

Nature based Solutions strategies in tropical forest ecosystems

Prof. Ricardo Solar – UFMG – Brazil

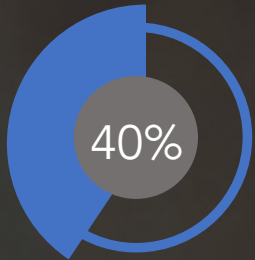


The need for NbS approaches in tropical forests

- TFs hold an immense share of the world's biodiversity;
- Offering opportunities for a plethora of NbS;
- Yet, the scale of tropical deforestation and degradation is unprecedented;
- Disturbed forests are less diverse and stock less carbon than undisturbed primary forests

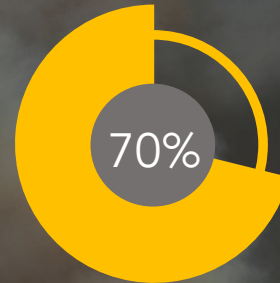
The need for NbS approaches in tropical forests

of the
world's
population



of the global
net primary
productivity

of the
global
carbon
stocks



of the
rainfall in
Rio de la
Plata basin

+ 15,000
new species
described
annually

Yet poorer,
degraded and
secondary forests
are still highly
valuable

Increased risk
of extreme
events

+200% rise in
area converted
to pasture
in Amazon

Available scientific evidence

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up

PRIMARY RESEARCH ARTICLE

WILEY Global Change Biology

Second rate or a second chance? Assessing biomass and biodiversity recovery in regenerating Amazonian forests

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Jos Barlow^{1,14,15} 

Available scientific evidence - increasing carbon stocks

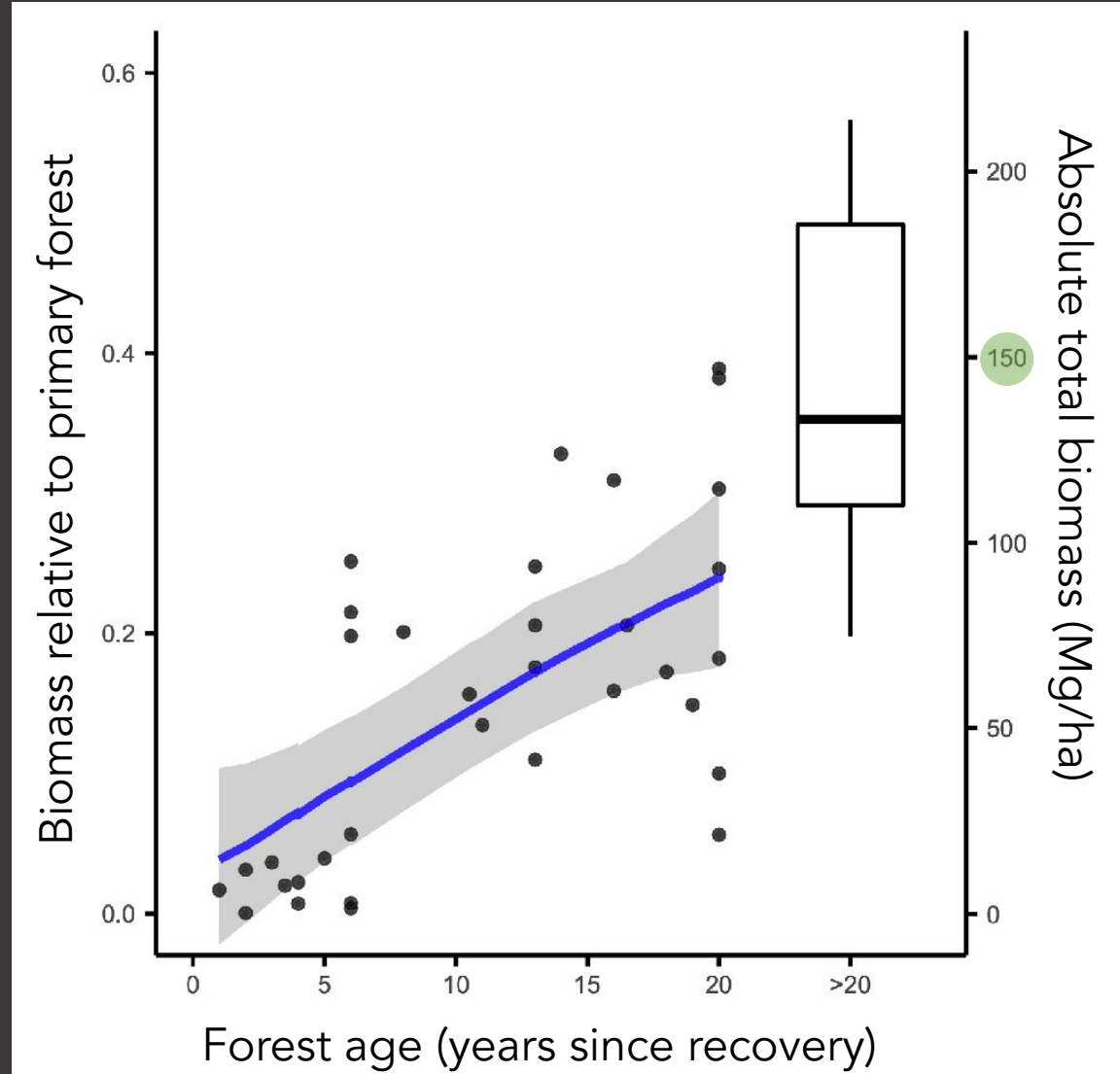
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PRIMARY RESEARCH ARTICLE

WILEY Global Change Biology

Second rate or a second chance? Assessing biomass and biodiversity recovery in regenerating Amazonian forests

- Naturally recovering forests
- However important, they are far from substitutes of primary forests
- Yet, secondary forests in the Amazon:
 - Accumulate considerably large amounts of carbon
 - can sustain forest-dependent species










Available scientific evidence - beyond carbon stocks

ARTICLES

<https://doi.org/10.1038/s41558-018-0225-7>

nature
climate change

Carbon-focused conservation may fail to protect the most biodiverse tropical forests

Joice Ferreira ^{1,18,19*}, Gareth D. Lennox ^{2,18*}, Toby A. Gardner^{3,4,19}, James R. Thomson^{5,6}, Erika Berenguer^{2,7}, Alexander C. Lees^{8,9}, Ralph Mac Nally ^{5,10}, Luiz E. O. C. Aragão^{11,12}, Silvio F. B. Ferraz ¹³, Julio Louzada¹⁴, Nárgila G. Moura¹⁵, Victor H. F. Oliveira ¹⁴, Renata Pardini¹⁶, Ricardo R. C. Solar ¹⁷, Ima C. G. Vieira¹⁵ and Jos Barlow ^{2,14,15,19}

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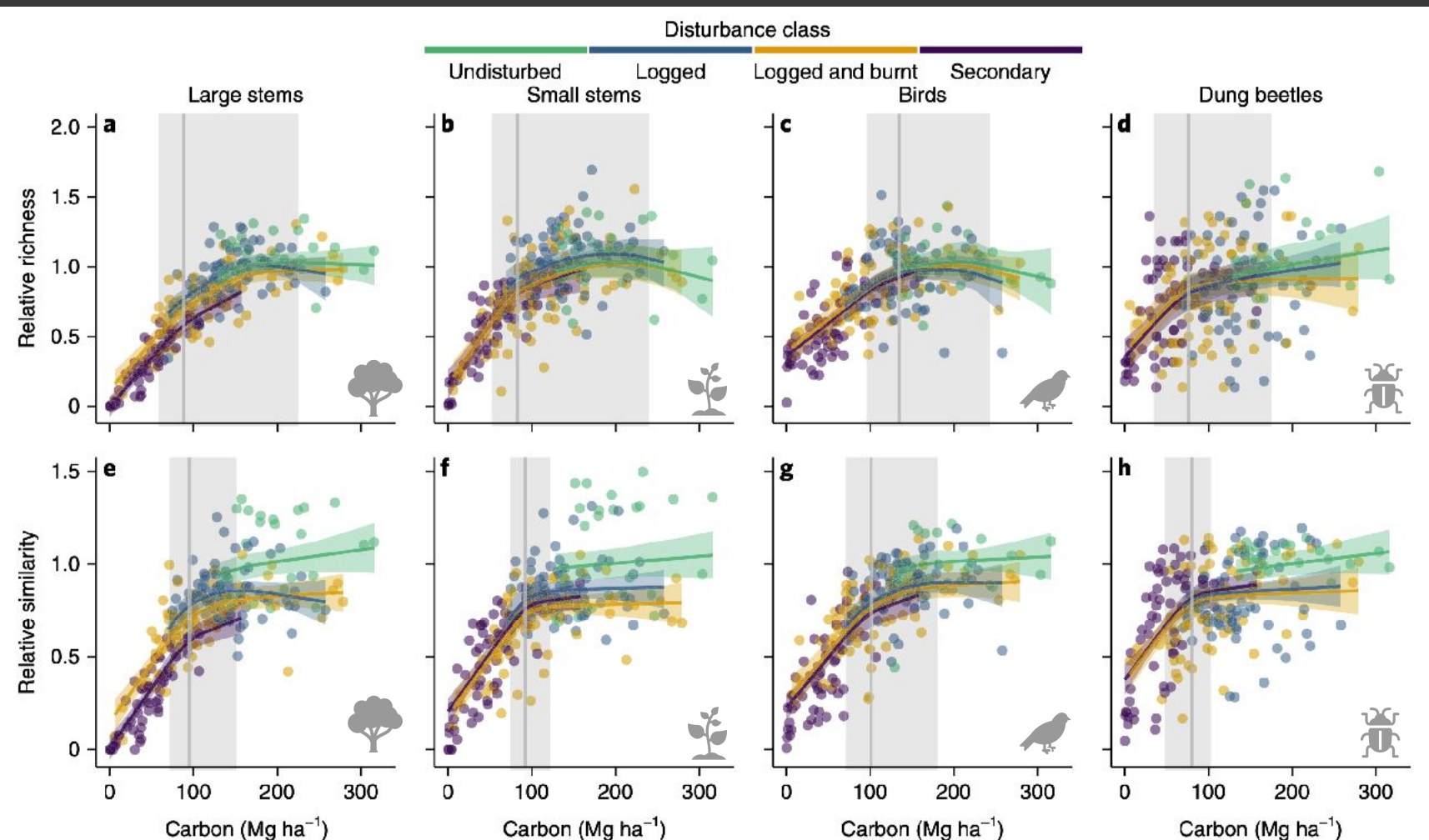
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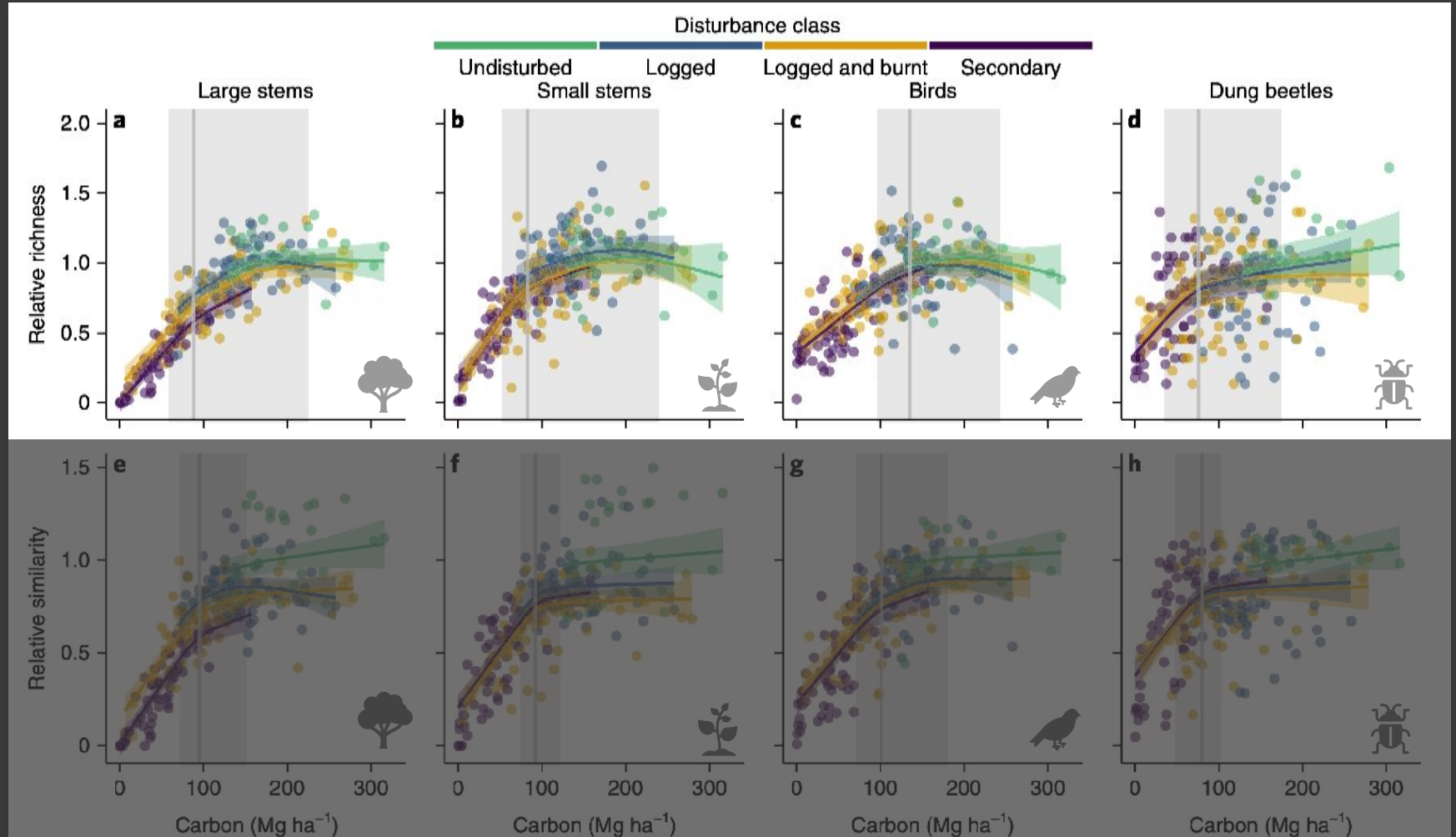
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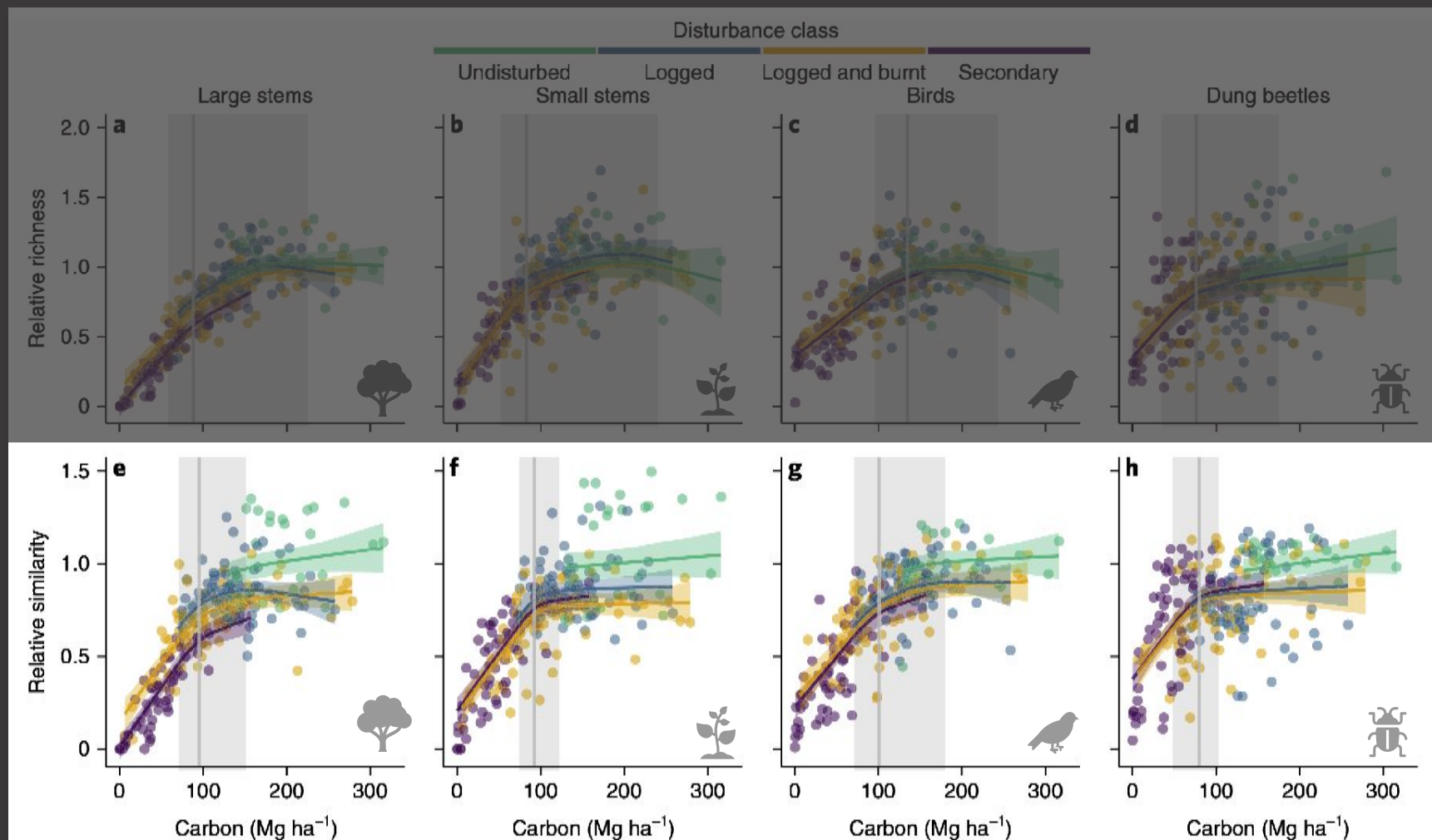
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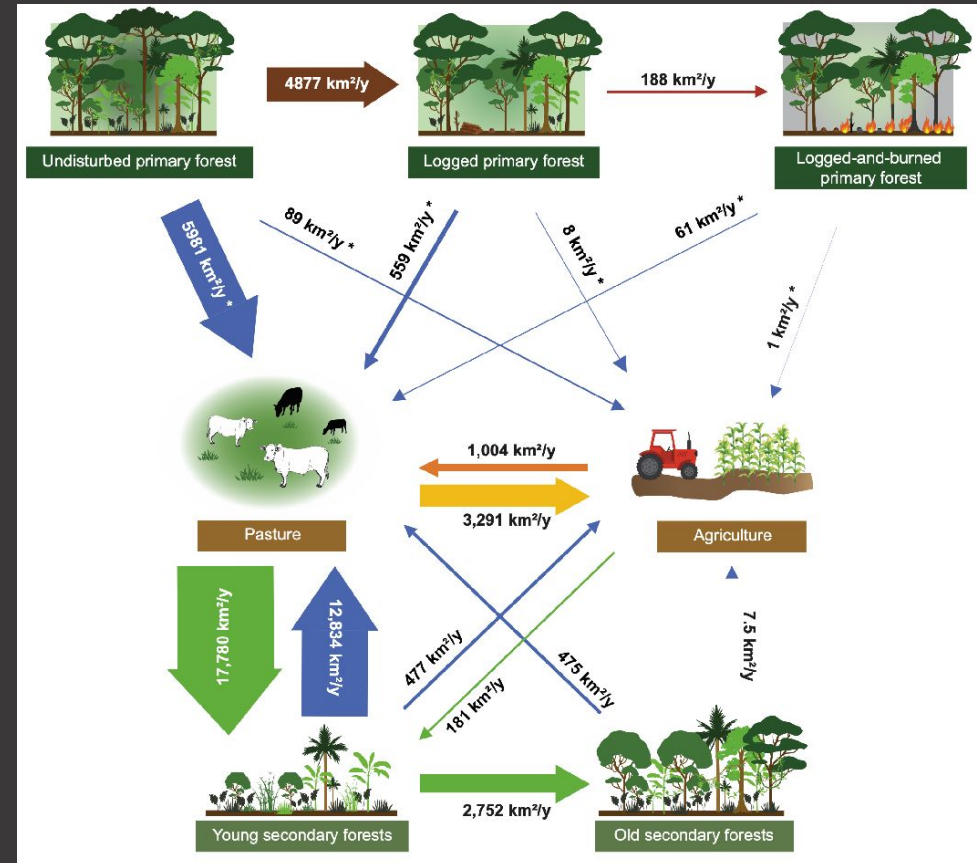


Major challenges regarding safeguarding these NbS

- Tropical forests as sources of SF ecosystems forest in Brazil and beyond
 - very transient states in deforestation frontier regions
 - Mean half-life of SFs in the Brazilian Amazon: 5.2 years
- Necessary to incorporate SFs as key elements to regain biomass and biodiversity benefits
- Chronic undervaluation of SF ecosystems in Brazil and beyond

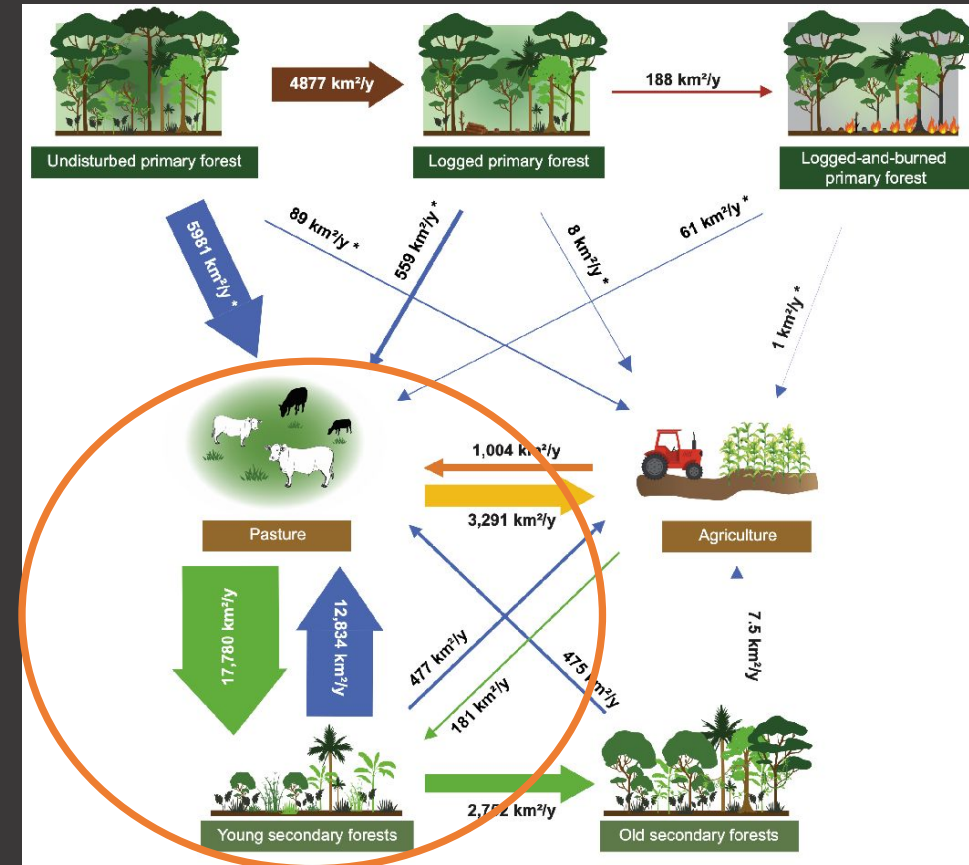
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Major challenges regarding safeguarding these NbS

- Chronic undervaluation of SF ecosystems in Brazil and beyond



Finally, the importance of what is
rarely mentioned for the tropics





The importance of non forest ecosystems

Conclusions

- Safeguarding tropical ecosystems and their recovery can guarantee their NbS through:
 1. Guaranteeing high carbon stocks and carbon sequestration (much cheaper than the costs of climate change)
 2. NbS are socially equitable, in line with rural livelihoods and ecosystem services provision
- Providing safe legal frameworks for secondary forests can:
 1. Improve lives of millions of marginalized farmers that rely on SFs in fallow-based agricultural systems
 2. Contribute to biomass and biodiversity credits when they regenerate for long periods without interruptions

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