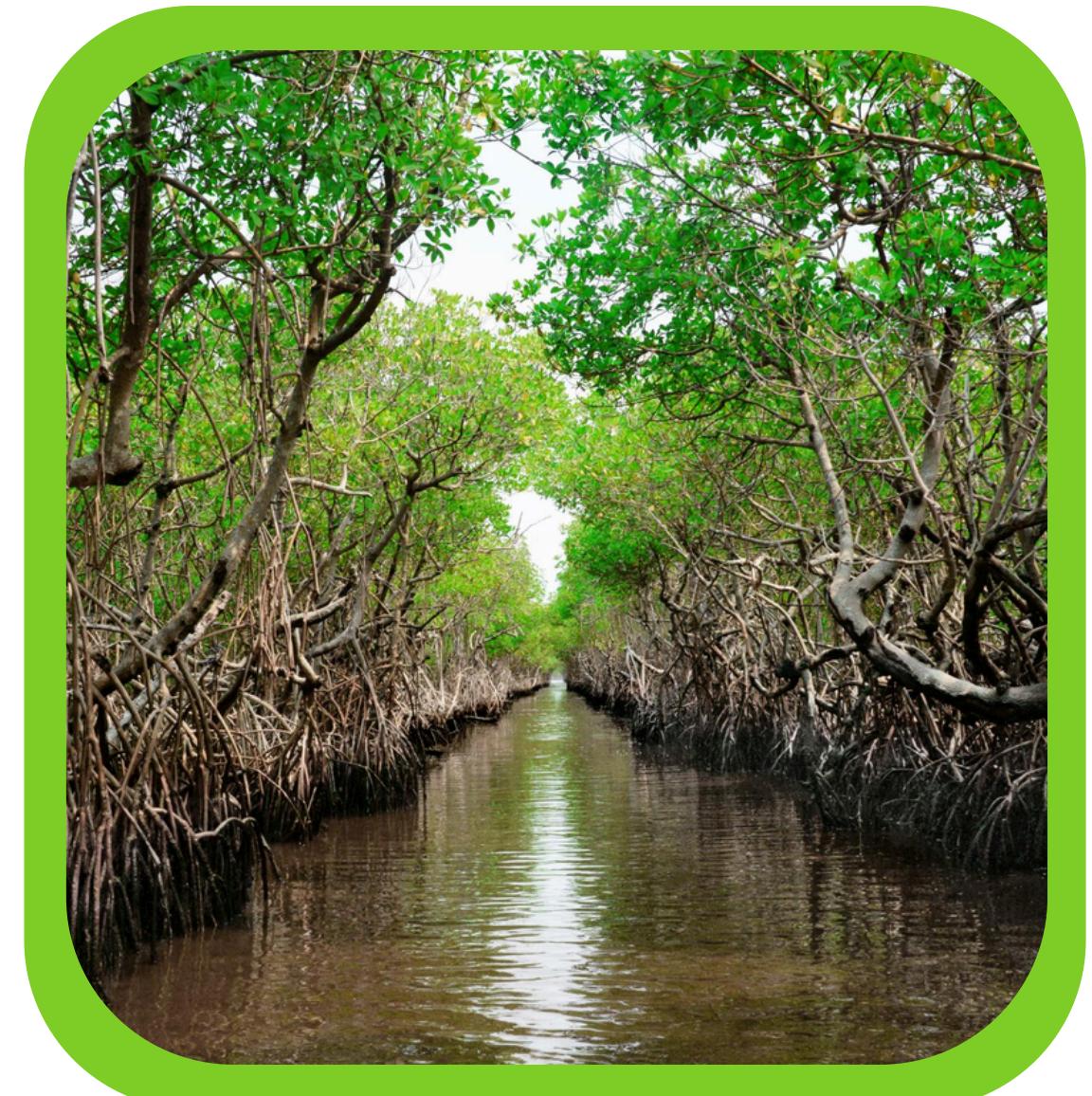


INTRODUCTION

PEATLAND



MANGROVE



LITERATURE REVIEW

- Africa has 20 % of global mangroves cover(Naidoo · 2023)
- Peatlands cover 2.84% of the Earth's terrestrial surface (Xu et al. 2018)
- and ~30% of global soil carbon, making them crucial for climate mitigation(Gorham, 1991; Nichols & Peteet, 2019)
- 60% of peatlands in South Africa (wwd2010) and 40% of Mangroves in Kenya(Chebet,2022)are at risks of degradation.

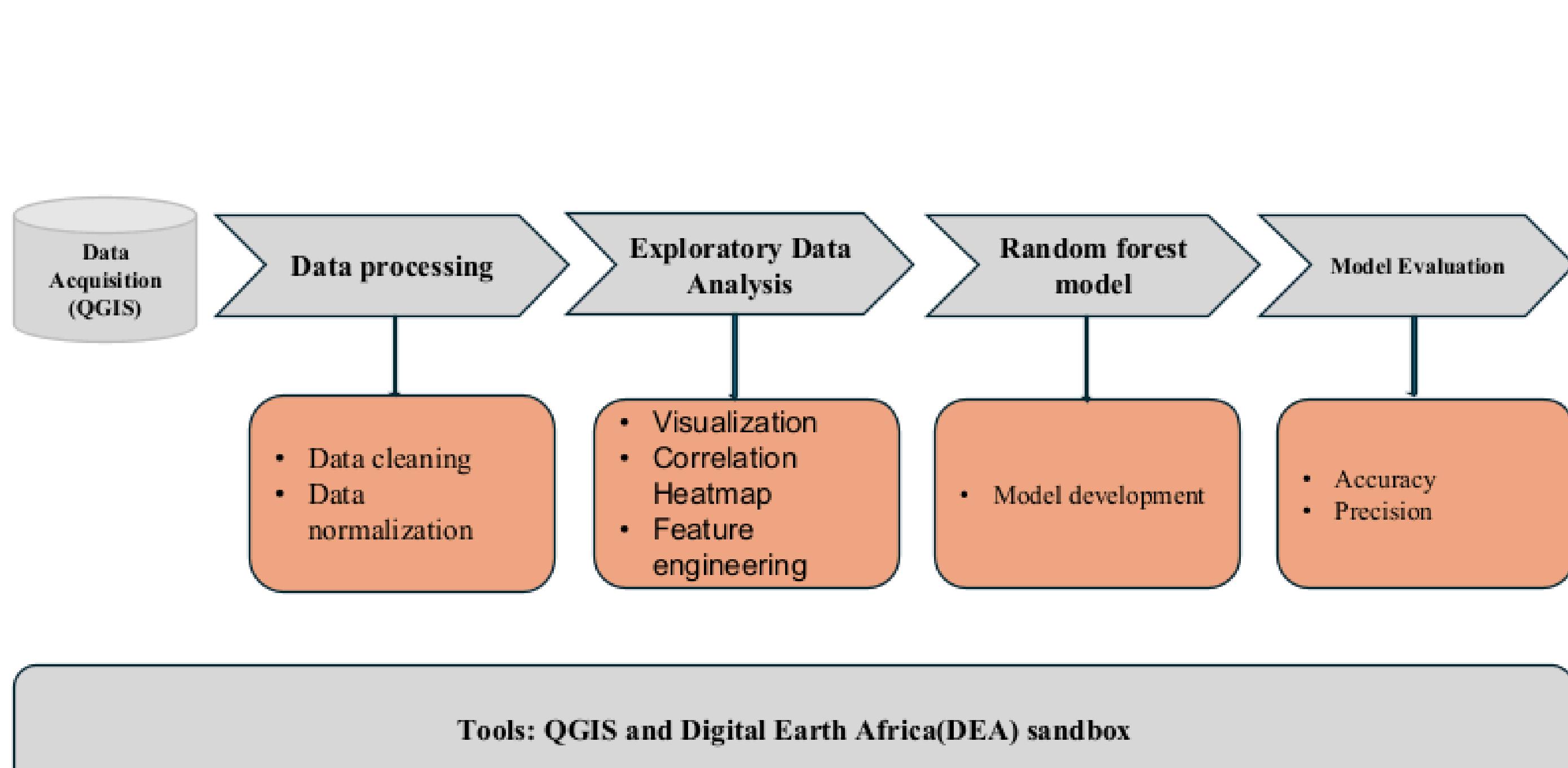
LITERATURE REVIEW CONT....

- In South Africa few studies have been conducted on peatland monitoring((Knight et al., 2024, Melton et al., 2022) in contrast to Mangrove in Kenya(Kenduiywo et al.,2024,Kirui et.al,2013,wekesa et al., 2023,e.t.c)
- Random Forest classification and SVM are crucial in mapping mangrove forests(Ligono et al.,2022,Kenduiywo et.al,2024,Romie et al.,2015).
- Incorporating random Forest classification would go a long way in generating mangrove forest map inventory(Kenduiywo et al.,2024)

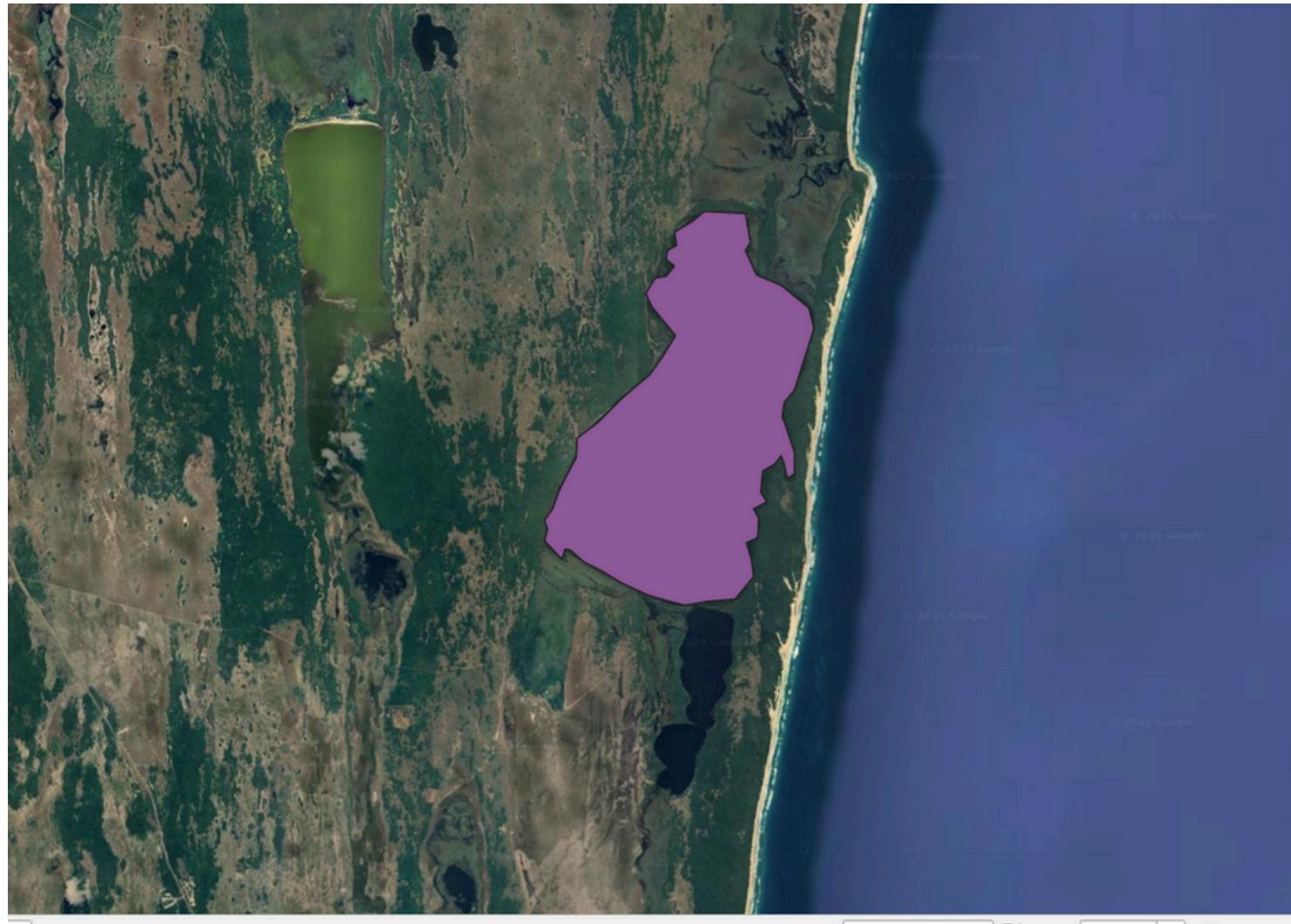
OBJECTIVES OF THE PROJECT

- Monitor the evolution of peatlands and mangroves over time
- Develop a model to identify peatlands and mangroves that have not yet been monitored

METHODOLOGY



PLOTTING SHAPEFILES



Khosi Bay in South Africa



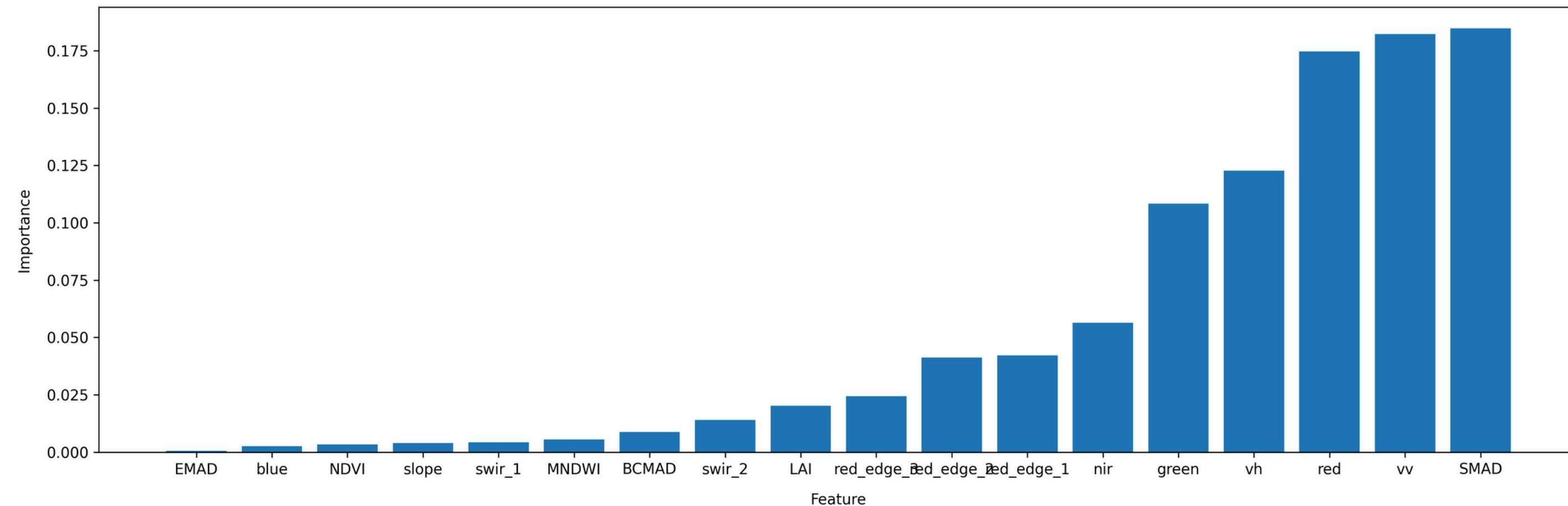
Lamu in Kenya

DATA SAMPLE

	PEATLAND	MANGROVE
PIXELS	130,636	195,624
0	65318	97812
1	65318	97812

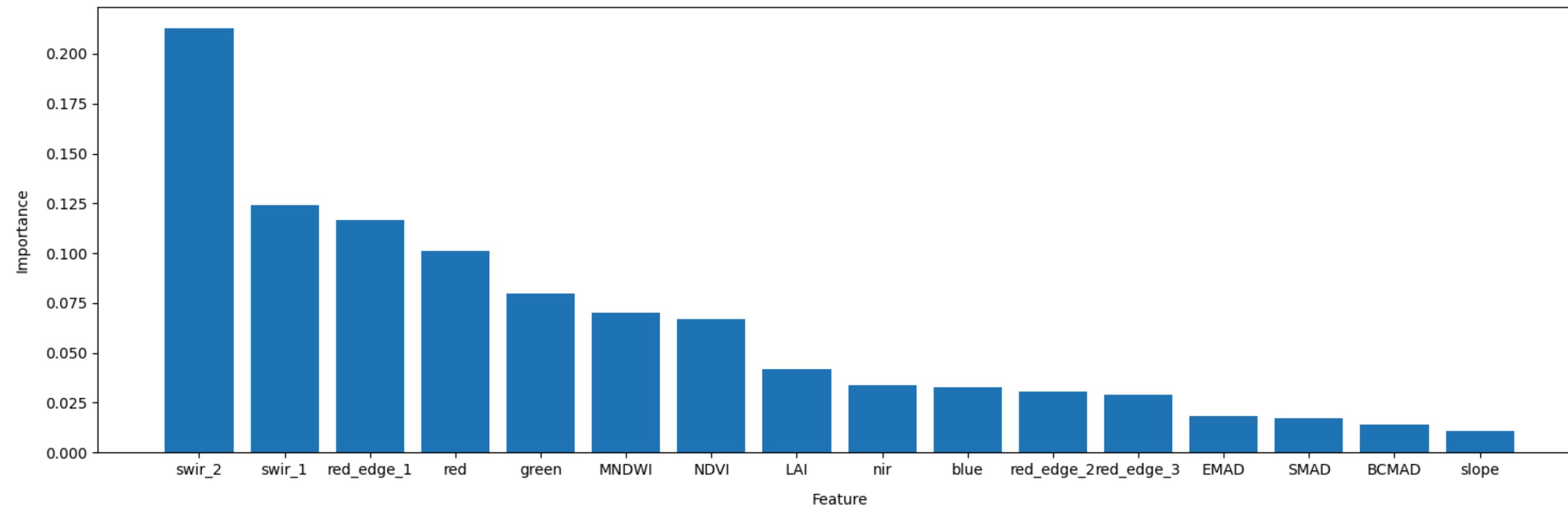
FINDINGS - PEATLANDS

FEATURE IMPORTANCE



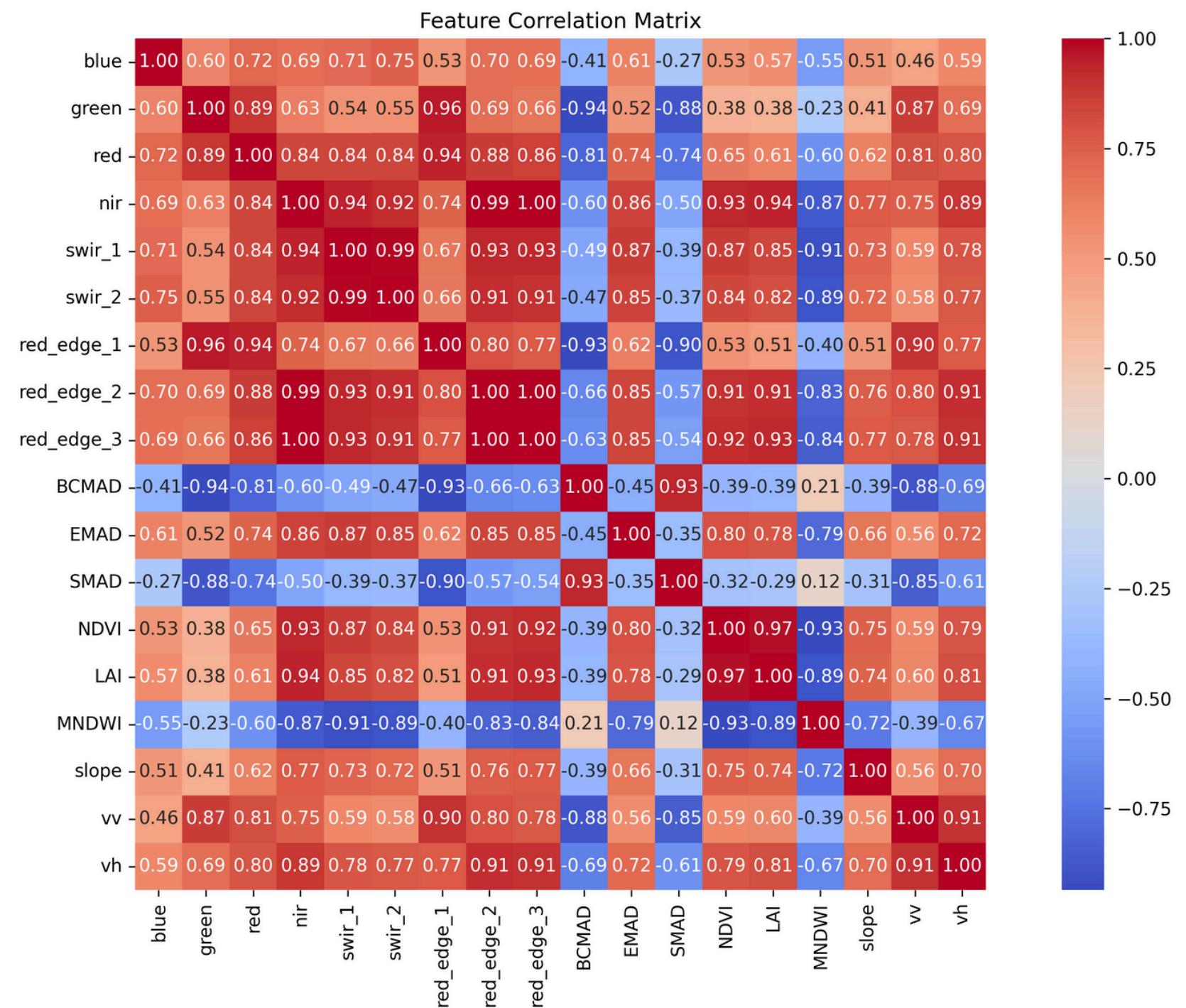
FINDINGS - MANGROVES

FEATURE IMPORTANCE



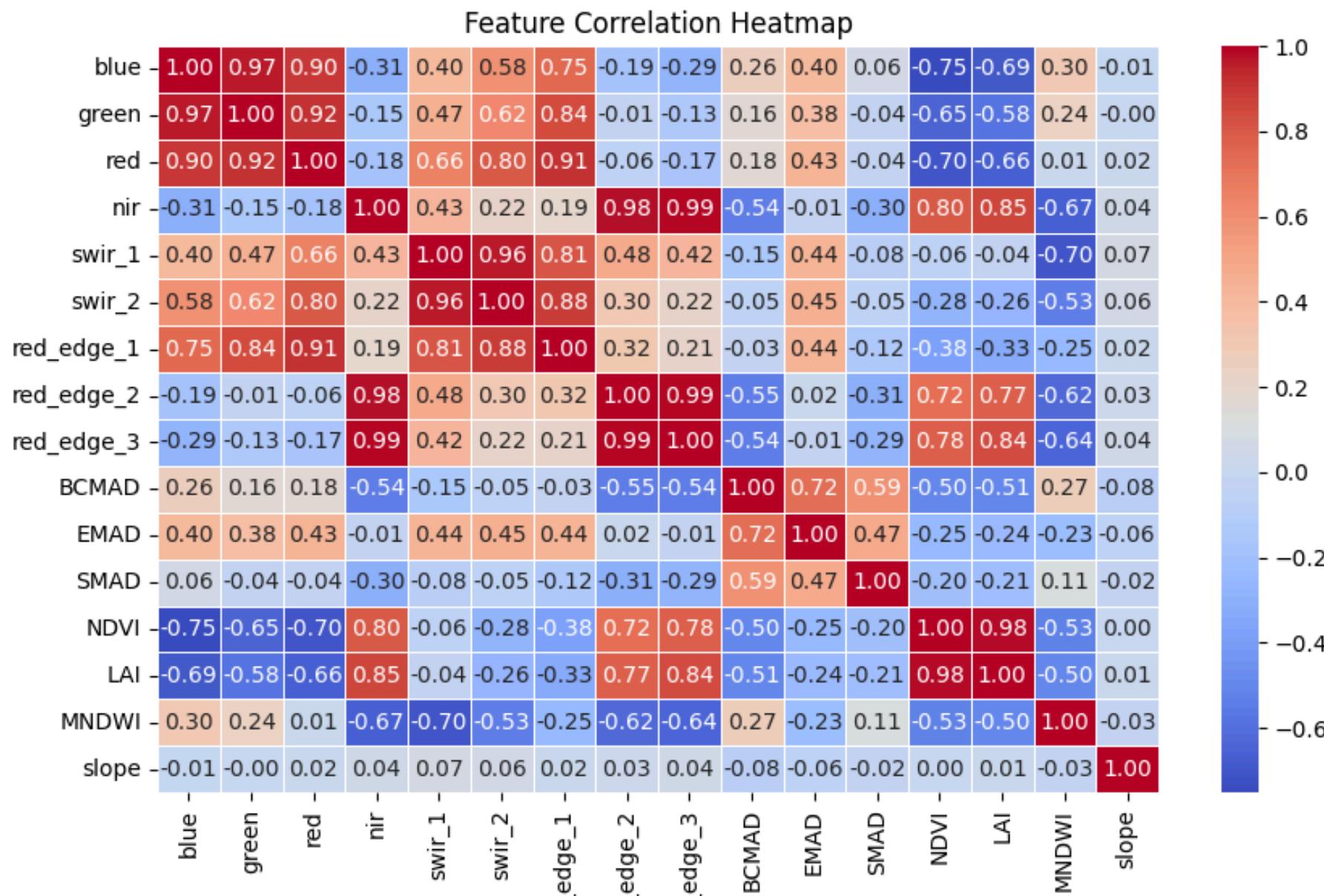
FINDINGS - PEATLANDS

CORRELATION



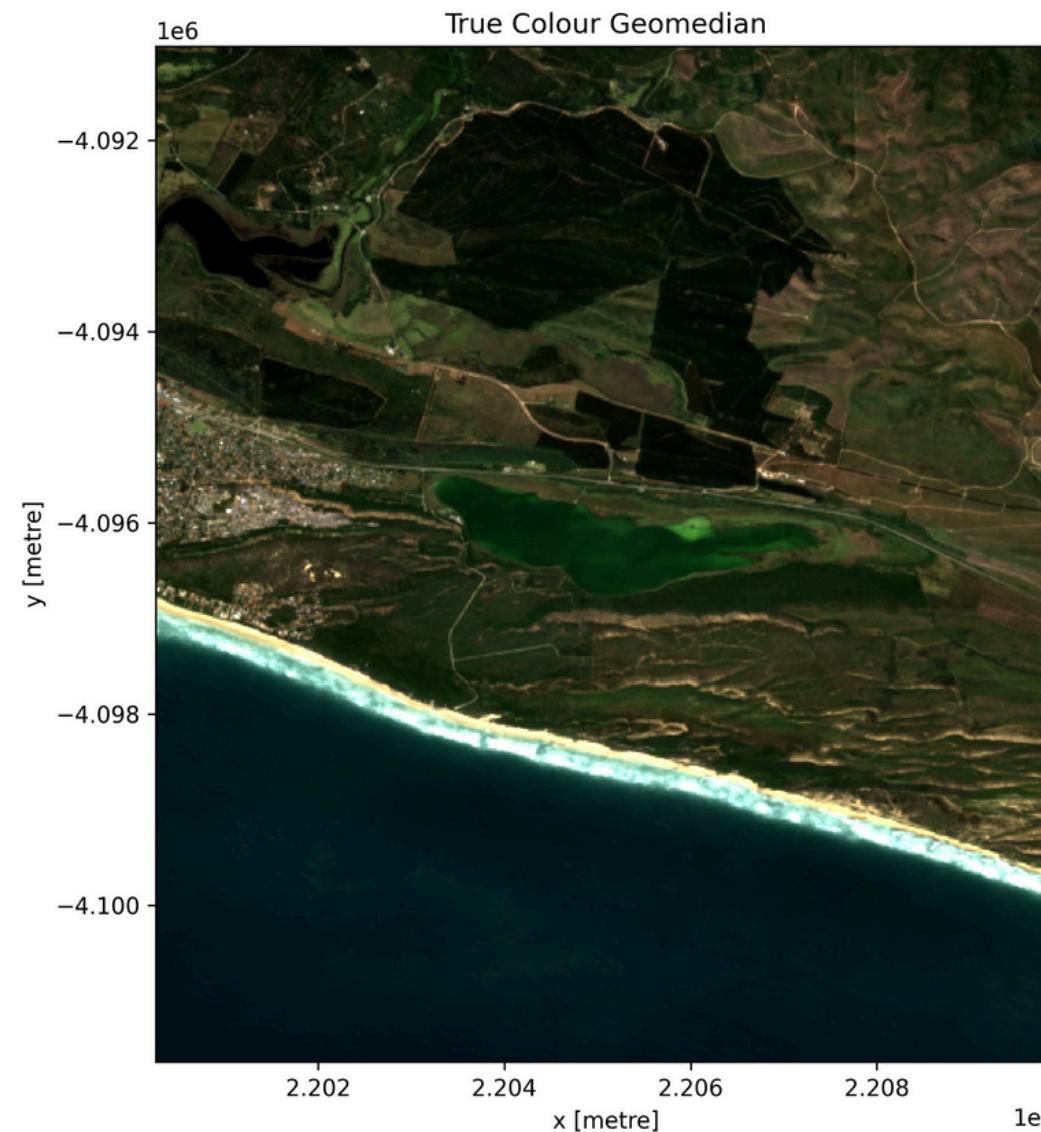
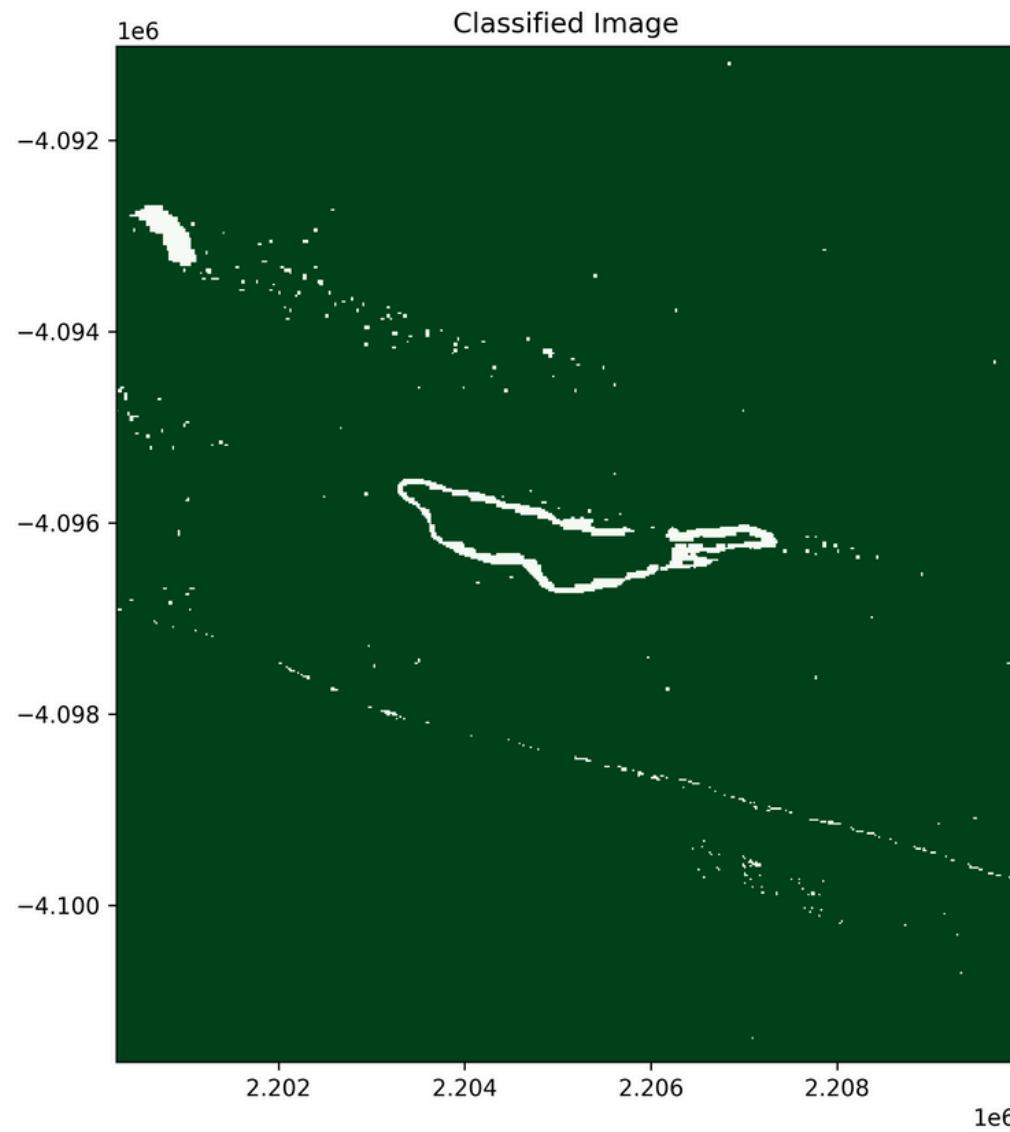
FINDINGS - MANGROVES

CORRELATION

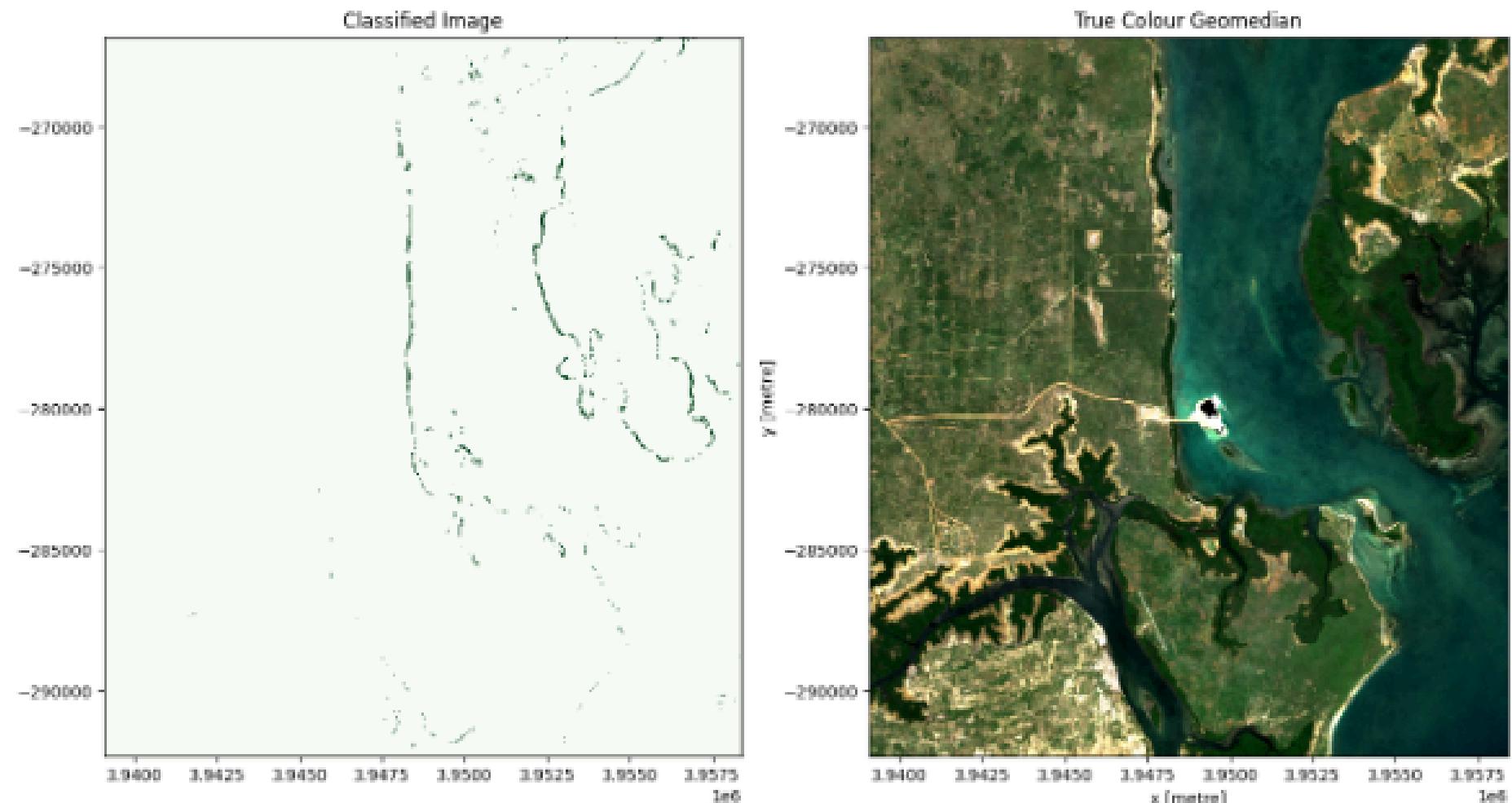


RANDOM FOREST CLASSIFIER

RESULTS-PEATLANDS



RANDOM FOREST CLASSIFIER RESULTS- MANGROVES

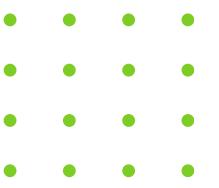


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CONCLUSION & FUTURE WORK

- Improve model with more training data from all other African countries.
- Collaborate with conservation agencies
- Explore real-time monitoring solutions
- Explore Deep Learning Models





Mangrove & Peatlands Protectors

THANK YOU