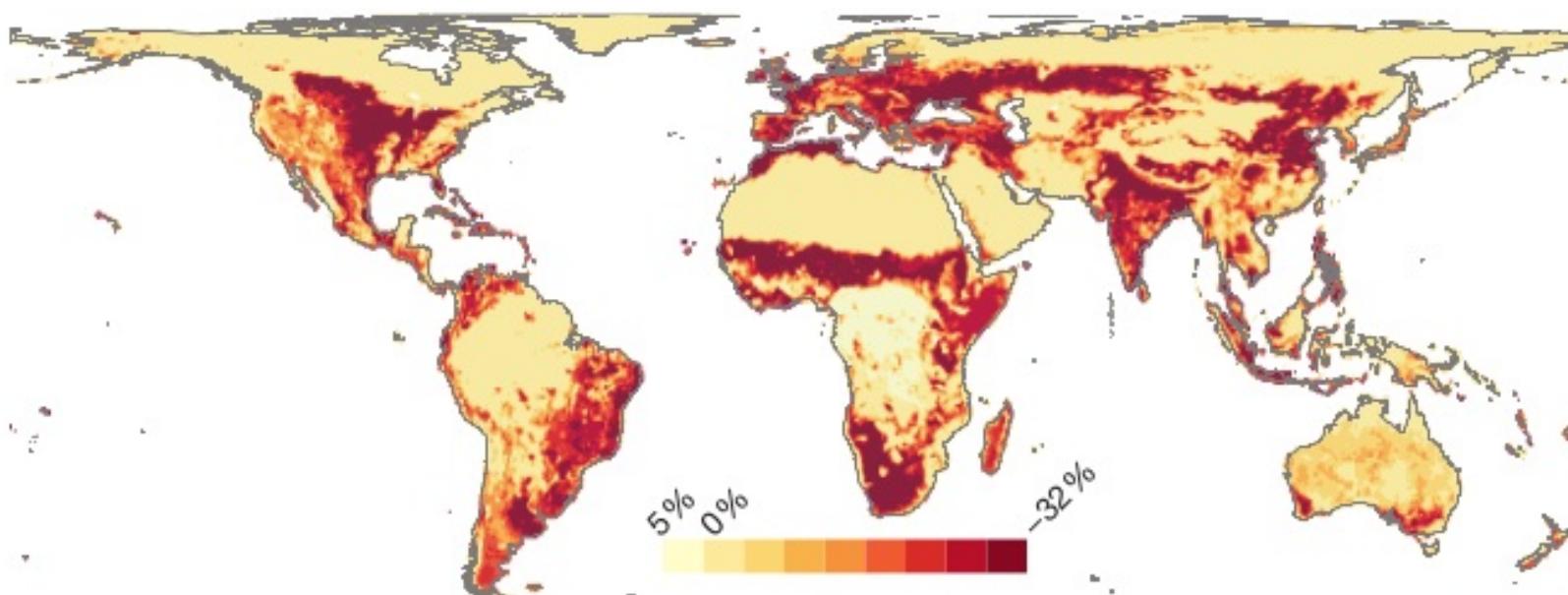




# Recommendations for broad-scale diversity models from an independent study

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# BIODIVERSITY MODELS



Predicted change in species richness from Newbold et al. (2015)

# POTENTIAL PROBLEMS

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- Many broad-scale models generalize over a wide range of variables in a single factor (land use )

# POTENTIAL PROBLEMS

- It is tempting to apply those models in a new spatial context

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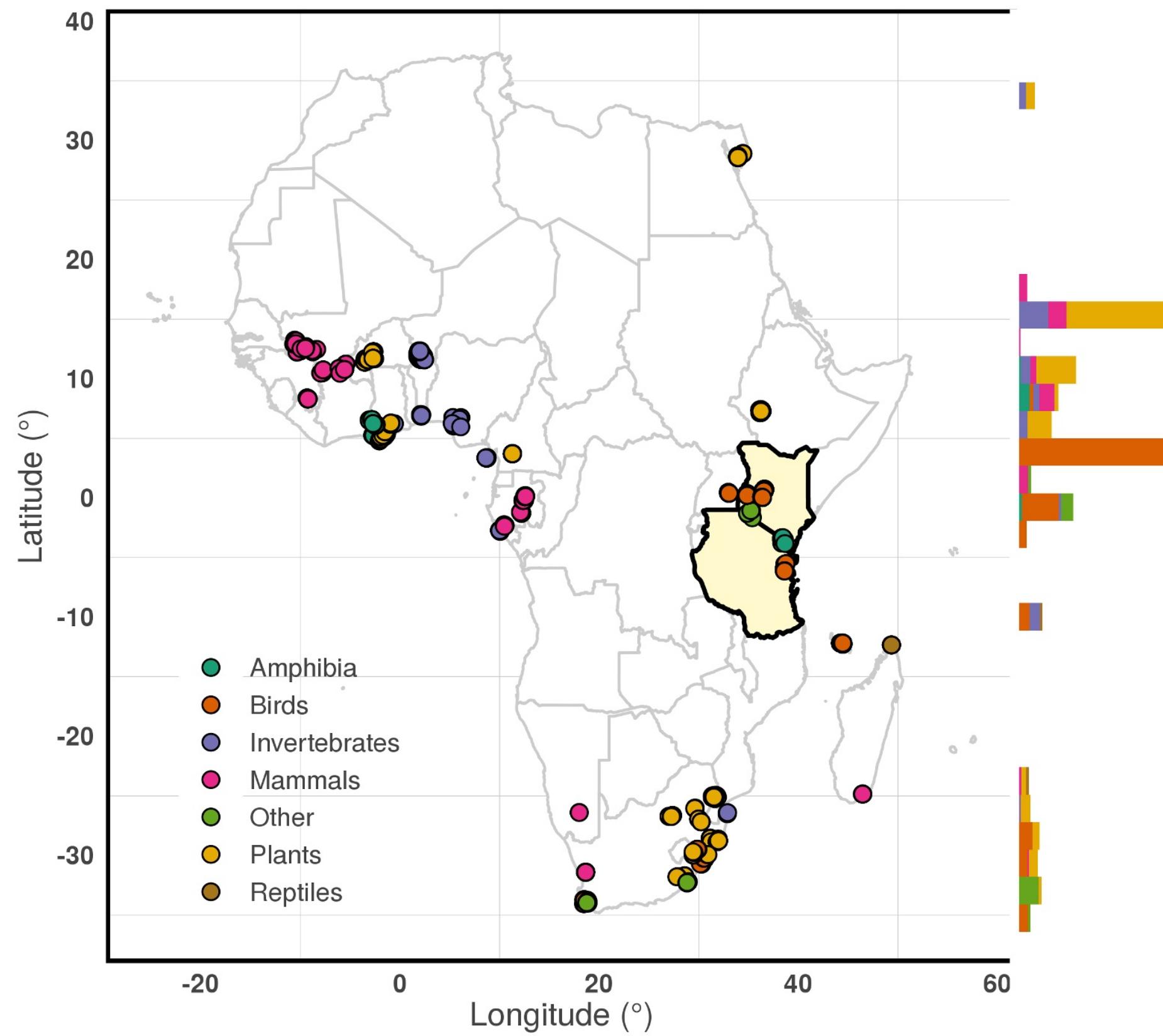
- Based on available ( biased ? ) data

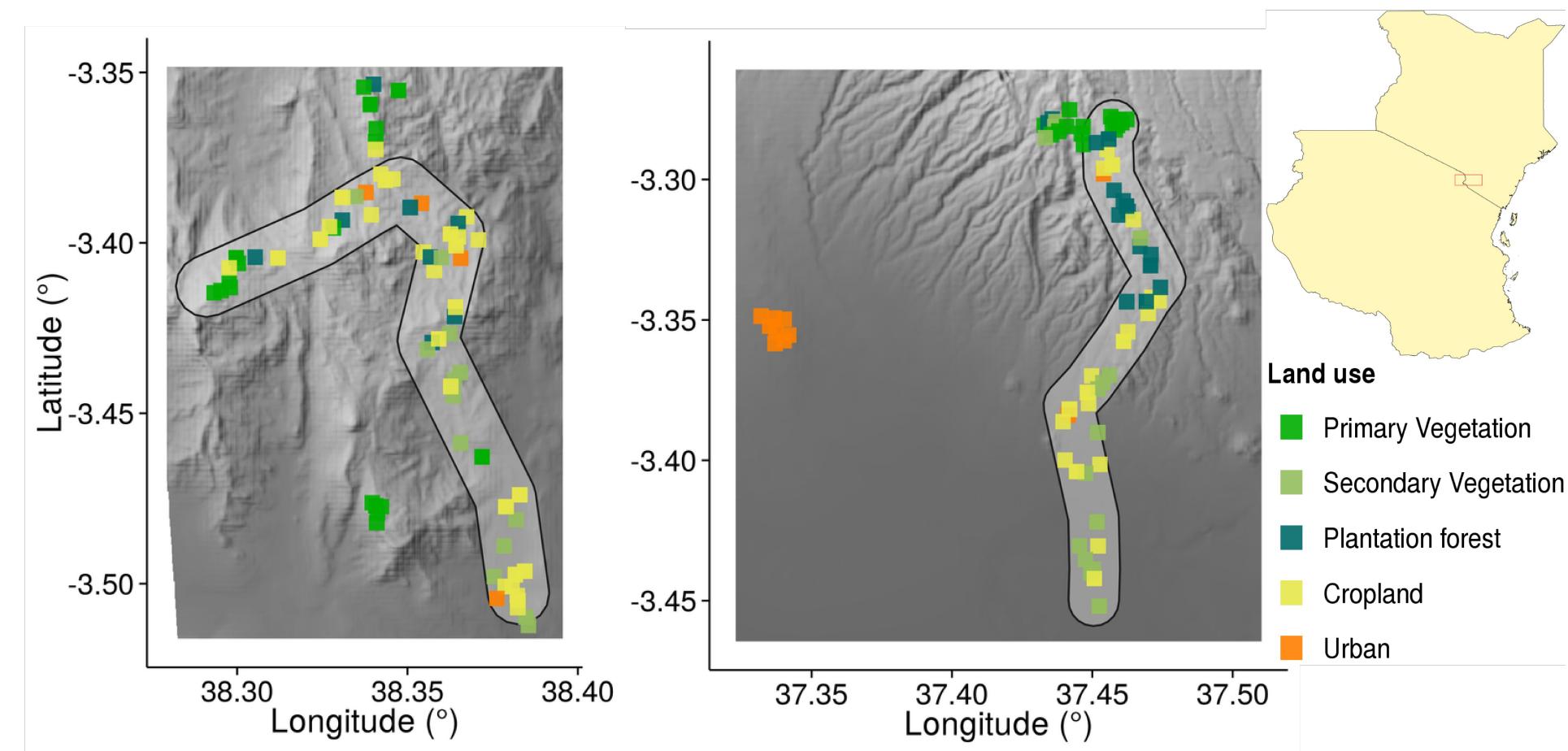
# **QUESTION :**

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How well does a broad-scale model reflect species diversity and abundance on a local land-use gradient where local conditions are known?

# METHODS





**PV**

**SV**

**PL**

**CL**

**UR**



- Timed point counts

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- Total 147 sites: 172 species, 2700 individual counts

# AUXILIARY DATA FOR THE COMPARISON

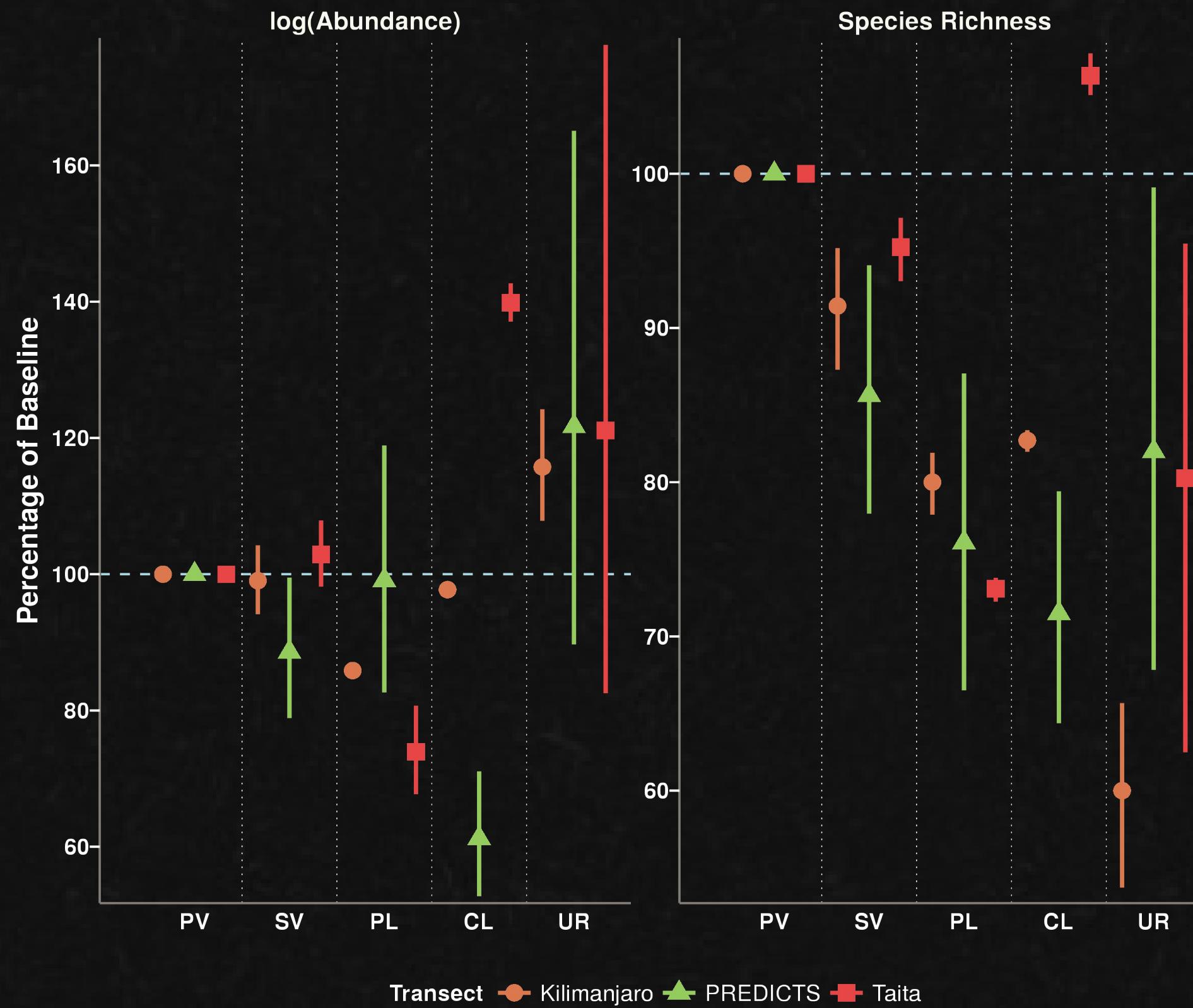
# AUXILIARY DATA FOR THE COMPARISON

- Remote-sensing and census data  
(INDVI and meanNDVI, Human population density, Forest-Cover year 2000 )

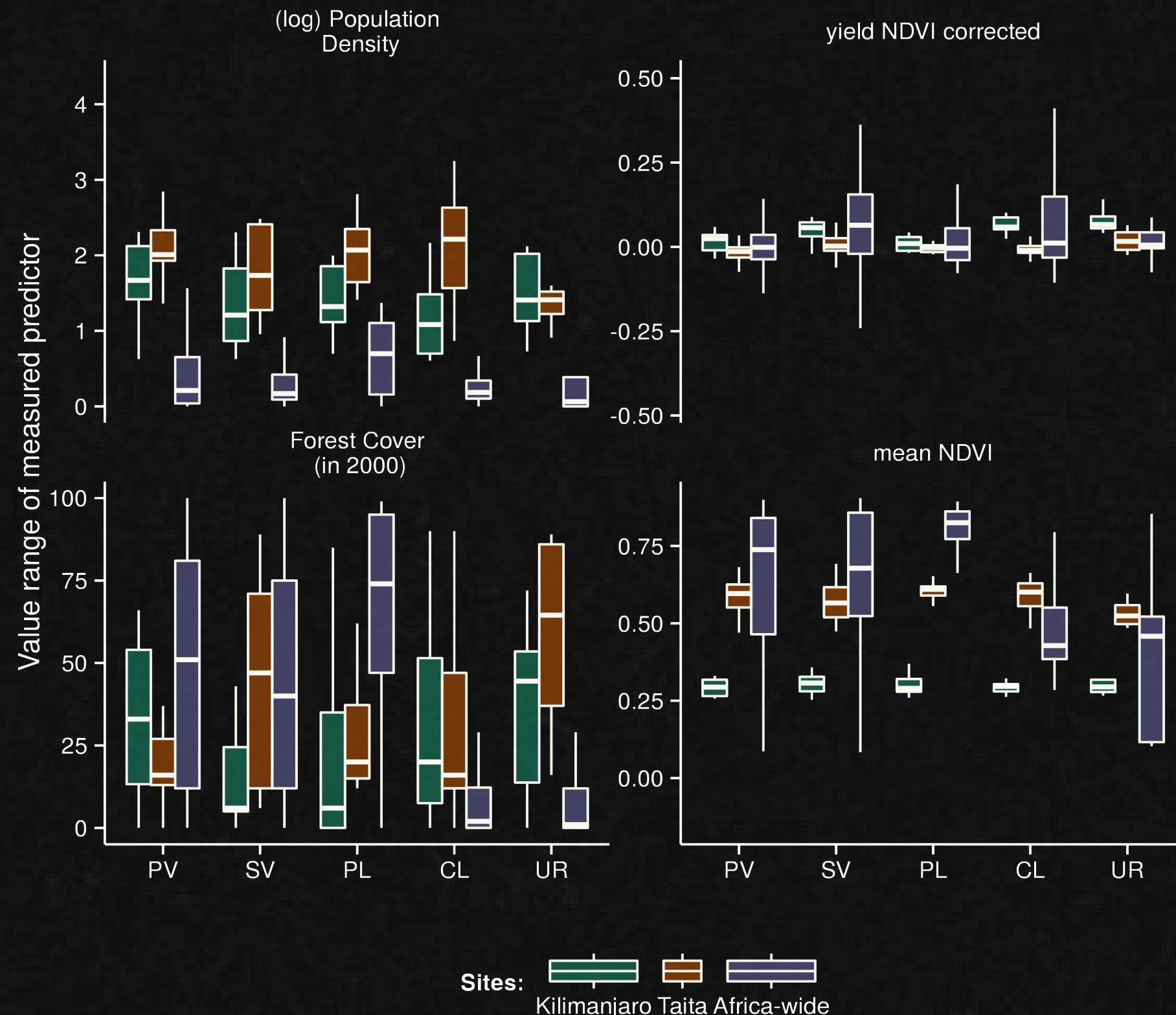
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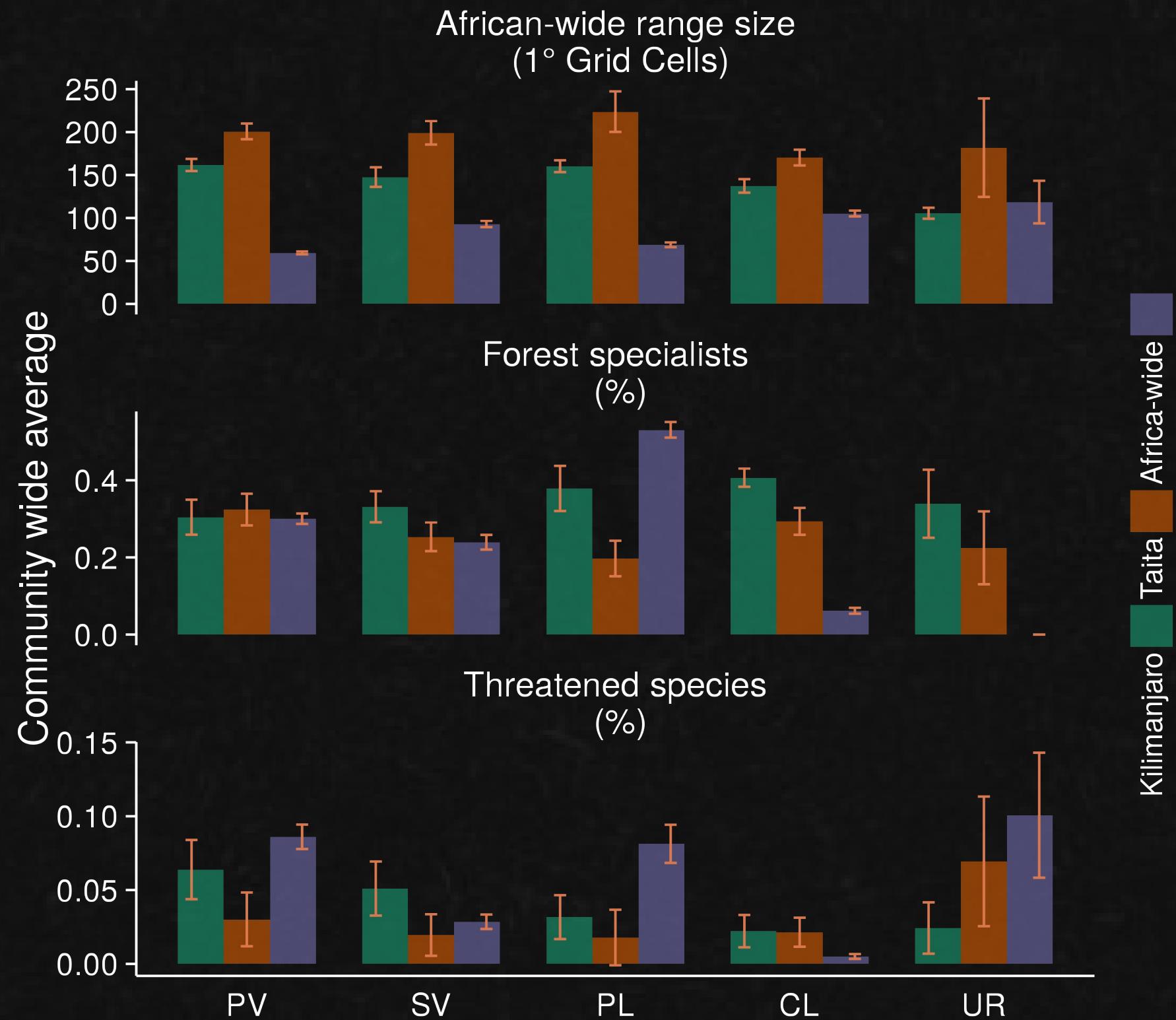
- Remote-sensing and census data  
(INDVI and meanNDVI, Human population density, Forest-Cover year 2000 )
- Functional traits  
(Range size, Threat status, Forest specialization )

# RESULTS



Transect ● Kilimanjaro ▲ PREDICTS ■ Taita







# SUMMARY

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- Cropland higher number of species than the average more intense cropland site (Agroforestry)

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- More forest-specialists in cropland
- Community differences in plantation forest maybe driven by type (Eucalyptus)
- However: Primary forest likely lower diversity due to size and fragmentation

# CONCLUSION

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- Large-scale models succeed at detecting overall impacts of land use change.
- However they might lose accuracy if they are used to predict local impacts on biodiversity, if local conditions do not conform
- Species traits and environmental co-variates could provide a window of opportunity to improve predictions in regions, where coarse categories don't capture all of the variability.

# ACKNOWLEDGEMENTS

- Tim Newbold and Neil Burgess for scientific advice
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(<http://predicts.org.uk>)
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**THANKS FOR  
LISTENING!**