



Amazonian indigenous peoples are threatened by Brazil's Highway BR-319

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ABSTRACT

The Amazon rainforest in Brazil is under the greatest human pressure in its history. This pressure is increasing under the current presidential administration, with proposed retraction of environmental and humanitarian protections. Among these pressures are new hydroelectric dams, railways and highways. An infrastructure project with especially far-reaching consequences is the reopening of Highway BR-319 right through the heart of the Amazon Forest. The highway connects Manaus in central Amazonia to Porto Velho in the “arc of deforestation” on the southern edge of the forest. The highway crosses one of the most conserved parts of the Amazon with a large concentration of Indigenous Lands (“*Terras Indígenas*”). Although Brazil is a signatory to ILO Convention 169, which establishes the need for consultation with indigenous peoples and traditional communities, consultations have so far not been held. Here we argue for the need for consultation of all indigenous peoples within 150 km of any part of the highway, comprising 63 Indigenous lands and five other areas containing indigenous communities that are directly threatened by the project.

Brazil's Amazon rainforest and the indigenous people who live in it are under a variety of threats, ranging from highways and dams to mining, ranching and agriculture (Fearnside, 2017a). Approximately 80 % of Brazil's Amazonian forest is still standing (MapBiomass, 2019), but new threats are looming. One of the major threats is the opening of roads, which cause deforestation, attract wildcat miners (*garimpeiros*) and settlers of all sorts, and consequently disrespect the region's traditional peoples and ecological diversity (Becker, 2001). In line with campaign promises in the 2018 presidential election, politicians are pressing to accelerate a proposed rebuilding of the long-abandoned Highway BR-319, which would connect Manaus in relatively undisturbed central Amazonia to the state of Rondônia in Brazil's notorious “arc of deforestation,” an area along the southern and eastern edges of Brazil's Amazon region that, in addition to deforestation, has the highest numbers of land conflicts and murders of environmental activists (Ferrante and Fearnside, 2019). Rebuilding the highway would greatly increase deforestation rates in all areas already connected by road to Manaus, extending northwards to the border with Venezuela (Barni et al., 2015). BR-319 would also greatly increase deforestation because of its planned side roads giving deforesters access to the vast rainforest area in the western part of the state of Amazonas – far beyond the highway route (Fearnside and Graça, 2006).

Road construction in the Amazon has a critical role in driving the

region's demographic increase. For example, the first two major roads (Belém-Brasília and Brasília-Acre) are estimated to have increased population of Brazilian Amazonia by five fold between 1950 and 1960, setting in motion the rapid growth that continued in the succeeding decades (Becker, 2001, p. 8). The processes of road opening and demographic increase through migration are responsible for deforestation, logging, forest fires, land grabs and malaria outbreaks, among other impacts (Sawyer, 1989, 2001; Laurance et al., 2002; Fearnside, 2003).

An environmental impact study has been drafted for BR-319 but has not yet been approved. Approval under current Brazilian policies requires consultation with indigenous communities located within 40 km of either side of the highway (MMA, 2011: Anexo II, 2015). However, as has occurred with other highways, impacts of roads usually extend far beyond 40 km. International Labour Organization (ILO) Convention 169, which Brazil signed in 1991 and ratified in 2002, requires consulting indigenous peoples when these peoples would be directly or indirectly impacted by proposed development projects. The terms of ILO Convention 169 were converted into Brazilian law in 2004 (PR, 2004). Consultations are also required by the United Nations Declaration of the Rights of Indigenous Peoples (United Nations, 2006), which Brazil has signed but not yet ratified. Here we identify indigenous communities in the area affected by the proposed reconstruction of

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Highway BR-319. All of the data used in this paper are public and are available in the cited sources.

We built a map of the area affected by Highway BR-319, considering which indigenous communities should be consulted based on 40-km and 150-km buffers for establishing the area affected by the highway. The map was built in ArcGIS software using shape files of Indigenous Lands (“*Terras Indígenas*”) from the National Foundation for the Indian (FUNAI) and data from the Socio-Environmental Institute (ISA) and the Missionary Indigenous Council (CIMI) for the areas occupied by indigenous peoples and their respective populations.

For the area affected by BR-319 within the 150-km impact limit, we identified 63 Indigenous Lands, of which 54 are labeled as “regularized,” which means that they have gone through all of the steps to be considered fully legal Indigenous Lands (“under study,” “delimited,” “officially declared” and “homologated” by a presidential decree), two are “delimited” (Indigenous Lands that have had their anthropological, historical, land, cartographic and environmental studies approved by the head of FUNAI and that are pending analysis by the Ministry of Justice for a decision on issuance of a Declaratory Ordinance of Traditional Indigenous Possession), two are “homologated” (conclusively signed under a decree by the President of the Republic), four are “officially declared” (with demarcation of limits and the area’s description published in the official gazette) and one is “under study” (with anthropological, historical, land, cartographic and environmental studies that support the identification and delimitation of an Indigenous Land not yet completed). We also found five indigenous communities “under identification” outside any of the 63 Indigenous Lands, as well as anthropological evidence of the existence of an Indigenous band or village that is reported to be isolated from contact with other Indigenous groups (Fig. 1).

Our results indicate a total population of over 18,000 indigenous people whose rights are in the process of being violated within the 150-km limit (Table 1). Within the 40-km impact limit on either side of the planned highway there are thirteen regularized Indigenous Lands, one area indicated on the FUNAI map as an “indigenous reserve” [not an official category in Brazil], and two of the five above-mentioned indigenous communities outside of Indigenous Lands. The Brazilian federal government, through the National Department of Transport Infrastructure (DNIT) that is responsible for reconstructing the highway, has stated that it will only consult the communities in five of the Indigenous Lands within 40 km of the road. This has been defended by the outsourced company that has been conducting the indigenous component of the Environmental Impact Study (EIA) (MPAM, 2019a, b).

The distance from a highway project in Amazonia to which the indigenous component of an EIA applies is specified as 40 km by Interministerial Order No. 419 of 26 October 2011 (MMA, 2011: Anexo II). According to ILO Convention 169 (ILO, 1989), all indigenous peoples affected by infrastructure projects must be consulted, and neither the Convention nor the corresponding Brazilian law (No. 5051 of 19 April 2004: PR, 2004) specify any distance limit, such as 40 km. If a 150-km perimeter were to be considered as the limit of impact, 63 Indigenous Lands and five indigenous communities outside of Indigenous Lands would be considered impacted, in addition to many non-indigenous traditional communities (Fig. 1). In truth, the impact of the highway would affect indigenous peoples far beyond any distance limit extending laterally from Highway BR-319 because the migration of deforesters from the “arc of deforestation” can be expected to continue beyond the highway’s endpoint in Manaus to affect all areas connected to that city by road, including the state of Roraima, where large areas of indigenous land would be exposed to potential invasion.

The historical process of opening roads in the Amazon is marked by intense social conflicts involving squatters, farmers, ranchers, rubber tappers and indigenous people. The privileged status given to large business, agricultural, and industrial actors and the violence associated with rapid expansion of major development projects have resulted in the region being treated as homogeneous, disrespecting social and

ecological differences and destroying traditional knowledge and ways of life (Becker, 2001). The state of Rondônia, whose capital city (Porto Velho) is at the southern end of Highway BR-319, has received large migratory flows of small-scale farmers, cattle ranchers and illegal loggers who have deforested most of the state, including clearing in “conservation units” (protected areas for biodiversity) (Pedlowski et al., 2005). These agents can be expected to migrate northward along Highway BR-319. These are the same actors who have repeatedly opened illegal roads (starting from legal roads) and have intensified deforestation on frontiers throughout the Amazon region (Perz et al., 2007).

The Amazon is currently experiencing increased illegal deforestation and activity by land grabbers (*grileiros*), squatters, loggers and wildcat gold miners (*garimpeiros*), including those in Indigenous Lands and conservation units, resulting in increased conflicts with indigenous peoples (Hanbury, 2019). This ominous scenario has been stimulated both by the anti-environmental discourse of Brazil’s current president, who took office on 1 January 2019, and by his concrete actions in scrapping measures that had countered these ills in past presidential administrations (Ferrante and Fearnside, 2019; Valente, 2019a).

Brazil’s Federal Public Ministry (a public prosecutor’s office created by the country’s 1988 Constitution to defend the interests of the people) established a forum to discuss territorial governance in order to assist the proposed reconstruction of Highway BR-319. While most participants in the forum are potential beneficiaries directly interested in promoting the highway project, a number of individuals from research institutions and non-governmental organizations have warned of the risks the project poses to indigenous peoples and to the environment (MPAM, 2019a,b,c). A public prosecutor in the forum (Rafael da Silva Rocha) has stressed that deforestation is already taking place, that lack of governance is a current problem, and that reopening the highway could make this scenario worse (MPAM, 2019c).

An economic study by the Conservation Strategy Fund showed that the highway is economically unviable (Fleck, 2009). The highway is not a priority for the Manaus industrial center because the costs of transporting products from Manaus to São Paulo either by ship (via cabotage) or by the current system combining barges and highway transport are much cheaper than transport via Highway BR-319 (Teixeira, 2007). Highway BR-319 is the only major infrastructure project in Brazilian Amazonia that does not have a viability study to demonstrate its economic rationality. The reason for the exception was because the road is supposedly needed for “national security,” as stated on 8 June 2009 by a military representative at a meeting on licensing the BR-319 held by the Federal Public Ministry in Brasília (P.M. Fearnside, personal observation). However, on 23 February 2012 the military commander for Amazonia stated in a seminar at the National Institute for Research in Amazonia in Manaus that the highway is not a priority for national security because it is far from the country’s borders (see: Fearnside, 2012, 2015a). The highway also does not appear in the country’s list of national security priorities (PR, 2008).

On 5 December 2019 a representative of DNIT stated in a meeting at the Federal Public Ministry in Manaus that the reason for the exception was the highway’s role in bringing social services to residents along the highway route (P.M. Fearnside & L. Ferrante, personal observation). However, Highway BR-319 makes no sense as an investment to better the lives of residents of the Amazonian interior because the of the road’s high cost (roughly R\$4 billion or US\$1 billion for the road alone without addressing social and environmental impacts). The great expense means that much more social benefit could be achieved by using these funds for schools, health centers and other needed facilities throughout the region. In fact, the opportunity offered by the highway project for local politicians to gain visibility (e.g., *Diário do Amazonas*, 2015) means that project’s value as an attraction for electoral support in Manaus is the real reason for the highway (Fearnside, 2015a, 2018).

Although Brazil’s new president promised to reconstruct the highway, both during his campaign and on subsequent occasions, the

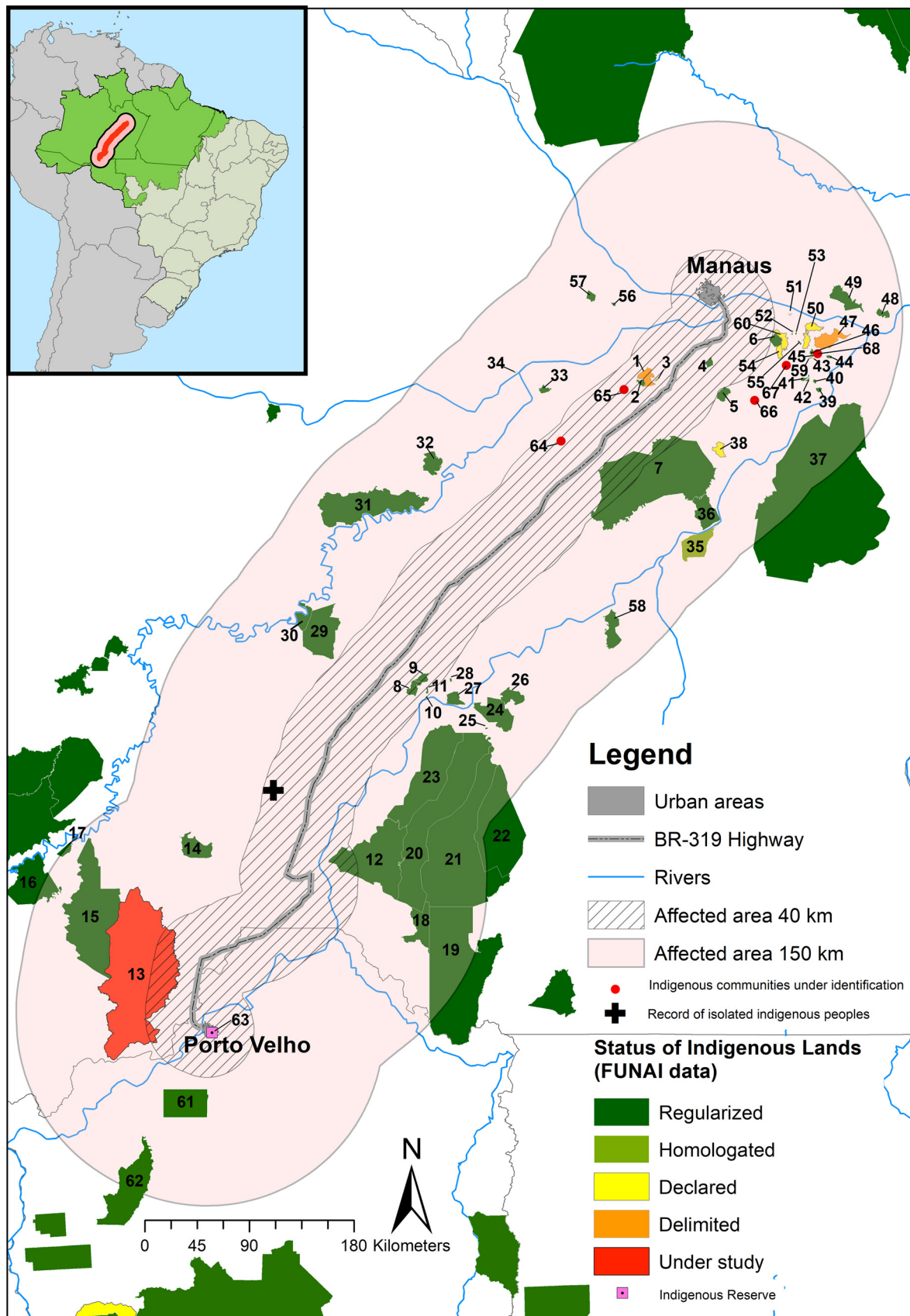


Fig. 1. Indigenous lands and communities impacted by Brazil's Highway BR-319. Indigenous lands within the 40-km perimeter total 13, while those within 150 km total 63. None have been consulted, and the government's plan is to consult only five. Numbers in the figure correspond to indigenous lands and populations described in Table 1.

Table 1
Status of Indigenous lands and populations.

Reference number in the map	Name of Indigenous Land	Ethnic group	Municipality	Brazilian state	Status of Indigenous Lands	Population
1	Vista Alegre	Mura	Manaquiri	AM	Delimited	117
2	Fortaleza do Castanho	Mura	Manaquiri	AM	Regularized	83
3	Tabocal	Mura	Careiro	AM	Homologated	16
4	Lago do Marinheiro	Mura	Careiro	AM	Regularized	75
5	Rio Jumas	Mura	Careiro	AM	Regularized	211
6	Gavião	Mura	Careiro da Varzea	AM	Regularized	115
7	Cunhã-Sapucaia	Mura	Borba, Autazes	AM	Regularized	587
8	Ariramba	Mura	Manicoré	AM	Regularized	73
9	Lago Capanã	Mura	Manicoré	AM	Regularized	197
10	Ariramba	Mura	Manicoré	AM	Regularized	–
11	Ariramba	Mura	Manicoré	AM	Regularized	–
12	Nove de Janeiro	Diahui	Humaitá	AM	Regularized	206
13	Jacareúba Katawixi	–	Canutama, Labrea	AM	Under study	–
14	Juma	Juma	Canutama	AM	Regularized	15
15	Caititu	Apurinã	Labrea	AM	Regularized	1022
16	Paumari do Lago Marahã	Apurinã	Labrea	AM	Regularized	1076
17	Paumari do Rio Ituxi	Paumari	Labrea	AM	Regularized	235
18	Diahui	Diahui	Humaitá	AM	Regularized	115
19	Tenharim Marmelos	Tenharim	Humaitá, Manicoré	AM	Regularized	535
20	Pirahã	Mura-Pirahã	Humaitá	AM	Regularized	592
21	Tenharim Marmelos	Tenharim	Humaitá, Manicoré	AM	Regularized	393
22	Sepoti	Tenharim	Humaitá, Manicoré	AM	Regularized	110
23	Ipixuna	Diahui	Humaitá	AM	Regularized	64
24	Torá	Torá, Apurinã	Humaitá, Manicoré	AM	Regularized	326
25	Sepoti	Tenharim	Humaitá, Manicoré	AM	Regularized	–
26	Rio Manicoré	Mura	Manicoré	AM	Regularized	221
27	Lago Jauari	Mura	Manicoré	AM	Regularized	187
28	Lago Capanã	Mura	Manicoré	AM	Regularized	–
29	Apurinã do Igarapé Tauamirim	Apurinã	Tapaun	AM	Regularized	295
30	Apurinã do Igarapé São João	Apurinã	Tapaun	AM	Regularized	142
31	Itixi Mitari	Apurinã	Tapaun, Anori, Beruri	AM	Regularized	311
32	Lago Aiapuá	Mura	Anori, Beruri	AM	Regularized	623
33	Lago do Beruri	Tikuna	Beruri	AM	Regularized	26
34	Ilha do Camaleão	Tikuna	Anamã	AM	Regularized	565
35	Setemã	Mura	Novo Aripuanã, Borba	AM	Homologated	198
36	Arary	Mura	Novo Aripuanã, Borba	AM	Regularized	200
37	Coatá-Laranjal	Munduruku	Borba	AM	Regularized	2484
38	Lago do Limão	Mura	Borba	AM	Declared	115
39	Miguel/Josefa	Mura	Autazes	AM	Regularized	448
40	Padre	Mura	Autazes	AM	Regularized	22
41	Trincheira	Mura	Autazes	AM	Regularized	251
42	São Pedro	Mura	Autazes	AM	Regularized	93
43	Itaitinga	Mura	Autazes	AM	Regularized	25
44	Paracuhuba	Mura	Autazes	AM	Regularized	134
45	Recreio/São Felix	Mura	Autazes	AM	Regularized	172
46	Cuía	Mura	Autazes	AM	Regularized	77
47	Jauary	Mura	Autazes	AM	Delimited	337
48	Paraná do Arauató	Mura	Itacotiara	AM	Regularized	103
49	Rio Urubu	Mura	Itacotiara	AM	Regularized	378
50	Murutinga/Tracajá	Mura	Autazes	AM	Declared	1534
51	Boa Vista	Mura	Careiro da Varzea	AM	Regularized	54
52	Apipica	Mura	Careiro da Varzea	AM	Regularized	–
53	Apipica	Mura	Careiro da Varzea	AM	Regularized	488
54	Ponciano	Mura	Careiro da Varzea	AM	Declared	225
55	Patauí	Mura	Autazes	AM	Regularized	47
56	Fortaleza do Patauí	Apurinã	Manacapuru	AM	Regularized	22
57	Jatuarana	Apurinã	Manacapuru	AM	Regularized	65
58	Pinatuba	Mura	Manicoré	AM	Regularized	608
59	Natal/Felicidade	Mura	Autazes	AM	Regularized	118
60	Sissaima	Mura	Careiro da Varzea	AM	Declared	296
61	Karitiana	Karitiana	Porto Velho	RO	Regularized	333
62	Karipuna	Karipuna	Porto Velho, Nova Mamoré	RO	Regularized	55
63	Reserva Indígena Cassupá	–	Porto Velho	RO	Regularized	149
64	Lago do Barrigudo	–	Manaquiri	AM	Under identification	25
65	Igarapé do Paiol	–	Manaquiri	AM	Under identification	34
66	Maratuba	–	Careiro	AM	Under identification	45
67	Capivara	–	Autazes	AM	Under identification	247
68	Guapenu	–	Autazes	AM	Under identification	527

highway is not included in the budget for 2020, once again raising the question of the project's economic viability. The Brazilian government's dramatic budgetary limitations mean that any proposed mitigating measures beyond building the road itself are merely empty promises.

Given the lack of compliance with current socio-environmental requirements, it is clear that the damage the highway would inflict on indigenous peoples and traditional communities would not be mitigated. On 18 January 2020 indigenous leaders from the Apurinã and

Mura ethnic groups formally asserted their right to consultation as established by ILO Convention 169 as part of a denunciation they submitted to the Federal Public Ministry listing impacts that the highway will have or is already having on their lands (Gomes et al., 2020).

Projections of deforestation provoked by reconstructing Highway BR-319 (dos Santos Júnior et al., 2018) indicate a real possibility of deforestation beyond the 40-km area, which justifies the need for consultation within a 150-km perimeter. No consultation has so far been done with any Indigenous group or village, including those in the five Indigenous Lands that the government says it plans to consult. The absence of consultation would endanger the well-being and survival of peoples affected by Highway BR-319 because highways stimulate land conflicts in Amazonia. This threat is made even more urgent by measures that Brazil's new president has stated to be his priorities, including opening Indigenous Lands to mining (Phillips, 2018), suspending demarcation of any additional indigenous lands (Putti, 2019) and allowing Indigenous peoples to lease their lands to agribusiness (Gullino and Shinohara, 2019). On 5 February 2020, Brazil's president submitted a proposed law to the National Congress that would open up Indigenous Lands for non-Indians to implant mining, oil and gas extraction, cattle ranching and plantations of monoculture crops such as soybeans and sugarcane (Congresso Nacional, 2020), ignoring the need for prior consultation as established by ILO Convention 169. Invasions of Indigenous Lands have been reported to have surged since President Bolsonaro took office in January 2019 (Valente, 2019a). The "Civil House" in Brazil's presidential office has reportedly established a working group to "study" how Brazil's adherence to ILO-169 and its requirement for consultation could be rescinded altogether (Valente, 2019b).

FUNAI, which is the agency charged with protecting indigenous peoples, has been successively weakened by budget cuts and reductions of staff, especially skilled "indigenists," and has been demoralized by being forced to allow developments desired by more powerful parts of the government (e.g., Fearnside, 2015b). The current presidential administration has worsened this situation dramatically. From January to July 2019 FUNAI was headed by a retired army coronel who, prior to his appointment, had been in charge of the indigenous affairs office of the Belo Sun mining company working to facilitate approval of a gold mine that would have devastating consequences for two Indigenous Lands downstream of the Belo Monte Dam (Ferrante and Fearnside, 2019). Since July 2019 the agency has been headed by an official from the Federal Police (FUNAI, 2019), and FUNAI's remaining indigenists have now been replaced by appointees from the military (Leitão, 2019). An Army coronel has been appointed as the regional superintendent of DNIT in Amazonas state (Fernando, 2019), and in July 2019 the same coronel was also put in charge of the DNIT superintendency for the state of Rondônia, making him responsible for the BR-319 construction project at both ends of the highway (Boni, 2019). The "Council of Amazonia" announced in the aftermath of Brazil's 2019 fires was decreed on 11 February 2020 with the purpose of "coordinating and integrating government actions related to Legal Amazonia," including actions "related to regional infrastructure" (PR, 2020). The council is headed by General Hamilton Mourão, Brazil's vice president, who is known for his promise to eat the beret from his military uniform if Highway BR-319 is not completed within the remaining three years of President Bolsonaro's administration (Amazonas em Tempo, 2020). All of these developments decrease the chances that Highway BR-319's impacts on indigenous peoples would be mitigated.

We note that Brazil has a long history of having many laws and decrees that are, in practice, not enforced—a tradition dating back to the beginning of Brazil's history as a Portuguese colony 500 years ago (Rosenn, 1971). In the case of the legally required consultation with indigenous peoples, the law has repeatedly been ignored and the Federal Public Ministry's efforts to enforce compliance have failed. The Belo Monte and São Manoel Dams stand as concrete monuments to this failure (Fearnside, 2017b, c,d). The BR-319 case is a current test of the

country's legal system with wide-ranging implications not only because of the extraordinarily severe impacts of this highway project but also because of the many impacts of future Amazonian highways, dams and other developments.

Consultation under ILO Convention 169 must provide "free, prior and informed consent." The "prior" requirement refers to consultation and resulting consent occurring before the decision is made to build an infrastructure project, and the consent of the affected peoples must be part of the decision on the existence of the project itself, not merely an addition of requirements for mitigation measures. In other words, the affected peoples have the right to say "no" (e.g., Esteves et al., 2012). Plans by DNIT to have the consultation proceeding over the coming three years, only to be finalized before the inauguration of the completed highway, do not represent prior consent. The "informed" requirement means that each consultation must be done in the community's own language in accord with a protocol developed by the community. Although consultations of this type have not yet been carried out, a protocol for consultation has been developed in the case of a proposed potassium mine located within 150-km of Highway BR-319 (Borges et al., 2019, 2020). The mine affects communities of the Mura people, an ethnic group also affected by BR-319. Note that consultations are required to be done for each community, not jointly for entire ethnic groups.

How a community's options are presented is critical. In addition to making clear the option of saying "no," the option of saying "yes, but only if certain conditions are met" must be realistically explained. A list of governance and assistance measures can be expected to result in this case, and the most likely outcome is for these kinds of demands to be converted into "preconditions" (*condicionantes*) attached to the environmental licenses. Unfortunately, the value of these preconditions has deteriorated greatly. Brazil's environmental licensing process involves three licenses (preliminary, installation and operation), each of which was traditionally granted only after all requirements for the previous step had been met. Beginning in 2002 the practice of granting licenses for the first two steps with attached "preconditions" allowed projects to go forward before all requirements had been met. In 2015 the Belo Monte Dam set a dangerous precedent by allowing the final operation license to be granted without fulfilling all requirements. The final license had 40 preconditions from the Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA) and 26 from FUNAI, and subsequent history has shown that few of these requirements were ever met (see Fearnside, 2017b, c; Magalhães and da Cunha, 2017; MPF, 2018). In the case of the BR-319, even though obtaining environmental approval of this project is currently a top political priority at all levels of government, after years of discussion the different agencies have been unable to agree as to who would pay for a simple checkpoint at each end of the highway's central segment, as demanded by IBAMA. It is clear that once the highway is completed the willingness to pay for an extensive program of governance and protection of Indigenous Lands would evaporate altogether.

Although consultation does not guarantee that all problems will be solved, such as halting unfavorable land use change, if Highway BR-319 is reconstructed without consulting all affected indigenous peoples it will serve as a dangerous precedent for future projects. For example, the current presidential administration has announced the high-priority Barão do Rio Branco project, which includes a highway that would snake northward from the Amazon River to the border with Suriname through four conservation units, two Indigenous Lands and four *Quilombola* Lands (areas of traditional communities of the descendants of escaped African slaves, who have the same rights as indigenous peoples) (Wenzel, 2020). Will these people be consulted, or will a precedent created by Highway BR-319 allow them to be ignored? Consultation of indigenous peoples is both a right of these peoples and a pathway for leading the Amazon towards sustainability.

Author contributions

L.F. designed the research, data collection and conducted GIS analysis; L.F., M.G. and P.M.F. wrote and revised the manuscript.

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Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at :<https://doi.org/10.1016/j.landusepol.2020.104548>.

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