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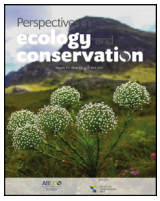

Policy Forums

The emergence of a new deforestation hotspot in Amazonia

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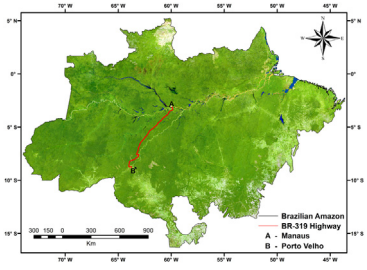
HIGHLIGHTS

- Bidding notices for paving the BR-319 highway were recently announced.
- No environmental impact study on the effects of this project were conducted in the most preserved portion of the highway.
- Approximately 90% of the direct influence zone of the BR-319 highway is composed of pristine vegetation.
- Deforestation alerts and active fires have increased after the publishing of the bidding notices.
- This suggests the absence of a clear strategy for the sustainable development and conservation of the Brazilian Amazon.

GRAPHICAL ABSTRACT



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ABSTRACT

The Brazilian Amazon is facing a deforestation boom with potentially new deforestation hotspots emerging. We have identified one of these hotspots at the margins of the BR-319, where bidding notices for paving this highway were recently announced in spite of having legal permission for it. Approximately 90% of the direct influence zone of this highway is composed of pristine vegetation, still extremely well preserved. No environmental impact study on the effects of this paving has been conducted in the most preserved part of the highway. From July to September, 2020, period after the publishing of the bidding notices, deforestation alerts and active fires have increased significantly in its direct influence zone. This suggests the absence of a clear strategy for the sustainable development and conservation of the Brazilian Amazon. Resuming and improving actions that significantly decreased deforestation and hold to account actors opposing environmental obligations is urgently needed.

The Brazilian Amazon is facing a deforestation boom in recent years, exacerbated since 2019 (Amigo, 2020; Escobar, 2019a). Evidences point towards a still unfavorable scenario in 2020 as the Brazilian official deforestation monitoring system (DETER) has emitted 33.86% more deforestation alerts from January to September of this year in comparison to the average of these months

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between 2016 and 2020 (INPE, 2020b). As a consequence, current deforestation patterns associated to the 2019 Amazonia fires have raised both national and international concern (Barlow et al., 2020; de Oliveira et al., 2020). Burned area in the Amazonia in 2019 was near the average of the 2001–2018 period (Lizundia-Loiola et al., 2020), but the low meteorological influence in the 2019 Amazonia fires showed that they were mostly associated with deforestation or land management (Kelley et al., 2020). Several authors have linked the increasing fires and deforestation in Amazonia to the weakening of Brazilian environmental policy (Artaxo, 2019; de Area Leão Pereira et al., 2020; de Area Leão Pereira et al., 2019; Escobar, 2019b; Rajão et al., 2020).

During this period of environmental setback, several large infrastructure projects are being pushed forward despite their negative effects on biodiversity and conservation and low economic benefits (Ferrante and Fearnside, 2019). In addition to this negative environmental effects, deforestation associated with these projects do not bring long-term human well-being improvements for local communities (Rodrigues et al., 2009; Silva et al., 2017). Nevertheless, initiatives are prioritizing the expansion of the Amazonian road network with the assumption that these projects are capable of increasing employment opportunities, decrease transportation costs, and support regional development (Berg et al., 2016). According to Vilela et al. (2020), most of these proposed road projects in the Amazon Basin lack rigorous impact assessments or even basic economic justification and will drive deforestation, threat biodiversity, conservation, and ecosystem services. All of the 75 road projects analyzed by these authors, accounting for 12,000 km of planned roads, will negatively impact the environment with 45% of them also generating economic losses. By only cancelling these economically unjustified road projects, 11,000 km^2 of deforestation would be avoided and US$ 7.6 billion saved (Vilela et al., 2020).

The simple act of communicating the intention to implement such inconsistent projects is enough to potentialize the consolidation of new deforestation hotspots within the Brazilian Amazon. One is the BR-319 highway, where bidding notices for paving this 858 km long highway built in 1973 and abandoned in 1988 were recently opened (Ferrante and Fearnside, 2020). The BR-319 highway is the only connection between the state capitals of Amazonas and Rondônia (Manaus and Porto Velho, respectively), crossing a region with 63 indigenous lands and other Protected Areas (Ferrante et al., 2020) (Fig. 1).

Infrastructure improvement in Amazonia is needed but the decision to pave BR-319 is controversial. No environmental impact study on the effects of this road paving has been conducted in the most preserved part of the road (named as “Lot C”), impeding the application of safeguard measures to protect natural resources. Because of this elementary omission, and, prior to the opening of the biddings, a final judicial decision ruled that an environmental impact study must be conducted before paving this portion of the highway (Ferrante and Fearnside, 2020). Still, according to these authors, the Brazilian Federal Public Ministry has characterized the publishing of the bidding notices after the judicial decision as an “affront” to the judiciary system, and the action of paving the highway before a proper environmental impact study will represent a reluctance to fulfill commitments established in climate and biodiversity conventions. Moreover, indigenous people within the BR-319’s influence zone have not been consulted on this paving project, going against the International Labour Organization (ILO) Convention 169 of which Brazil is a signatory (Ferrante et al., 2020).

The direct influence zone of the BR-319 highway, a 5 km buffer around the highway (DNIT, 2009), is well preserved. According to the 2019 Land Use and Land Cover (LULC) data provided by the MapBiomas project (MapBiomas, 2020), 88% of this area is covered by pristine vegetation, mostly Forest Formations (83%) and Grassland Formations (4%), and only 12% is covered by Anthropogenic LULCs, mostly Pasturelands (10%) and Urban Infrastructures (1%) (Fig. 2). Spatially, Anthropogenic LULCs are concentrated at the edges of the highway near the cities of Manaus and Porto Velho. If we consider LULC in the direct influence zone of the area designated as “Lot C”, more than 98% of the LULC is composed of Forest Formations, characterizing this area as extremely well conserved (Fig. 2).

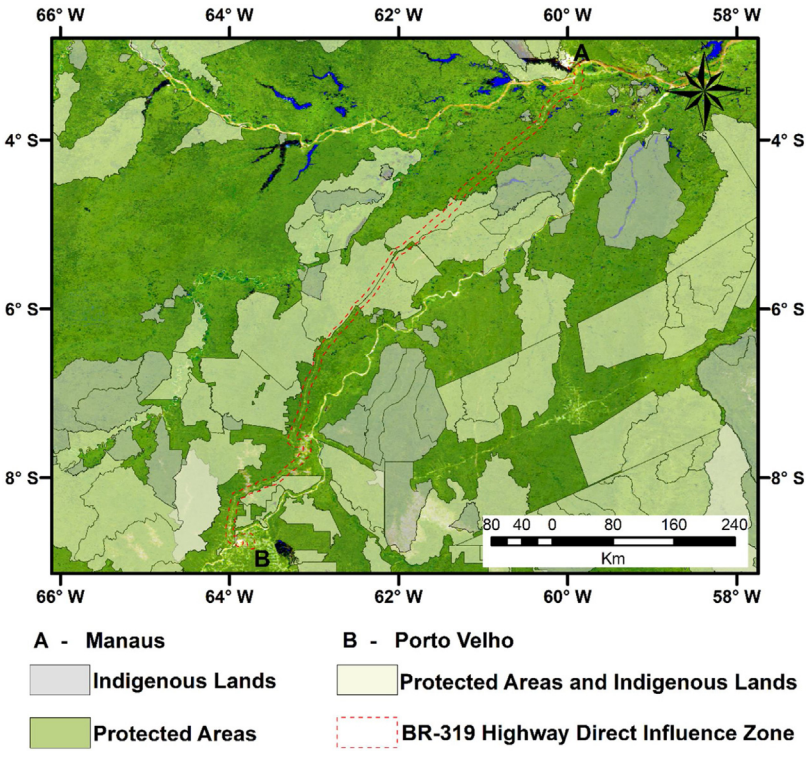

Fig. 1. Location of the BR-319 highway, its direct influence zone, and surrounding Protected Areas and indigenous lands.

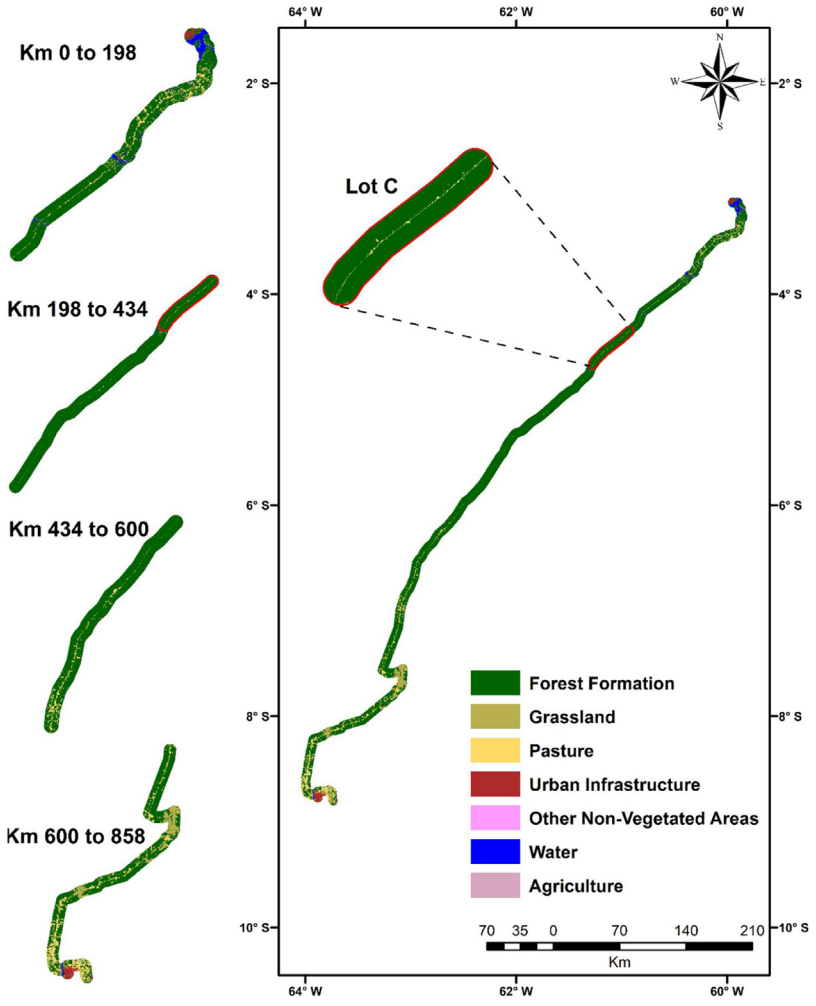

Fig. 2. Land Use and Land Cover in the direct influence zone of the BR-319 highway in 2019. In this figure we have divided the study area into four sections for better observing Land Use and Land Cover classes and highlighted the area designated as "Lot C" (kilometers 198 to 250).

A recent modelling study showed that this road paving project will drive an accumulated deforestation of 170,000 km^2 until 2050, a value four times higher than the one modelled considering the historical average deforestation rate of this region (Soares-Filho et al., 2020). These authors also predict that the accumulated emission of carbon dioxide (CO_2) associated with deforestation might quadruple until 2050 when compared to the 2019's CO_2 emission rate.

Existing monitoring systems are already detecting the impacts of this potential paving project. Deforestation alerts emitted from the DETER monitoring system, which are effective at targeting trends in deforestation (Diniz et al., 2015), have increased after the opening of the biddings. Alerts emitted from July to September, 2020 in the direct influence zone of the BR-319 highway accounted for 16.42 km^2, 25% higher than the average for this time period since the beginning of DETER (2016–2020) (INPE, 2020b). Another factor showing that such project may jeopardize conservation in this area is the number of active fires. The Brazilian official fire monitoring program has showed that Moderate Resolution Imaging Spectroradiometer (MODIS) sensors have recorded, from July to September, 2020 the highest number of active fires during the 2011–2020 decade in the direct influence zone of the BR-319 highway (714 active fires, 79.53% higher than the 2011–2020 average of this time period) (INPE, 2020a).

Initiatives to integrate the Brazilian Amazon are required, but ignoring an strategic environmental planning and following key principles of conservation and sustainable development in this sensitive region endanger the effectiveness of these massive investments. Despite favoring a few local communities, especially local farmers, the legacies of these initiatives, without robust long-term planning, are forest fragmentation, the formation of deforestation hotspots, and land market speculation (Bratman, 2019; Miranda et al., 2019). The best known case is the Transamazon highway, one of the major drivers of the formation of the "arc of deforestation" (Fearnside, 2017). These backward initiatives put in check the development and implantation of clear strategic actions for the sustainable development and conservation of the Brazilian Amazon.

To avoid the emergence of this and other new deforestation hotspots in Amazonia, resuming and improving actions that decreased deforestation significantly in past years is urgently needed. According to Silva Junior et al. (2020), these actions encompass a deforestation moratorium, the revision and strengthening of the successful Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm), and an effective plan for the regularization and protection of indigenous and public lands. However, as observed in the case of the BR-319 highway, having environmental laws and specific regulation will not necessarily curb deforestation in the Brazilian Amazon. Therefore, combining national and international efforts to foster public civil actions against actors opposing national environmental obligations is also necessary (Silva Junior et al., 2020).

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Declaration of interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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