

# Assessment of species diversity and distribution of fish in Pangani and Rufiji Riverine systems, Tanzania

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## Abstract

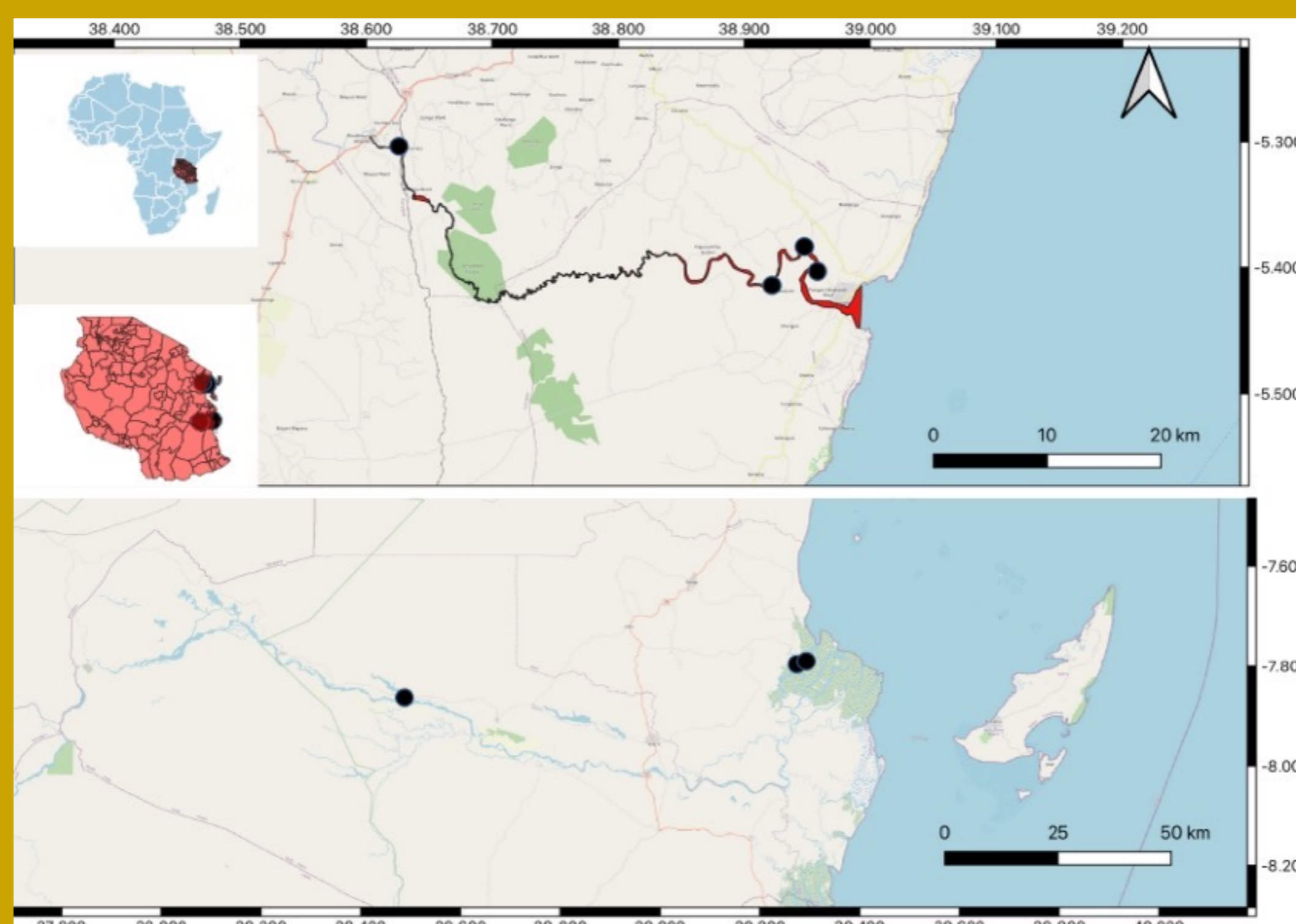
- Freshwater biodiversity has been depreciating at a high rate
- DNA barcoding has been used to discover and describe fish species more efficiently
- Results showed that there are 74 fish species in Pangani and Rufiji riverine systems.
- Results suggest that these rivers have high biodiversity
- Results also suggest DNA barcoding is efficient for species identification

## Introduction

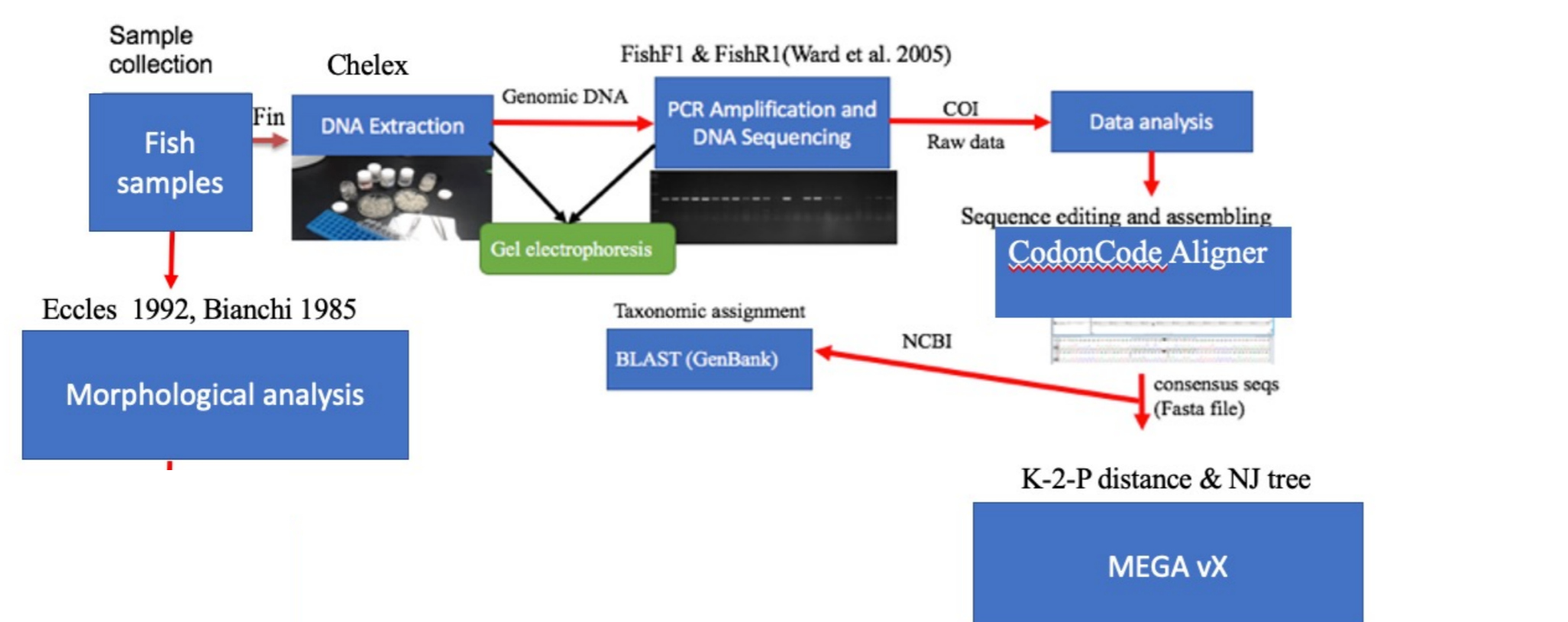
- Rufiji and Pangani have high biodiversity that support local economy
- However, the rivers are at risk of declining biodiversity due to anthropogenic and natural causes
- Precautionary measures must be taken to protect and conserve biodiversity
- These measures need assessing and monitoring riverine biodiversity, which is lacking hence the study
- Provide baseline data for biodiversity management and conservation
- Identifying cryptic and morphologically similar species as many riverine fish are difficult to distinguish morphologically using traditional taxonomy.

## Methodology

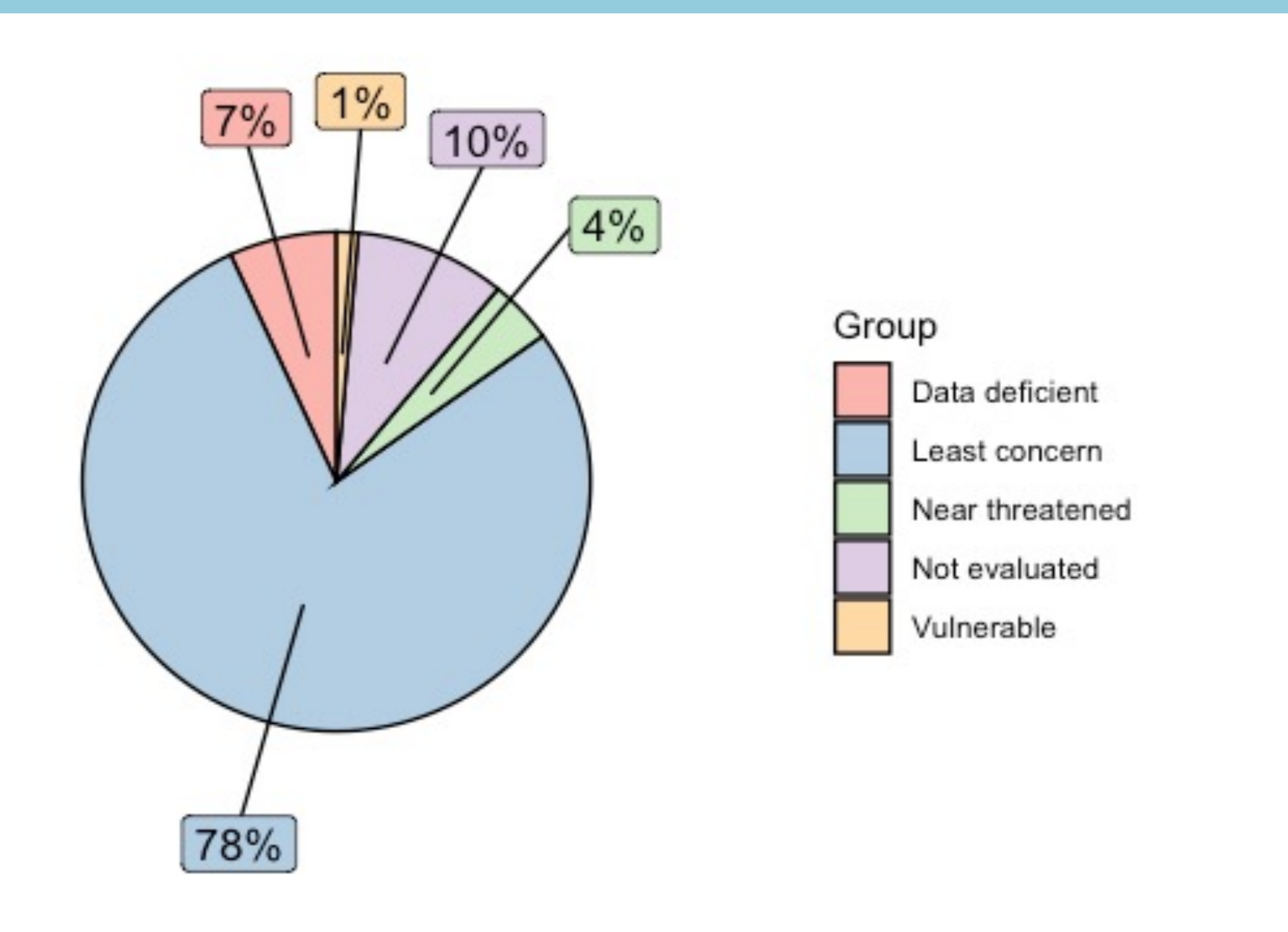
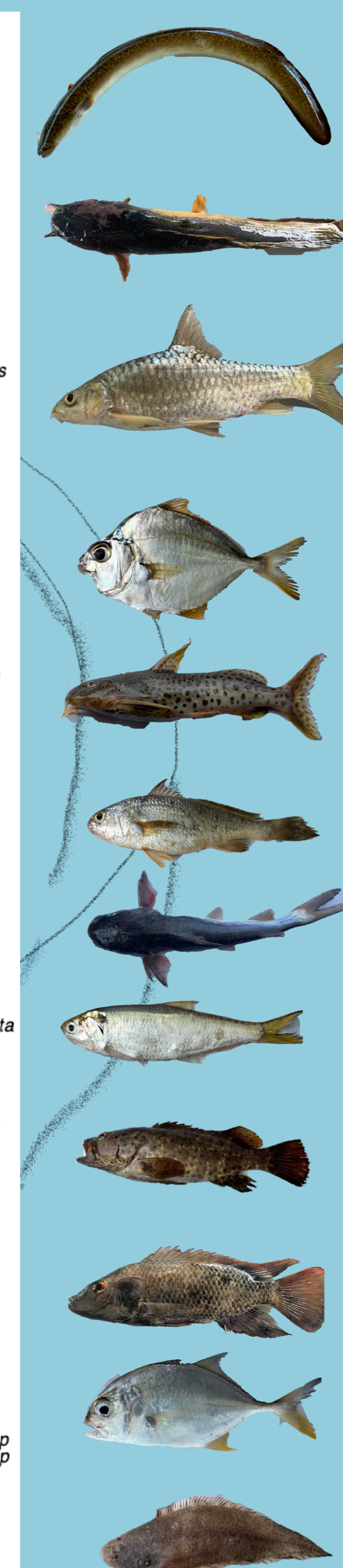
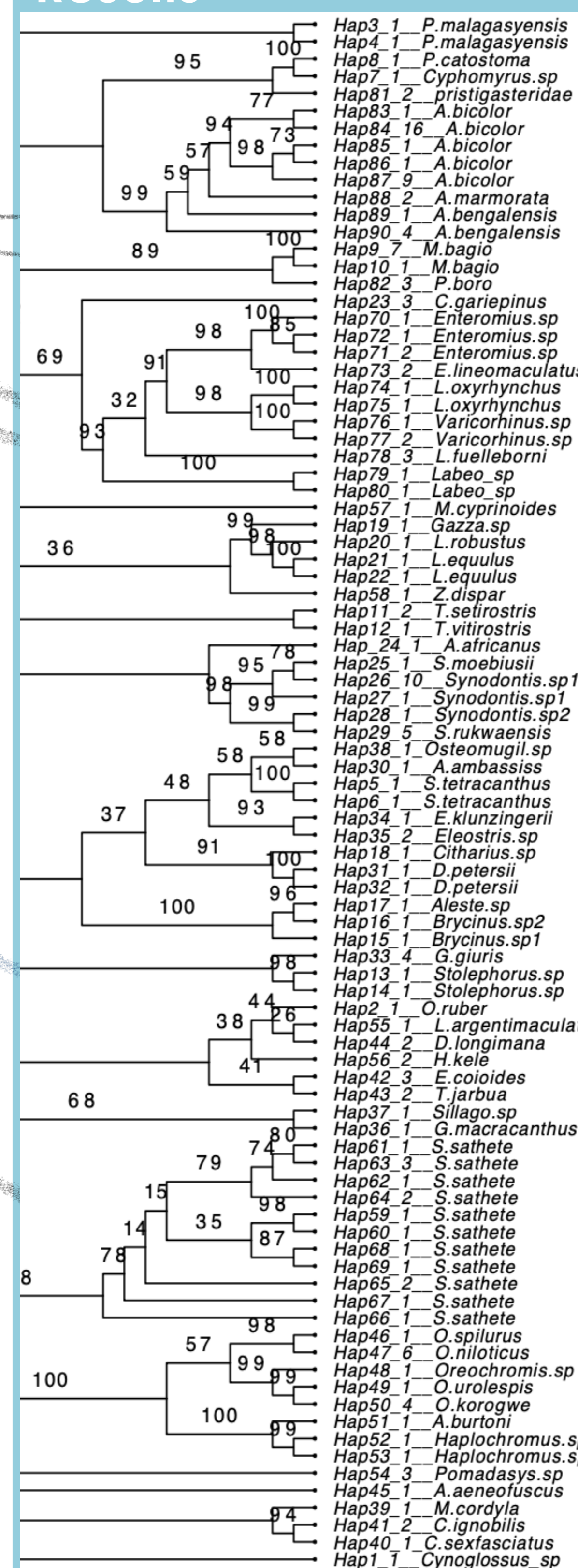
### Fish sample collection



### Data analysis



## Results



- 74 freshwater fish species were identified
- 4 Species i.e. *synodontis nigromaculata* were recorded for the 1st time.
- Only 54% of the species had sequences in GenBank
- 40 Species i.e. *Favonigobius reichei* reported in previous studies were absent in the current study
- 5% of the species i.e. *Anguilla bicolor* are threatened and need urgent management plans.
- 11% of the recorded species are data deficient and not evaluated which begs for further research to allow management.

## Conclusion

- The results suggest that DNA barcoding is efficient in separating species and is a quick tool when used with traditional taxonomy to identify, discover and monitor biodiversity in Tanzania Riverine Systems
- There is need to correctly identify fish to allow correct upload of sequences to genetic database