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Geospatial impact evaluation of the KfW and the AFD conservation portfolio on forest cover loss

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**IEG Symposium “Unlocking the Potential of Geospatial Analysis for
Evaluation”**

DC, April 11 2024

KfW



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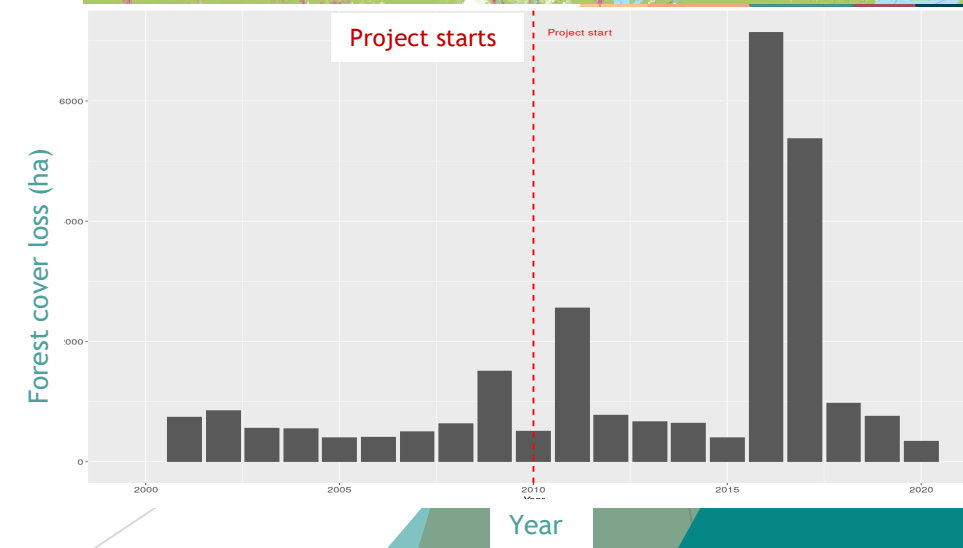
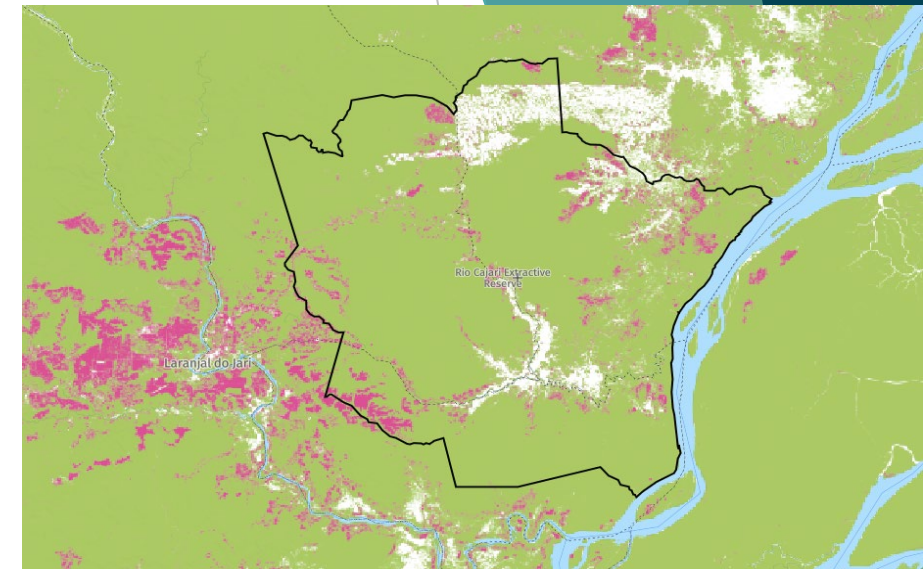
Monitoring data may lead to wrong conclusion about effectiveness of forest protection measures

- ▶ KfW supports more than 900 protected areas worldwide, mainly in Latin America and Africa. Germany accounts for about 25% of worldwide ODA for biodiversity
- ▶ During the 2000-2022 period, AFD supported more than 250 protected areas, in at least 45 countries, mainly in Africa (~70% of PAs)

- ▶ **Problem:** Monitoring data often suggests that we are not successfully reducing forest cover loss
- ▶ **Implications:** Low trust in forest cover protection measures, fewer investments (trust issue) → higher global CO2 emissions

▶ Research Question

How effective is the engagement of development banks in protected areas on forest cover loss?

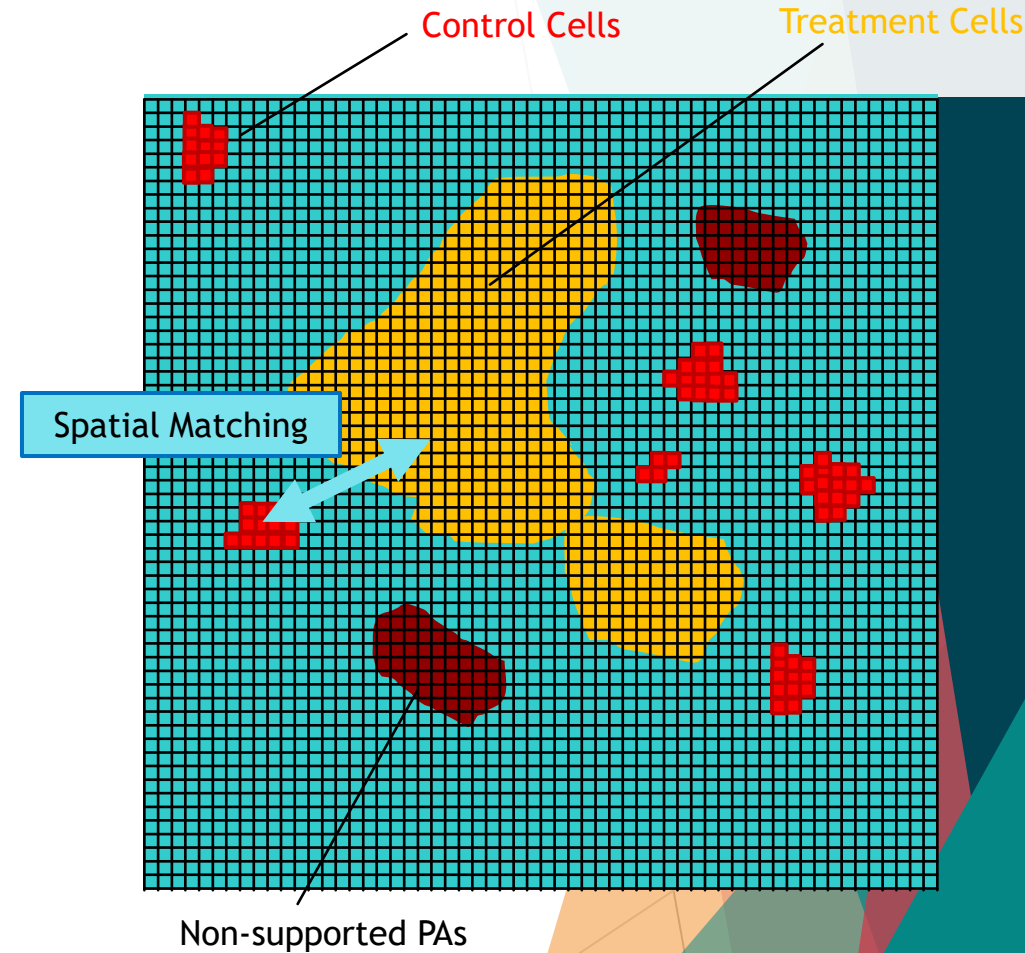




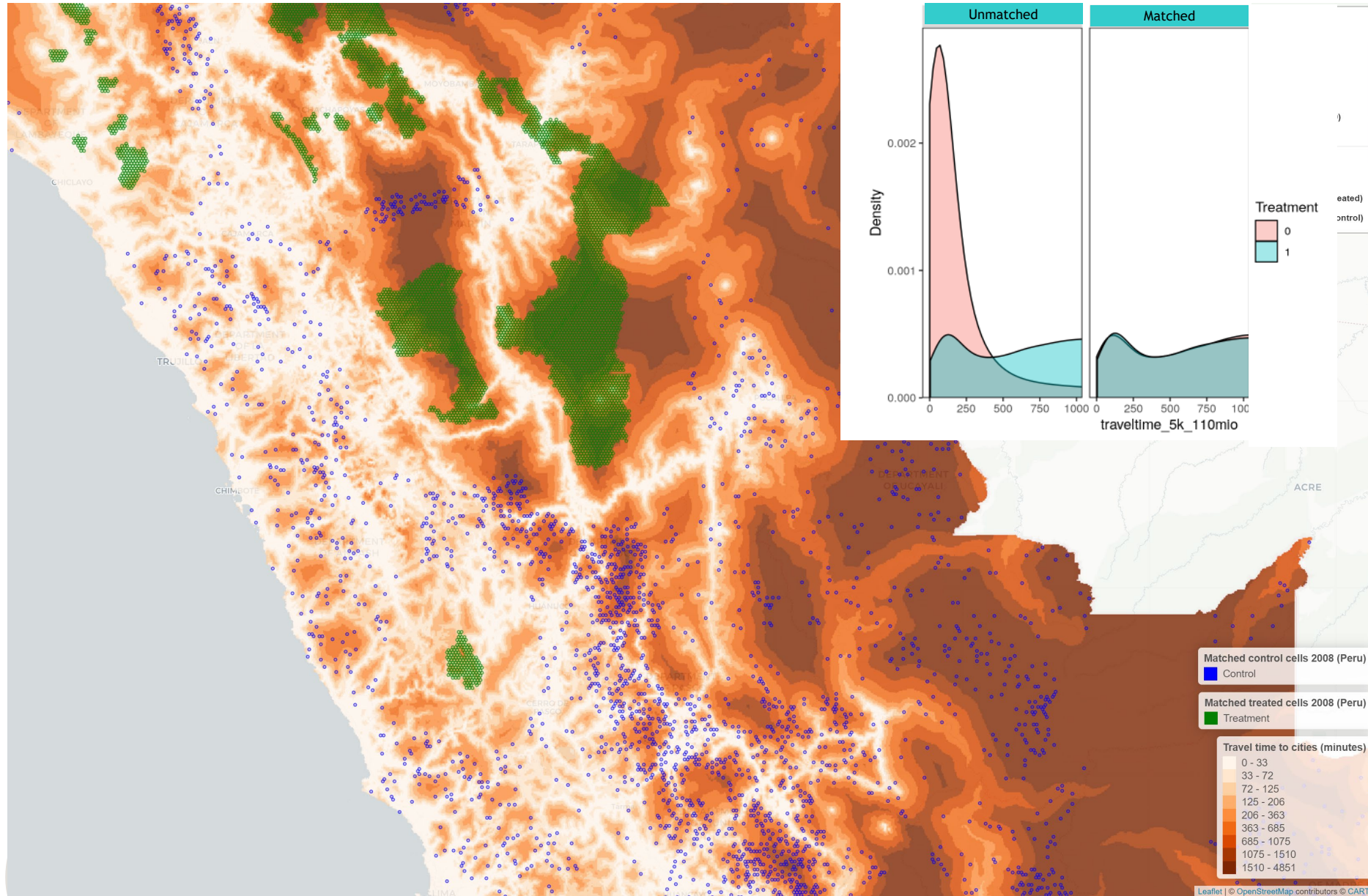
Databases & Method

Spatial matching on grid level

- ▶ We use a spatial grid (1 to 15 km²)
- ▶ Control Areas are selected from non-protected areas
- ▶ Variables affecting forest cover loss and the probability to be a PA (based on literature review):
 - Forest Area at project start
 - Average forest cover loss from 2001 to project start (time invariant)
 - Accessibility (Minimum Travel times in minutes to the next city)
 - Clay contents of soils
 - Terrain Ruggedness Index (averages)
 - Elevation above sea level (averages)
 - Country



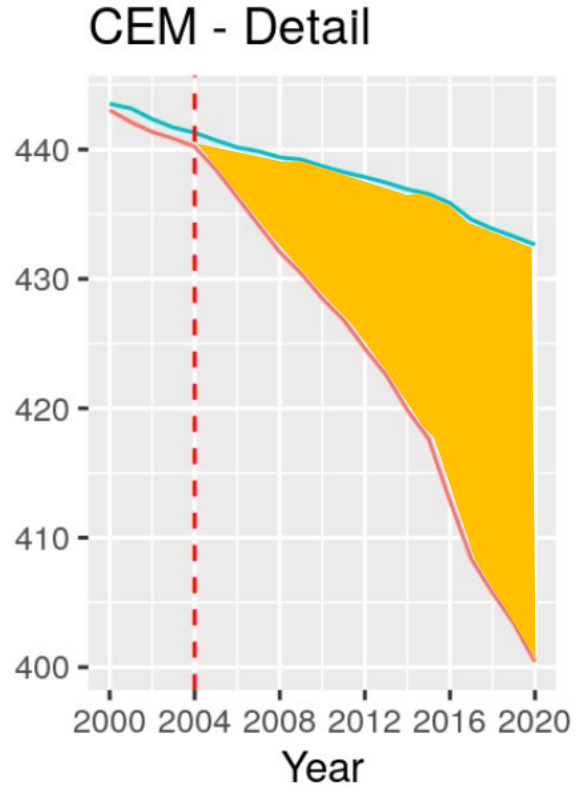
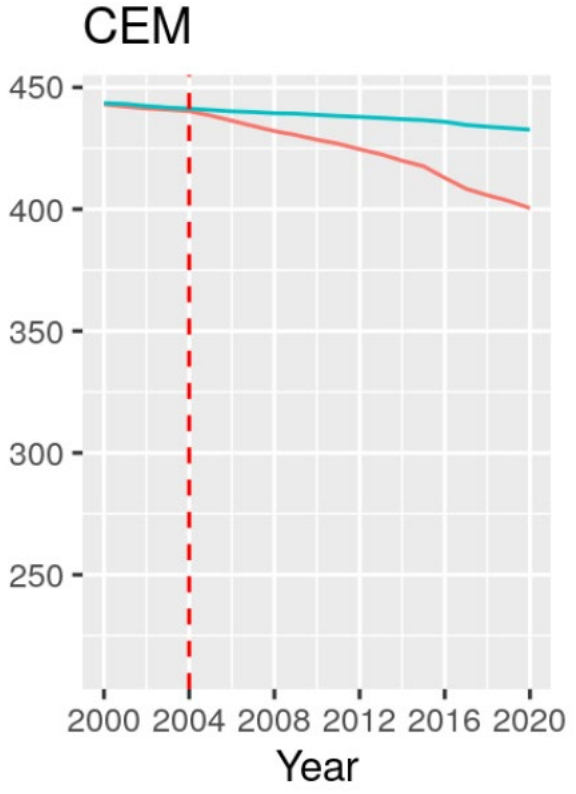
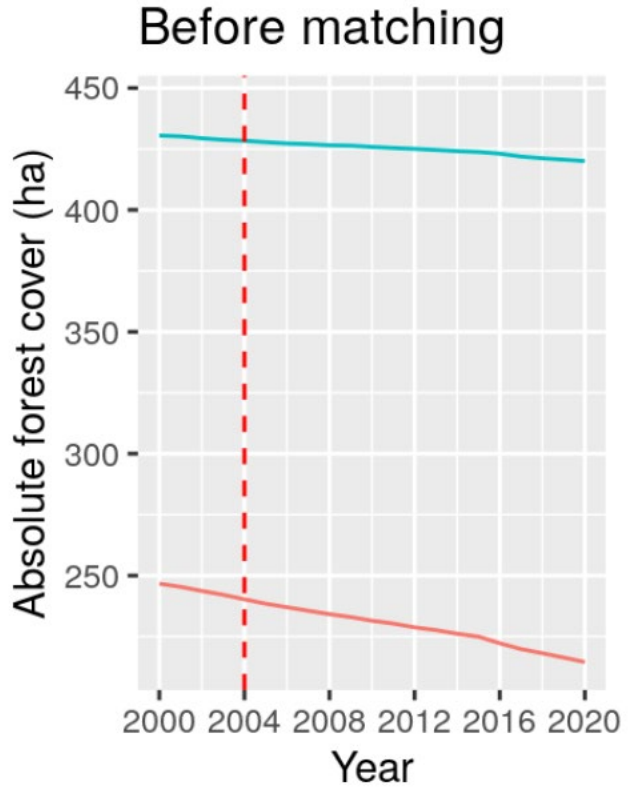
Matching - Selection of cells with similar accessibility





Results KfW

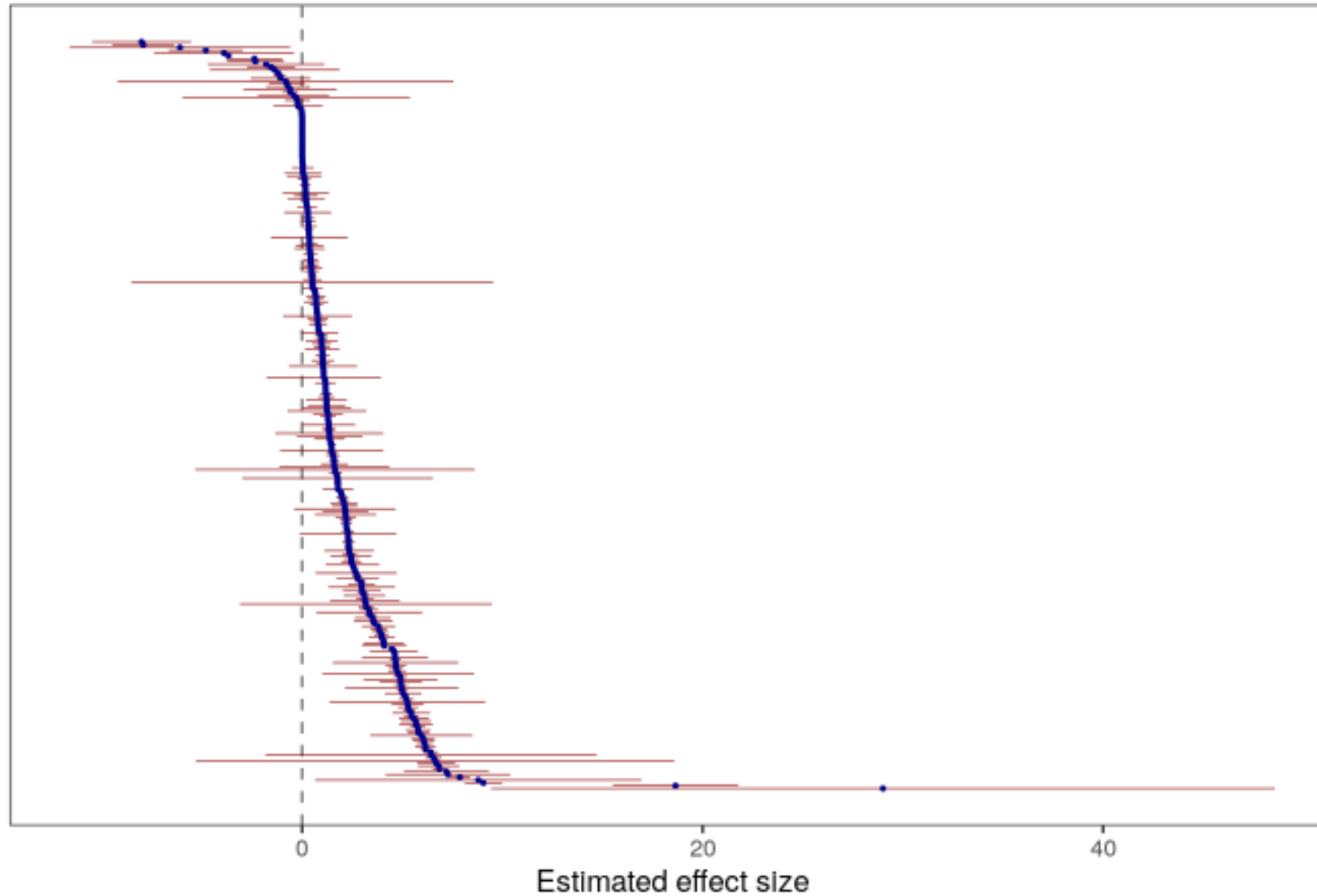
Parallel trends in forest cover



— Control — Treated

This is how effective conservation efforts looks like in numbers

Treatment effect estimates on Forest Cover Area





Results AFD

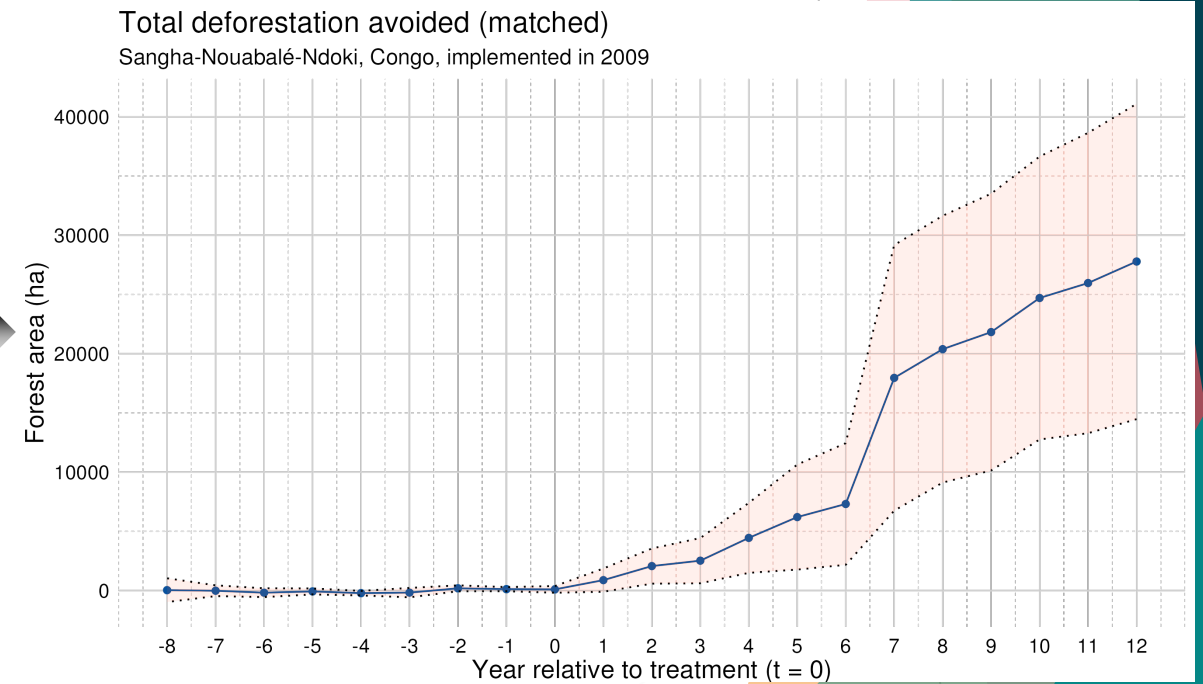
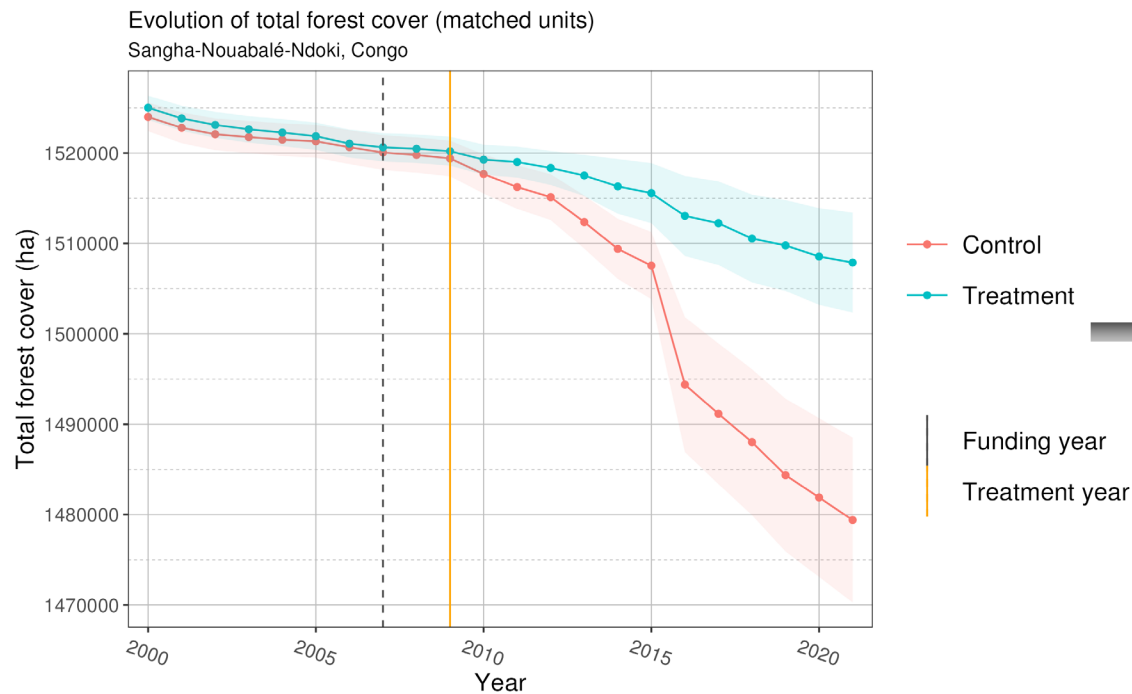
Restricted (preliminary) Sample

- ▶ 150 PA supported by the AFD in Africa in our database
- ▶ 72 with geospatial location available
- ▶ Restriction to **non-marine**, created between 2002 and 2021, with area > 1km² (Wolf et al. 2021)
- 23 PA in 9 African countries
- The effect of conservation can be computed for 15 PA in 8 countries

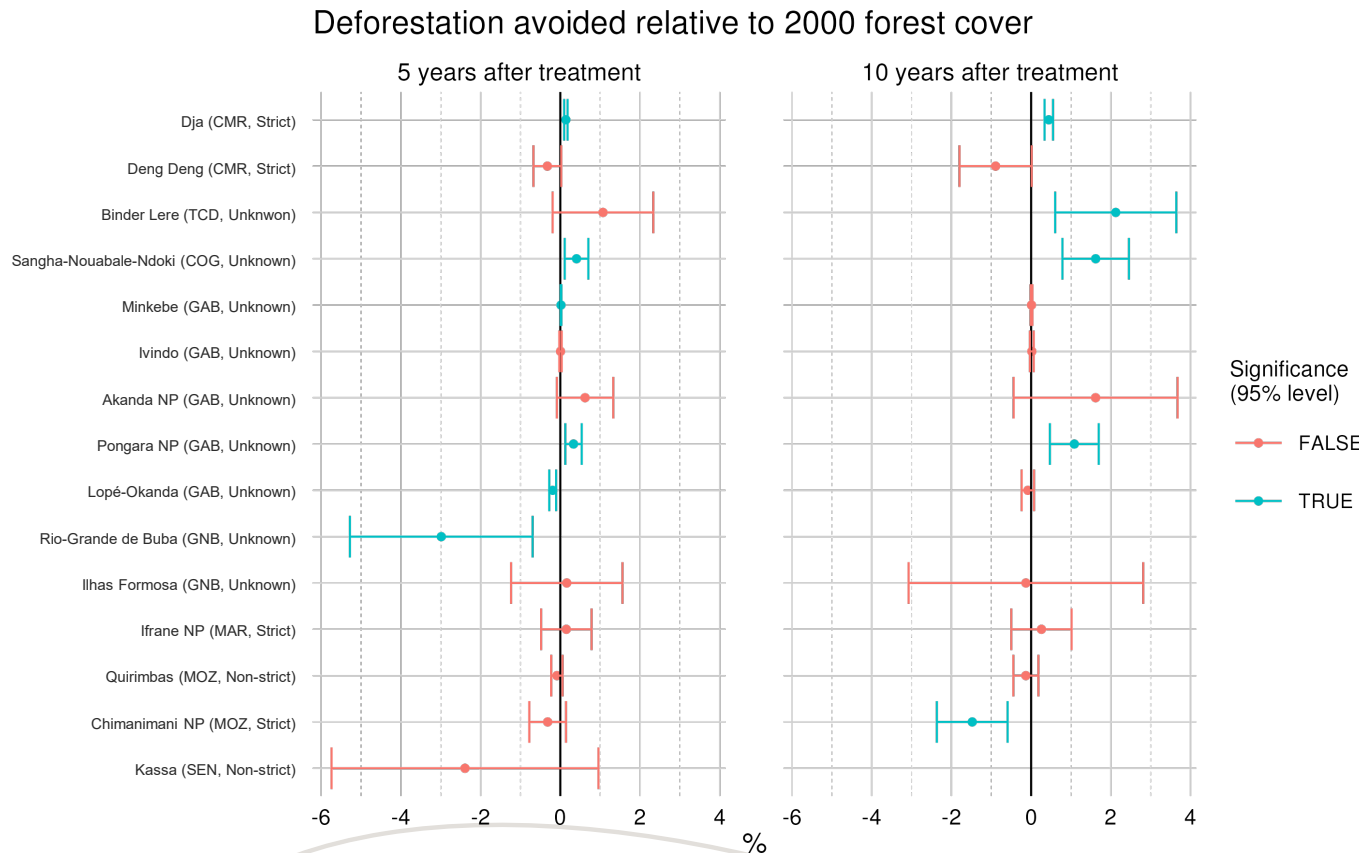
Individual Analysis

Example for Sangha-Nouabalé-Ndoki protected area

- ▶ The conservation program led to a *decrease* in deforestation 2 years after its implementation.
- ▶ → After 10 years, the conservation preserved 25 000 ha of forest, or ~1.5% of forest cover in 2000



Preliminary evidence from 15 PAs in Africa supported by the AFD, suggests a lower level of forest cover loss



- But there are PAs where forest cover increased or didn't change
- Other heterogeneity in PA that could be considered: governance type, IUCN category
- Difficult to measure important indicators like management quality, biodiversity, local development
- What does it mean that a PA is supported by the AFD? Important to distinguish different kinds of support: direct, indirect (trust fund), total support, co-financing, financing the PA creation or maintenance, duration of the support

!/! The analysis presented here is still in progress. Results might change. They must be considered as purely indicative and not be shared.

Nice analysis, but... so what?!

- ▶ CONVINCE policy-makers and gain confidence in conservation
- ▶ PLAN conservation projects
- ▶ LEARN to improve development projects
- ▶ DIALOGUE opportunity on conservation projects



KfW Entwicklungsbank

Ex-post-Evaluierung
Phong Nha – Ke Bang Nationalpark, Vietnam

Titel	KfW-förderter Nationalpark mit vielfältiger Naturlandschafts- und Kulturlandschaft im Hoang Lien Son, Ke Bang Nationalpark Vietnam
Auftraggeber	Bundesministerium für Umwelt, Klimaschutz, Energie und Atomenergie (BMU)
Projektbeginn	2008
Projektabschluss	2020
Finanzierung	KfW-Förderung: 7,02 Millionen Euro
Projektziele	Erhaltung der Biodiversität im Nationalpark, Förderung der nachhaltigen Entwicklung der umliegenden Gemeinden

Ziele und Umsetzung des Vorhabens

Das Ziel der Ex-post-Evaluierung war die Überprüfung der Nachhaltigkeit und Wirksamkeit des Managements des Nationalparks Phong Nha - Ke Bang Nationalparks. Auf Basis der Ergebnisse der Evaluierung soll die Wirksamkeit des Managements des Nationalparks im Hinblick auf die Erhaltung der Biodiversität des Nationalparks überprüft werden.

Das Ziel dieser Studie war die Überprüfung der Wirksamkeit des Managements des Nationalparks und die Identifizierung von Erfolgsfaktoren und Herausforderungen bei der Erhaltung der Biodiversität des Nationalparks.

Wichtige Ergebnisse

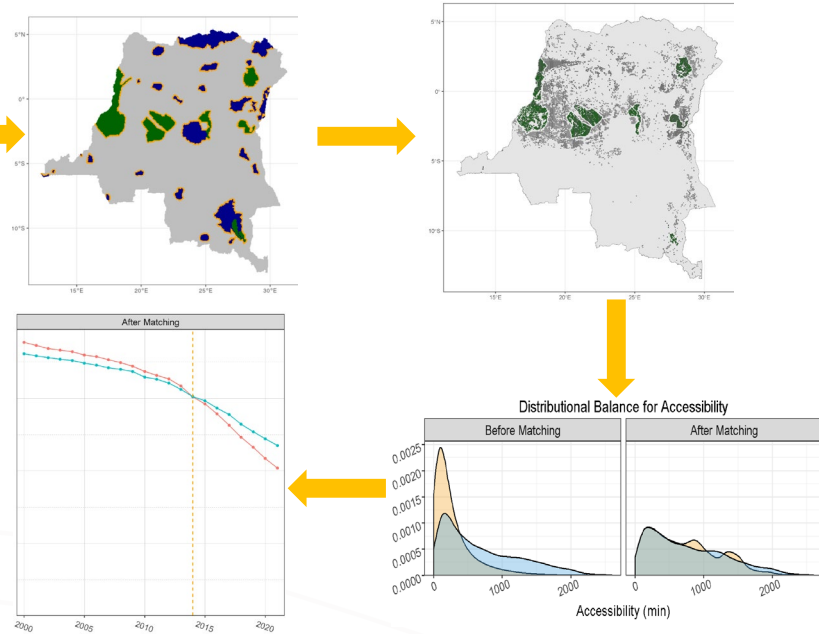
Der Phong Nha - Ke Bang Nationalpark war bis zum Zeitpunkt der EPE erfolgreich darin, die Biodiversität zu erhalten und zu fördern. Durch geeignete Maßnahmen wie die Erhaltung der Biodiversität und die Förderung der nachhaltigen Entwicklung der umliegenden Gemeinden, wurden wertvolle Ergebnisse erzielt.

Schwierigkeiten

- Einfluss der Klimawandelveränderungen
- Einfluss der COVID-19-Pandemie
- Einfluss der politischen Veränderungen
- Einfluss der wirtschaftlichen Veränderungen
- Einfluss der sozialen Veränderungen
- Einfluss der technologischen Veränderungen

Dankbarkeiten

Die Autoren danken dem Bundesministerium für Umwelt, Klimaschutz, Energie und Atomenergie (BMU) für die Unterstützung der Studie. Ein besonderer Dank geht an die Mitarbeiter des Nationalparks Phong Nha - Ke Bang Nationalparks, die die Datenerhebung und die Analyse der Daten ermöglicht haben. Auch ein großer Dank geht an die Mitarbeiter der KfW Entwicklungsbank, die die Studie ermöglicht haben.



KfW Development Bank
Evaluation Department

KfW

Geo-spatial impact assessment of financing area-based conservation

COP15 Montréal Edition

December 2022
by Melvin Wong (Corresponding author: melvin.wong@kfw.de), Johannes Schielein, and Jochen Klüwe

Uncertainty about the effectiveness of area-based conservation is a major challenge to secure financing of protected areas. KfW's transparent and replicable geo-spatial impact approach demonstrates that the financing of protected areas does effectively reduce forest cover loss.

1) Access and assemble project and open-source data
About 400 financed PAs (~95 mil. ha or the area of Pakistan) are linked to zones in the [World Database on Protected Areas](#). KfW's [MapMe Biodiversity R package](#) facilitates the identification and download of all necessary geo-spatial data to perform the impact assessment.

2) Perform statistical analysis
The challenge: comparing PAs with a control group of protected areas is subject to selection bias; for instance, tend to be located in more remote areas. **The solution:** analysis framework ensures an apples-to-apples comp by finding a "statistical twin" through an elaborate yet transparent matching procedure. For instance, the matching procedure aligns non-protected and protected areas or they exhibit a similar travel distance to the nearest sett...

3) Communicate PA effectiveness
The engagement of KfW and its partners, on average, effectively contribute to reducing forest cover loss in PAs compared to similar non-PAs. The graph shows that, initially, the respective forest cover in PAs and control areas is similar, in addition to a similar down-ward trend until the project's start year. After project start, control areas have a stronger rate of forest cover loss than PAs. The gap between the two trend lines measures the conservation impact of financing the PA.

Tree cover loss

Treatment areas

Control areas

An example of the PAs that could be used for an impact assessment of effectiveness of PAs on reducing forest cover loss. Source: KfW.

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Thank you!

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KfW



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Appendix

EXAMPLE IN CONGO

► Sangha-Nouabalé-Ndoki

SNN characteristics

- IUCN category : Unknown
- Creation year : 2009
- Governance : Unknown
- AFD support : 2007

Gridding of Congo : matched units

Focus on WDPAID 478033

