Can REDD+ contribute to ecological functions, ecosystem services and livelihoods beyond carbon?

COP24 Side Event
"Implementing REDD-plus with ecological approaches"
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Thinking beyond carbon

Carbon is one of many ecosystem services of forests and trees

Provisioning services

- Edible wild products
- Cultivated food
- Non edible products
- Genetic resources

Regulation services

- Soil fertility enhancement
- Microclimatic regulation
- Flood reduction
- Groundwater recharge
- Water purification
- Water erosion control
- Wind erosion control
- Pest regulation
- Pollination
- Rainfall recycling
- Coastal protection
- Landslide protection
- Global climate regulation (carbon)

Cultural services

- Recreation
- Scenic beauty
- Inspiration
- Emblematic species
- Spiritual and religious values

Evidence of synergies I

Biodiversity increases biomass but the inverse is not necessarily true

The US National Science Foundation's Cedar Creek Long-Term Ecological Research (NSF LTER) site in Minnesota. Researchers investigate the long-term biomass responses to increasing or reducing the diversity of plant species. After many years the plants in the most diverse plots of prairie and forest produced the highest amounts of biomass.

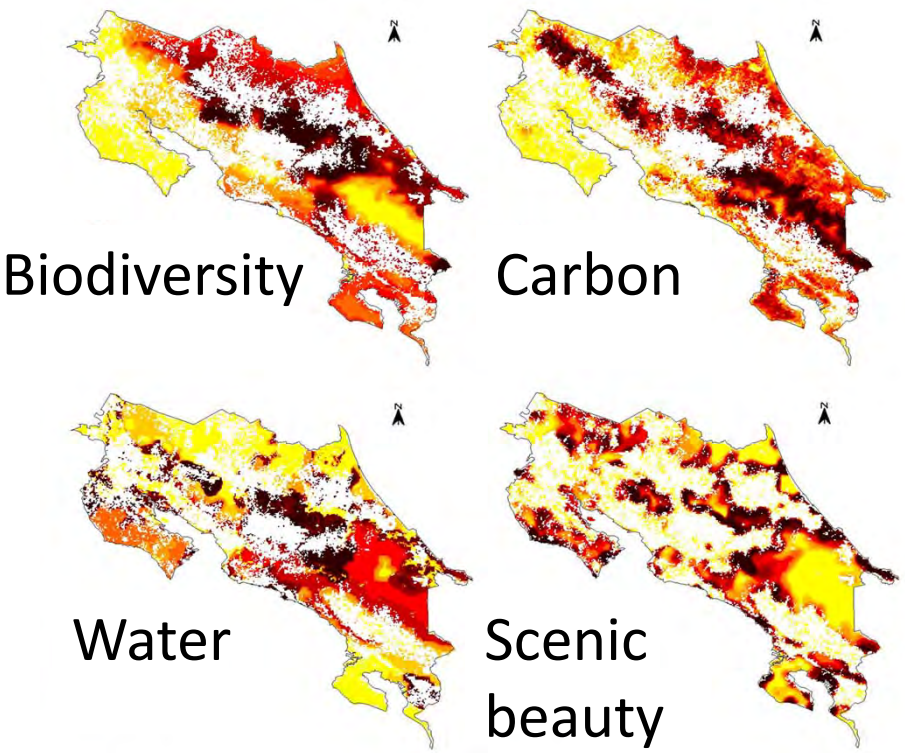
http://www.bitsofscience.org/forest-biodiversity-biomass-5834/

Monospecific fast-growth forest plantations for carbon or bioenergy can have detrimental impacts on water or biodiversity

Locatelli et al. 2015. Tropical reforestation and climate change: beyond carbon. Restoration Ecology 23

Evidence of synergies II: Costa Rica

Conserving carbon is good for other ecosystem services except the provisioning ones (food, wood)



Probability of being in a hotspot of…

Multiple objectives may change spatial conservation priorities

→A policy on carbon would not target the same forests as a policy on carbon and water

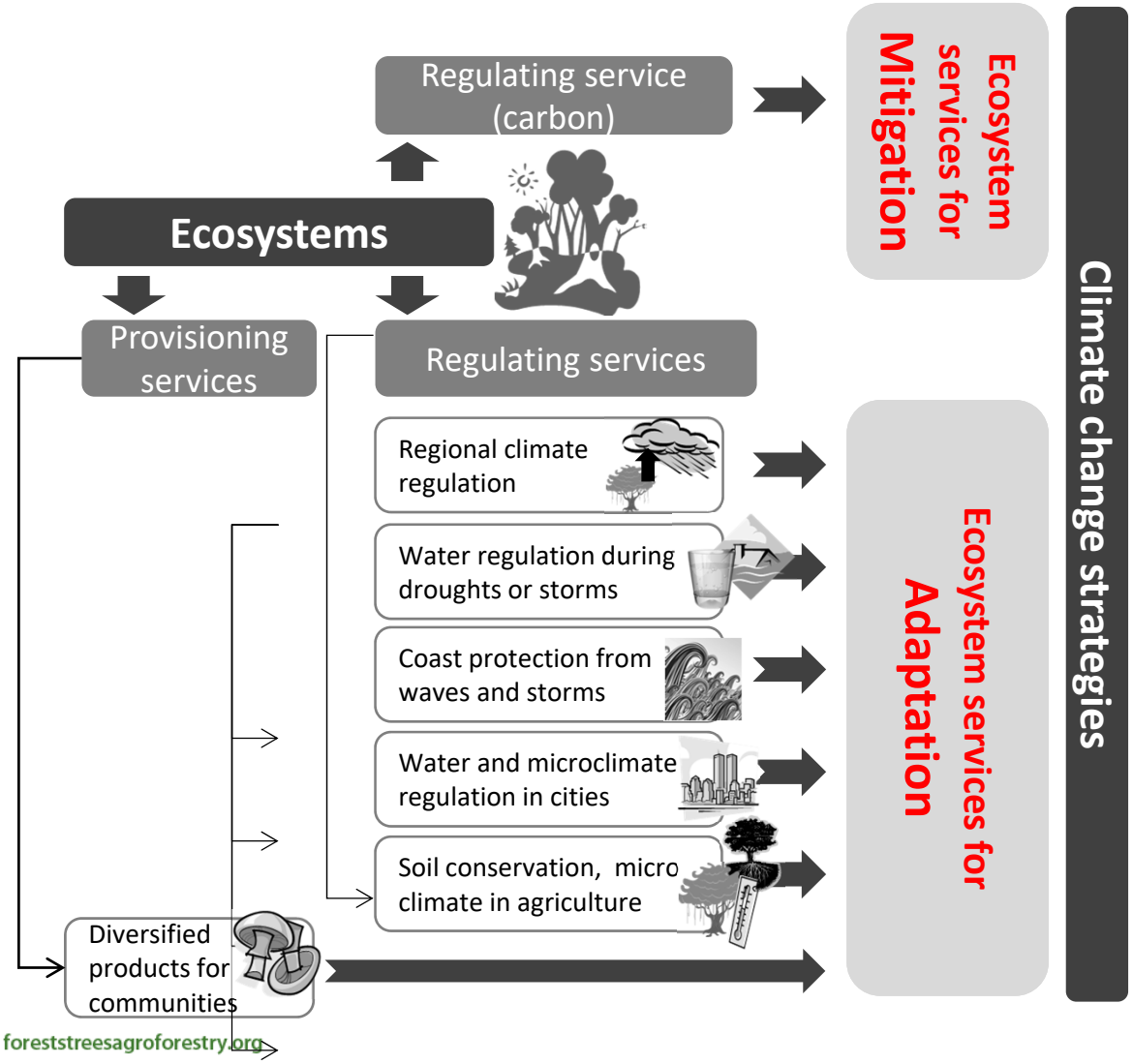
REDD+ does not automatically maximize bundled co-benefits for biodiversity and local ecosystem services

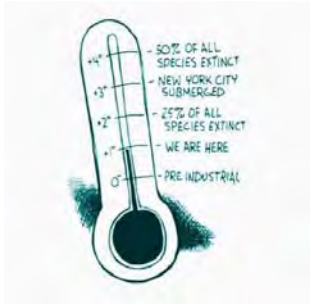
	In a hotspot of biodiversity…	In a hotspot of carbon…
Biodiversity	–	39
Carbon	39	–
Water	49	33
Scenic beauty	40	31

Locatelli et al 2014 Synergies and trade-offs between ecosystem services in Costa Rica. Environmental Conservation 41

More coherent climate policies needed

Non-carbon ecosystem services are important for adaptation: the opportunity of doing adaptation and mitigation together - or the risk of mitigation action that impedes adaptation!





Risks when not doing it:

- Adverse affects:
  - mitigation can increase local vulnerability
  - adaptation can increase global emissions
  - Not being adaptive can jeopardize mitigation!
- Missed opportunities
- Policy incoherence

Locatelli et al 2015 Integrating climate change mitigation and adaptation in agriculture and forestry. Wiley Interdisciplinary Reviews Climate Change 6

Image source: https://cleantechnica.com/files/2017/10/Tom-Toles-thermometer.jpg

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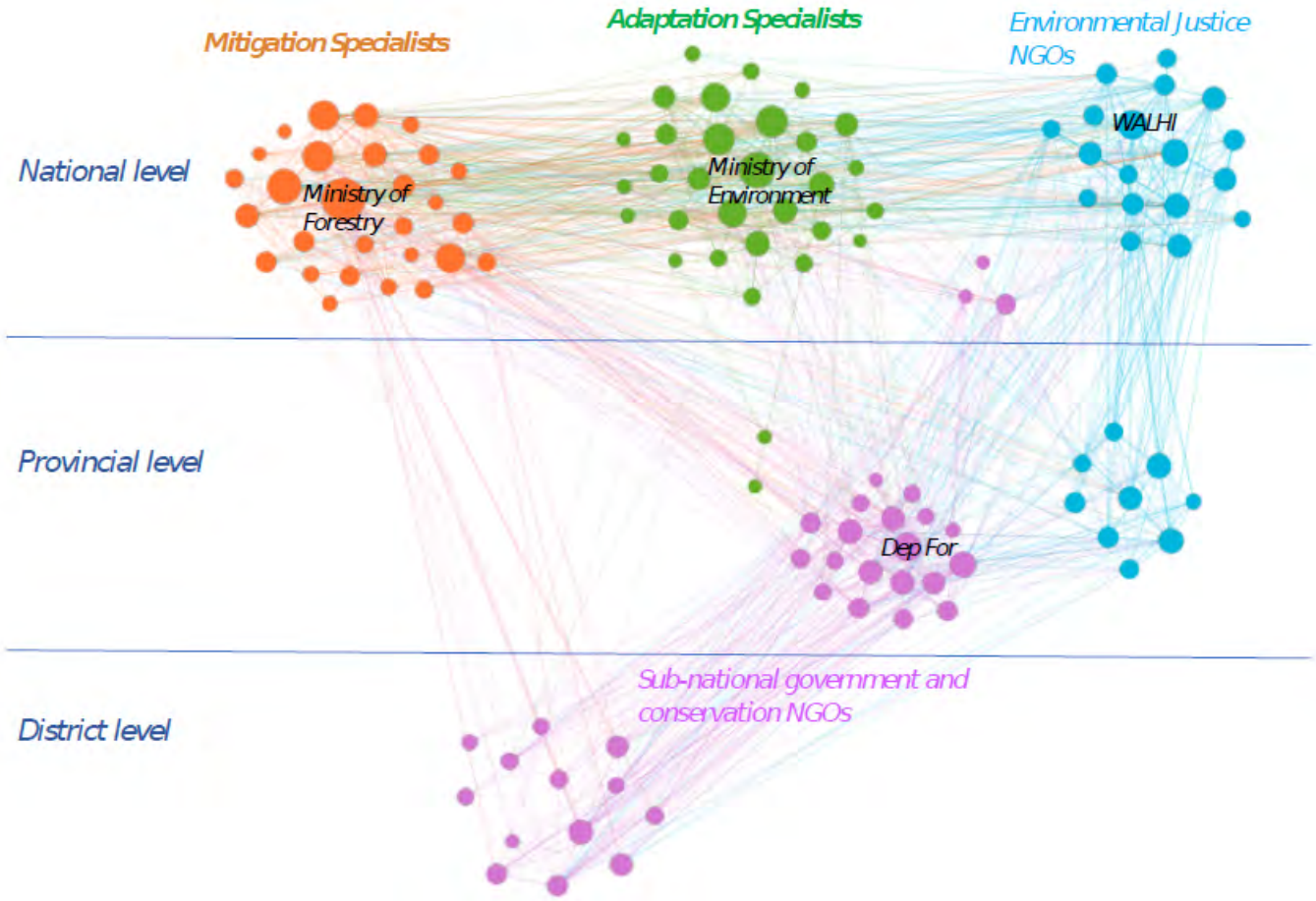
→Facilitate integrated approaches

- Bring adaptation and mitigation together
  - In international negotiations and agreements
  - ← → in national policies
- landscape management contributes to both

- need to consider multiple scales:
  - At which ecosystem services are delivered
  - At which we must conceive adaptation… (watershed? city? agricultural landscape?)
  - … and mitigation (forest? globe?)

Understanding climate change policy networks

What actors can play a brokerage role between adaptation and mitigation and between scales?



Di Gregorio et al. 2018. Multi-level Governance and Power in Climate Change Policy Networks. Global Environmental Change

The challenge of coordination

…when power is at play…

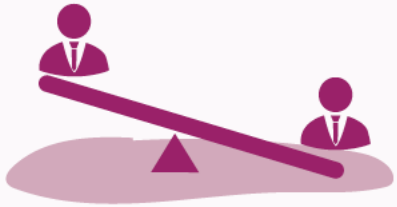
Everyone agrees that coordination is a great thing, so why is it so hard? Because there are so many interests – often conflicting – attached to land and natural resources.

It is important to understand the root causes of coordination failures in REDD+ policy and implementation.

Some can be addressed through improved coordination, but others stem from fundamental differences in goals and interests.

Collaborative, multi-actor processes and forums, with specific attention to local context, can improve the chance of success.

They should address power differences among participants for more equitable outcomes.



Not all solutions can be negotiated, such as when highly unequal power relations combine with entrenched differences of interest.

Other options for improving coordination include regulations, law enforcement and support for collective action by grassroots actors and coalitions for change.

Larson et al. 2018. Transforming REDD+ Book

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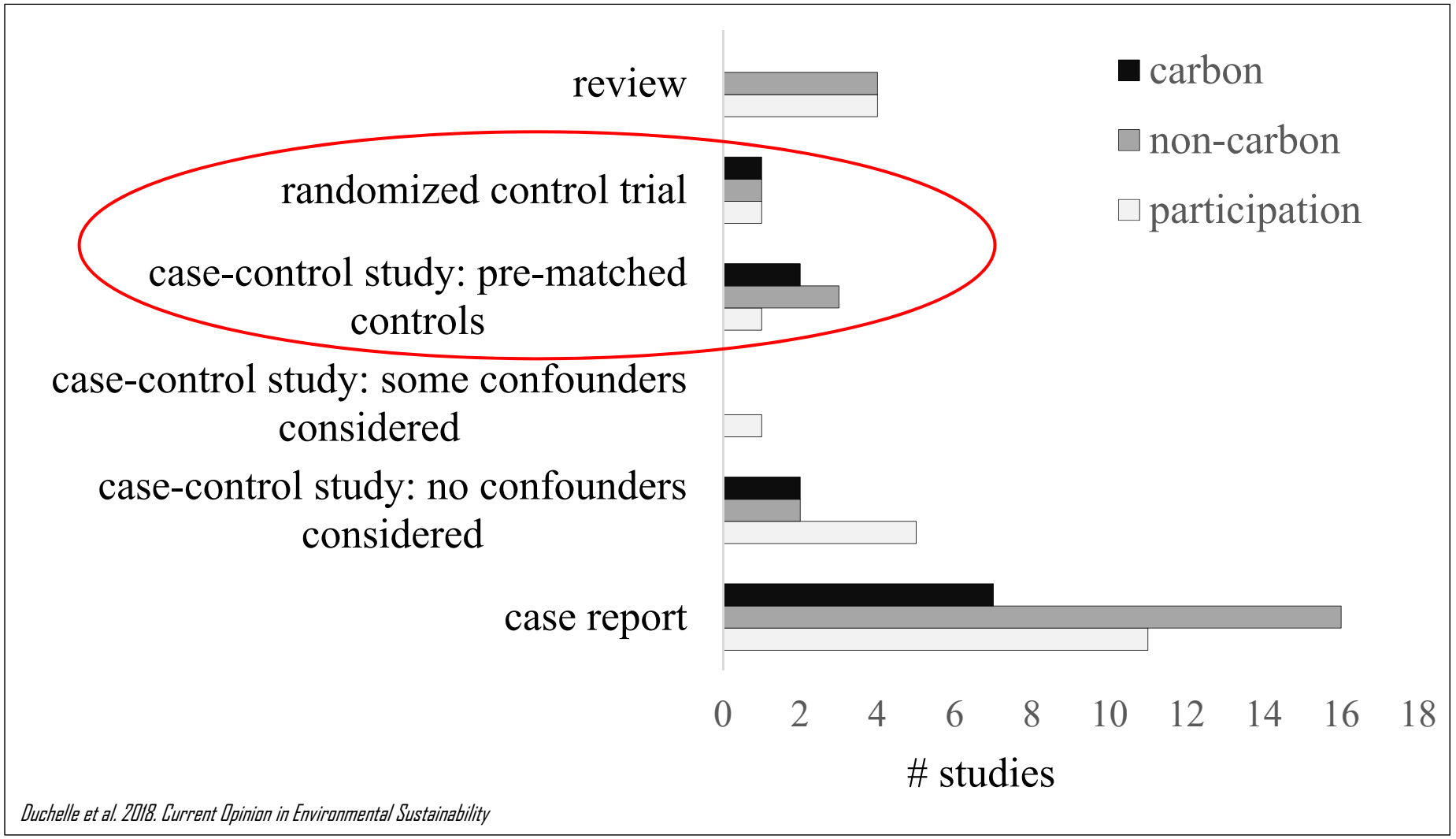
Impact assessment: Review of REDD+ literature

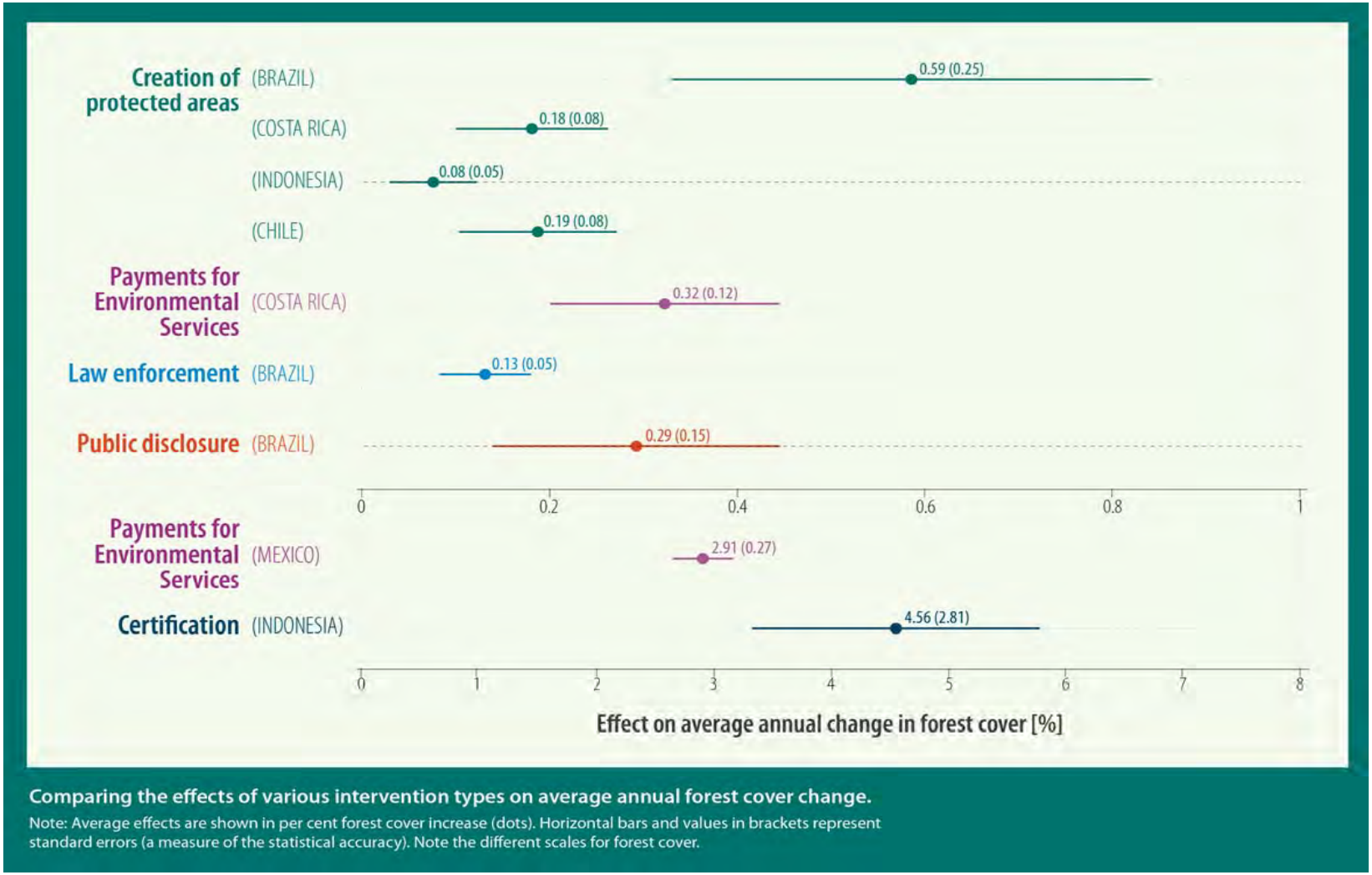
Many case studies; little focus on forest outcomes



Duchelle et al. 2018. Current Opinion in Environmental Sustainability

Forest conservation impact of policies & programs

small effects so far

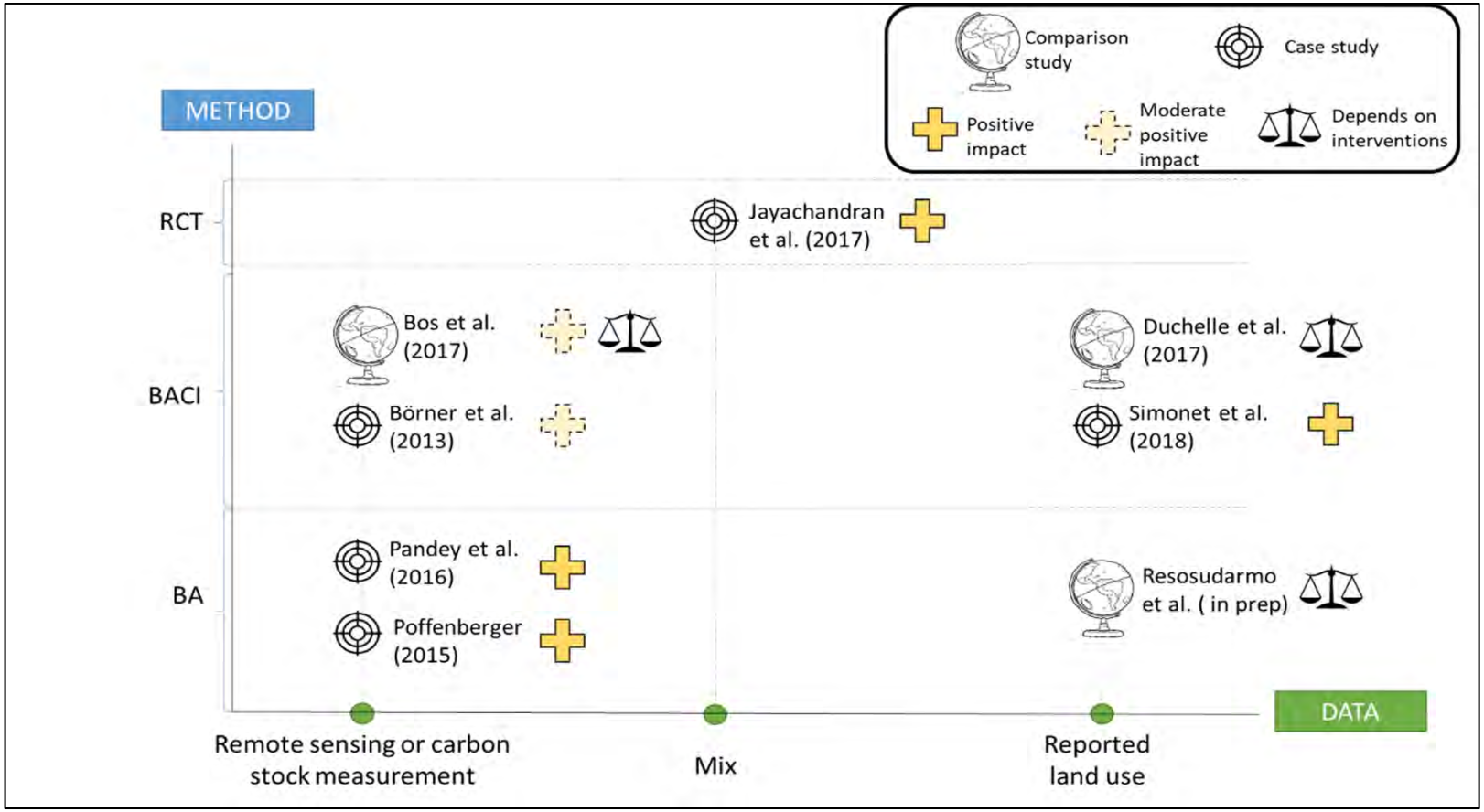


Comparing the effects of various intervention types on average annual forest cover change.

Note: Average effects are shown in per cent forest cover increase (dots). Horizontal bars and values in brackets represent standard errors (a measure of the statistical accuracy). Note the different scales for forest cover.

Forest & land use outcomes

The few evaluations of local REDD+ initiatives on forest & land use outcomes show moderately encouraging results



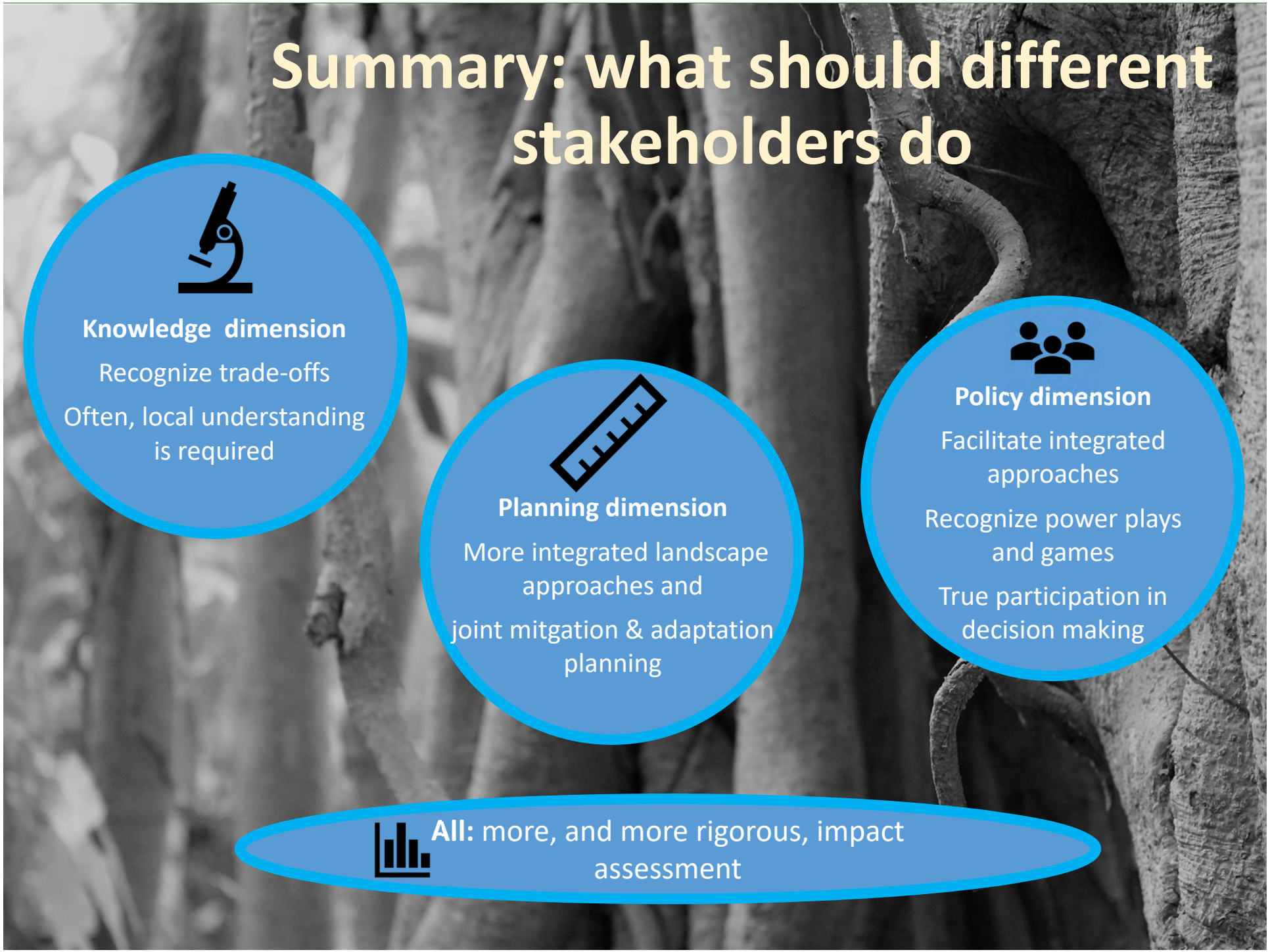
Simonet et al. 2018. Transforming REDD+ Book

Social & other environmental outcomes

- Well-being effects small, with mixed sign, but more likely to be positive when incentive components included
- Land tenure highlighted as persistent challenge
- Studies on biodiversity and adaptation outcomes scarce

Duchelle et al. 2018, Sunderlin et al. 2018. Transforming REDD+ Book

Summary: what should different stakeholders do



Knowledge dimension

Recognize trade-offs

Often, local understanding is required

Planning dimension

More integrated landscape approaches and

joint mitgation & adaptation planning

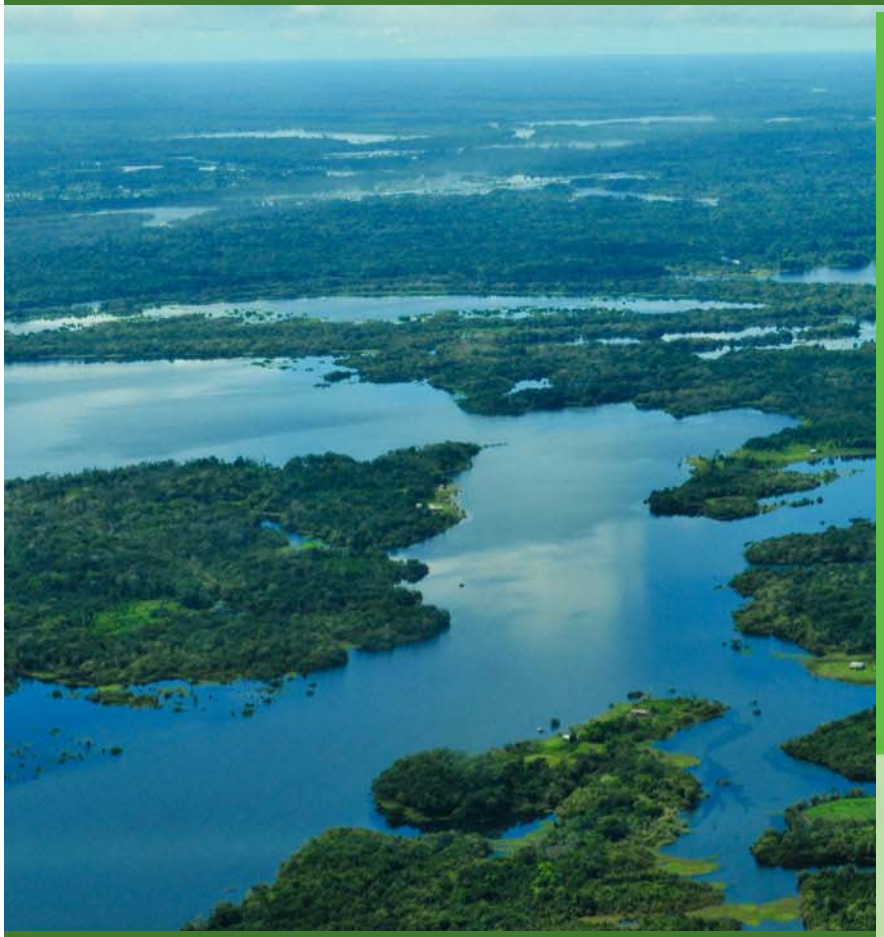
Policy dimension

Facilitate integrated approaches

Recognize power plays and games

True participation in decision making

All: more, and more rigorous, impact assessment



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Transforming REDD+

Lessons and new directions

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