

# MONITORAMENTO E PREVISÃO DE RISCO DE DESMATAMENTO NA AMAZÔNIA

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*Missão: promover conservação e  
desenvolvimento sustentável na Amazônia.*

# Há dois tipos de distúrbios antropogênicos na Floresta Amazônica: Desmatamento e a Degradação Florestal

Sinop, MT



Degradação Florestal

Sinop, MT



Desmatamento

Marengo, J.A., Souza Jr, C.M., Thonicke, K., Burton, C., Halladay, K., Betts, R.A., Alves, L.M. & Soares, W.R. (2018). Changes in climate and land use over the Amazon region: current and future variability and trends. *Front. Earth Sci.*, 6, 228.

Barlow, J. et al. (2016). Anthropogenic disturbance in tropical forests can double biodiversity loss from deforestation. *Nature*.

Souza, C.M., Siqueira, J. V., Sales, M.H., Fonseca, A. V., Ribeiro, J.G., Numata, I., Cochrane, M.A., Barber, C.P., Roberts, D.A. & Barlow, J. (2013). Ten-year Landsat classification of deforestation and forest degradation in the Brazilian amazon. *Remote Sens*.



**Remoção parcial** da cobertura florestal pela atividade madeireira, queimadas e mudanças climáticas (secas prolongadas)



## Impactos

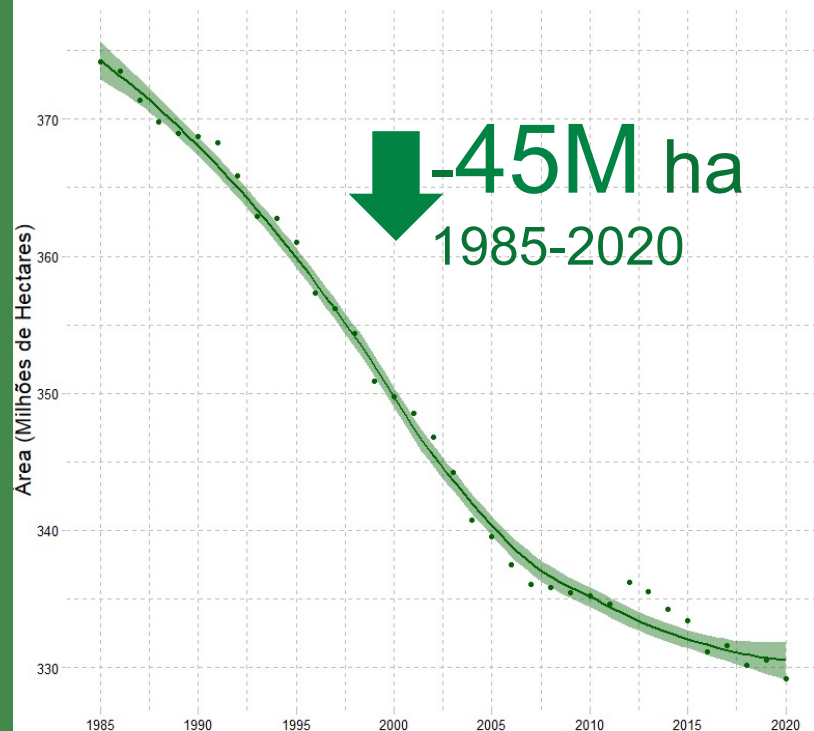
- Perda de biodiversidade
- Redução de chuvas
- Emissões de CO<sub>2</sub>
- Aumento da temperatura local
- Risco de **tipping point**

**Remoção completa** da cobertura florestal para atividades de uso da solo (pecuária, agricultura, áreas urbanas, mineração)

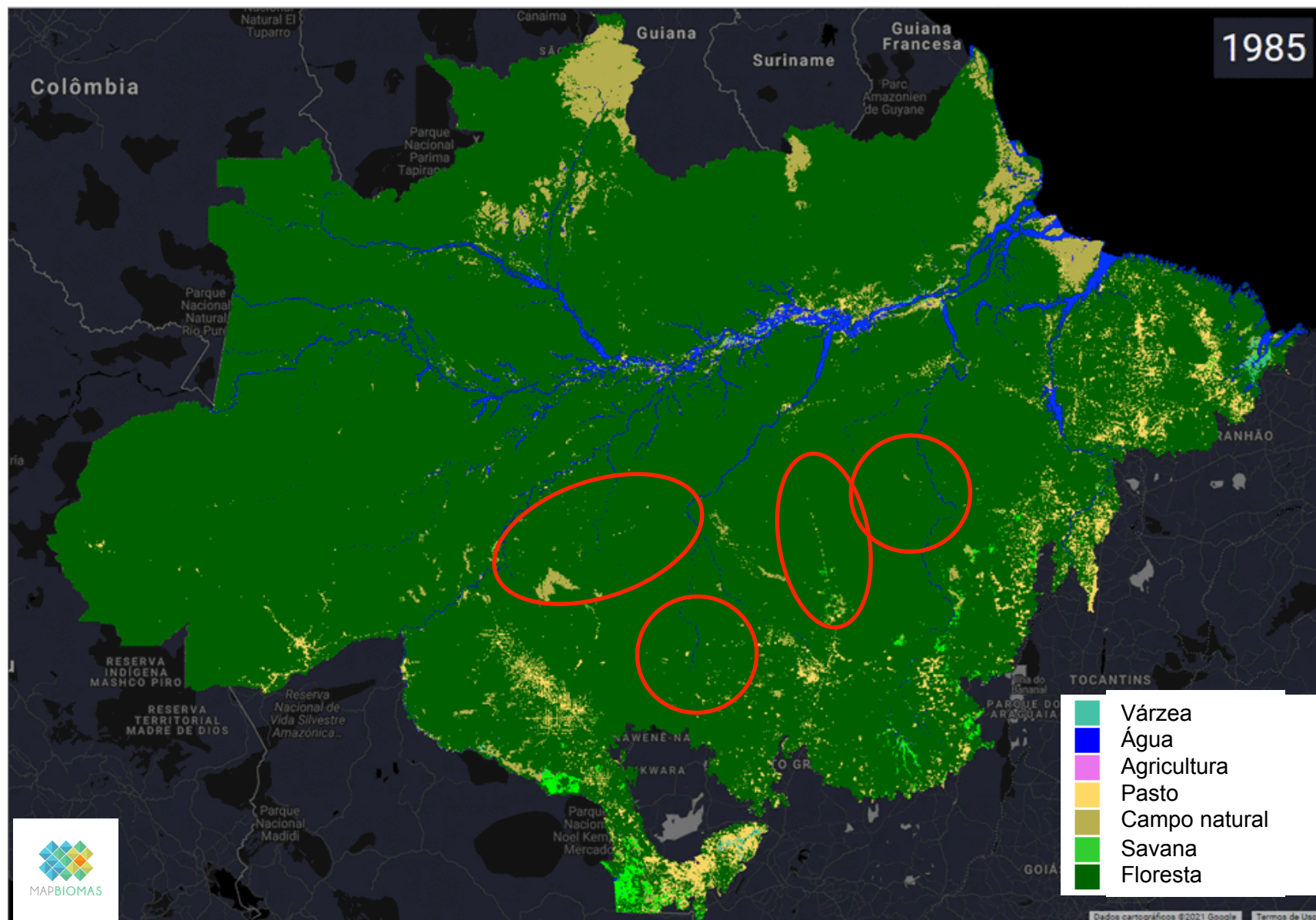


# Uso e Cobertura da Terra do Bioma Amazônia de 1985 a 2020

Bioma Amazônia



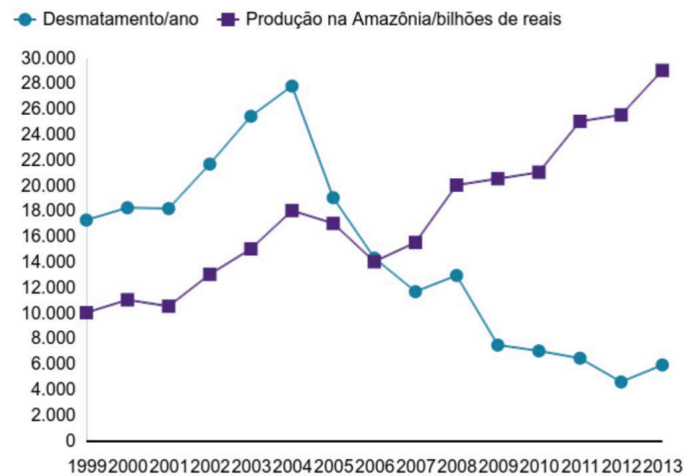
Perdemos um total de  
~**20%** da floresta  
Amazônica original.



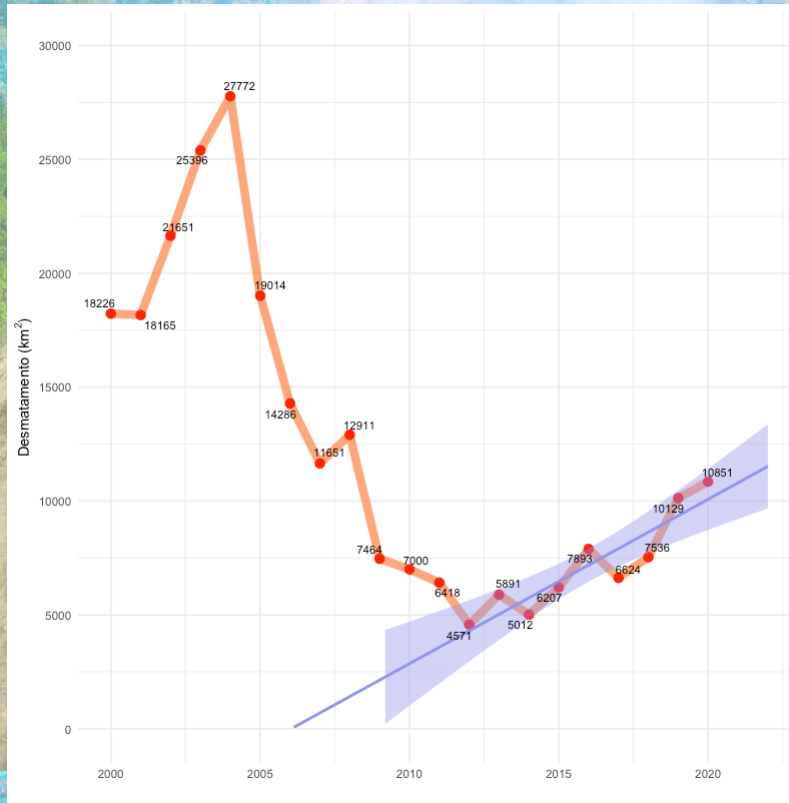


# Taxa de Desmatamento Anual na Amazônia Legal 1988-2020

**PIB agropecuário da Amazônia e desmatamento**  
Produção agrícola na floresta e a taxa de derrubada de árvores



Fonte: Imazon



Fonte: PRODES, INPE

CRISE ENERGÉTICA

## Crise hídrica já estava anunciada, diz pesquisador

FOLHA DE S.PAULO

## Supermarkets threaten Brazil boycott over deforestation



WORLD • CLIMATE CHANGE

## The Amazon Now Emits More Carbon Than it Absorbs. Can We Ever Reverse That Tipping Point?

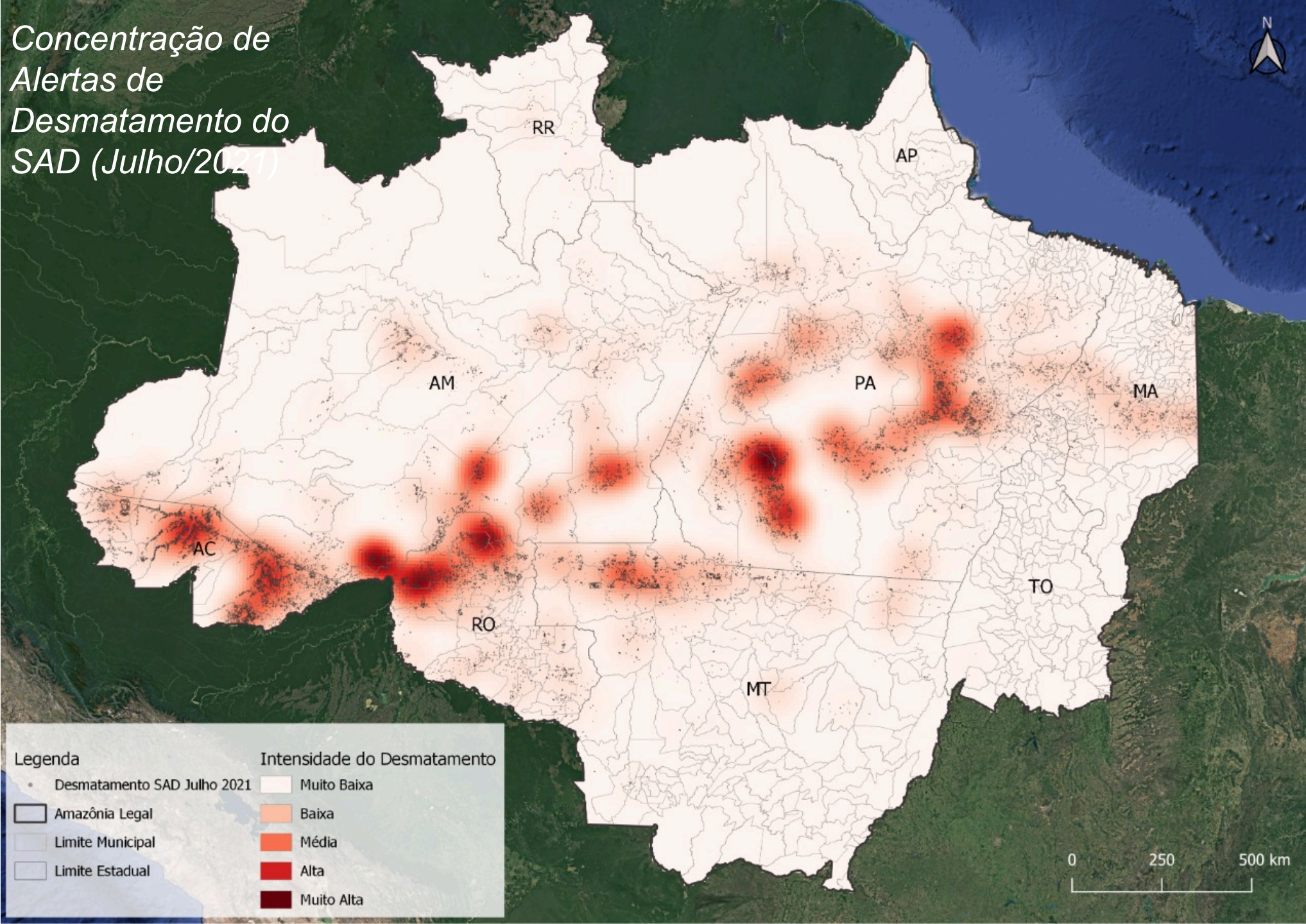
TIME

## 'More emissions than Exxon': Is meat the next target for divestment?

INVESTMENT WEEK



# Concentração de Alertas de Desmatamento do SAD (Julho/2021)



Área Desmatada  
**10.476 km<sup>2</sup>**

Agosto de 2020 a Julho 2021

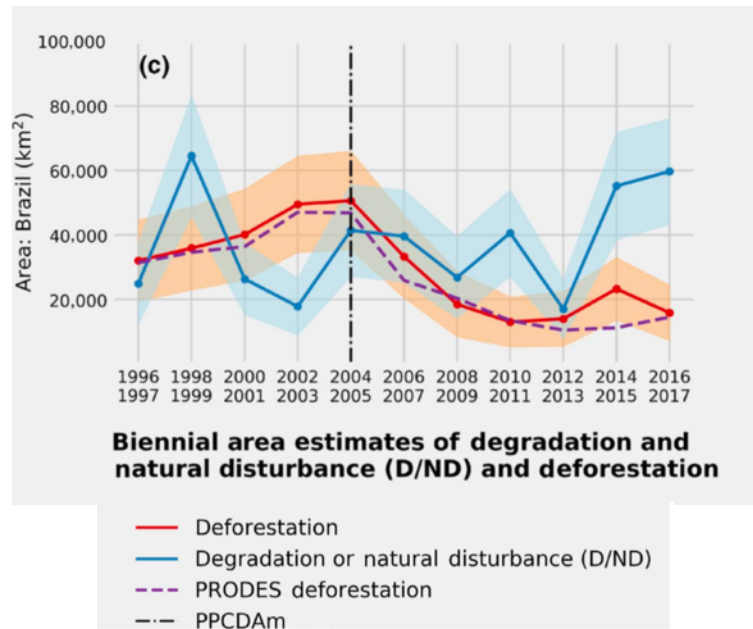
**↑ 57%**

**6.688 km<sup>2</sup>**

Agosto de 2019 a Julho 2020



A área de **degradação florestal** passou a ser **maior** que a área **desmatada** a partir de 2004. Em períodos de seca extrema é 2 a 3 vezes maior!

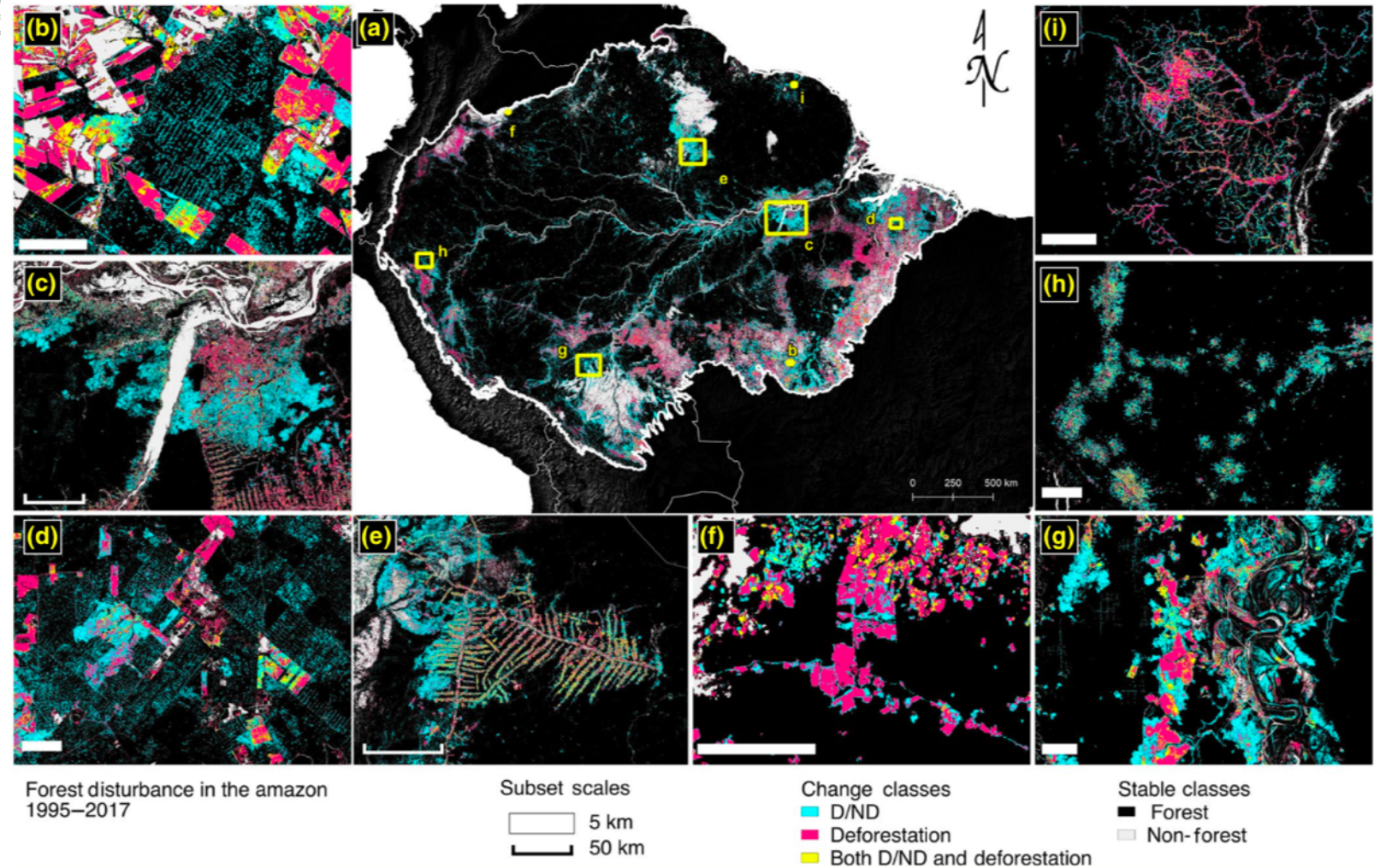


Received: 25 November 2019 | Revised: 30 January 2020 | Accepted: 31 January 2020  
DOI: 10.1111/gcb.15029

#### PRIMARY RESEARCH ARTICLE

### Satellite-based estimates reveal widespread forest degradation in the Amazon

Eric L. Bullock<sup>1</sup> | Curtis E. Woodcock<sup>1</sup> | Carlos Souza Jr.<sup>2</sup> | Pontus Olofsson<sup>1</sup>



**FIGURE 2** The 30 m disturbance dataset showing locations of degradation and natural disturbance (D/ND), deforestation, both D/ND and deforestation, and stable forest and non-forest from 1995 to 2017. (a) Amazonian Ecoregion as defined in Olson et al. (2006). (b) Logging, deforestation, and fire in Mato Grosso, Brazil (longitude, latitude:  $-54.67, -11.91$ ). (c) Fires near the Amazon River and deforestation in Pará, Brazil ( $-54.67, -11.91$ ). (d) Selective logging and deforestation in Pará, Brazil ( $-48.53, -3.32$ ). (e) Fires and deforestation in Roraima, Brazil ( $-59.88, 0.96$ ). (f) Deforestation with D/ND due to roads, fire, and edge damage in Meta, Colombia ( $-115.64, 11.43$ ). (g) Fire damage, deforestation, and waterlogging along a river in Beni, Bolivia ( $-66.86, -11.99$ ). (h) Small-scale logging in Loreto, Peru ( $-76.59, -5.49$ ). (i) Deforestation and degradation due to mining in Sipaliwini, Suriname ( $-54.51, 5.02$ )



# As estradas é uma dos principais vetores de desmatamento e de queimadas

CSIRO PUBLISHING

*International Journal of Wildland Fire*  
<http://dx.doi.org/10.1071/WF13106>

## A quantitative study of the proximity of satellite detected active fires to roads and rivers in the Brazilian tropical moist forest biome

Sanath S. Kumar<sup>A,D</sup>, David P. Roy<sup>A</sup>, Mark A. Cochrane<sup>A</sup>, Carlos M. Souza Jr<sup>B</sup>, Christopher P. Barber<sup>A</sup> and L. Boschetti<sup>C</sup>

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<sup>B</sup>Instituto do Homem e Meio Ambiente da Amazônia–Imazon, Caixa Postal 5101, Ananindeua, Pará 67, 113-000, Brazil.

<sup>C</sup>Department of forest, rangeland and fire sciences, College of Natural Resources, University of Idaho, Moscow, ID 83844, USA.

<sup>D</sup>Corresponding author. Email: [sanath.kumar@sdstate.edu](mailto:sanath.kumar@sdstate.edu)

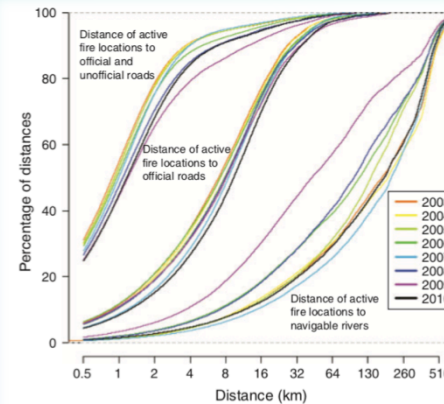


Fig. 5. Cumulative frequency of the closest distances from each MODIS active fire detection to the transportation networks. Results shown for each year of MODIS active fire detections (colour coded) for the Brazilian tropical moist forest biome study area.

**85%** das queimadas concentram-se em até **5km** de todas as estradas



## Roads, deforestation, and the mitigating effect of protected areas in the Amazon

Christopher P. Barber<sup>a,\*</sup>, Mark A. Cochrane<sup>a</sup>, Carlos M. Souza Jr.<sup>b</sup>, William F. Laurance<sup>c</sup>

<sup>a</sup>Geospatial Sciences Center of Excellence, South Dakota State University, 1021 Medary Ave, Wecotah Hall Box 506B, Brookings, SD 57007, USA

<sup>b</sup>Imazon – Instituto do Homem e Meio Ambiente da Amazônia, Rua Domingos Marreiros, 2020, Belém, Pará CEP: 66.060-162, Brazil

<sup>c</sup>Centre for Tropical Environmental and Sustainability Science (TESS), School of Marine and Tropical Biology, James Cook University, Cairns, Queensland 4878, Australia

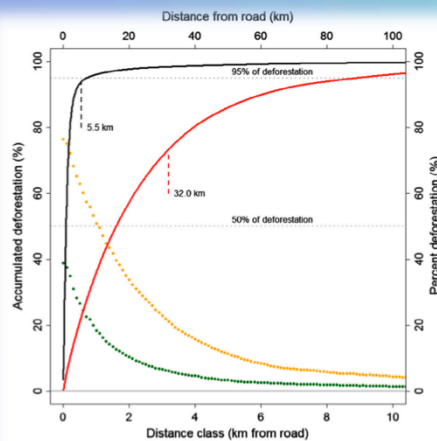


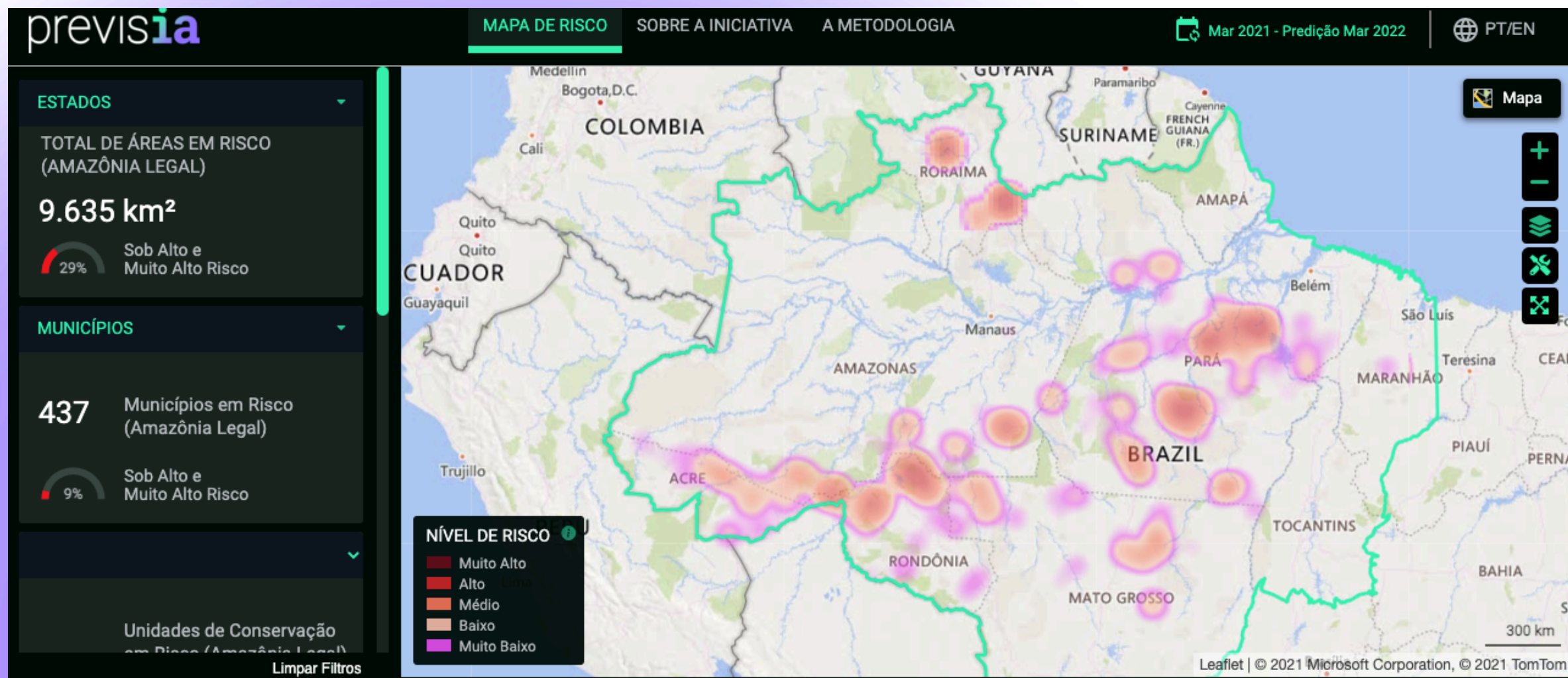
Fig. 1. Accumulation of overall deforestation with respect to distance from roads (left and top axes). Red line is distance to highway network indicating distance at which 95% of deforestation is accounted for and the calculated distance of diminishing influence. Black line indicates same for all official and unofficial roads. The percent deforestation within 100 m distance classes (bottom and right axes) shows relationship between deforestation in protected areas (green) and unprotected forests (orange). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

**95%** do desmatamento acumulado concentram-se em até **5km** de todas as estradas



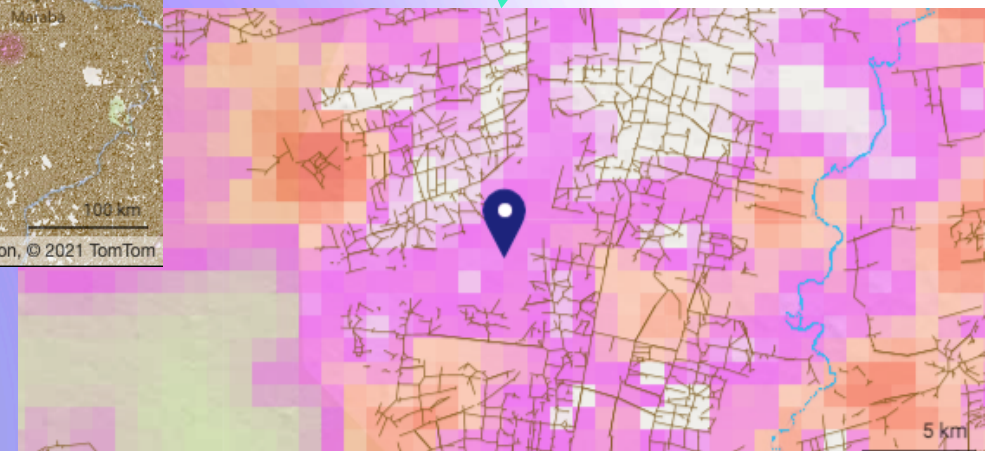
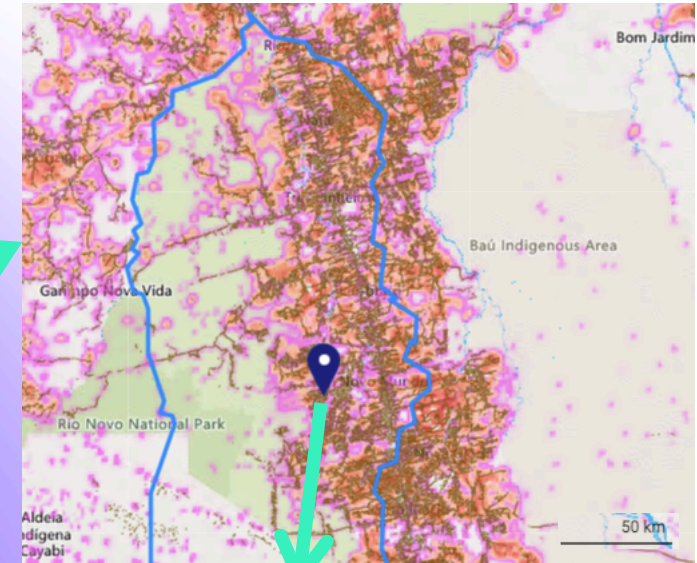
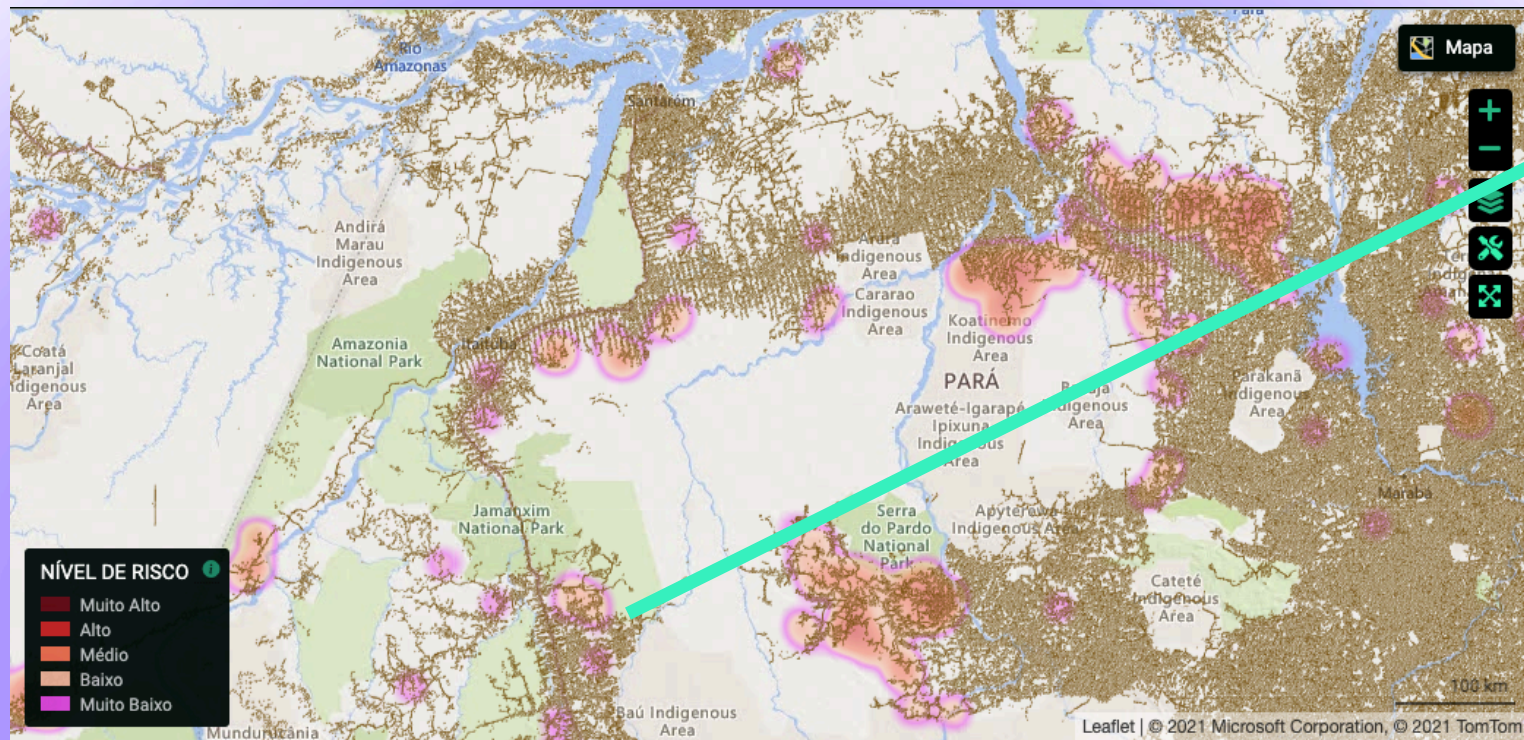
# Risco de Desmatamento

[previsia.org](https://previsia.org)



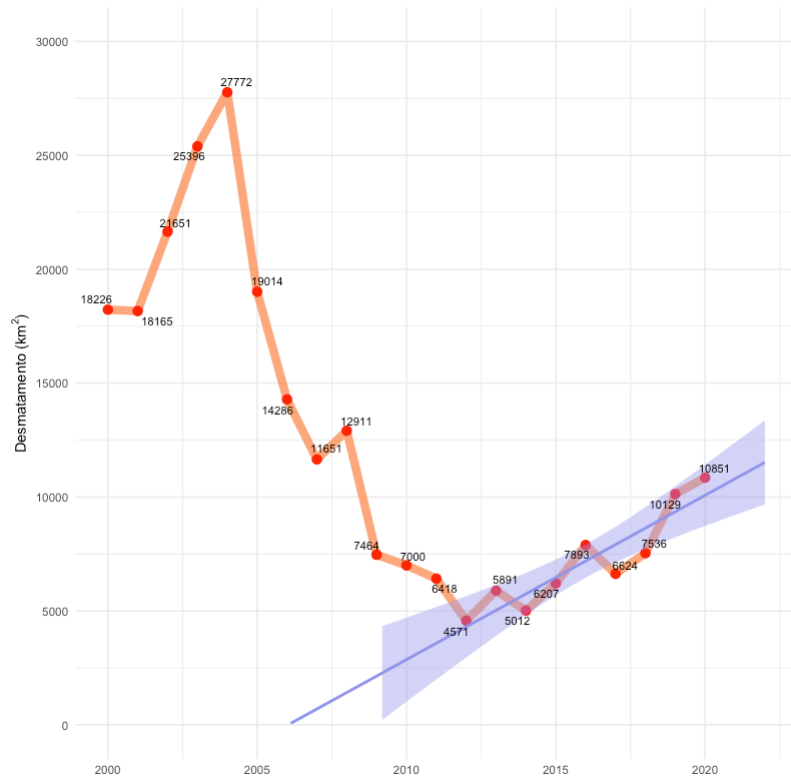


# Mapeamos todas as estradas, caminhos e ramais na Amazônia até 2020 com IA





# AÇÕES PARA REDUÇÃO DO DESMATAMENTO E DA DEGRADAÇÃO FLORESTAL NA AMAZÔNIA



**1. Usar efetivamente** informações de sistemas de **monitoramento** para responsabilização por crimes ambientais.

**2. Implementar estratégias de prevenção** de desmatamento.

**3. Restaurar áreas degradadas**, aumentar a produtividade de pastagens, combater a grilagem de terras públicas, e escalar a econômica de base florestal.



A hand is reaching out of the water, palm up, with fingers slightly spread. The water is calm with gentle ripples. In the background, a sunset or sunrise is visible over a body of water, with silhouettes of distant land or islands. The sky is a mix of orange, yellow, and blue. The overall mood is contemplative and hopeful.

**Não é tarde para mudar. Ainda.**