

AMAZON 2012

PROTECTED AREAS and INDIGENOUS TERRITORIES

The area of AMAZON shown on this map covers approximately 7.8 million km², a region shared by eight countries plus Guyane Française and occupied by 33 million inhabitants, including 385 indigenous peoples.

A biome of enormous socioenvironmental diversity, the Amazon rainforest plays a strategic role in the tropical environment of South America and the climate of the entire planet.

The populations who live and work in Amazon have many different interests and their interpretations of the region's present and visions of its future have frequently turned into a dispute over paradigms. These distinct viewpoints have produced different levels of analyses and scenarios, based on the regional, national or international perspectives adopted.

The **AMAZON 2012** map – also available in digital format at www.raisg.socioambiental.org – contains information that has been updated and corrected since the map's first publication by RAISG in 2009.

This map has two clear aims: first, to overcome the fragmented visions commonly held of the Amazon; and second, to promote initiatives and integrated processes at regional, national and international levels that help consolidate the region's Protected Natural Areas (PNAs) and Indigenous Territories (ITs), which together make up around 45% of its area. Both objectives are an important part of the solution for the conservation and sustainable use of Amazonian ecosystems.

This enhanced version of the map results from an ongoing collaborative effort among research centers – principally from the civil society of the Amazon countries – to systemize, update and integrate their databases within the scope of RAISG.

This joint effort is founded on a common agenda for the thematic analyses and the development of protocols for the shared and decentralized management of information, comparable to a long-term effort to assemble a 'jigsaw puzzle.'

In order to produce a map representation that is cartographically and numerically equivalent among the different countries, the specifications of each were taken into account to arrive at a single common set of captions. Likewise the international borders were adjusted to fit a single base and thereby avoid information gaps or overlays. The Protected Natural Areas were classified on the basis of a single attribute common to all of them regarding the type of use permitted, where as the Indigenous Territories were classified according to both the unique nomenclature of each country and the degree (or absence) of official recognition.

Note: We have chosen to maintain the names of the countries in the original language in all versions of the map.

[Deforestation 2000-2010]

Information on deforestation in the Amazon is fragmented, outdated and is based on several sources, methodologies and resolution, both spatial and temporal, and also it is not always available.

RAISG has initiated an evaluation process of deforestation in the Amazon which allow the review of the issue in an integrated manner at the regional level, under appropriate methodology and resolution (spatial and temporal).

The publication **AMAZON 2012** presents the preliminary results of this evaluation conducted by RAISG for the Andean Amazon (Colombia, Ecuador, Peru and Bolivia) and Guyanas (Venezuela, Suriname, Guyana, French Guiana). The data cover the 2000-2005 and 2005-2010 period, and they were obtained by the Spectral Mixture Analysis method in combination with an algorithm called decision tree. For the Brazilian Amazon, it was used deforestation data from Prodes (Satellite Monitoring of the Brazilian Amazon Project), published by INPE (National Institute for Space Research) in 2011, covering the 2000-2010 period.

The year 2000 was considered a baseline, from which 2005 and 2010 scenes were analyzed as to assess forest loss. On the map below there may be seen large extensions of non-forested areas in 2000, which include, in addition to areas deforested until 2000, originally non-forested large areas, such as the seasonally flooded savannas of Llanos de Moxos, in Bolivia, and a large extension of savanna (cerrado) throughout the southeastern Brazilian Amazon, besides savanna enclaves large areas, such as the "Lavrado" in the state of Roraima, northern Brazil.

The forest area present in the Amazon in 2000 corresponded to 68.8% of the entire region (5,357,001 km²).

For the 2000-2010 period, the forest surface decreased by 4.5% (approximately 240,000 km²), equivalent to almost half of the Colombian Amazon. Such deforestation mostly took place in the southern part of the Brazilian Amazon, in the region known as "arc of deforestation". The forest loss on the assessed area was higher during the 2000-2005 period (163,020 km², 3% of the existing forest in 2000) compared to 2005-2010 (76,922 km², 1.4%). This trend is consistent with that indicated by FAO (2010), who reported a decrease in the forest loss for the 2005-2010 period compared to 2000-2005.

Deforestation in Amazonia in the periods 2000-2005 and 2005-2010



Country	Forest in 2000		Deforestation 2000-2005		Deforestation 2005-2010		Deforestation 2000-2010		% of total
	(km²)	(%)	(km²)	(%)	(km²)	(%)	(km²)	(%)	
Bolivia	307,123	64.1	4,187	1.4	3,494	1.1	7,682	2.5	3.2
Brazil	3,110,668	62.1	138,804	4.5	54,181	1.7	192,985	6.2	80.4
Colombia	428,498	88.7	5,170	1.2	6,816	1.6	11,986	2.8	5.0
Ecuador	88,361	76.0	1,171	1.3	965	1.1	2,136	2.4	0.9
Guyana	140,411	65.3	1,800	1.3	1,498	1.1	3,298	2.3	1.4
Guyane Française	79,916	92.4	210	0.3	293	0.4	503	0.6	0.2
Peru	700,738	89.5	7,365	1.1	7,674	1.1	14,974	2.1	6.2
Suriname	130,719	79.8	938	0.7	191	0.1	1,130	0.9	0.5
Venezuela	370,567	81.6	3,375	0.9	1,820	0.5	5,195	1.4	2.2
Total	5,357,001	68.8	163,020	3.0	76,922	1.4	239,942	4.5	100.0

* Estimated.

Amazon and human population	Bolivia		Brasil		Colombia		Ecuador		Guyana		Guyane Française		Perú		Suriname		Venezuela		total Amazon		
	area	% of the national total	area	% of the national total	area	% of the national total	area	% of the national total	area	% of the national total	area	% of the national total	area	% of the national total	area	% of the national total	area	% of the national total	area	% of the Amazon total	
Total population (nº of inhabitants)	8,274,325	-	191,480,630	-	42,090,502	-	14,483,409	-	751,000	-	208,171	-	28,220,764	-	492,829	-	27,150,095	-	313,151,815	-	
Amazon population (nº of inhabitants)	1,233,727	14.9%	23,854,376	12.4%	1,210,549	2.9%	739,814	5.1%	751,000	100.0%	208,171	100.0%	3,675,292	13.0%	492,829	100.0%	1,716,984	6.3%	33,682,702	10.8%	
Total area of the country (km²)	1,098,581	-	8,514,876	-	1,141,748	-	240,041	-	214,969	-	86,504	-	1,285,215	-	163,820	-	916,445	-	13,671,199	-	
Amazon area of the country (km²)	479,264	43.6%	5,006,316	58.6%	483,164	42.3%	116,284	46.7%	214,969	100.0%	86,504	100.0%	782,820	60.9%	163,820	100.0%	453,915	49.5%	7,787,056	57.0%	
% of total Pan-Amazon within the country	6.2%	-	64.3%	-	6.2%	-	1.5%	-	2.8%	-	1.1%	-	10.1%	-	2.1%	-	5.6%	-	-	-	

Compiled data on Protected Natural Areas and Indigenous Territories in the Amazon region¹⁰ (Information up-to-date as of 23 February 2012)

Protected Natural Areas in Amazon (km²)	area by category (km²) deducting areas superimposed on another more restrictive category ¹¹		Brasil ¹²		Colombia ¹³		Ecuador ¹⁴		Guyana		Guyane Française		Perú		Suriname		Venezuela		total Amazon		
	area	% of the Amazon region of the country	area	% of the Amazon region of the country	area	% of the Amazon region of the country	area	% of the Amazon region of the country	area	% of the Amazon region of the country	area	% of the Amazon region of the country	area	% of the Amazon region of the country	area	% of the Amazon region of the country	area	% of the Amazon region of the country	area	% of the Amazon region	
INDIRECT USE	Protection of biodiversity, geological and scenic landscape (aesthetic attributes) appropriate for tourism, education and research. Occupation by traditional populations not permitted, with the exceptions of Bolivia (NP), Guyane Française (NP), Ecuador (NP) and Brasil (NM).																				
National	39,390	8.2%	316,987	6.3%	81,842	16.0%	30,285	26.0%	6,640	3.1%	23,592	27.3%	78,069	10.0%	20,401	12.5%	171,145	37.7%	768,261	9.9%	
State/Departmental	-	-	129,460	2.6%	-	-	-	-	-	-	2,618	3.0%	-	-	-	-	-	-	132,078	1.7%	
total	39,390	8.2%	446,356	8.9%	81,842	16.0%	30,285	26.0%	6,640	3.1%	26,210	30.3%	78,069	10.0%	20,401	12.5%	171,145	37.7%	900,338	11.6%	

DIRECT USE																					
Resource protection compatible with controlled use in accordance with management plans																					
National	35,324	7.4%	270,075	5.4%	-	-	-	-	-	-	35,584	41.1%	56,387	7.2%	5,646	3.4%	-	-	403,016	5.2%	
State/Departmental	-	-	272,758	5.4%	-	-	-	-	-	-	-	-	21,983	2.8%	-	-	-	-	354,942	4.6%	
total	95,525	19.9%	542,833	10.8%	-	-	-	-	-	-	35,584	41.1%	78,370	10.0%	5,646	3.4%	-	-	757,958	9.7%	

TRANSITORY USE																					
Reserved forest area that may or may not be converted into protected area or concession as a result of further study																					
National	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	411,974	5.3%
State/Departmental	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	411,974	5.3%

DIRECT/INDIRECT USE																					
Areas of double categories																					
National	437	0.1%	-	-	-	-	-	-	-	-	3,717	1.7%	-	-	-	-	-	-	-	4,154	0.1%
State/Departmental	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
total	437	0.1%	-	-	-	-	-	-	-	-	3,717	1.7%	-	-	-	-	-	-	4,154	0.1%	
total for Amazon/country	136,362	28.2%	989,189	19.8%	81,842	16.9%	30,285	26.0%	10,357	4.8%	61,794	71.4%	190,518	24.3%	26,047	15.9%	171,145	37.7%	1,696,529	21.8%	

Indigenous Territories in Amazon (km²) ¹⁶																						
Areas of traditional occupation and use, not officially recognized																						
National	80,564	26.5%	1,111,034	22.2%	257,973	53.4%	-	-	-	-	31,671	14.7%	7,068	8.2%	106,585	13.6%	-	-	-	1,641,117	21.1%	
State/Departmental	46,223	-	-	-	-	-	-	-	-	-	-	-	-	-	13,005	1.7%	49,637	30.3%	305,961	67.4%	435,406	5.6%
total	126,786	26.5%	1,111,034	22.2%	257,973	53.4%	66,803	57.4%	31,671	14.7%	7,068	8.2%	187,479	23.9%	49,637	30.3%	305,961	67.4%	2,144,412	27.5%		

Protected Natural Areas and Indigenous Territories in Amazon (km²) - Summary																					
Areas with no overlap																					
National	136,362	28.2%	989,189	19.8%	81,842	16.9%	30,285	26.0%	10,357	4.8%	61,794	71.4%	190,518	24.3%	26,047	15.9%	171,145	37.7%	1,696,529	21.8%	
State/Departmental	126,786	26.5%	1,111,034	22.2%	257,973	53.4%	66,803	57.4%	31,671	14.7%	7,068	8.2%	187,479	23.9%	49,637	30.3%	305,961	67.4%	2,144,412	27.5%	
total	263,148	27.4%	2,100,223	22.0%	349,815	30.3%	97,088	83.8%	42,028	19.2%	68,862	79.6%	377,997	48.3%	75,684	46.2%	477,106	52.1%	3,840,941	50.3%	

¹⁰ The total area of each country considers the continental landmass, not marine areas. The same applies to the PNAs in Brazil. The surface area of the PNAs and ITs located partially in Amazon were calculated with the exclusion of the zones not forming part of the latter region. Area dimensions were calculated using the Geographic Information System, taking into account the boundary irregularities, as explained in the text. ¹¹ The geographic limits of Amazon. ¹² The calculated area excludes overlapping between categories, using the following hierarchical order: national indirect use; national direct use; state direct use; national direct/indirect use; transitory use. The calculations in this section of table do not exclude overlaps with indigenous lands. ¹³ The calculations for PNAs in Brazil do not include areas from the APA (Environmental Protection Area) category. ¹⁴ The figure for the Forestry Reserve, assigned to transitory use, does not refer to the original area but to the current area, including subtractions made to the reserve after its creation. It is not included in the total for PNAs in Colombia. ¹⁵ Does not include Protected Woodlands, since these do not form part of Ecuador's National System of Protected Areas (SNAP). ¹⁶ The calculated area in this section of the table does not exclude overlaps with PNAs.

Differences in the information on PNAs and ITs in Amazon: 2009 to 2012

Since the first version of this map, published in March 2009 with data from 2008, the institutions belonging to the Amazon Geo-referenced Socio-environmental Information Network (RAISG) in its Spanish and Portuguese abbreviations), continued to revise and update the cartographic data base for Amazon's Indigenous Territories (ITs) and Protected Natural Areas (PNAs), leading to modification to this 2012 version. Below these modifications are illustrated with some examples and a summary of the main alterations during this period.

- Revision of the IT and PNA cartographic database**
 - Permanent revision of the database
 - In part the changes result from the revision and/or cartographic adjustment of the boundaries of the areas. The databases systemized in 2009 were corrected, revised and complemented through a continuous process of searching for better information. These changes generated relatively insignificant differences in terms of surface area and relate to adjustments of the polygons to new databases or the revision of the same.
 - In Ecuador this new version includes the intangible zone of Cuyabeno-Imuya, extending across 4,344 km², and a revision of the intangible core zone of the Yasuni Park and Tagari Taromenna Land. The secondary information available on the IL was verified, favoring the most recent data, the primary information obtained in the field and the official data released by the Under-Secretariat of Land and Agrarian Reform, which signified an overall reduction of 9,968 km².
 - Revision of database procedures
 - In Peru some requests for land titles and expansions of communal lands were eliminated since they lack appropriate ongoing technical input.
 - In Bolivia the highland ITs (known as 'ayllus') were eliminated due to a lack of adequate information on them. These are not included in the Amazonian boundary used by RAISG, which is also why they were not considered in the compiled data table.
- Incorporation of new ITs and PNAs**
 - Addition of information (with the inclusion of areas that already existed in 2009)
 - As a result of the continuous revision of the databases, new areas were included that had been decreed in 2009 but without information available on them at the time of the earlier publication, as in the case of the ITs in Suriname.
 - In Bolivia it was considered important to include the municipal PNAs with a surface area of or above 100 km², resulting in an overall increase of 21,253 km².
 - In Peru the database included Regional Conservation Areas (RCAs) due to their importance in terms of land size.
 - In Brazil PNAs from the EPA category (Environmental Protection Area) were included that had not appeared in the 2009 version of the map. These areas total 232,799 km², but have not been included in the calculations for the compiled data table due to their low level of restrictions on use and occupation.
 - Newly recognized ITs and creation of new PNAs
 - The process of recognizing ITs continues in all the Amazon countries, which explains the addition of extensions and new ITs whose limits have been defined over the last three years. In Brasil one IT was extended and six new lands were recognized.
 - In Peru the georeferenced data generated by different institutions was replaced by information recently obtained from the field, which allowed the surface area covered by these territories to be adjusted.

Similarly new PNAs created during the period were incorporated. In Colombia the Yaijoje Apaporis Natural National Park, a core area of traditional management of the land of the Macuna, Tarimuca, Lituama, Cabyvan, Barazano, Yujup Macu and Yuana indigenous peoples, was created in October 2008. It is the third largest park within the Natural National Parks system. For the first time a reservation area was requested by traditional indigenous authorities to form a Natural National Park in its entirety.

In Ecuador the 2012 version includes the Yacuri National Park and the Cerro Plateado Biological Reserve, which increased the area of the PNAs by 633 km².

- Alteration of the boundaries of existing areas (increase and/or reduction of areas)
- In Bolivia the land claims processes carried out over the last few years, including the availability of official information for the ITs (from December 2010 onwards they became known as Original Peasant Indigenous Lands - TICOs in Spanish), resulted in large changes to the polygons compared to 2009 with a significant alteration in the total area.
- The rectification of the boundaries of the Nukak Makú Indigenous Land in Colombia was based on the forms for creating and expanding the indigenous reservation.
- In Brazil, the boundaries of the PNA in Rondônia state were altered in order to free up areas for the construction of hydroelectric plants on the Madeira river. Exchanges of lands between the state and federal governments also led to the revocation of various PNAs at state level and changes in categories with the aim of consolidating irregular occupations. In Roraima state the boundaries of the Roraima FN, which almost entirely overlapped the Yanomami IT, were redefined in order to solve the problem of the incompatibility in objectives generated by the overlap.

- Exclusion of areas (revocation of PNAs)**
 - As well as the alterations to the database arising from their revision, the new map excludes PNAs revoked by the public authorities, such as the case of the State of Rondônia (Brazil), where the alterations to the boundaries of the areas also led to the official revocation in 2011 of various state PNAs that had not been implemented since their creation.

There were cases where the PNAs were recategorized, as in the case of Pucacuro, in Peru, previously a Reserved Zone for transitory use and now a National Reserve for direct use.

In Bolivia, the Isiboro Sécure National Park Indigenous Land (TIPNIS) passed from direct/indirect use to direct use. In Ecuador the El Cóndor Binational Park because a National Park, along with the Cayambe Coca Ecological Reserve. Finally