



Knowledge Management (KM) Advisory Group Meeting

Relevance of Earth Observation Information for the GEF

Jaime Cavelier

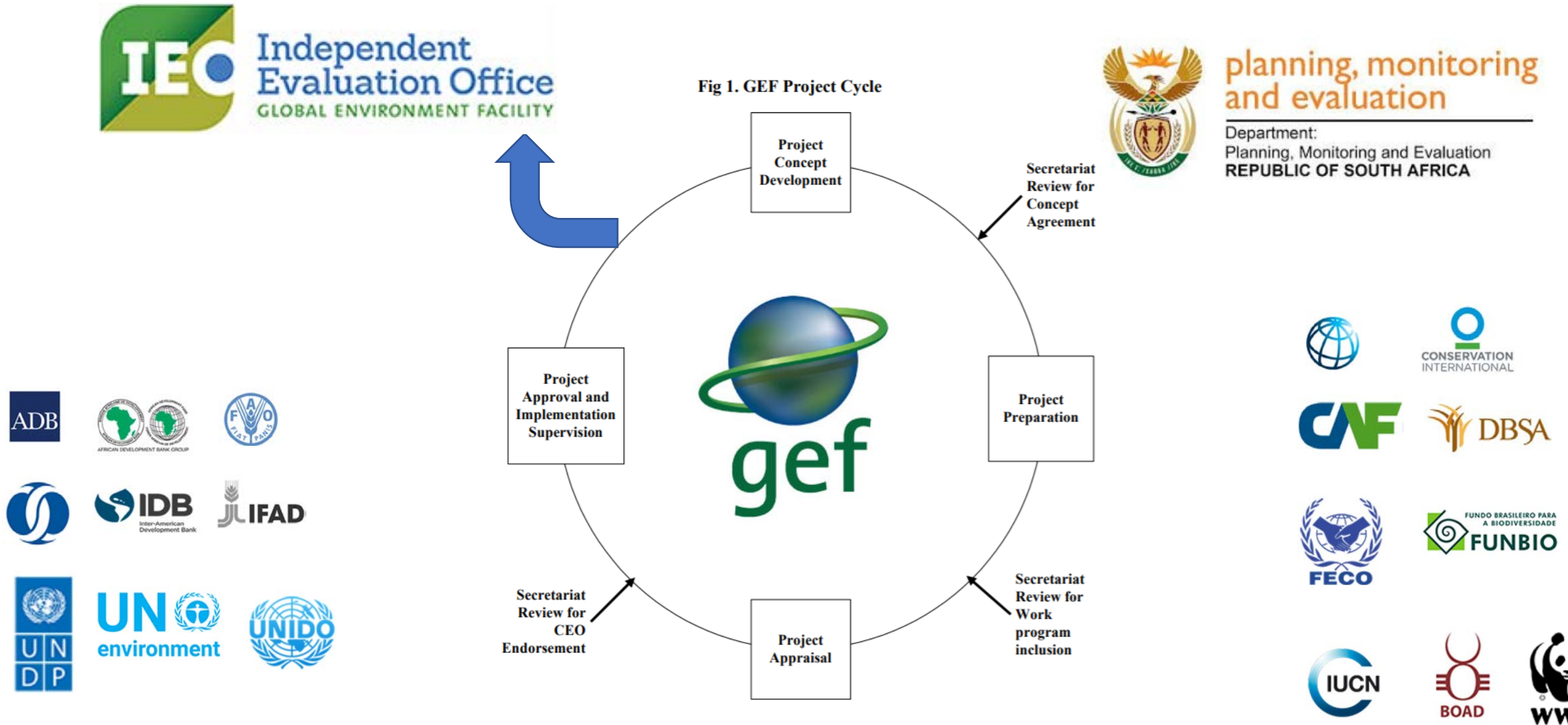
Sr. Biodiversity Specialist, Programs Unit (GPU), GEFSEC

June 13, 2019

Applications of Remote Sensing in GEF Projects

1. Spatial planning – *Terrestrial and Marine*
2. Monitoring– *Terrestrial, Coastal and Marine as well as vessels (*)*
3. Forecasting freshwater availability- *Groundwater, wetlands and lakes*
4. Climate change models – *Risk nalysis and Mitigation measures*
5. Identification of Drivers of Environmental Degradation and Risks– *Landscape level*
6. Measurements of Forest Cover– *Binary (Deforestation, reforestation, afforestation)*
7. Measurement of Degradation of Forest Cover and Other Biomes – *Continuum*
8. Targeting the Location of Protected Areas – *e.g. Location of KBAs*
9. Determination of vegetation “health” - *Normalized Difference Vegetation Index (NDVI)*

When are Remote Sensing Tools used at the GEF?



Integrated approaches to Water Resource Management

The Hai River Basin: New
Irrigation Technology
Strengthens Food Security

**INTEGRATED
SOLUTIONS
for WATER,
ENERGY,
and LAND**

SCALING UP: Integrated water and
environment management approach to
the Liao, Hai, and Yellow River Basins

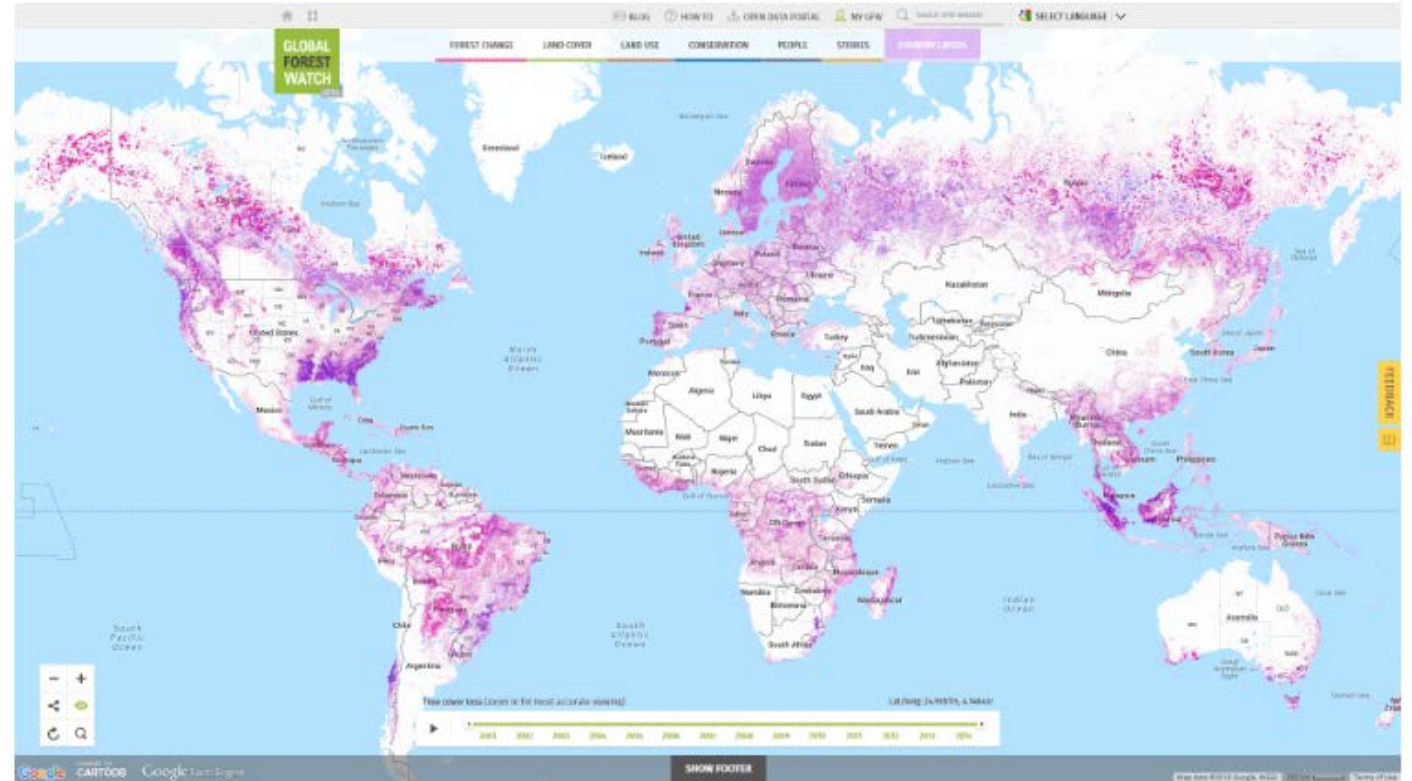


Integrated approaches to Water Resource Management

Danube/Black Sea Basin Strategic Partnership on Nutrient Reduction

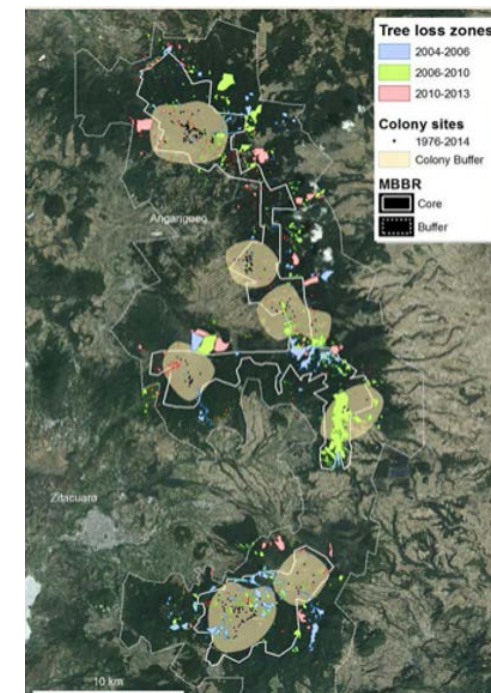


Monitoring approaches in forest conservation, restoration, and management



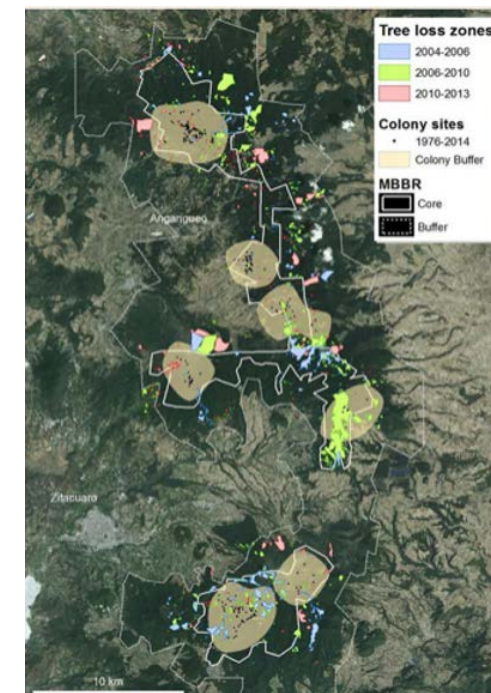
Identifying drivers of protected area degradation in Ria Lagartos Biosphere Reserve and Monarch Butterfly Sanctuary, Mexico

Analysis of high resolution commercial satellite data.



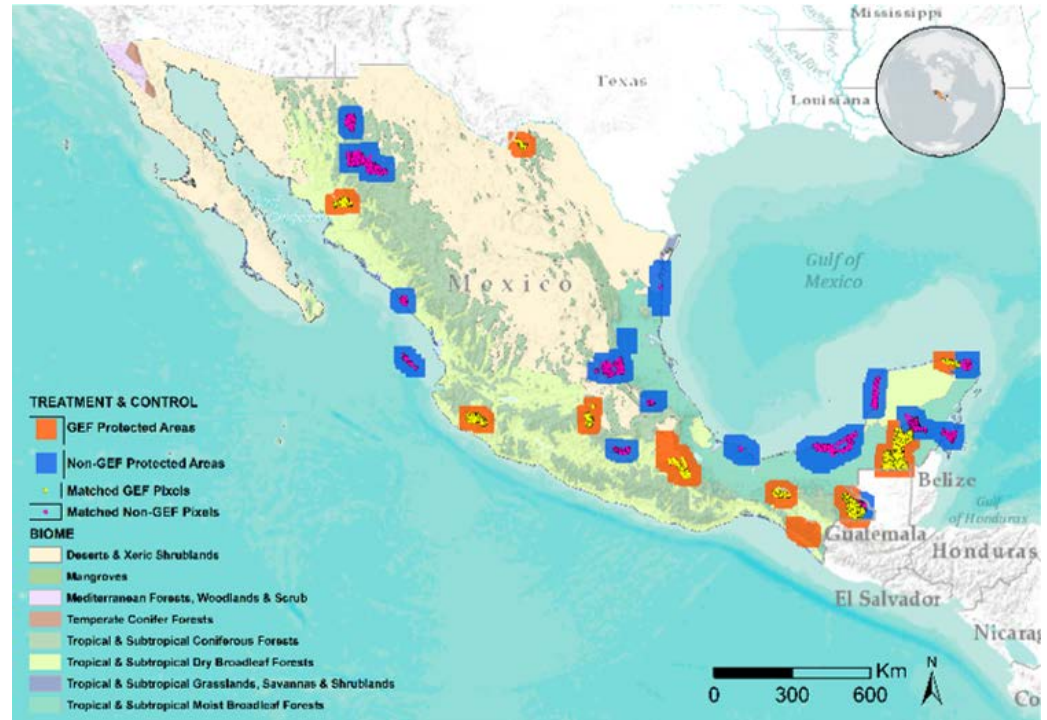
Identifying drivers of protected area degradation in Ria Lagartos Biosphere Reserve and Monarch Butterfly Sanctuary, Mexico

Analysis of high resolution commercial satellite data.



Comparing the effectiveness of GEF support to PAs in Mexico

Forest Change analysis based on the counterfactual sites obtained through propensity score matching



Assessing forest cover loss in GEF supported PAs

Forest Change analysis within the PAs and at varying buffer distance.
Forest change analysis done for a total of 30,000 PAs across 147 countries.



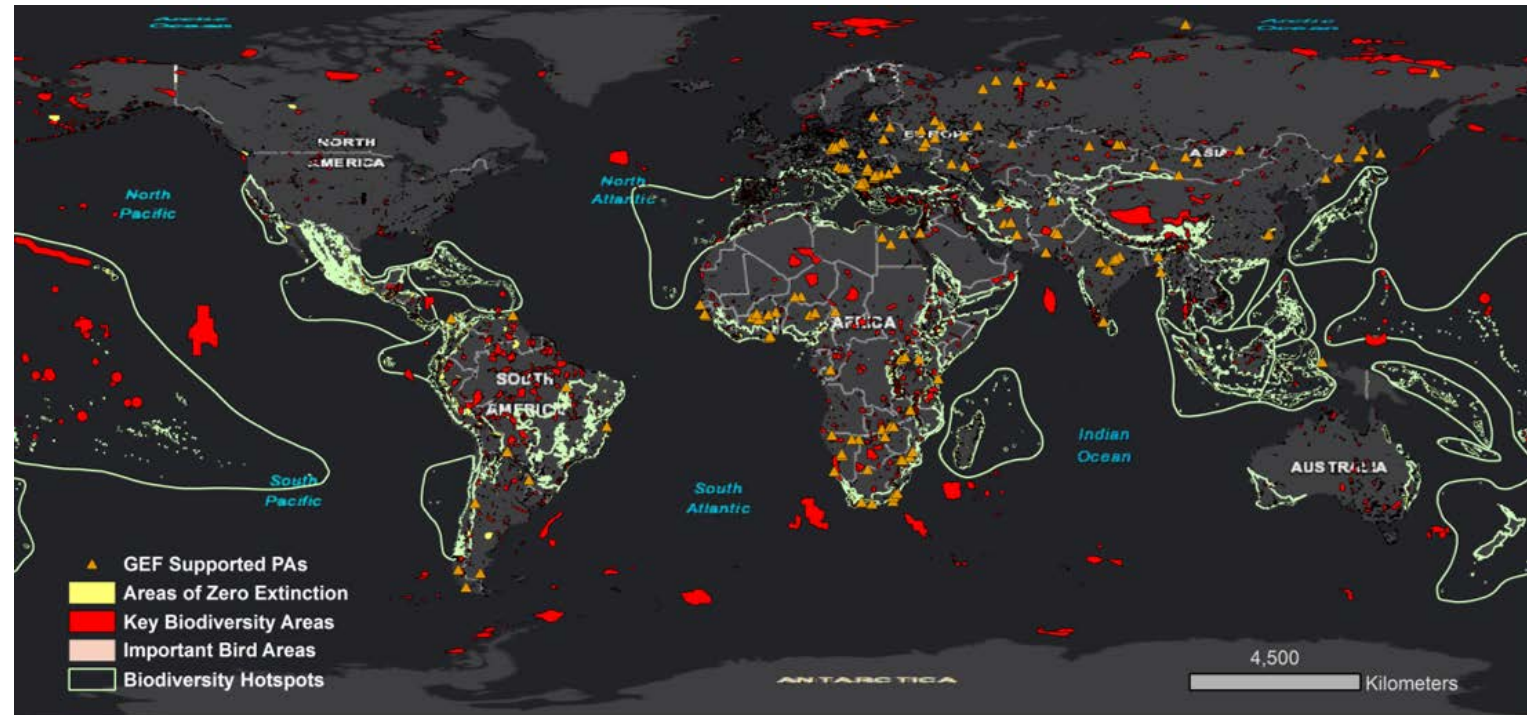
Impact Evaluation of GEF
Support to Protected Areas
and Protected Area Systems

SEPTEMBER 2016
FULL REPORT



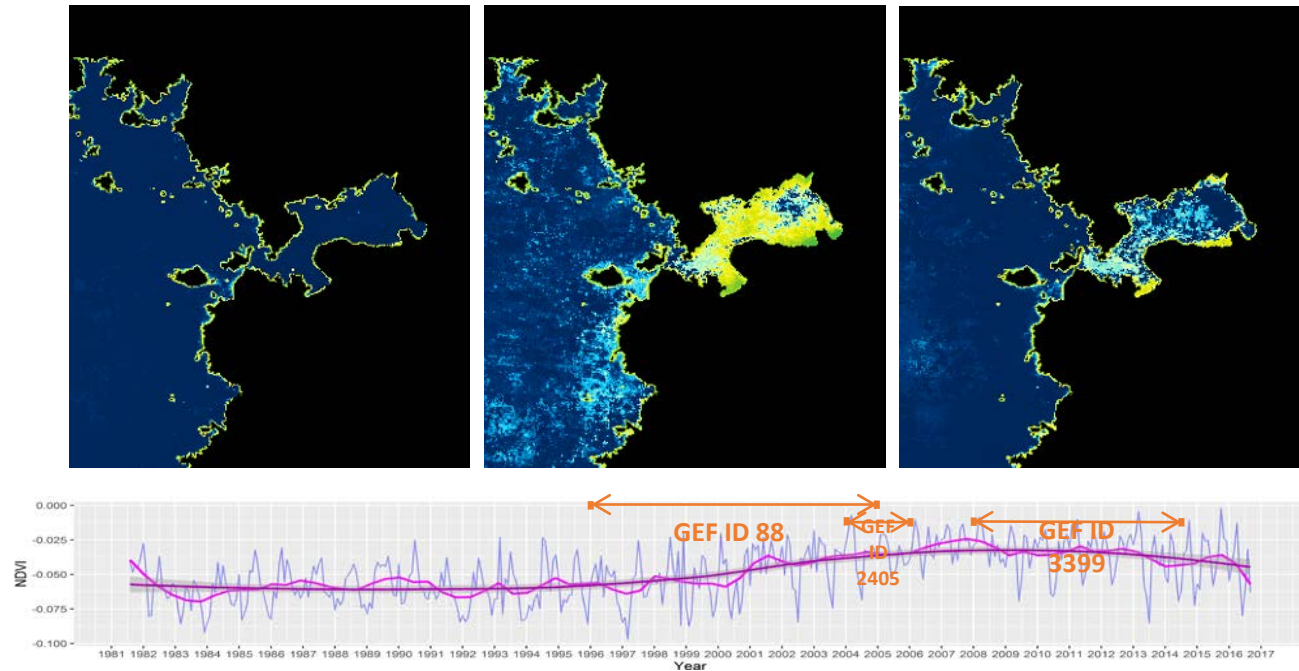
Are the GEF supported Protected Areas also located in areas of high biodiversity?

Spatial analysis based on important biodiversity areas such as KEY BIODIVERSITY AREAS



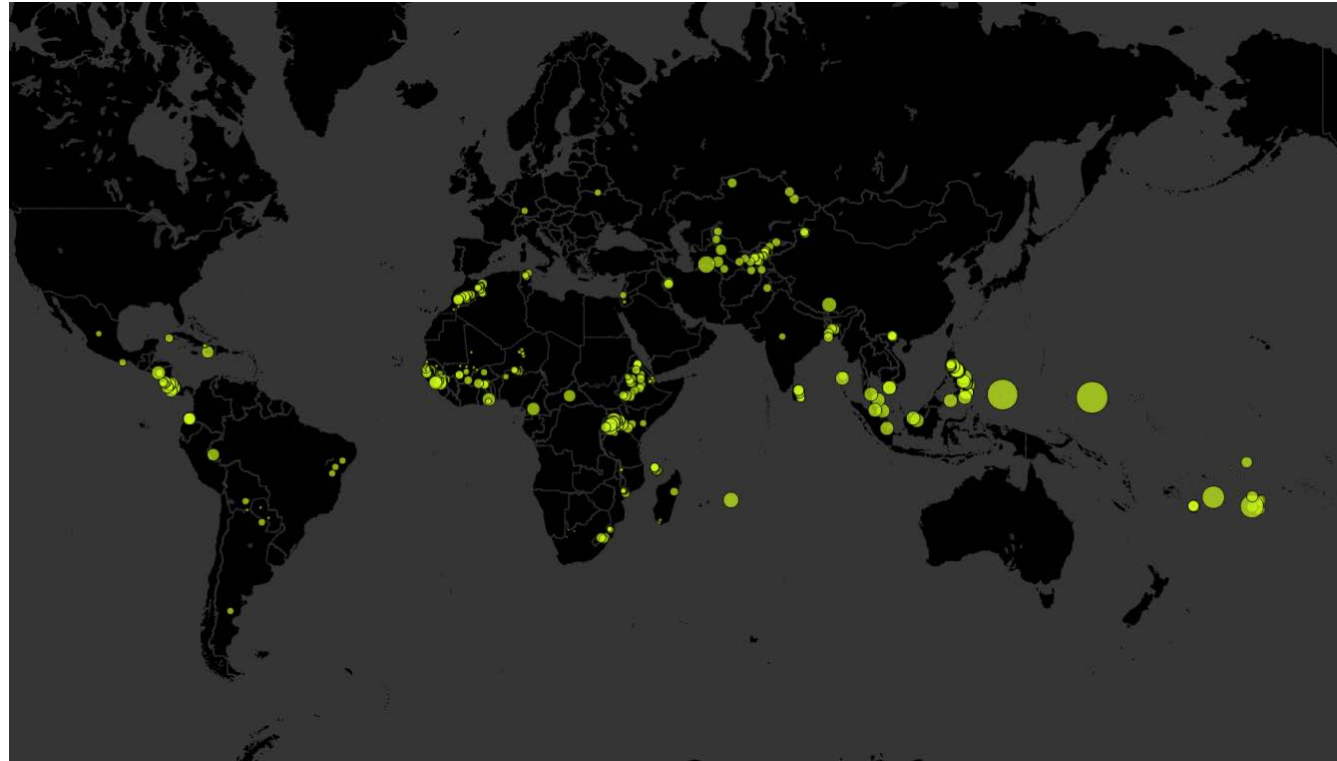
Temporal changes in vegetation productivity over Lake Victoria

Temporal decomposition of time series data; NDVI; Data from MODIS and GIMMS v3



Value for Money Analysis for GEF land degradation projects

Machine learning and propensity score matching using geospatial biophysical and socioeconomic data.
\$7,500,000 carbon benefit (@USD12/ton carbon)



Geeta Batra, Anupam Anand, Dan Runfola

When “the rubber hits the road”



What do these species have in common?

Crax alberti



Gorilla gorilla



Tapirus pinchaque



Loxodonta cyclotis



The Empty Forest: Many large animals are already ecologically extinct in vast areas of neotropical forest where the vegetation still appears intact

Kent H. Redford

BioScience, Volume 42, Issue 6, June 1992, Pages 412–422,

<https://doi.org/10.2307/1311860>

Published: 01 June 1992

Thanks to

Anupam Anand



Astrid Hillers

Christian Holde Severin

Matthew Nathaniel Foster

Steffen Cole Brandstrup Hansen



jcavelier@thegef.org