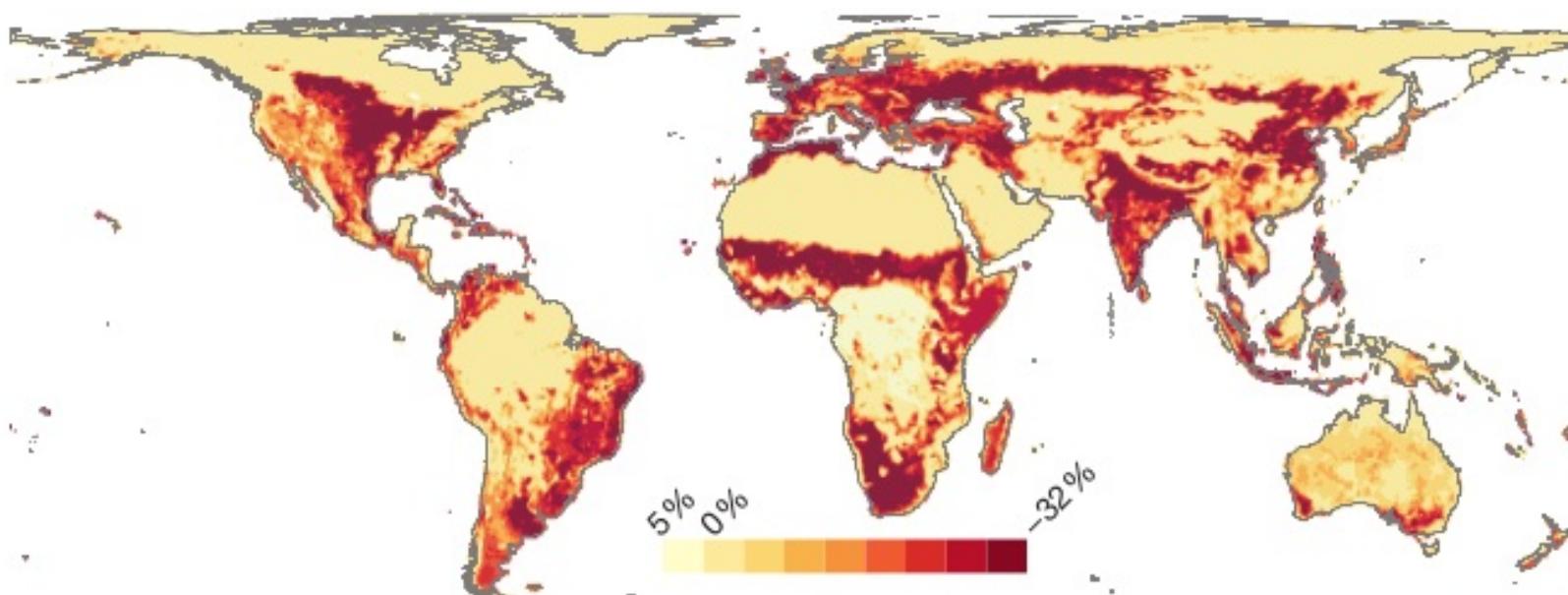




Recommendations for broad-scale diversity models from an independent study

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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

POTENTIAL PROBLEMS

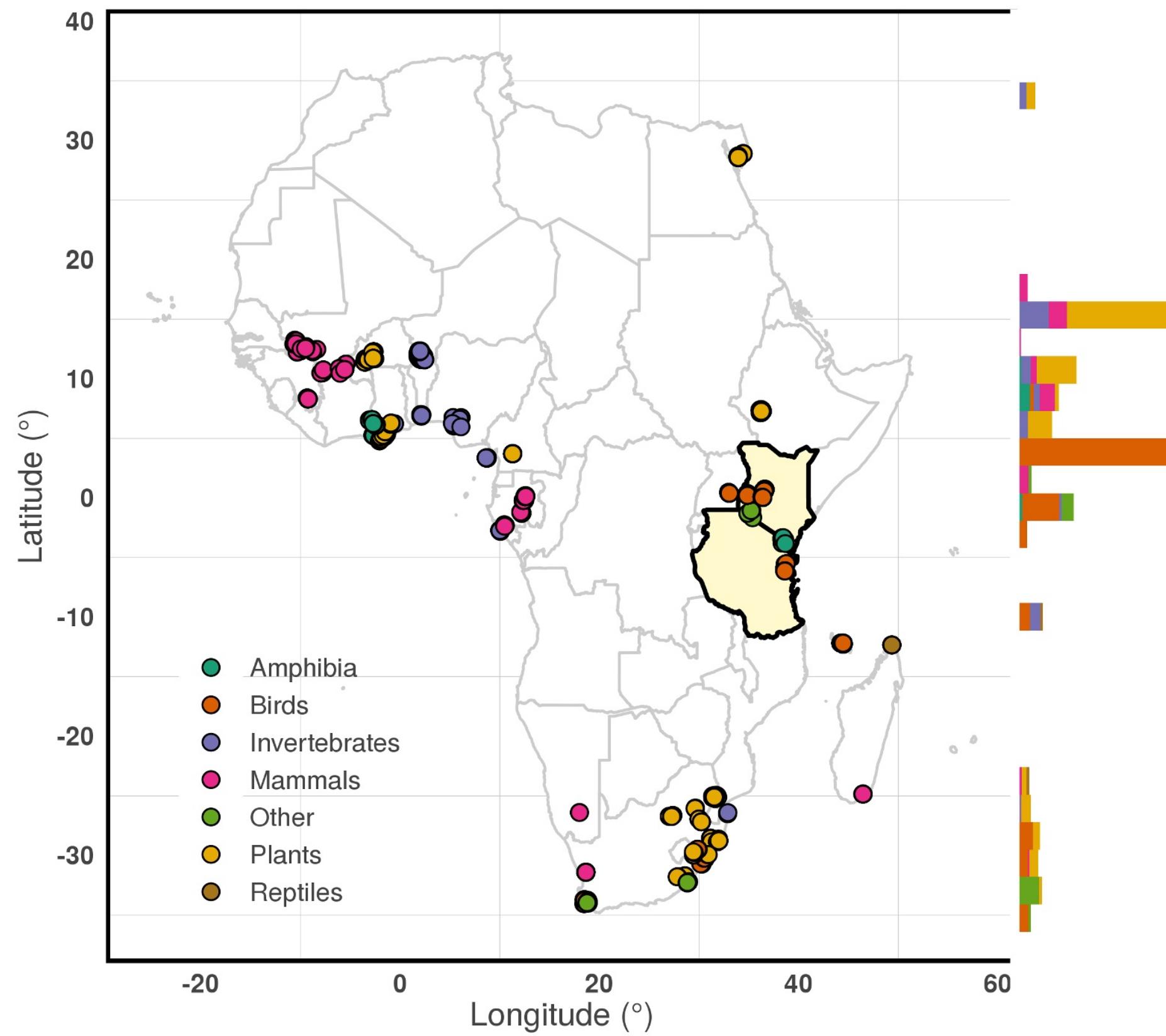
- Based on available (biased ?) data

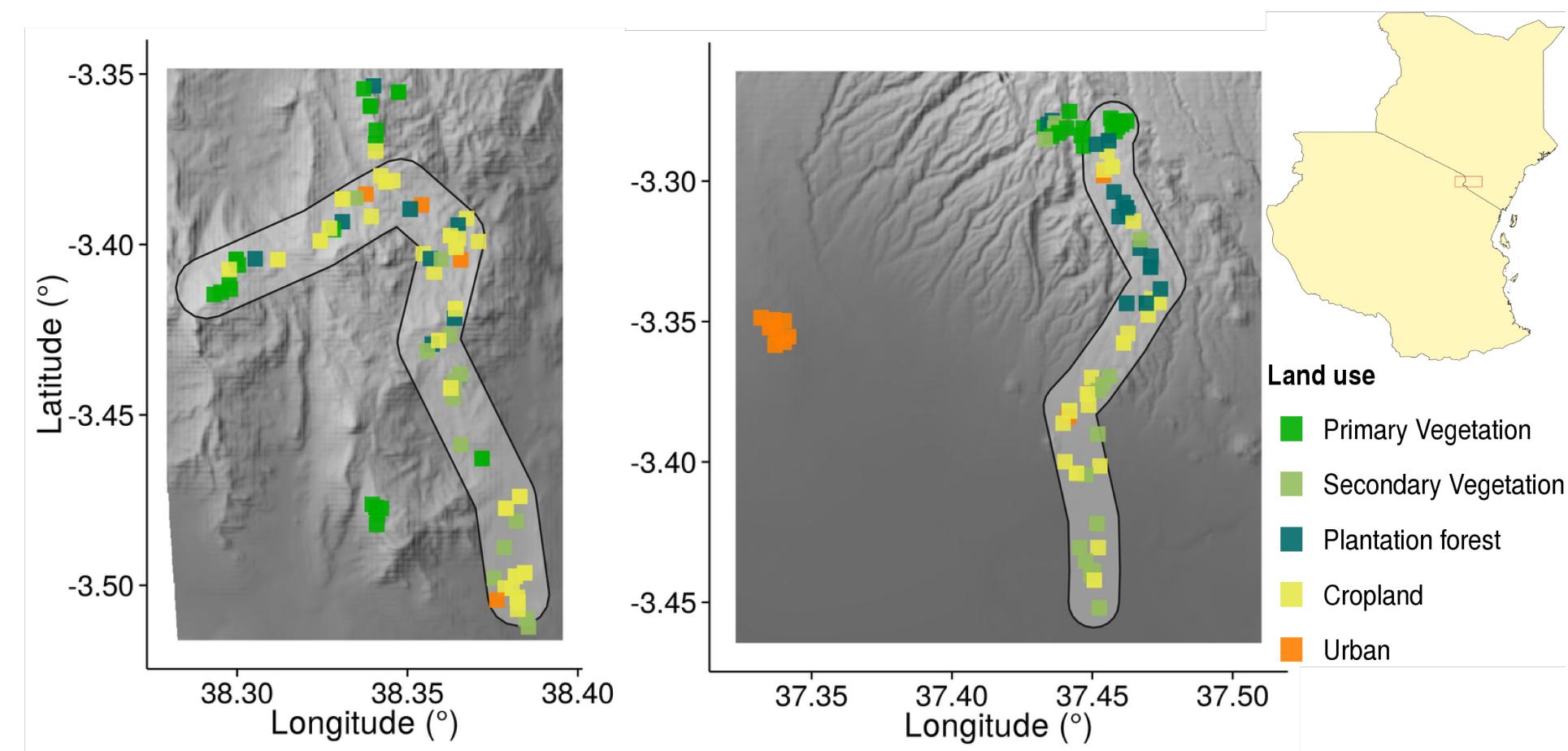
QUESTION :

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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

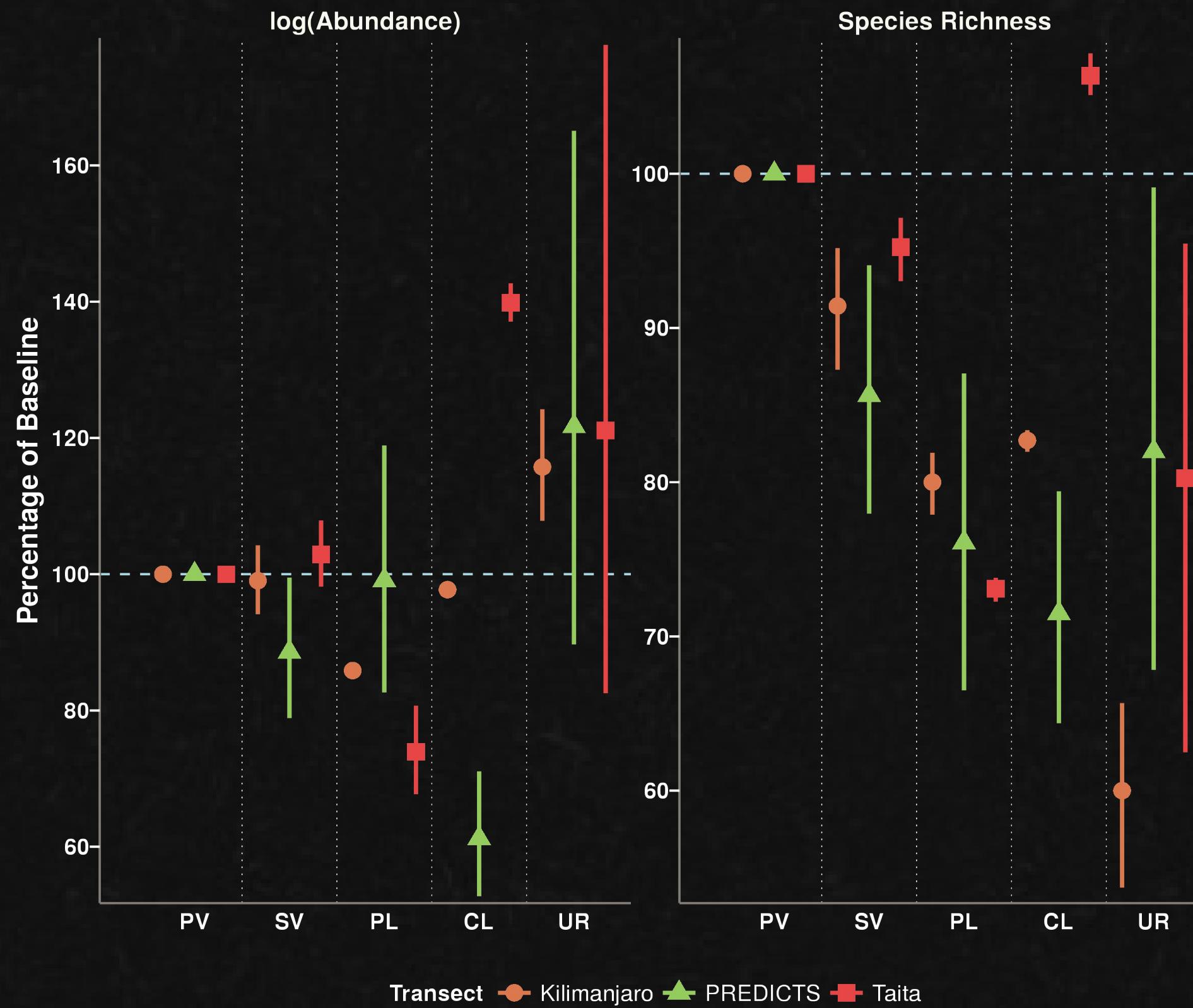
AUXILIARY DATA FOR THE COMPARISON

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

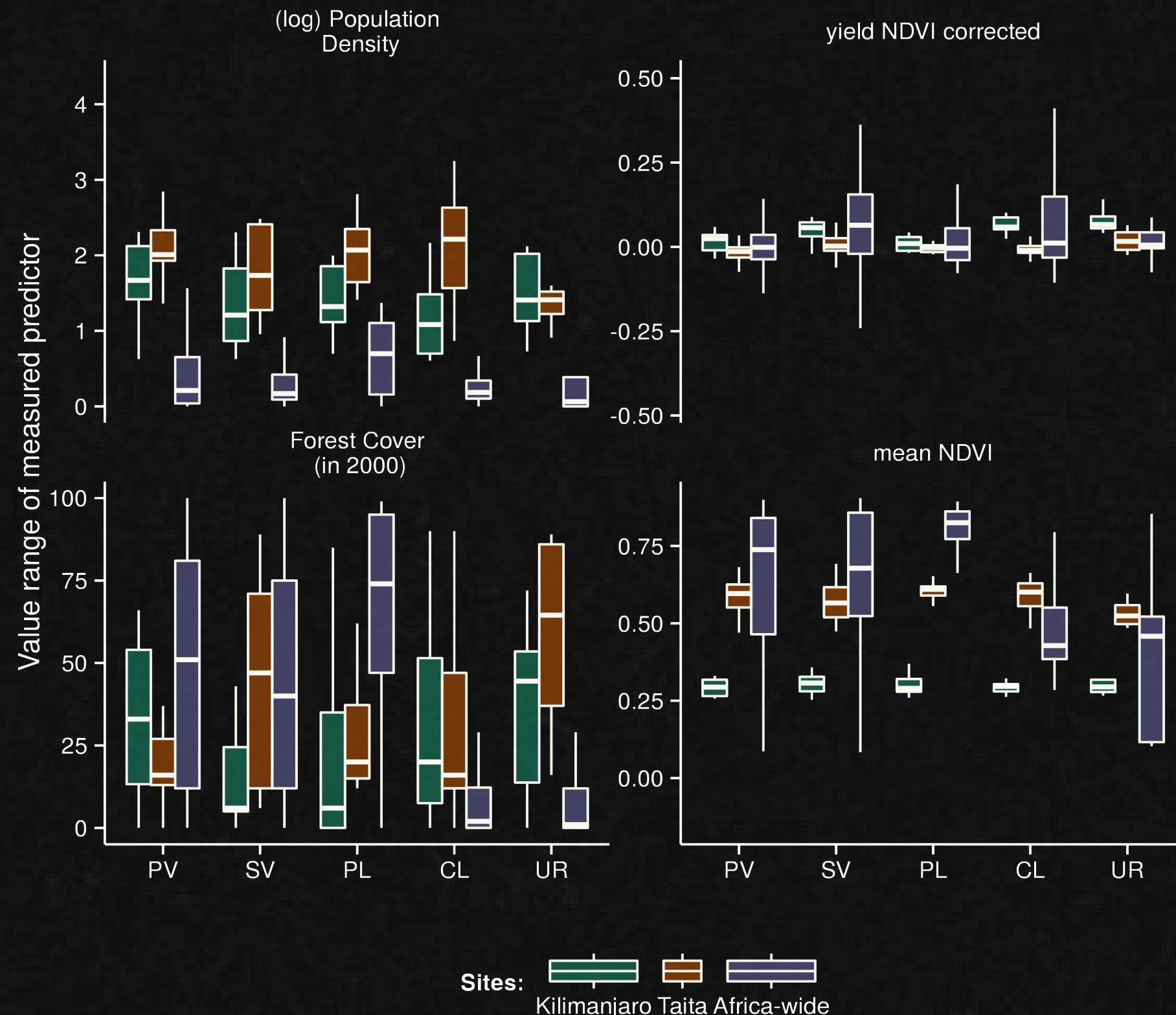
AUXILIARY DATA FOR THE COMPARISON

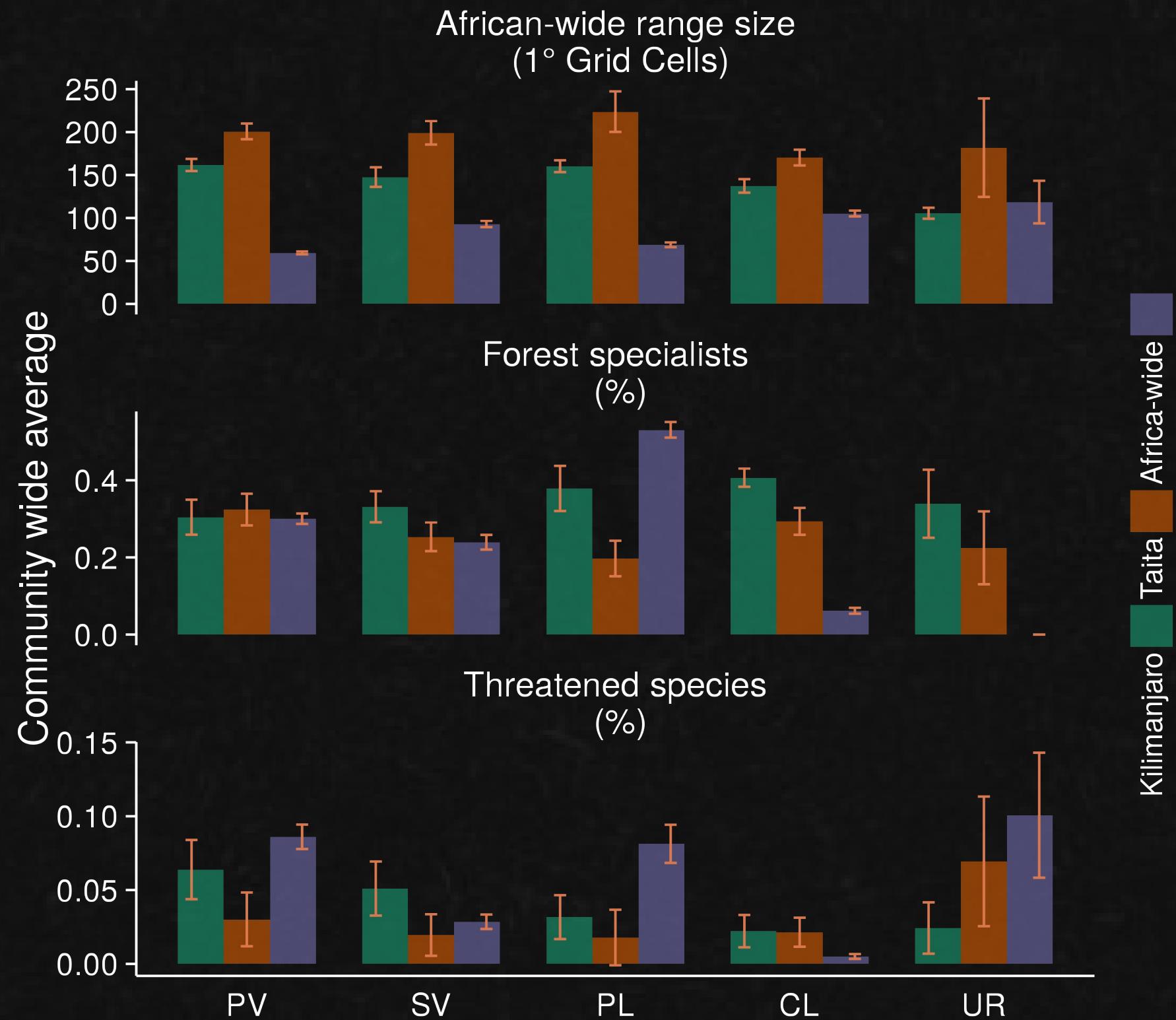
- Remote-sensing and census data
(INDVI and meanNDVI, Human population density, Forest-Cover year 2000)
- Functional traits
(Range size, Threat status, Forest specialization)

RESULTS



Transect ● Kilimanjaro ▲ PREDICTS ■ Taita





A wide-angle photograph of a tropical landscape. In the foreground, there is a dense growth of tall, green grasses and some shorter leafy plants. A small, dry, brownish clearing or path is visible in the center-left. The middle ground is dominated by more dense greenery. In the background, a thick forest of various trees and palms stretches across the horizon under a clear sky.

SUMMARY

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

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Danida Fellowship Centre
- sustaining development through research and learning

**THANKS FOR
LISTENING!**