

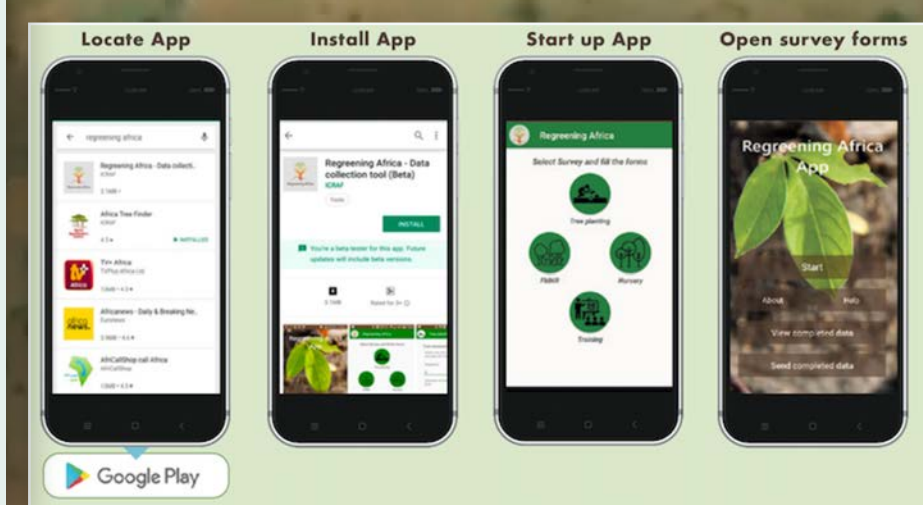
Citizen science meets scientific research to monitor land restoration



Tor-G. Vågen, Muhammad N. Ahmad, Benard Onkware and Leigh A. Winowiecki

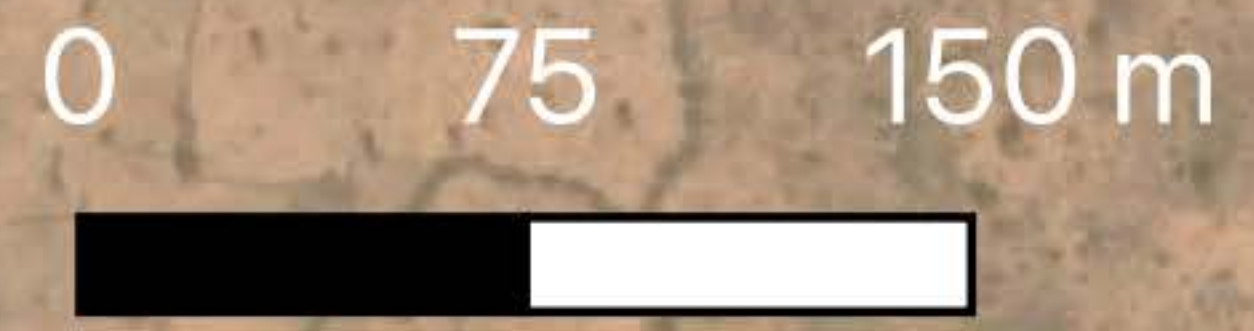
Features of the Regreening Africa App

- TREE PLANTING MODULE**
 - Record details of farmers and regreened plot
 - Track tree growth
 - Date(s) planted
 - Characterise species composition and assess tree planting practices
 - Field boundary recorded
 - Location of trees planted
 - Number of trees planted
 - Survival of trees
- FARMER MANAGED NATURAL REGENERATION (FMNR) MODULE**
 - Record details of farmers and regreened plots
 - Characterise dominant species composition
 - Assess FMNR practices
- NURSERY MODULE**
 - Ensuring that farmers have access to quality planting materials and a wide range of species for tree planting
 - Record nursery information and location
 - Record nursery practices
 - Record nursery production
- TRAINING MODULE**
 - Record training details
 - Record gender participation in training sessions





Issoufou's farm



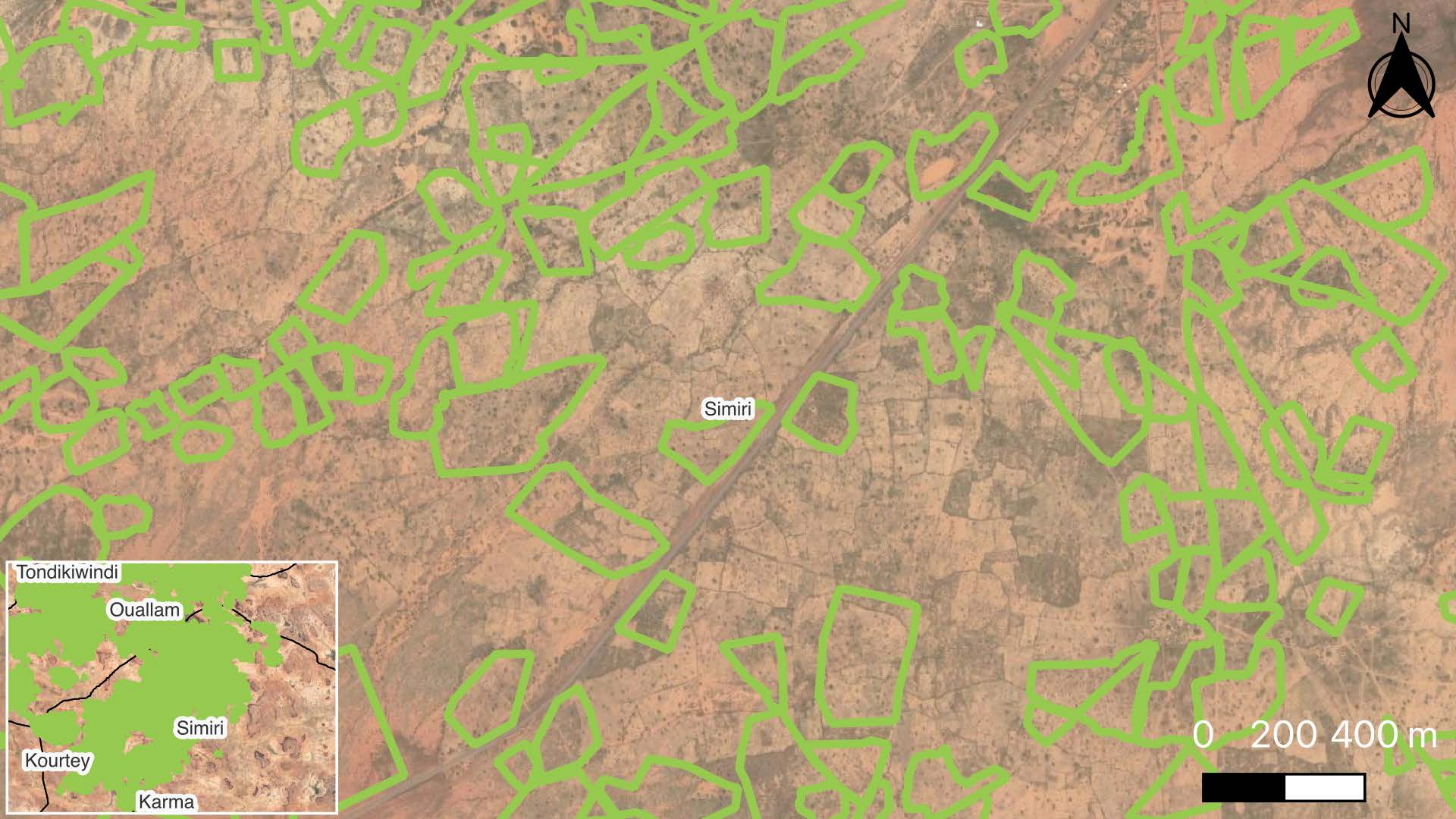


Simiri



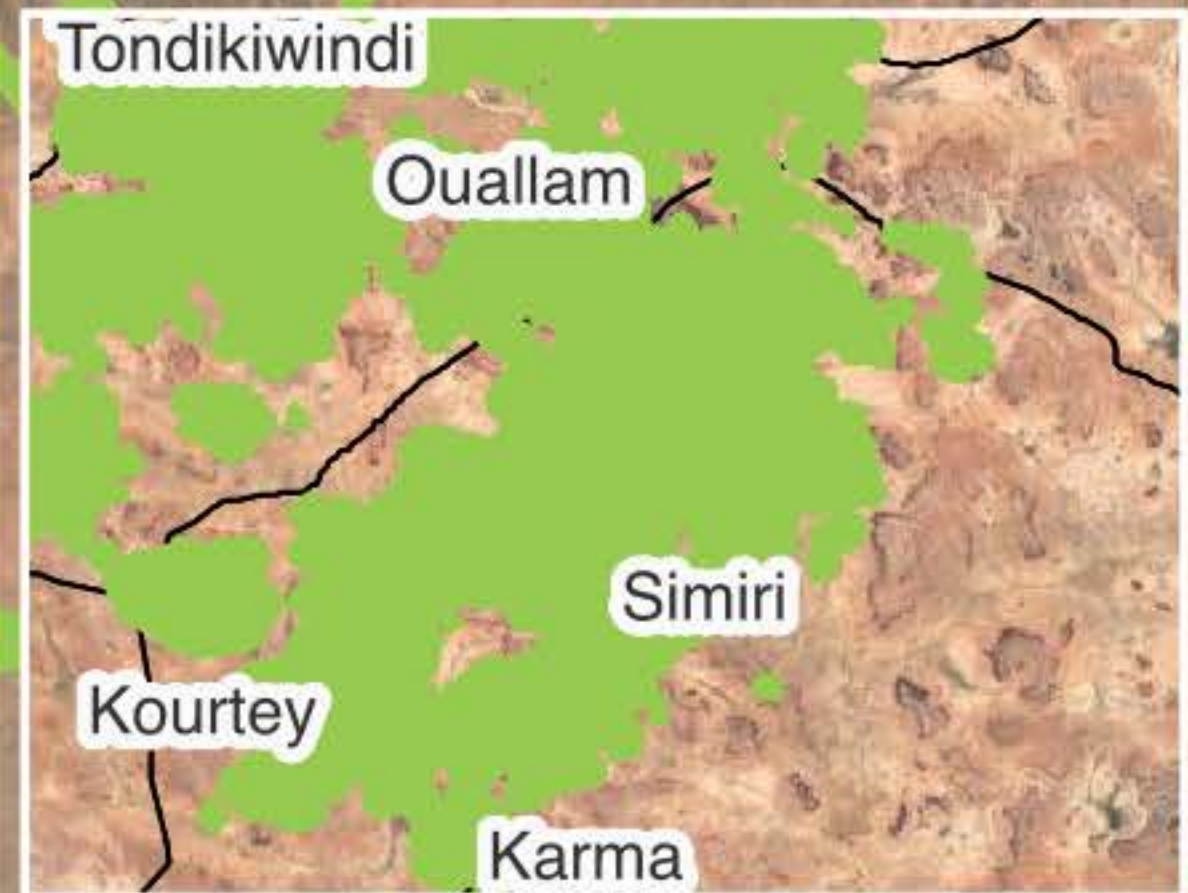
0 200 400 m





Simiri

0 200 400 m



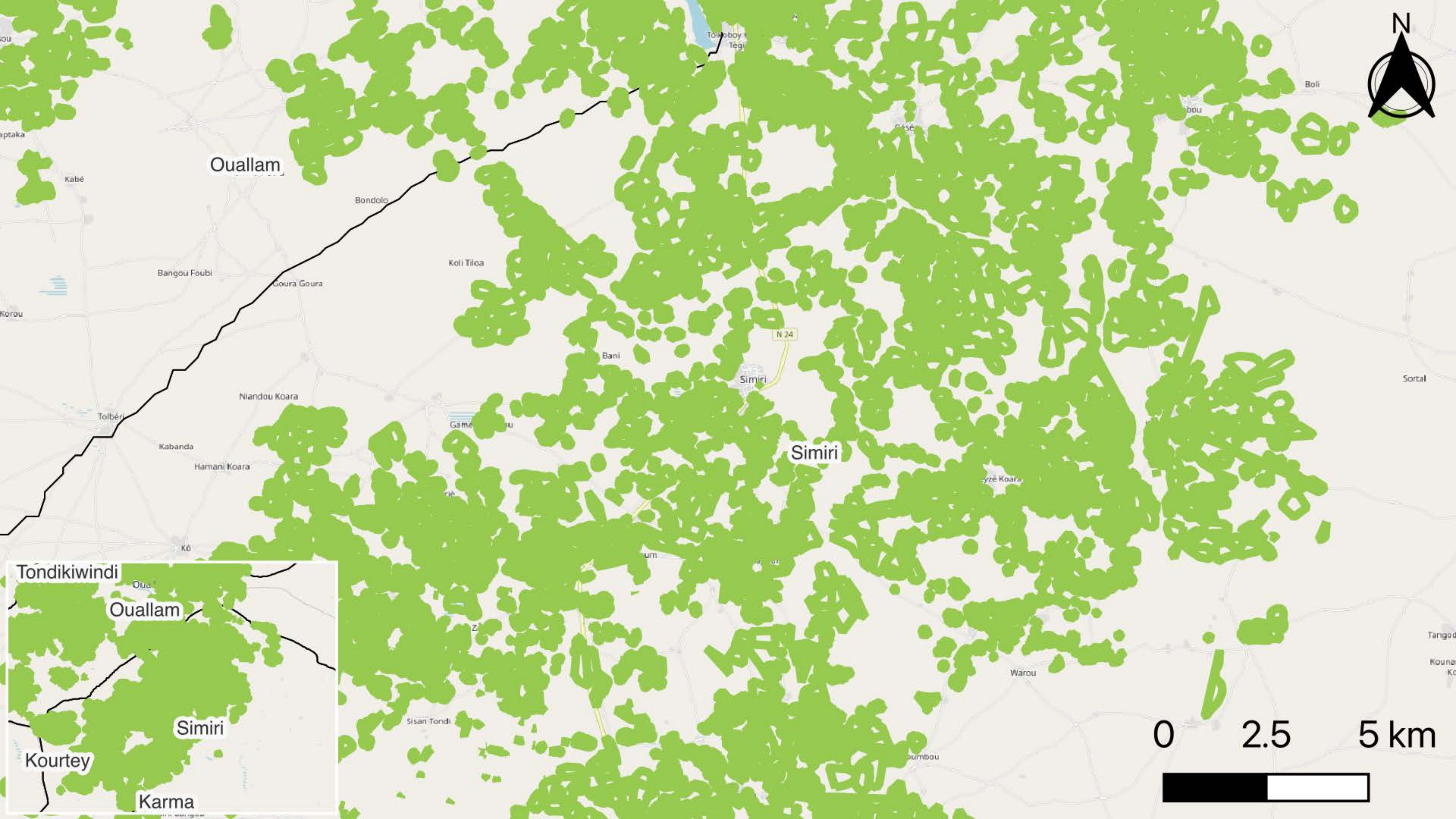
Tondikiwindi

Ouallam

Simiri

Kourtey

Karma



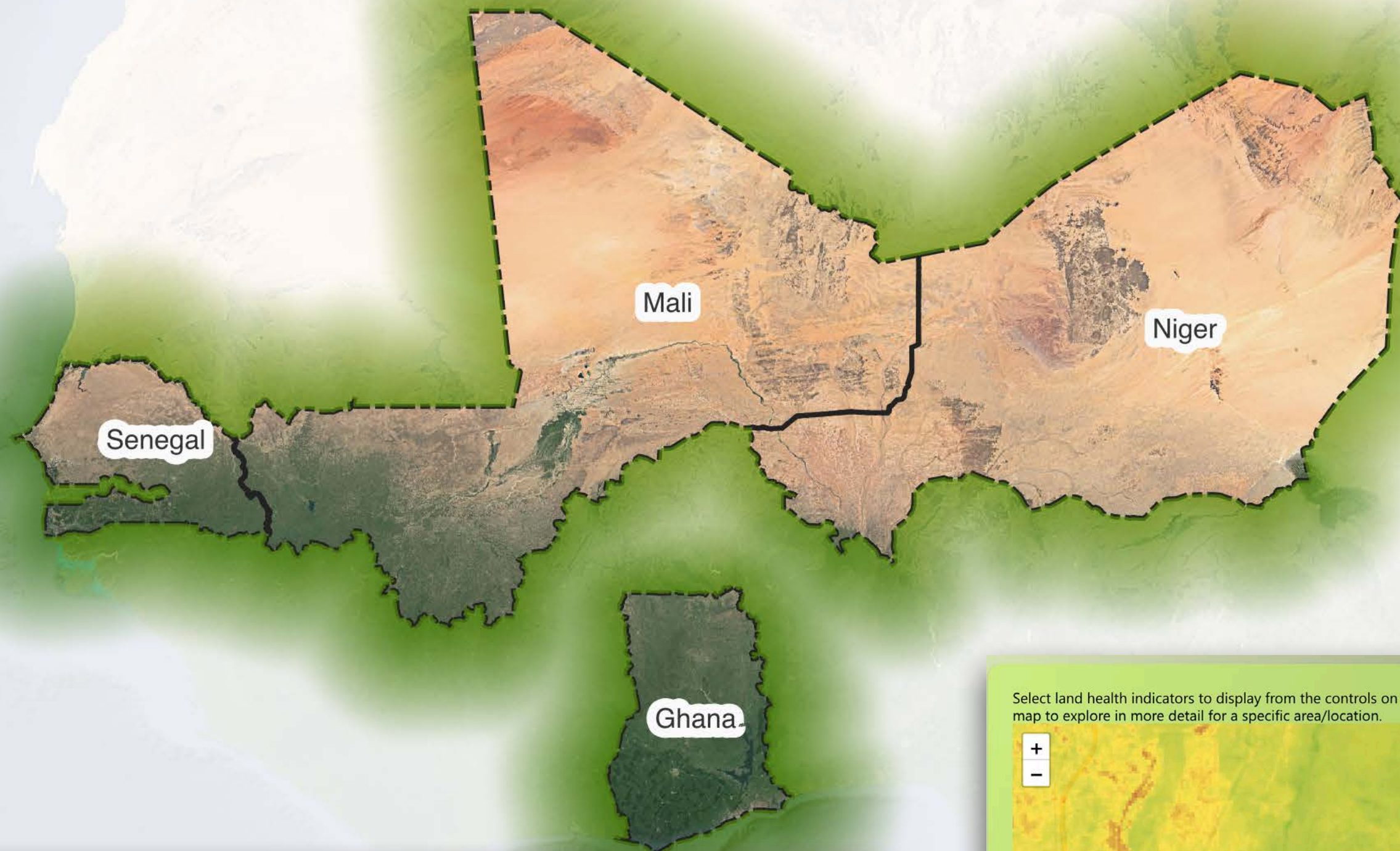
0 2.5 5 km



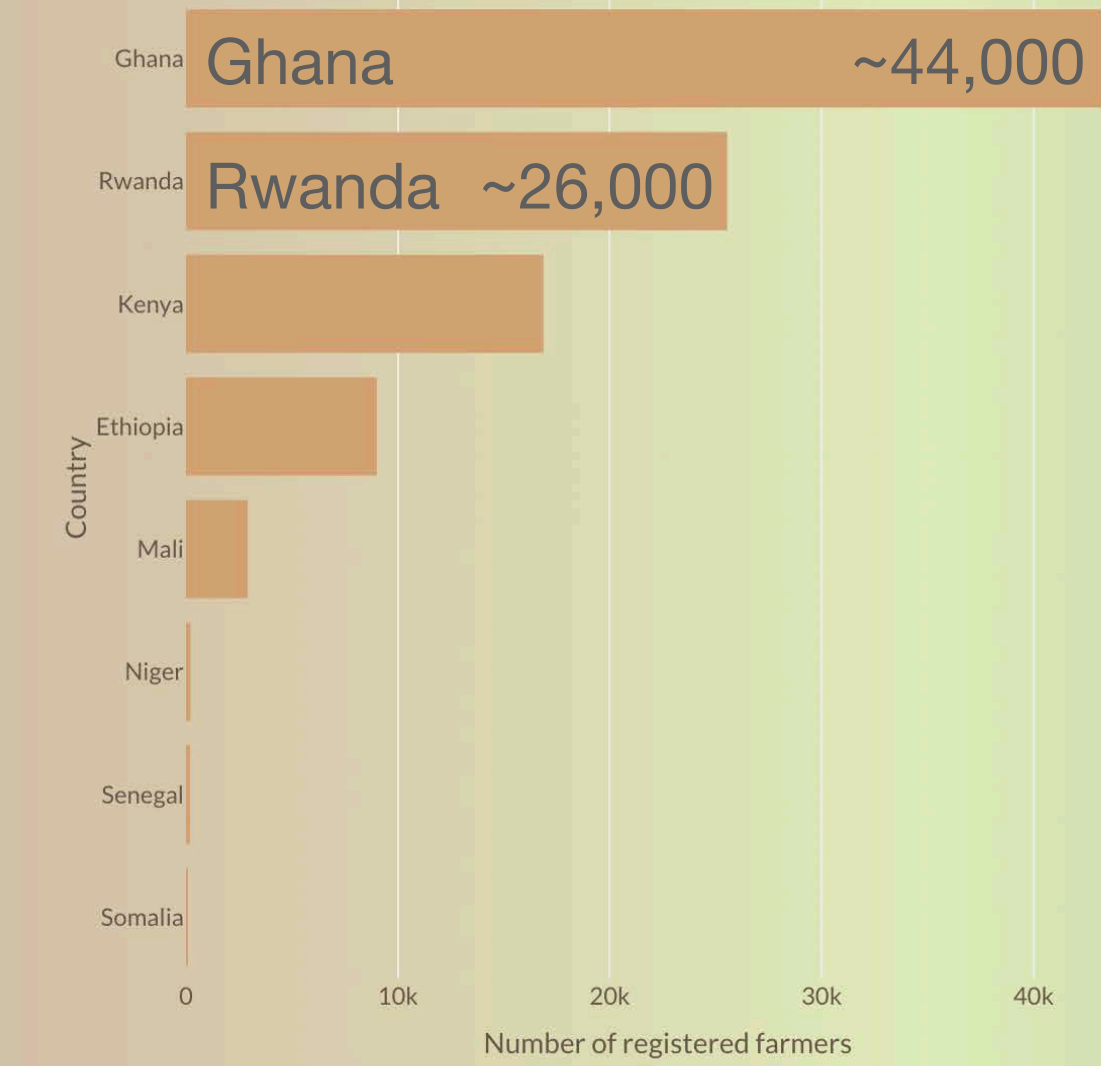
Ouallam

Simiri

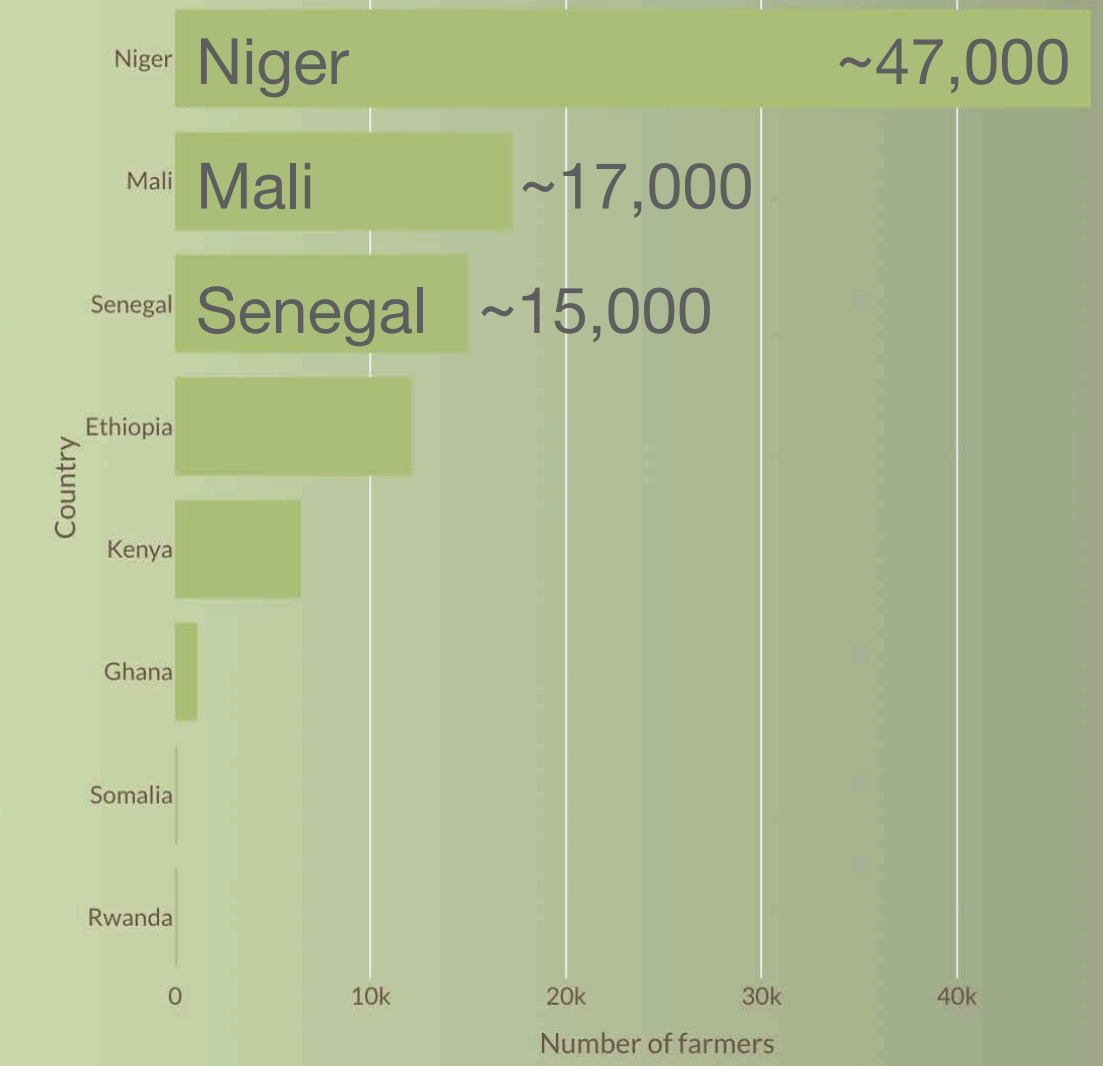




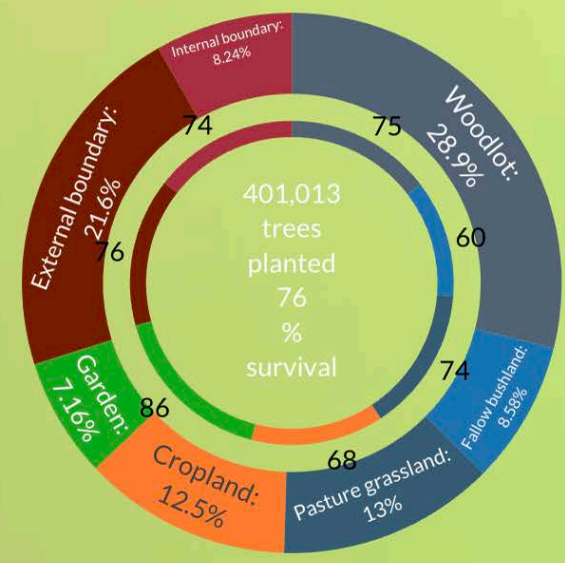
Tree planting module - number of farmers by country



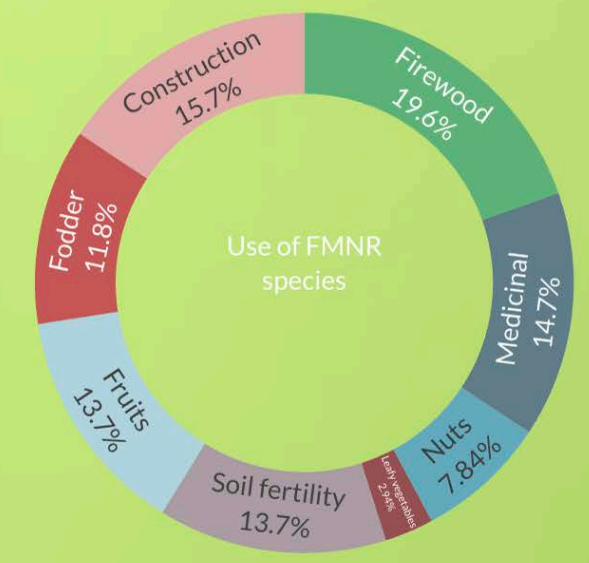
FMNR module - number of farmers by country



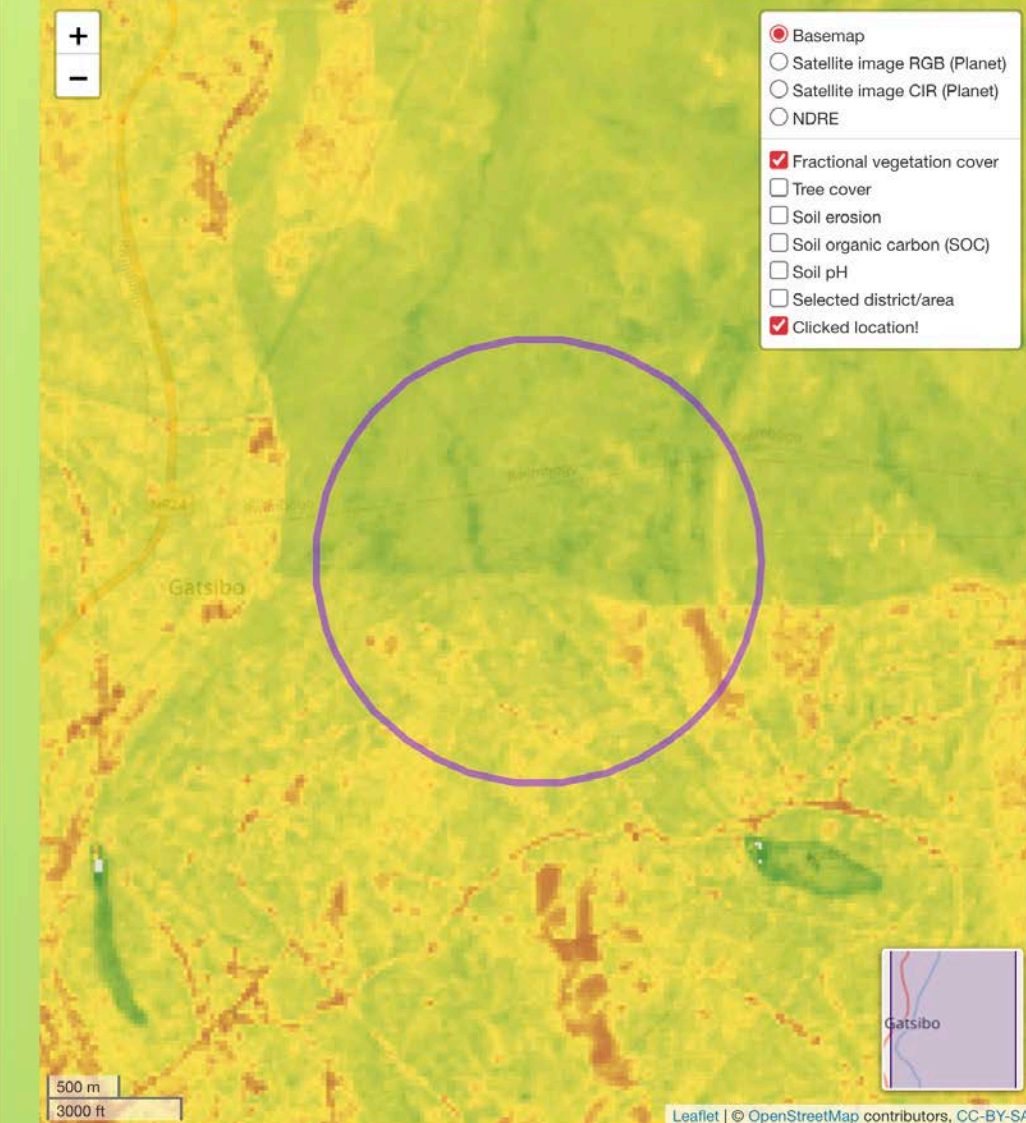
Location of trees planted



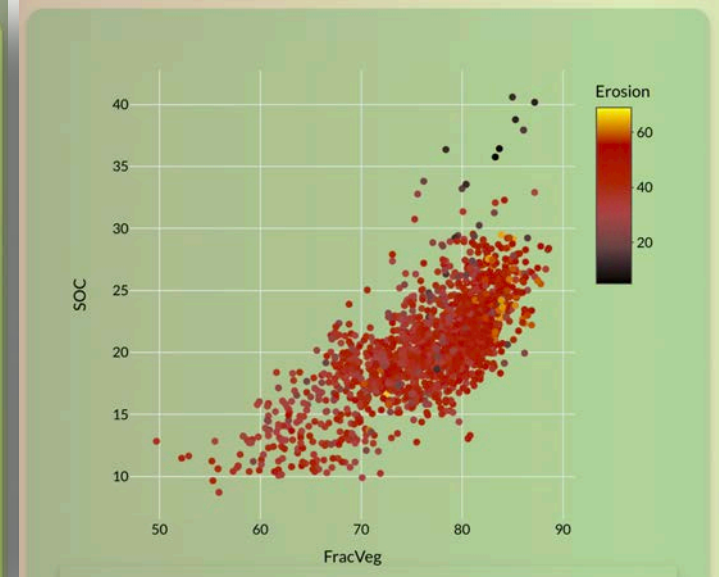
Use of trees protected by farmers



Select land health indicators to display from the controls on the map. You can also click on the map to explore in more detail for a specific area/location.



Activate/show indicator maps by using the radio buttons in the top-right corner of the map. The maps are interactive, so you can explore in more detail by zooming in/out and panning using your mouse. If you would like to explore a smaller/larger area, use the slider on the left and click on the map again.



Rwanda

COMBINING MULTIPLE METHODOLOGIES TO ASSESS LAND DEGRADATION AND TARGET RESTORATION INTERVENTIONS

Remote sensing



Remote sensing provides data, and with machine learning methods, combining information from remote sensing and on the ground data collection allows for prediction of patterns of degradation and to be able to design suitable restoration interventions



Systematic field sampling - using the LDSF



Assessing soil and ecosystem health using data from a global network of LDSF sites

Within each tile, random centroid locations are generated for clusters. Clusters [1km²] are the basic sampling units and are made up of 10 plots [1000m²]. Using each cluster centre-point, the sampling plots are randomized.



Citizen science using the Regreening App



Geo-referenced, real time data collected using the Regreening App



Engaging stakeholders in data collection - to track interventions and their impact



impact on habitat



land cover

Vegetation structure (LCCS)

Woody vegetation

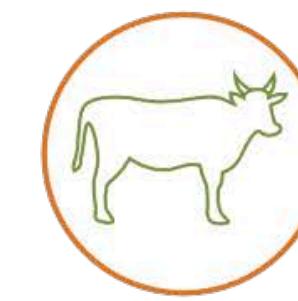
- Shrubs
 - Trees
- Distribution, density, diversity

Herbaceous vegetation

- Cover rating

Rangeland health module

- species diversity and density of grasses, forbs and woody vegetation
- Bare ground



land use

- Current
- Historical
- Ownership
- Dominant land use

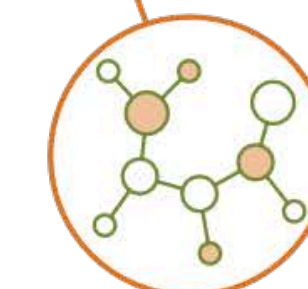


land degradation

- Soil erosion prevalence
- Soil water conservation measures
- Root-depth restrictions
- Rock/stone cover

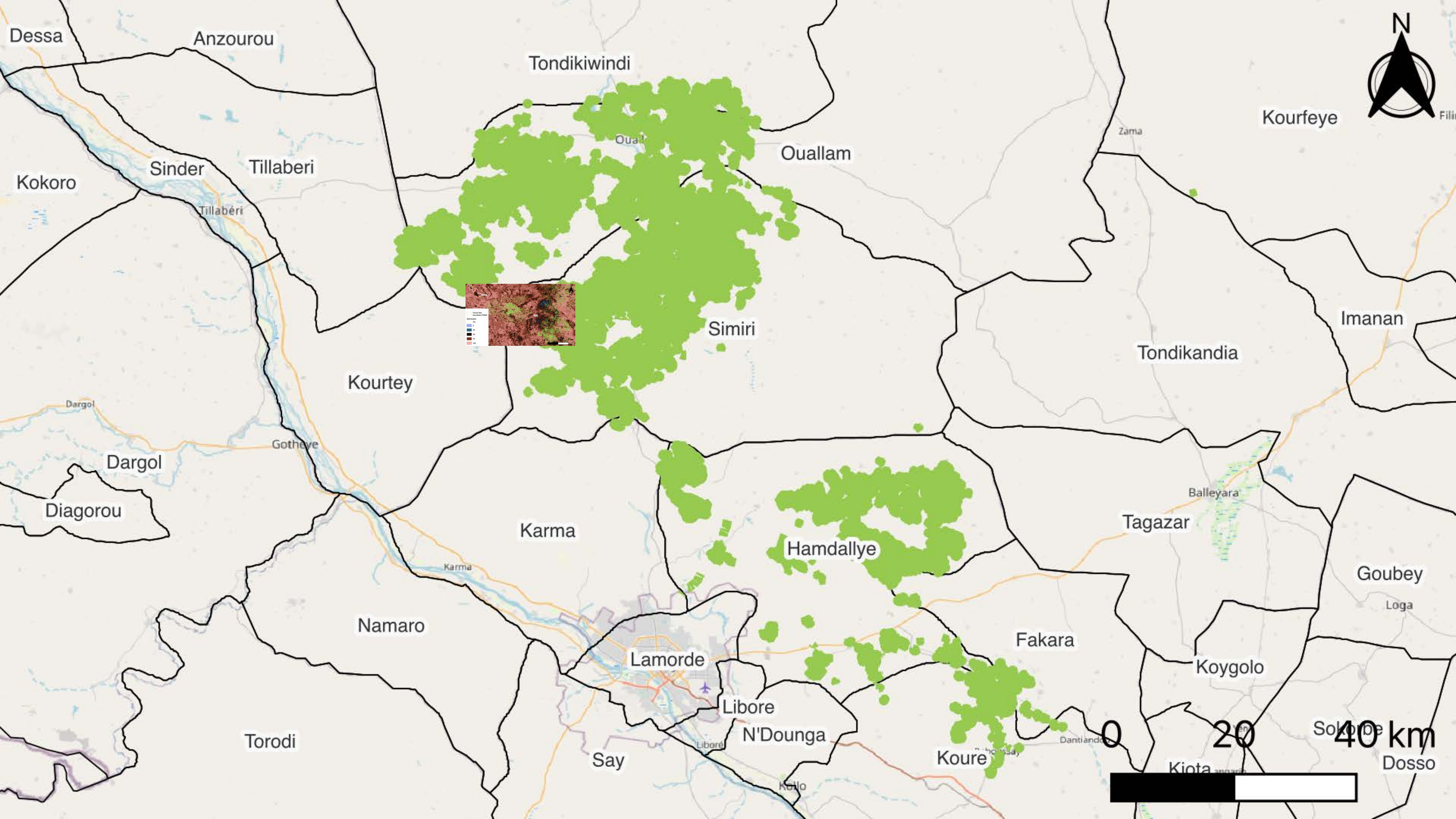
Indicators measured with the LDSF

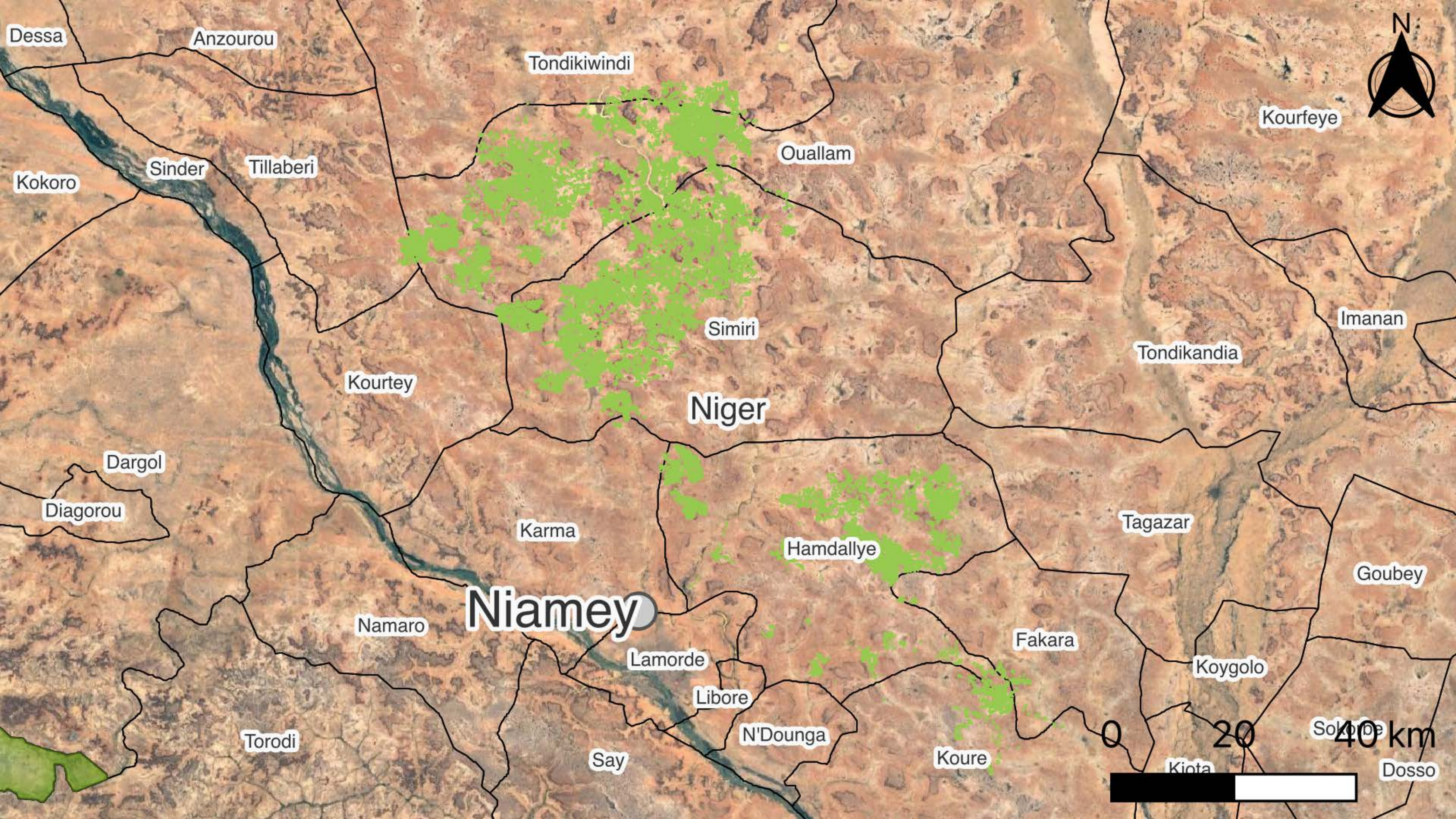
topography/landform

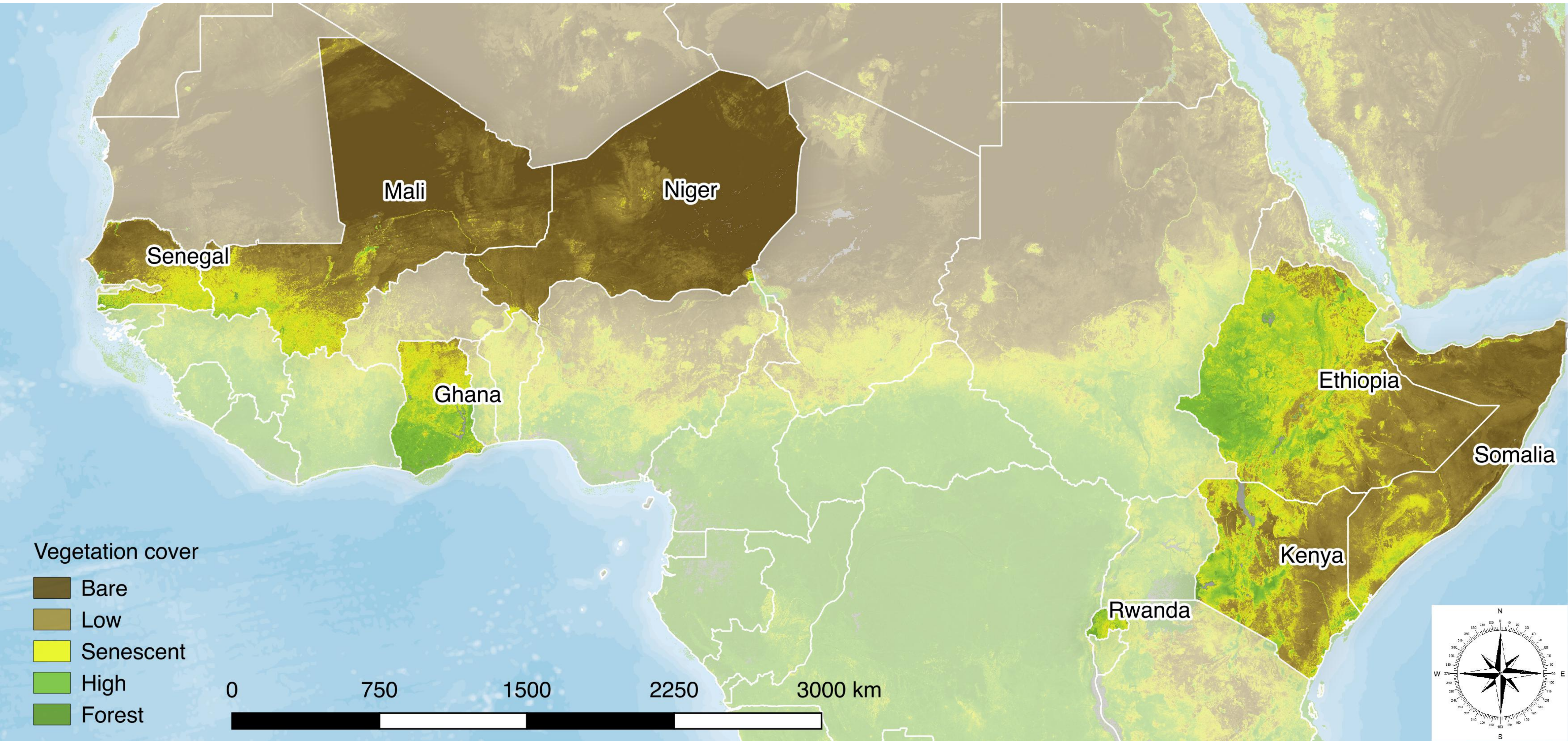


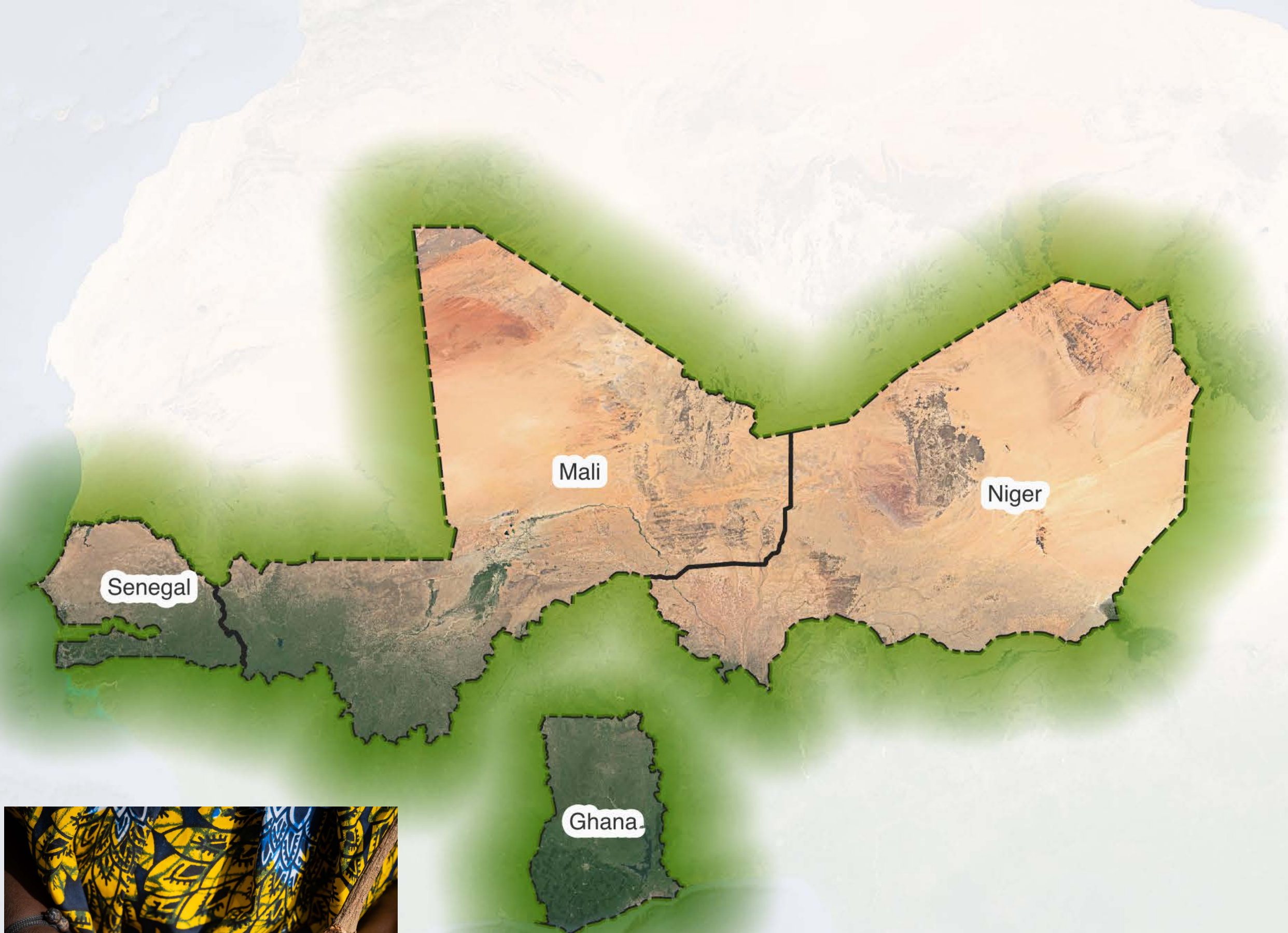
soil health

- Soil organic carbon (SOC)
- Total nitrogen
- Infiltration capacity
- Soil pH/acidity
- Texture (sand and clay)
- Cumulative soil mass
- Earthworm presence
- AMF spores











Rwanda

(honey/beekeeping)





Shea/Karité

Mali

Tombouctoo

Niamey

Ouagadougou

Bamako

Conakry

Freetown

Monrovia

Ghana

Ibadan

Porto Novo
Lome

Lagos

Abidjan

Accra



(Baobab)

Achievement



500,000

HHs: target

540,000

HHs: reached to date

207,800

HHs: through leveraging – to be verified

160,600

HHs: uptake verified through surveys
(on average 83% of direct target in 4 years)



1,000,000

Ha: target

905,000

Ha: confirmed reached to date (to increase)

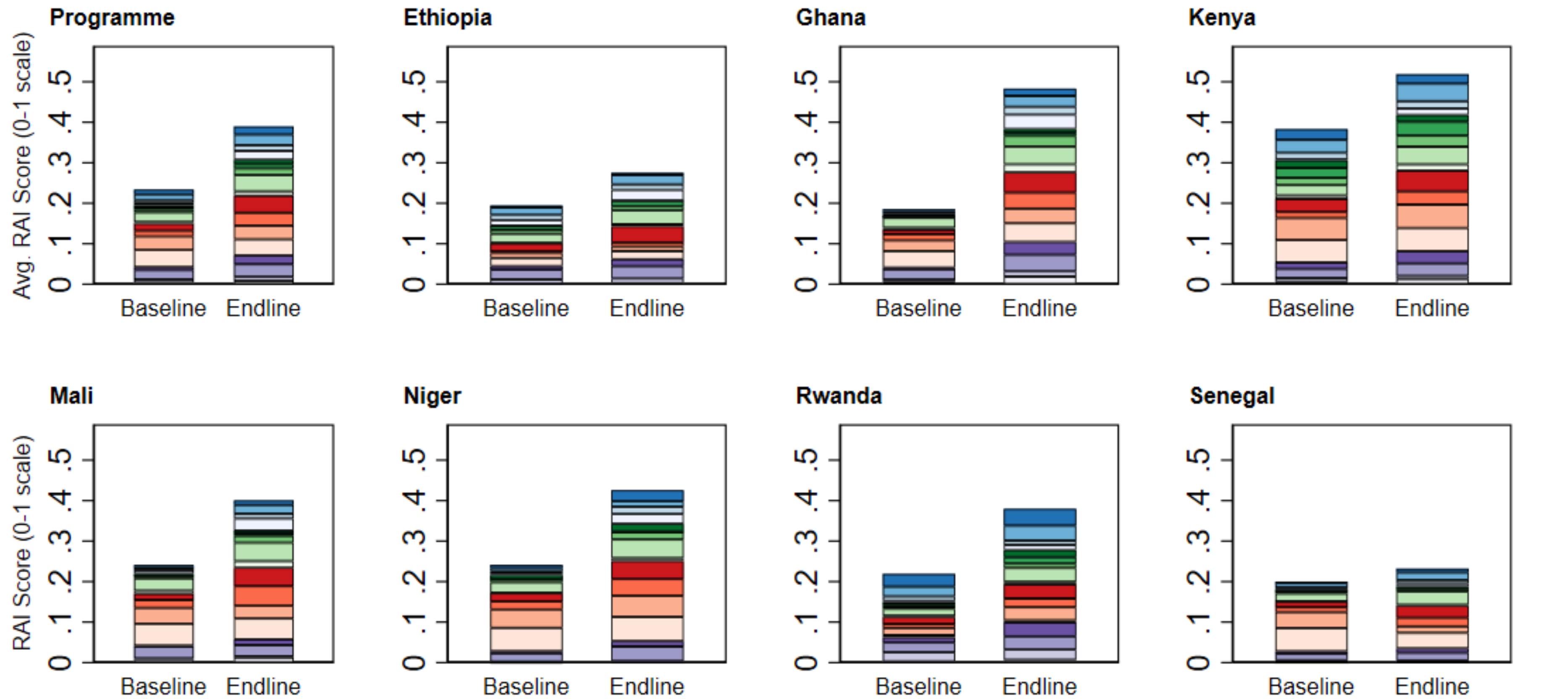
467,800

Ha: through leveraging – to be verified

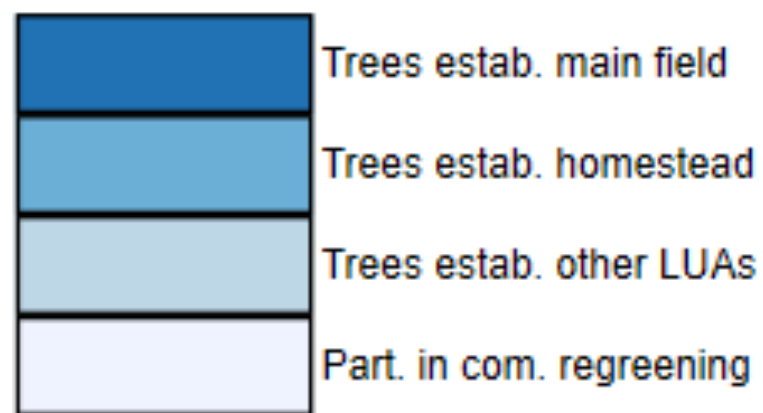
222,400

Ha: uptake verified through surveys
(on average 61% of direct target in 4 years)

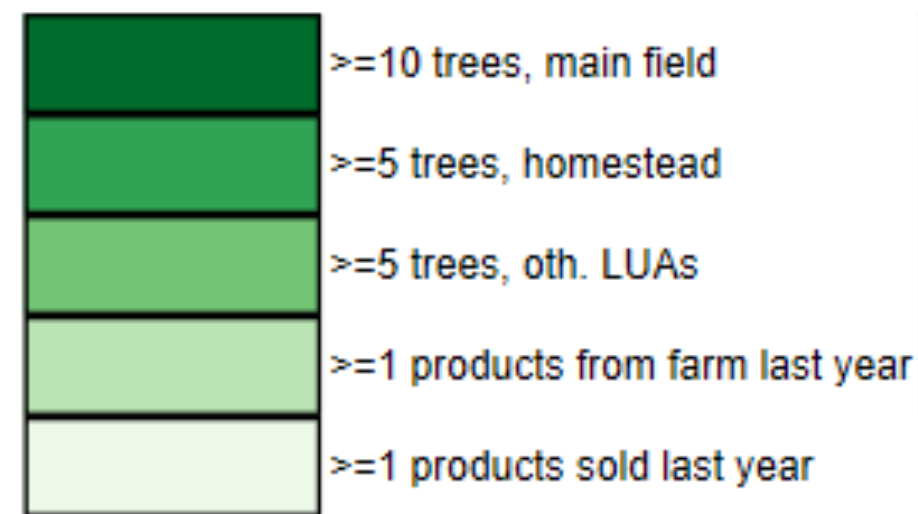
Estimated 59 Euro/hectare in first 4 years



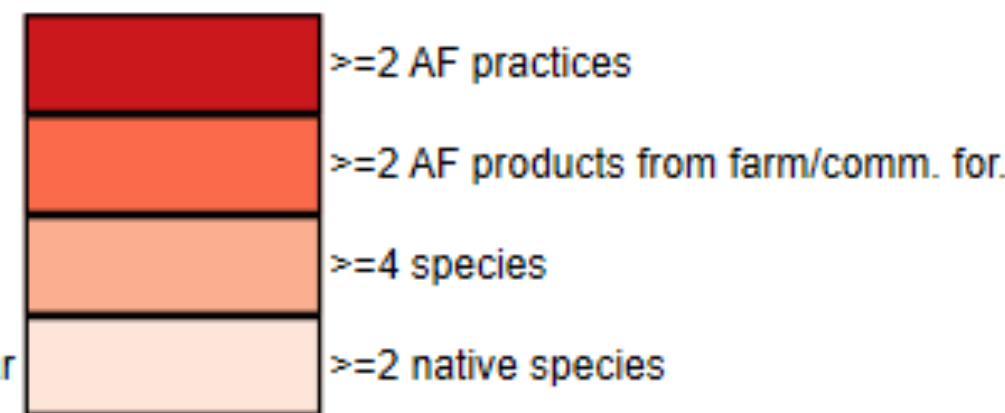
Extent of Practice



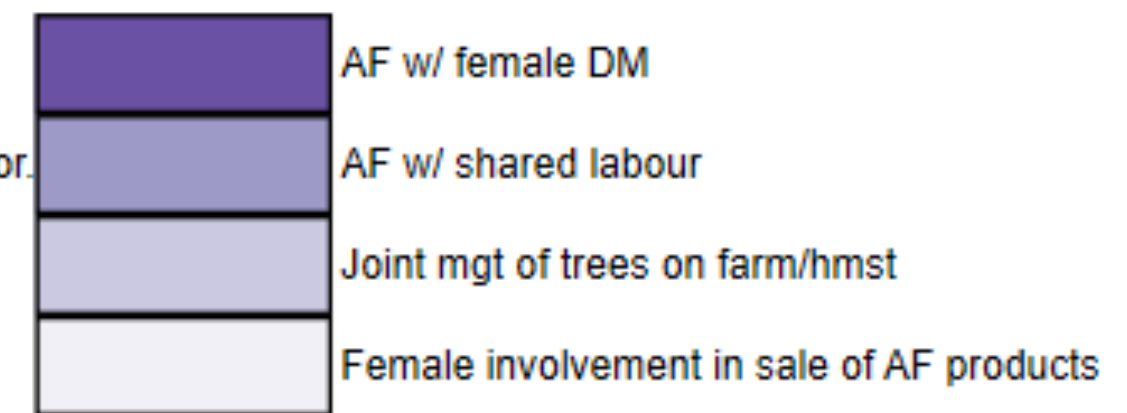
Intensity of Practice



Diversity of Practice



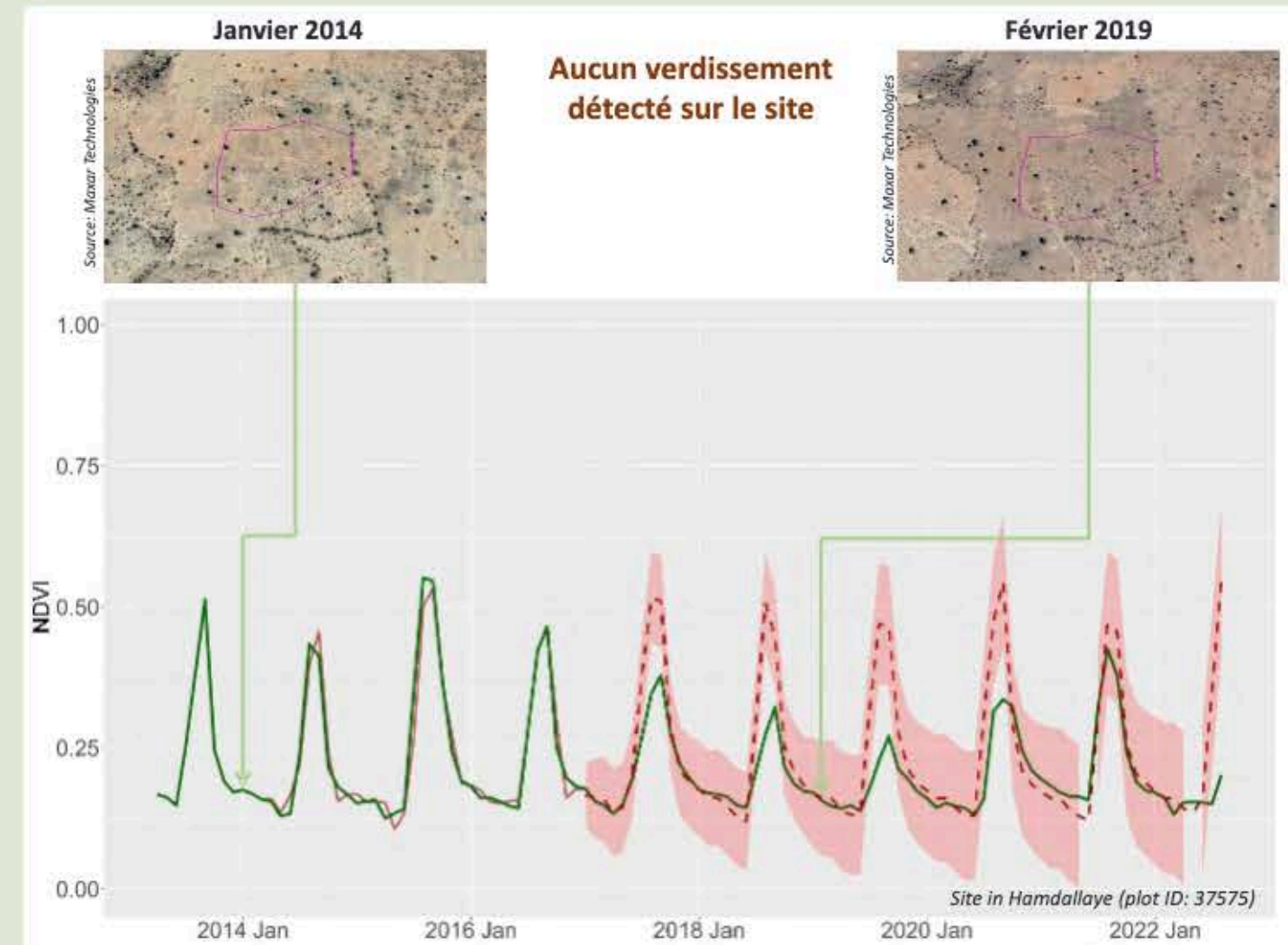
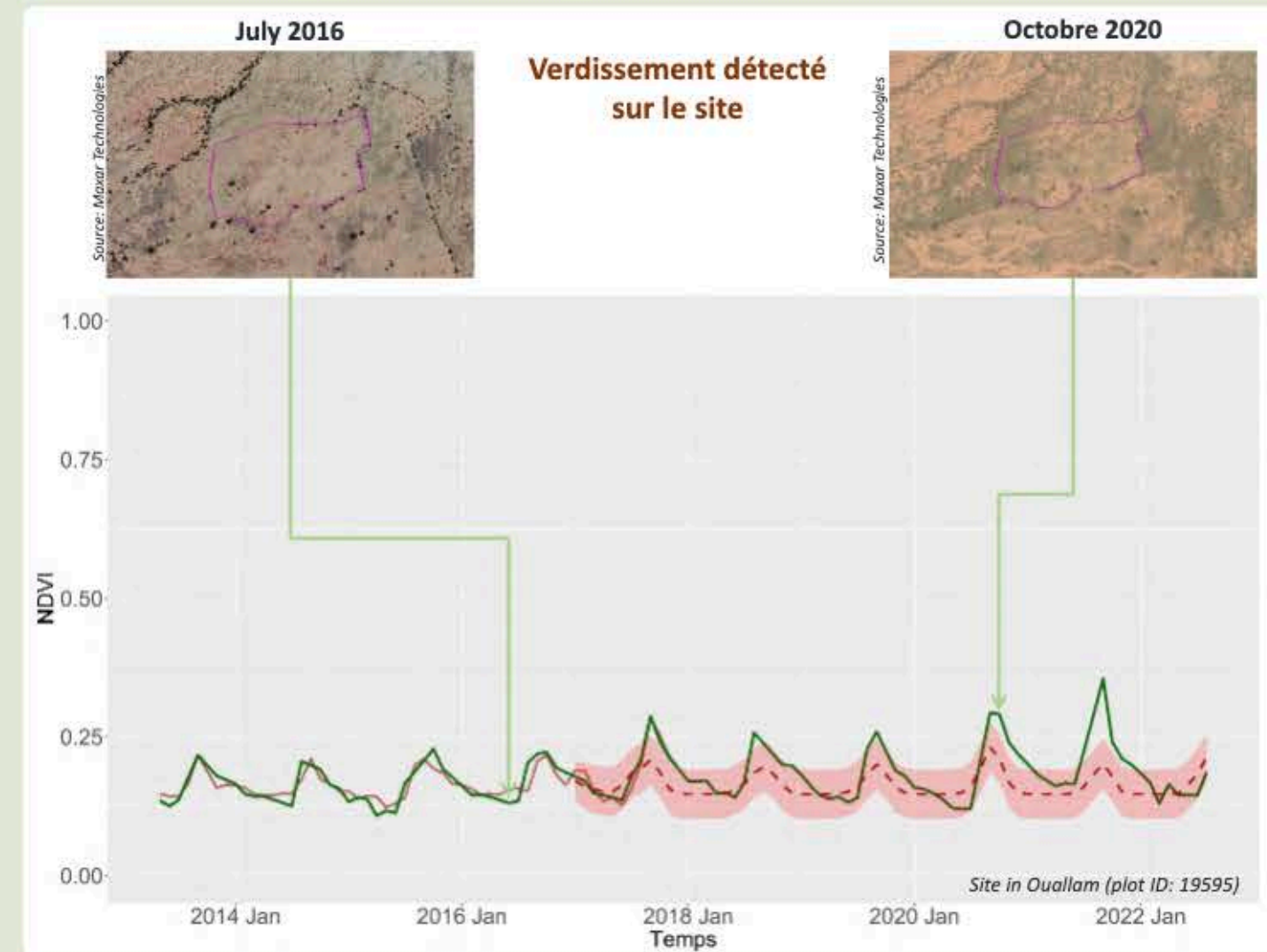
Intra-household Equity



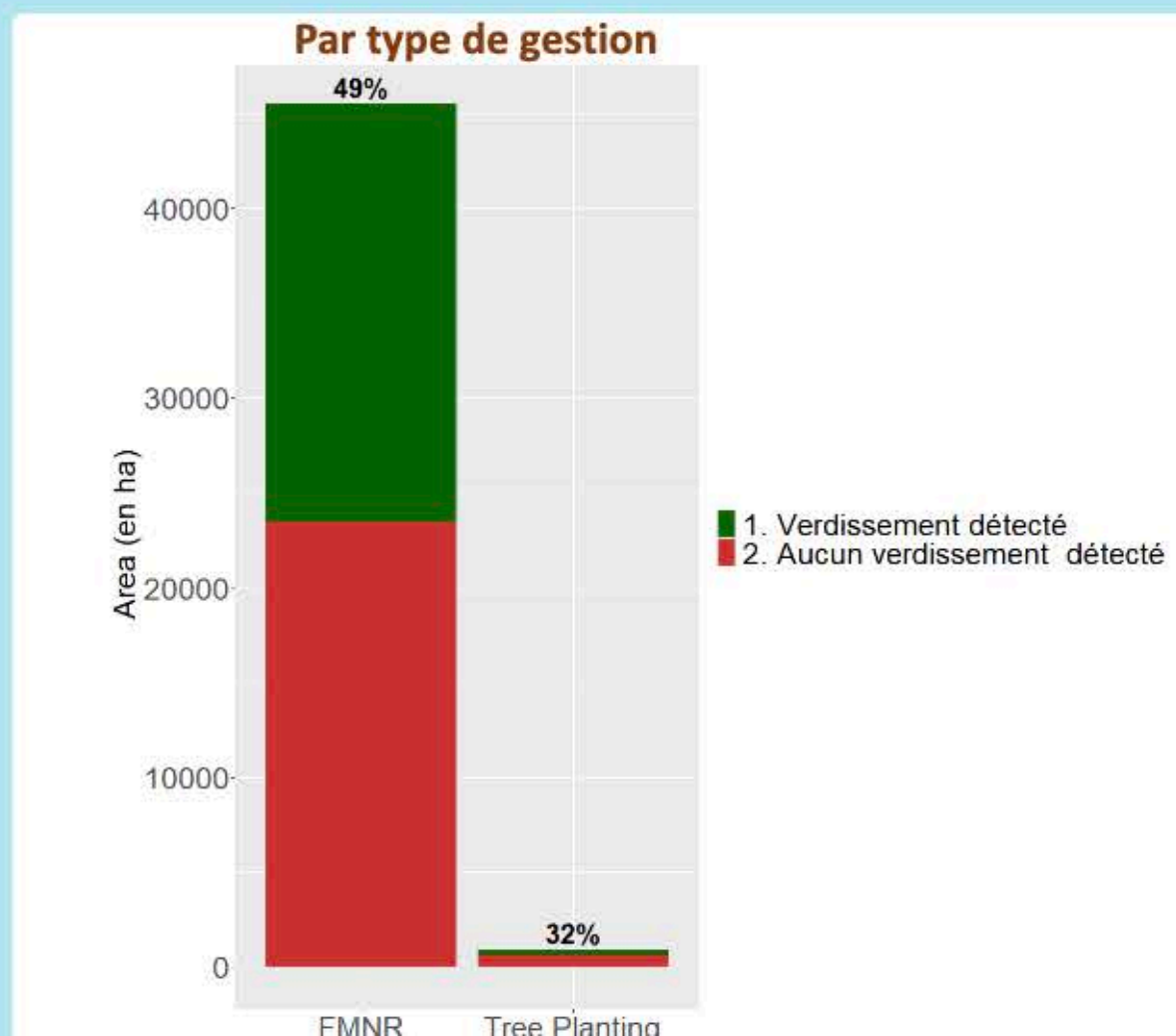
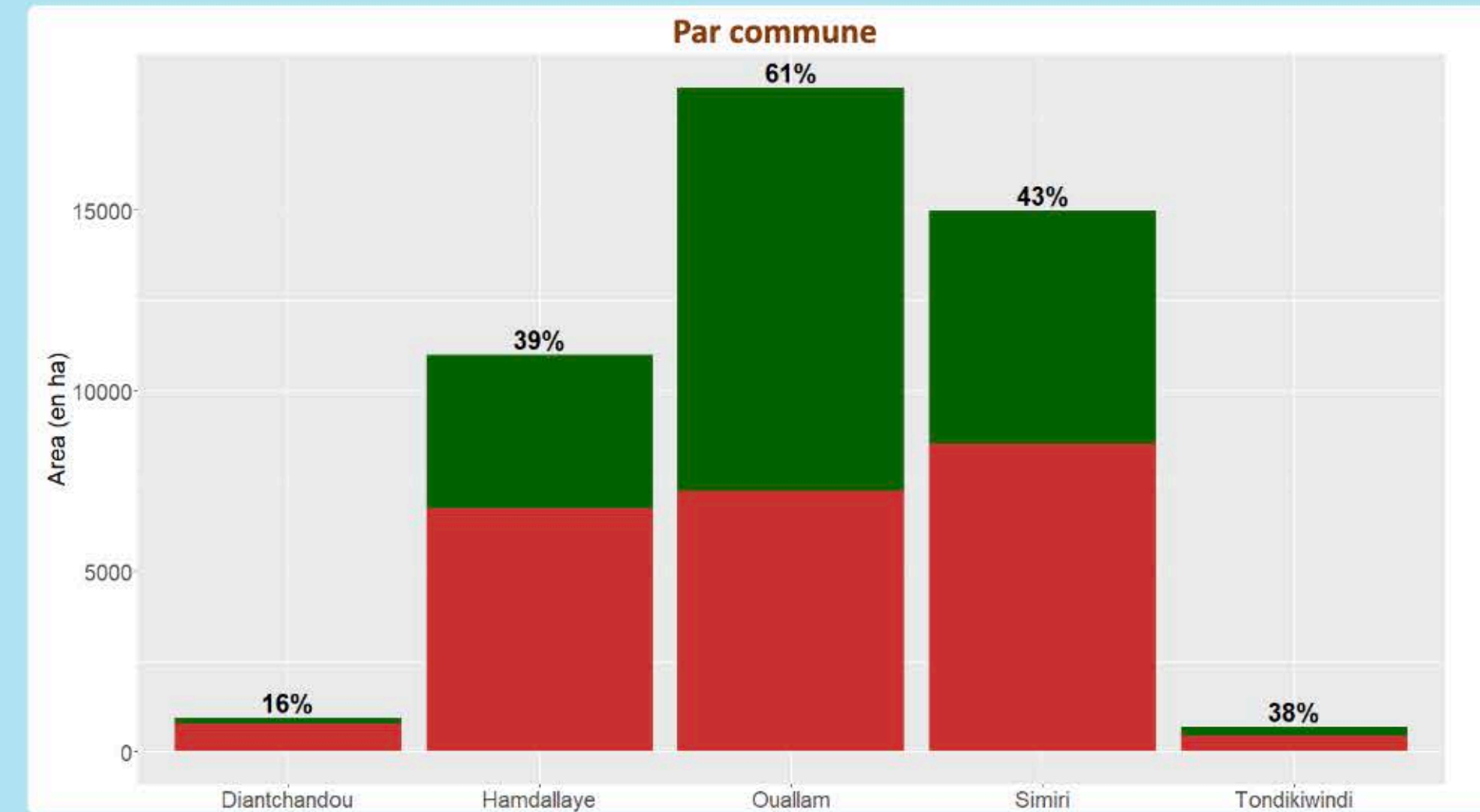
AF = Agroforestry
DM = Decision Making
LUA = Land Use Area

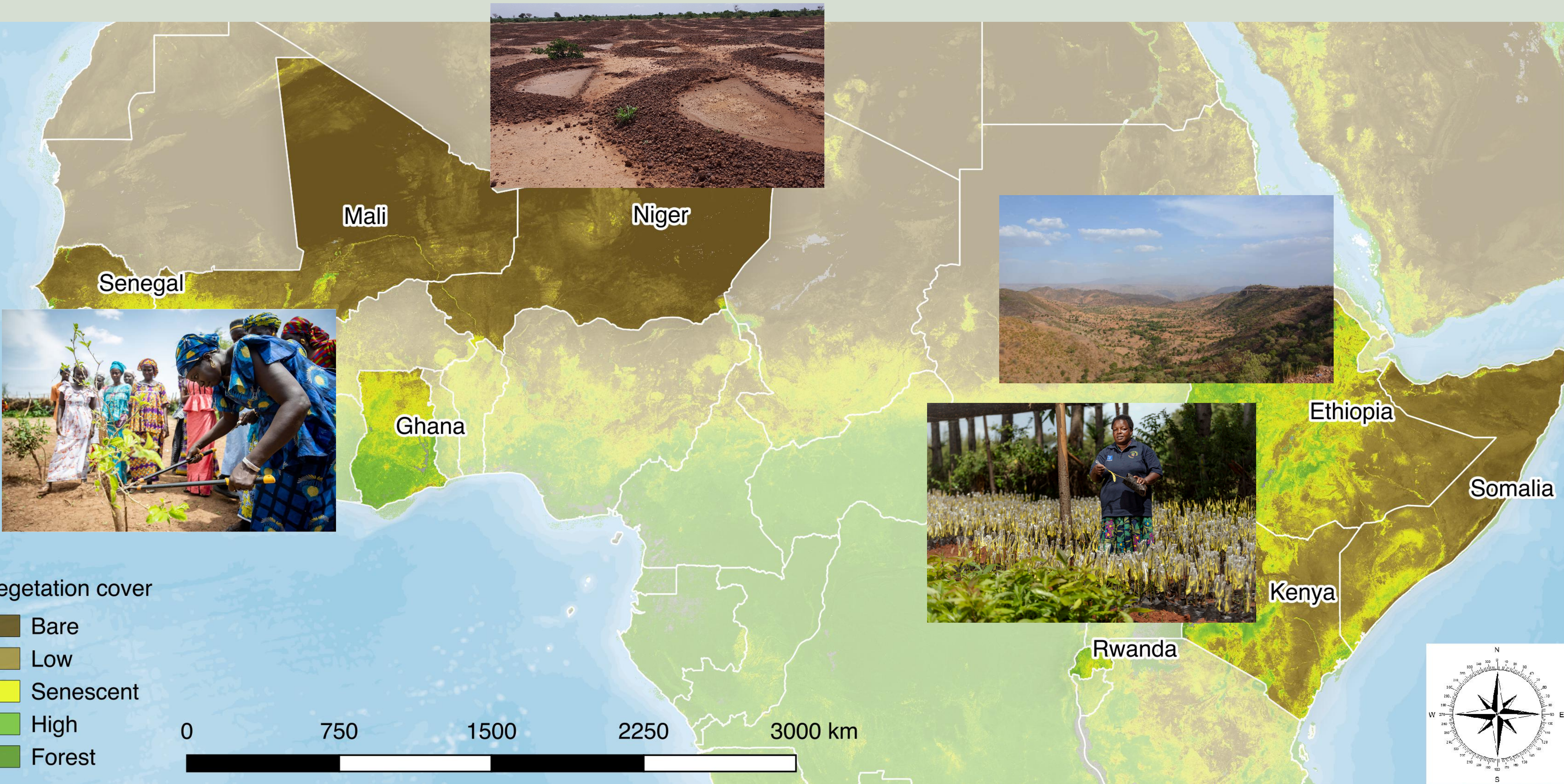
ÉVALUATION DE REVERDISSEMENT DE "REGREENING AFRICA" AU NIGER

VÉGÉTATION RÉELLE (VERTE) VS PRÉVUE (ROUGE) AU NIVEAU DU SITE



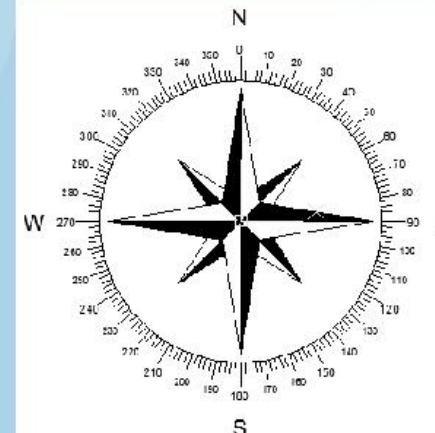
RÉSUMÉ: SUPERFICIE TOTALE SURVEILLÉE PAR RAPPORT À LA ZONE OÙ LE VERDISSEMENT EST DÉTECTÉ





Vegetation cover

- Bare
- Low
- Senescent
- High
- Forest





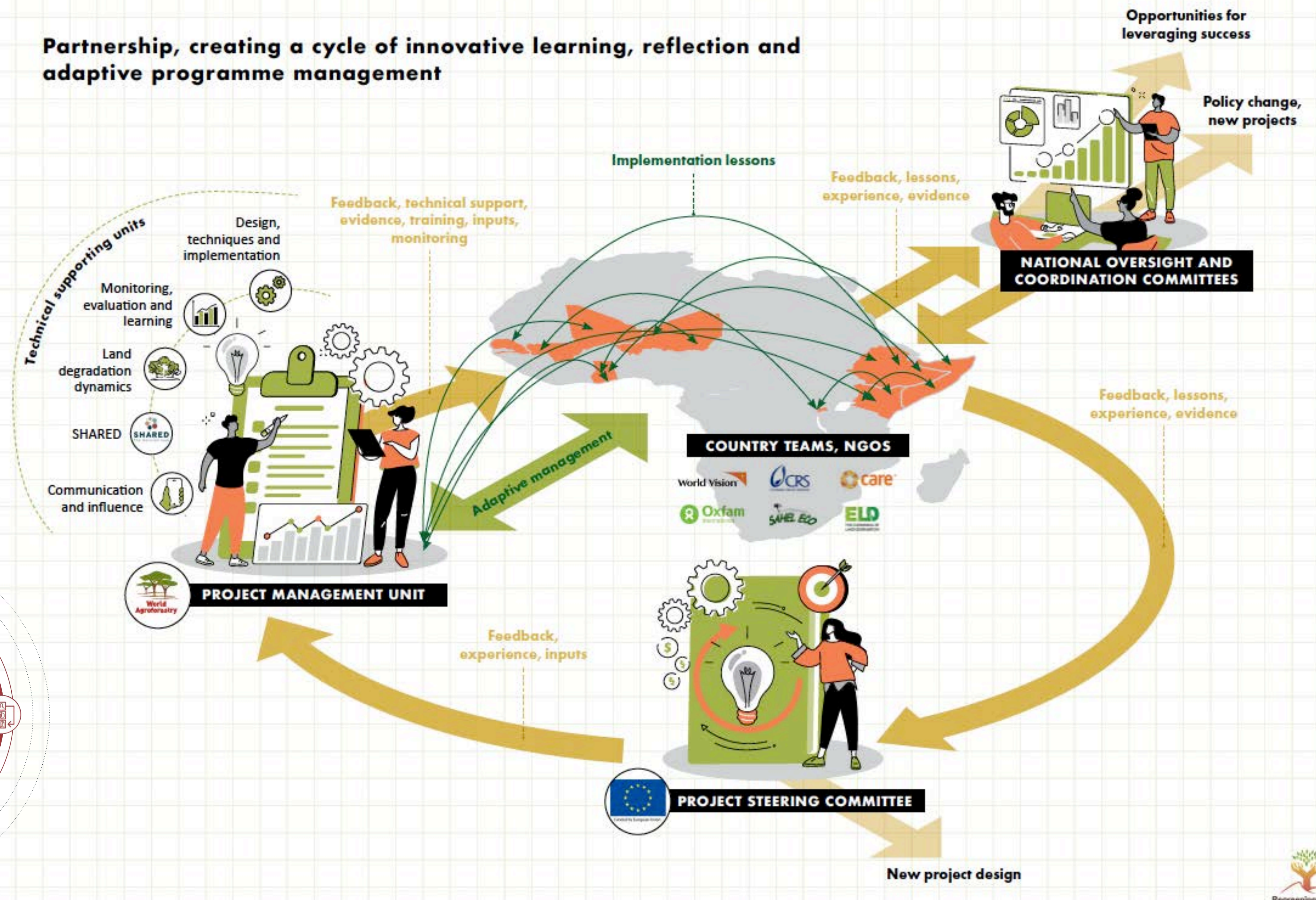




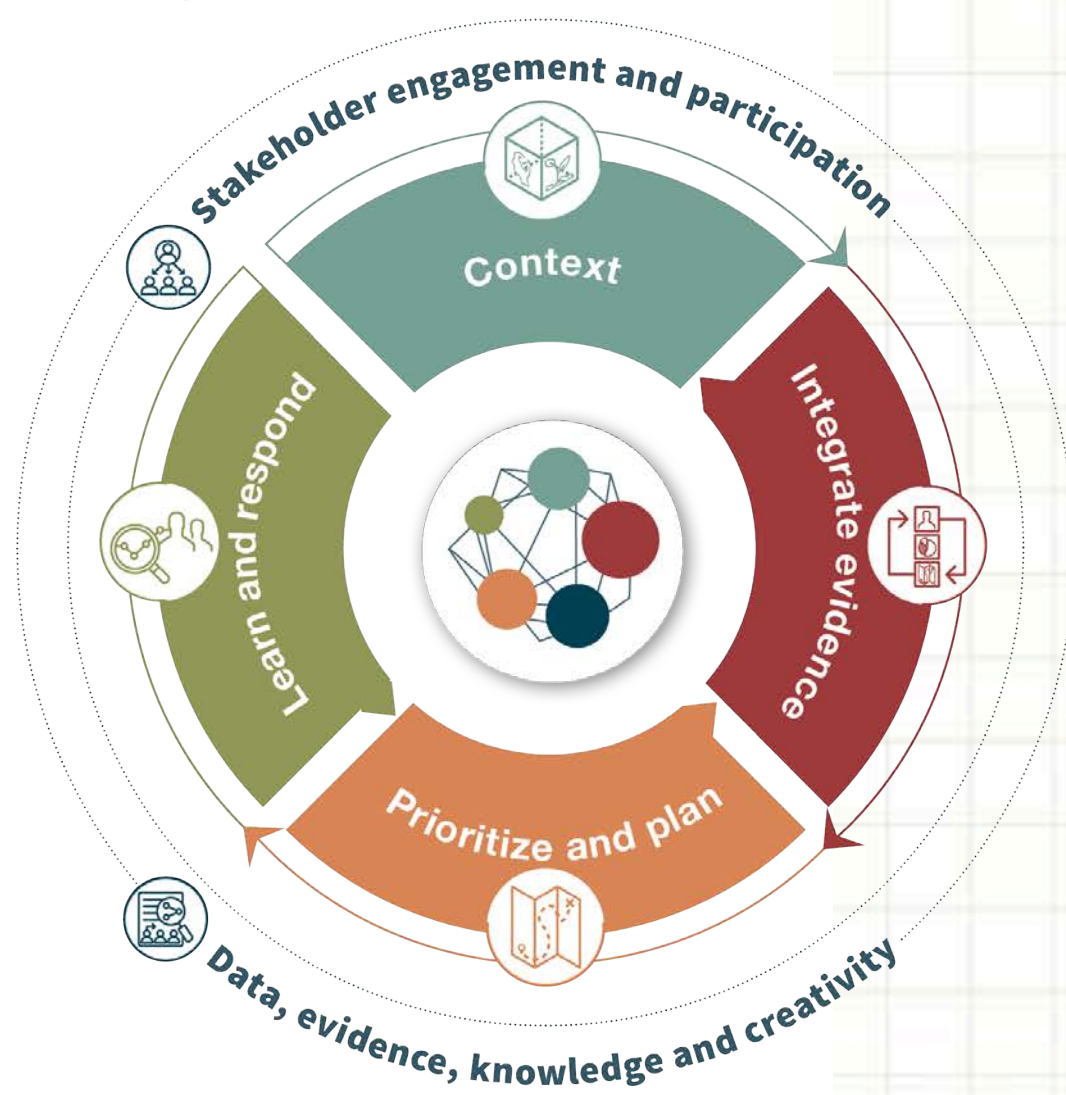


Exclosures in Ethiopia

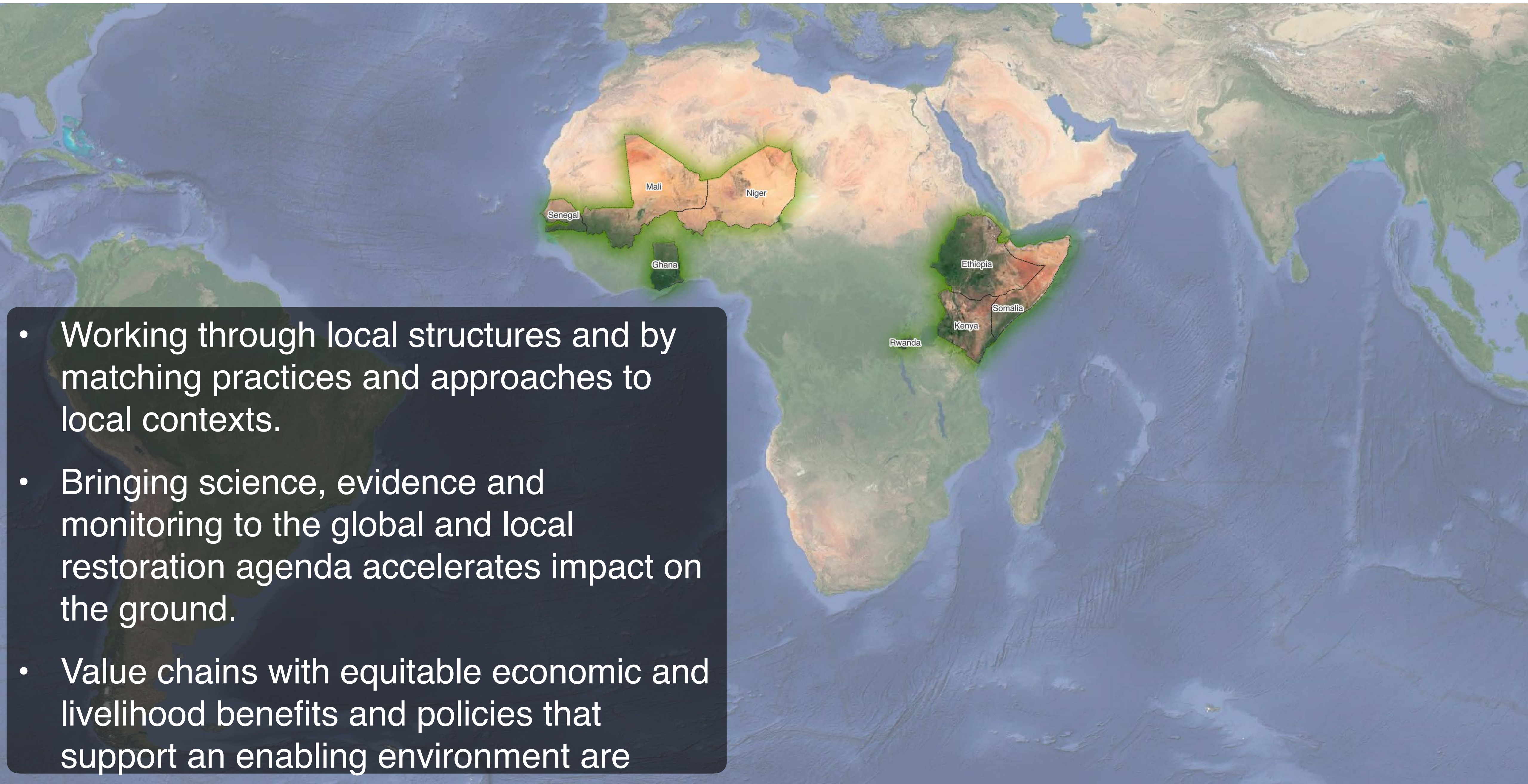
Partnership, creating a cycle of innovative learning, reflection and adaptive programme management



SHARED framework



Large scale restoration is possible with strong partnerships!



- Working through local structures and by matching practices and approaches to local contexts.
- Bringing science, evidence and monitoring to the global and local restoration agenda accelerates impact on the ground.
- Value chains with equitable economic and livelihood benefits and policies that support an enabling environment are