

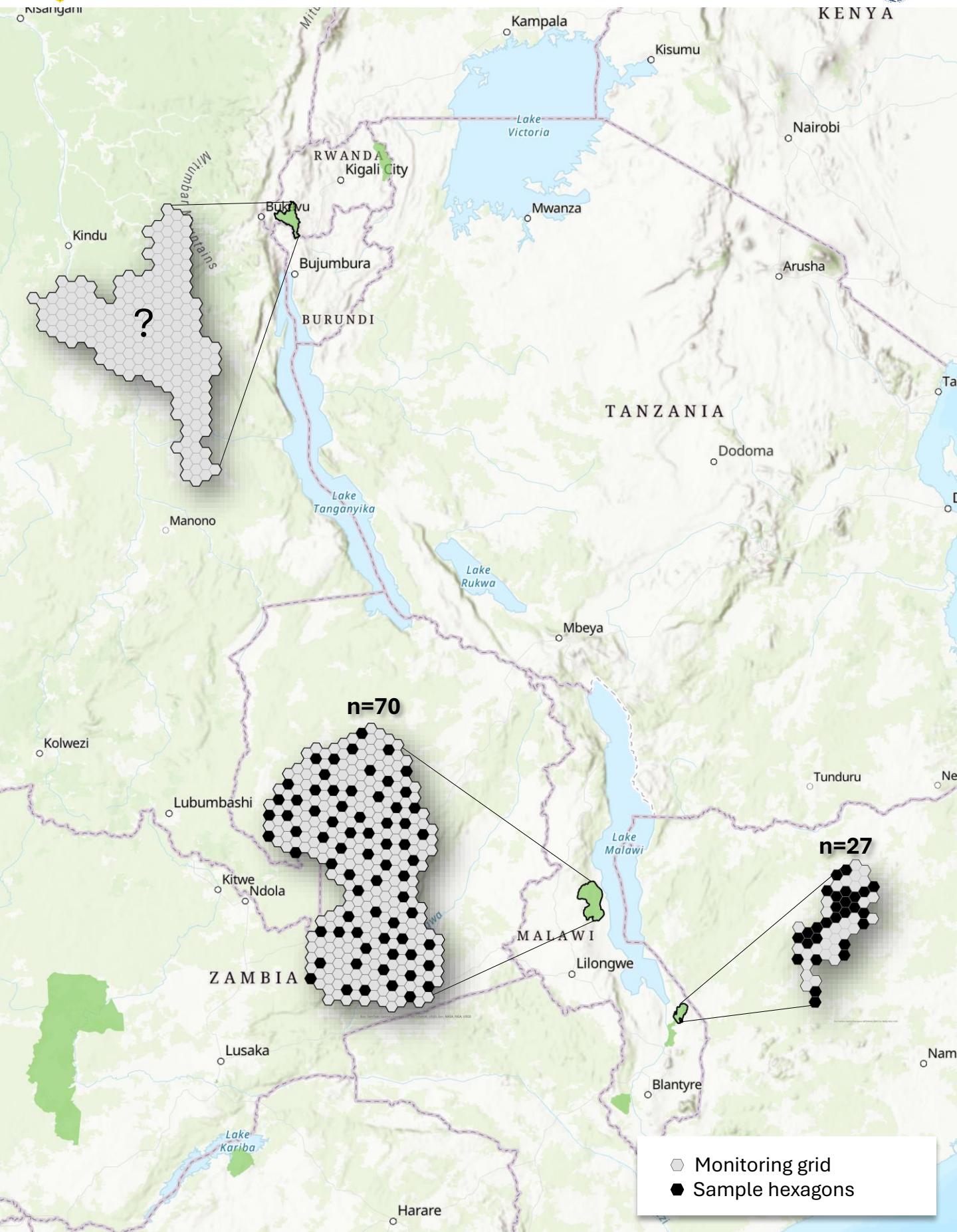
US Forest Service Monitoring Framework Missions



African Parks
Management Partnerships

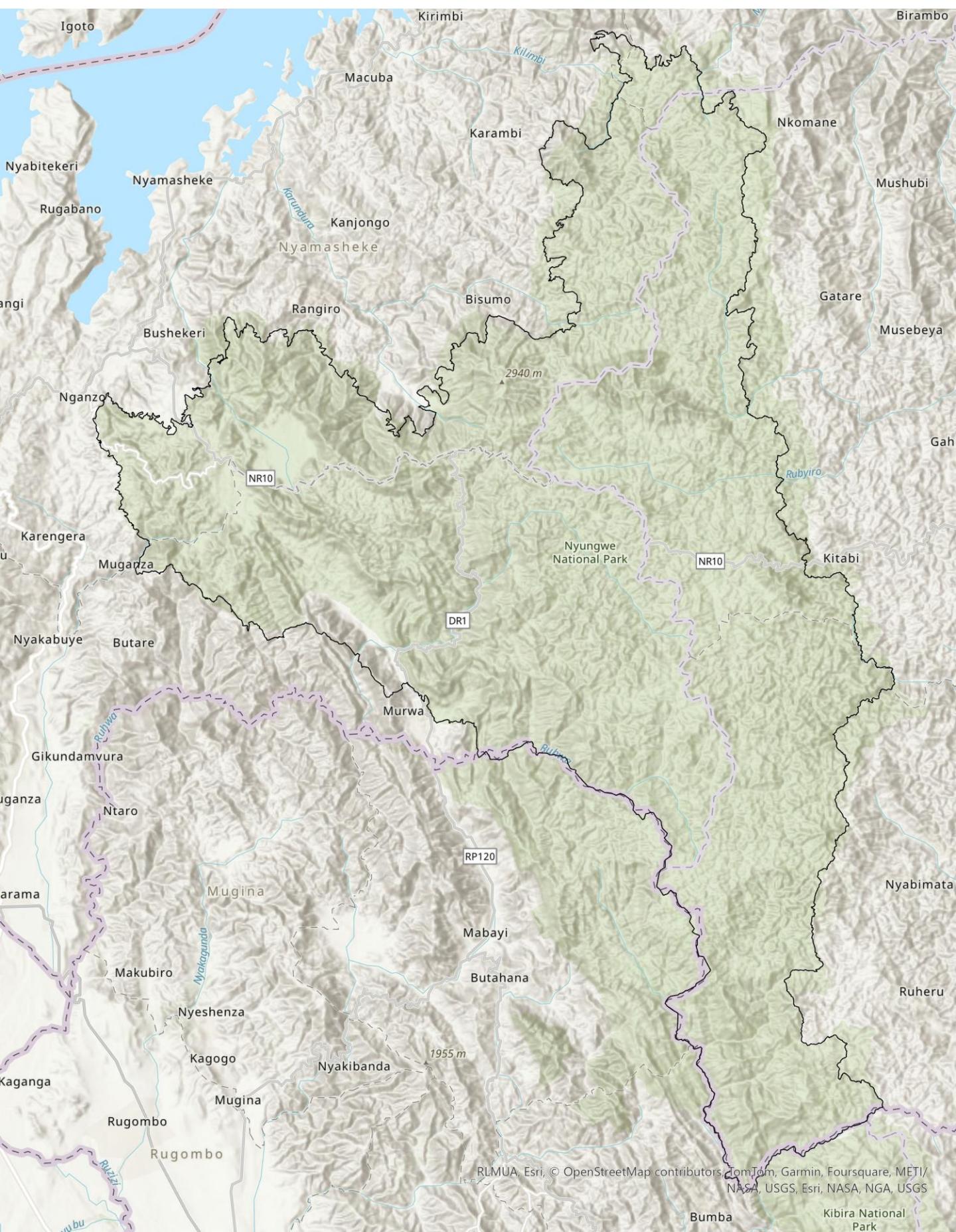


US Forest Service Monitoring Framework Missions



Hexagon: Monitoring grid
Black dot: Sample hexagon

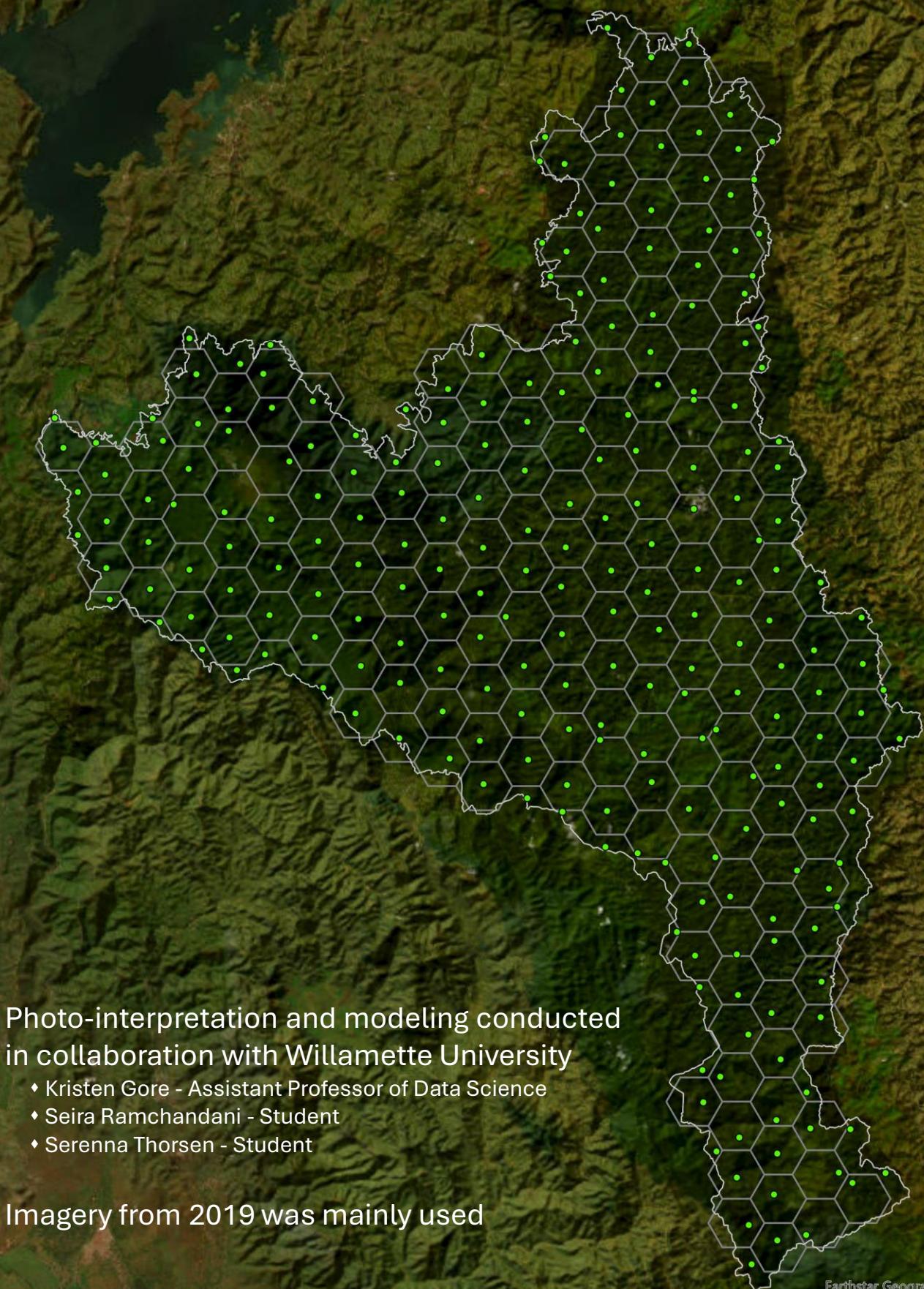
Nyungwe National Park (1,019 km²)



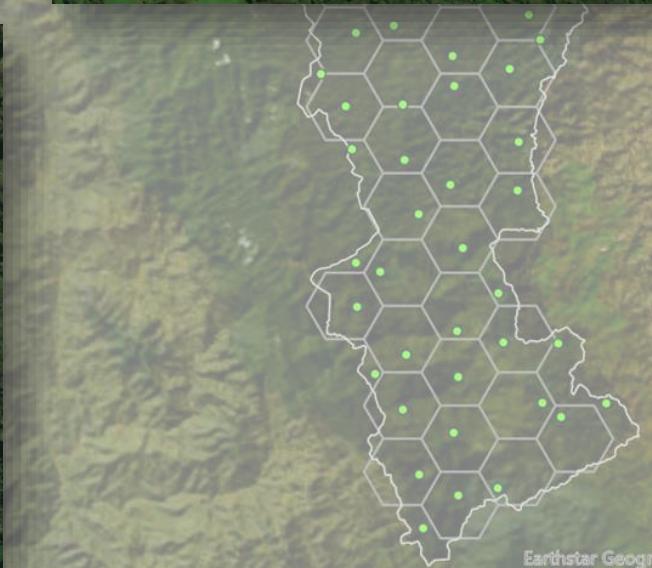
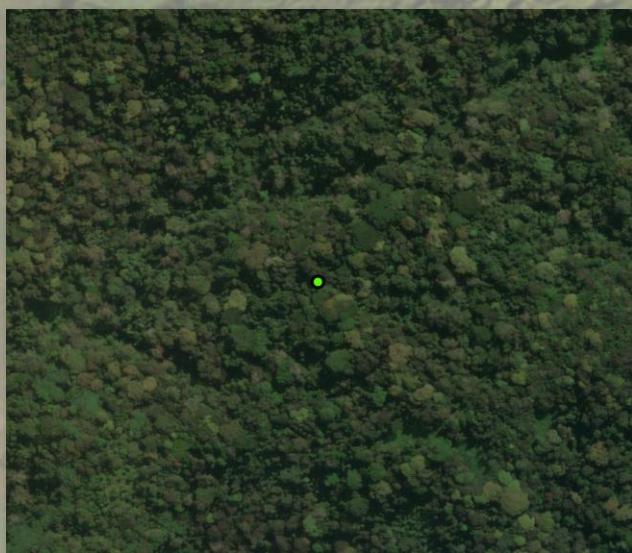
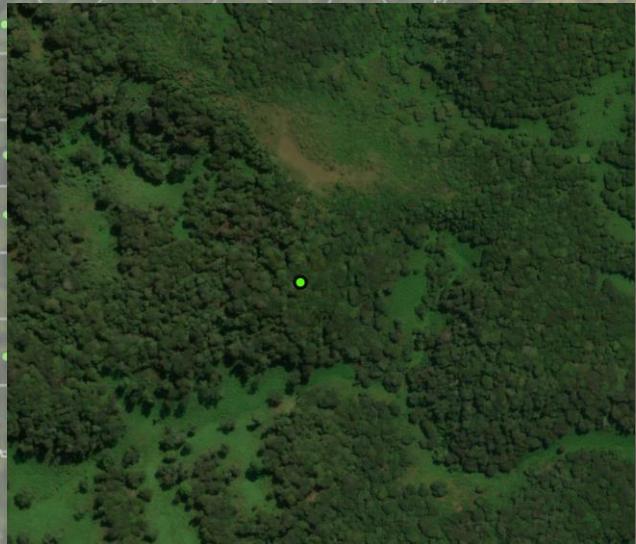
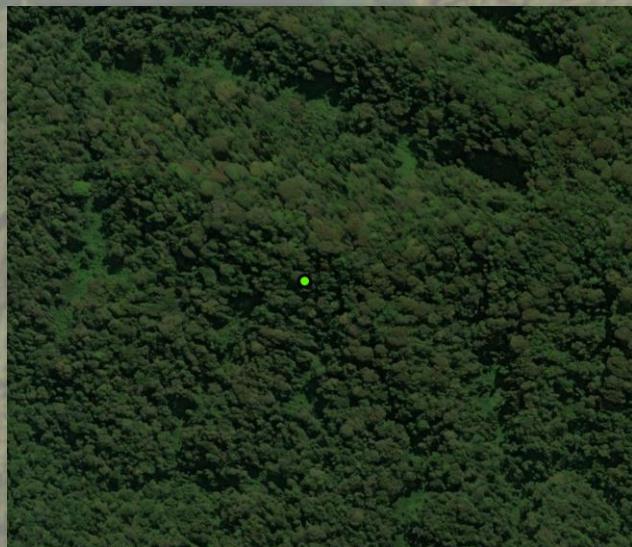
Nyungwe National Park (1,019 km²)



Forest Land Cover Model Training/Testing Data (n=245)



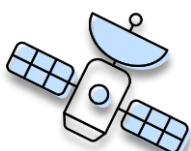
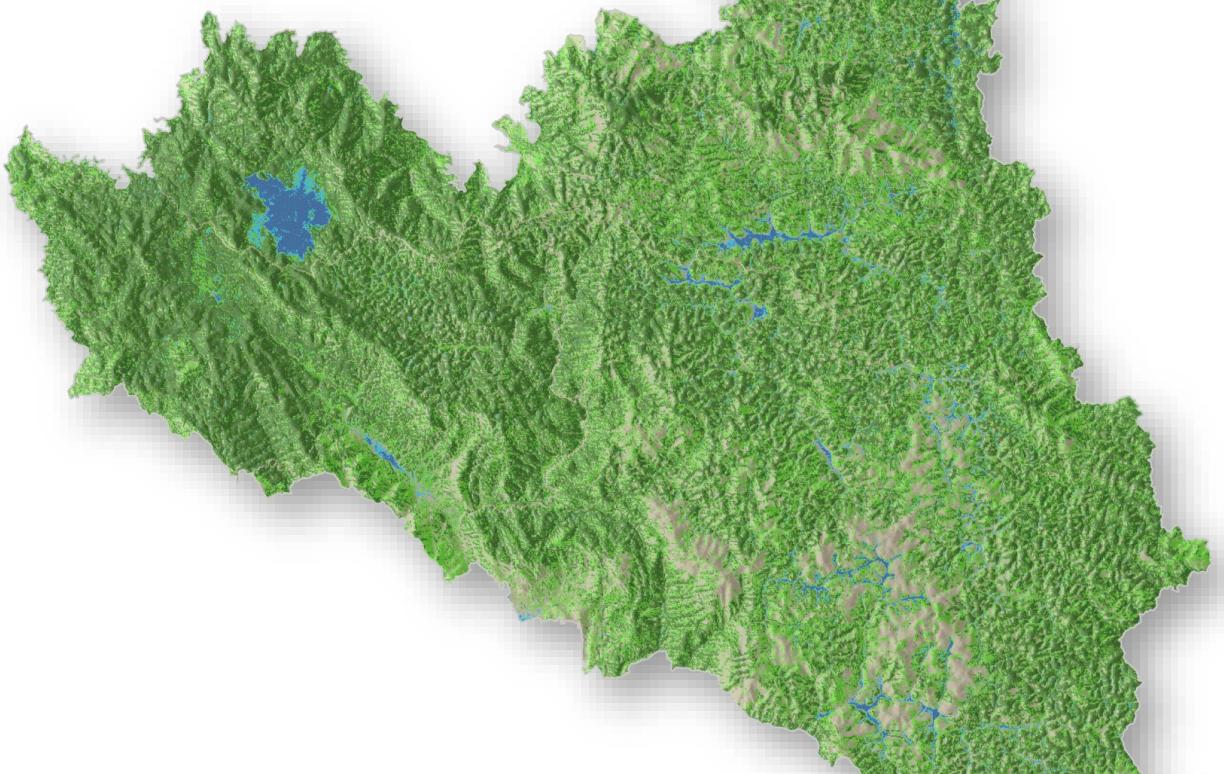
Forest Land Cover Model Training/Testing Data (n=245)



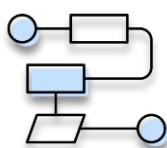
Forest Land Cover Model v1.0



Google Earth Engine Platform
<https://earthengine.google.com/>



Satellite Imagery



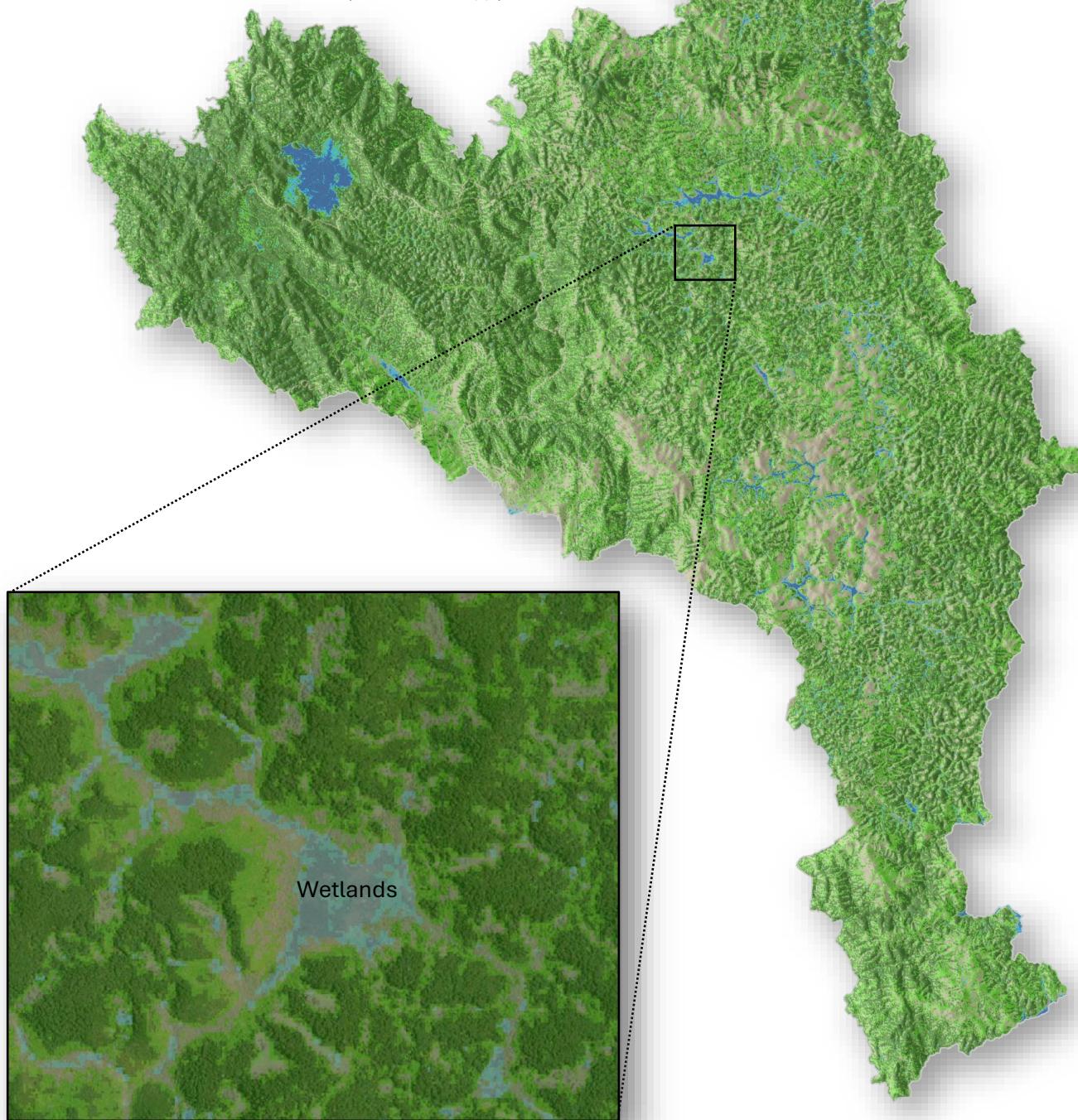
MaxEnt Algorithm

Forest ‘Spectral Similarity’ Classes

Forest Spectral Similarity

- Very similar
- Marginally similar
- Not similar

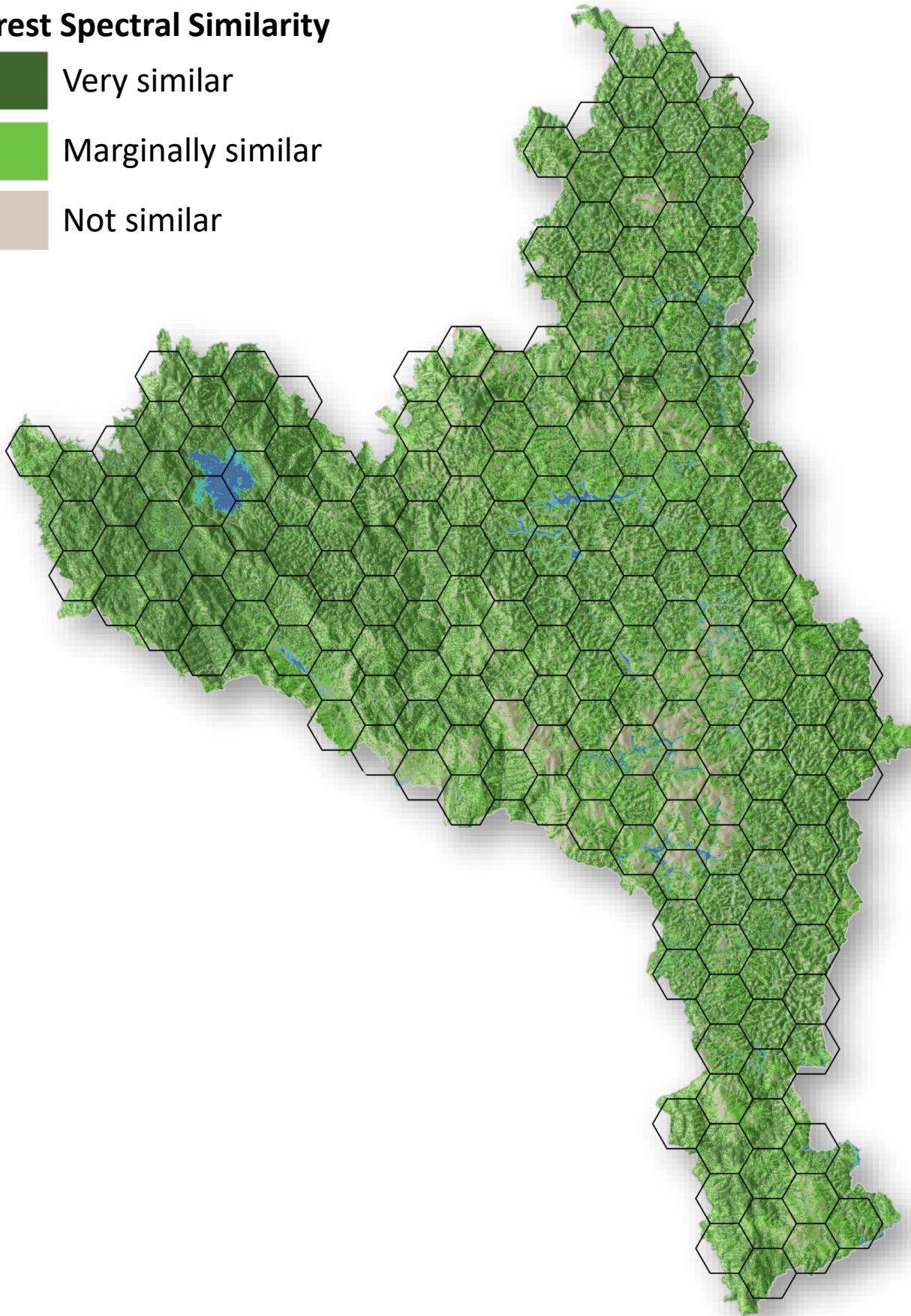
Witt, C., Davis, R.J., Yang, Z., Ganey, J.L., Gutiérrez, R.J., Healey, S., Hedwall, S., Hoagland, S., Maes, R., Malcolm, K. and Sanderlin, J., 2022. Linking robust spatiotemporal datasets to assess and monitor habitat attributes of a threatened species. Plos one, 17(3), p.e0265175.



Monitoring Grid (5km² hexagons)

Forest Spectral Similarity

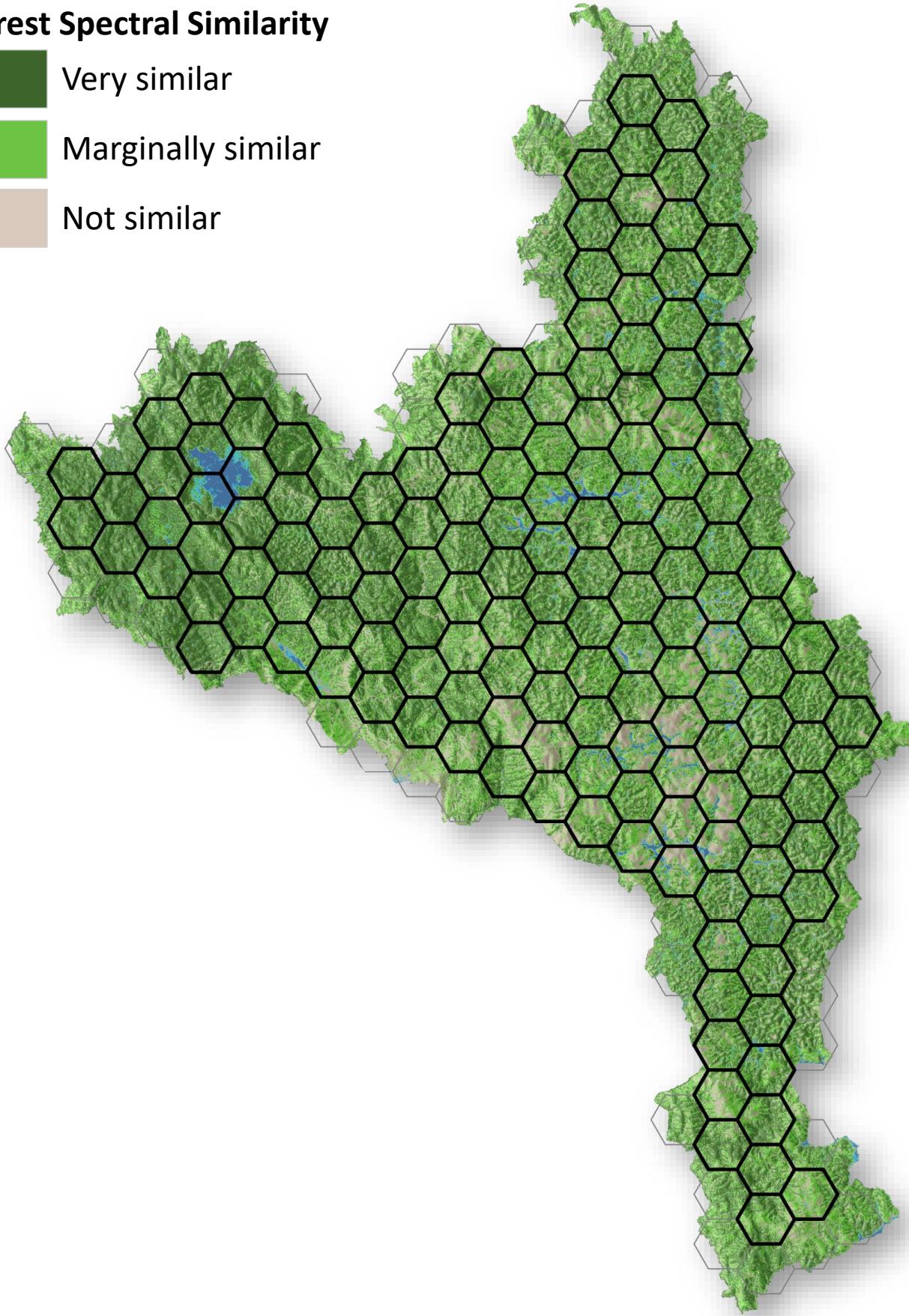
- Very similar
- Marginally similar
- Not similar



Hexagons Interior to Park Boundary (n=150)

Forest Spectral Similarity

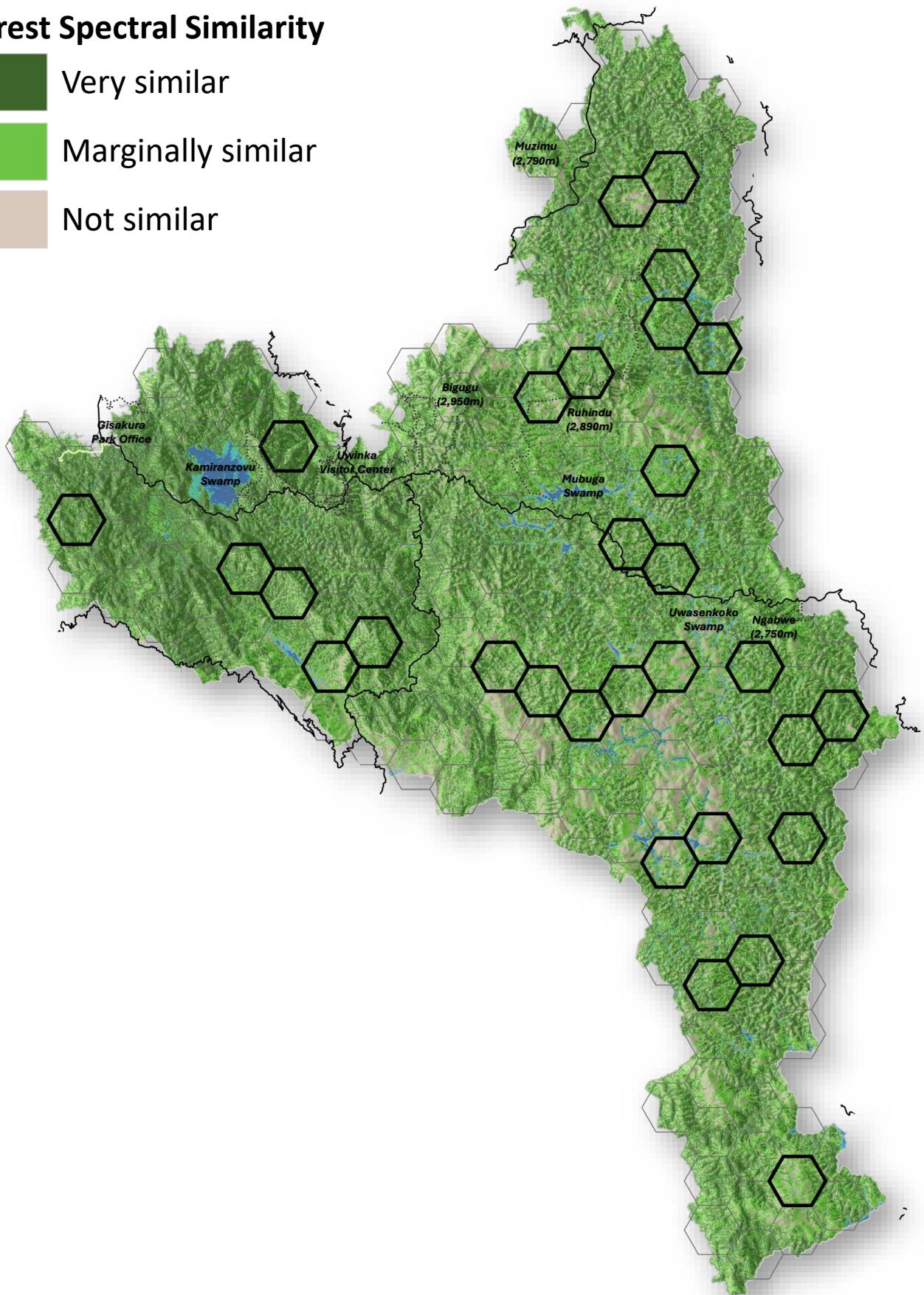
- Very similar
- Marginally similar
- Not similar



Random 20% Sample (n=30)

Forest Spectral Similarity

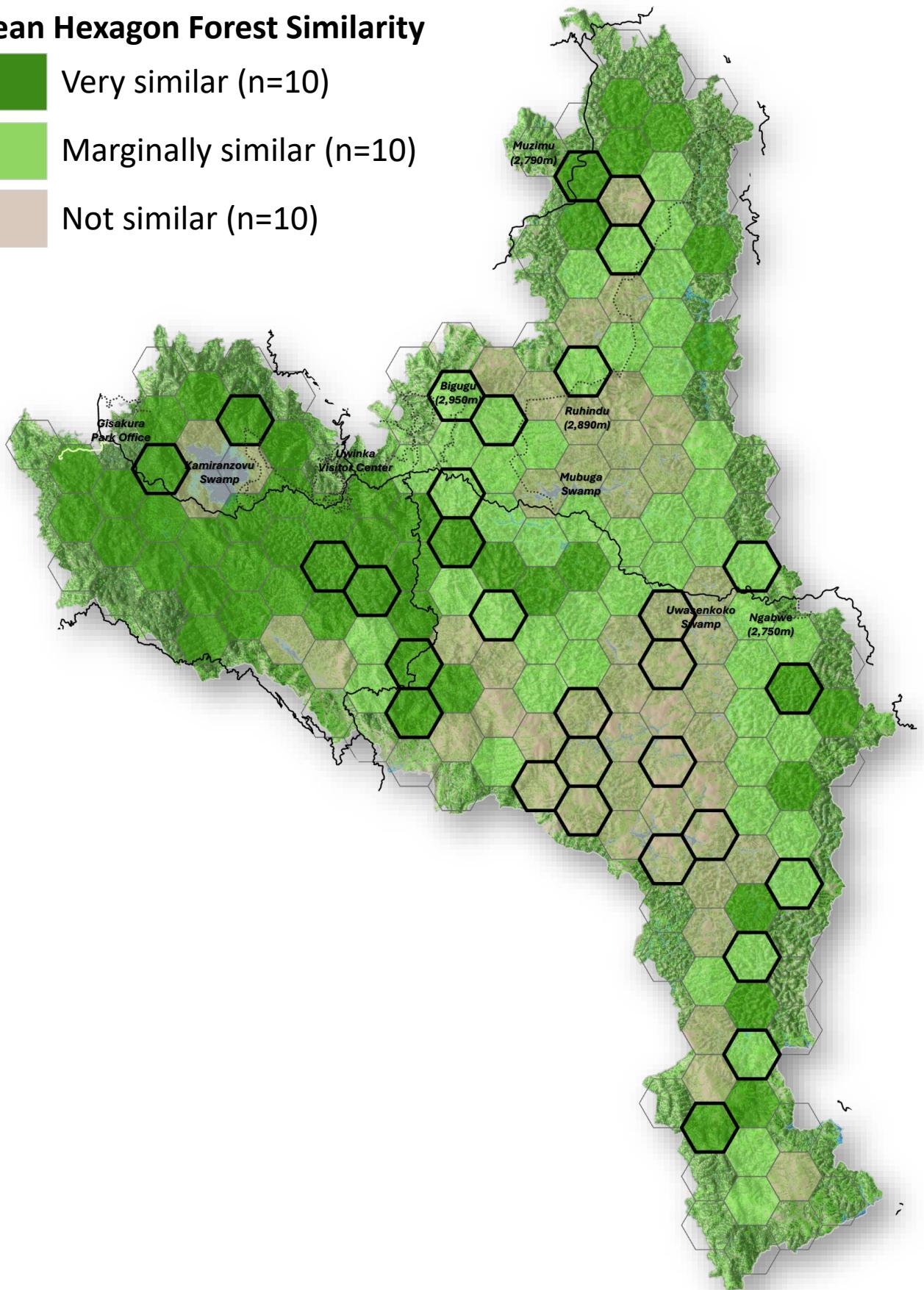
- Very similar
- Marginally similar
- Not similar



Stratified Random 20% Sample (n=30)

Mean Hexagon Forest Similarity

- Very similar (n=10)
- Marginally similar (n=10)
- Not similar (n=10)

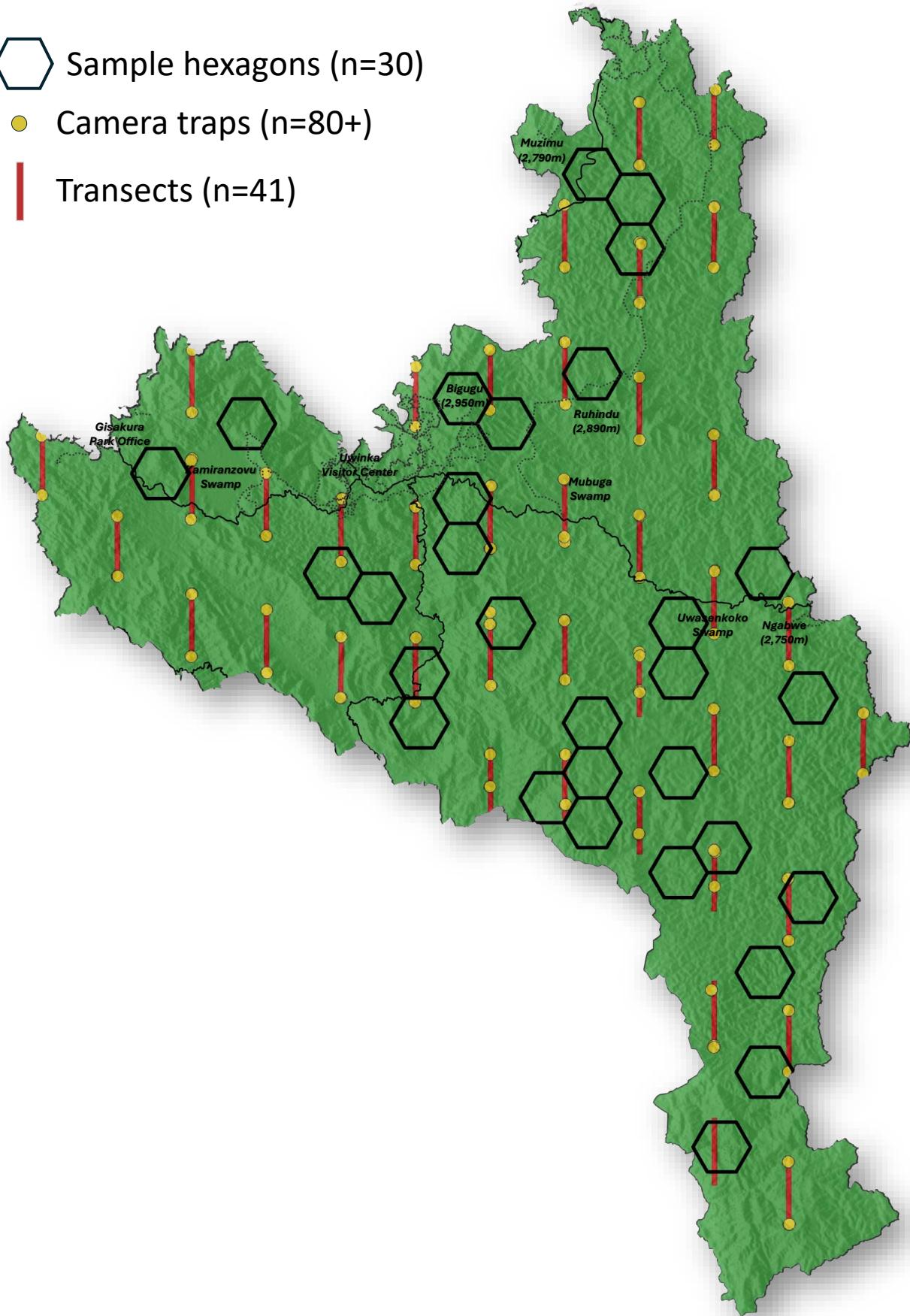


Comparison with Camera Traps and Transects

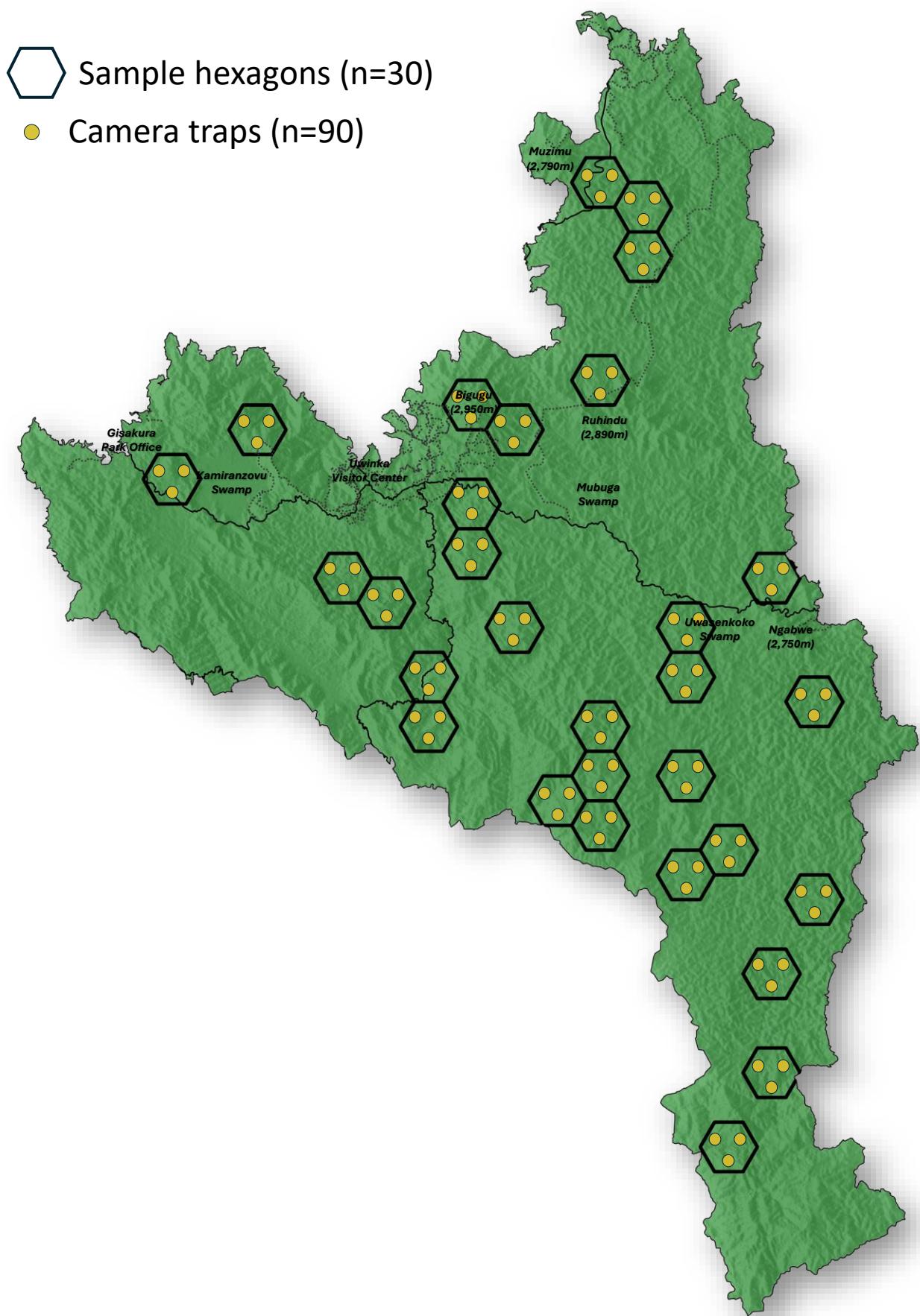
Hexagon Sample hexagons (n=30)

Yellow dot Camera traps (n=80+)

Red line Transects (n=41)



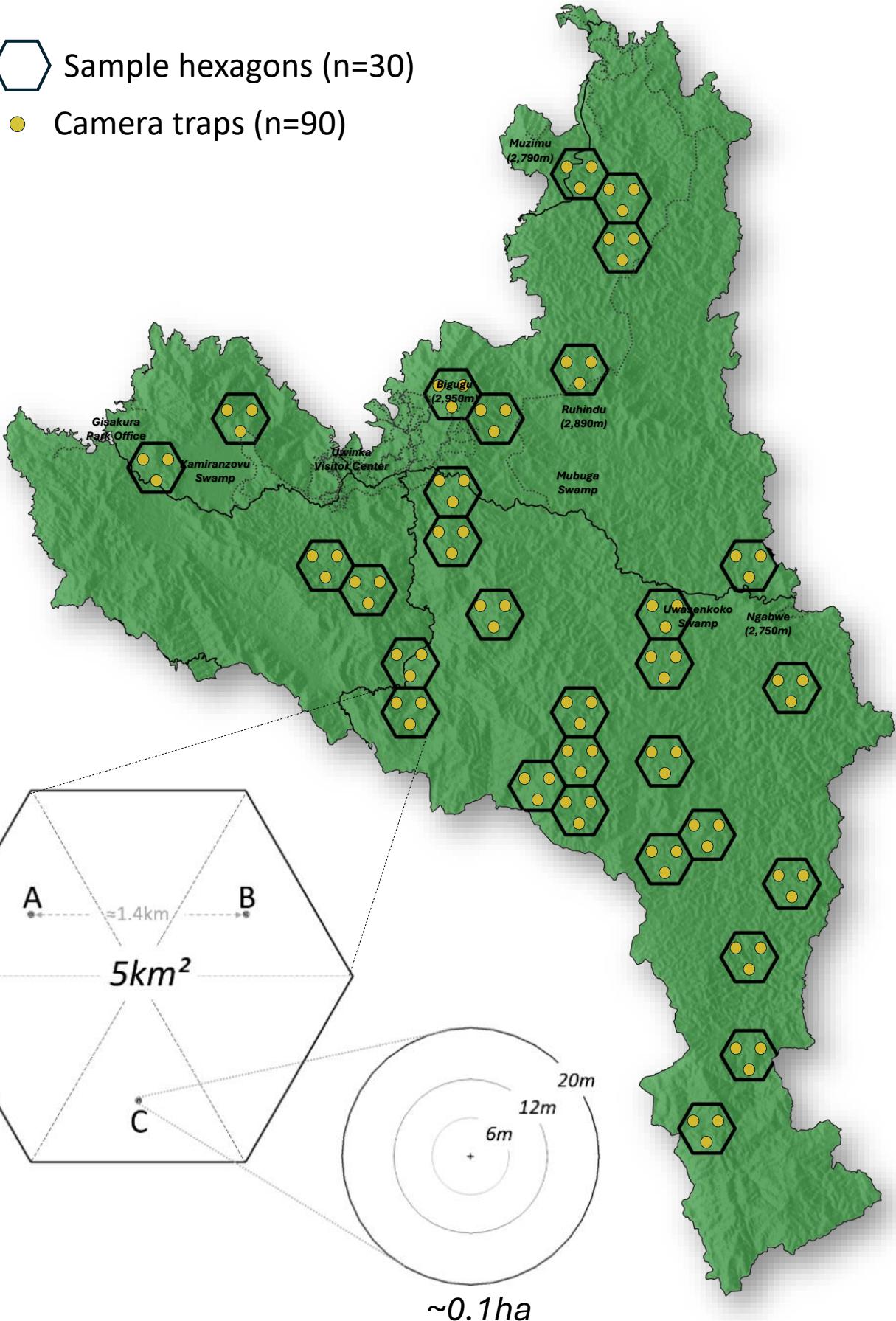
Stratified Random 20% Sample (n=30)



Monitoring Plot Layout

Hexagon Sample hexagons (n=30)

Yellow Camera traps (n=90)



Nyungwe National Park-Monitoring Plot - Field Form

Hexagon ID _____ Station ID _____ UTMX _____ UTMY _____

Land Cover Type _____ Topographic Position _____ Cover Class _____ Slope (°) _____

Date _____ Time (start) _____ Time (stop) _____ Initials _____

Live tree diameter class tally			Tree species code (most to least dominant)	Compass Direction	Photo Taken	
Small 5-15 cm dia out to 6 m radius	Medium 15-30 cm dia out to 12 m radius	Large ≥30 cm dia out to 20 m radius				
				6 m:		
				12 m:		
				20 m:		

Ground Cover	Cover Class	Disturbance/Use	✓	Remarks (L,M,H)
Rock		No disturbances noted		
Bare soil		Old burn (>1yr)		
Grass/forb		Recent burn (<1yr)		
Shrub		Human use		
Farm residues		Wildlife use		

Land Cover Types

- 1) Deciduous woodland
- 2) Riparian woodland
- 3) Montane woodland
- 4) Shrubland
- 5) Dambo

Topographic Position

- 1) Ridge top
- 2) Upper-slope
- 3) Lower-slope
- 4) Valley
- 5) Flat

Cover Classes

- 1) <10% cover
- 2) 10-25% cover
- 3) 25-50% cover
- 4) 50-75% cover
- 5) >75% cover

Camera Trap Installation Check List (✓):

- ___ Settings checked
- ___ Installed
- ___ Tested
- ___ SD card replaced
- ___ Camera turned on

General Field Notes:

Dead trees?
Decadent trees?
Down wood?

⊕ → Mark location and direction of camera w/in plot

