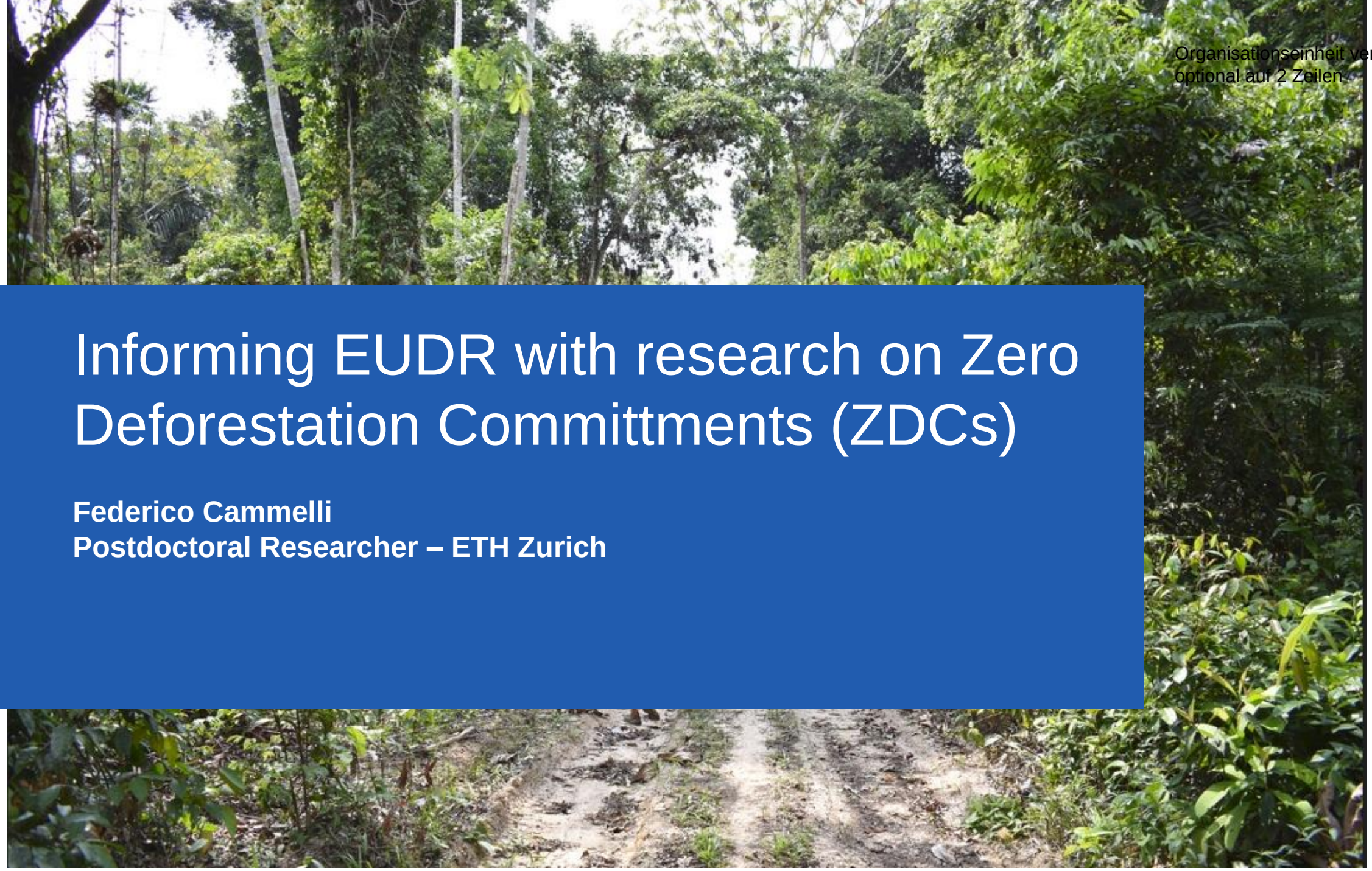


Organisationseinheit verbal
optional auf 2 Zeilen

Informing EUDR with research on Zero Deforestation Committments (ZDCs)

Federico Cammelli
Postdoctoral Researcher – ETH Zurich

Land use researcher

~ Economist

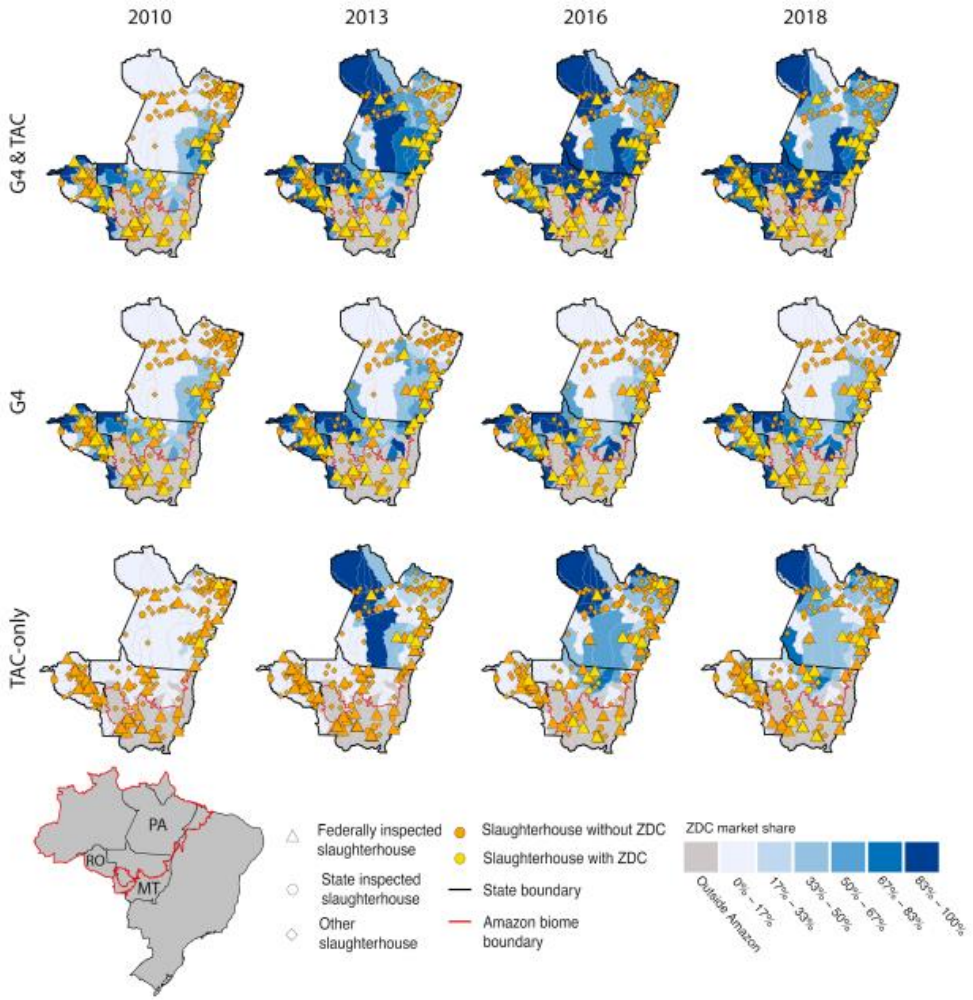
Study sites: Brazil, Ghana, Côte d’Ivoire, Papua New Guinea

ERC Forestpolicy – Rachael D. Garrett (Cambridge)

What can we learn from ZDCs about EUDR effectiveness and equity

1. The role of market share
2. Indirect land use change
3. Some traceability challenges
4. Extending the scope to indirect suppliers
    1. Who are indirect suppliers?
    2. How to effectively address smallholders?
5. EUDR and the conservation hierarchy
6. EUDR and forest degradation

Much ZDCs impact is driven my market share, but was missed due to uneven implementation and adoption – cattle in the Amazon



G4 - cutoff date 2009

ELSEVIER

Global Environmental Change
Volume 80, May 2023, 102671

Deforestation in the Brazilian Amazon could be halved by scaling up the implementation of zero-deforestation cattle commitments

Samuel A. Levy [a b], Federico Cammelli [a], Jacob Munger [c d], Holly K. Gibbs [c d], Rachael D. Garrett [a e]

reduced cattle-driven deforestation by 7,000 ± 4,000 km^2 (15 ± 8%) between 2010 and 2018.

It could have dropped by 24,000 ± 13,000 km^2 (51 ± 28%), had all companies adopted it

Much ZDCs impact is driven my market share, but was missed due to uneven implementation and adoption – soy in the Amazon and Cerrado

Soy Moratorium - cutoff date 2008

ENVIRONMENTAL RESEARCH
LETTERS

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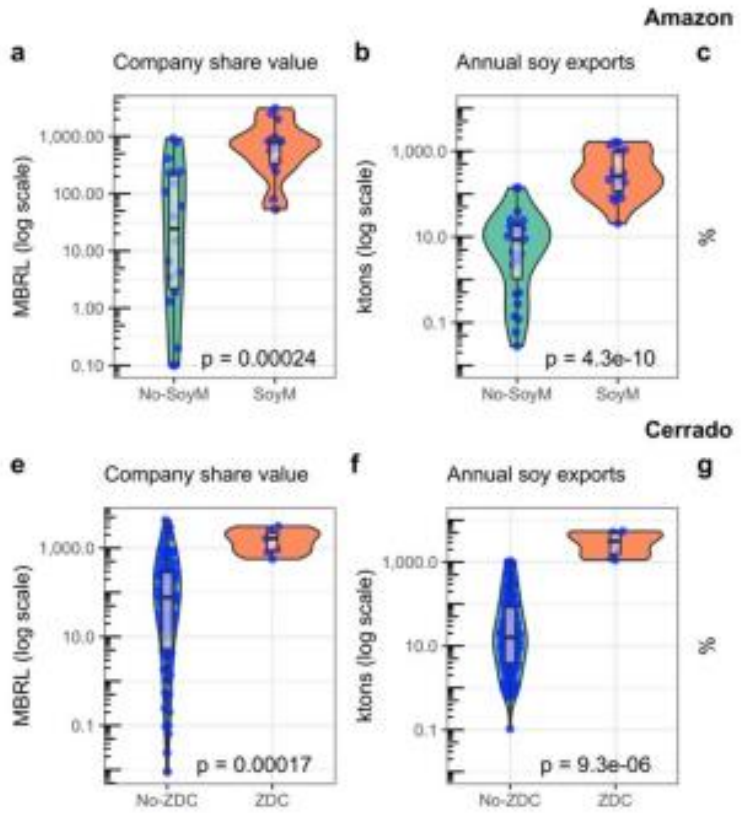
Gaps in adoption and implementation limit the current and potential effectiveness of zero-deforestation supply chain policies for soy

Florian Gollnow[1,2,4], Federico Cammelli[2], Kimberly M Carlson[3] and Rachael D Garrett[5,2,4]

Published 28 October 2022 • © 2022 The Author(s). Published by IOP Publishing Ltd
Environmental Research Letters, Volume 17, Number 11
Citation Florian Gollnow *et al* 2022 *Environ. Res. Lett.* **17** 114003
DOI 10.1088/1748-9326/ac97f6

Amazon: 57% reduction in direct deforestation for soy from 2006 to 2015.

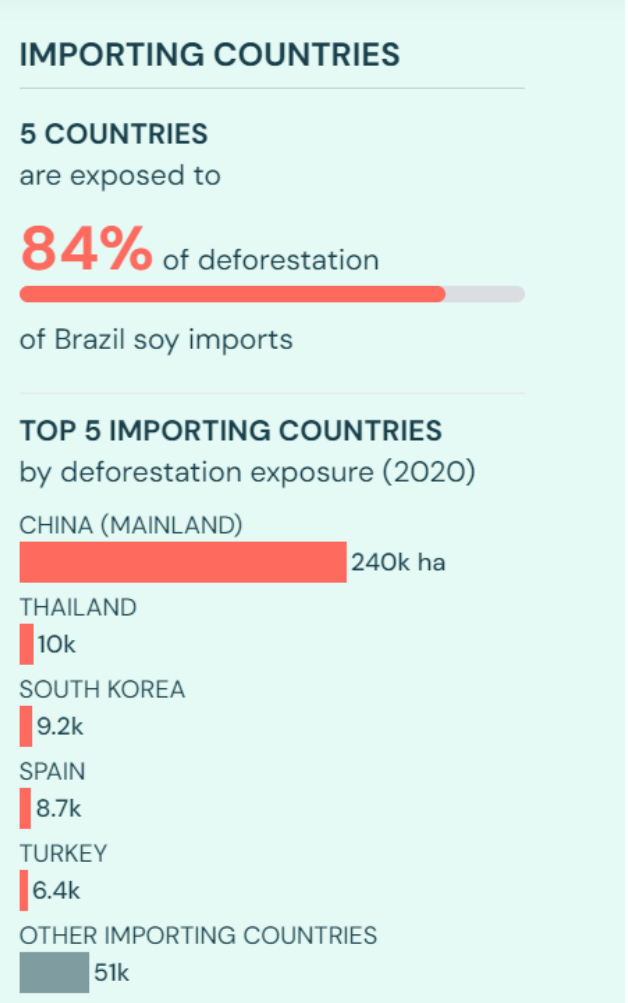
Cerrado: had companies adopted the ZDC, deforestation for soy could have been reduced by 46%.



Counting for cross-boundary leakage reduce these effects by half.
Had all companies adopted the ZDC deforestation would have fell by 9% Brazil wide
(Villoria et al., 2022)

EUDR – the market share challenge

- EUDR has great potential by leveling companies sourcing requirements and across forest biomes
- EUDR effectiveness will depend companies' behavior vis-à-vis domestic and non-EU markets
    - 70-80% of Brazilian beef is consumed domestically
    - Main soy importer is China



trase.earth

Misaligned ZDCs and EUDR cutoff dates may drive indirect land use change

Producers' reaction vis-à-vis a later cutoff date

- More properties will be EUDR compliant than SoyM or G4 compliant
- More pasture and soy on areas deforested between 2008/9 and 2020
- Indirect land use change of unregulated commodities to forest areas
- Reduced ZDCs market share

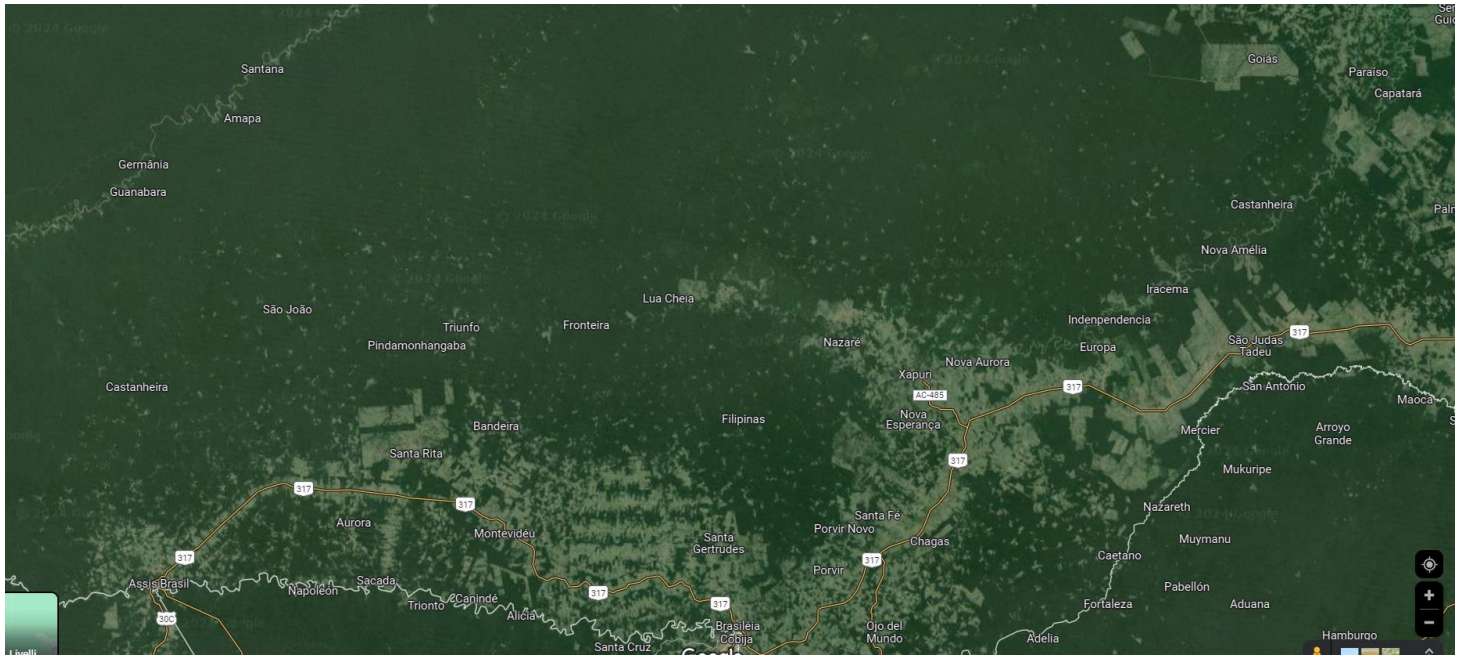
Indirect land use change from unregulated domestic food markets – Ghana

Photos: Thomas Addoah

“Those who live by the sea eat from the sea…”

the traceability challenge - equity shortcomings at higher scale

- Who will cover traceability costs?
- Who will cover traceability costs in countries with low EU market share, or where the commodity production is relatively low?
  - E.g. cocoa production in Sierra Leone or Congo?
- How to accommodate EUDR requirements on common land (traceability, monitoring & attribution), e.g. Chico Mendes extractive reserve



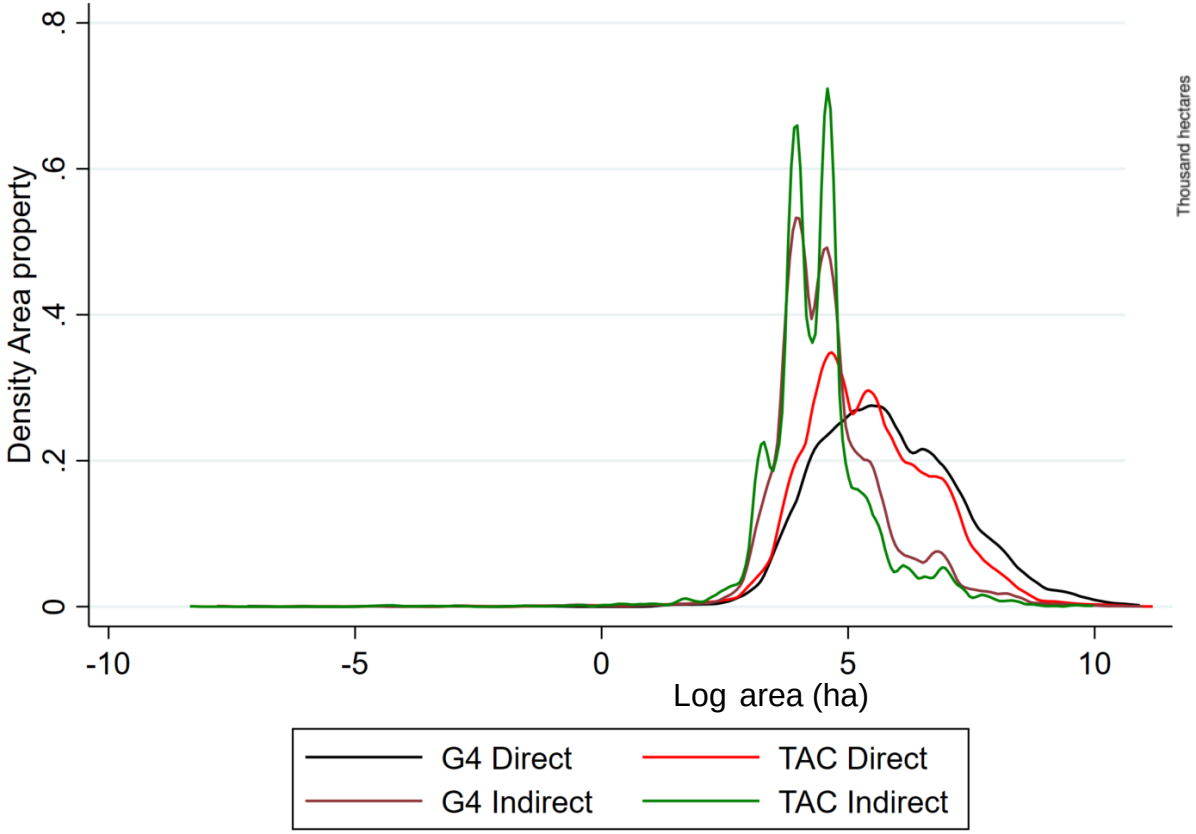
ZDCs so far targeted direct suppliers

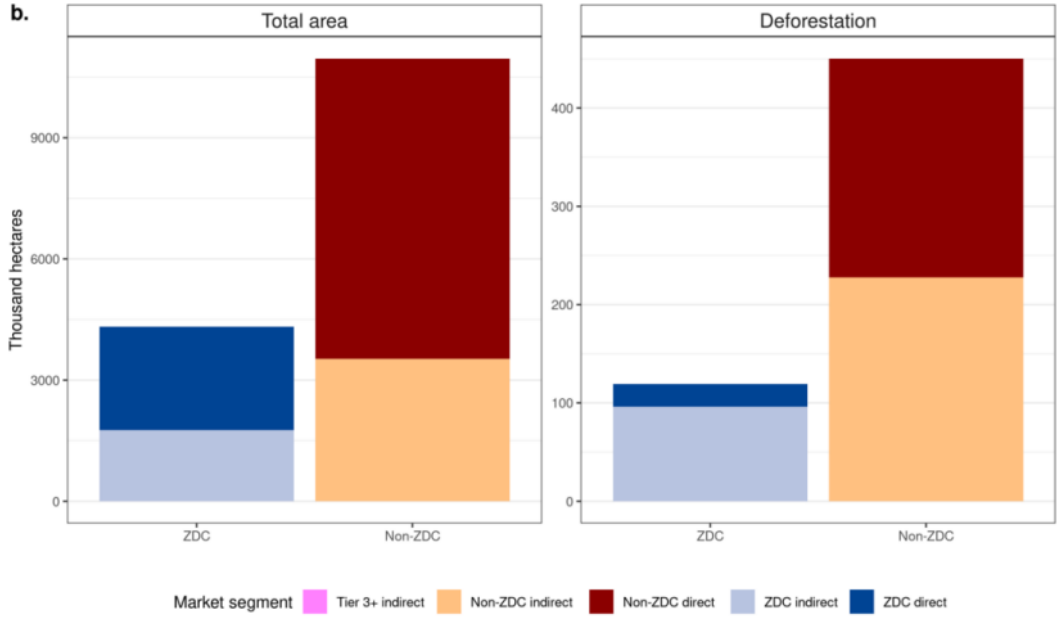
~ 40% of cocoa producers

~ about half of the area in pasture in the Amazon

Who are indirect suppliers?

Indirect cattle suppliers are smaller



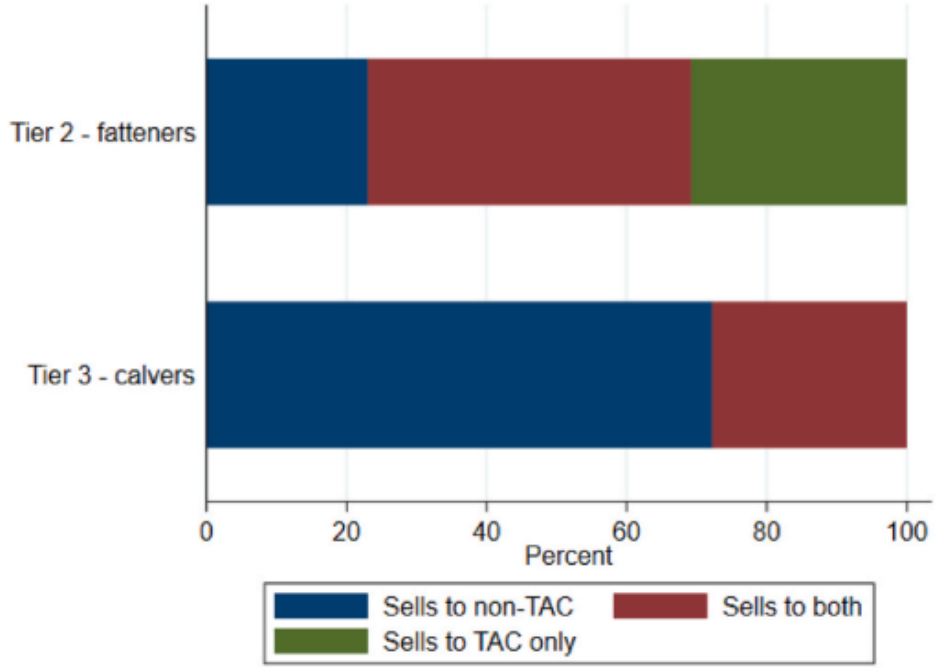


	mean	sd	N
TAC direct	614.4659	1925.004	5920
TAC indirect	191.0065	693.4429	7232
G4 direct	1064.387	2987.575	2352
G4 indirect	301.9213	1412.618	5915

Cammelli et al., 2022; forthcoming;
Levy et al., 2022

Smallholder producers are already marginalized

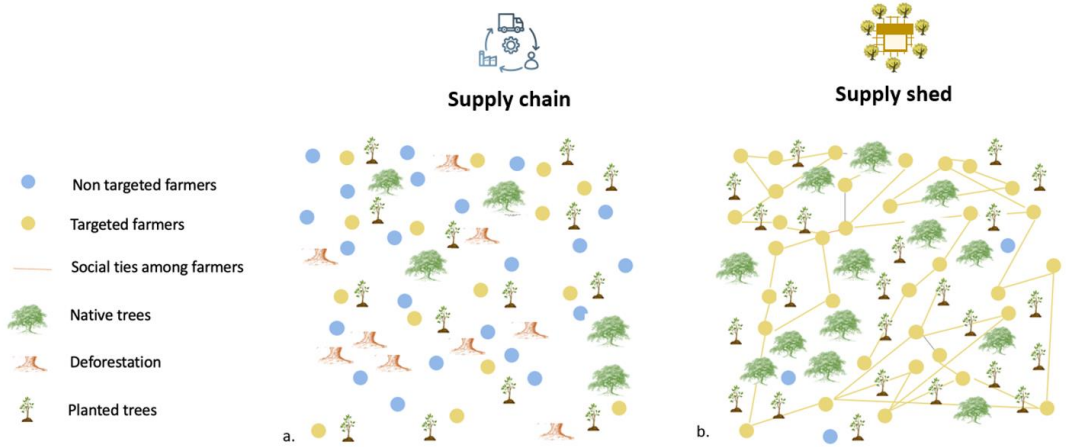
- Smallholder Amazonian cattle ranchers are already receiving lower prices and face a small market (due to low volume, lower quality breeds)
- Higher sustainability requirements may further marginalized already marginalized producers
- Larger producers have more capacity to comply and experience to evade buyers' requirements (through other owned or rented property) – cattle, but also cocoa
  - Are producers equally aware of new criteria? "Writing the law it's easy, applying fines too. But producers only receive information when the sanction comes"
  - How to handle false positive?



Cammelli et al., 2022

Addressing smallholders – landscape approach and opportunity for risk benchmarking

- Engaging smallholders is challenging
- Supply chain ZDCs have limited effectiveness of smallholders due to insufficient scale:
  - To leverage social learning
  - To leverage the relevant ecological processes leading to outcomes (C stock, biodiversity, climate adaptation…)
- Effective and equitable ZDCs should target landscape or at least supply sheds

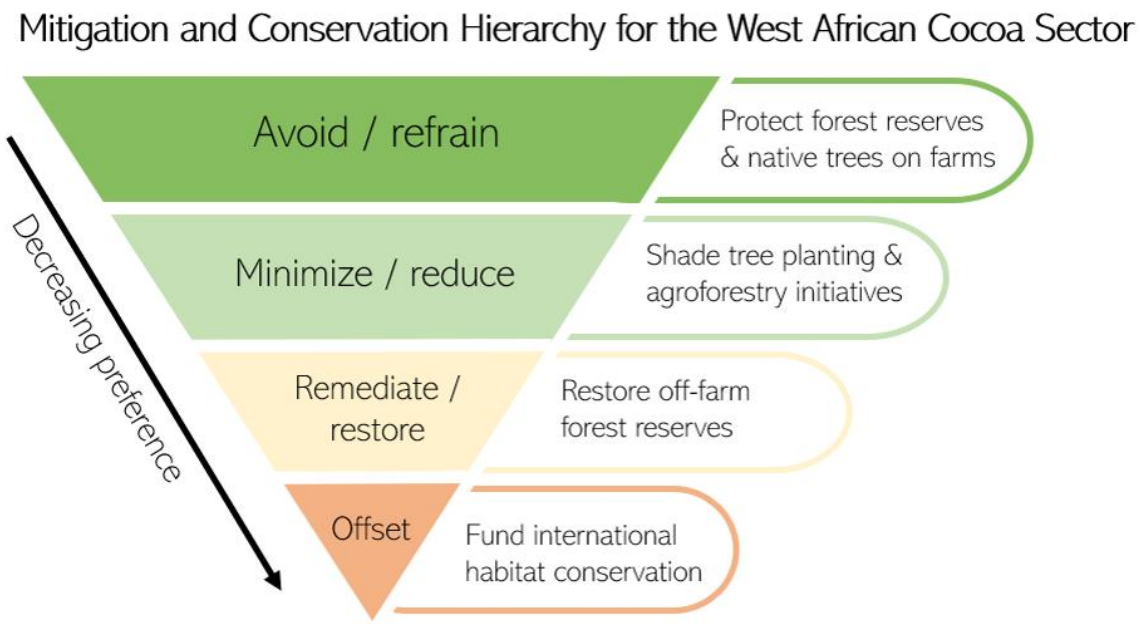


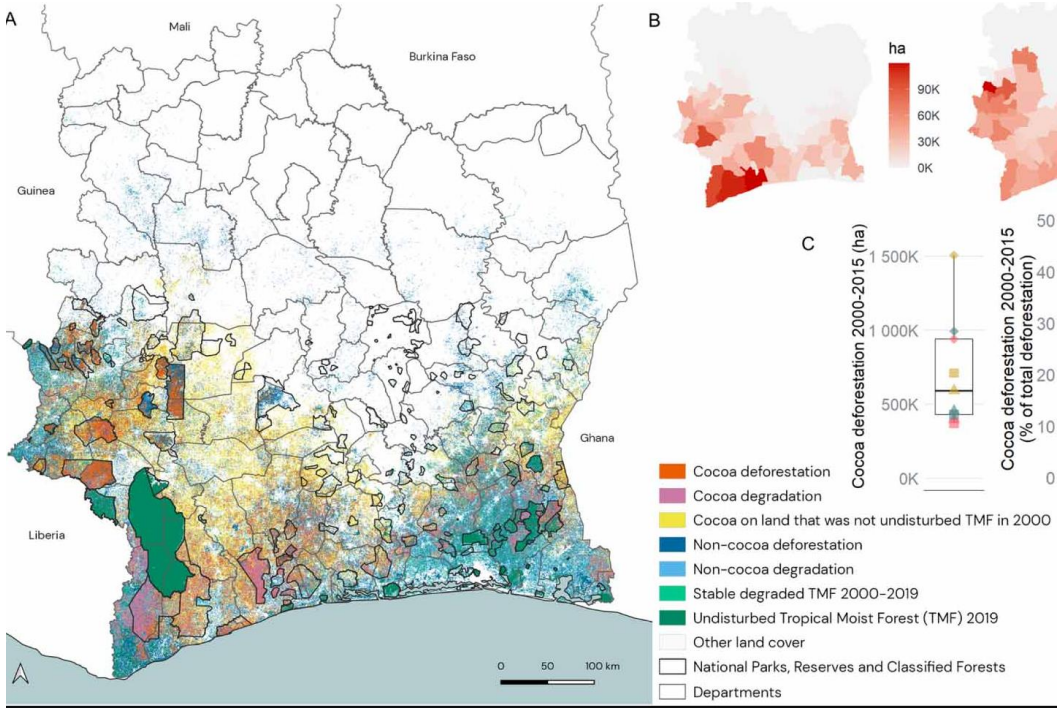
Article 30 of EUDR calls for coordinated action at the landscape or jurisdictional level

Landscape or supply shed-level efforts could be considered as part of the European Union's risk benchmarking

Cammelli et al., forthcoming

EUDR and post-forest regions – opportunity for risk benchmarking





In post-forest regions restoration plays an important role

EUDR may incentivize companies to invest in supply chain traceability and source away from forests, rather than investing in change including large-scale transition to agroforestry systems and other restoration activities

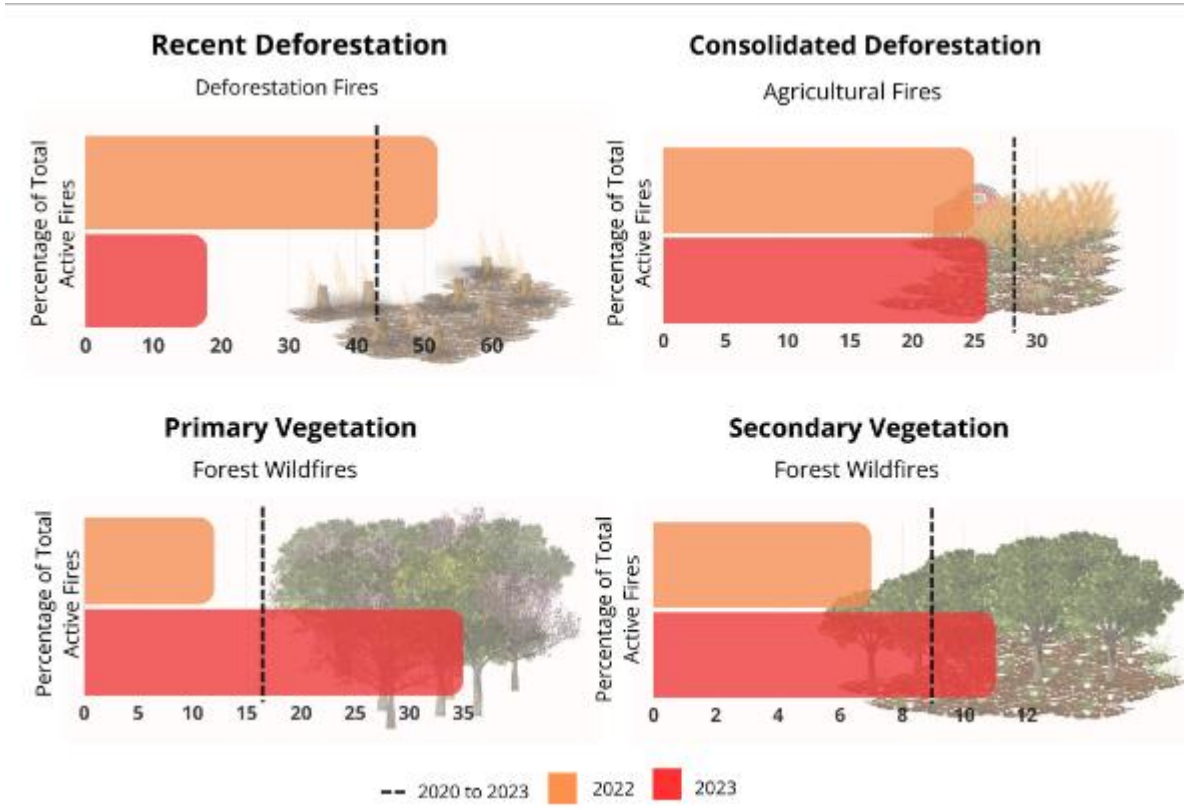
EUDR could tie benchmarking to a continuous improvement approach that includes agroforestry transition and other restoration activities in post-forest landscapes

EUDR impact on forest degradation – Brazilian Amazon

ETH zürich

ETH zürich

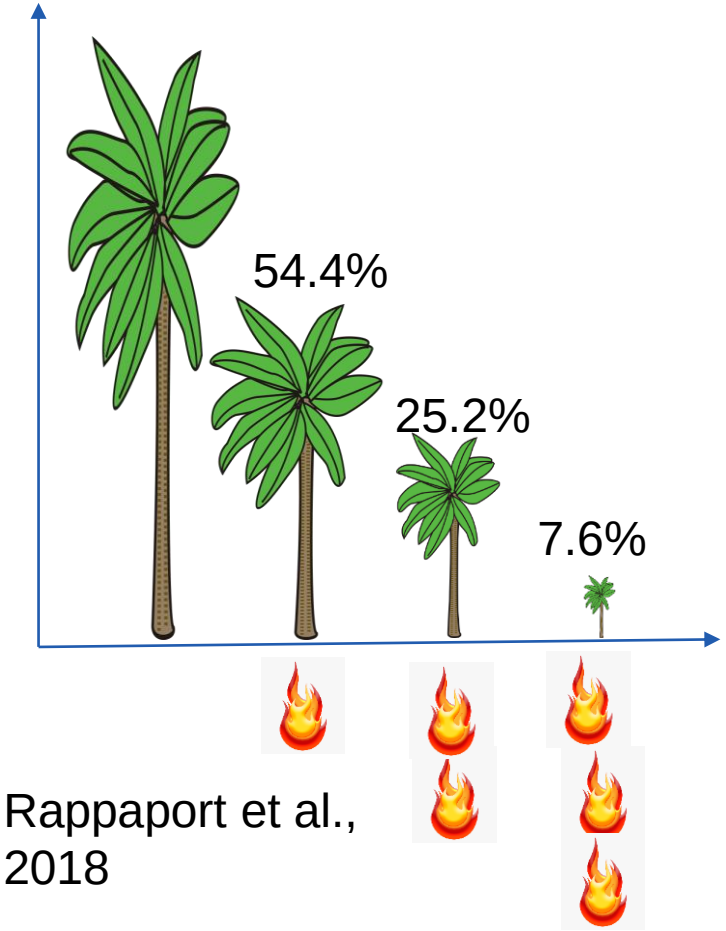
ETH zürich



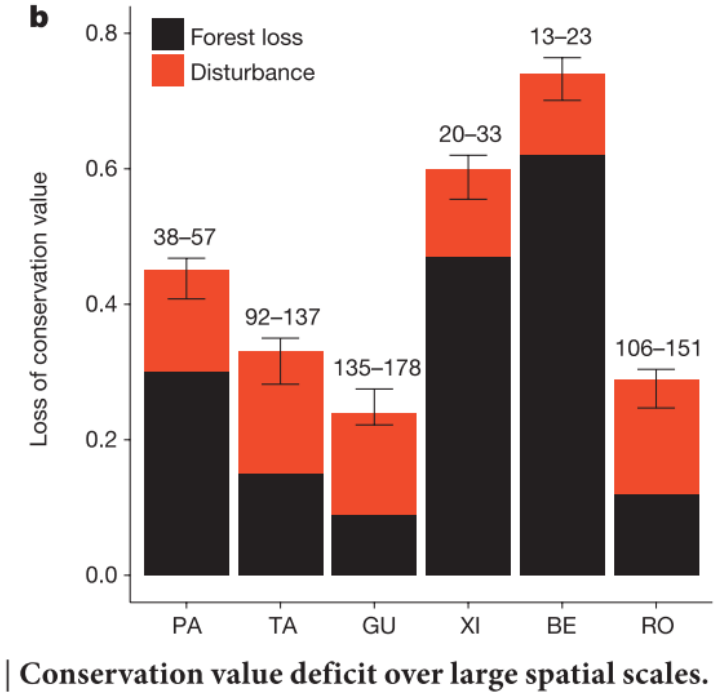
Mataveli et al., 2024

Forest degradation causes C emissions and biodiversity losses that may eat up the benefits from avoided deforestation + welfare damage

Between 2003 and 2014 worldwide tropical forests were net carbon sources, with 68.9% of net losses attributable to degradation (Baccini et al., 2017). In Brazil, **degradation caused three times larger carbon emissions than deforestation** between 2010 and 2019 (Qin et al., 2021).

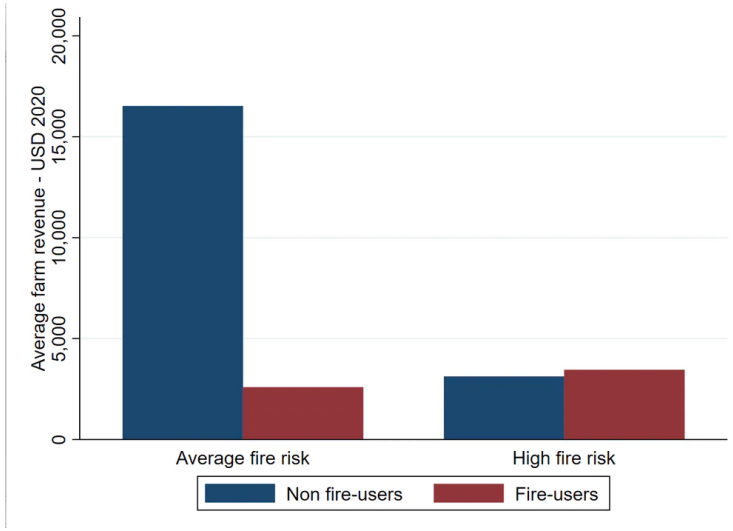


Rappaport et al., 2018



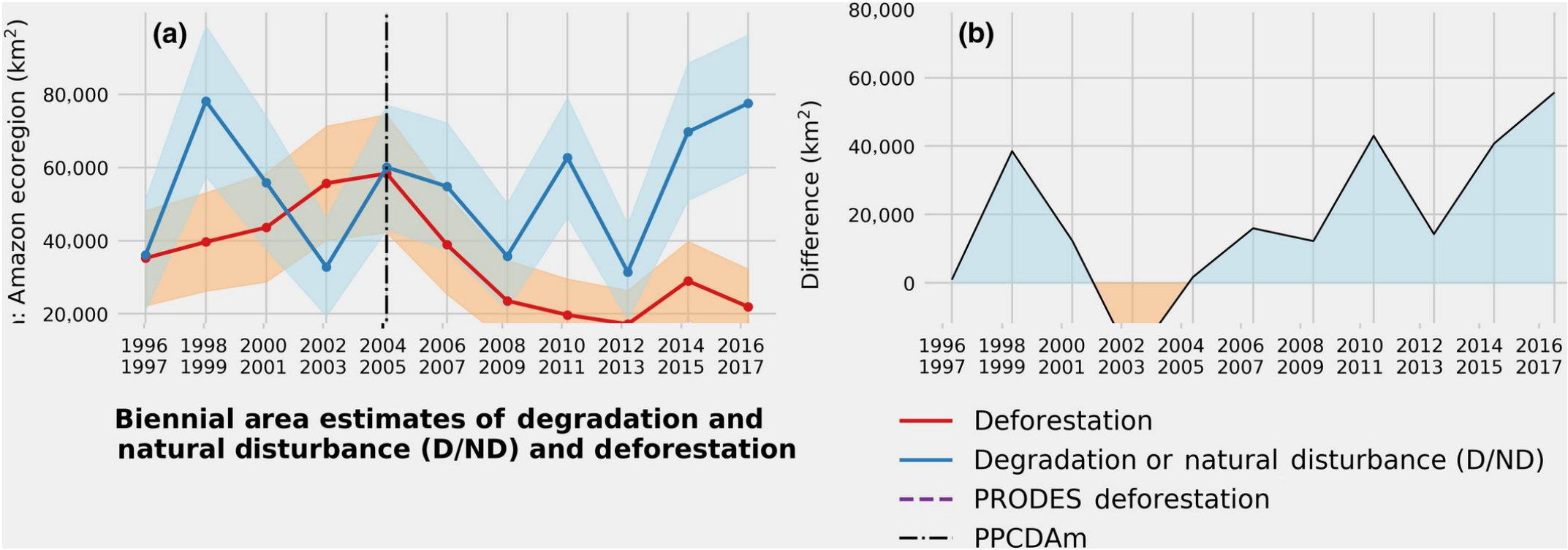
| Conservation value deficit over large spatial scales.

Barlow et al., 2016



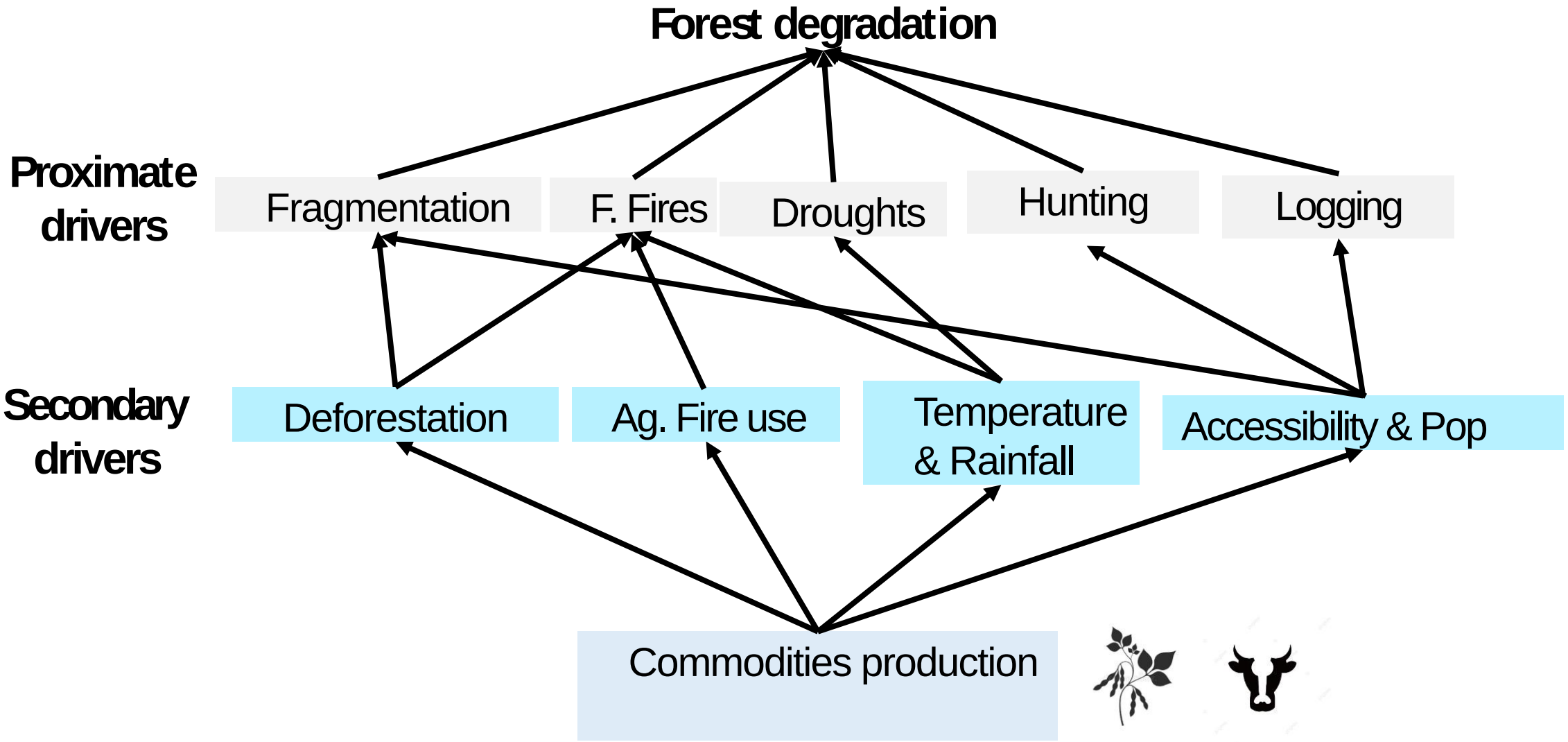
Cammelli et al., 2020

Forest degradation increased regardless of deforestation

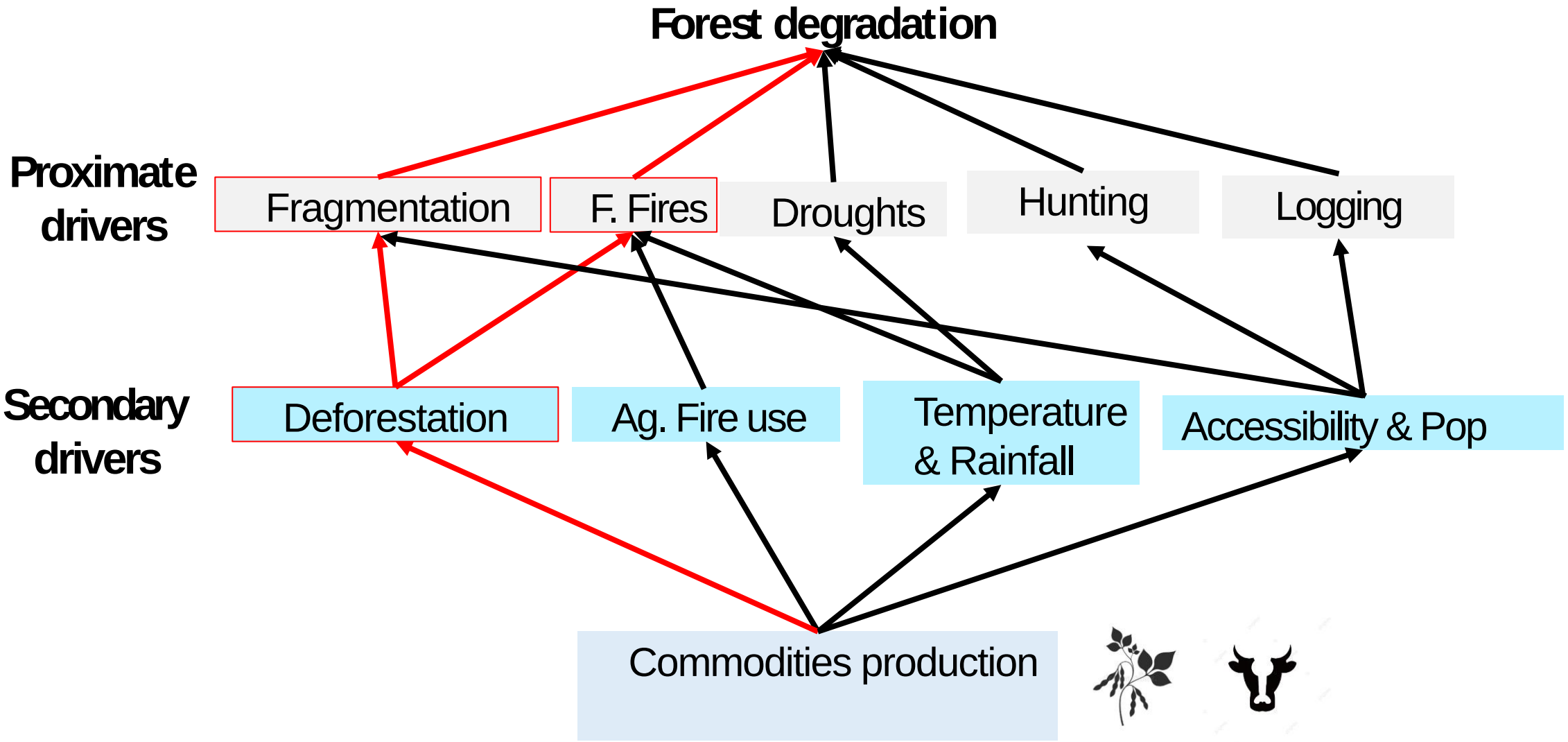


(Bullock, E. L., Woodcock, C. E., Souza Jr, C., & Olofsson, P. (2020). Satellite-based estimates reveal widespread forest degradation in the Amazon. *Global change biology*, *26*(5), 2956-2969.)

Known drivers of forest degradation and potential contribution of commodities



Known drivers of forest degradation and potential contribution of commodities



Forest focused supply chain policies (FSPs) in the Amazon

G4

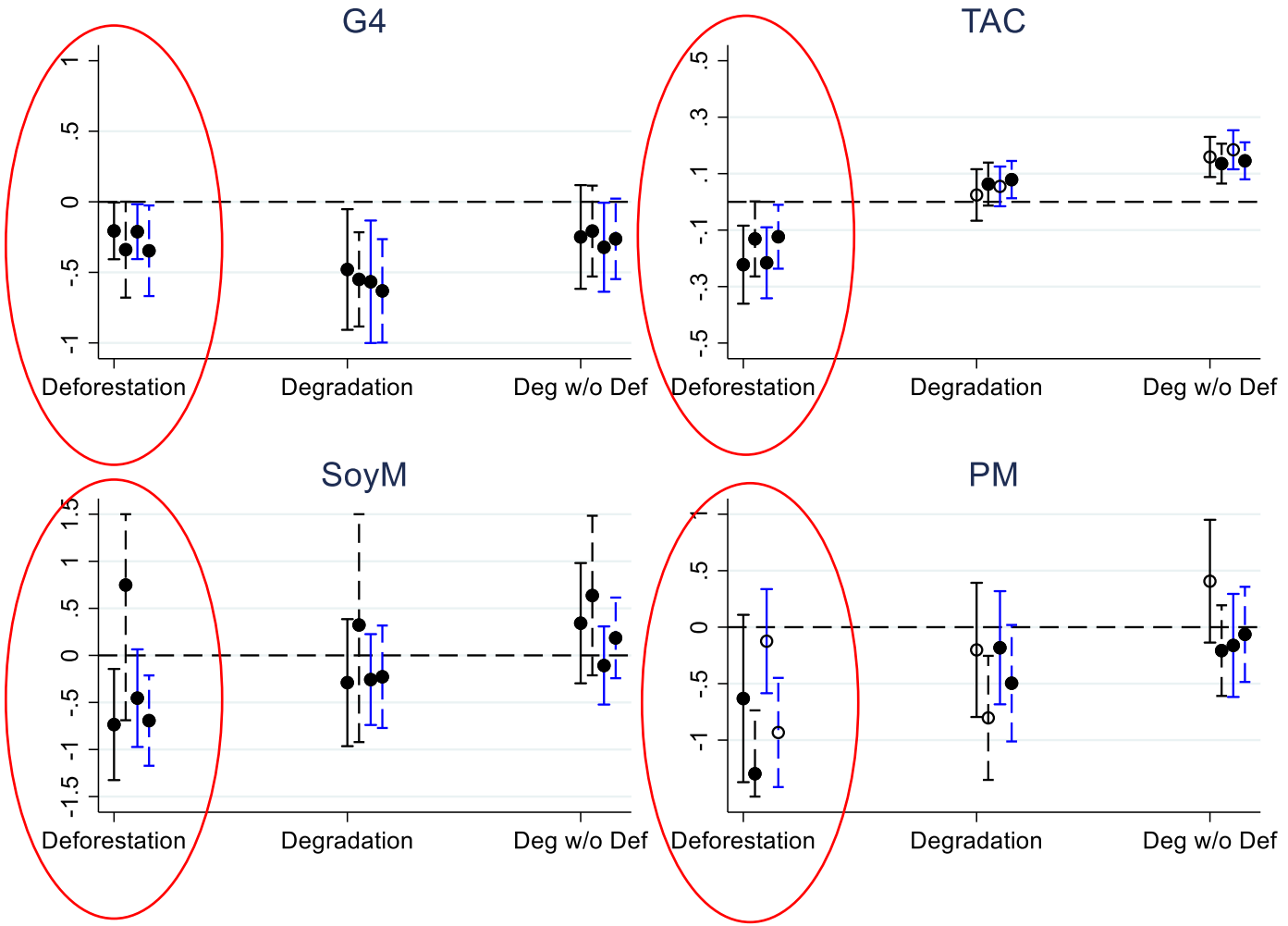
TAC

Soy Moratorium

Municípios Prioritários

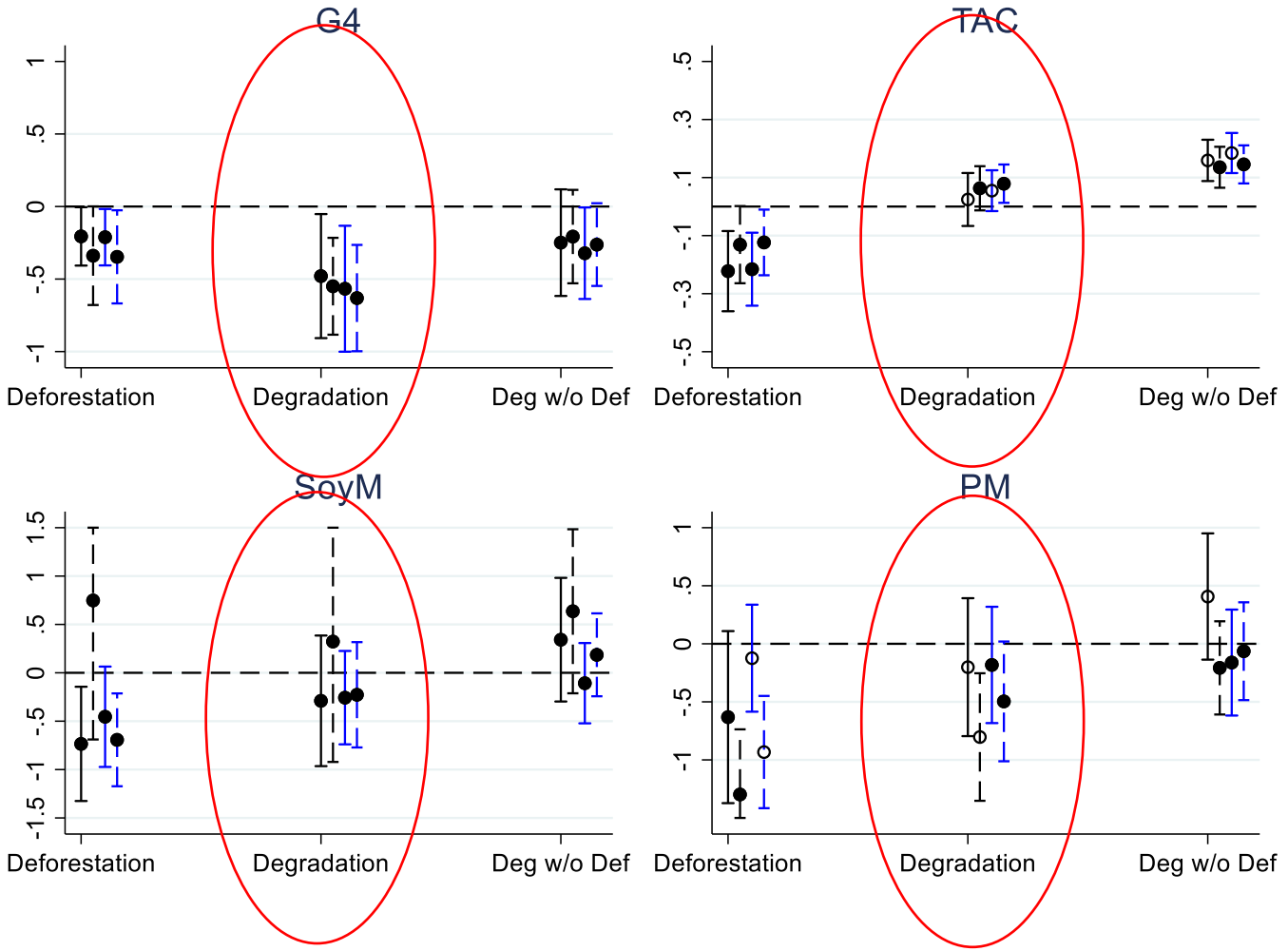
Decreto nº 6.321/2007

Policies reduce deforestation…



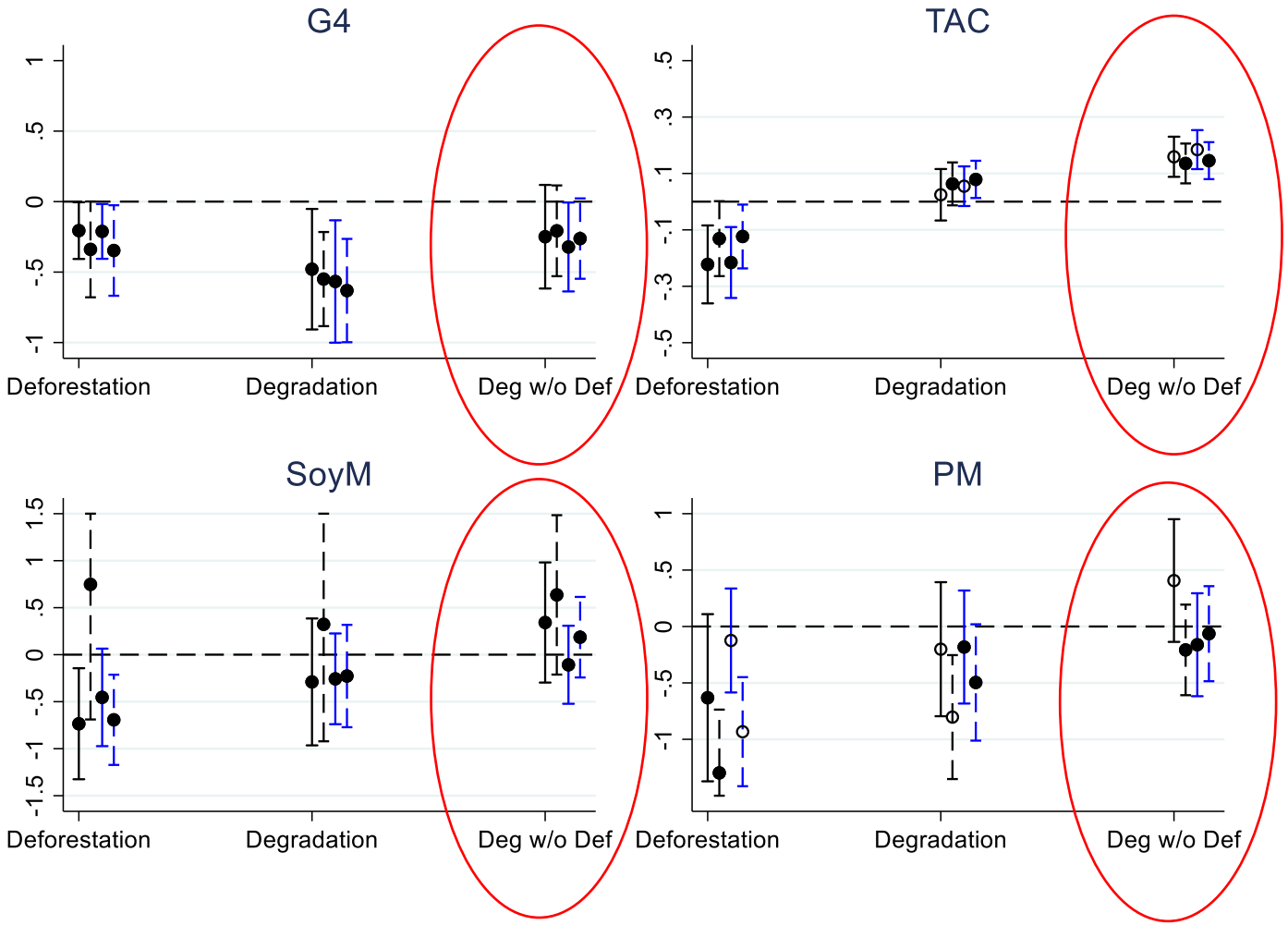
Cammelli et al., forthcoming

Some reduced deforestation induced degradation..



Cammelli et al., forthcoming

Only G4 had some impact on degradation net of deforestation



Cammelli et al., forthcoming

Implications for EUDR impact on forest degradation – Brazilian Amazon

- Halting deforestation does not reduce degradation
- Policies reducing deforestation have ~ no impact on degradation

- EUDR definition of degradation is too narrow
  - Forest degradation: “structural changes to forest cover, taking the form of the conversion of primary forests or naturally regenerating forests into plantation forests or into other wooded land, and the conversion of primary forests into planted forests” (Article 2 (7)).

  - EUDR could expand the scope to encompass the use of reckless agricultural fires?

Recap: What can we learn from ZDCs about EUDR effectiveness and equity

1. The role of market share: ZDCs as for EUDR
2. Indirect land use change: unregulated commodities and cutoff date misalignment
3. Some traceability challenges: minor producers and bioeconomy
4. Extending the scope to indirect suppliers
    1. Who are indirect suppliers? Smaller and already marginalized, not covered by ZDCs
    2. How to effectively address smallholders? landscapes
5. EUDR and the conservation and mitigation hierarchy - consider covering lower level through benchmarking
6. EUDR and forest degradation – enlarge the definition to include Amazon degradation drivers?