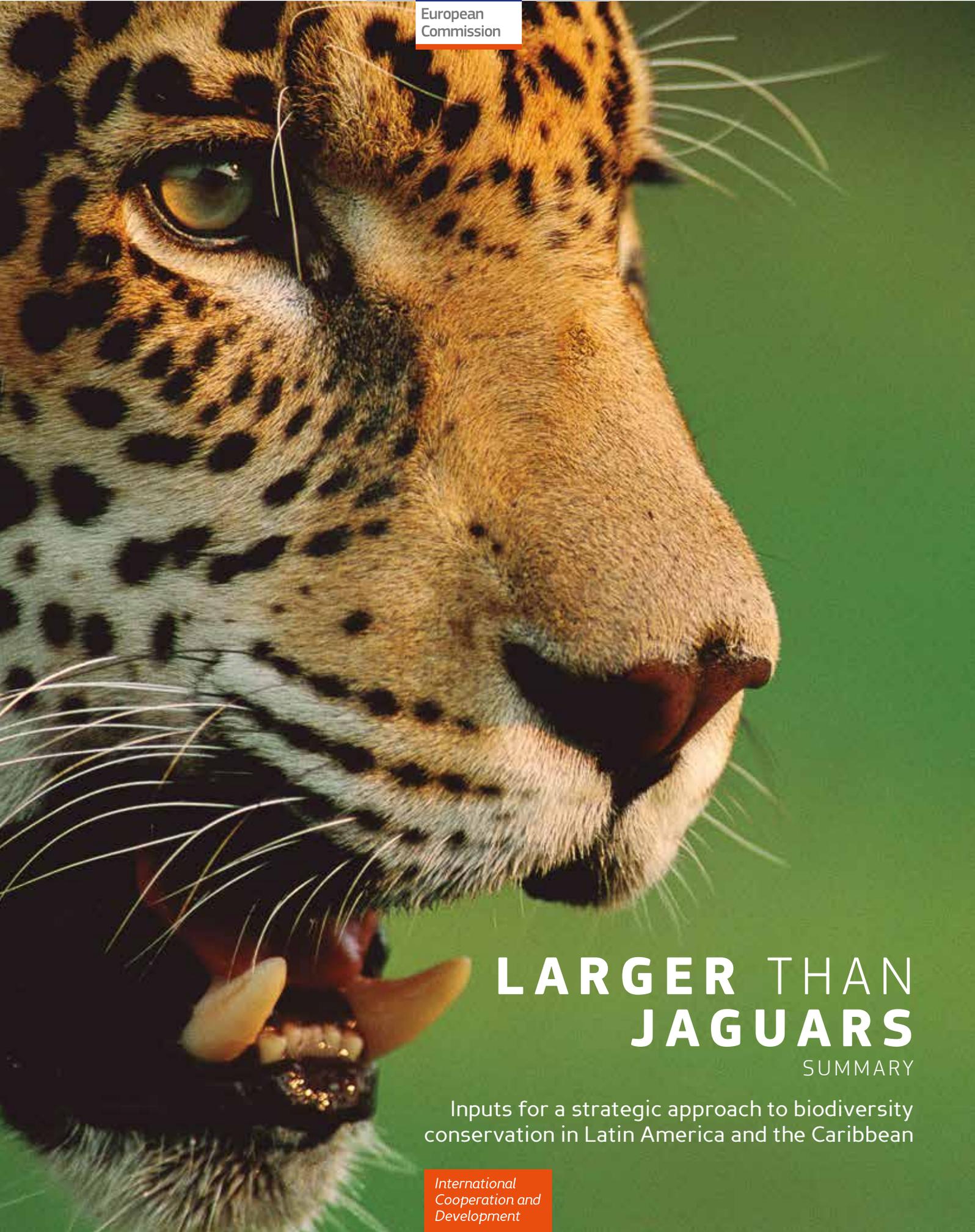




European
Commission



LARGER THAN JAGUARS

SUMMARY

Inputs for a strategic approach to biodiversity
conservation in Latin America and the Caribbean

*International
Cooperation and
Development*

As the biodiversity crisis worsens, its impact on economic and social development is becoming increasingly apparent. Strategies to tackle environmental degradation, pollution and climate change must therefore focus on ensuring that ecosystems can respond to high levels of pressure while continuing to provide services indispensable to human development.

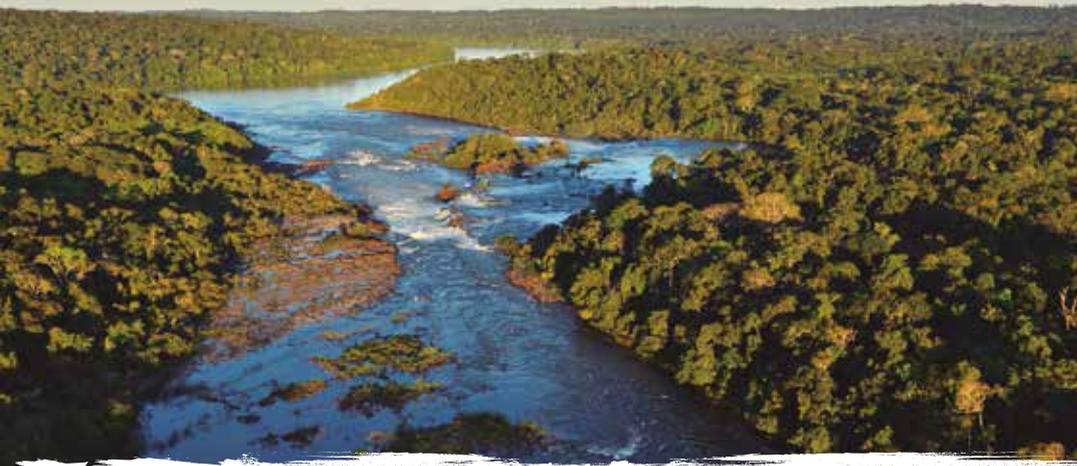
The United Nations' Agenda 2030 aims to deliver inclusive economic growth, social inclusion and environmental protection, while fostering peaceful, just and inclusive societies through a new global partnership. This approach is reflected in the European Consensus on Development, and the sustainable use of biodiversity has a fundamental role to play in its delivery.

After similar work on Africa ('Larger than Elephants') and Asia ('Larger than Tigers'), the European Commission is coordinating the study, 'Larger than Jaguars'. Based on the findings of recent studies and the input of numerous (local and international) specialists, this provides guidelines for a strategic approach to biodiversity conservation for Latin America and the Caribbean.

It describes the key features of biodiversity in the region, identifies the main threats to its survival, compiles lessons learned from past and present activities, identifies Key Landscapes for Conservation (KLCs)¹ and proposes strategic approaches appropriate for support by the EU and other donors, the governments of the region, civil society and private sector.

The findings feed into the strategy of the European Union to broaden cooperation and establish strong partnerships with LAC based on common values and shared interests. It is in line with the policy document 'European Union, Latin America and the Caribbean: joining forces for a common future' (16 April 2019), presented by the EU High Representative and the European Commission, which highlights the importance of safeguarding biodiversity, moving towards a green, circular economy and combating climate change.

The full Larger than Jaguars package includes a general report (Synthesis) and a detailed publication comprising thematic reports on cross-cutting issues (climate change, governance, etc.) and regional reports covering five major LAC regions. The grouping of contiguous biomes informed the regional subdivision. The reports focus on terrestrial and freshwater ecosystems, but do not cover marine ecosystems (which is not to suggest that these are of lesser importance).



LAC is home to more than 50 % of the world's biodiversity, half the world's tropical forests and 30 % of its freshwater reserves. Its ecosystem services are important locally and far beyond the region's borders; the contribution of Amazon forests to mitigating global climate change is widely recognised.

The world's biodiversity powerhouse under threat

LAC covers only 15 % of the Earth's surface but is home to more than 50 % of the world's biodiversity. It has half the world's tropical forests and 30 % of freshwater reserves, as well as vast expanses of arable land. Environmental services provided by its ecosystems, such as climate regulation, supply of fresh water and food production, among others, are of global importance.

However, the region currently has the highest proportion of threatened species (83 %) and most of its forests are Vulnerable, Endangered or Critically Endangered according to the IUCN Red List. Over the last 30 years, the main causes of environmental degradation have been conversion of land for agriculture, overexploitation of timber and other biological resources (including for illegal trafficking), a growth in extractive industries and fragmentation of habitats due to urban expansion and the development of infrastructure. These causes, linked to demographic and economic growth, are compounded by an increasing global demand for food and raw materials, in a context of relatively weak environmental governance. In addition, the effects of climate change are increasingly evident, particularly on coastal ecosystems, Andean environments and wetlands.

STRATEGIC PRIORITIES

'Larger than Jaguars' recommends a strategic approach based on six thematic areas and a set of key landscapes for conservation (KLCs). Although independent, the strategic priorities will ideally be jointly addressed, at landscape level and according to specific local needs.

THEMATIC AREA 1: CONSERVATION AND RESTORATION

Latin America and the Caribbean have around 8 500 protected areas (PAs), which together cover a little over 4.8 million km² of terrestrial area and 4.6 million km² of the marine realm.

Despite the formal increase of land surface covered by protected areas (from 8.8 to 23.4 % between 1990 and 2014), important concerns remain regarding increasing pressures on these PAs, the uneven quality of their management and enforcement, and the disparities between regions. Reinforcing the effectiveness of PAs and increasing the level of protection for key biodiversity areas and corridors is essential.

As pressures on the environment increase, it is also vital to ensure convergence between conservation and sustainable development goals. At a local level, this implies fostering the sustainable use of natural resources and gaining concrete benefits from ecosystem services at the periphery of PAs and beyond, while ensuring coherent management practices over much larger landscapes.

The proposed strategic approaches in this field include:

- Strengthening existing PAs, with an emphasis on promoting efficient management, good governance and sustainable financing.
- Extending the coverage of PAs, with a focus on under-represented biomes and priority areas, taking into account the contribution of private reserves and indigenous territories.
- Consolidating PA institutional systems and promoting the development of appropriate PA policy frameworks.
- Creating and/or strengthening connectivity corridors between isolated habitats and ecosystems.
- Restoring priority ecosystems (riverbanks, groundwater recharge zones, etc.), with emphasis on natural regeneration with native and endemic species.
- Designing and implementing conservation plans for umbrella² species
- Increasing awareness, investment and coordination to combat wildlife trafficking.
- Promoting the implementation of sustainable financial sources and mechanisms for conservation and restoration, such as environmental tax reforms or schemes of payment for environmental services.

¹ Detailed below, KLCs are not protected areas. They address biodiversity conservation with a focus on sustainable development through a landscape approach.

² Umbrella species are species selected for conservation related strategies, typically because protecting them indirectly protects the many other species that make up the ecological community of their habitat.



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Mechanised agriculture is the main cause of deforestation throughout the region. This could be addressed by promoting good practices and alternatives with lower impact, developing market niches for “green” products, and raising consumer awareness, both in LAC and in importing countries.

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Wildlife trafficking has not yet reached the levels observed in Africa and East Asia. However, its continued increase is a cause for concern, and is probably due to a rise in demand and strengthening trade links between LAC and the Asian continent.

THEMATIC AREA 2: SUSTAINABLE PRODUCTION

Most economies in the region are highly dependent on the export of natural resources and commodities, and rarely take into account the environmental externalities of their production models.

Commercial agriculture drove almost 70 % of deforestation in Latin America between 2000 and 2010, geared mainly to international markets (soy, meat, palm oil, etc.). At the same time, small-scale agriculture has expanded into Central American forests, biodiversity hotspots in the Andes and Caribbean countries such as Haiti.

Unsustainable practices in agriculture and the forestry, fisheries and extractive sectors are contributing to the degradation and contamination of soil and water bodies, loss of genetic diversity and social conflicts over access to resources.

A more proactive promotion and adoption of sustainable supply chains is necessary, notably in the food, timber, mining and tourism industries, drawing on best practices in production, transport, processing and marketing, and the development of markets for ‘green’ products. Sustainable production is closely linked to sustainable consumption; and thus greatly depends on efforts to change consumption patterns, not only in LAC but also in importing countries.

Recommended actions include the following:

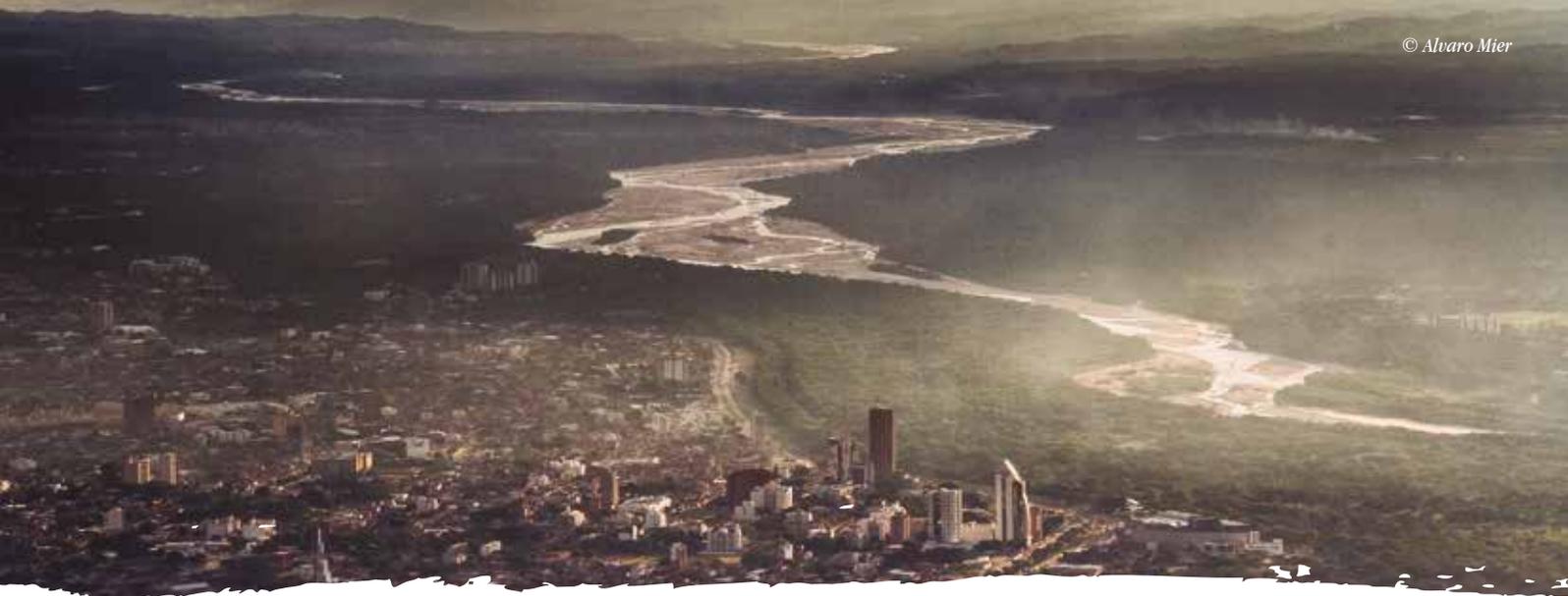
- Include sustainable production standards in trade agreements between LAC countries and importing countries.
- Improve consumer awareness (see thematic area 5)
- Strengthen certification schemes and platforms for sustainable commodities.
- Strengthen public sector capacity to develop economic policies compatible with water management, biodiversity conservation and climate action, and advocate for an end to economic incentives for unsustainable production systems (especially in agriculture and forestry).

- Promote alternative economic activities (ecotourism, beekeeping, sustainable fishing, etc.) that contribute to environmental conservation by producers.
- Enhance the conservation of agro-biodiversity, related to the number of cultivated species, genetic diversity of crops, and diversity of production models.
- In all recommended actions, a gender sensitive approach should be applied.

THEMATIC AREA 3: ENVIRONMENTAL MANAGEMENT IN URBAN AND PERI-URBAN ENVIRONMENTS

The expansion of urban areas (80 % of the population in LAC), accompanied by increased demand for ecosystem services and poor waste management, are degrading the environment (including air and water quality, energy and water provision, quality and productivity of land and soils, resilience to climate change and severe weather events), and the livelihoods and quality of life of populations. Building awareness of the links between prosperity and well-being, on the one hand, and the sustainable use of natural resources and wildlife protection, on the other, is essential. This applies to people in their roles both as consumers and as citizens that determine public policies. There is an urgent need to:

- Promote better management of urban biodiversity and protected peri-urban areas, to maintain ecological connectivity and increase city-dwellers’ environmental awareness.
- Encourage the implementation of payment schemes for environmental services, which ensure a contribution by urban populations to the protection of natural resources that provide goods and services, such as drinking water.
- Promote policies designed to enhance low-impact renewable energies, resource efficiency and integrated waste management.



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Urban expansion is one of the main causes of environmental degradation. But access to ecosystem services is also important to ensure the quality of life in the cities. In Santa Cruz de la Sierra, Bolivia, the woodland vegetation of the Pirai river banks contributes to mitigating floods. Forests in the neighbouring Amboró National Park recharge water reserves that supply the city.

THEMATIC AREA 4. ENVIRONMENTAL GOVERNANCE

Governance mechanisms regarding land and natural resources in Latin America and the Caribbean tend to be unclear (notably with regards to tenure) and often reflect the prevailing imbalance in economic and political power (e.g. favouring extractive industries and agribusiness). The threat to environmental activists in many countries is especially worrying, and has led to numerous killings (at least 57 murders in Brazil in 2017, 24 in Colombia, 15 in Mexico, and fatalities in Honduras, Nicaragua and Guatemala).

The priority must be to define and apply efficient and equitable governance models adapted to circumstances. At a local level, efforts should focus on building social and political support for PAs and other conservation areas. Nationally and regionally, good environmental governance is indispensable for effectively implementing policies, regulations and agreements. Research shows that the participation of all stakeholders – local communities, civil society organisations, the private sector and different levels of government – in decision-making processes is crucial to ensure effective implementation and impact.

Priority actions include the following:

- Promote environmental governance models that encourage collaboration between different state sectors and levels of government, and safeguard the rights of local stakeholders, in particular indigenous and local communities.
- Conduct political advocacy to ensure the safety of nature defenders.
- Develop mechanisms for stakeholder involvement in conservation and development projects, ensuring greater transparency in information and accountability processes.
- Support the emergence of innovative governance systems for protected areas that facilitate local participation in their management (such as management committees and conflict resolution bodies), and supranational coordination mechanisms where relevant.
- Reduce power asymmetries by strengthening capacities and improving access to information, notably for rural communities and indigenous peoples, as well as the most vulnerable sectors of the population (particularly women).

THEMATIC AREA 5: KNOWLEDGE MANAGEMENT AND AWARENESS

Processes related to conservation and sustainable development are often undermined by a lack of understanding among citizens and decision-makers about environmental threats, their drivers and the economic and social impact of environmental degradation. Although civil society is taking an increasing role, there are still significant information gaps, in particular between knowledge production and the design and implementation of public policies. There is a priority need to:

- Foster research and compilation of information (traditional and scientific sources), with regard to the conservation status of ecosystems, the economic value of ecosystem services provision, the impact of human activities, and sustainable production models.
- Safeguard and disseminate traditional knowledge for its contribution to maintaining sustainable ways of life and the design of best practice production models.
- Promote thematic learning platforms and networks to improve the inter-institutional management of environmental information, broaden knowledge outside environmental circles, and encourage the science-policy interface.
- Support technical assistance and capacity building related to conservation and sustainable development (including green accounting) for public administrations, especially at sub-national level.
- Encourage the inclusion of conservation and sustainable use of natural resources principles into higher education programmes related to land-planning and land-management.
- Support training programmes for PA managers and workers.
- Promote environmental awareness through strategic communication targeting different audiences: consumers, the productive sector, authorities and decision-makers, youth and others.



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Marcelieno and his son are Araracuara people, holding sacred plants from the Colombian Amazon. The recognition and integration of local, traditional and indigenous knowledge is essential to conservation and other goals, such as the preservation of natural resources for traditional medicine reserves, or the protection of groups in voluntary isolation.

THEMATIC AREA 6: PUBLIC POLICIES AND ENVIRONMENTAL PLANNING

Legal frameworks and public policies need to be adapted to enable the effective implementation of conservation and sustainable development plans.

Most countries in the region have developed sound environmental regulations and standards. However, much remains to be done to properly implement, monitor and enforce them.

Moreover, development policies often contradict environmental regulations. They tend to prioritise short-term economic returns that can undermine natural resources, rather than emphasising co-benefits for nature and people, and long-term economic and social returns. As an example, PA boundaries have regularly been modified to give way to roads, agricultural production or extractive industries.

A regional approach is warranted to reduce contradictions between legal and policy frameworks in neighbouring countries, for example for the protection of certain species or the management of shared watersheds (e.g. Trinational Commission for the Development of the Pilcomayo River Basin, the Binational Authority of Lake Titicaca and the ongoing trinational negotiation about sustainable land planning in Pantanal).

Strategic steps to address this situation include:

- Support land-use planning as part of a landscape approach, aiming at maintaining ecosystem functionality. This requires greater harmonisation of territorial planning and environmental policies (at local, regional, national and cross-border levels), to ensure their effectiveness on an ecologically appropriate scale.
- Strengthen policies that encourage sustainable production, conservation and ecological restoration models, and develop public and private finance mechanisms that can sustain their implementation over time.
- Advocate for the inclusion and implementation of social and environmental safeguards in development projects.

- Encourage the creation of 'non-intervention areas', through sound political and legal mechanisms.
- Consolidate environmental monitoring and control mechanisms, by strengthening capacities of public, private and civil society stakeholders.

KEY LANDSCAPES FOR CONSERVATION (KLCs)

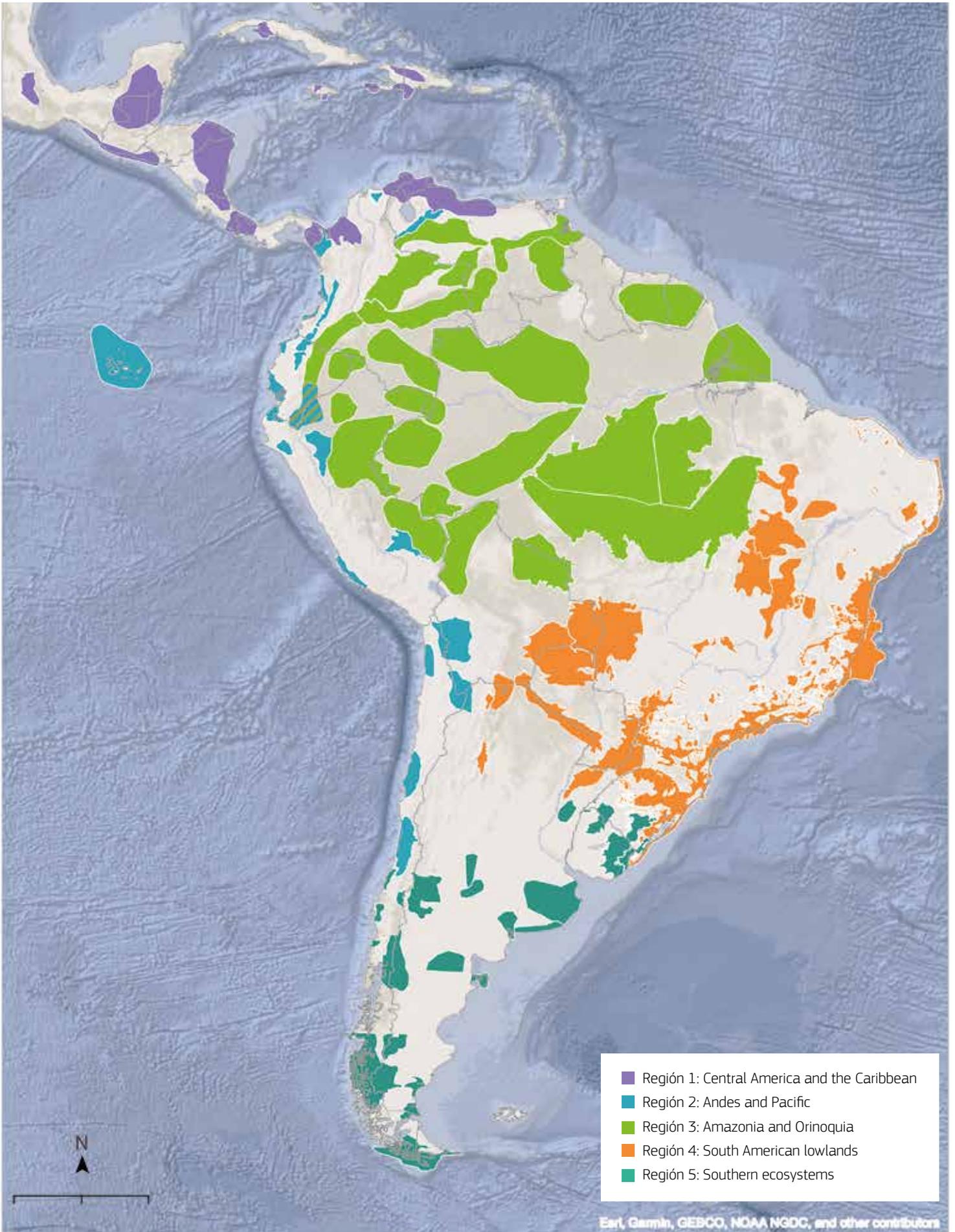
KLCs are territories that contribute to the preservation of a range of species, ecosystems and ecosystem services. They often include PAs, but they may also include productive zones, urban areas and infrastructure. They aim to integrate biodiversity conservation with sustainable development through a landscape approach.

The KLCs in 'Larger than Jaguars' have been selected because they cover the following main criteria³:

Sites that conserve key ecosystems, important biological corridors and threatened, endangered, rare or endemic species (e.g. KLC 10: Atlantic Isthmus Humid Forest, at the heart of the Mesoamerican Biological Corridor).

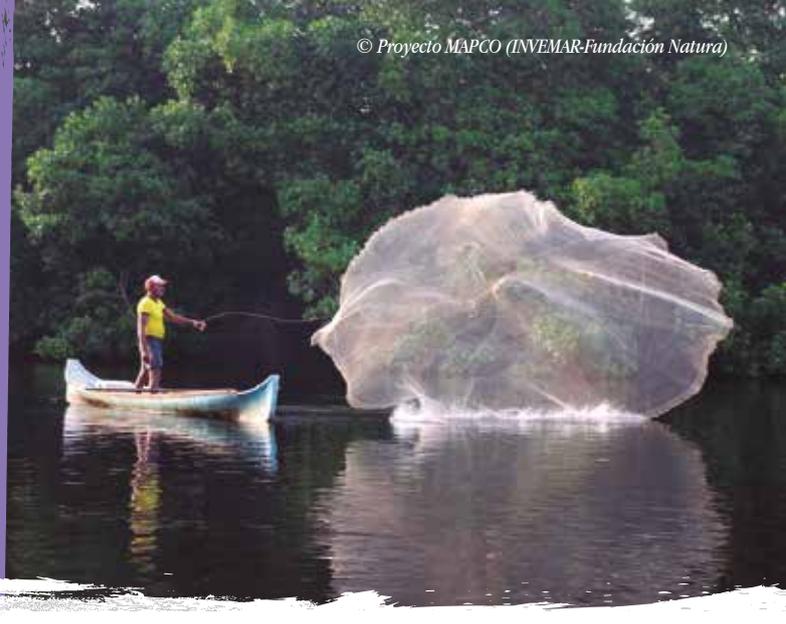
- Sites that protect key ecosystem services for a large number of people, such as water for human consumption, food production, disaster prevention and carbon sequestration (e.g. KLC 73: High Paraná Atlantic Forest, which provides ecosystem services for more than 25 million people in Argentina, Paraguay and Brazil).
- Sites that protect key ecosystems for vulnerable people, such as indigenous groups or communities with traditional production models that depend on natural resources (e.g. KLC 39: Tepuy zone in Venezuela, where hydrocarbon extraction and agricultural expansion threaten indigenous territories and livelihoods).
- Sites with both a high ecological or social value and particularly high rate of land-use change, where it is urgent to focus conservation efforts and ecosystem restoration (e.g. KLC 42: Deforestation Arc in Brazil, where agricultural land is expanding rapidly towards the Amazon).

³ Some of the most useful sources used to identify priority areas for action include studies by WWF, CEPF (key biodiversity areas), BirdLife (Important Bird and Biodiversity Areas, IBAs), Alliance for Zero Extinction (AZE), The Priority Global Ecoregions (Global 200), by Olson and Dinerstein (2002), WCS, and areas with Intact Forest Landscape (IFL) by Potatov et al. (2008).



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KLC's identified as priority intervention areas in 5 sub regions (map produced by SIGA Proyungas)



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In Central America and the Caribbean, forests and other coastal ecosystems provide a natural barrier against erosion due to waves and the impact of hurricanes. They also provide local populations with food and a source of income. However, these ecosystems are often threatened by the development of urban and tourist infrastructure.

Central America and the Caribbean

#1_Main Features

Central America and the Caribbean Islands are two of the planet's 25 biodiversity hotspots. Central America ranks second in terms of species diversity, surpassed only by the tropical Andes. The Caribbean is characterised by its high level of insular endemism.

The region's main ecosystems are: tropical, moist, dry and coniferous forests, deserts and scrublands, mangroves and flooded savannahs. Mangroves and flooded savannahs are of particular importance for the protection of coastal areas from waves and the impact of hurricanes.

This multi-ethnic region is undergoing rapid population growth and urban intensification (about 60 % of the population is urban). Population density is high, with an average of 84 pop./km² in Central America and 180 pop./km² in the Caribbean.

Subsistence and commercial agriculture and mining are major sectors for several countries, especially in Central America and Greater Antilles. The economies of higher income countries are also dependent on healthy ecosystems, notably to sustain a significant tourism sector.

#2_Pressures and threats

The expansion of agriculture and, mainly in the islands, the development of urban and tourist infrastructure are the primary causes of loss, degradation and fragmentation of habitats. This is aggravating the region's already high vulnerability to climate change, which is reflected in an increasing incidence of droughts, floods and hurricanes.

The over-exploitation of natural resources is another major threat, and is especially worrisome in the insular environment of the Caribbean. Wildlife trafficking (e.g. marine turtles, macaw, parrots, etc.) is widespread, as is illegal logging, unsustainable coal production and firewood extraction.

The spread of invasive alien species is particularly concerning for certain endemic island populations (e.g. the Javan mongoose, introduced to hunt rats in the Caribbean, which wiped out populations of ground nesting birds, reptiles and endemic mammals like the solenodons). Even in a relatively large country like Colombia, alien species are considered the second cause of species extinction.

The growing impacts of mining have been the cause of considerable social unrest. Environmental advocates face a serious threat to their personal security, particularly in Central America, due to conflicts over access to and ownership of land and resources, and an increase in drug-trafficking in remote areas that are also the best preserved.



Moors are typical ecosystems of the northern Andes. Their unique biodiversity has a high level of endemism, and the water functions they support are vital for the supply of drinking water and irrigation, as well as for the production of hydroelectric energy in Venezuela, Colombia, Ecuador and Peru.

3_Priority Strategies

Compared to the rest of Latin America, the countries of this region have smaller protected areas and more fragmented ecosystems. It is hence a priority to systematically apply a landscape approach that integrates conservation and development objectives, consolidating existing protected areas, implementing connectivity corridors and restoring degraded ecosystems.

A cross-border approach, such as that of the Mesoamerican or Caribbean Corridors, provides additional value.

A focus on multi-stakeholder dialogue and conflict prevention is necessary to uphold the rule of law on access to natural resources. Raising awareness about the value of ecosystem services will be crucial in this process.

Specific conservation programmes are needed for emblematic umbrella species (e.g. the jaguar, tapir and quetzal in Central America), and endemic species (e.g. the Hispaniolan solenodon and Ridgway's hawk in the Caribbean).

Andes and Pacific

#1_Main Features

The region's ecosystems are very diverse, with a broad range in altitude (0 to 6000 m), latitude (10°N to 40°S) and rainfall (from 40 to 8000 mm). It includes three biodiversity hotspots: Tumbés-Chocó-Magdalena on the northern coast, part of the Valdivian Forests in the south and the Tropical Andes mountain range. The last is recognised as the most diverse hotspot on the planet, with around 34 000 species of vertebrates and vascular plants.

Besides its exceptional biodiversity, the region provides crucial ecosystem services. The Andean ecosystems (glaciers, forests, moors and other wetlands) constitute most of the Amazon upstream watershed; they provide drinking water and energy to a large part of the population of the mountains, coast and plains. The wet and dry forests of the region are important for carbon sequestration, hydrological regulation and soil stabilisation, especially in areas bordering the Atacama-Sechura desert; while mangroves perform a crucial function as coastal barrier, breeding ground and for nutrient recycling.

The region is home to numerous groups of indigenous peoples and other traditional communities. Population density varies greatly, with more people living in the accessible and productive areas of the Pacific Coast, the valleys of the northern Andes and part of the Peruvian and Bolivian Altiplano.

Small-scale and commercial agriculture are widespread, although suitable land is relatively scarce. Fishing is a key coastal activity, and aquaculture (especially shrimp) is very developed in the northern area. The economy also relies heavily on mining and oil extraction. Illegal mining and illicit crops are making a growing contribution to the informal economy, mainly in the Andean foothills. Tourism is on the rise, particularly in the Galapagos Islands.



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Cacao plantations are common in the humid forests of the region and represent an important source of income for small producers. As cacao can be easily integrated into agroforestry systems with low environmental impact, growers can benefit from access to niche markets (fair trade and biodiversity friendly).

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The spectacled bear (*Tremarctos ornatus*), also known as the Andean bear or jucumari, is the only surviving species of bear native to South America. It is listed as vulnerable, due to habitat loss, poaching and a growing trade to Asia, where bear bile is used in traditional medicine. It lives in cloud forest, high-altitude grasslands, dry forest and the Andean Mountain range.

#2_Pressures and threats

Most of the dry forests of Colombia, Ecuador and Peru have been converted to agriculture and cattle ranching. Andean ecosystems have been significantly degraded by extensive cattle and sheep farming. The Chilean scrubland to the south is considered in critical danger due to urban and agricultural expansion. On the northern coast, the development of shrimp farms has contributed to the destruction of large swathes of mangrove and the pollution of coastal ecosystems.

Road-building is contributing to ecosystem fragmentation and deforestation. In the foothills of the upper Amazon watershed in particular, improved access has led to increased settlement by small-scale farmers in areas considered marginal until recently. The construction of hydroelectric dams, mainly in the Andean area, has disturbed the hydrological regime, while extractive activities have led to soil and water pollution.

Climate change is compounding desertification processes in the semi-arid ecosystems of the region, and is a critical threat notably to high mountain ecosystems and glaciers.

In remote forest areas, weak governance has exposed large areas to insecurity and criminal activity, including illicit crop cultivation and drug and wildlife trafficking. Environmental rights defenders have paid the highest price in this context.

3_Priority Strategies

In the Andes, the integrated management of water resources could become a key cross-cutting theme for the protection of strategic ecosystems, such as the moors. Growing public awareness offers a favourable context for innovative conservation financing mechanisms, such as the resource protection fee added to consumer water bills in Quito. On the Pacific Coast, under-protected ecosystems would benefit from the creation of new protected areas (public or private) or other form of protection (e.g. indigenous territories). In the Galapagos Islands, a priority must be given to restoration strategies.

Throughout the region, targeted strategies (territorial planning, inter-sectoral dialogue, environmental safeguards, etc.) can be applied to mitigate the impacts of infrastructure, agriculture and extractive industry development.

Specific protection measures are required for emblematic species, particularly the Spectacled Bear and the Andean Condor, as well as threatened ecosystems such as coastal dry forests, mangroves and the Chilean scrubland.

Finally, restoring governance and combating criminality and illegal activities are indispensable to relieve the pressure on affected ecosystems and their defenders.



National policies for agricultural development have been the main driver of land-cover change in this region. Forest loss is particularly noticeable around the Amazon, in Brazil's 'Deforestation Arc' and in northern Bolivia. Deforested land is often used initially for livestock grazing, which is then gradually displaced by agriculture.

Amazonia and Orinoquia

#1_Main Features

With a jungle that contains more than 50 % of the world's tropical rainforest cover, this is one of the last great natural areas on the planet. To the north, 85 % of the 250 million hectares of the Guiana Shield forests form one of the largest blocks of intact rainforest. The Orinoco and Amazon rivers, their flood cycles and rainfall patterns largely govern the life of people and wildlife in this immense plain. Other remarkable ecosystems include the savannah floodplains in Beni (Bolivia), Colombian and Venezuelan lowlands, the tepuis (plateaus) of the Guiana Shield, the Orinoco delta, mangroves and other coastal features of the Amazon ecosystem.

Due to their size and biomass, the Amazon and Orinoquia forests provide ecosystem services far beyond the region's borders: their contribution to mitigating global climate change, for example, is widely recognised. At a continental level, the massive volume of water vapour produced by evapotranspiration from trees flows towards the foothills of the Andes, influencing rainfall and hence agricultural production and water availability in southern Brazil, Bolivia, Paraguay and northern Argentina.

This region has a remarkably high coverage (45 %) of protected areas and indigenous territories, compared to other regions. Indigenous people represent 3.8% of the population in Amazonia and 3.5% in Orinoquia, including groups that are uncontacted or living in voluntary isolation.

Most of the population in this multi-ethnic region is concentrated in the Andean foothills and the Venezuelan plains, in the Brazilian Deforestation Arc (adjacent to the Cerrado) and in and around the large Amazonian conurbations (Iquitos, Manaus and Belem). In less accessible areas, population density is low.

Livestock, agriculture, extraction of hydrocarbons and minerals, and hydroelectricity contribute significantly to national economies. Forest harvesting and commercial fishing are locally significant. Small-scale fishing, hunting and harvesting, and slash-and-burn agriculture, provide livelihoods for indigenous groups and rural communities in remote areas.

#2_Pressures and threats

National policies for agricultural development have been the main cause of land-cover change in this region. Forest loss is particularly noticeable in areas around the Amazon, such as Brazil's 'Deforestation Arc', which is mainly linked to cattle-rearing and soybean production on a large scale. Extensive fires for land-use change or as a farming technique have a devastating impact on forest ecosystems and soil fertility. In the Andean rim in Colombia, Ecuador, Peru and Bolivia, agribusiness is growing and family farms are expanding the land under cultivation. In the Orinoquia, the savannahs and plateaus are affected by the expansion of agroindustrial crops such as oil palm, rice, corn and sorghum.

Informal mining, mainly of gold, is the cause of deforestation and river pollution in several areas. The Madre de Dios River in Peru, and the Brazilian border with the Guiana Shield countries are particularly affected. Overfishing in parts of the Amazon and the construction of hydropower plants also affect river dynamics and reproductive cycles of aquatic fauna. The development of the road network (e.g. the Transamazonian highway) has improved access to remote and formerly pristine areas, contributing to growing illegal extraction of forest products and wildlife trafficking. In all these areas, weak governance has left the way open for conflicts between stakeholder groups.

According to certain climate models, if forest cover in the region falls below a certain threshold (perhaps as low as 75 %), a tipping point could be reached, resulting in the Amazon transitioning quickly from a rainforest to a savannah ecosystem. Such a scenario could entail both a drastic loss of biodiversity and a dramatic reduction in the volume of water recycled by evapotranspiration and exported from the Amazon to the south of the continent.

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A chain of mountainous plateaus, known as tepuis, extends from Venezuela to Guyana and Suriname. Long periods of isolation and abrupt topography have made them unique environments with many endemic plant and animal species.



3_Priority Strategies

To protect the immense natural wealth of the region and ensure its long-term capacity to provide ecosystem services, two strategic priorities should be applied in parallel:

- Reduce the pace of agricultural expansion, and promote practices that preserve the functionality of transformed ecosystems.
- Preserve intact and near-intact ecosystems through the consolidation of protected areas and existing indigenous territories.

In addition, ecological connectivity within and between countries should be promoted, through the implementation or strengthening

of conservation corridors or mosaics and adequate infrastructure planning. Transnational conservation plans for umbrella species should be part of this approach, taking into account emblematic species such as harpy eagles, jaguars, river dolphins and large migratory catfish.

To succeed, the strategies will require intersectoral dialogue involving the private sector and local and indigenous communities, among others. Sustained advocacy towards governments, as well as capacity building (especially for sub-national governments) should encourage the improvement of legal provisions and policies, as well as implementation and enforcement capacities.

South American lowlands

#1_Main Features

This region is home to three biodiversity hotspots: the Atlantic Rainforest, the Cerrado and the southern part of the Tropical Andes (Yungas). It includes a variety of biomes, from wet forests (Atlantic Rainforest and Yungas), dry forests and savannahs (Cerrado, Chaco and Chiquitanian forest), to shrublands (Caatinga and Monte). Large wetlands in the region include the Pantanal (the world's largest tropical wetland) in the Cerrado, and the Estrella, Izozog and Ibera flood plains in the Chaco. These are vital for hydrological regulation in the Plata watershed, which supplies major cities such as Buenos Aires and Asunción.

Population density in the region has been increasing. The highest densities can be found in the Atlantic Forest and Caatinga in Brazil, and where the Yungas meets the Chaco, in the wide valleys shared between Bolivia and Argentina. It corresponds to the areas of influence of the oldest urban centres in the region. Population density is also rising in the Cerrado, where settlement has accelerated since the founding of Brasilia in 1960.

About 1 000 indigenous communities are registered in the region, half of them in the Chaco. The border between Bolivia, Brazil and Paraguay is home to the last South American indigenous groups outside the Amazon that live in voluntary isolation.

In rural areas, the main economic activities are agriculture and livestock farming on a small, medium or large scale. Commodity production (mainly soy and beef) has increased considerably. For example, 40 % of Brazil's beef is currently produced in the Cerrado. Mining, especially for gold, precious and semi-precious stones, is increasing, while oil and gas extraction remains a major activity in the Bolivian Chaco. Selective logging is locally significant.



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In the Cerrado, Chaco and Chiquitano forest ecosystems, the expansion of agriculture follows a similar dynamic to that of Brazil's 'Deforestation Arc' in the Amazon. Fire is commonly used to effect land-use change and, without adequate safety measures, this can cause large-scale forest fires and immense damage to biodiversity.

#2_Pressures and threats

The most populated areas show higher degrees of transformation and fragmentation of natural areas. The Atlantic Forest, especially, retains only 10 % of its original area, even though land conversion for agriculture has now slowed in this area. In the Cerrado, by contrast, agriculture is expanding rapidly. This is also the case, since the early 2000s, in the Chiquitanean and Chaco forests.

Just as in the Brazilian Amazon's Deforestation Arc (region 3), this process is mainly driven by large-scale soy-bean and cattle production. Nonetheless, small-scale producers are also responsible for land conversion. In the Chiquitanean forest, for example, government policies have facilitated the settlement of small-scale farmers of Andean origin.

In the entire region, the use of fire in agriculture, generally without adequate safety measures, is a major cause of wildfires, especially in dry ecosystems and during periods of drought. Deforestation and the conversion of land for mono-culture also affects local water levels and the livelihoods of those who still depend on forest products and subsistence farming.

Poaching, illegal selective logging, firewood extraction and coal production are other common causes of ecosystem degradation. Oil and gas extraction in the Bolivian Chaco, meanwhile, are a cause of environmental damage. Informal mining, although less widespread than in the Amazon and Andes, is nevertheless of growing concern, particularly in terms of soil and water pollution. Finally, the development of hydropower projects in the Cerrado and the widening of waterways in the upper Paraguay river watershed are affecting the Pantanal ecosystem.

3_Priority Strategies

In the Cerrado, Chaco and Bosque Chiquitano, the priority should be to curb agricultural expansion and foster production practices that preserve ecosystem functionality and the livelihoods of local and indigenous communities. This requires a broad-ranging strategy, from raising environmental awareness among producers, consumers and authorities, to participatory land-use planning, clarification of land tenure and incentives for sustainable production. Participatory governance mechanisms are essential to balance conflicting interests.

Increasing the coverage of protected areas is also important, especially in underrepresented dry ecosystems like the Chaco, Caatinga and Cerrado, while improving the management and legal recognition of protected areas established by sub-national regulations.

In highly fragmented ecosystems such as the Atlantic Forest, it is vital to apply a landscape approach and restore ecological connectivity, especially by restoring degraded areas between well-conserved areas. The sustainability of water provision for urban centres offers a promising gateway to promote the conservation and restoration of this ecosystem, such as through financial mechanisms to sustain this ecosystem service.

To maintain the functionality of large wetlands, joint planning and improved management at a watershed scale is vital, and must involve key sectors (e.g. agriculture, industry) as well as the authorities in charge of infrastructure development.

Umbrella species such as the maned wolf and the giant armadillo (Cerrado), the giant otter and the hyacinth macaw (Pantanal) and the near-extinct guanaco in the Chaco, as well as endangered species like the red-billed curassow or red-tailed Amazon parrot (Atlantic Forest), the indigo macaw and the little blue macaw (Caatinga), require urgent and specific protection measures.



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On the border between Chile and Argentina, Mount Fitz Roy is a major tourist attraction in Bernardo O'Higgins National Park in Chile and Los Glaciares National Park in Argentina. With the 16,000 km² Southern Patagonian Ice Field that surrounds it, it is one of the largest freshwater reserves in the hemisphere.

Southern Ecosystems

#1_Main Features

This region is home to four biomes: temperate grasslands and espinal (thorny forest) in the north, the Andean-Patagonian forest in the east (including the Valdivian Temperate Forest biodiversity hotspot), and the arid Patagonian steppe in the southeast. The last two have high levels of endemism and are among the best-preserved areas on the planet. By contrast, close to 40 % of the espinal and more than 70 % of certain temperate grassland ecosystems (such as the Argentine and Brazilian Pampas) have been converted, mainly for agriculture and cattle ranching.

The region boasts one of the largest freshwater reserves in the Southern Hemisphere, with continental ice fields and large lakes. Its forests and peatlands are crucial for water regulation and carbon storage, and it includes an extensive area of fjords, channels and islands. The marine ecosystems that border the region are exceptionally productive, sustaining an unusual concentration of bird colonies, marine mammals and fishery resources.

The region is noteworthy for its relatively low population density, except for the major urban centres (such as Buenos Aires, Montevideo and Porto Alegre). In comparison to other Latin American regions, it has a high proportion of urban population (more than 85 %) and a relatively low proportion of indigenous population (less than 5 %).

The main economic activities are linked to primary production: agriculture and extensive cattle ranching, forestry, mining, and oil and gas. Other sectors experiencing strong development include tourism, fisheries and aquaculture in coastal areas, and industrial activities and services in urban centres.

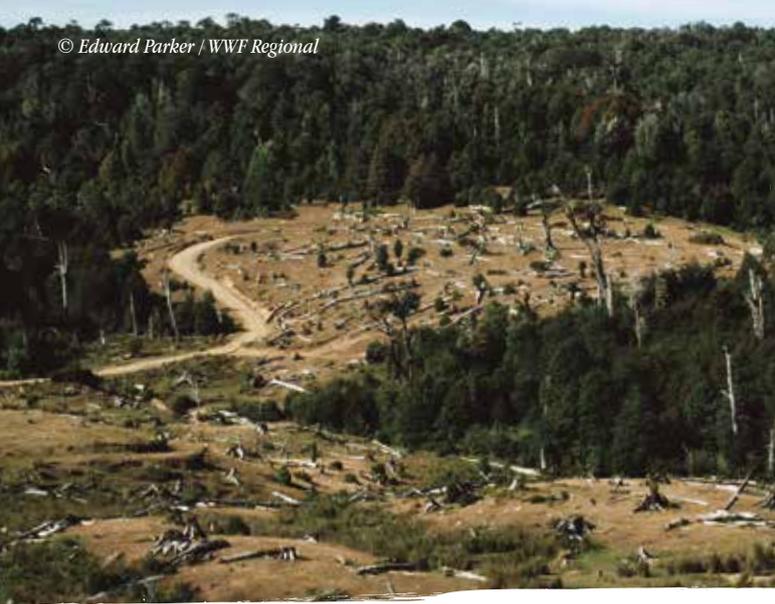
#2_Pressures and threats

Grasslands and thorny forest are the most threatened ecosystems, and also those with the least degree of protection. In the north, cattle ranching has traditionally had the greatest impact on the landscape. However, this is gradually being replaced by intensive soy and cereal production, particularly in grassland areas. In the southern steppe, sheep farming predominates, and overgrazing is the main cause of degradation of natural pastures. In Pacific fjords, the large-scale development of salmon farming is polluting coastal marine ecosystems.

Native fauna is affected not only by competition with livestock, for access to pasture and water resources, but also by the proliferation of exotic species introduced accidentally or for hunting (e.g. deer), the fur industry (e.g. mink, beaver) or fishing (e.g. salmonids, carp).

More specific threats in certain areas include the substitution of native forests with single-species forest plantations, unsustainable harvesting of wood and fuelwood, infrastructure development, especially hydropower plants, and the recent boom in oil and gas 'fracking'.

Climate change-related impacts being felt in the region include glacier melt, rising temperatures pushing species to a more limited altitudinal range, and an increase in water shortages and fires.



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*The Valdivian Forest, considered primary forest, is an ecoregion of central-southern Chile and the borders of southwest Argentina. It includes remnant forests of Patagonian cypress (*Fitzroya cupressoides*), a species severely exploited for centuries due to the excellent quality of its timber. It is currently affected by slash-and-burn agriculture.*

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Native to the region, the guanaco has been persecuted due to competition with domestic cattle for access to grasslands. It now has a significantly reduced distribution in Chile and Argentina and is the object of protective measures. Pilot projects involve live shearing to promote the sustainable use of its high quality wool.

#3_Priority Strategies

Priority actions recommended for this region include expanding protected areas and restoring the most threatened ecosystems. In the north, where protected areas cover a tiny proportion of the territory, cooperation with private landowners is indispensable.

In the south, the promotion of good practices for cattle ranching, infrastructure development and extractive activities should support the conservation and/or restoration of large ecosystems in good condition. The identification and implementation of biological corridors will help ensure connectivity between protected areas. Cross-border cooperation between Chile and Argentina is of particular relevance in this regard. Sustainable tourism can be a win-win opportunity for local economic development and conservation.

There is a pressing need to control invasive alien species and to promote low-impact renewable energy sources (e.g. wind, solar, geothermal, small-scale hydroelectric, etc.).

Specific protection measures should be put in place for umbrella species (e.g. guanaco, huemul, choique, condor), particularly threatened species (e.g. marsh deer, southern river otter, guiña cat, Darwin's fox, meadowlark), and key ecosystems, such as the Valdivian Temperate Rainforest.

The contents of this publication do not necessarily reflect the position or opinion of the European Commission.

Produced for the European Commission by the EU B4Life Technical Assistance Facility, implemented by the Agreco MDF, ICF International consortium.

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