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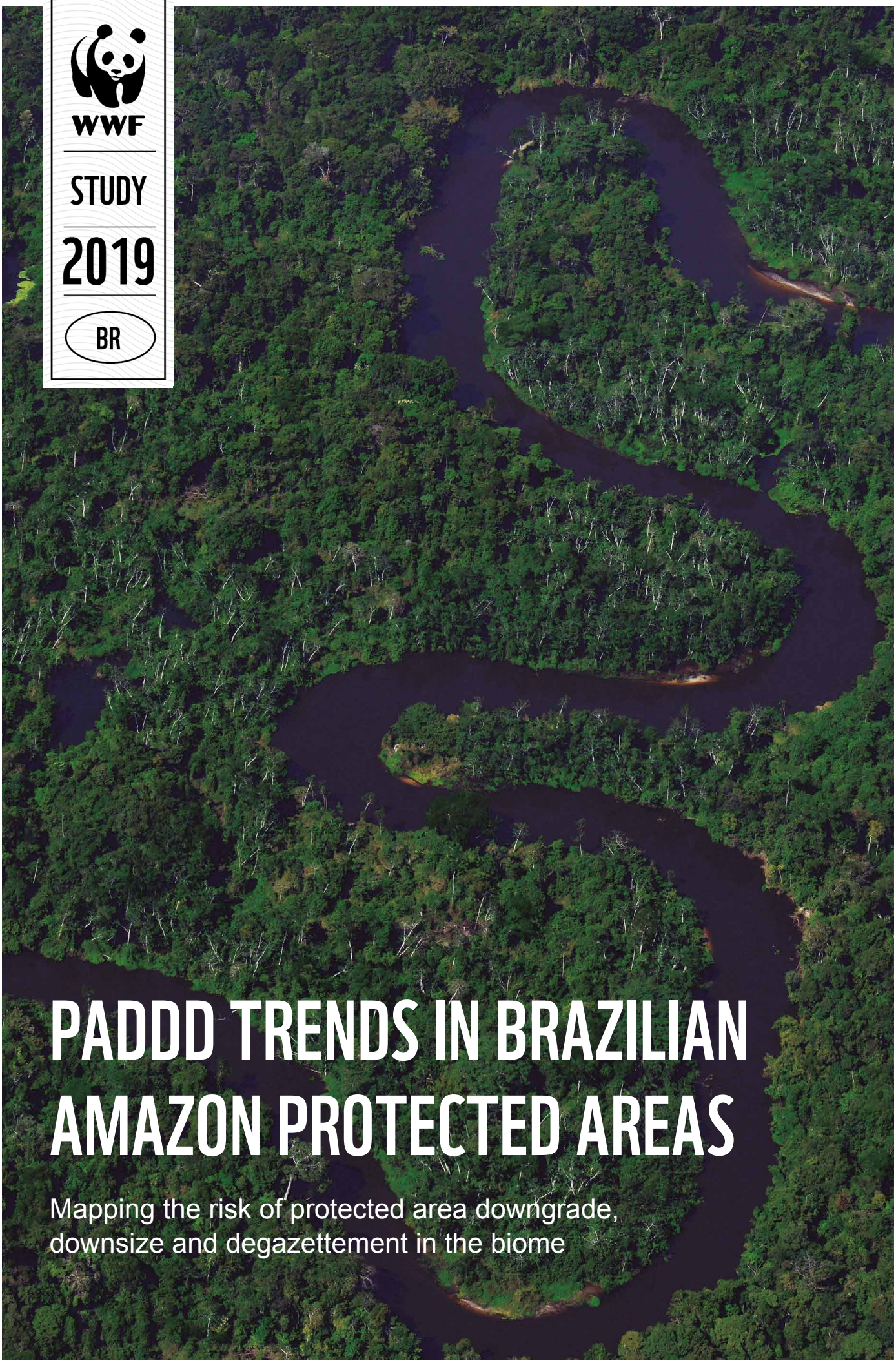

PADDD TRENDS IN BRAZILIAN AMAZON PROTECTED AREAS

Mapping the risk of protected area downgrade, downsize and degazettement in the biome

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LIST OF ACRONYMS

ANM: National Mining Agency

APA: Environmental Protection Area

ARIE: Area of Relevant Ecological Interest

CAR: Rural Environmental Registry

CNUC: National Register of Protected Areas

Flona: National Forest

HPP: Hydropower Plant

ICMBio: Chico Mendes Institute for Biodiversity Conservation

IP: Integral Protection

PA: Protected Area

PADDD: Protected Area Downgrade, Downsize and Degazettement

PDE: Ten-Year Energy Plan

PNL: National Logistics Plan

RAPPAM: Rapid Assessment and Prioritization of Protected Area Management

RDS: Sustainable Development Reserve

Resex: Extractive Reserve

RPPN: Private Natural Heritage Reserve

SHP: Small Hydropower Plant

Sicar: National Rural Environmental Registry System

SU: Sustainable Use

TerraClass: Project developed by Embrapa and INPE that maps the use and cover of deforested areas of the Brazilian Amazon

SUMMARY

Squirrel monkey (*Saimiri sciureus*), Mountains of Tumucumaque National Park, Amapá, Brazil.

INTRODUCTION

Protected areas feature among the most significant heritage sites in Brazil. In a survey conducted in 2018 by Ibope Inteligência and WWF-Brasil, over 90% of Brazilians reported that they would like to engage more closely with nature. Much of this engagement is by visiting national parks, state parks and other types of protected areas.

However, Brazil has experienced an unprecedented increase in PADDD events, especially since 2008. The pressure to downgrade, downsize or degazette PAs has become increasingly frequent.

A study published in 2016 in the journal Biological Conservation compiled protected area downgrading, downsizing or degazettement (PADDD) events in Brazil from 1900 to 2014. The 67 PADDD events covered an area of 110,000 square kilometers and became more frequent in the late 2000s. The main reasons for these were either power generation or rural settlements. Protected areas covering over 70,000 square kilometers have also been considered by researchers to be at risk of downsizing or degazettement.

In order to deal with future PADDD events, in addition to concerted monitoring and engagement action with the Brazilian National Congress and state assemblies, it is critical to (1) better understand the factors at play that lead to PADDD events and (2) to map future trends of this process.

In this publication, we have sought to identify the primary factors driving PADDD in Brazil and globally, and to develop indicators that could be mapped and overlap them with both state and federal PAs in the Amazon. Our assumption is that by using a “lens” to envision the future with a reasonable level of predictability and with the aid of objective indicators, we will be able to take preventive and effective action to safeguard protected areas.

Extractive Reserve of Cazumba-Iracema, Acre, Brazil.

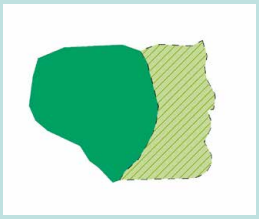
From the early 2000s to 2009, the number and coverage area of PAs in Brazil increased significantly. During this period, the country was one of the most significant contributors to an increase in the total area under official protection on the planet.

According to the National Register of Protected Areas (CNUC), these areas support the protection of 28.5% of the Amazon, 7.8% of the Caatinga vegetation, 8.7% of the Cerrado savannah, 10.3% of the Atlantic Forest, 2.8 % of the Pampa fields, 4.6% of the Pantanal wetlands and, since 2018, approximately 25% of the marine area. Currently, 18.4% of the Brazil's mainland is covered by various types of PAs.

However, PAs are under pressure from the agribusiness and mining sectors, and from land grabbers and their agents in the Legislative Branch. Time and again PAs have been targeted for downgrading, downsizing and degazettement.

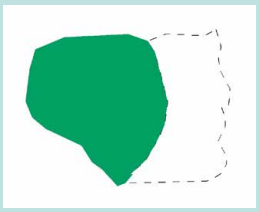
Protected Area Downgrading, Downsizing, and Degazettement (PADDD) events are a global phenomenon that threaten PAs across all continents.

BOX 1. Types of PADDD events



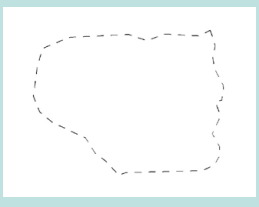
DOWNGRADING

A decrease in legal restrictions governing human activities within a protected area.



DOWNSIZING

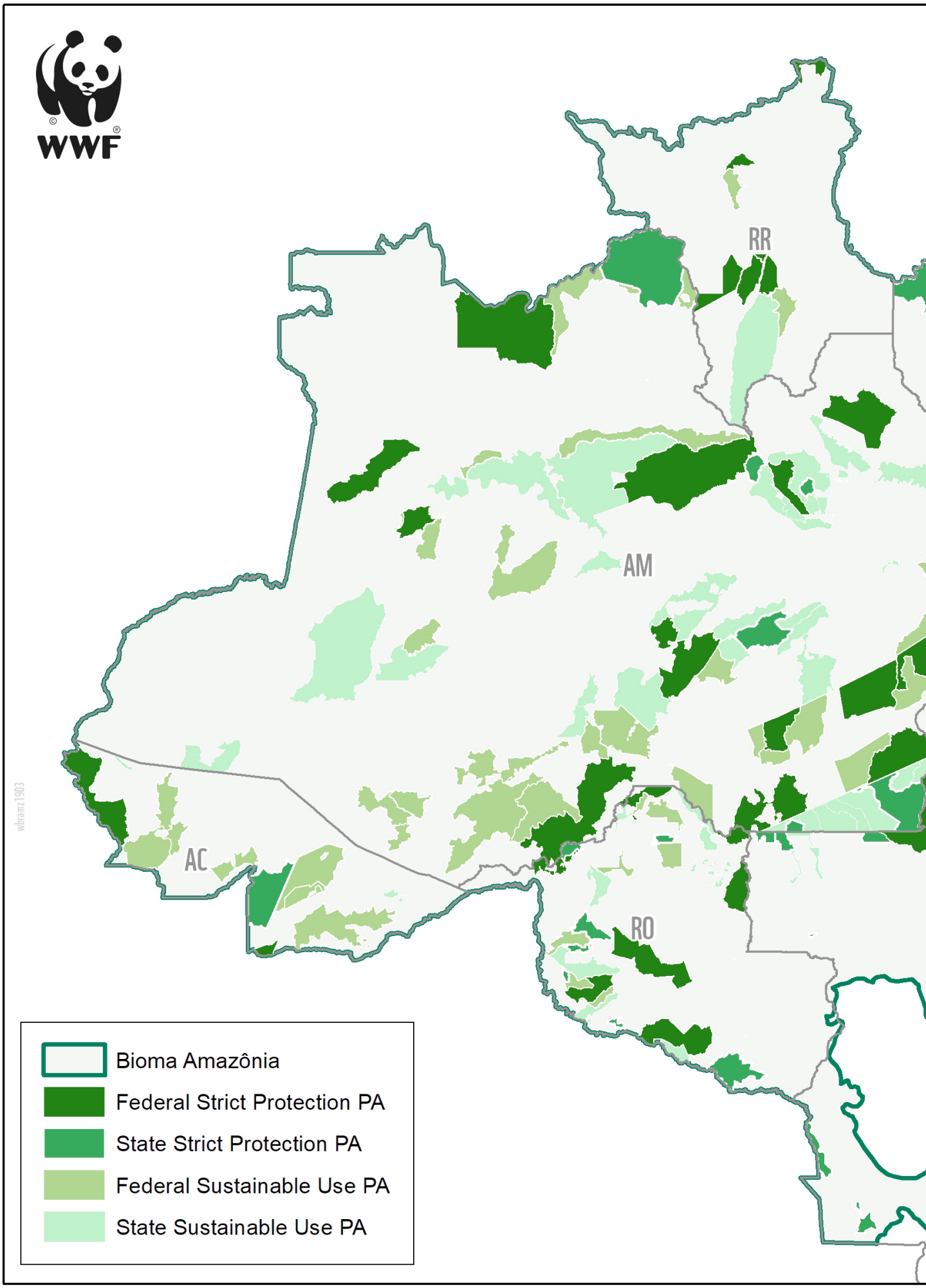
A decrease in size of a protected areas through a legal boundary change.

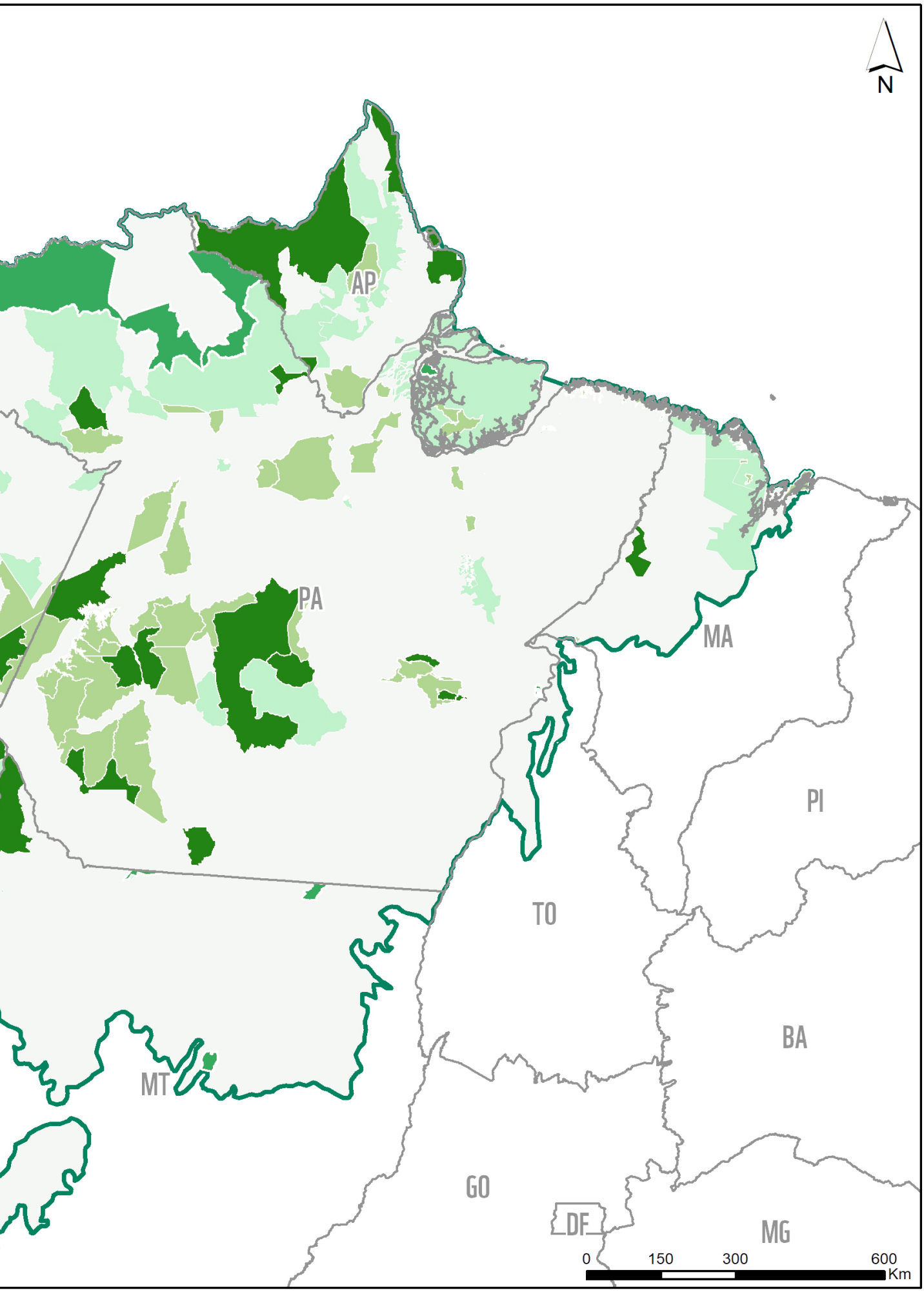


DEGAZETTEMENT

A loss of legal protection to the entire protected area.

Source: WWF-Brasil, based on http://www.padddtracker.org/


RR
AM
AC
RO
Bioma Amazônia
Federal Strict Protection PA
State Strict Protection PA
Federal Sustainable Use PA
State Sustainable Use PA



Protected areas in the Brazilian Amazon.

In this publication, we have sought to identify the primary factors driving PADDD in Brazil and globally, and to develop indicators that could be mapped and overlap them with both state and federal PAs in the Amazon. Our assumption is that by using a "lens" to envision the future with a reasonable level of predictability and with the aid of objective indicators, we will be able to take preventive and effective action to safeguard protected areas.

An assessment of PADDD processes

The 316 federal and state PAs in the Brazilian Amazon cover approximately 1.4 million square kilometers. These include 234 Sustainable Use PAs and 82 Strict Protection PAs, which cover 63.5% and 36.5% of the area of these PAs, respectively.

According to the PADDDtracker[1] platform, 46 PADDD events occurred in the Amazon (1988-2018), totaling 14 degazettements, five downgrades and 27 downsizes, which had an impact on 37 PAs (27 state PAs and 10 federal PAs), especially parks (12) and forests (14).

The "lifespan" of PAs affected by PADDD events, considering the time from the creation of the areas to their downgrading, downsizing or degazettement was, on average, 15 years.

According to PADDDtracker, in addition to the 46 cases of PADDD that have taken place in the Amazon, another 29 potential PADDD events in the Amazon have been reported: 16 attempts to degazette areas; three downgrades and 10 downsizes, in a total of 23 affected PAs (three state and 20 federal PAs), especially parks (8) and forests (9). If these proposals are successful, they will cover a total area of over 190,000 square kilometers. In these cases, the average "lifespan" of PAs affected by the PADDD is eight years, from their inception to the proposed PADDD. In many of the areas, the legal PADDD instrument was proposed in the same year of its creation.

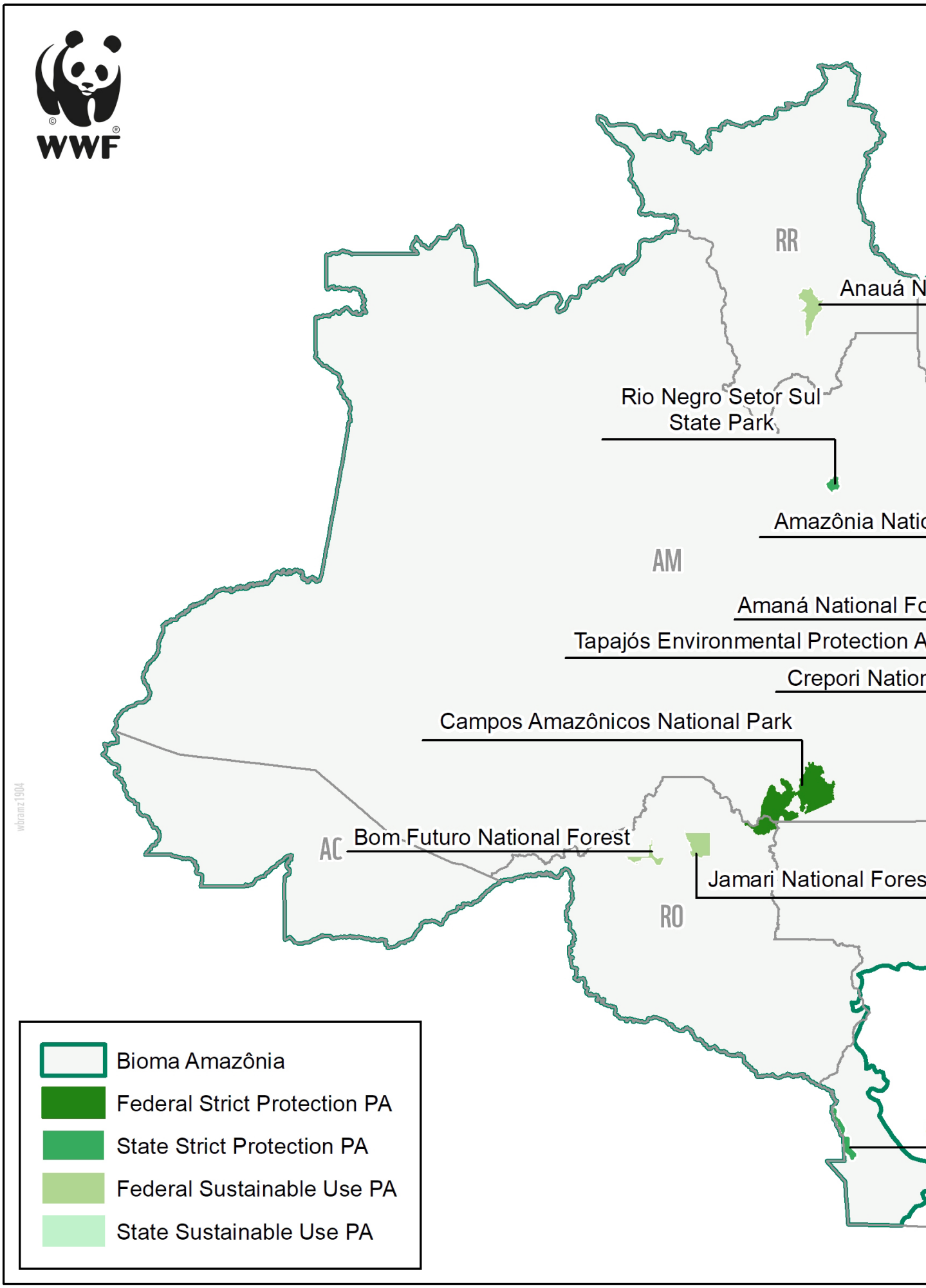
Although some of these proposed PADDD events have been formally shelved, eight of the 23 threatened PAs have had PADDD processes completed some years after the initial proposal. In other words, a proposal on the shelf does not mean it has been permanently dismissed.

1 An on-line mapping tool that documents, checks and disseminates PADDD data globally (WWF, 2013). Available in: http://www.padddtracker.org/, retrieved in March 2018.

TABLE 1. PAs with proposed PADDD events

Name of PA	Level	STATE	Type	Date of Creation	Date of Proposed PADDD
TAPAJÓS ENVIRONMENTAL PROTECTION AREA	Federal	PA	Degazettement	2006	2006
TERRA DO MEIO ECOLOGICAL STATION	Federal	PA	Downgrading	2005	2006
			Downsizing	2005	2006
AMAPÁ STATE FOREST	State	AP	Degazettement	2006	2013
ANAUÁ NATIONAL FOREST	Federal	RR	Degazettement	2005	2005
BOM FUTURO NATIONAL FOREST	Federal	RO	Degazettement	1988	2009
			Degazettement	1998	2008
			Downsizing	1988	2000
RORAIMA NATIONAL FOREST	Federal	RR	Downsizing	1989	2005
AMANÁ NATIONAL FOREST	Federal	PA	Degazettement	2006	2006
CREPORI NATIONAL FOREST	Federal	PA	Degazettement	2006	2006
JAMANXIM FNATIONAL FOREST	Federal	PA	Degazettement	2006	2008
			Degazettement	2006	2006
JAMARI NATIONAL FOREST	Federal	RO	Degazettement	1984	2008
TRAIRÃO NATIONAL FOREST	Federal	PA	Degazettement	2006	2006
RIO NEGRO SETOR SUL STATE PARK	State	AM	Downgrading	1995	2010
SERRA RICARDO FRANCO STATE PARK	State	MT	Downsizing	1997	2004
			Downsizing	1996	2002
AMAZÔNIA NATIONAL PARK	Federal	AM, PA	Downsizing	1974	2006
SERRA DO PARDO NATIONAL PARK	Federal	PA	Downsizing	2005	2006
JAMANXIM NATIONAL PARK	Federal	PA	Degazettement	2006	2006
RIO NOVO NATIONAL PARK	Federal	PA	Degazettement	2006	2006
CAMPOS AMAZÔNICOS NATIONAL PARK	Federal	AM, RO, MT	Degazettement	2006	2008
MONTANHAS DO TUMUCUMAQUE NATIONAL PARK	Federal	AP, PA	Degazettement	2002	2013
GURUPI BIOLOGICAL RESERVE	Federal	MA	Degazettement	1961	2013
NASCENTES SERRA DO CACHIMBO BIOLOGICAL RESERVE	Federal	PA	Downgrading	2005	2009
RENASCER EXTRACTIVE RESERVE	Federal	PA	Downsizing	2009	2013
RIO OURO PRETO EXTRACTIVE RESERVE	Federal	RO	Downsizing	1990	2007
			Downsizing	1990	2000

Source: WWF-Brasil, based on PADDDtracker and CNUC; retrieved in March 2018.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RR
Anauá N
Rio Negro Setor Sul
State Park
Amazônia Natio
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Amaná National Fo
Tapajós Environmental Protection A
Crepori Nation
Campos Amazônicos National Park
AC
Bom Futuro National Forest
Jamari National Fores
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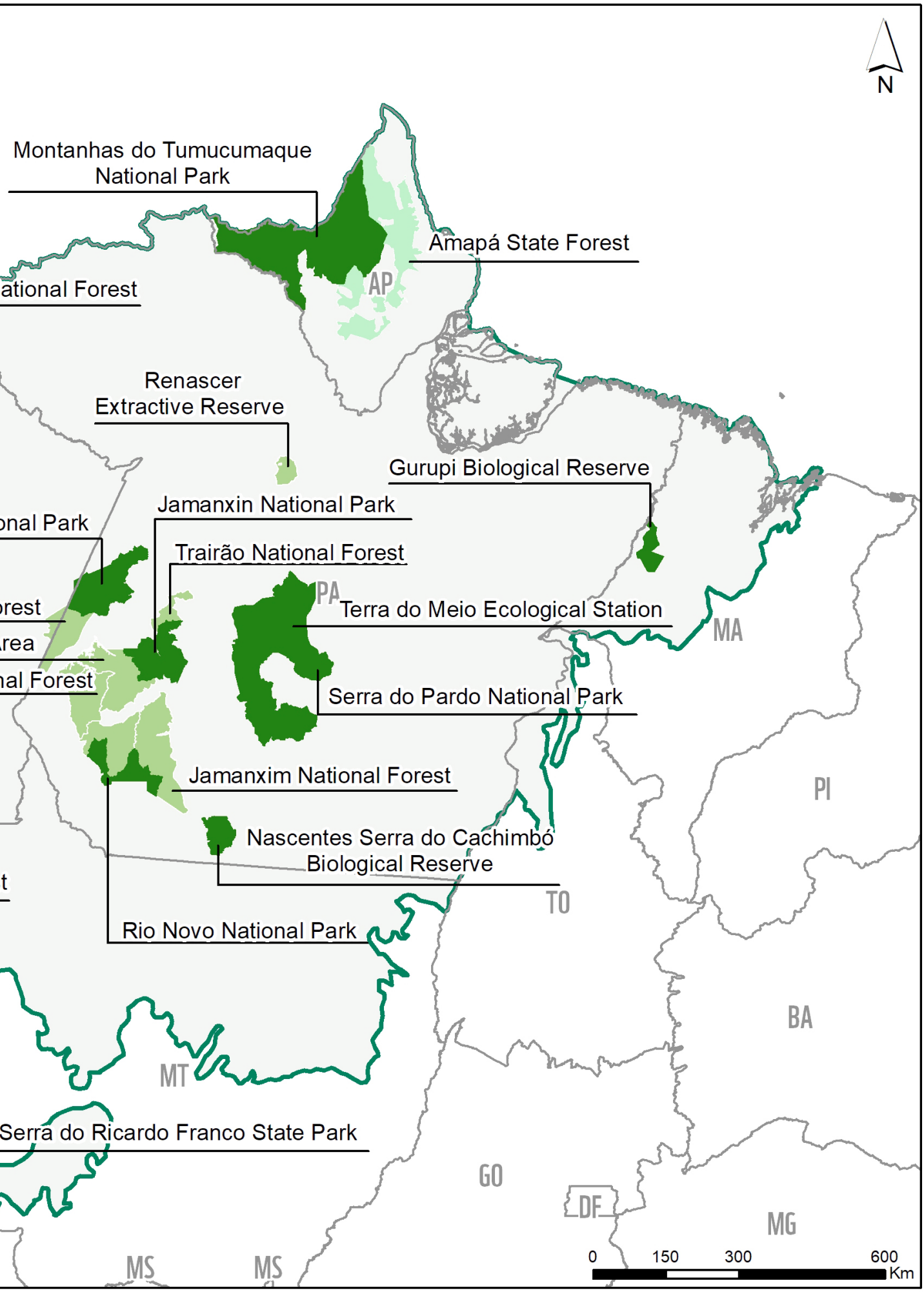
Bioma Amazônia
Federal Strict Protection PA
State Strict Protection PA
Federal Sustainable Use PA
State Sustainable Use PA



Protected areas with enacted/proposed PADDD in the Amazon biome.

Rationale of PADDD processes

The main causes reported in the PADDDtracker platform in the Amazon have been public infrastructure projects; land sought for housing in rural areas; land areas claimed for local residents; legal clearance for industrial or semi-industrial scale agricultural operations; and livelihood activities.

BOX 2. Indicators for mapping PADDD trends

Infrastructure	Transportation	PA proximity or overlap with projects to develop/expand roads, railways, hidroways, airports, ports and terminals
	Power generation	PA proximity or overlap with projects of power generation, distribution or transmission
Land use	Agriculture	Occurrence of agriculture and cattle raising activities inside or close to PAs
	Deforestation	Deforestation inside or close to PAs
	Mining	Mining claims inside or close to Pas
	Rural Registryl	Overlap of rural environmental registries with Pas
PA Effectiveness	Land tenure	PA land tenure status
	PA Consolidation	Existence of legal and administrative tools to PA management & PA management effectiveness assessment (RAPPAM)

Source: WWF-Brasil.

Infrastructure Projects

In the Brazilian Amazon, 110 PAs are threatened by infrastructure projects, totaling approximately 30 thousand square kilometers in the states of Pará and Amazonas. The potentially threatened area accounts for 2% of the territory covered by PAs in the biome.

TRANSPORTATION

In this report, the primary planning tool considered for the Brazilian logistics network was the National Logistics Plan (PNL), which was under public consultation until March 2018. Under the "2025 PNL Scenario," 101 PAs will be directly affected by the network of roads (80 PAs), railroads (seven PAs) and waterways (28 PAs) in the Amazon. Five will be affected by roads and railroads concurrently, and nine will be within the influence areas of roads and waterways.

TABLE 2. PAs potentially most affected by roads, in absolute terms (square kilometers) (2025 PNL Scenario, 2018).

Name	Level	State	Total Area (sq km)	"Area of Influence of Roads (sq km)"	"Area of Influence of Roads (%)"
Sustainable Use					
TROMBETAS STATE FOREST	State	PA	31.436	2.888,3	9%
REENTRÂNCIAS MARANHENSES ENVIRONMENTAL PROTECTION AREA	State	MA	10.854,3	2.005,3	18%
AMAPÁ STATE FOREST	State	AP	23.703,4	1.304,5	6%
BAIXADA MARANHENSE ENVIRONMENTAL PROTECTION AREA	State	MA	17.105,6	1.223,4	7%
IGAPÓ-AÇU SUSTAINABLE DEVELOPMENT RESERVE	State	AM	3.946,3	995,4	25%
TAPAJÓS NATIONAL FOREST	Federal	PA	5.306,3	947	18%
Integral Protection					
PICO DA NEBLINA NATIONAL PARK	Federal	AM	22.506,4	1.288,4	6%
MONTANHAS DO TUMUCUMAQUE NATIONAL PARK	Federal	AP, PA	38.647,4	1.092,5	3%
GRÃO PARÁ ECOLOGICAL STATION	State	PA	42.024,4	836,9	2%
JAMANXIM NATIONAL PARK	Federal	PA	8.629	804,4	9%

Source: Prepared by WWF-Brasil, based on CNUC and 2018 PNL data.

TABLE 3. PAs potentially most affected by roads, in percentage terms (%) of the total PA area (2025 PNL Scenario, 2018).

Name	Level	State	Total Area (sq km)	Area of Influence of Roads (km2)	Area of Influence of Roads (%)
Sustainable Use					
REGIÃO DO MARACANÃ ENVIRONMENTAL PROTECTION AREA	State	MA	21,9	21,9	100%
NASCENTES DO ARAGUAIA ENVIRONMENTAL PROTECTION AREA	State	TO	3	3	100%
BELÉM METROPOLITAN REGION ENVIRONMENTAL PROTECTION AREA	State	PA	56,5	49,9	88%
LAGO DO AMAPÁ ENVIRONMENTAL PROTECTION AREA	State	AC	51,8	44,3	86%
Integral Protection					
BACANGA STATE PARK	State	MA	31,7	31,7	100%
SUMAÚMA STATE PARK	State	AM	0,5	0,5	100%
UTINGA STATE PARK	State	PA	14	14	100%
METRÓPOLE DA AMAZÔNIA WILDLIFE SANCTUARY	State	PA	63,7	51,9	81%

Source: Prepared by WWF-Brasil, based on CNUC and 2018 PNL data.

TABLE 4. PAs potentially affected by railroads, in absolute terms (square kilometers) (2025 PNL Scenario, 2018).

Name	Level	State	Total Area (sq km)	Area of Influence of Railroads (km^2)	Area of Influence of Railroads (%)
Sustainable Use					
BAIXADA MARANHENSE ENVIRONMENTAL PROTECTION AREA	State	MA	17.105,6	856,8	5%
CARAJÁS NATIONAL FOREST	Federal	PA	3.912,6	206,8	5%
IGARAPÉ GELADO ENVIRONMENTAL PROTECTION AREA	Federal	PA	232,9	75,5	32%
REGIÃO DO MARACANÃ ENVIRONMENTAL PROTECTION AREA	State	MA	21,9	21,9	100%
Integral Protection					
JAMANXIM NATIONAL PARK	Federal	PA	8.629	819,2	9%

NASCENTES SERRA DO CACHIMBO BIOLOGICAL RESERVE	Federal	PA	3.422	66,3	2%
BACANGA STATE PARK	State	MA	31,7	31,7	100%

Source: Prepared by WWF-Brasil, based on CNUC and 2018 PNL data.

TABLE 5. PAs potentially affected by railroads, in percentage terms (%) of the total PA area (2025 PNL Scenario, 2018).

Name	Level	State	Total Area (sq km)	Area of Influence of Railroads (km^2)	Area of Influence of Railroads (%)
Sustainable Use					
REGIÃO DO MARACANÃ ENVIRONMENTAL PROTECTION AREA	State	MA	21,9	21,9	100%
IGARAPÉ GELADO ENVIRONMENTAL PROTECTION AREA	Federal	PA	232,9	75,5	32%
BAIXADA MARANHENSE ENVIRONMENTAL PROTECTION AREA	State	MA	17.105,6	856,8	5%
CARAJÁS NATIONAL FOREST	Federal	PA	3.912,6	206,8	5%
Integral Protection					
BACANGA STATE PARK	State	MA	31,7	31,7	100%
JAMANXIM NATIONAL PARK	Federal	PA	8.629	819,2	9%
NASCENTES SERRA DO CACHIMBO BIOLOGICAL RESERVE	Federal	PA	3.422	66,3	2%

Source: Prepared by WWF-Brasil, based on CNUC and 2018 PNL data.

TABLE 6. PAs potentially most affected by waterways, in absolute terms (square kilometers) (2025 PNL Scenario, 2018).

Name	Level	State	Total Area (sq km)	Area of Influence of Waterways (km^2)	Area of Influence of Waterways (%)
Sustainable Use					
MAMIRAUÁ SUSTAINABLE DEVELOPMENT RESERVE	State	AM	13.199,5	436,8	3,3%
LAGO DE TUCURUÍ ENVIRONMENTAL PROTECTION AREA	State	PA	5.682,1	248,1	4,4%
MARAJÓ ARCHIPELAGO ENVIRONMENTAL PROTECTION AREA	State	PA	45.164,4	172,1	0,4%

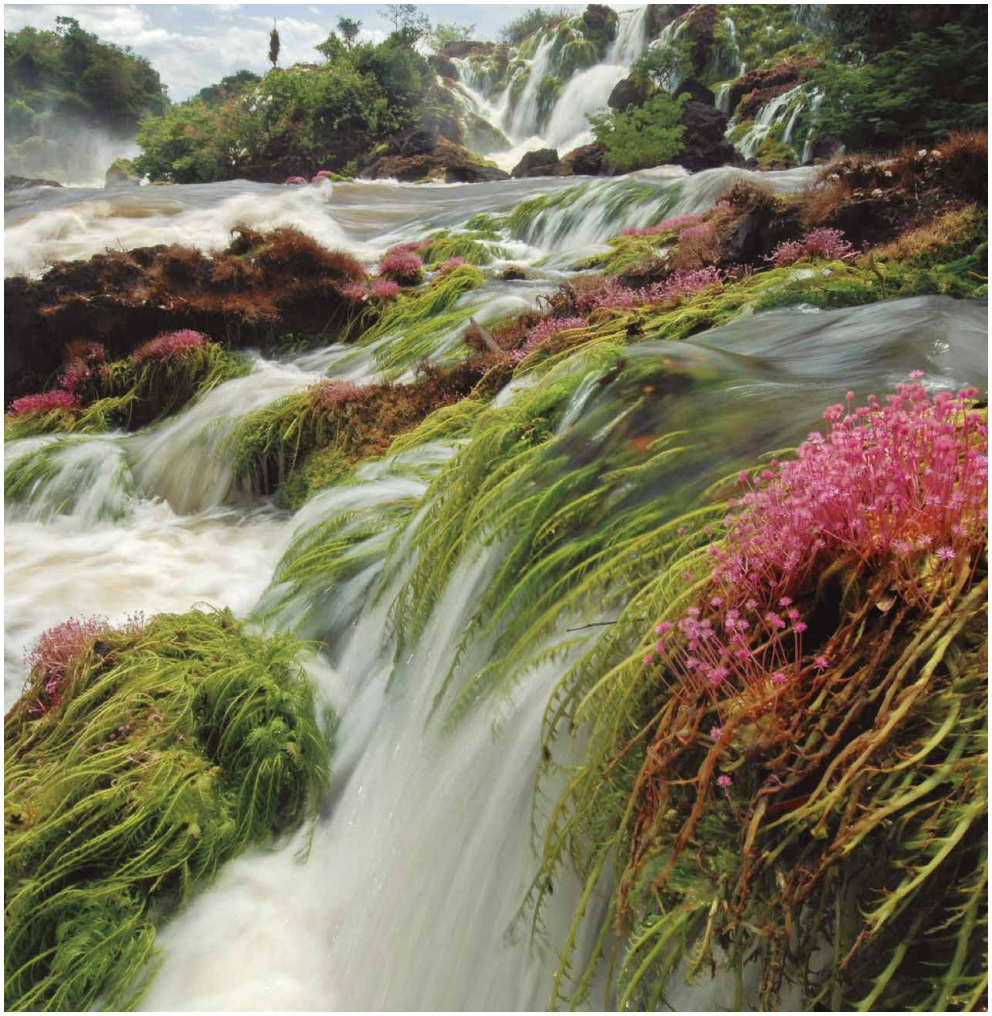
HUMAITÁ NATIONAL FOREST	Federal	AM	4.731,6	51	1,1%
GURUPÁ-MELGAÇO EXTRACTIVE RESERVE	Federal	PA	1.454,2	33,8	2,3%
PUCURUÍ - ARARÃO SUSTAINABLE DEVELOPMENT RESERVE	State	PA	291,7	19,6	6,7%
RIO MADEIRA SUSTAINABLE DEVELOPMENT RESERVE	State	AM	2.796,4	18,9	0,7%
Integral Protection					
ANAVILHANAS NATIONAL PARK	Federal	AM	3.502,4	267,6	7,6%
JAÚ NATIONAL PARK	Federal	AM	23.673,6	70	0,3%
JUTAÍ-SOLIMÕES ECOLOGICAL STATION	Federal	AM	2.895,2	24,8	0,9%

Source: Prepared by WWF-Brasil, based on CNUC and 2018 PNL data.

TABLE 7. PAs potentially most affected by waterways, in percentage terms (%) of the total PA area (2025 PNL Scenario, 2018).

Name	Level	State	Total Area (sq km)	Area of Influence of Waterways (km^2)	Area of Influence of Waterways (%)
Sustainable Use					
RIO MADEIRA ENVIRONMENTAL PROTECTION AREA	State	RO	67,6	18,3	27%
PUCURUÍ - ARARÃO SUSTAINABLE DEVELOPMENT RESERVE	State	PA	291,7	19,6	6,7%
JAVARI BURITI AREA OF RELEVANT ECOLOGICAL INTEREST	Federal	AM	131,8	8,4	6,4%
LAGO DE TUCURUÍ ENVIRONMENTAL PROTECTION AREA	State	PA	5.682,1	248,1	4,4%
MAMIRAUÁ SUSTAINABLE DEVELOPMENT RESERVE	State	AM	13.199,5	436,8	3,3%
GURUPÁ-MELGAÇO EXTRACTIVE RESERVE	Federal	PA	1.454,2	33,8	2,3%
HUMAITÁ NATIONAL FOREST	Federal	AM	4.731,6	51	1,1%
IPAÚ-ANILZINHO EXTRACTIVE RESERVE	Federal	PA	558,4	4,2	0,8%
Integral Protection					
ANAVILHANAS NATIONAL PARK	Federal	AM	3.502,4	267,6	7,6%
JUTAÍ-SOLIMÕES ECOLOGICAL STATION	Federal	AM	2.895,2	24,8	0,9%

Source: Prepared by WWF-Brasil, based on CNUC and 2018 PNL data.



Desespero Falls (*Cachoeira do Desespero*), Mountains of Tumucumaque National Park, Amapá, Brazil.

POWER GENERATION

The Ten-Year Energy Plan 2026 (PDE 2026) shows the prospects for expansion of the energy sector from the perspective of the government over a ten-year period. According to the 2026 PDE, power generation projects in the Amazon will have a direct impact on 14 PAs and their area of influence: two are related to small hydropower plants (SHP) and 12 are related to planned hydropower plants (HPP).

TABLE 8. PAs potentially most affected by HPP and SHP projects, in absolute terms (square kilometers) (2025 PNL Scenario, 2026).

Name	Level	State	Total Area (sq km)	Area Affected by an HPP (sq km)	Area Affected by an SHP (sq km)	Area Affected by an HPP ou SHP (sq km)
Sustainable Use						
ITAITUBA II NATIONAL FOREST	Federal	PA	3.977,6	292,3	–	7,3%
RIO PRETO-JACUNDÁ EXTRACTIVE RESERVE	State	RO	1.013,6	103,3	–	10,2%
ITAITUBA I NATIONAL FOREST	Federal	PA	2.131,1	55	–	2,6%
IQUIRI NATIONAL FOREST	Federal	AM	14.726,1	–	40,6	0,3%
ARIPUANÃ NATIONAL FOREST	Federal	AM	7.513	25,1	–	0,3%
FLORESTA NACIONAL DE TAPAJÓS	Federal	PA	5.306,3	947	18%	
Integral Protection						
JAMANXIM NATIONAL PARK	Federal	PA	8.629	598,8	–	6,9%
JARUENA NATIONAL PARK	Federal	AM, MT	19.580,2	308,4	–	1,6%
CAMPOS AMAZÔNICOS NATIONAL PARK	Federal	AM, RO, MT	9.613,3	271	–	2,8%
IGARAPÉS DO JARUENA STATE PARK	State	MT	2.238,9	218,8	–	9,8%
AMAZÔNIA NATIONAL PARK	Federal	AM, PA	10.662,1	44	–	0,4%

Source: Prepared by WWF-Brasil, based on CNUC and 2026 PDE data.

According to the 2026 PDE, in the northern region of Brazil, feasibility studies are underway for the Arco Norte Project, a transmission system of approximately 1,900 km in length, designed to transfer the power generated by new hydropower plant projects between Brazil, Guyana, Suriname, and French Guiana. In 2013, Brazil and Guyana also set up a committee to conduct studies for the construction of two hydropower plants in Guyana along the Mazaruni River, with a power generation potential of approximately 4.5 GW. The surplus energy from these projects could be exported to Brazil. These projects could be financed through international treaties between Brazil and neighboring countries.

Infrastructure projects could also give way to new threats to conservation, such as deforestation, increased poaching, increased illegal settlements, etc. In addition,

during the discussion of PADDD proposals for infrastructure projects, other PAs are added to these processes as a currency of exchange where there are diffuse economic and/or political interests.

Land Use

This report did not intend to identify future trends in land use change in the relevant biome. However, it does identify those PAs that are directly threatened by deforestation and/or some of the economic activities mentioned above.

DEFORESTATION

According to Prodes annual deforestation monitoring data from 2017, 18 PAs had more than 50% of their area already converted. The table below shows that there is a concentration in state level Sustainable Use PAs.

TABLE 9.The most deforested PAs, in percentage terms (%) of the total PA area, 2017.

Name	Level	State	Total Area (sq km)	Deforested Area (sq km)	Deforested Area (%)
Sustainable Use					
QUILOMBO DO FRECHAL EXTRACTIVE RESERVE	Federal	MA	93,4	93,4	100%
REGIÃO DO MARACANÃ ENVIRONMENTAL PROTECTION AREA	State	MA	21,9	18,5	84,3%
ARARAS SUSTAINABLE INCOME STATE FOREST	State	RO	10,9	8,8	80,6%
PERIQUITO SUSTAINABLE INCOME STATE FOREST	State	RO	11,4	8,6	75,3%
MUTUM SUSTAINABLE INCOME STATE FOREST	State	RO	108,6	80,2	73,9%
IGARAPÉ SÃO FRANCISCO ENVIRONMENTAL PROTECTION AREA	State	AC	300,2	213	71%
CIRIACO EXTRACTIVE RESERVE	Federal	MA	81,1	57,4	70,8%
LAGO DO AMAPÁ ENVIRONMENTAL PROTECTION AREA	State	AC	51,8	34,7	66,9%

Source: Prepared by WWF-Brasil, based on CNUC and Prodes data.

TABLE 10. The ten most deforested PAs, in absolute terms (square kilometers), 2017.

Name	Level	State	Total Area (sq km)	Deforested Area (sq km)	Deforested Area (%)
Sustainable Use					
BAIXADA MARANHENSE ENVIRONMENTAL PROTECTION AREA	State	MA	17.105,6	8.348,2	48,8%
REENTRÂNCIAS MARANHENSES ENVIRONMENTAL PROTECTION AREA	State	MA	10.854	6.666,1	61,4%
TRIUNFO DO XINGU ENVIRONMENTAL PROTECTION AREA	State	PA	16.796,5	5.392,2	32,1%
LAGO DE TUCURUÍ ENVIRONMENTAL PROTECTION AREA	State	PA	5.682,1	1.812,6	31,9%
JAMANXIM NATIONAL FOREST	Federal	PA	13.017	1.619,1	12,4%
MARAJÓ ARCHIPELAGO ENVIRONMENTAL PROTECTION AREA	State	PA	45.164,4	1.495,4	3,3%
JACI-PARANÁ EXTRACTIVE RESERVE	State	RO	1.974,4	984,7	49,9%
TAPAJÓS ENVIRONMENTAL PROTECTION AREA	Federal	PA	20.403,3	934,6	4,6%
MARGEM DIREITA DO RIO NEGRO ENVIRONMENTAL PROTECTION AREA	State	AM	4.617,5	690,4	15%
Integral Protection					
GURUPI EXTRACTIVE RESERVE	Federal	MA	2.712	798,7	29,4%

Source: Prepared by WWF-Brasil, based on CNUC and Prodes data.

AGRICULTURAL ACTIVITIES

In order to assess land use for "grazing" in the Amazon biome, we used data available from TerraClass (2014). While agricultural activities are allowed in the management plans of PAs such as Environmental Protection Areas (APA) and Areas of Relevant Ecological Interest (ARIE), the high frequency and intensity of these activities within protected lands is a major driver of deforestation and loss of conservation value, which could lead to new PADDD events.

This is why all types of PAs in the Amazon have been considered. As a result, considering the percentage of grazing lands in relation to the total area of individual PAs, the increased number of grazing activities within PAs refers primarily to Sustainable Use PAs, especially APAs and state forests across the states of Rondônia, Acre and Pará.

TABLE 11. The ten PAs most occupied by grazing lands, in percentage terms (%) of the total PA area (2025 PNL Scenario, 2014).

Name	Level	State	Total Area (sq km)	Grazing Area (sq km)	Grazing Area (%)
Sustainable Use					
IGARAPÉ SÃO FRANCISCO ENVIRONMENTAL PROTECTION AREA	State	AC	300,2	165,7	55,2%
LAGO DE SANTA ISABEL ENVIRONMENTAL PROTECTION AREA	State	TO	185,9	81,6	43,9%
SÃO GERALDO DO ARAGUAIA ENVIRONMENTAL PROTECTION AREA	State	PA	267	104,6	39,2%
ARARAS SUSTAINABLE INCOME STATE FOREST	State	RO	10,9	4	36,8%
GAVIÃO SUSTAINABLE INCOME STATE FOREST	State	RO	4,3	1,3	30,6%
LAGO DO AMAPÁ ENVIRONMENTAL PROTECTION AREA	State	AC	51,8	15,7	30,4%
MUTUM SUSTAINABLE INCOME STATE FOREST	State	RO	108,6	30,4	28%
NOVA AURORA PRIVATE NATURAL HERITAGE RESERVE	Federal	RO	0,2	0	25,5%
SERINGAL NOVA ESPERA AREA OF RELEVANT ECOLOGICAL INTEREST	Federal	AC	25,7	5,3	20,6%
IGARAPÉ GELADO ENVIRONMENTAL PROTECTION AREA	Federal	PA	232,9	43,6	18,7%

Source: Prepared by WWF-Brasil, based on CNUC and TerraClass data.

In absolute terms, the extent of grazing areas within the ten most affected PAs highlights a particularly important aspect – it includes PAs proposed or enacted PADDD in the past, including Strict Protection PAs such as the Terra do Meio Ecological Station and the Ricardo Franco State Park.

TABLE 12. PAs most occupied by grazing lands, in absolute terms (square kilometers), including all types of management, 2014.

Name	Level	State	Total Area (sq km)	Grazing Area (sq km)	Grazing Area (%)
Sustainable Use					
BAIXADA MARANHENSE ENVIRONMENTAL PROTECTION AREA	State	MA	17.105,6	3.188,9	18,6%
TRIUNFO DO XINGU ENVIRONMENTAL PROTECTION AREA	State	PA	16.796,5	3.080,3	18,3%
REENTRÂNCIAS MARANHENSES ENVIRONMENTAL PROTECTION AREA	State	MA	10.854,3	892,6	8,2%
JAMANXIM NATIONAL FOREST	Federal	PA	13.017,0	857,6	6,6%
LAGO DE TUCURUÍ ENVIRONMENTAL PROTECTION AREA	State	PA	5.682,1	746,6	13,1%
JACI-PARANÁ EXTRACTIVE RESERVE	State	RO	1.974,4	332,9	16,9%
TAPAJÓS ENVIRONMENTAL PROTECTION AREA	Federal	PA	20.403,3	214,3	1,1%
Integral Protection					
TERRA DO MEIO ECOLOGICAL STATION	Federal	PA	33.731,7	252,4	0,7%
SERRA RICARDO FRANCO STATE PARK	State	MT	1568,4	236,3	15,1%
GURUPI EXTRACTIVE RESERVE	Federal	MA	2712,0	201,5	7,4%

Source: Prepared by WWF-Brasil, based on CNUC and TerraClass data.

When PAs that allow some level of conversion (APAs and ARIEs) were excluded from the analysis, state-managed PAs are also prevalent among the top 10. In percentage terms (% of the total area), there is a prevalence of Rondônia state areas. In absolute terms, those PAs that have already been subjected to PADDD proposals feature prominently in the list.

TABLE 13. PAs most occupied by grazing lands, in percentage terms (%) of the total PA area, except for APAs and ARIEs, 2014).

Name	Level	State	Total Area (sq km)	Grazing Area (sq km)	Grazing Area (%)
Sustainable Use					
ARARAS SUSTAINABLE INCOME STATE FOREST	State	RO	10,9	4	36,8%
GAVIÃO SUSTAINABLE INCOME STATE FOREST	State	RO	4,3	1,3	30,6%
MUTUM SUSTAINABLE INCOME STATE FOREST	State	RO	108,6	30,4	28%
QUILOMBO DO FRECHAL EXTRACTIVE RESERVE	Federal	MA	93,4	17,3	18,6%
JACI-PARANÁ EXTRACTIVE RESERVE	State	RO	1.974,4	332,9	16,9%
IPÊ EXTRACTIVE RESERVE	State	RO	8,2	1,3	16,1%
GIBEÃO PRIVATE NATURAL HERITAGE RESERVE	Federal	RO	0,3	0	14,9%
Integral Protection					
SERRA RICARDO FRANCO STATE PARK	State	MT	1.568,4	236,3	15,1%
MONTE ALEGRE STATE PARK	State	PA	36,2	4,2	11,5%

Source: Prepared by WWF-Brasil, based on CNUC and TerraClass data.

Ariranha (*Pteronura brasiliensis*).

TABLE 14. PAs most occupied by grazing lands, in absolute terms (square kilometers), except for APAs and ARIEs, 2014.

Name	Level	State	Total Area (sq km)	Grazing Area (sq km)	Grazing Area (%)
Sustainable Use					
JAMANXIM NATIONAL FOREST	Level	PA	13.017	857,6	6,6%
JACI-PARANÁ EXTRACTIVE RESERVE	State	RO	1.974,4	332,9	16,9%
CHICO MENDES EXTRACTIVE RESERVE	Federal	AC	9.314,2	148,3	1,6%
ITACAIUNAS NATIONAL FOREST	Federal	PA	1.367	117,3	8,6%
RIO OURO PRETO EXTRACTIVE RESERVE	Federal	RO	2.046,3	99	4,8%
Integral Protection					
TERRA DO MEIO ECOLOGICAL STATION	Federal	PA	33.731,7	252,4	0,7%
SERRA RICARDO FRANCO STATE PARK	State	MT	1.568,4	236,3	15,1%
GURUPI EXTRACTIVE RESERVE	Federal	MA	2.712	201,5	7,4%
NASCENTES SERRA DO CACHIMBO BIOLOGICAL RESERVE	Federal	PA	3.422,0	161,1	4,7%
SERRA DO PARDO NATIONAL PARK	Federal	PA	4.454,0	156,9	3,5%

Source: Prepared by WWF-Brasil, based on CNUC and TerraClass data.

MINING

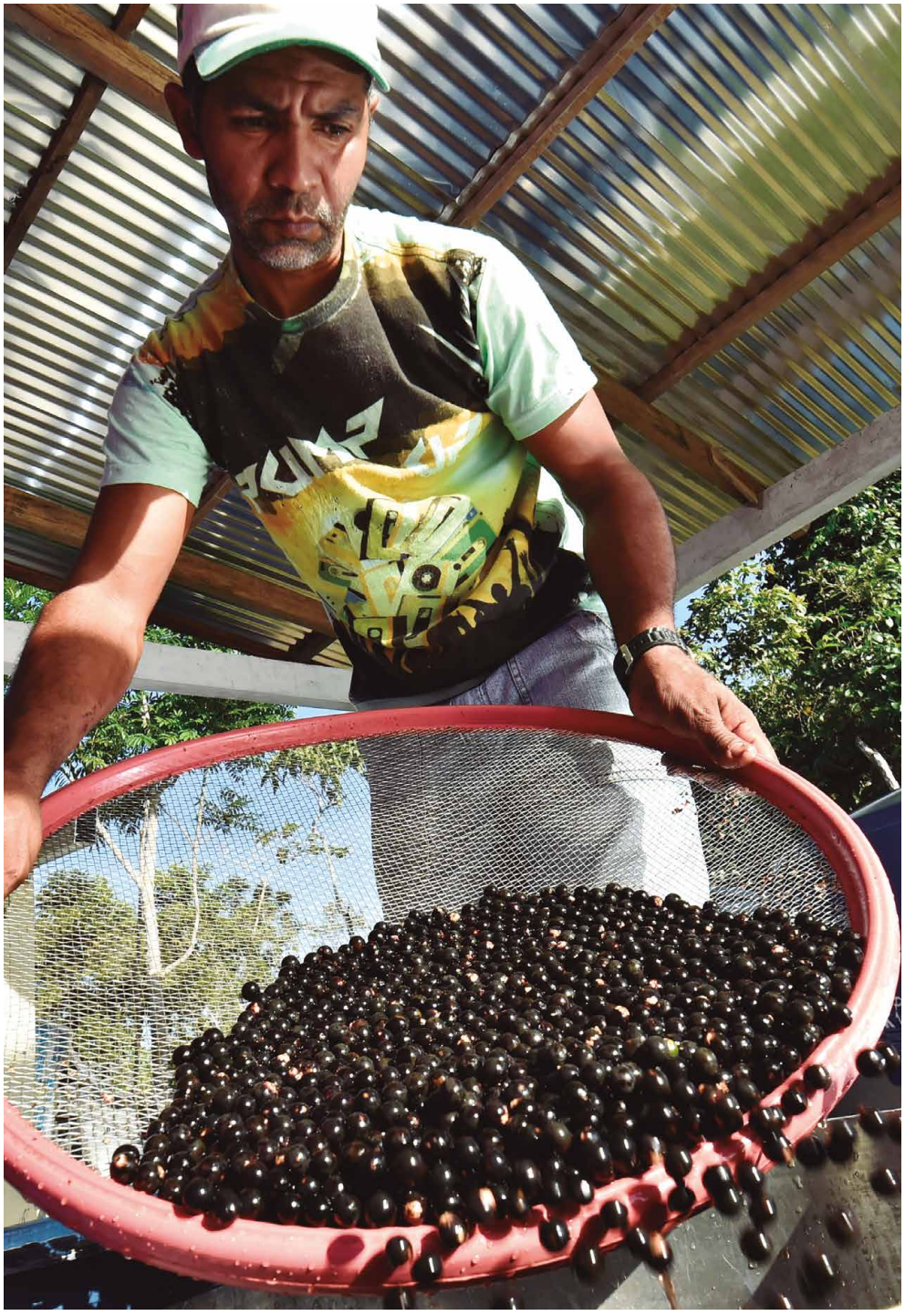
A study conducted by WWF-Brasil (2018)[2] shows that 219 PAs have some portion of their land affected by mining activities that overlap with their boundaries and are considered to be active by the National Mining Agency (ANM). Mining activities are completely forbidden in 118 out of these 219 PAs. According to the study, the Strict Protection PA that is potentially most affected by mining processes in different stages is the Monte Roraima National Park (RR), with 477 square kilometers affected, followed by the Jamanxim and Serra do Pardo National Parks, both in Pará. The rationale for ranking the PAs most threatened by mining considered the total number of hectares in the area covered by mining activities that overlapped with the PA area.

The applications for mining activities within PAs that have a ban on mining cover a total of 295 thousand hectares. Applications for mineral exploration permits cover an area of just over 90 thousand hectares. The area at risk from applications granting mineral extraction rights covers 16 thousand hectares in the Legal Amazon.

The study conducted by WWF-Brasil establishes a difference between private and federally controlled mining projects (applications that have been either suspended or

2 Mining and Protected Areas in the Brazilian Amazon (Available in Portuguese at http://bit.ly/2VoX04R)

are awaiting a new tender process). In this report, only overlapping private mining operations were considered.



Production of açai (*Euterpe oleracea*) at Extractive Reserve of Cazumba-Iracema, Acre, Brazil.

TABLE 15. Strict Protection PAs most threatened by mining activities in absolute terms (ha) and list of Sustainable Use PAs where mining is not allowed (RPPN, RDS and Resex) that have some mining activity, 2018

Name	Level	State	Total Area (ha)	Mining Area (ha)	Mining Area (%)
Sustainable Use					
RIO CAJARI EXTRACTIVE RESERVE	Federal	AP	532.475,1	28.746,8	5,4%
Integral Protection					
GUAJARÁ MIRIM STATE PARK	State	RO	212.139,8	260.113,5	12,3%
MONTE RORAIMA NATIONAL PARK	Federal	RR	117.673,2	47.664,7	40,5%
JAMANXIM NATIONAL PARK	Federal	PA	871.381,7	34.872,7	4%
SERRA DO PARDO NATIONAL PARK	Federal	PA	449.980,1	30.303,2	6,7%
ACARI NATIONAL PARK	Federal	AM	907.124,1	30.076,6	3,3%
MAICURU BIOLOGICAL RESERVE	State	PA	1.151.761	15.493,2	1,3%
JARU BIOLOGICAL RESERVE	Federal	RO	357.231,3	14.005,7	3,9%
MAPINGUARI NATIONAL PARK	Federal	RO	1.816.518,1	13.229,4	0,7%
AMAZÔNIA NATIONAL PARK	Federal	PA	1.072.531,6	10.512,9	1%

Source: Based on WWF-Brasil (2018).

TABLE 16. Strict Protection PAs and Sustainable Use PAs where mining is not allowed (RPPN, RDS and Resex) most threatened by mining activities in percentage terms (%), 2018.

Name	Level	State	Total Area (ha)	Mining Area (ha)	Mining Area (%)
Sustainable Use					
IPÊ EXTRACTIVE RESERVE	STATE	RO	841,8	841,8	100%
NOVA AURORA RPPN	FEDERAL	RO	19,3	19,3	100%
CRISTALINO III RPPN	STATE	MT	1.663,3	1.642,3	98,7%
RIO CAJARI EXTRACTIVE RESERVE	FEDERAL	AP	532.475,1	28.746,8	5,4%
Integral Protection					
MONTE RORAIMA NATIONAL PARK	FEDERAL	RR	117.673,2	47.664,2	40,5%
MORRO DOS SEIS LAGOS BIOLOGICAL RESERVE	STATE	AM	38.288,6	10.139,6	26,5%
GUAJARÁ MIRIM STATE PARK	STATE	RO	212.139,8	26.013,5	12,3%

CARACARAÍ ECOLOGICAL STATION	FEDERAL	RR	86.889,4	9.778,7	11,3%
SERRA DO PARDO NATIONAL PARK	FEDERAL	PA	449.980,1	30.303,2	6,7%
CRISTALINO STATE PARK	STATE	MT	60.660,5	2.964,5	4,9%

Source: Based on WWF-Brasil (2018).

OVERLAPPING WITH THE RURAL ENVIRONMENTAL REGISTRY

PFor the analysis of overlapping boundaries defined by the properties under the Rural Environmental Registry (CAR) and PAs in the Amazon biome, the following management categories were considered: forests, extractive reserves, ecological stations, biological reserves, and parks. Other categories were not included since they are allowed to have private lands. Only 28 PAs in this pool have no properties registered within their boundaries.

In 29 PAs, declared properties (CAR) and PAs overlap totally (100% of the PA area). Of these, 28 are Sustainable Use PAs (extractive reserves and forests) and one is an Strict Protection PA (Charapucu State Park, in Pará). Another 22 PAs have more than 90% of their lands overlapping with properties declared under CAR, of which 20 are Sustainable Use PAs (extractive reserves and forests) and two are Strict Protection PAs (Xingu State Park and Rio Flor do Prado Ecological Station, both in Mato Grosso).

Among Sustainable Use PAs – forests and extractive reserves – 53 PAs have more than half of their land area overlapping properties (CAR) at both the federal and state levels, especially those located in Amazonas and Rondônia. Considering the percentage area affected and the area size in absolute terms, among the ten most affected PAs, eight are located in Amazonas.

Out of the Strict Protection PAs, there are registered properties in more than half of the area of six PAs.

TABLE 17. Sustainable Use PAs (flonas and resex) - with the highest level of overlapping with properties declared under CAR, in percentage terms (%) of the total PA area, 2017.

Name	Level	State	Total Area (sq km)	CAR Property Area (sq km)	CAR Property Area (%)	# of properties
Sustainable Use						
IQUIRI NATIONAL FOREST	Federal	AM	14.726,1	14.726,1	100%	767
CHICO MENDES EXTRACTIVE RESERVE	Federal	AC	9.314,2	9.311,6	100%	1556
TEFÉ NATIONAL FOREST	Federal	AM	8.651,3	8.651,1	100%	26
RIO UNINI EXTRACTIVE RESERVE	Federal	AM	8.496,9	8.496,9	100%	12
ITUXI EXTRACTIVE RESERVE	Federal	AM	7.763,3	7.763,3	100%	27
CAZUMBÁ-IRACEMA EXTRACTIVE RESERVE	Federal	AC	7.549,9	7.549,2	100%	661
MÉDIO PURÚS EXTRACTIVE RESERVE	Federal	AM	6.042,4	6.042,4	100%	42
HUMAITÁ NATIONAL FOREST	Federal	AM	4.731,6	4.731,1	100%	16
MAÚES STATE FOREST	State	AM	4.501,4	4.499,4	100%	53
MAPIÁ-INAUINÍ NATIONAL FOREST	Federal	AM	3.689,5	3.688,9	100%	32

Source: Prepared by WWF-Brasil, based on CNUC and National Rural Environmental Registry System (SICAR) data[1]

TABLE 18. Strict Protection PAs with the highest level of overlapping with properties declared under CAR, in percentage terms (%) of the total PA area, 2017.

Name	Level	State	Total Area (sq km)	CAR Property Area (sq km)	CAR Property Area (%)	# of properties
Integral Protection						
CHARAPUCU STATE PARK	State	PA	653,50	653,47	100,0%	55
XINGU STATE PARK	State	MT	953,28	952,61	99,9%	340
RIO FLOR DO PRADO ECOLOGICAL STATION	State	MT	85,35	83,29	97,6%	1
SERRA RICARDO FRANCO STATE PARK	State	MT	1.568,41	1.262,24	80,5%	465
UATUMÃ BIOLOGICAL RESERVE	Federal	AM	9.387,32	7.259,13	77,3%	2
GURUPI EXTRACTIVE RESERVE	Federal	MA	2.712,02	1.427,53	52,6%	23

1 http://www.car.gov.br

CAMPOS AMAZÔNICOS NATIONAL PARK	Federal	AM, RO, MT	9.613,29	4.678,78	48,7%	289
IGARAPÉS DO JARUENA STATE PARK	State	MT	2.238,94	1.053,05	47%	184
GUARIBA STATE PARK	State	AM	711	298,39	42%	84
UTINGA STATE PARK	State	PA	13,98	5,79	41,4%	1

PA management Effectiveness

According to data from the Ministry of the Environment, 54% of the PAs in the Amazon biome have management councils, and only 26% rely on a management plan. In addition, no data is available on the performance of councils or applicability of the plans to the PAs management. According to the CNUC, 68% of the PAs in the Amazon have not reported their land tenure status to the Ministry of the Environment, and only 11% reported that the PA is compliant. In other words, only 36 PAs have a land tenure compliant status – 17 Sustainable Use PAs and 19 Strict Protection PAs.

Having a management plan and an active council should be the starting point for all PAs to fulfill their purposes, although there is no guarantee this will prevent them from being targeted by a PADDD process. In the absence of any of these mechanisms, however, PAs will be even more vulnerable in terms of their implementation and management, thus to PADDD events.

Summary of Threats

In absolute terms (square kilometers), 61 PAs feature among the most threatened in the Amazon biome. Most of them are federally managed. Pará (22 PAs) and Amazonas (25 PAs) are particularly affected by threats since these states have infrastructure projects with a significant level of deforestation and overlapping declared properties (under CAR records) within the PAs. In addition, these are the states with the highest number of PAs in the Amazon, yet they stand out in terms of the percentage of threatened areas in relation to the total number of PAs in the state – 28% of PAs in Pará and 26% in Amazonas. In percentage terms, the state of Maranhão also stands out, where 38% of its 13 PAs are under threat, especially due to deforestation and railroad projects.

In terms of percentage of the total area, 64 PAs are among the most threatened in the Amazon biome, and these include federal PAs (55%) and state PAs (45%). Again, threats affect primarily the states of Pará (with 19 PAs listed) and Amazonas (18 PAs), especially in federal PAs, while Rondônia (with 15 PAs listed) stands out for the threats to state PAs.

TABLE 19. PAs, in percentage terms (%) of the total PA area.

Infrastructure				Land Use		
Roads	**Waterways**	**Railroads**	**Hydropower plants**	**Deforestation**	**Grazing***	**CAR**
Sustainable Use	*Sustainable Use*	*Sustainable Use*	*Sustainable Use*	*Sustainable Use*	*Sustainable Use*	*Sustainable Use*
–	Rio Madeira Environmental Protection Area	Região do Maracanã Environmental Protection Area	Rio Preto-Jacundá Extractive Reserve	Quilombo do Frechal Extractive Reserve	Araras Sustainable Income State Forest	Iquiri National Forest
–	Pucuruí-Ararão Sustainable Development Reserve	Igarapé Gelado Environmental Protection Area	Itaituba II National Forest	–	Gavião Sustainable Income State Forest	Chico Mendes Extractive Reserve
Região do Maracanã Environmental Protection Area	Javari Buriti Area of Relevant Ecological Interest	Baixada Maranhense Environmental Protection Area	Itaituba I National Forest	Região do Maracanã Environmental Protection Area	Mutum Sustainable Income State Forest	Tefé National Forest
Nascentes do Araguaia Environmental Protection Area	Lago d e Tucuruí Environmental Protection Area	Carajás National Forest	Rio Machado Sustainable Income State Forest	Araras Sustainable Income State Forest	–	Rio Unini Extractive Reserve
Belém Metropolitan Region Environmental Protection Area	Mamirauá Sustainable Development Reserve	*Strict Protection*	Aripuanã National Forest	Periquito Sustainable Income State Forest	Quilombo do Frechal Extractive Reserve	Ituxi Extractive Reserve
Lago do Amapá Environmental Protection Area	Gurupá-Melgaço Extractive Reserve	Bacanga State Park	*Strict Protection*	Mutum Sustainable Income State Forest	Jaci-Paraná Extractive Reserve	Cazumbá-Iracema Extractive Reserve
Strict Protection	Humaitá National Forest	Jamanxim National Park	Igarapés do Jaruena State Park	Igarapé São Francisco Environmental Protection Area	Ipê Extractive Reserve	Médio Purús Extractive Reserve
Bacanga State Park	Ipaú-Anilzinho Extractive Reserve	Nascentes Serra do Cachimbo Biological Reserve	Jamanxim National Park	Ciriaco Extractive Reserve	Gibeão Private Reserve	Humaitá National Forest
Sumaúma State Park	*Strict Protection*	–	Campos Amazônicos National Park	Lago do Amapá Environmental Protection Area	*Strict Protection*	Maúes State Forest
Utinga State Park	Anavilhanas National Park	–	Jaruena National Park	–	Serra Ricardo Franco State Park	*Strict Protection*
Metrópole da Amazônia Wildlife Sanctuary	Jutaí-Solimões Ecological Station	–	Amazônia National Park	–	Monte Alegre State Park	Charapucu State Park

* except APA and ARIE

TABLE 20. The ten most threatened PAs, in absolute terms (square kilometers).

Infrastructure				Land Use		
Roads	**Waterways**	**Railroads**	**Hydropower plants**	**Deforestation**	**Grazing***	**CAR**
Sustainable Use	*Sustainable Use*	*Sustainable Use*	*Sustainable Use*	*Sustainable Use*	*Sustainable Use*	*Sustainable Use*
Trombetas State Forest	Mamirauá Sustainable Development Reserve	Baixada Maranhense Environmental Protection Area	Itaituba II National Forest	Baixada Maranhense Environmental Protection Area	Jamanxim National Forest	Iquiri National Forest
Reentrâncias Maranhenses Environmental Protection Area	Lago de Tucuruí Environmental Protection Area	Carajás National Forest	Rio Preto--Jacundá Extractive Reserve	Reentrâncias Maranhenses Environmental Protection Area	Jaci-Paraná Extractive Reserve	Chico Mendes Extractive Reserve
Amapá State Forest	Marajó Archipelago Environmental Protection Area	Igarapé Gelado Environmental Protection Area	Itaituba I National Forest	Triunfo do Xingu Environmental Protection Area	Chico Mendes Extractive Reserve	Tefé National Forest
Baixada Maranhense Environmental Protection Area	Humaitá National Forest	Região do Maracanã Environmental Protection Area	Iquiri National Forest	Lago de Tucuruí Environmental Protection Area	Itacaiunas National Forest	Rio Unini Extractive Reserve
Igapó-Açu Sustainable Development Reserve	Gurupá-Melgaço Extractive Reserve	*Strict Protection*	Aripuanã National Forest	Jamanxim National Forest	Rio Ouro Preto Extractive Reserve	Ituxi Extractive Reserve
Tapajós National Forest	Pucuruí-Ararão Sustainable Development Reserve	Jamanxim National Park	*Strict Protection*	Marajó Archipelago Environmental Protection Area	*Strict Protection*	Cazumbá--Iracema Extractive Reserve
Strict Protection	Rio Madeira Sustainable Development Reserve	Nascentes Serra do Cachimbo Biological Reserve	Jamanxim National Park	Jaci-Paraná Extractive Reserve	Terra Do Meio Ecological Station	Médio Purús Extractive Reserve
Pico da Neblina National Park	*Strict Protection*	Bacanga State Park	Jaruena National Park	Tapajós Environmental Protection Area	Serra Ricardo Franco State Park	Humaitá National Forest
Montanhas do Tumucumaque National Park	Anavilhanas National Park	–	Campos Amazônicos National Park	Margem Direita do Rio Negro Environmental Protection Area	Gurupi Extractive Reserve	Maúes State Forest
Grão Pará Ecological Station	Jaú National Park	–	Igarapés do Jaruena State Park	*Strict Protection*	Nascentes Serra do Cachimbo Biological Reserve	*Strict Protection*
Jamanxim National Park	Jutaí-Solimões Ecological Station	–	Amazônia National Park	Gurupi Biological Reserve	Serra do Pardo National Park	Campos Amazônicos National Park

* except APA and ARIE

Conclusions

Monitoring PADDD processes in Brazil remains a considerable challenge. Some of these challenges stem from the way proposals are made available to the general public. They seldom have maps or terminology that would allow for a quick understanding of the proposal and its expected changes.

The legislative process involved is also a challenge. The Legislative Branch have been using the so-called "Jabutis"[4] (Rider Bills)[1] to include PADDD proposals into bills that bear no relationship with the issue. Mapping these proposals to themes that do not concern them is a complex task.

Therefore, it is important to take concerted and preventive advocacy action and to monitor the ongoing matters being discussed at the National Congress, state legislative assemblies and some segments of Brazil's economy. To this end, first it is vital to understand the factors at play that lead to PADDD events and to map future trends of this process. It is also critical to establish mechanisms or instruments to capture data, anticipate conflicting situations, and also propose preventive solutions and innovative approaches to PAs.

Particularly important is to enhance the knowledge on the areas where PAs are located and the contribution of these areas to environmental conservation and social wellbeing.

In addition, a few more specific recommendations are listed below:

- Promote strategic environmental assessment of large planned projects as recommended by the Federal Audit Court (Decision No 464/2004), to support a systemic, comprehensive and cumulative analysis of investment proposals;
- Outline and implement formal steps to discuss PADDD proposals. This should be based on transparency, technical-scientific support and stakeholder consultation. This could be similar to the process in place for the creation of PAs;
- The information on management plans, zoning perimeters and PAs should be always up to date and publicly available in order to avoid triggering deforestation, land grabbing, mining activities due to lack of or insufficient information;
- Progress should be made in the investigation of the ecological, social and economic consequences of PADDD events particularly prior to their enactment.

4 In October 2015, the Brazilian Federal Supreme Court (STF) declared the legislative ploy known as "contrabando legislativo" (legislative smuggling) as unconstitutional. Also known as "Jabuti", the concept of "legislative smuggling" refers to language amendments with no connection to the core theme of provisional measures.

Mountains of Tumucumaque National Park, Amapá, Brazil.

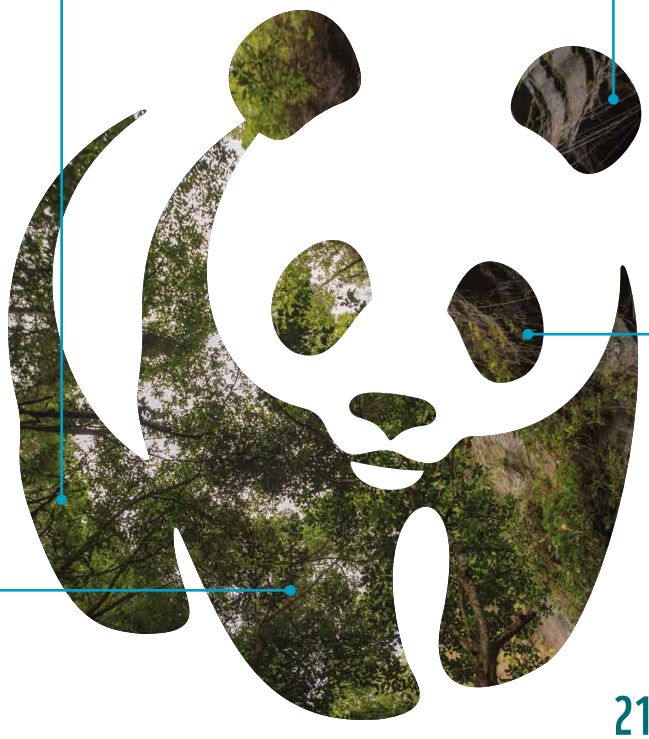
PADDD TRENDS IN BRAZILIAN AMAZON PROTECTED AREAS

46 PADDD

events were registered in the Brazilian Amazon between 1988 and 2018

110 PAs

are threatened by infrastructure projects



14 PAs

may be directly affected by power generation

219 PAs

have some portion of their area overaped by mining claims

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