ASSESSING IMPACTS ON EARTH FROM BEYOND EARTH
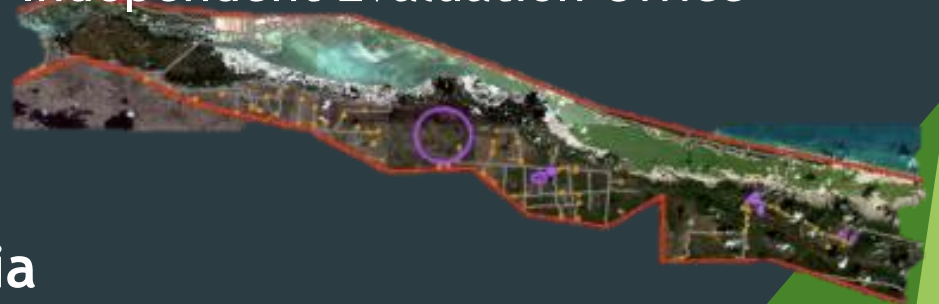
Experiences of the Global Environment Facility (GEF) Independent Evaluation Office

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Some Reasons Evaluation Can Be Painful

Inaccessible data

No control group available

Large and/or inaccessible area to cover

Non-existent baseline or post-project data

FRAMEWORK FOR ANALYSIS

INPUTS

TRANSFORMATIONAL PROCESSES

IMPACTS

PROTECTED AREAS

WILDLIFE

- Species Richness
- Management Capacities
- Management Effectiveness

- Population Trends

3 CASE STUDY COMPONENT
- GEF Contributions
- Contextual Factors

Adoption of Interventions at Scale

2 GLOBAL COMPONENT
- Forest Cover
- Wildlife Abundance
- METT

PEOPLE

FORESTS

- Community Interactions
- Governance Systems
- Other Large-scale Drivers

1 PORTFOLIO COMPONENT
- Evolution of GEF Approach
- Progress towards Impact

- Loss and Gain

A Solution

Geospatial Methods

What are some evaluation questions that GEOSPATIAL METHODS can answer?

Relevance

Are we doing the right thing in the right places?

Results

What changes occurred?

What caused those changes?

Return on Investment

How much of the result are we getting per unit dollar?

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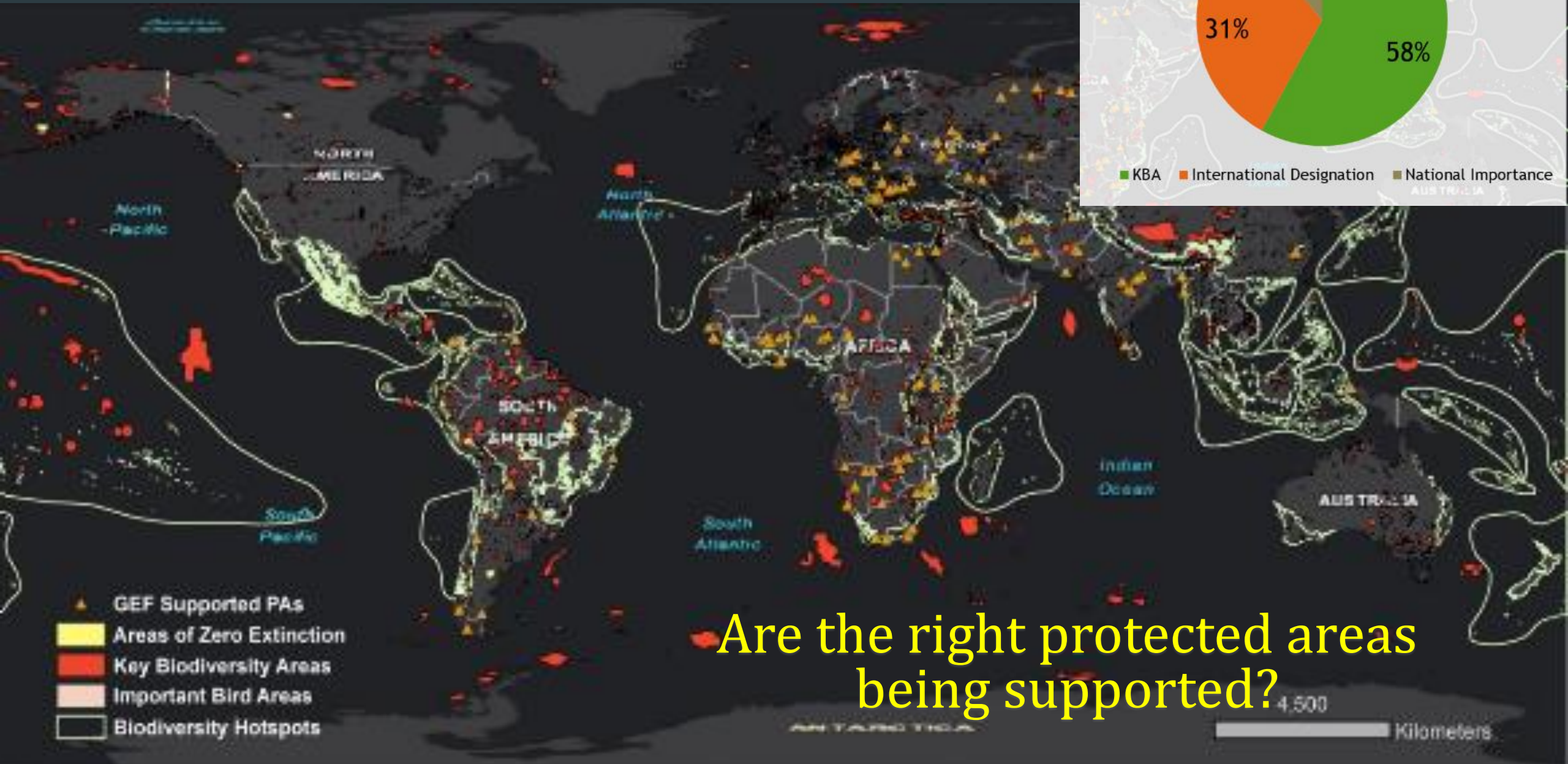
Relevance

Protected Area (Sq. Km)

· 0 - 2308

· 2309 - 7879

● 7880 - 18568

● 18569 - 39827

● 39828 - 138952

Are the right protected areas being supported?
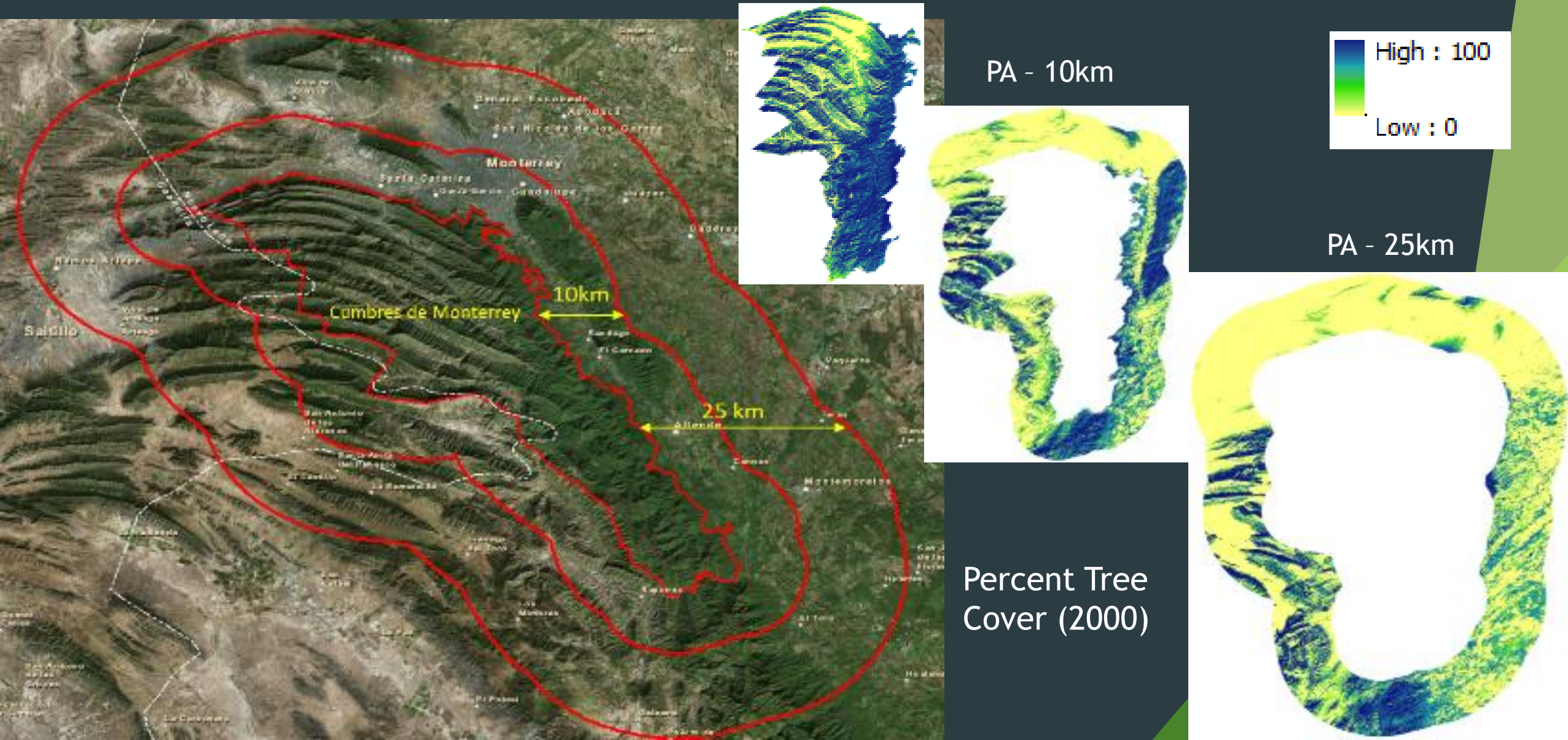
Relevance

GEF Supported PAs
Areas of Zero Extinction
Key Biodiversity Areas
Important Bird Areas
Biodiversity Hotspots

KBA International Designation National Importance

11%
31%
58%

Are the right protected areas being supported?

Results How much forest cover loss was avoided?
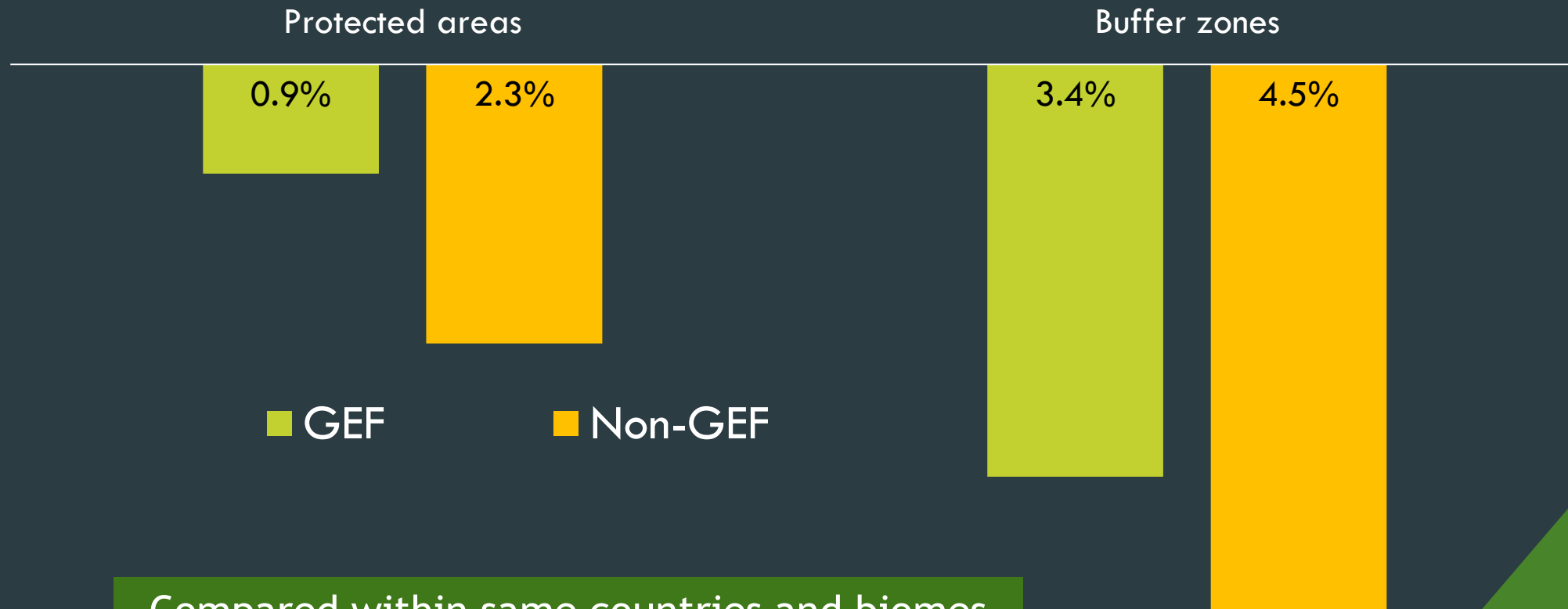
PA

PA – 10km

High : 100

Low : 0

PA – 25km

Percent Tree Cover (2000)

Results

We were able to compare across multiple scales and comparison criteria

Forest cover loss (2000-2012)

Protected areas

Buffer zones

0.9%

2.3%

3.4%

4.5%

■ GEF   ■ Non-GEF

Compared within same countries and biomes

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GLOBAL ENVIRONMENT FACILITY

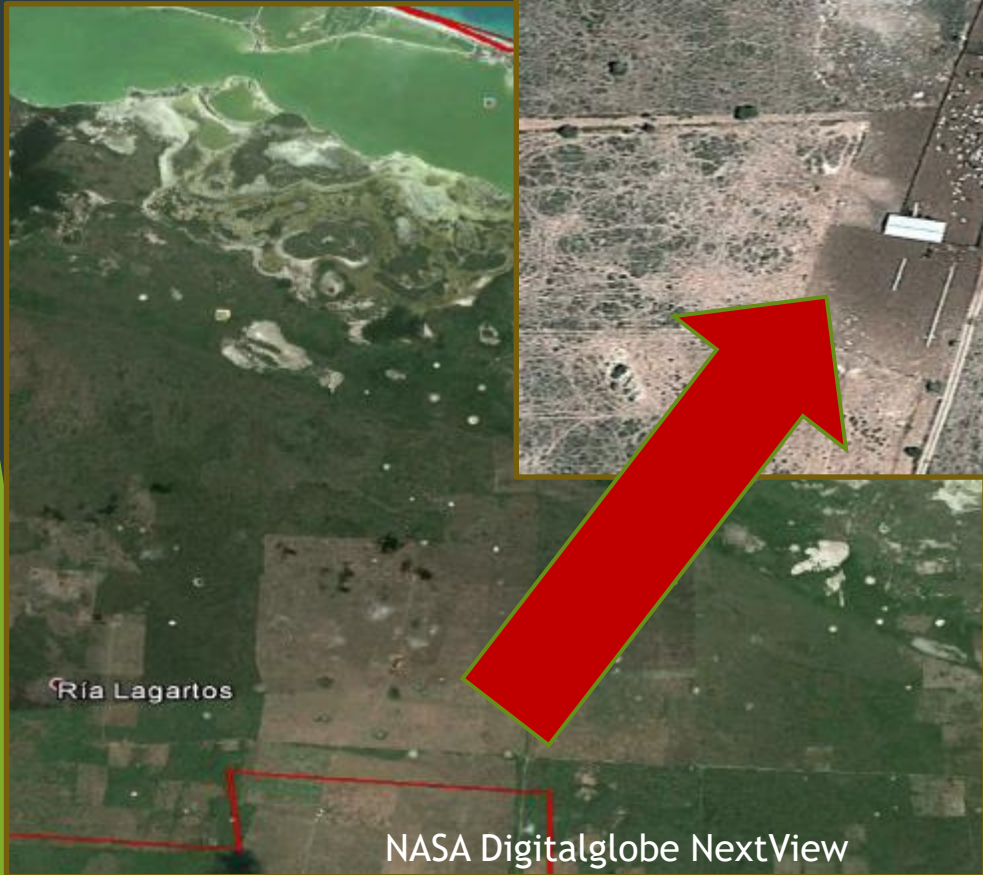**Results** Did GEF support cause the change?
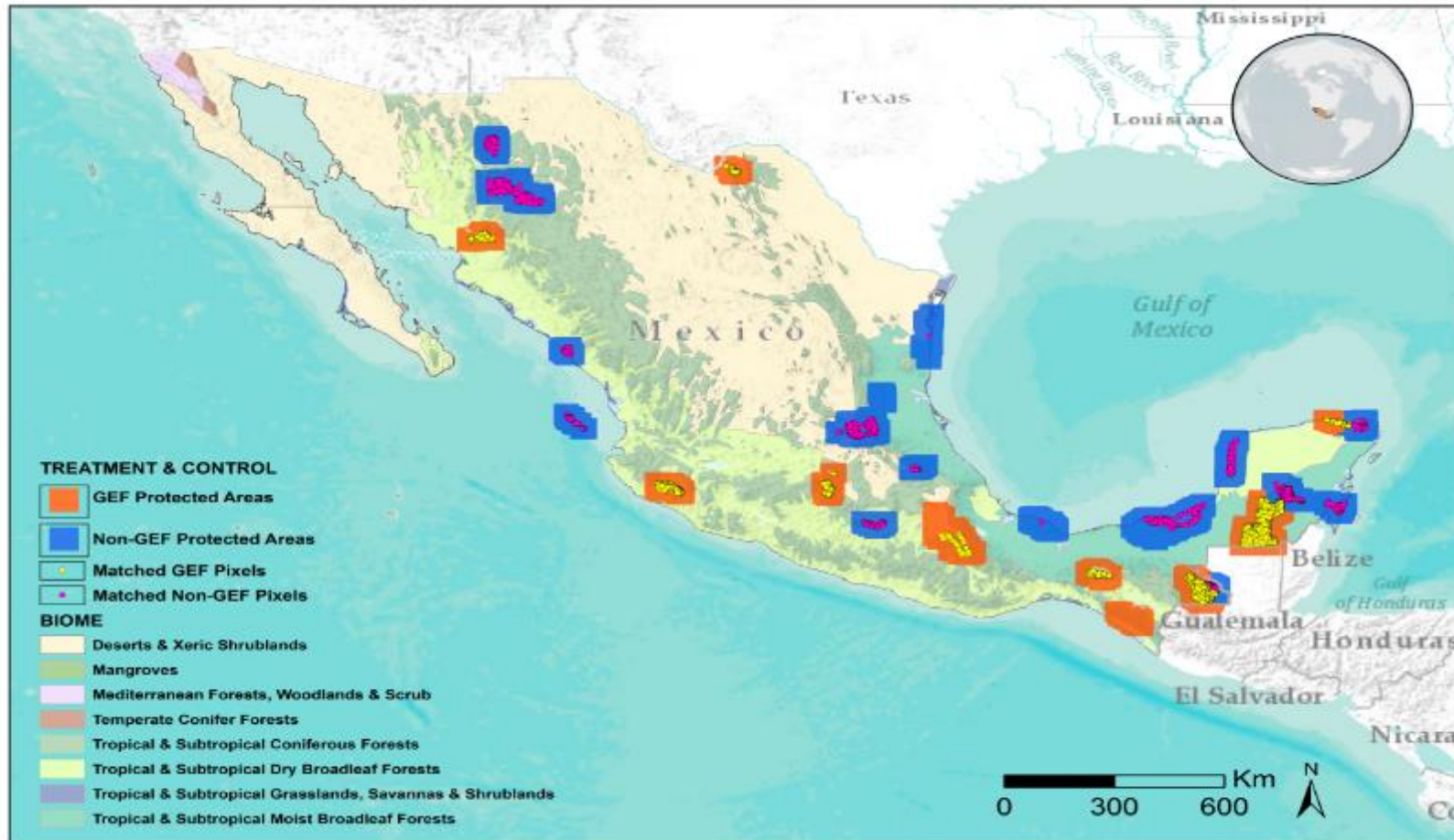
GEF-supported PAs have 23% less forest loss BUT results vary across biomes

Quasi-experimental evaluation design based on Propensity Score Matching

Results

What factors caused the difference in results?

March 19, 2009
GeoyEye-1

February 1, 2009
Landsat 5

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0   10   20   Meters

2.5 m

30 m zoomed in to 2.5 m

Ría Lagartos

NASA Digitalglobe NextView

Images at 2.5 to 0.5 m resolution used to identify drivers of change that hinder success of GEF support

Return on Investment

How much carbon sequestered per dollar of GEF grant?

LD
$1:1.08

SFM
$1:1.17

+

Vegetation productivity
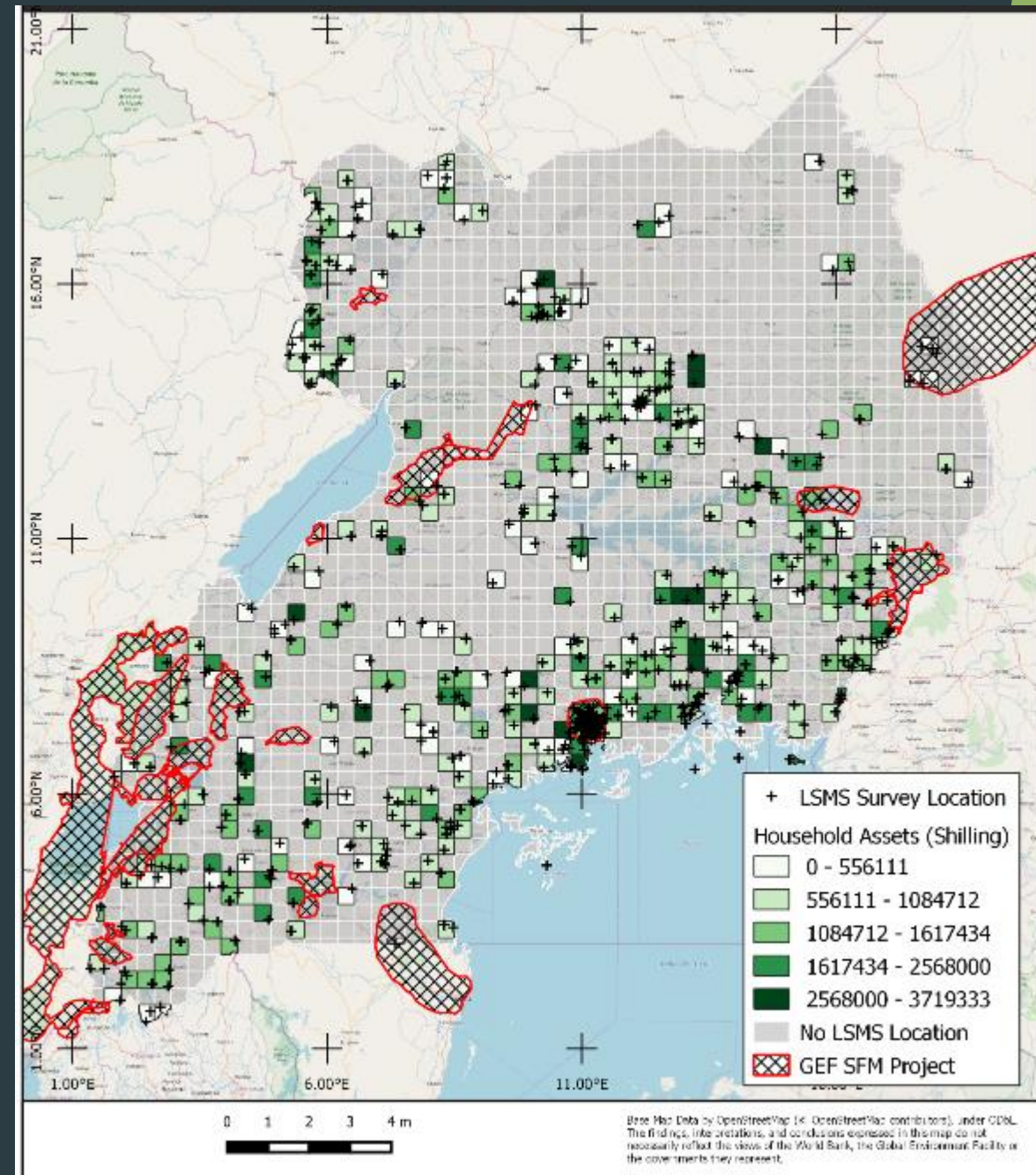
—

forest loss and
land fragmentation

Using Causal Trees (machine learning), we found
- Access to electricity associated with higher impact
- Higher impact observed in areas with poor initial conditions

Other Applications

▶ Combined with **survey data**

▶ Households in proximity to GEF SFM interventions have more
in household assets as compared to households further away.

Positive Correlation with GEF, not causation

+ LSMS Survey Location

Household Assets (Shilling)
- 0 - 556111
- 556111 - 1084712
- 1084712 - 1617434
- 1617434 - 2568000
- 2568000 - 3719333
- No LSMS Location
- GEF SFM Project

Hard to reach, isolated and unsafe areas

Tracking illegal mining in Chacó, Colombia

Some Limitations to Consider

Need geolocation and polygons of where intervention is implemented

Satellite data and processing can be free, but need to invest in specialist

Geospatial data has to match target outcomes and their corresponding time and spatial scales

Big data can also be prone to error in measurement and analysis

A Few Solutions

Require maps and GPS coordinates in project proposals and monitoring reports

Partner with national and global institutions with existing capacities

Use existing global databases and local sources of information

Use mixed methods and always validate against Theory of Change!

GEF IEO Resources

Impact Evaluation of GEF Support to Protected Areas and Protected Area Systems (PAS) 2016

http://www.gefieo.org/evaluations/impact-evaluation-gef-support-protected-areas-and-protected-area-systems-pas-2016

Value for Money Analysis for GEF Land Degradation Projects 2016

http://www.gefieo.org/evaluations/value-money-analysis-gef-land-degradation-projects-2016

Value for Money Analysis of GEF Interventions in Support of Sustainable Forest Management 2019

http://www.gefieo.org/evaluations/value-money-analysis-gef-interventions-support-sustainable-forest-management-2019

Measuring Environmental Outcomes Using Remote Sensing and Geospatial Methods

http://www.gefieo.org/sites/default/files/ieo/signposts/files/impacts-remote-sensing-2017-brief.pdf

Thank You!

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