

Got Soil Carbon?

Recent advances understanding the relationships between livestock grazing management and rangeland health in community-based conservation in Northern Kenya

Tim Tear – Director of Science



Acknowledgements

- USAID funding to ABCG supports this work.
- Partnerships that make this work possible:
 - Northern Rangelands Trust and the participating Community Conservancies
 - Syracuse University
 - Grevy's Zebra Trust
 - The Nature Conservancy

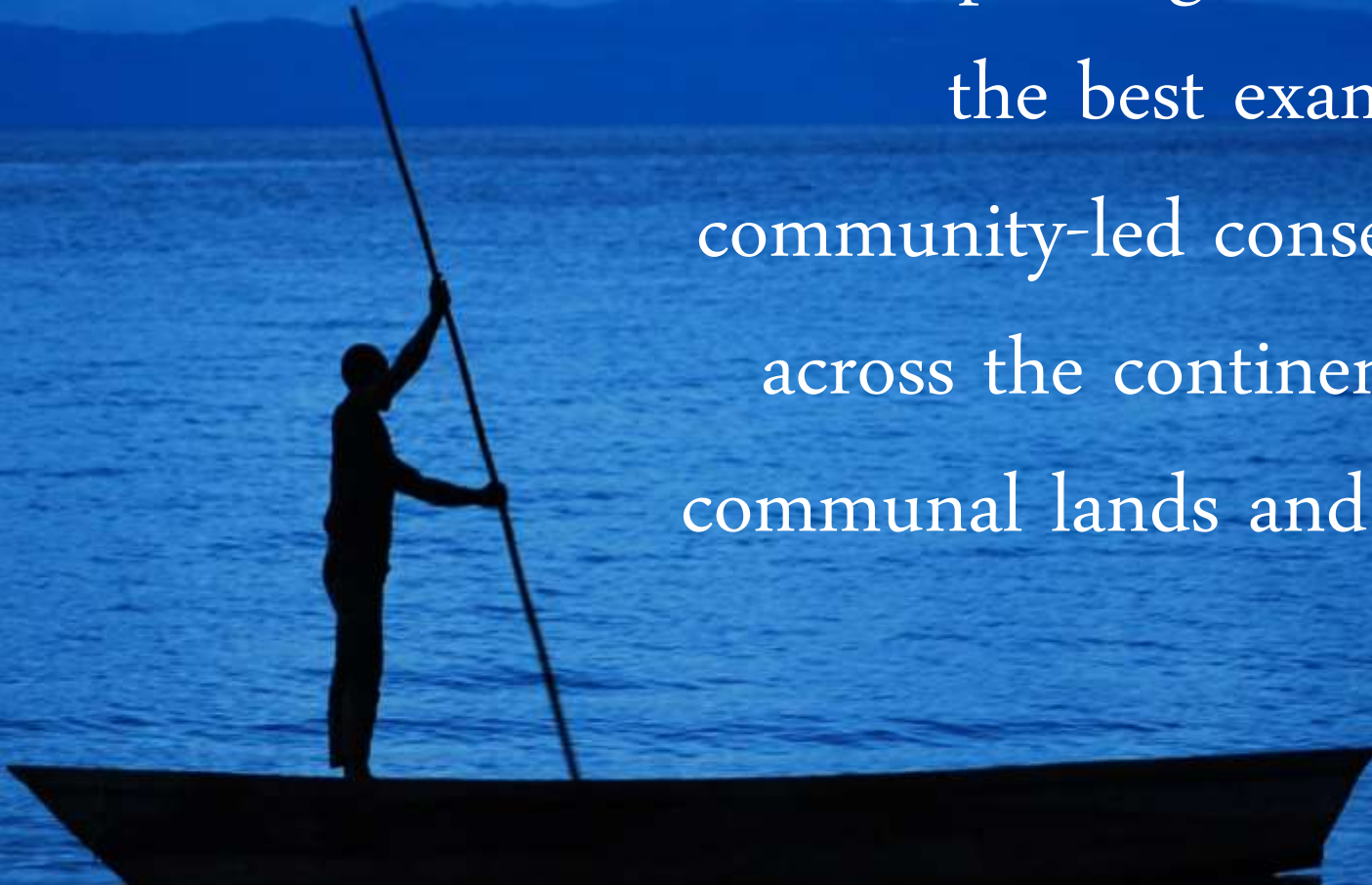
Global Mission

To conserve the lands and waters
on which all life depends.

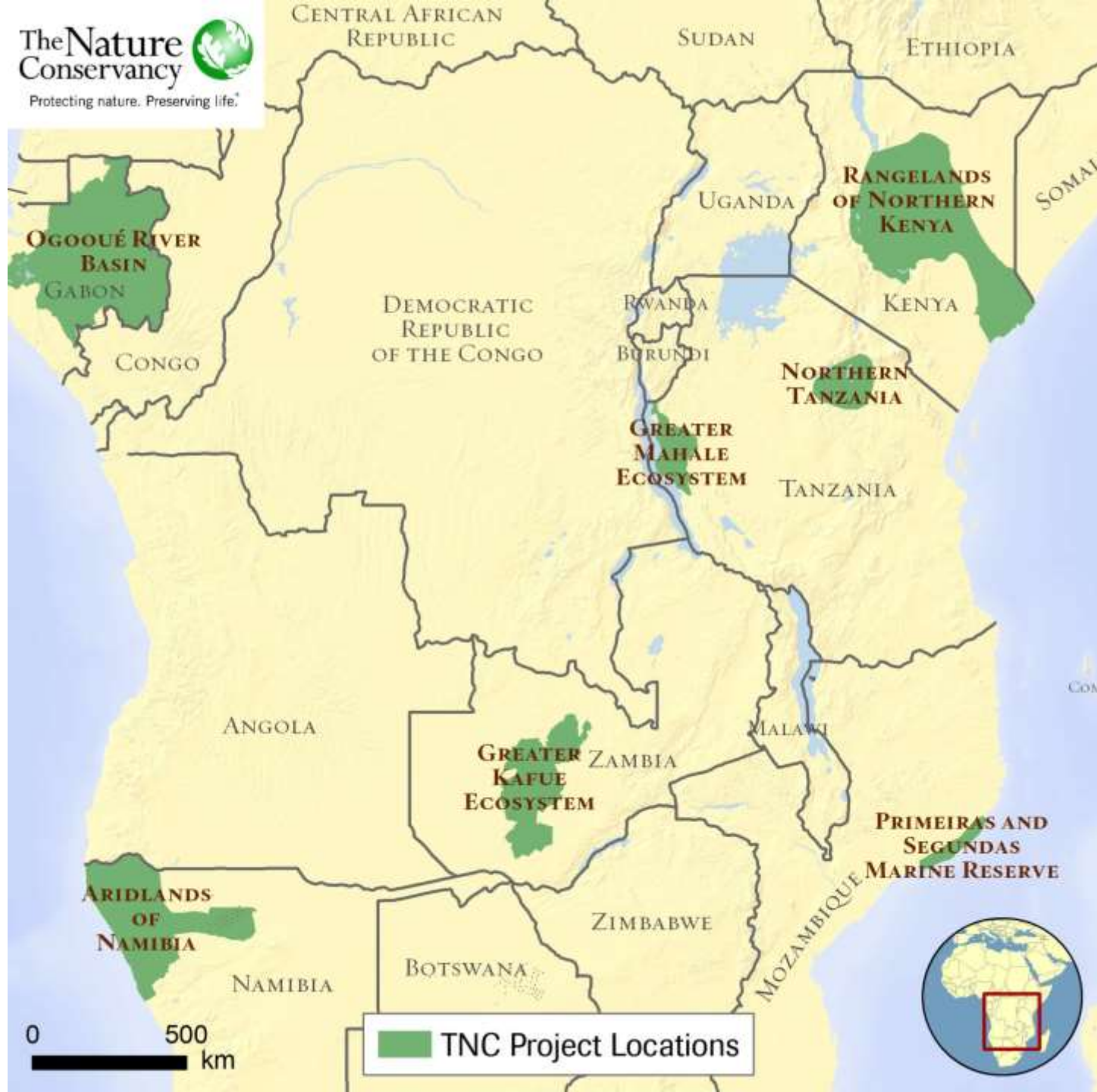


www.nature.org

Our work in Africa is focused
on improving and sharing
the best examples of
community-led conservation
across the continent's vast
communal lands and waters.







Outline for Today

Take Home Points

Context

Results to date

Next steps

Implications

Discussion

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Take Home Messages

- **Soil carbon projects** are legitimate conservation strategies that **have multiple values to people and nature.**
- Improvements in livestock condition have encouraged **more people to participate in the grazing program.**
- Training in improved grazing management will expand to **1.8 million hectares by 2016.**
- Improved grazing practices could sequester an average of **1.25 tons CO₂e per hectare/year.**
- This could generate **enough revenue to fully support the grazing management program** including carbon project monitoring.

Take Home Messages

- **Predictive models are** important for soil carbon sequestration projects.
- **Soil carbon is a key indicator of resilience.**
- In the next year we will **strengthen the applicability of this approach across Africa.**
- We plan to launch a **soil carbon project in NRT.**
- **We believe this early progress has large implications for other social, economic, and ecological development projects.**

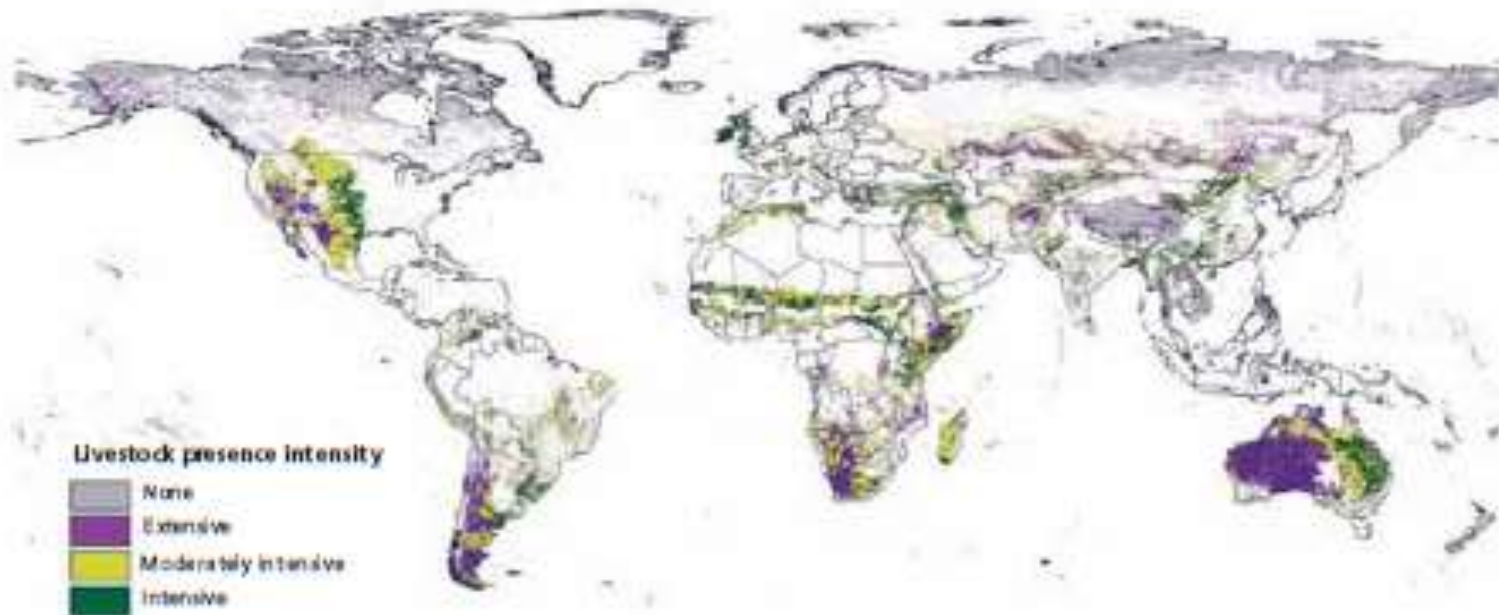


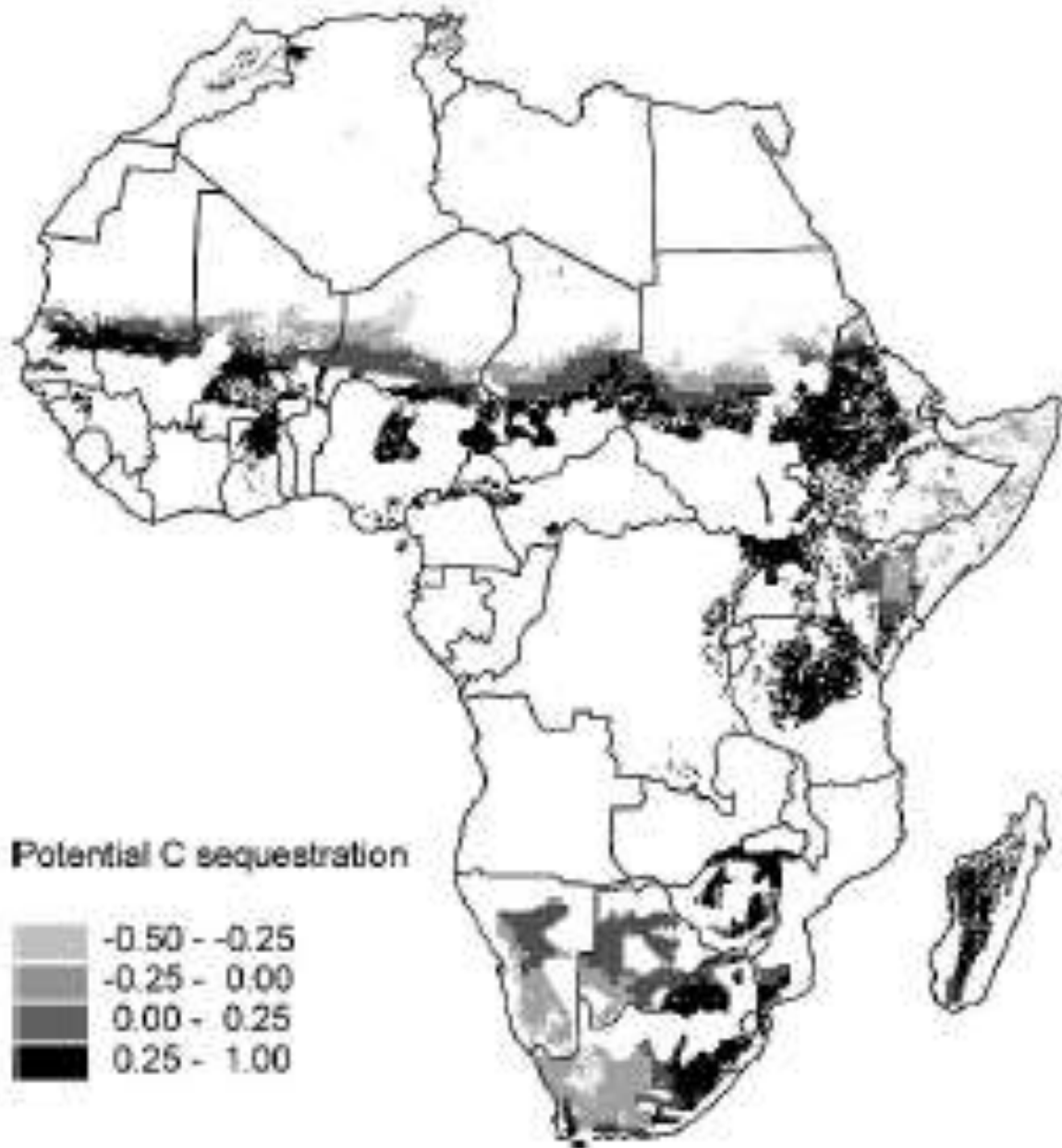
Key Conflicts = Key Questions

- **Significant change is necessary in NRT to reverse decades of habitat degradation.**
 - *What changes are possible and will they be enough to make a difference?*
- **Long-term benefits may be obscured by complex interactions with climate change.**
 - *How will we know that we are building resilience in human and natural communities?*

More Context - Rangelands Matter - 2009

FIGURE 1
Areas of extensive, moderately intensive and intensive pasture systems worldwide





Context –

Africa has
great potential
for
carbon
sequestration –

2009



153M 1020-4225

Integrated Crop Management

Vol. 9-2010

Context -

**Models
Matter**

2010

**Challenges and opportunities
for carbon sequestration
in grassland systems**

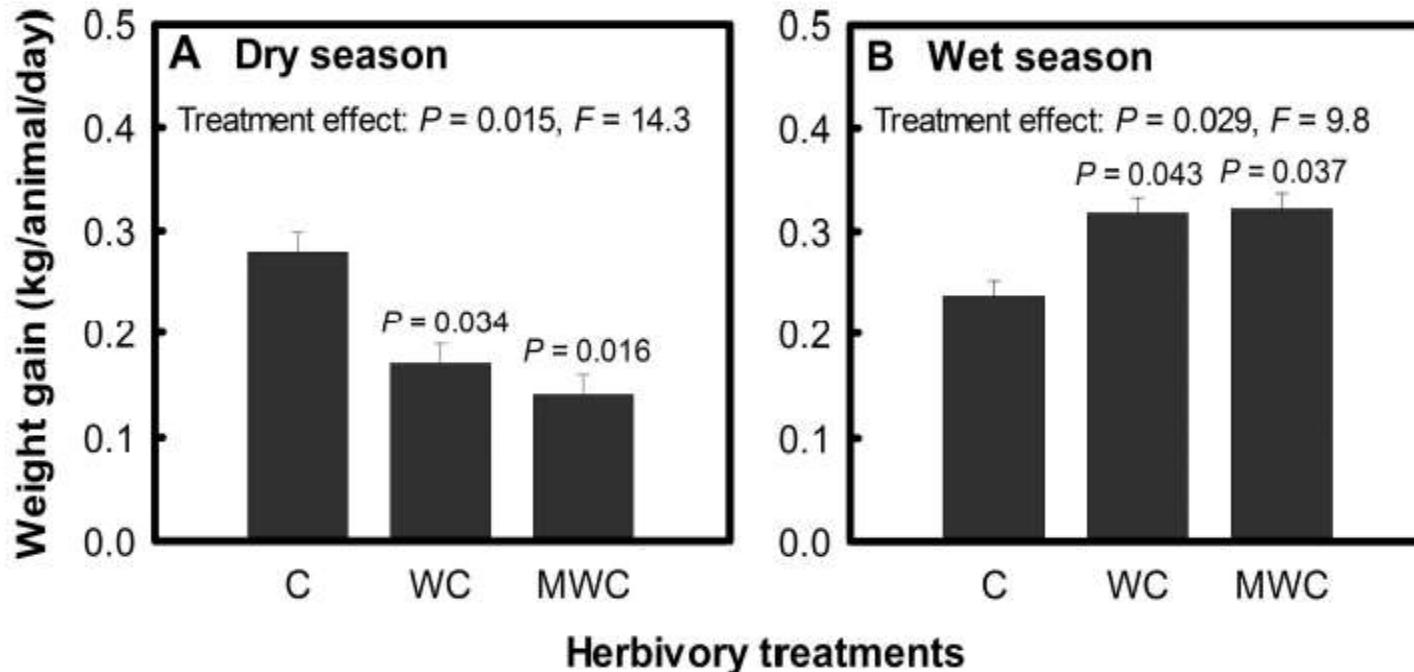
A technical report
on grassland management
and climate change mitigation

Summary from FAO Report

- 1) Data are limited** on management impacts on carbon stocks in developing countries.
- 2) Field estimates of soil carbon sequestration are limited.**
- 3) Combining field measurement with mechanistic modeling has great value.**

Context - Grazing Systems are Complex

2011



Weight gain of cattle within treatment plots of Cattle only (C), Wildlife and Cattle (WC) and Megaherbivores with cattle (MWC).

Odadi et al., Science.

2013 – Soil Carbon is Complex Too



Global Change Biology (2013) 19, 1347–1357, doi: 10.1111/gcb.12144

REVIEW

Effects of grazing on grassland soil carbon: a global review

MEGAN E. MCSHERRY and MARK E. RITCHIE

Department of Biology, Syracuse University, 107 College Place, Syracuse, NY 13244, USA

- Meta-analysis of all published studies.
- Tropics and Africa lack data.
- Many complex interactions not completely understood.
- Need to look carefully at grazer effects in each region as they are highly context-specific.

ABCG Grant

- **Context:**

- Rangeland management potential for climate change mitigation.
- Carbon markets as new opportunities for generating co-benefits.

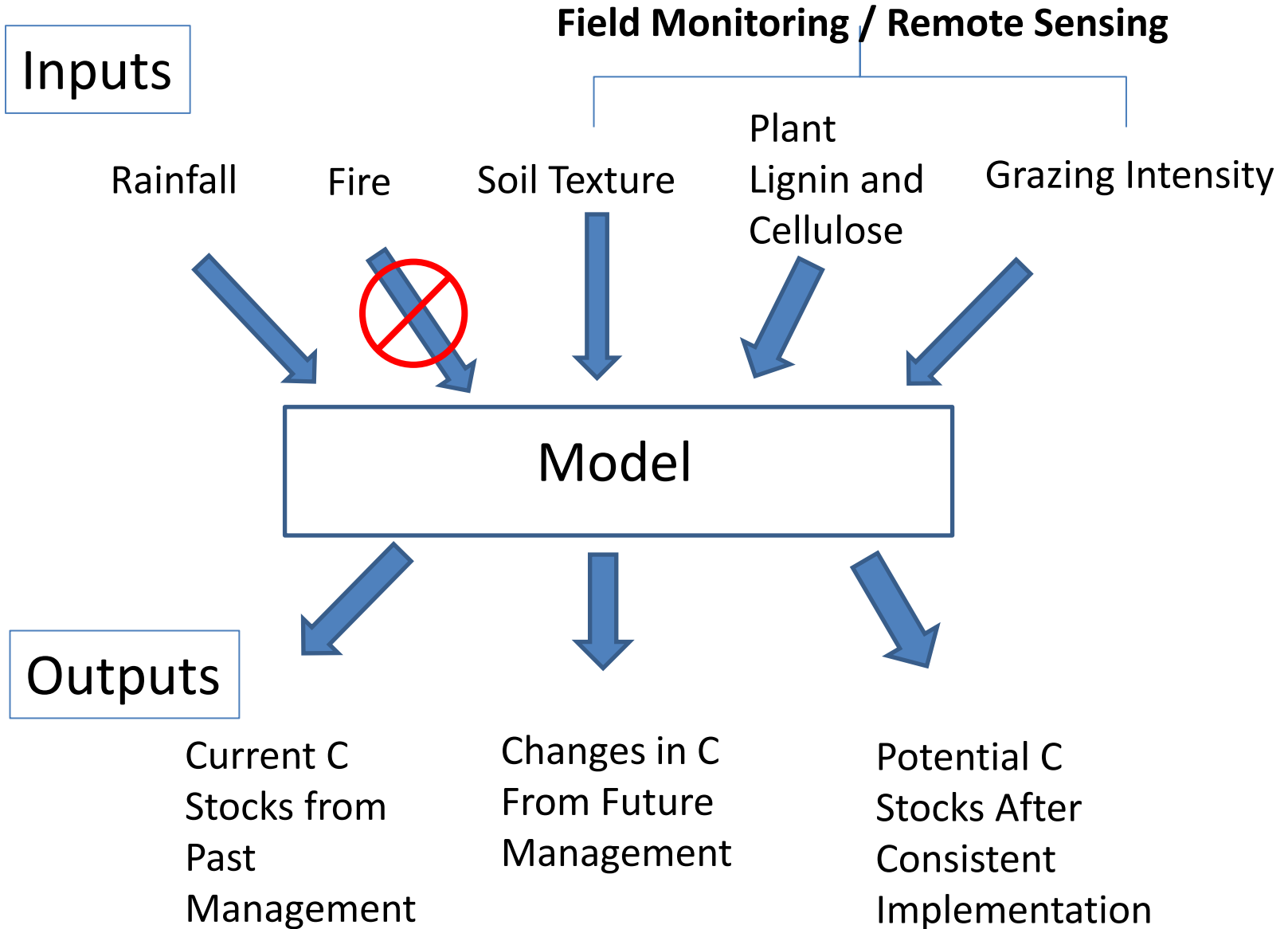
- **Challenges:**

- Could results from a single study area be applied to other areas?
- Would this study be helpful to other organizations?

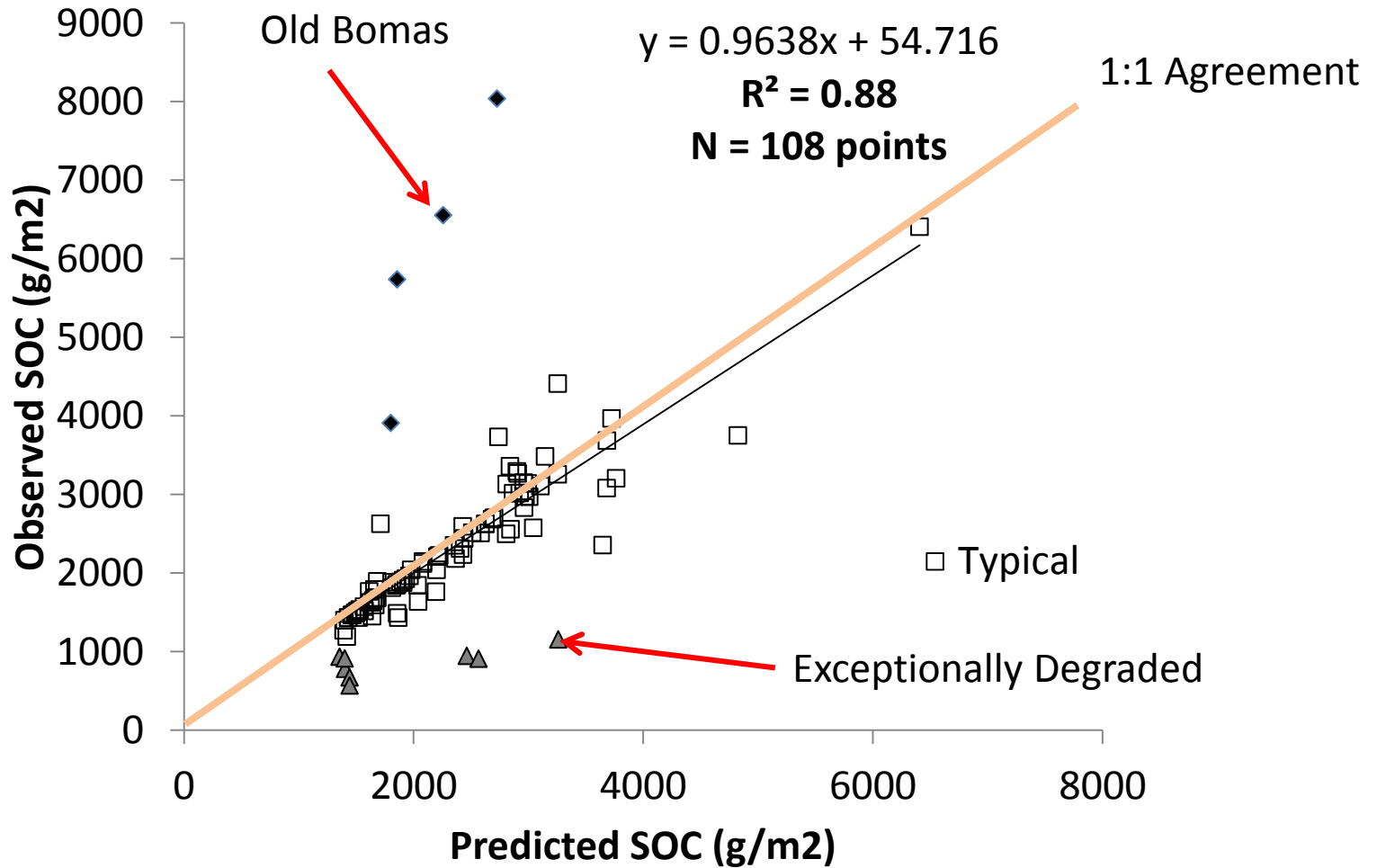
A Model for Conservation

- One model developed in Serengeti National Park (SNAP).
- Untested outside Serengeti National Park

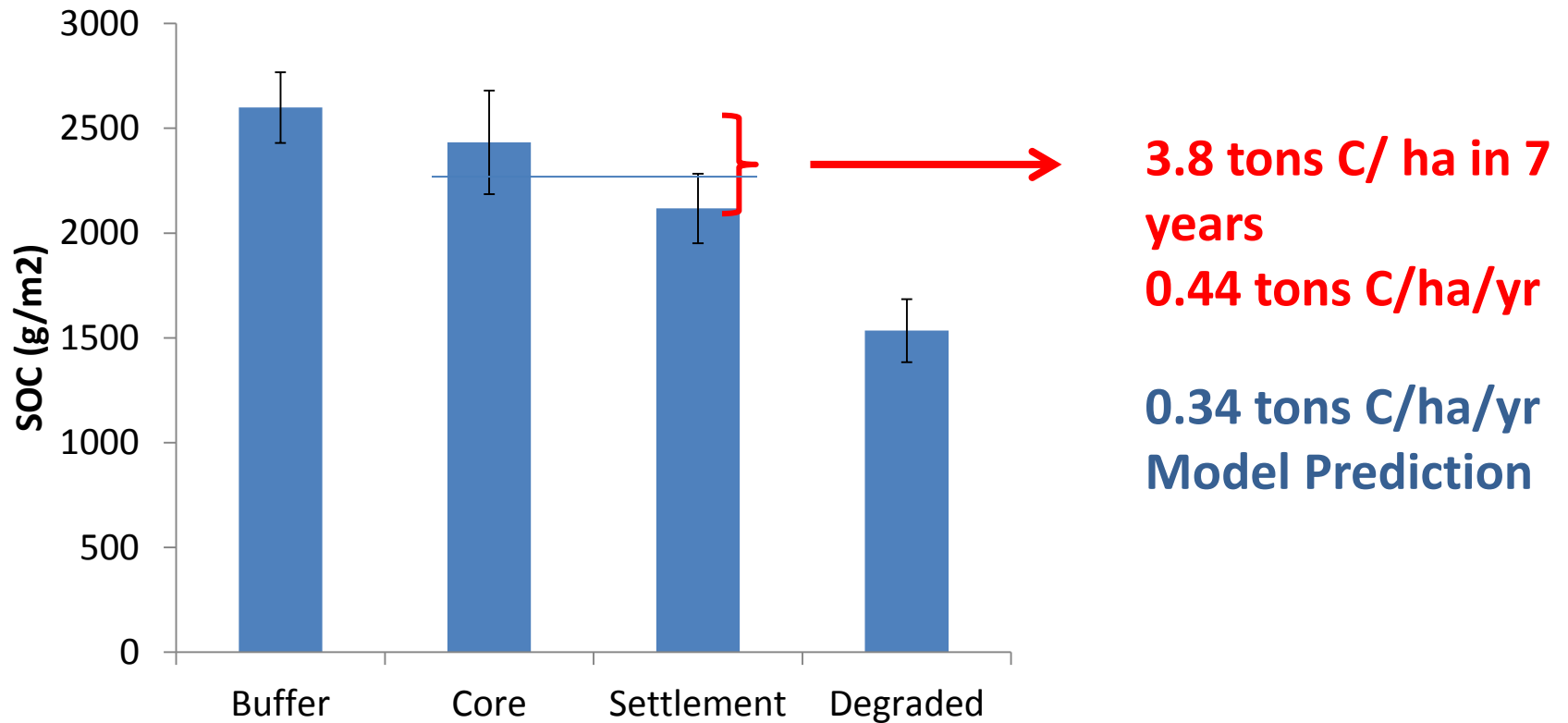
SNAP (Serengeti NAtional Park) Carbon Model

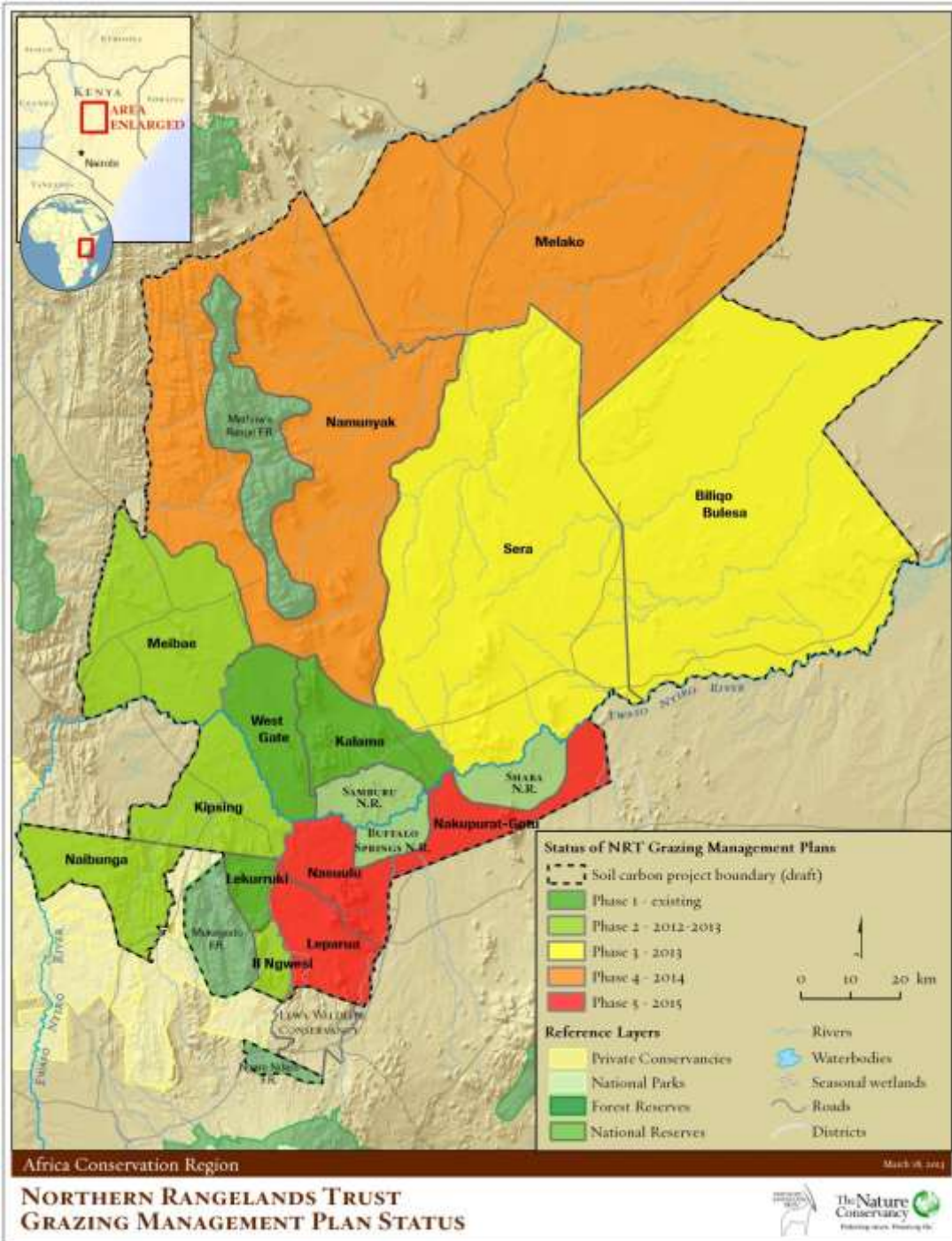


Validating the *SNAP* Model



Does Improved Grazing Increase Soil Carbon?



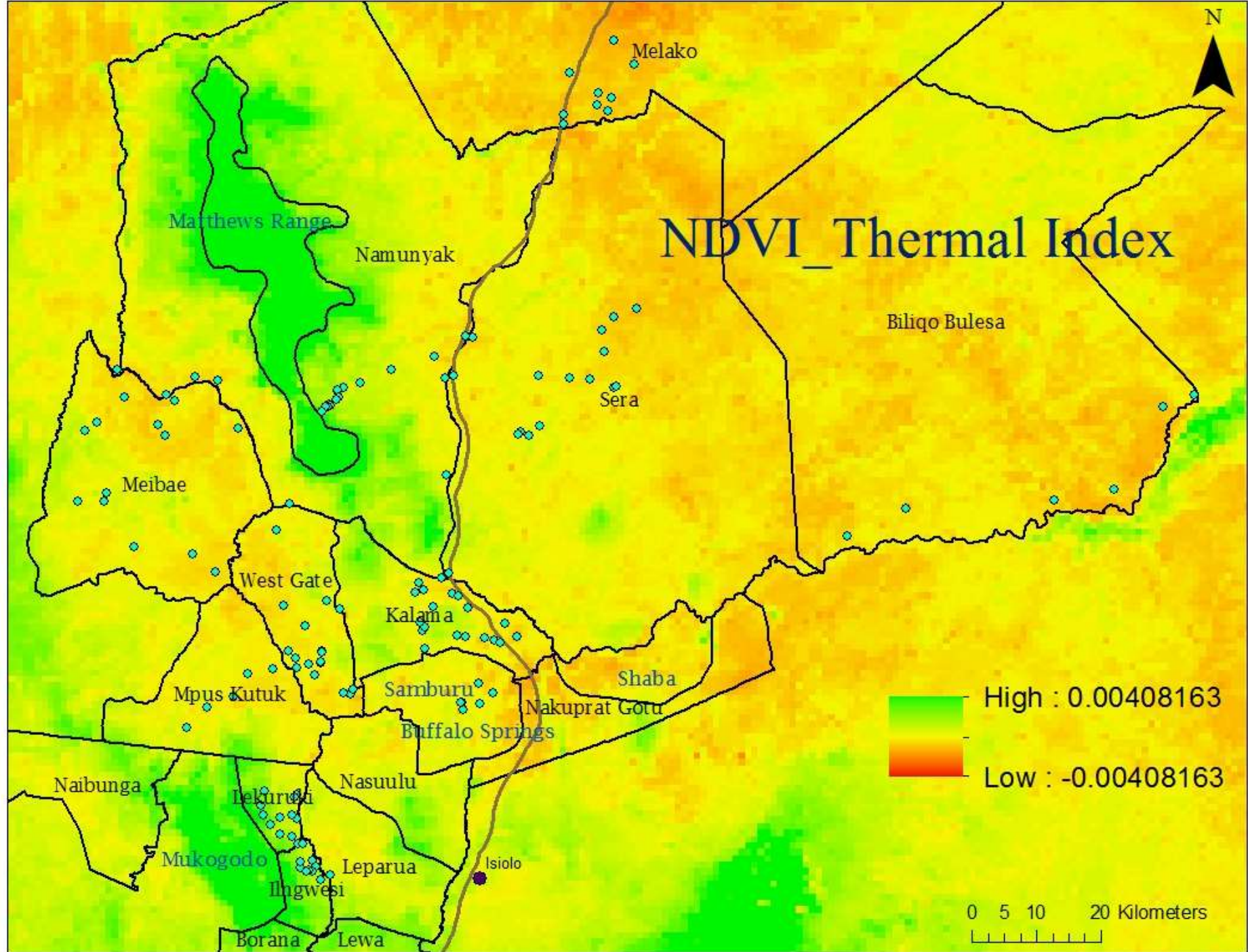


NRT Grazing Management Plan

2012 – 95,008 ha
 2014 – 209,213 ha
 2016 – 1.8 M ha

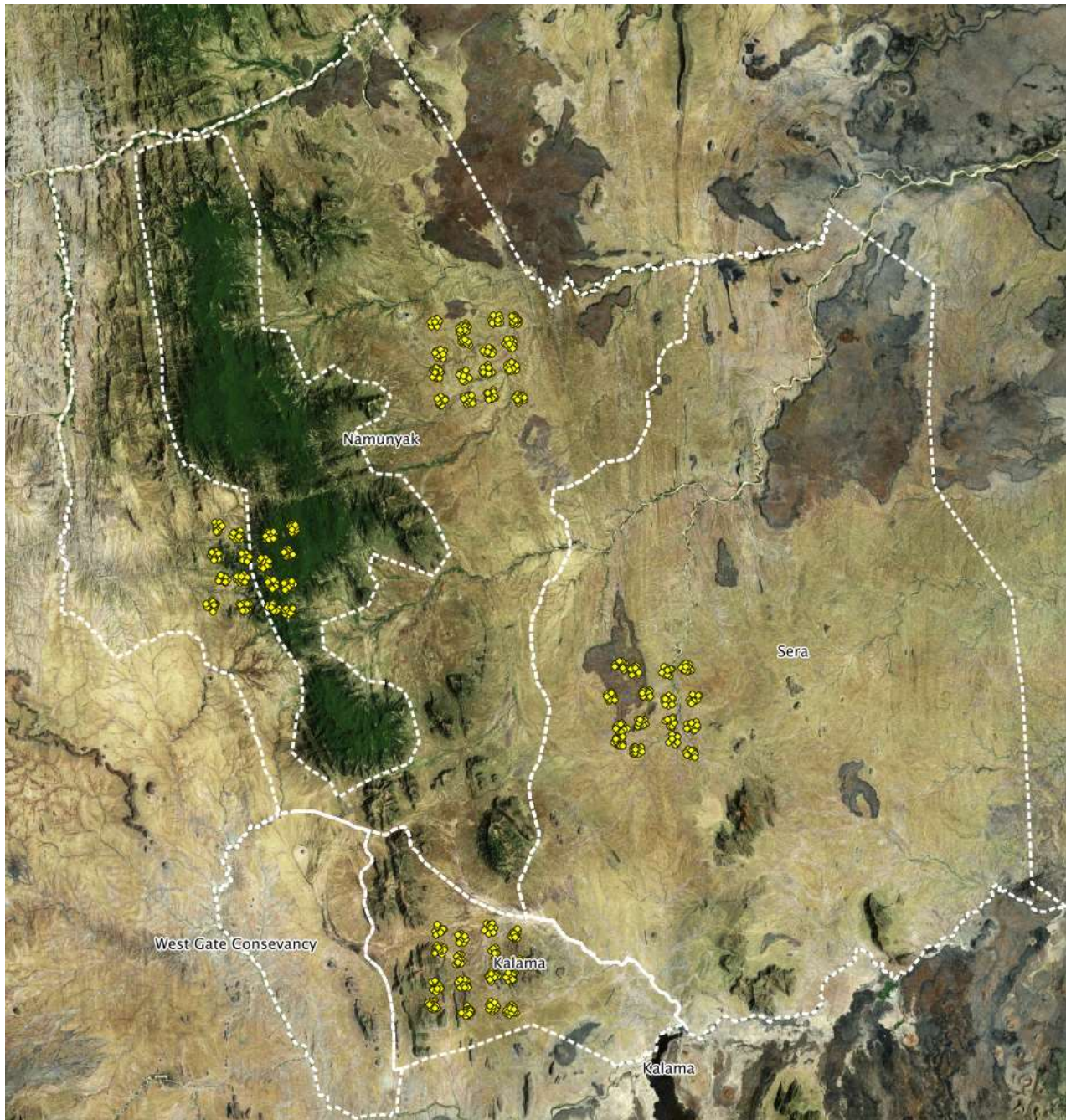
Next Steps

- Improve SNAP model
- Improve remote sensing assessments
- Improve Carbon Models
- Formalize a Methodology
- Launch a carbon project



Partnership - World Agroforestry Center

- Land Degradation Surveillance Framework
- 20 African countries



Next Steps

- Improve SNAP model
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- Formalize a Methodology
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Formal Approval of Methodology



VCS Double Approval Process Submission Form

This form is used by the developer of a Methodology Element (new methodology, methodology revision, new additionality performance standard or new tool/module) to submit information on the Methodology Element to the VCSA and to authorize the VCSA to manage those parts of the Double Approval Process for which it is responsible. The information provided will enable the VCSA to conduct the Global Stakeholder Consultation. Further information on the Double Approval Process is available in the VCS Double Approval Process guidance document on the VCS website.

Co-Benefits: Carbon and People



VCS+CCB Project Development

Presentation and panel discussion on the new joint project development process:

Joanna Durbin, Director, CCBA

David Antonioli, CEO, VCS

Christy Magerkurth, Climate Change Specialist, The Field Museum

Jerry Seager, CPO, VCS

11 December 2012

Outline

- Take Home Points
- Context
- Results of this study
- Next steps
- **Implications**
- Discussion

Implications

By the end of this grant:

- Adoption of new grazing management methods by pastoral societies.
- A plan for rapid expansion.
- A tested Soil Carbon Model.
- A model-based soil carbon methodology adapted for rangeland management (fire and grazing) is approved for global use.
- Commitment to launching a soil carbon project .
- Key Research links established.

These are significant steps toward leveraging this project

Implications

Leverage will depend on many factors, such as:

- The fate of the carbon market and the value of carbon credits.
- The availability of funds to launch new projects.
- The success of early projects.
- The impact of research to help reduce costs and increase efficiencies for new projects.

Thank you

