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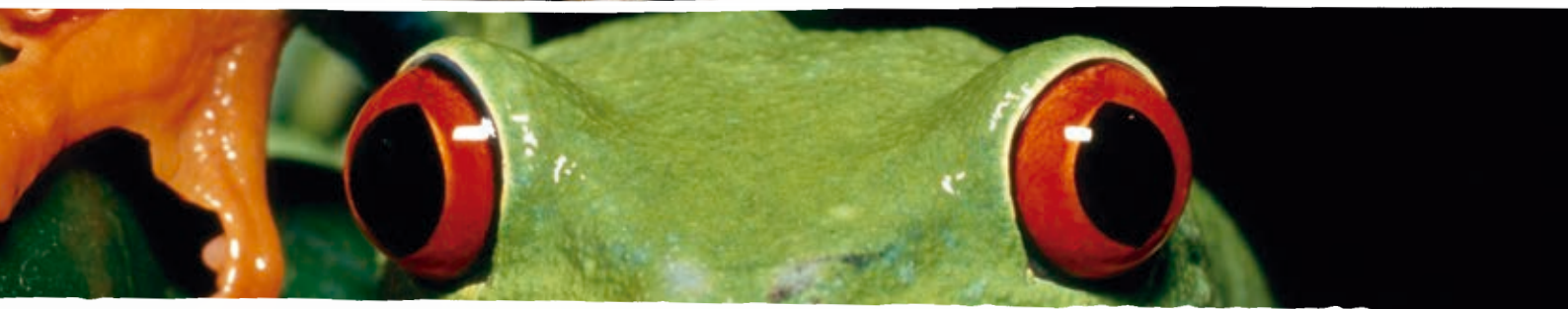
# LARGER THAN JAGUARS



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



**SYNTHESIS REPORT**



International  
Partnerships

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Contact information:

Florence Van Houtte

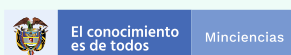
European Commission

Directorate-General for International Partnerships

Rue de la Loi 41, 1000 Brussels, Belgium

Email: [Florence.Van-Houtte@ec.europa.eu](mailto:Florence.Van-Houtte@ec.europa.eu)

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This study, *Larger than Jaguars: Inputs for a strategic approach to biodiversity conservation in Latin America and the Caribbean*, is the operational response of the Wildlife Crisis Window, an integral part of the 'EU Biodiversity for Life' (B4Life) flagship initiative. B4Life is a conceptual framework to ensure better coherence and coordination of EU actions in the area of biodiversity and ecosystems. B4Life was defined in 2014 with the purpose of highlighting the strong linkages between ecosystems and livelihoods in view of contributing to poverty eradication. It aims to tackle drastic biodiversity loss by promoting good governance of natural resources, securing healthy ecosystems for food security, and supporting innovative ways to manage natural capital in the framework of a green economy.

# LARGER THAN JAGUARS

Inputs for a  
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biodiversity conservation  
in Latin America  
and the Caribbean

**SYNTHESIS REPORT**



*The quetzal (Pharomachrus mocinno) is an emblematic bird of Central America, where it lives in tropical and mountainous forests. Like the jaguar, it is a sacred animal in several indigenous cultures. It is threatened by the destruction of its habitat and is a victim of wildlife trafficking. (© Sidney Bragg)*

Latin America and the Caribbean together cover less than a fifth of the Earth's surface area. And yet, thanks to the immense variety of their climates and habitats – from the Caribbean Sea to the Patagonian steppes, and from the summit of the Andes to the Amazon plain – they are home to more than half of the world's biodiversity and to the highest number of species found nowhere else on the planet.

The jaguar is emblematic of this extraordinary and unique biodiversity. As one of the region's 'umbrella species', it plays a vital role in supporting others in the ecosystem, for example as population regulators or seed dispersers. However, many such species have large territorial needs and low reproductive rates, making them vulnerable to human activities. At the same time, they are commonly revered by humans for their cultural or religious significance – the jaguar, for example, is a symbol of strength for some indigenous cultures – as well as being prized for their beauty and for consumption.

Globally, one million of our planet's eight million species are in danger of extinction. Threats to their survival include deforestation, land conversion, road-building and illegal hunting. Loss of biodiversity and ecosystem degradation disrupt our food chains and water supplies, trigger extreme weather events and affect our livelihoods and well-being. They pose a major challenge to decision-makers, businesses and the public as a whole – especially indigenous peoples – in this region and worldwide.

In response, it is our generation's defining task to tackle climate change and protect the ecosystems that sustain nature, human livelihoods and economies. What is clear is that only by working in partnership can we hope to restore a balance, building societies and economies that use but do not abuse the planet's natural resources. Sustainable development is the only way forward.

With this in mind, the European Union has made the Green Deal its overarching priority to transform our economic model. We are committed to play a leading role in building global efforts to halt biodiversity loss, pursuing robust policies to tackle climate change, make food production sustainable, combat pollution, build a circular economy, and see sustainable development objectives reflected in trade agreements. While addressing the challenges within the EU and in global supply chains, we also work with partner countries and regions worldwide to support their efforts to manage habitats and landscapes.

In our role as policymakers, we have a responsibility to speak out on the great challenges of our time, to propose solutions and to build partnerships wherever possible to advance together towards greater understanding and resolution. We need to give hope and a legacy to future generations. As great as the task may seem, it is dwarfed in comparison with what we stand to lose if we fail to act while we have the chance.

It is our hope that Larger than Jaguars will encourage dialogue with partners in Latin America and the Caribbean – and internationally, too. If we work together, we can achieve so much more. We can help deliver solutions to the biodiversity crisis, and thus secure a brighter future for the natural world and all of us who live in it.

Brussels, January 2021



A handwritten signature in blue ink that reads "Jutta Urpilainen".

**Jutta Urpilainen**  
*European Commissioner, International Partnerships*

---

## Editors

Van Houtte, Florence, European Commission  
Chatelus, Sébastien, European Commission  
Marijnissen, Chantal, European Commission  
Mayaux, Philippe, European Commission  
Saracco, Filippo, European Commission  
Villanueva Hullebroeck, Pablo, European Commission

---

## Authors

Aragón, Roxana, ProYungas  
Arguedas, Stanley, AGRECO  
Blumetto, Oscar, INIA  
Brown, Alejandro, ProYungas  
Cordero, Doris, Consultant  
De Bustos, Soledad, Consultant  
Eguino, Sergio, FUNDESNAP  
Fedrigo, Jean, Universidad Federal de Rio Grande do Sul, Brasil  
Gallo, Melibea, Chrycina Biodiversidad y Bienestar  
Grosfeld, Javier, CONICET  
Lederman, Marcia, Consultant  
Merlot, Leon, AGRECO  
Miranda, Carmen, Savia  
Pacheco, Silvia, ProYungas  
Painter, Lilian, WCS  
Sguerra, Sandra, Consultant  
Silva, Claudia, WCS  
Velásquez, Beatriz, ProYungas  
Vennetier, Claire, Consultant  
Vides, Roberto, FCBC  
Vila, Alejandro, WCS

---

## Study supervision and support

Arguedas, Stanley, Consultant  
Aveling, Conrad, AGRECO  
Herreros de Tejada, Fernando, Consultant  
Merlot, Leon, AGRECO  
Mill, Katharine, AGRECO  
Urioste, Alejandra, Consultant  
Van Houtte, Florence, European Commission  
Vennetier, Claire, Consultant  
Vives, Muriel, AGRECO  
White, Fiona, Consultant

---

## Spatial analysis and map production

Buzza, Karina, ProYungas  
Mayaux, Philippe, European Commission  
Villanueva Hullebroeck, Pablo, European Commission

---

## Contributors and participants

Abreu, Maria Jasylene Pena de, WWF  
Adriaensen, Caroline, European Commission  
Amaral, Paulo, Consultant  
Amend, Stephan, GIZ  
Amend, Thora, WCPA IUCN  
Amengual, Pep, OAPN  
Ammour, Tania, IUCN  
Andrade, Angela, CI/IUCN  
Arellano, Stéphanie, IUCN  
Ariza Milanes, Johnny, European Commission  
Barreto, Carlos, Consultant  
Beck, Stephan, Herbario Nacional - UMSA  
Benedetti, Susana, INFOR  
Bilenca, David, Exactas - FCEyN - UBA  
Bustamante, Mercedes, Consultant  
Cabrera, Cuauhtémoc, CONEPAR, A.C.  
Cardozo, Gerónimo, INIA  
Carrión, Victor, Island Conservation Galápagos  
Cortéz, Gonzalo, Vida Silvestre Uruguay  
Castagna, Andres, INIA Uruguay  
Courrau, José, IUCN  
De Cassia, Rita, INPA Brasil  
Diazgranados, M. Claudia, PMCI, Colombia  
Días, Heloisa, Consultant  
Durigan, Carlos Cesar, WCS  
Echeverría, Hugo, Consultant  
Eguino, Sergio, FUNDESNAP  
Factos, Miriam, GIZ Ecuador  
Fomo, Eduardo, CI  
Franco, Padu, WCS  
Funes, Martín, WCS  
Gardón, Jacques, IRD  
Golob, Ajda Gracia, European Commission  
Gómez, José Antonio, IAPA  
González, Javier, HELVETAS  
Gruenberger, Jenny, IUCN  
Harris, Guillermo, WCS  
Hasbún, Carlos Roberto, Consultant  
Herrera, Bernal, WCPA-IUCN  
Herrera, Alejandro, ECOMAR  
Hofstede, Robert, Consultant





Incháustegui, Sixto, Grupo Jaragua  
Ioannou, Solomon, European Commission  
Ioetting, Imke, FUNDESAP  
Itaborahy, Wilde, ISA Brasil  
Izurietta, Arturo, Fundación Charles Darwin  
Jacques de Dixmude, Arnold, European Commission  
Jara, Luis Fernando, Proyecto Páramos y Bosques  
Koury, Carlos Gabriel, IDESAM Brasil  
Kusch, Alejandro, WCS  
Lasso, Carlos, Instituto Humboldt - Colombia  
Lino, Cleyton, RBMA  
Lobo, Alessandra, Consultant  
Londoño, Nery, PNN de Colombia  
Luy, Alejandro, Tierra Viva  
Machado, Antonio, ACFIMAN  
Majorano Sarapo, Francesca, European Commission  
Maretti, Claudio, CMBio  
Marqués, Beatriz, Secretaría de Ambiente y Desarrollo Sustentable de Río Negro  
Martin, Marjorie, INFOR Chile  
Méndez, Martín, WCS  
Metzger, Jean Paul, Consultant  
Michaud, Enrique, OIKOS Perú  
Michelson, Andrea, Fundación Vida Silvestre Argentina  
Miñarro, Fernando, Fundación Vida Silvestre Argentina  
Miranda, Carmen, SAVIA, IUCN  
Missine, Bart, European Commission  
Montovani, Mario, Consultant  
Morales, Ma. Eugenia, UNDP  
Morales, Angel, Biofutura A.C.  
Morales, Jonatan, Biofutura A.C.  
Moreira, Adriana, World Bank  
Moutinho, Paulo, Consultant  
Nobre, Carlos, Consultant  
Novo, Isabel, Consultant  
Oliveira, Marcelo, WWF  
Oltramari, Juan, Consultant  
Páez, Andrés, CI  
Painter, Lilian, WCS  
Palacios, Erwin, EB Mosiro Itajura CI  
Parra, Fabiola, CIZA-UNALM  
Peguero, Brígido, JBN República Dominicana  
Quigley, Howard, Panthera  
Radachowsky, Jeremy, WCS  
Ramos, Luis Antonio, USAID  
Reuter, Adrian, WCS  
Ricord, Zulma, Consultant  
Roca, Manlio, SMA - GDSCZ  
Rodas, Oscar, WWF  
Rodríguez, Jon Paul, IVIC  
Rosales, Augusto, Consultant

Rubio de Urquia, Javier, OAPN  
Rumiz, Damián, Fundación Simón I. Patiño  
Rylands, Anthony Brome, Global Wildlife Conservation  
Sainz, Lila, WWF  
Salas, Danilo, Fundación Moisés Bertoni  
Salinas, Julio Cesar, FCBC  
Salviati, Victor, FAS Brasil  
Santilli, Marcio, Consultant  
Sawyer, Donald, Consultant  
Serrada, Jesús, OAPN  
Silva, Fabiano, FVA Brasil  
Soares, Kolbe, WWF  
Sobreira de Moura, Alexandrina, RB Caatinga  
Soriano, Sarah, European Commission  
Souza, Carlos, Consultant  
Speranza, Yan, Fundación Moisés Bertoni  
Sueiro, Juan Carlos, OCEANA Perú  
Thienel, Mariana, WCS  
Torres, Bolier, UEA  
Torres, Juan Jesús, CIZA-UNALM  
Trujillo, Fernando, Fundación Omacha  
Usma, Saulo, WWF  
Vides, Roberto, FCBC  
Viteri, César, CI  
Viña, Nicasio, Corredor Biológico del Caribe  
Walker, Susan, WCS  
Yanosky, Alberto, GUYRA  
Yerena, Edgard, DEA - USA  
Zorzan, Federico, European External Action Service

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## List of abbreviations and acronyms

ABOLAC	Bolivian Association of Park Rangers – Conservation Agents
ABS	access and benefit-sharing
ACB	ASEAN Centre for Biodiversity
ACP	African, Caribbean and Pacific Group of States
ACS	Association of Caribbean States
ACTO	Amazon Cooperation Treaty Organisation
ADB	Asian Development Bank
AECID	Agencia Española para la cooperación internacional y el desarrollo (Spanish Agency for International Development Cooperation)
AFD	Agence Française de Développement
AICS	Agencia italiana per la cooperazione allo sviluppo (Italian Agency for Development Cooperation)
ALBA-TCP	Alianza Bolivariana para los Pueblos de Nuestra América – Tratado de Comercio de los Pueblos (Bolivarian Alliance for the Peoples of Our America – Peoples’ Trade Treaty)
APN	Administración de Parques Nacionales de Argentina (National Parks Administration of Argentina)
ARA	Acuerdos Recíprocos por el Agua (Reciprocal Water Agreements) (Bolivia)
ASAP	Asian Species Action Partnership
ASEAN	Association of South-East Asian Nations
AZE	Alliance for Zero Extinction
B4Life	Biodiversity for Life
BFP	Bolsa Floresta Programme (Floral Stock Programme)
BIOPAMA	Biodiversity and Protected Areas Management Programme
BMUB	German Ministry of the Environment
BRL	Brazilian real (currency of Brazil)
CABEI	Central American Bank for Economic Integration
CAF	Banco de Desarrollo de América Latina (Development Bank of Latin America)
CAFTA	Central America Free-Trade Agreement
CAN	Andean Community
CARICOM	Caribbean Community
CARIFORUM	Caribbean Forum of African, Caribbean and Pacific States
CATIE	Tropical Agricultural Research and Higher Education Centre
CBD	Convention on Biological Diversity
CBI	Caribbean Basin Initiative
CC	climate change
CCAD	Central American Commission for Environment and Development
CELAC	Community of Latin American and Caribbean States
CEPF	Critical Ecosystem Partnership Fund
CI	Conservation International
CIF	Caribbean Investment Facility
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora International
CLT	Conservation Land Trust
CONABIO	Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (National Commission for the Knowledge and Use of Biodiversity)
CSO	civil society organisation
DDT	dichlorodiphenyltrichloroethane
EbA	Ecosystem-based Adaptation
ECLAC	Economic Commission for Latin America and the Caribbean
EDF	European Development Fund
ELAP	Escuela Latinoamericana de Áreas Protegidas (Latin American School of Protected Areas)
ESCI	Emerging and Sustainable Cities Initiative



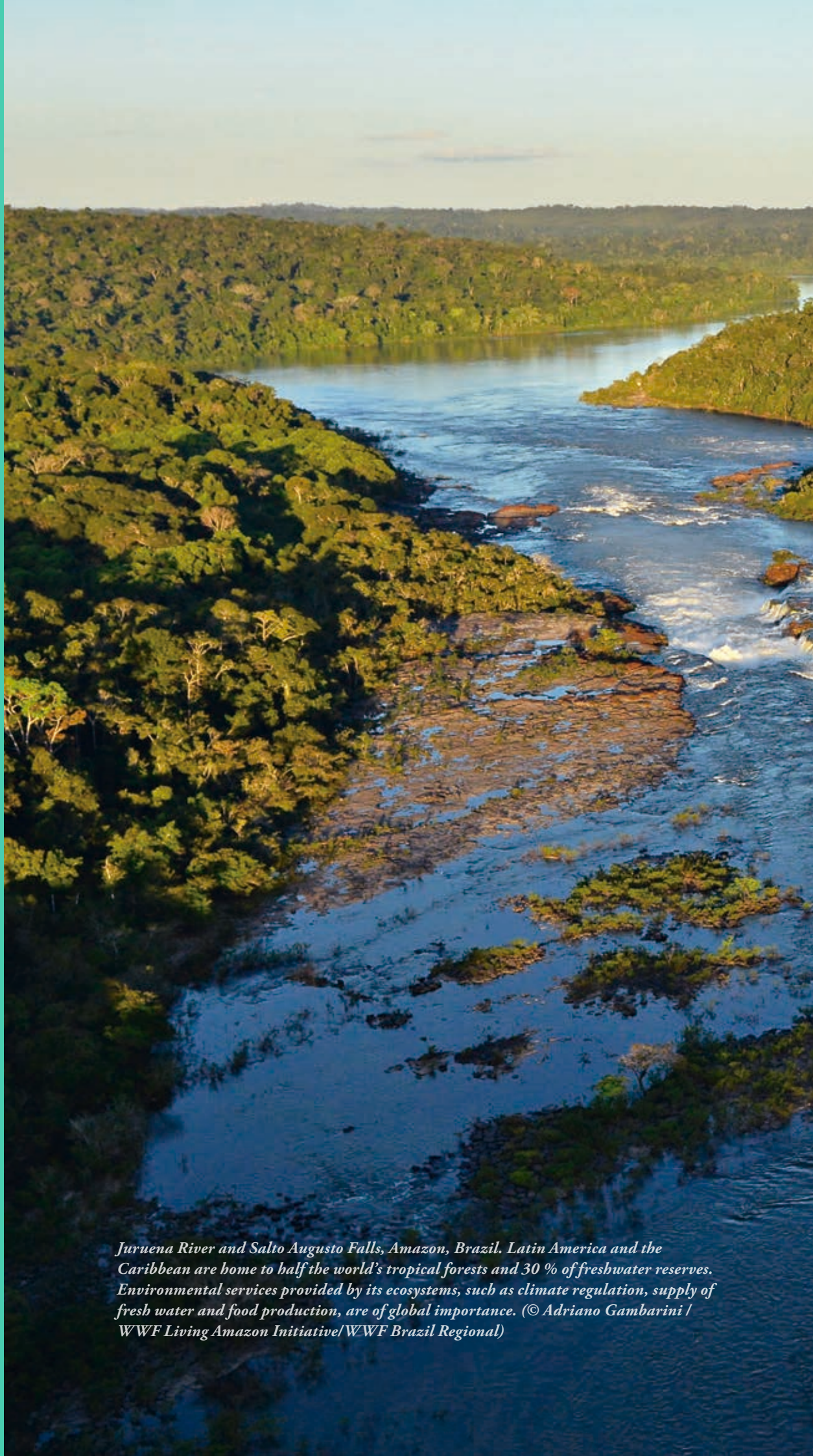
EU	European Union
FAO	Food and Agriculture Organisation of the United Nations
FCPF	Forest Carbon Partnership Facility
FLEGT	Forest Law Enforcement, Governance and Trade
FONAFIFO	Fondo Nacional de Financiamiento Forestal (The National Forest Financing Fund; Costa Rica)
FONPLATA	Plata Basin Financial Development Fund
FPIC	free, prior and informed consent
FRA	Forest Resources Assessment
FSC	Forest Stewardship Council
GDP	gross domestic product
GHG	greenhouse gas
GEF	Global Environment Facility
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (German Society for International Cooperation)
Global 200	Global Ecoregions
GRIF	Guyana REDD+ Investment Fund
IAC	Implementation Agenda based on Consensus
IBA	important bird area
IberoMAB	Ibero-American and Caribbean Network of Committees and Biosphere Reserves
ICCA	Indigenous Peoples' and Community Conserved Areas and Territories
ICWC	International Consortium on Combating Wildlife Crime
IDB	Inter-American Development Bank
IFL	intact forest landscape
IIRSA	Initiative for the Integration of Regional Infrastructure in South America
ILO	International Labour Organisation
IMF	International Monetary Fund
INPA	National Institute of Amazonian Research (Brazil)
INTERPOL	International Criminal Police Organisation
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
ISA	Instituto Socioambiental (Socio-environmental Institute)
IUCN	International Union for Conservation of Nature
IWT	illegal wildlife trafficking
JICA	Japan International Cooperation Agency
JRC	Joint Research Centre
KfW	Kreditanstalt für Wiederaufbau (a German development bank)
KLC	key landscape for conservation
LAC	Latin America and the Caribbean
LAIF	Latin America Investment Facility
MERCOSUR	Southern Common Market
MoU	Memorandum of Understanding
NBSAP	national biodiversity strategies and action plans
NBS	nature-based solutions
NGO	non-governmental organisation
NIP	national indicative programme
NNP	National Natural Park
OACPS	Organisation of African, Caribbean and Pacific States
OAS	Organisation of American States
OECD	Organisation for Economic Cooperation and Development
OECM	other effective area-based conservation measure
OECS	Organisation of Eastern Caribbean States



OSAS	Socio-Environmental Soy Observatory
OTBN	Ordenamiento Territorial de Bosques Nativos (Territorial Organisation of Native Forests, Argentina)
PA	protected area
PCB	polychlorinated biphenyls
PEFC	Programme for the Endorsement of Forest Certification
PES	payment for ecosystem services
PESP	Environmental Services Programme (Costa Rica)
PSAH	Programme for Hydrological Environmental Services
RAISG	Amazon Geo-Referenced Socio-Environmental Information Network
REDD+	Reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks
REDPARQUES	Latin American Technical Cooperation Network on National Parks, Other Protected Areas, Wild Flora and Fauna
REM Programme	REDD+ Early Movers Programme
SDG	Sustainable Development Goal
SEEA	System of Environmental-Economic Accounting
SERFOR	National Forest and Wildlife Service (Peru)
SERNAP	National Protected Areas Service (Bolivia)
SIB	Biodiversity Information System (Argentina)
SICA	Central American Integration System
SICAP	Central American System of Protected Areas
SIDS	Small Island Developing States
SMR	special management regime
TCO	Tierras Comunitarias de Origen (Original Community Lands)
TEEB	The Economics of Ecosystems and Biodiversity
TNC	The Nature Conservancy
TRWR	total renewable water resources
UN REDD+	United Nations Programme for Reducing Emissions from Deforestation and Forest Degradation
UN/UNDP/UNEP	United Nations/Development Programme/Environment Programme
UNCLOS	United Nations Convention on the Law of the Sea
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change
UNODC	United Nations Office on Drugs and Crime
USAID	United States Agency for International Development
USD	United States dollar
VPA	Voluntary Partnership Agreement
WAVES	Wealth Accounting and the Valuation of Ecosystem Services
WCO	World Customs Organisation
WCPA	World Commission on Protected Areas
WCS	Wildlife Conservation Society
WWF	World Wide Fund for Nature
ZICOSUR	Zona de Integración de Centro y Oeste Sudamericano (Centre West of South America Integration Zone)







*Juruena River and Salto Augusto Falls, Amazon, Brazil. Latin America and the Caribbean are home to half the world's tropical forests and 30 % of freshwater reserves. Environmental services provided by its ecosystems, such as climate regulation, supply of fresh water and food production, are of global importance. (© Adriano Gambarini / WWF Living Amazon Initiative/WWF Brazil Regional)*



**Executive  
summary** ▶



## Executive summary

**A**s the biodiversity crisis worsens, its impact on economic and social development is becoming increasingly apparent. Strategies to tackle environmental degradation 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 and to life.

Evidence is pointing to a bleak outlook if we continue on our current trajectory. A recent assessment by the Inter-governmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) showed that we are not on track to meet goals for the conservation of biodiversity or its sustainable use. According to the report, the only way to meet international targets on biodiversity (Aichi targets) and sustainable development (Agenda 2030) is through truly transformative change. A crucial step in this direction will be getting consensus on the need for a global agreement on the conservation and sustainable use of biodiversity for the post-2020 period.

The European Union (EU) is committed to contributing to this outcome. Through initiatives like B4Life and the European Green Deal<sup>1</sup>, it promotes biodiversity conservation and sustainable development, in developing countries as well as on a global scale.

Based on the findings of recent studies and the input of numerous local and international specialists, *Larger than Jaguars* provides

guidelines for a strategic approach to biodiversity conservation for Latin America and the Caribbean (LAC). Similar detailed studies were conducted by the European Commission in Africa (*Larger than Elephants*) and in Asia (*Larger than Tigers*), providing a valuable basis for decisions in biodiversity conservation aligned with human development. The findings will not only feed the strategy of the EU to establish strong partnerships with LAC based on common values and shared interests, but are also meant to contribute to converging actions by all stakeholders in favour of ecosystem conservation and enhancement.

This proposal is in line with the political 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. This latest document emphasises the importance of preserving biodiversity, moving towards a green and circular economy, and fighting climate change. It also emphasises the common interests of the EU and the countries of the region, as well as their close collaboration in the international arena for the definition of global agendas, such as the Paris Agreement or the Sustainable Development Goals (SDGs) of the United Nations.

Latin America and the Caribbean cover only 15 % of the Earth's surface, but are home to more than 50 % of the world's biodiversity. This region has half the world's tropical forests and

<sup>1</sup> [https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal\\_es](https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_es)

*Los Alerces National Park, Patagonia, Argentina. Historically, protected areas have proven to be the most efficient tool for biodiversity conservation. However, in the current context, they are no longer sufficient to stop the transformation of ecosystems. Beyond these spaces, it is necessary to develop innovative mechanisms to contribute to the same objectives. (© Guaxinim/Shutterstock)*

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 (25 %) and most of its forest ecosystems are vulnerable, endangered or critically endangered according to the International Union for the Conservation of Nature's (IUCN) Red List. Over the last 30 years, the main causes of environmental degradation have been the conversion of land for monocrop agriculture such as palm oil, extensive conversion of land for animal 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.

Despite significant advances in terms of human development, high poverty levels persist across much of the region, which also has the highest rate of inequality in the world. The many indigenous peoples who live in remote areas are among the most vulnerable due, among other factors, to their high dependence on healthy ecosystems.

The region has met certain Aichi Targets and Millennium Goals. Between 1990 and 2014, the land surface covered by protected areas (PAs) increased from 8.8 to 23.4 %, making LAC the region with the largest proportion of protected territory. South America also leads other continents in terms of the participation of indigenous peoples and local communities in the governance of PAs. In addition, some specific successes are being achieved, such as the increase in forested areas in the Caribbean.

However, due to constant human pressures, environmental degradation continues, with an ongoing impact on biodiversity. To reverse this trend, ecosystems and biodiversity protection must become a priority in development strategies at all levels (local, national and regional). Opportunities and priorities vary by sub-region and country. Larger than Jaguars recommends a strategic approach based on 6 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 PAs, which cover a combined 4.8 million km<sup>2</sup> of terrestrial area and 4.6 million km<sup>2</sup> of the marine realm.

Despite the increase of land surface covered by PAs, important concerns remain regarding increasing pressures on these protected areas, the uneven quality of their management and disparities between regions. There is also an important disparity in the representation of different biomes, with little protection for savannah and temperate scrubland, or for temperate forests and Mediterranean shrubland.

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

The proposed strategic approaches in this field include:

- extending the coverage of PAs, with a focus on under-represented biomes and key landscapes for conservation, taking into account the contribution of public land, private reserves and indigenous territories;
- promoting the efficient management of PAs, identifying their weaknesses and strengths, and consolidating PA institutional systems by: 1) promoting the development of appropriate PA policy frameworks; 2) strengthening the capacities of the people who manage them; and 3) increasing their coordination by developing networks and integrating planning and management processes;
- aiming for greater local ownership in PA management and conservation objectives, as well as the effective inclusion of these objectives in development plans and land-planning processes, and fostering joint benefits for local populations and wildlife;
- increasing and diversifying the financing framework for PAs through public investment and the creation of income-generating systems;
- encouraging the creation of incentive mechanisms for conservation and restoration, such as environmental tax reforms, environmental criteria in development funding, schemes of payment for ecosystem services (PES), and the development of markets for green products;
- creating and/or strengthening connectivity corridors between isolated habitats and ecosystems, with adequate focus on cross-border as well as river connectivity;
- restoring priority ecosystems (riverbanks, groundwater recharge zones, etc.) within this connectivity framework, with emphasis on natural regeneration with native and endemic species;
- designing and implementing conservation plans for umbrella species;
- boosting capacity building, research, awareness, investment and coordination to combat wildlife trafficking from its roots;
- strengthening regional capacities and cooperation to fight forest fires (regulatory enforcement, prevention, detection, extinction and restoration).



^ *Finca Esperanza plantation, Matagalpa, Nicaragua. Coffee was a pioneering export product in the implementation of sustainable marketing chains. Production in low environmental impact systems is among the standards required under agreements established between producers and certain large importing companies. Similar initiatives are being developed for other products, such as meat and soy. (© John Mitchell/Alamy Stock Photo)*

## THEMATIC AREA 2: SUSTAINABLE PRODUCTION AND TRADE

Most economies in the region are highly dependent on the production and export of natural resources and commodities, and do not sufficiently take into account the environmental externalities of their economic 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 some Caribbean countries. Unsustainable practices in agriculture, forestry, fisheries and extractive industries are contributing to the degradation and pollution of soil and water, loss of genetic diversity and social conflicts over access to resources. A more proactive shift towards 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 on the development of markets for 'green' products and services. Sustainable production is closely linked to sustainable consumption, and thus greatly depends on efforts to transform consumption patterns, not only in LAC but also in importing countries.

Recommended actions include the following:

- Promote sustainable practices at all levels of value chains, especially in natural resource-based sectors such as agriculture, fisheries and food, wood products, extractive industries and tourism;
- Include and enforce sustainable with their trade partners and ensure that border crossings of agricultural products, especially cows, are strict enough to protect the integrity of deforestation-free supply chains.

- Improve consumer awareness and information on sustainability of value chains (see Thematic Area 5).
- Strengthen certification schemes, platforms and markets for sustainable commodities and services;
- Strengthen the compatibility of economic policies with water management, biodiversity conservation and climate action, advocate for an end to incentives for unsustainable production systems (especially cattle ranching, monocrop agriculture and industrial scale logging), and encourage accessible financial products for sustainable production systems;
- Promote alternative economic activities (ecotourism, beekeeping, sustainable fishing, sustainable management of wild species, etc.) that promote the producer's role in environmental conservation;
- Enhance the conservation of agro-biodiversity and associated cultural practices, related to the number of cultivated species, genetic diversity of crops, and diversity of production systems and diets.

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

The unplanned expansion of urban areas (80 % of urban population in LAC), accompanied by an 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 as both consumers and citizens that determine public policies.



^ *The Desana indigenous people from the Brazilian Amazon consider their societies to be an essential part of nature. The involvement of indigenous peoples in the governance of sustainable development and conservation processes contributes to reducing power asymmetries with other local stakeholders. Within this framework, a rights-based and gender-sensitive approach is essential to ensure beneficial outcomes for conservation and livelihood improvement. (© Tim Ellis)*

There is an urgent need to:

- promote better management of urban biodiversity and peri-urban PAs, to maintain ecological connectivity and increase city-dwellers' environmental awareness;
- encourage the implementation of payment schemes for ecosystem services, which ensure a contribution by urban populations to the protection of natural resources that provide goods and services, such as drinking water;
- enhance the use of sustainable renewable energies, resource efficiency, integrated waste management and the circular economy within urban development policies.

#### THEMATIC AREA 4: ENVIRONMENTAL GOVERNANCE

Governance mechanisms regarding land and natural resources in Latin America and the Caribbean are in many cases unclear (notably with regards to tenure) and often reflect the prevailing inequality in economic and political power. The threats to environmental activists and the number of natural resource-related conflicts in many countries are a source of concern.

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

Priority actions include the following:

- Promote environmental governance models that encourage collaboration between different sectors and levels of government and safeguard the rights of local stakeholders, in particular indigenous people, local communities and women;
- Strengthen the rule of law, facilitate access to justice and provide means to ensure the safety of environmental rights defenders;
- Develop mechanisms for stakeholder involvement, both in development and conservation projects, ensuring greater transparency in information and accountability processes;
- Support the clarification and enforcement of resource tenure and the emergence of innovative governance systems for PAs that facilitate local participation in their management (such as management committees and conflict resolution bodies), including, where relevant, transboundary coordination mechanisms;
- Reduce power asymmetries by strengthening capacities and improving access to information, notably for rural communities and indigenous peoples, as well as vulnerable sectors of the population (particularly women, the elderly and youth);
- A rights-based and gender-sensitive approach is essential to ensure win-win outcomes for conservation and livelihoods improvements.



## 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 the risks for the environment, 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 the compilation of information (traditional and scientific sources), particularly with regard to the conservation status of ecosystems, the value of providing ecosystem services, the impact of human activities, sustainable production models and the effectiveness of conservation and sustainable development interventions;
- safeguard and disseminate traditional knowledge that contributes both to maintaining sustainable ways of life and to the design of best practice production models;
- introduce environmental education in the school curricula and support higher education studies related to the management of sustainable ecosystems;
- promote thematic learning platforms and networks to improve the interinstitutional management of environmental information, broaden knowledge outside environmental circles and reinforce the science-policy interface;

- support capacity building related to conservation and sustainable development (including green accounting) for public administrations, especially at sub-national level. These should be linked to facilitated access to sustainable funding sources for these administrations;
- encourage the inclusion of conservation and the sustainable use of natural resources' principles into higher education programmes related to land-planning and land-management;
- promote training for workers and managers of PAs, as well as for local actors that participate in co-management;
- promote environmental awareness through strategic communication targeting different audiences: consumers, the productive sector, authorities and decision-makers, youth and others.

## 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





◀ *In Paraguay, Argentina and Bolivia, the Great American Chaco still has large areas of intact ecosystems. However, development policies that prioritise short-term economic benefit are encouraging agricultural production, primarily meat and soybean related to the animal agriculture industry. (© World Resources Institute)*

social returns. As an example, PA boundaries have regularly been modified to give way to roads, agricultural production or extractive industries.

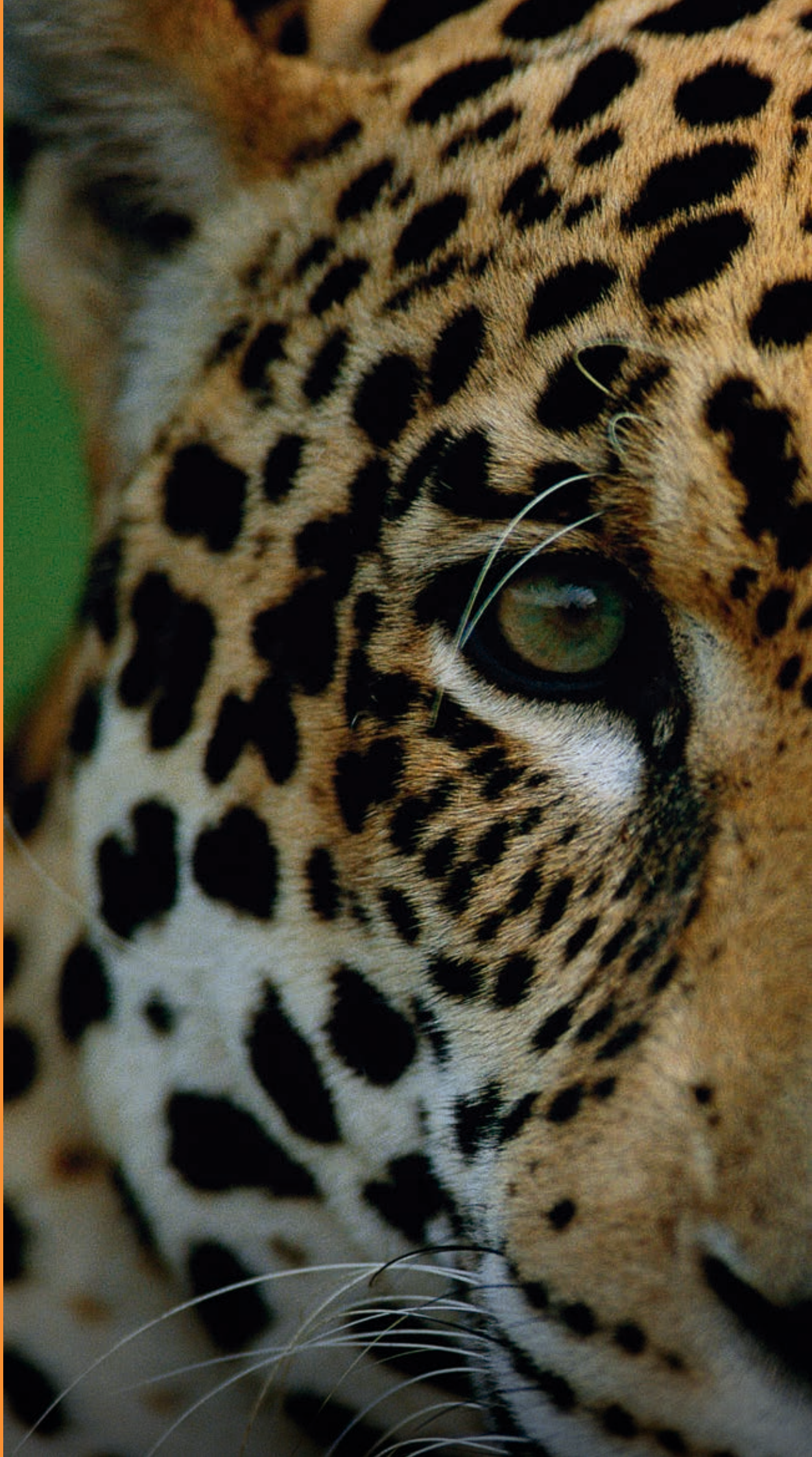
A regional approach is warranted to reduce contradictions between legal and policy frameworks in neighbouring countries, for example for the protection of certain species or the management of transboundary watersheds.

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 (see Thematic Area 2);
- Include and implement social and environmental safeguards in investments and development projects;
- Develop sound political and legal mechanisms and institutional capacities to apply the mitigation hierarchy in infrastructure and extractive projects; encourage the creation of 'no-go zones';
- Consolidate environmental monitoring and control mechanisms by strengthening capacities of public, private and civil society stakeholders;

In line with the European Green Deal, the EU encourages and supports partner countries in the transition of their economy and society towards greater sustainability. By promoting a greater commitment to biodiversity, ecosystem services and sustainable development in the LAC region, the EU is also contributing to delivering on its own international commitments.

*Larger than Jaguars* aims to provide relevant information and concrete proposals to advance an integrated biodiversity action strategy for the region, in order to facilitate political dialogue and guide sustainable investments and actions by all political, economic and social stakeholders in LAC (including the EU). The EU intends, through this work, to contribute to improved management and conservation of the region's natural heritage, which is vital for its progress towards the Sustainable Development Goals (SDG) and for global environmental sustainability.



# #1

## Introduction and regional background ►

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*The jaguar (Panthera onca) is the largest cat in America and the third largest in the world. Present in 18 countries in Latin America, from Mexico to Argentina, it is one of the region's umbrella species, and is emblematic of the extraordinary neotropical biodiversity. (© Staffan Widstrand/WWF Regional)*



## #1 \_ Introduction and regional background

United by history, shared values and cultural ties, the European Union (EU) and Latin America and the Caribbean (LAC) have a productive and long-lasting relationship, and have been linked by a strategic partnership since 1999. The EU has signed association, free trade and/or political dialogue and cooperation agreements with 27 of the 33 LAC countries. The EU and LAC are both committed to multilateralism. Countries in both regions have had close collaboration in the international arena, particularly in the framework of the Rio conventions, and in the definition of the Paris Agreement and the SDGs of the 2030 agenda.

Lately, the EU has been the largest provider of development cooperation and humanitarian aid to the region, including contributions to respond to the great environmental challenges it faces. The overall strategy of the EU Common Foreign and Security Policy (2016)<sup>2</sup> is to expand cooperation and to establish strong partnerships with LAC based on shared values and common interests. The Joint Communication, *The European Union, Latin America and the Caribbean: joining forces for a Common Future* (16 April 2019)<sup>3</sup>, gives a central place to environmental issues, including safeguarding biodiversity, moving towards a green, circular economy and combating climate change.

It is now widely recognised that the sustainable management and use of ecosystems and natural resources play a fundamental role in peace, development and conflict resolution. In this vein, the New European Consensus on Development (2017) made sustainable development a primary objective of European cooperation. The European Green Deal<sup>4</sup> further recognises the extent of the challenges posed by climate change and environmental degradation to the world's economy and societies. It sets out an ambitious EU response, with a roadmap of actions to boost the efficient use of resources (by moving to a clean, circular economy), and to stop climate change, revert biodiversity loss and cut pollution. The EU calls on its external partners, including in LAC, to jointly work on a green transition, in order to join forces for this global transformation agenda. One of the first products of the Green Deal is the new EU Biodiversity Strategy for 2020-2030, aimed at intensifying measures to prevent further biodiversity loss and restore ecosystems, and paving the way for the EU ambition for a strong new Global Strategic Framework on Biodiversity under the Convention for Biological Diversity (CBD). This renewed sense of urgency regarding the challenges related to biodiversity loss is particularly significant for LAC. Although this region is home to more than 50 % of the world's biodiversity, 6 of the 17 megadiverse countries and half the planet's tropical forest, the accelerated degradation of its ecosystems and wildlife is jeopardising the very foundations of sustainable development, raising concerns worldwide.

<sup>2</sup> [https://eeas.europa.eu/regions/western-europe/17304/global-strategy-european-unions-foreign-and-security-policy\\_en](https://eeas.europa.eu/regions/western-europe/17304/global-strategy-european-unions-foreign-and-security-policy_en)

<sup>3</sup> <https://www.eumonitor.eu/9353000/1/j9vvik7m1c3gyxp/vkxqrxktctu>

<sup>4</sup> [https://ec.europa.eu/info/sites/info/files/european-green-deal-communication\\_en.pdf](https://ec.europa.eu/info/sites/info/files/european-green-deal-communication_en.pdf)

&lt;

*Tijuca National Park, Rio de Janeiro, Brazil. Latin America and the Caribbean cover 15 % of the earth's surface but are home to more than 50 % of the world's biodiversity and 7 of the planet's 34 biodiversity hotspots. The Atlantic Forest is one of these and also one of the most threatened; no more than 10 % of the ecosystem is estimated to survive in its original state. (© Rocharibeiro/Shutterstock)*

&gt;

*In the Yungas Biosphere reserve in northern Argentina, where areas of high environmental value overlap with urban and farmed areas, biodiversity conservation needs to be integrated into all economic development strategies. (© José Luis Rodríguez/ProYungas)*



This document presents a strategic approach to conservation and a sustainable use of biodiversity in LAC. It is designed as a decision support tool to guide the investments and actions in the region by all stakeholders, including governments, the private sector and civil society, as well as international partners. Its purpose is to help identify priorities and enable better coordination of biodiversity policies and programmes. It describes the key features of the region and the main threats to its ecosystems and wildlife, and the services these provide to local people. It compiles the lessons learned from past and present activities, highlighting the most promising approaches.

It proposes 6 priority thematic areas for intervention and a series of key landscapes for conservation (KLCs) in the region. It focuses mainly on the regional level, but also promotes measures for tackling challenges requiring response on a global scale (such as wildlife trafficking, illegal logging and related trade, etc.).

Particular attention is paid to rural and indigenous populations living in biodiversity-rich areas, with a view to safeguarding their livelihoods through the sustainable management of natural resources. A prerequisite to achieving the objectives is to strengthen, both nationally and internationally, the interest, awareness and capacity of civil society with regard to biodiversity and the conservation of ecosystems through appropriate communication and education.

The study has been produced as part of the EU's Biodiversity for Life (B4Life) initiative, which seeks to contribute to global biodiversity conservation, with a particular focus on implementing the CBD. It concentrates on the following strategic areas:

- Preserving functional ecosystems to ensure food security and sustainable development;
- Reinforcing appropriate governance mechanisms for sustainably managing natural capital;
- Developing proposals based on natural solutions to guide development processes towards a green economy;
- Helping implement measures aimed at eliminating the illegal trafficking of species.

The proposed strategy is structured around 5 major LAC regions, which have been defined for the purposes of this study according to a grouping of contiguous biomes. The full study comprises this *Synthesis* volume and 5 accompanying regional volumes, which are being published separately as stand-alone documents.

The report focuses principally on terrestrial and freshwater ecosystems. Coastal and especially marine ecosystems are not addressed in detail, but this scoping choice does not mean they are any less important.

**FIGURE 1.1** Map of the main regions of Latin America and the Caribbean defined for the purposes of this report



## 1.1 KEY BIODIVERSITY FEATURES

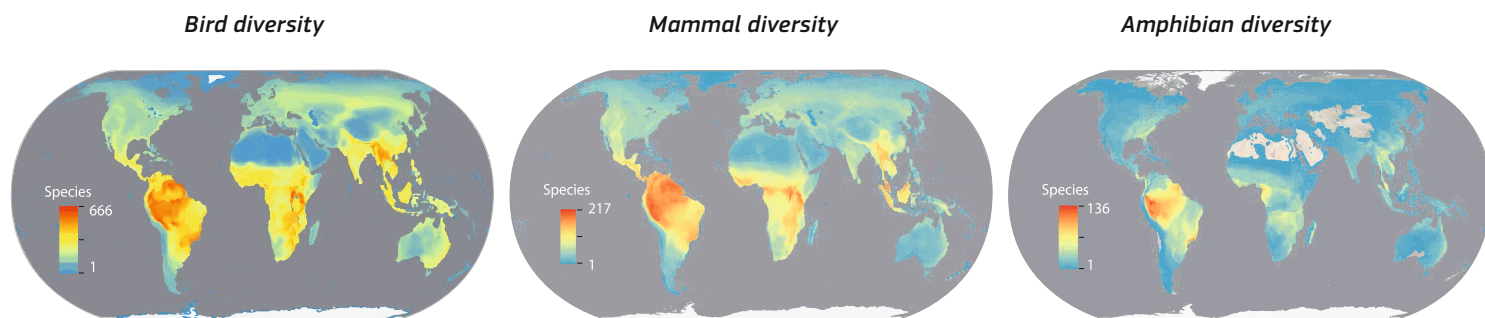
With an area of 18 661 000 km<sup>2</sup>, LAC represents 15 % of the surface of the Earth. However, because of its immense variety, from the Caribbean Sea to the Patagonian steppes and the summit of the Andes to the Amazon plain, it is home to more than 50 % of the world’s biodiversity and the highest levels of endemism on the planet, as well as 6 of the 36 biodiversity ‘hotspots’ and 6 of the 17 megadiverse countries.<sup>5</sup>

Animals in the region represent an incredible diversity. It is estimated that 33 % of the mammal species, 35 % of reptiles, 41 % of birds and 50 % of the amphibians known today are

represented in this region<sup>6</sup>; while the river basins of the Amazon and Orinoco rivers combined are home to the greatest wealth of endemic species on the planet<sup>7</sup>.

The vegetation is similarly varied. The Colombian Chocó, the Brazilian Atlantic Forest, and the tropical east of the Andes, for example, are among just 5 centres of biodiversity in the world<sup>8</sup> that are known to hold more than 5 000 species per 10 000 km<sup>2</sup>. Around 86 000 species of vascular plants have been recorded in the tropical zone, double the number of known species in the African tropics<sup>9</sup> and about a quarter of the global biological wealth for these plants.<sup>10</sup>

**FIGURE 1.2** Global importance of Latin America and the Caribbean for bird, mammal and amphibian species (species per ecoregion)



Source: Jenkins C.N., S.L. Pimm and L.N. Joppa (2013). *Global patterns of terrestrial vertebrate diversity and conservation*. PNAS 110(28), pp. 2602-2610.

This richness is not evenly distributed. Diversity and endemism levels diminish from the tropics towards the poles and also from west to east, with the exception of the south-eastern coast of Brazil. The highest values are found on the eastern slopes of the tropical Andes.

This high productivity and biological diversity give LAC ecosystems an exceptional ability to contribute to the quality of human life (see Box 1).

### Box 1 IMPORTANCE OF ECOSYSTEM SERVICES IN LAC<sup>a</sup>

Nature provides human populations with a range of services: support services (maintenance of the water and nitrogen cycles, etc.), supply services (food, energy, medicines, fibres, etc.), regulation services (water purification, natural disaster mitigation, etc.) and cultural services (recreation, scientific discoveries, intellectual and spiritual inspiration, etc.).

The variety of these ecosystem services is not only of great importance for the LAC economy and human well-being, but also at the global level: 40 % of the global biocapacity<sup>b</sup> is found in LAC. The region is home to 30 % of the world's freshwater reserves, as well as immense tracts of arable land that produce food for local populations and for export. The forests of South America store 100 billion tonnes of carbon in their biomass and the ecosystems of the Andes house the main sources of the Amazonas and Orinoco, which feed hydroelectric plants that generate about half the electricity in the region. The Cerrado provides water for 70 % of Brazil and is an important source for the Rio de la Plata and the Guarani Aquifer. The páramos guarantee drinking water for almost half of Colombians, and the Andean glaciers supply the cities of Quito and La Paz. More than 10 000 plants and at least 584 animal species used as natural remedies have been identified in Latin America. Lastly, the most intact ecosystems are also home to numerous indigenous and Afro-descendant peoples, safeguarding ancestral knowledge and a rich cultural diversity.

Annex 6 presents the monetary estimates of ecosystem service value in each of the 33 countries in Latin America and the Caribbean.

#### References:

- a: IPBES (2018): *The IPBES regional assessment report on biodiversity and ecosystem services for the Americas*. Rice J., C.S. Seixas, M. E. Zaccagnini, M. Bedoya-Gaitán, and N. Valderrama (Eds.). Secretariat of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Bonn, Germany. 656 pages.
- b: Biocapacity is the ecosystems' capacity to produce biological materials used by people and to absorb waste material generated by humans under current management schemes and extraction technologies.

(5) Mittermeier R.A. et al. (2004). Hotspots Revisited: Earth's Biologically Richest and Most Endangered Terrestrial Ecoregions. CEMEX, Mexico City.

(6) UNEP (2010). Environmental perspective: Latin America and the Caribbean. ALC GEO3. Summary for decision makers. 49 pp.

(7) Abell R. et al. (2008). Freshwater ecoregions of the world: A new map of biogeographic units for freshwater biodiversity conservation. *Bioscience* 58, pp. 403-414.

(8) Kier G. et al. (2005). Global patterns of plant diversity and floristic knowledge. *Journal of Biogeography* 32, pp. 1107-1116.

(9) Primack R., R. Rozzi, P. Feinsinger, R. Dirzo y F. Massardo. (2006). *Fundamentos de conservación biológica: Perspectivas latinoamericanas*. Fondo de Cultura Económica. Mexico.

(10) RBG Kew. (2016). *State of the world's plants report 2016*. Royal Botanic Gardens Kew. 84 pp.

**FIGURE 1.3** Land cover map of the study area<sup>11</sup>



Source: Adapted from the Climate Change Initiative Land Cover Map developed by the European Space Agency, 2015.



## 1.2 SOCIO-ECONOMIC ASPECTS

### 1.2.1 Population

The population of Latin America and the Caribbean (approximately 660 million people) represents 8.8 % of the world's population on 15 % of the land surface. The average population density (35.5 inhabitants/km<sup>2</sup>) is similar to that of Africa (33 inhabitants/km<sup>2</sup>) but significantly lower than that of Asia (99 inhabitants/km<sup>2</sup>).

This distribution varies markedly between South America (22 inhabitants/km<sup>2</sup>), Central America (84 inhabitants/km<sup>2</sup>) and the Caribbean (180 inhabitants/km<sup>2</sup>). There are also significant differences in each sub-region, with higher values in coastal areas and the inter-Andean valleys of northern South America.

The centre of the continent (Amazon Basin, Cerrado, etc.) and the desert or cold areas (coastal deserts, parts of Chaco, Patagonia, etc.) were historically preserved from settlement because of their inaccessibility, inhospitable climate and low productive potential. Since the 1990s, however, road construction, population growth

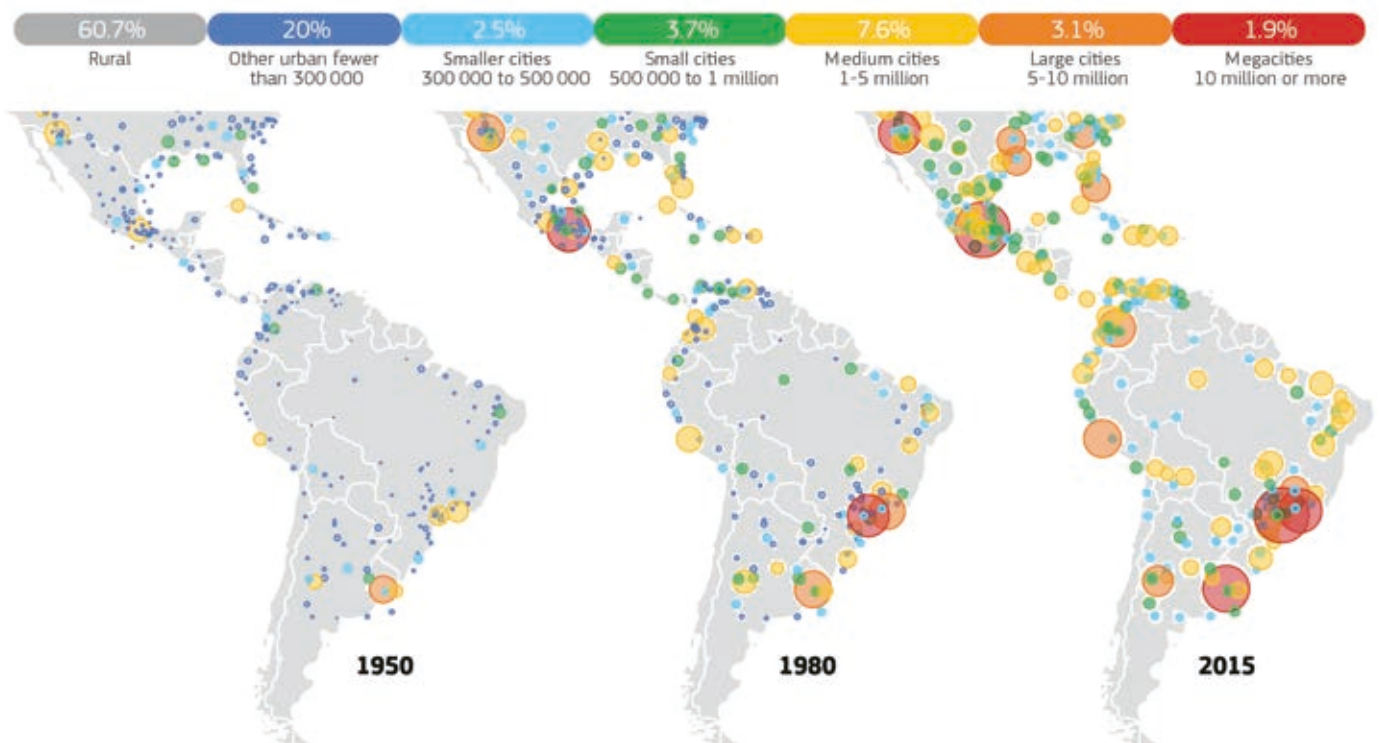
and technological advances in the productive sector associated with a greater demand for raw materials have stimulated occupation of these areas, generating new sources of pressure and degradation.

The number of inhabitants continues to rise, but it is estimated that the growth rate will stabilise in the coming years – with the exception of certain Caribbean islands<sup>12</sup> – at approximately 800 million by 2050.

It is notable that the region is home to the world's highest proportion of urban dwellers (approx. 80 %). This is a result of migration from the countryside to the cities, intensifying from the 1950s onwards and creating huge conurbations such as Mexico City, São Paulo, Buenos Aires, Rio de Janeiro, Lima and Bogota, as well as other cities.

This growth was, for the most part, poorly planned. The lack of waste and wastewater treatment, as well as uncontrolled infrastructure development, has put significant pressure on ecosystems. Water bodies and coastal areas in urban and peri-urban areas are the most affected.

FIGURE 1.4 Growth of urban centres in Latin America and the Caribbean in 1950, 1980 and 2015



Source: <http://www.economist.com/node/21642053?fsrc=scn/tw/te/dc/ed/brightlightsbigcities>

<sup>(11)</sup> Gardi C. et al. (Eds.) (2014). Soil atlas of Latin America and the Caribbean, European Commission - Publications Office of the European Union, Luxembourg, 176 pp.  
<sup>(12)</sup> Critical Ecosystem Partnership Fund (CEPF) (2010). Caribbean islands biodiversity hotspot ecosystem Profile Summary. Arlington, USA.



^ Approximately 80 % of the population of Latin America and the Caribbean is concentrated in cities, such as Sao Paulo, where a new middle class with greater purchasing power is emerging. This has led to a rapid rise in demand for basic services such as energy, food and other resources, increasing the pressure on biodiversity and ecosystems. (© Leonardo Cardoso Galves)

Linked to this, the emergence in cities of a middle class with greater purchasing power has led to a rapid increase in the demand for basic services, energy, food and other resources. This has added to pressure on biodiversity and natural spaces. Meanwhile, the importance of preserving functional ecosystems to sustain human activities is generally undervalued and does not feature in the development policy priorities of most countries in the region.

The successive waves of colonisation that Latin America and the Caribbean experienced gave rise to a varied ethnic and cultural mix throughout the region. Some countries, such as Guatemala and Mexico in Central America, or Bolivia, Ecuador, Peru and Paraguay in South America, still have significant proportions of indigenous population and have preserved strong indigenous cultural roots. In contrast, this influence has virtually disappeared from countries like Uruguay and the Caribbean islands<sup>13</sup>. Also notable is the existence of Afro-descendant communities, particularly in Central America, the Caribbean and countries on the north-east coast of South America.

The continued existence of indigenous groups in voluntary isolation is particularly noteworthy. These are principally found

in the hard-to-access forest areas of Bolivia, Brazil, Colombia, Ecuador, Paraguay, Peru, Venezuela and, possibly, Guyana and Suriname. Many of these groups survive in a highly vulnerable situation, threatened by the effects of climate change, habitat reduction and degradation, movement restriction and the introduction of diseases by the arrival of new populations in their territories (illegal miners, settlers, etc.) and other factors. Despite international conventions and other legal provisions protecting their rights, these groups are often the victims in conflicts generated by competition for resources (land, timber, minerals, etc.); conflicts that are fuelled by the virtual absence of state control in remote areas<sup>14</sup>.

### 1.2.2 Economy

In recent decades, many countries in the region have acquired middle-income status. Since 2003, the average annual gross domestic product (GDP) growth has been over 2 %. However, despite these advances, Latin America, and to a lesser extent, the Caribbean, still has the greatest wealth inequality in the world, with a Gini index of 0.47 in 2017<sup>15</sup>.

<sup>(13)</sup> Elbers J. (Ed.) (2011). Las áreas protegidas de América Latina: Situación actual y perspectivas para el futuro. Quito, Ecuador, UICN. 227 pp.

<sup>(14)</sup> Survival International: <http://www.survival.es>



^ *Soy plantation, Argentina. The economies of most Latin American and Caribbean countries still rely heavily on the export of raw materials. Soy is one of the main agricultural export products of Brazil, Paraguay, Bolivia and Argentina; it is also a principal vector in the rapid expansion of the agricultural frontier in these countries. In most areas soy is primarily exported as feed for livestock. (© Beatrice Murch)*

Poverty and extreme poverty have declined significantly, although it is estimated that it still affects 30 % of the population (184 million people). In this regard, it should be noted that 17 % of Latin Americans living on less than USD 2.50 a day are from indigenous populations, despite the fact that they represent only 8 % of the total population.

As noted above, the region's economy has grown steadily in recent years and reacted positively and quickly to the 2008-2009 financial crisis. However, the contribution of each country to this dynamic is uneven. More than half the economic activity is concentrated in Mexico and Brazil, which together with Colombia and Panama have been among the most rapidly developing economies in the world during recent decades<sup>16</sup>.

In the last 10 years, Latin America and the Caribbean have followed a trend to growth. Although this slowed down in South America due to crises in Argentina, Brazil and, notably, Venezuela, in 2019, the entire region still experienced moderate growth. For 2020, the IMF forecast a marked contraction of the regional economy (-8.1 %), due to the pandemic. This will be felt most strongly by countries that are highly dependent on

tourism and less so by those that export raw materials. By 2021, moderate GDP growth is expected to return (3.6 %). The medium-term prospects, although subject to a high level of uncertainty, point to a slow recovery. Few countries are expected to return to pre-pandemic GDP levels before 2023.

In any event, the region's economy must face the challenge of diversification. In Mexico, manufacturing is the main source of income; Panama and Costa Rica have developed their service sector; and the Caribbean islands are increasingly focused on tourism. The remainder of the region is still heavily dependent on the export of raw materials.

The extraction of natural resources has long been the main source of income in LAC. However, over the past 50 years, unsustainable practices have contributed to a significant loss of biodiversity and ecosystem degradation. This, combined with the increased effects of climate change, undermines the sustainability of the region's development path. It also increases the vulnerability of the poorest rural populations whose livelihoods rely heavily on access to ecosystem resources and services.

<sup>(15)</sup> Comisión Económica para América Latina y el Caribe (CEPAL), 2019. Panorama Social de América Latina, 2018. Santiago, Chile. Disponible en: [https://repositorio.cepal.org/bitstream/handle/11362/44395/11/S1900051\\_es.pdf](https://repositorio.cepal.org/bitstream/handle/11362/44395/11/S1900051_es.pdf)

<sup>(16)</sup> United Nations Environment Programme (UNEP) (2016). The state of biodiversity in Latin America and the Caribbean a mid-term review of progress towards the Aichi Biodiversity Targets. 140 pp.

## 1.3 ENVIRONMENTAL POLICIES

Like the EU, LAC has been a strong supporter of multilateralism, in particular on environmental issues, which often require a global approach. Most countries in the region are signatories to key international biodiversity agreements and so are committed to their targets, such as the Convention on Biological Diversity with its Aichi Targets, and the relevant targets of the Agenda 2030 Sustainable Development Goals. The close link between climate change and biodiversity also stands out in international agreements, which recognise not only the extent of the impacts of climate change on biodiversity, but also its importance in mitigating and adapting to this phenomenon.

Other important commitments include national biodiversity strategies and action plans (NBSAP), agreed within the Convention on Biological Diversity<sup>17</sup> to contribute to the achievement of Aichi's goals, nationally determined contributions as part of the Paris Agreement on climate change (which often include ecosystem-based mitigation and adaptation measures)<sup>18</sup>, and national plans for the implementation of the Ramsar Convention on wetlands<sup>19</sup>. Also noteworthy are the agreements defined within the Convention on Migratory Species<sup>20</sup>, such as the Memorandum of Understanding (MoU) on the Conservation of High Andean Flamingos and their Habitats, the MoU on the Conservation of Southern South American Migratory Grassland Bird Species and their Habitats, and the Agreement on the Conservation of Albatrosses and Petrels. The United Nations Convention to Combat Desertification is implemented through national action programmes with specific objectives, strategies and policy guidelines<sup>21</sup>. There are also commitments to combat the illicit trafficking of wild species as part of the Convention on International Trade in Endangered Species of Wild Fauna and Flora International (CITES)<sup>22</sup> and the United Nations (UN) Convention against Transnational Organised Crime (Palermo Convention). The commitments made within the UN Commission on Crime Prevention and Criminal Justice and the UN Convention against Corruption are also relevant, especially with respect to wildlife trafficking.

LAC countries have also reaffirmed their commitment to multilateralism through regional agreements, in order to join forces on common challenges of particular concern, notably through the Cartagena Convention (1983) for the protection of the Caribbean Sea and, for some of them, in 2018 through the Escazú Agreement on access to information on environmental matters. Despite these commitments,

environmental governance in the region is currently not sufficient to ensure sustainable development. Legal provisions and guidelines adopted at regional and national levels are generally poorly implemented due to institutional weaknesses of the relevant administrative departments.

Governments tend to prioritise economic growth objectives that favour the development of production, energy, mining and infrastructure<sup>23</sup>. In many cases, short-term economic interests can be contradictory to, but take precedence over, environmental policies.

Civil society, which could ensure social oversight and complementary efforts at the local level, is rarely included in decision-making. Certain governments have pledged greater commitment on this issue, however, through policies and mechanisms for more effective civil society participation.

There are, however, several positive experiences in the region, with the potential to be repeated elsewhere. An example is the development strategy of Costa Rica, which has been a pioneer in conservation since the 1990s, encouraging sustainable tourism, payments for ecosystem services, innovative green financing mechanisms and responsible corporate practices. Through school education and public campaigns, it has fostered broader environmental awareness. More recently, Mexico has put forward similar policies, while Colombia and Peru, among others, are taking steps to enhance sustainable development priorities and climate objectives.

## 1.4 FOCAL AREAS FOR CONSERVATION

Four ecosystem types and one species group merit particular attention for conservation and/or restoration. The 4 large ecosystem types – large, continuous forested areas; natural savannah and pampas; coastal ecosystems; and freshwater ecosystems – have been identified for the level of threat they face, their integrity and irreplaceability, and the importance of the ecosystem services they provide, among other criteria. The 5<sup>th</sup> focal area is umbrella species, the protection of which involves the preservation of extensive natural spaces and contributes, indirectly, to the conservation of other species. Achieving effective protection for these 5 focal areas should ensure the conservation of a critical mass of ecosystems, in addition to the fauna and flora they contain.

<sup>(17)</sup> CBD NBSAPs can be found at: <https://www.cbd.int/nbsap/search/default.shtml>

<sup>(18)</sup> UNFCCC Nationally Determined Contributions can be found at: <https://www4.unfccc.int/sites/NDCStaging/Pages/All.aspx>

<sup>(19)</sup> National action plans can be found at: [www.ramsar.org](http://www.ramsar.org)

<sup>(20)</sup> CMS action plans can be found at: <https://www.cms.int/en/documents/action-plans>

<sup>(21)</sup> The UNFCCC National Action Programmes can be found at: [https://knowledge.unccd.int/search?f%5B0%5D=type%3Aaction\\_programmes](https://knowledge.unccd.int/search?f%5B0%5D=type%3Aaction_programmes)

<sup>(22)</sup> <https://cites.org/>

<sup>(23)</sup> Ibers J. (Ed.) (2011). Op cit.



^ Puerto Gaviota, Patagonia, Chile. The remaining large areas of forest in Latin America and the Caribbean are home to high levels of biodiversity and contribute significantly to global climate change mitigation. In Chile and Argentina, the Valdivian forests hotspot has the only temperate rainforests in South America and high levels of endemism. (© Witold Skrypczak/Alamy Stock Photo)

### 1.4.1 Large, continuous forested areas

Forests cover approximately 47 % of land in LAC. The region has the greatest continuous extent of tropical rainforest in the world, but also some of the most fragmented and threatened forests, such as the Atlantic scrub in southern Brazil.

Forests perform key ecosystem functions: they help to regulate the water cycle, control erosion, regulate the climate and comprise the habitat of countless species. They provide food, timber, firewood and medicinal plants, and are a vital source of income, livelihoods and welfare for rural populations, especially indigenous peoples and small farmers.<sup>24</sup> They often have a significant cultural and spiritual value for indigenous groups and provide unique landscape values.

The most important areas in terms of ecosystem service provision – and also the most threatened – are in the most populated areas. These include the Magdalena-Cauca basin in Colombia, the coasts of Mexico and Central America, Haiti and the Dominican Republic, and the Caribbean coast of Venezuela.

Large, unaltered and sparsely populated forests sustain a wider range of biological diversity, are more resilient to climate change and make a globally significant contribution to climate change mitigation<sup>25</sup>. It is estimated that the forests of South America store 100 gigatonnes of carbon in their biomass, which is 35 % of the total global forest capacity.

In South America, large areas of forests in good condition can be found in the Amazon regions of Suriname, Brazil, Peru, Ecuador, Colombia and northern Bolivia; the southern coast (broadleaf and

<sup>(24)</sup> Food and Agriculture Organisation of the United Nations (2018). The state of the world's forests – Forest pathways to sustainable development. Rome. See: <http://www.fao.org/state-of-forests/en/>

<sup>(25)</sup> <https://www.globalwildlife.org/project/forests-for-life/>



^ *Savannahs and grasslands are the most extensive ecosystem in the region after forests. The marsh deer (Blastocerus dichotomus) is an emblematic umbrella species of humid savannahs, such as the Bolivian Pantanal. It is the largest native deer in South America but its distribution has been reduced to small isolated populations in the swamp and lagoon areas of the Parana and Paraguay river basins. (© Steffen Reichle)*

mixed forests)<sup>26</sup>; the Chaco, between Bolivia and Paraguay; the Pantanal, between Bolivia and Brazil; and the Patagonian Andes between Chile and Argentina. Selva Maya, located between Guatemala, Mexico and Belize, is the most important intact forest in Central America and 1 of the 5 remaining large and relatively intact blocks in the sub-region, which also include Moskitia (Honduras and Nicaragua), Indio Maíz and Tortuguero (Nicaragua and Costa Rica), La Amistad (Costa Rica and Panama) and Darién (Panama and Colombia). The sustainable use and conservation of these 5 forests are the subject of an initiative launched by the countries concerned during the United Nations Summit on climate change in 2019.

#### 1.4.2 Natural savannah and pampas

After forests, savannahs and grasslands are the most extensive natural ecosystems in the region. Although often overlooked and threatened mainly by the advancement of livestock and agriculture, they provide services similar to forests, crucially in terms of erosion and flood control, water filtration and aquifer recharge<sup>27</sup>. They also facilitate nutrient recycling and carbon sequestration.

The most extensive savannah is the Cerrado, covering some 200 million hectares, which straddles the Paraguayan and Bolivian borders but lies mainly in Brazil. It has been identified as a biodiversity hotspot because of its unusually high levels of diversity and endemic flora. The savannahs of the Beni and the Madeira River Basin, within the Amazon Basin, and a part of the Patagonian steppe, in the south of the continent, are notable for their remarkably pristine state, despite being exposed to increasing pressures. On the other hand, the grasslands of the Rio de la Plata, covering close to 70 million hectares in Argentina, Uruguay and Brazil, are highly degraded. Above 3 500 metres, the *páramo* regions in the northern Andes are fundamental, not only for their characteristic fauna and flora, but above all for their role in the provision of water services. It is estimated that close to 50 % of Colombians depend on this region for water for drinking and irrigation, as well as for hydroelectric power generation.

<sup>(26)</sup> Wildlife Conservation Society (2016). Produced in-house according to the forest cover in [www.intactforests.org](http://www.intactforests.org); basins according to [www.hydrosheds.org](http://www.hydrosheds.org) and population density according to <http://sedac.ciesin.columbia.edu/data/collection/gpw-v4>

<sup>(27)</sup> Aiello F. and G.D. Marino (2012). Manejo del agua superficial: Una práctica eficiente para la retención y empleo del agua con fines productivos y conservacionistas en pastizales. Aves Argentinas, Fundación Vida Silvestre, INTA y Ministerio de Agricultura, Ganadería y Pesca de Argentina. 12 pp. Available at: <https://www.engormix.com/ganaderia-carne/articulos/manejo-agua-superficial-practica-t30448.htm>



^ *Fisherman in Cispatá Bay, Colombia. Mangroves in LAC represent around a quarter of all mangrove ecosystems globally and cover more than 37 000 km<sup>2</sup>. They are an essential resource for many coastal economies in the Caribbean, where fishing and tourism are the main activities. (© MAPCO project/Colombia)*

### 1.4.3 Coastal ecosystems

The coastal ecosystems include mangroves, tidal marshes and coral reefs. The highest levels of biodiversity among these ecosystems are found in coral reefs, located in the Caribbean Sea, Atlantic Ocean and eastern Pacific Ocean.

The mangroves in LAC represent about a quarter of all mangrove ecosystems globally and cover more than 37 000 km<sup>2</sup>. Around 60 % are located along the tropical coasts of Brazil, Venezuela, Colombia, Suriname, Ecuador and Peru; the remainder are in the Centro American Pacific coast and in the Caribbean, mostly in the Yucatan Peninsula, Cuba and the Bahamas. Mangroves provide a habitat for the young of many coastal and pelagic fish, molluscs, crustaceans, echinoderms and annelids.

Tidal marshes are generally found in marine estuaries and low-lying coasts. They are dominated by seagrass, which shelters an enormous diversity of aquatic animals, just like mangroves, thanks to the low swells. Both ecosystems are important wastewater filters and help to retain terrestrial sediments.

Coral reefs are also found in shallow areas, mainly in the Caribbean. The Mesoamerican reef, which extends over 1 000 km along the Caribbean coast<sup>28</sup>, is the largest transboundary reef in the world. A quarter of all marine life depends on the reef's ecosystems for food and shelter.

Fauna and landscapes in these ecosystems are an essential resource for many coastal economies in the Caribbean, where fishing and tourism are the main economic activities<sup>29</sup>. They also function as natural infrastructure, contributing to the damping of waves and extreme climatic effects (hurricanes, storms and tsunamis).

However, coastal ecosystems are also among the most degraded and threatened ecosystems in the region. By 1980, about 40 % of the mangrove area had already been lost and by 2000 it was estimated that a further 21 000 hectares were disappearing each year (0.6 %). In addition, more than 75 % of Caribbean coral reefs are categorised as threatened.

<sup>(28)</sup> Tunnell J.W., E.A. Chávez and K. Wither (2007). Coral Reefs of the Southern Gulf of Mexico. Harte Research Institute for Gulf of Mexico Studies Series.

<sup>(29)</sup> Elbers J. (Ed.) (2011). Op cit.



^ LAC has 31 % of the planet's fresh water, stored in glaciers, snow fields, wetlands, aquifers and rivers. At the headwaters of the La Plata river, the 200 000 km<sup>2</sup> Pantanal marshland is the largest wetland in the world. It has similar levels of biodiversity to the Amazon and, through its flooding cycles, plays a fundamental role in regulating flood risk and water supply along the La Plata river basin and its large cities. (© Homo Ambiens/WWF Brasil)

#### 1.4.4 Inland freshwater

LAC is home to 31 % of fresh water on the planet, stored in glaciers, snowfields, wetlands, aquifers and rivers.<sup>30</sup> Overall, the region has high rainfall and there is significant surface runoff. This is not uniformly distributed, however: the Caribbean and certain areas of the Andes, the Pacific coast of Peru, and Chile and Patagonia suffer considerable water shortages.

Transboundary basins, such as the Amazon, Orinoco and Plata river basins, provide the largest volumes of freshwater. The Amazon basin is the largest in the world (7.05 million km<sup>2</sup>); it is also the largest (by water volume) and one of the longest rivers (7 062 km). Among the most important wetlands are the Pantanal, the Amazon and the temperate peatlands in the south. The most significant lakes are Titicaca, Nicaragua, Managua, Maracaibo and Chapala. Among the 64 aquifers in the region, the most extensive are the Guarani, Chaco and Puelche aquifers, and those in the Valley of Mexico<sup>31</sup>. The Guarani aquifer is the largest known transboundary aquifer. Located beneath the surface of Brazil, Argentina, Paraguay and Uruguay, it has an area of approximately 1.2 million km<sup>2</sup> and a volume of around 45 000 km<sup>3</sup>. The Andes

house 90 % of the planet's tropical glaciers and produce 10 % of the world's fresh water. The largest glaciers are found in the Patagonian Andes. The Southern Patagonian Ice Field (16 800 km<sup>2</sup>) is the third largest in the world, after Antarctica and Greenland.

These environments are vital to humans, as they provide water for drinking, productive activities and energy generation. They also play a fundamental role in water and climate regulation, provide routes for the transport of products to urban centres and ports, and attract tourism.

LAC have 11 freshwater ecoregions, considered together as exceptional in terms of biodiversity. In fact, this region is home to nearly a quarter of the world's known freshwater fish species, many of which are exploited for consumption and local economies. However, 7 of these ecoregions are classified as vulnerable, endangered or critically endangered by the IUCN: the ecoregions of the Colorado River; the rivers of Alto Paraná; the rivers and streams of the Brazilian Amazon shield; the Greater Antilles; the high Andean lakes; and the high mountain lakes of Mexico and the Chihuahua systems.<sup>32</sup>

<sup>30</sup> UNEP (2010). Latin America and the Caribbean Environment Outlook: GEO LAC 3. Panama.

<sup>31</sup> UNEP (2011). Environmental outlook: Latin America and the Caribbean. GEO LAC 3. 49 pp.

<sup>32</sup> Olson D.M. and E. Dinerstein (2002). The Global 200: Priority Ecoregions for Global Conservation. *Annals of the Missouri Botanical Garden* 89, pp. 199-224.





^ The condor (*Vultur gryphus*) is an umbrella species and a national symbol of the 7 Andean countries, where it occupies a major role in the culture of native people. A critically endangered species, it is threatened mainly by habitat destruction and by farmers targeting the birds for their alleged attacks on livestock. It is particularly scarce in Colombia and Venezuela. (© Staffan Widstrand/WWF Regional)

### 1.4.5 Endangered umbrella species

Most countries in the region recognise that threat levels are increasing for many species, in line with global trends<sup>33</sup>.

Umbrella species<sup>34</sup> perform important functions, for example as population regulators or seed dispersers. Many are species valued by humans for their cultural or religious significance, uniqueness, beauty or use for consumption. Many are large, have high longevity and low reproductive rates, and this makes them vulnerable to human activities. Their protection, which requires the implementation of large-scale national and regional strategies, will contribute to the conservation of other species and large natural spaces in good condition.

This approach has not been extensively used in the region and could potentially be applied to many species<sup>35</sup>. For mammals, it would be worth including the jaguar (*Panthera onca*), Andean mountain cat (*Leopardus jacobita*), spectacled bear (*Tremarctos ornatus*), south Andean deer (*Hippocamelus bisulcus*), marsh deer (*Blastocerus dichotomus*), pampas deer (*Ozotoceros bezoarticus*), tapirs (*Tapirus terrestris*, *T. bairdii*, *T. pinchaque* and *T. kabomani*),

white-lipped and chacoan peccary (*Tayassu pecari*, *Catagonus wagneri*), giant otter (*Pteronura brasiliensis*), manatees (*Trichechus manatus* and *T. inunguis*) and Amazon river dolphin (*Inia geoffrensis*, *I. boliviensis*). Umbrella bird species include the Magellanic woodpecker (*Campephilus magellanicus*), quetzal (*Pharomachrus sp.*), harpy eagle (*Harpia harpyja*), condor (*Vultur gryphus*) and flamingos of high-altitude lagoons (*Phoenicoparrus andinus* and *P. jamesi*). Certain fish, such as the golden dorado (*Salminus brasiliensis*), also offer potential as an umbrella species. In the Caribbean, where there are few large species, rock iguanas (*Cyclura sp.*) and amphibians could be considered as umbrella species, particularly frogs of the *Eleutheroedactylus* genus, which is the most diversified in the Antilles.

<sup>33</sup> Convention on Biological Diversity (CBD) (2015). Fifth National Report Summary.

<sup>34</sup> In the sense of Lambeck R.J. (1997). Focal species: a multi-species umbrella for nature conservation. *Conservation Biology* 11(4), pp. 849-856.

<sup>35</sup> Umbrella species are described in more detail in the regional reports.



*The imposing range of table-top mountains in the Guiana Shield highlands are called 'tepui'. Thanks to the remote and rugged landscape, their unique environment is well preserved, with many endemic species. There is a significant potential for tourism and research in the area. (© Martin Harvey/WWF Regional)*

An aerial photograph of a lush green forested valley, with a large, textured orange brushstroke overlaying the upper right portion of the image. The background shows a clear blue sky and distant mountain ranges.

**#2**

**Conservation  
challenges**



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*Blue and yellow (Ara ararauna) and scarlet (Ara macao) caged macaws, Brazil. Illegal harvesting and trafficking are probably the main threat to the species, after habitat destruction. Although most countries have regulations to control such illegal activities, enforcement is a challenge and the problem is re-emerging, notably due to increased demand from Asia. (© Donald Durham)*

## #2 \_ Conservation challenges

The decline of biodiversity in Latin America and the Caribbean can be observed in the disappearance of species, degradation and the transformation of ecosystems and loss of ecosystem services (see Section 2.1). These impacts are caused by pressures such as the expansion of agriculture, infrastructure development and unsustainable use of biological resources (see Section 2.2), which in turn are due to three main drivers: population growth, market forces and weak governance (see Section 2.3).

### 2.1 CONSERVATION STATUS AND MAJOR ISSUES

#### 2.1.1 Erosion of biodiversity

##### Loss of species

LAC has the highest proportion of threatened species (25 %) in the world and their likelihood of extinction is increasing in terrestrial, coastal, marine and freshwater habitats. The fact that 98 % of these species are endemic and found only in certain Caribbean islands or patches of forest in the Andes or Amazon Basin is of particular concern<sup>36,37</sup>.

Vertebrate populations have declined by more than 80 % over the past 40 to 50 years – the highest recorded rate of decline globally<sup>38</sup>.

<sup>(36)</sup> Brooks T.M. et al. (2016). Analysing biodiversity and conservation knowledge products to support regional environmental assessments. *Scientific Data* 3. Article no 160007. See: <http://dx.doi.org/10.1038/sdata.2016.7>

<sup>(37)</sup> UNEP (2016). Op cit.

<sup>(38)</sup> World Wildlife Fund (WWF) (2014). Living Planet Report 2014: Species and spaces, people and places. 180 pp.

>  
 Cattle ranching, San Ignacio, Santa Cruz, Bolivia. National policies to promote agriculture, boosted by international demand, have been the main driver of land-use change in the region. Forest loss due to the expansion of cattle ranching has been particularly notable recently around the Amazon in the Brazilian 'Arc of Deforestation' and in northern Bolivia, as well as in Central America. Cleared land is often used initially for cattle grazing. (© Daniel Alarcón)



Ecosystem loss and degradation are the main contributing factors. Species with large habitat requirements are particularly affected by changes in land use, as remnants of landscapes often lack the space and resources needed to sustain populations.

In addition, farming activities and infrastructure (such as roads and dams) obstruct animal movement when they are badly located or poorly managed. This results in declining populations, reproductive isolation, genetic degradation and consequent local extinction. As an example, the distribution of the jaguar, lowland tapir and white-lipped peccary – all large vertebrate species with a wide territorial range – has decreased by more than 50 % in the last 100 years, and there is evidence that populations in the Yungas, Chaco and Atlantic Forest could already be reproductively isolated.

The proliferation of invasive species and diseases, pollution and climate change are also significant threats. For example, chytridiomycosis, a disease caused by two species of fungi, now affects more than 700 species of amphibians in the world and is leading to global and local extinctions. In the region, it is

thought to be behind the disappearance of 40 of the 97 known species of harlequin frogs (genus *Atelopus*), found from Costa Rica to Bolivia.<sup>39</sup>

Finally, the return of illegal wildlife trafficking presents a major threat. In the 20th century, trade in fur and indiscriminate logging pushed many species towards extinction, but since the end of the 1980s these activities have been restricted through control measures, introduced at national and international levels. However, there is a recent resurgence in the illegal exploitation and trafficking of species in the region, which appears to be mainly triggered by growing demand from Asia.

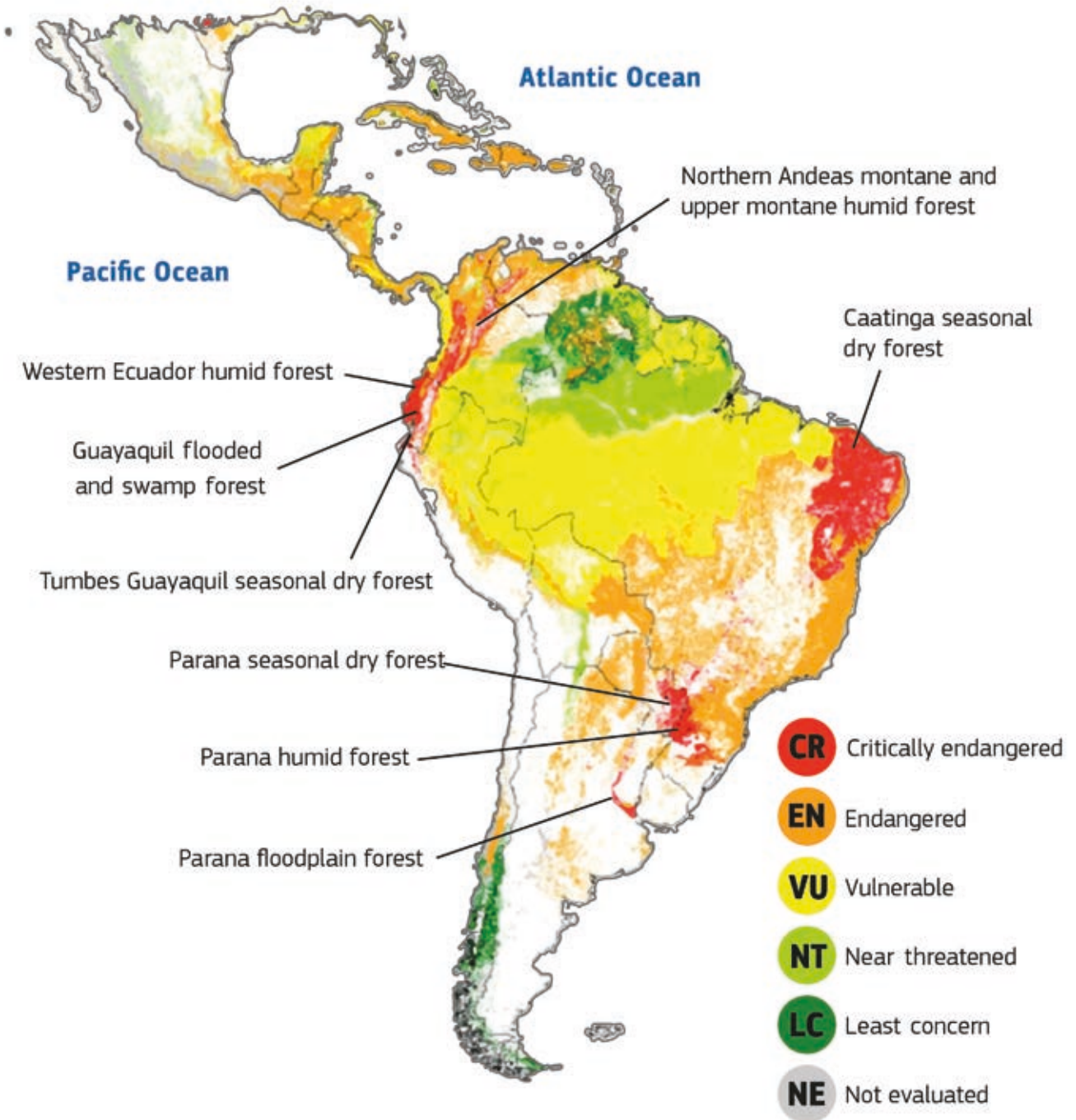
### Degradation and transformation of ecosystems

The region still has large blocks of mainly intact vegetation cover, supporting ecological processes at landscape scale, large mammal populations and the provision of key ecosystem services. However, the state of the ecosystems is cause for growing concern. For example, most of the continent's forests are now vulnerable, endangered or critically endangered, according to the IUCN Red List evaluation criteria (see Figure 6).<sup>40</sup>

<sup>(39)</sup> Lips K.R. (2016). Overview of chytrid emergence and impacts on amphibians. *Philosophical transactions of the Royal Society of London. Series B, Biological sciences*, 371(1709).

<sup>(40)</sup> Ferrer-Paris J.R. et al. (2019). An ecosystem risk assessment of temperate and tropical forests of the Americas with an outlook on future conservation strategies. *Conservation Letters*.

**FIGURE 2.1** Status of American forest ecosystems according to the evaluation criteria of the IUCN Red List of Ecosystems



Source: Ferrer-Paris J.R., I. Zager, D.A. Keith et al. An ecosystem risk assessment of temperate and tropical forests of the Americas with an outlook on the future conservation strategies. Conservation Letters. 2018; e12623.

>  
*Kenscoff Mountains, Port-au-Prince, Haiti. Land-use change is not only driven by large-scale agriculture and livestock farming. In the central mountain range of Haiti, for example, deforestation is mostly linked to subsistence agriculture and the use of firewood and charcoal. (© Christian Kober/Alamy Stock Photo)*



LAC have a large proportion of forest cover compared to other regions, but the net loss of its forests over the past 25 years has reached almost 10 %. Deforestation is occurring (or projected to occur) mainly in the Amazon, Cerrado, Chocó- Darién, Atlantic Forest and Gran Chaco. The largest areas of transformed forests are in the Amazon Basin, followed by the Atlantic Forest, which is among the most endangered terrestrial ecoregions in the world.

Reduction and fragmentation here have been so significant in the latter that it is now mostly patches of forest less than 1 000 ha in size<sup>41</sup>. The overall transformed surface area in the Cerrado is three times greater than that observed in the Amazon: 50 % of its surface has been converted for agricultural use since the 1990s.

**TABLE 2.1** Changes in wooded surface area (million ha) in Latin America and the Caribbean between 1990 and 2015

Regions	1990	2000	2005	2010	2015
Caribbean	5 017	5 913	6 341	6 745	7 195
Central America	26 995	23 448	22 193	21 010	20 250
South America	930 814	890 817	868 611	852 133	842 011
TOTAL	962 826	920 178	897 145	879 888	869 456

Source: Keenan R.J. et al. (2015). *Dynamics of global forest area: Results from the FAO Global Forest Resources Assessment 2015*. *Forest Ecology and Management* 352, pp. 9-20.

As shown below, agricultural expansion is the main cause of deforestation and severe forest degradation: 71.2 % of deforested areas in South America have been converted to pasture, particularly in northern Argentina, the deforestation arc in Brazil and western Paraguay. These 3 countries are also where

agro-industrial activity, to meet international demand for meat and soy (much of which is used for cattlefeed), is concentrated and increasing<sup>42</sup>. Other important causes of forest degradation and fragmentation include the unsustainable exploitation of forest products, fires, extractive industries and infrastructure.

<sup>(41)</sup> UNEP (2016). Op cit.

<sup>(42)</sup> de Sy V. et al. (2015). Land use patterns and related carbon losses following deforestation in South America. *Environmental Research Letters*, 10(12), 124004. doi:10.1088/1748-9326/10/12/124004

**TABLE 2.2** Main pressures on forests on deforestation fronts in Latin America

	Livestock	Large-scale agriculture	Small-scale agriculture and settlements	Unsustainable logging	Pulpwood plantations	Fires	Charcoal and firewood	Mining	Infrastructure	Hydroelectric power
<b>Amazon Basin</b>	1	1	1	3	4	2	4	2	1	1
<b>Atlantic Forest/Gran Chaco</b>	1	1	4	2	2	2	2	2	1	3
<b>Cerrado</b>	1	1	4	4	4	4	3	3	2	3
<b>Chocó Darién</b>	1	1	1	2	4	4	4	1	1	4

Notes: 1: The main cause of forest loss or severe degradation; 2: A secondary, important, cause of forest loss or severe degradation; 3: A less important cause of forest loss or severe degradation; 4: Does not cause forest loss or severe degradation

Source: WWF (2018). Informe Planeta Vivo - 2018: Apuntando más alto. Grooten, M. and Almond, R.E.A. (Eds.). WWF, Gland, Suiza. Disponible en: [http://awsassets.wwf.es/downloads/informe\\_planeta\\_vivo\\_2018.pdf](http://awsassets.wwf.es/downloads/informe_planeta_vivo_2018.pdf)

Other ecosystems are also threatened. On the temperate Argentine Pampas, soybean fields have become the predominant land use, and only highly degraded relicts remain, covering less than one third of the ecosystem’s original area. Land-use change, mainly for livestock farming and agriculture, has also affected savannah and grassland, in regions with flat land and productive soils. Wetlands have also suffered high levels of transformation, mainly due to agricultural expansion, cattle rearing and urbanisation. Marine biodiversity, especially in coral reefs and mangroves, has experienced great losses in recent decades, reducing food availability and deteriorating the livelihoods of coastal populations, hindering their cultural continuity.

Despite these concerning trends, there are some positive signs of change. The region has demonstrated leadership and successfully met certain Aichi Targets and Millennium Goals. Between 1990 and 2014, the land surface covered by protected areas rose from 8.8 to 23.4 %. Likewise, in South and Central America, the deforestation rate decreased from 1.6 % in 1990-2000 to 1.2 % in the subsequent decade, although it has increased again in recent years. In the Caribbean there has been a net expansion of forested areas, although not enough to

offset changes in the rest of the region<sup>43</sup>. Specific successes include measures to protect certain endangered species. However, the case of the Brazilian Amazon shows that policy successes can be reverted, as recently pressures on this biome seem to have re-intensified.

### 2.1.2 Loss of ecosystem services

Natural capital (including ecosystems, biodiversity and natural resources) sustains economies, society and individual well-being. However, its value is often ignored or poorly understood. It is rarely considered in market economics, in decisions made by businesses or individuals, or even reflected in public accounts. Between 1997 and 2011, a severe loss of ecosystem services almost completely offset the value of global economic growth (see Table 2.3). New sources of well-being created by monetised growth (jobs, income, consumption, etc.) were almost totally neutralised by the disappearance of sources of non-monetised well-being (natural disaster mitigation, drinking water supply, pollination, carbon sequestration, etc.). This illustrates why biodiversity and ecosystem services must be seen as a cornerstone of sustainable development.

<sup>(43)</sup> Keenan R.J. et al. (2015). Op cit.





^ Perito Moreno Glacier, Los Glaciares National Park, Patagonia, Argentina. Like all ice fields on the continent, the glaciers of southern Patagonia are suffering from the effects of climate change, having lost up to 20 % of their surface area over the last two decades. In the central Andes of Peru and Bolivia, glacial meltwater contributes to water supply, particularly during the dry season. Their gradual disappearance is a cause for concern and is prompting adaptation measures. (© Saiko3p/Shutterstock)

**TABLE 2.3** Changes in the global values of GDP and ecosystem services

	<b>World GDP <sup>44</sup> (Billion USD, 2010)</b>	<b>Global value of ecosystem services <sup>45</sup> (Billion USD, 2010)</b>
<b>1997</b>	45 353	152 490
<b>2011</b>	68 118	131 460
<b>Change</b>	+22 765	-21 030

Some ecosystems generate more services when they are perfectly preserved, while others generate them even if lightly disturbed<sup>46</sup>. Taking a comprehensive approach to conservation is thus important, as it takes account of landscape multifunctionality and scale (see Section 5.2.1).

The Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) estimates that 65 % of assets provided by nature to people in the Americas are declining, while 21 % are declining sharply, due to biodiversity loss and ecosystem degradation. Large-scale agriculture tends to replace natural ecosystems with simpler ecosystems, reducing their contribution to people's livelihoods. Although fresh water is abundant at the regional level, areas affected by water shortages are growing, with more than 50 % of the regional population affected by water

insecurity.<sup>47</sup> In addition, the Intergovernmental Panel on Climate Change (IPCC) estimates that glaciers in the tropical Andes, a major water source, will lose more than 80% of their current ice mass by 2100 (medium confidence scenario). Furthermore, land degradation, which reduces productivity and hence ecosystem services, currently affects 26 % of the region's land.

Finally, the recent coronavirus epidemic highlights the relationship between healthy ecosystems and human health. It is estimated that more than 60 % of emerging infectious diseases in the world are zoonotic (transmitted between animals and humans). The vast majority of these (over 70 %) originate in wildlife, such as coronavirus (COVID-19), avian influenza, Ebola, dengue, Lyme disease and Zika.

<sup>(44)</sup> <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD>

<sup>(45)</sup> Costanza R. et al. (2014). Changes in the global value of ecosystem services. *Global Environmental Change* (26), pp. 152-158. See: <https://www.sciencedirect.com/science/article/pii/S0959378014000685>

<sup>(46)</sup> Laterra P., E.G. Jobbágy, J.M. Paruelo (Eds.) (2011.) Valoración de servicios ecosistémicos Conceptos, herramientas y aplicaciones para el ordenamiento territorial Buenos Aires. 740 pp. See: [https://inta.gob.ar/sites/default/files/script-tmp-inta\\_valoracion\\_de\\_servicios\\_ecosistemicos.pdf](https://inta.gob.ar/sites/default/files/script-tmp-inta_valoracion_de_servicios_ecosistemicos.pdf)

<sup>(47)</sup> IPBES (2018). Op. cit.



^ *Chiquitania Region, Santa Cruz, Bolivia. Fire is commonly used by farmers to clear land for agriculture or to manage pastures and crop residues. Although fire use is mostly regulated, inadequate safety measures or illegal use can lead to extensive wildfires, threatening people, cattle and wildlife. Ecosystem resilience to fire is jeopardised above a certain frequency and magnitude. Between July and September 2019 in Bolivia and Brazil, more than 5 million hectares of forest and savannah were burned in the southern Amazon, the Chaco, the Chiquitano forest and the Pantanal. (© Daniel Coimbra/FCBC)*

The connection between wildlife, disease and people is not new. However, emerging infectious diseases have quadrupled in the past 50 years<sup>48</sup>. It derives from human activities that bring us too close to wild species (habitat fragmentation, land-use change, etc.) or bring them to us (wildlife trafficking), significantly increasing our exposure to pathogens that are new to the human body.

The risk of zoonosis transmission is particularly high in tropical forested regions, when they are experiencing land-use change and have high biodiversity (especially in mammals)<sup>49</sup>. For example, in the Amazon, an increase in deforestation of around 4 % increases the incidence of malaria by almost 50 %, as disease-transmitting mosquitoes thrive in recently deforested areas<sup>50</sup>.

On the contrary, biodiverse ecosystems in their natural state limit the exposure and potential impact of pathogens through a dilution or buffering effect.

Raising awareness of this reality in local communities, public opinion and decision-makers could contribute to promoting development approaches that mitigate these risks, with important collateral benefits for people, biodiversity and climate<sup>51</sup>.

## 2.2 THREATS TO BIODIVERSITY AND ECOSYSTEMS

### 2.2.1 Agricultural expansion and fires

Small and medium-scale family agricultural production used to prevail in LAC, as it did in many parts of the world. Its wide variety of crops and extensive livestock rearing mainly targeted the domestic market.

In recent decades, the sector has undergone radical change, with the development of intensive, large-scale agriculture geared mainly to international markets. Commercial agriculture was behind almost 70 % of deforestation in Latin America between 2000 and 2010.<sup>52</sup> Agricultural development largely linked to animal agriculture, such as soybean cultivation and cattle ranching, especially on the Brazilian plains, but also notably in Paraguay, Argentina, Bolivia and Peru, is now extensive.<sup>53,54</sup> African oil palm cultivation has begun to develop in Central America, Colombia, Peru and Ecuador. Meanwhile, population growth is driving an expansion in small-scale agriculture, especially in Central American forests, biodiversity hotspots in the Andes and certain Caribbean countries, such as Haiti. In northern Central America, cattle ranching development has caused more than 90 % of deforestation in the region's remaining intact forests. With agribusiness grabbing the best agricultural land, peasant agriculture tends to move to marginal lands (slopes, poor soils), leading to rapid soil degradation and a continual search for new plots. Small-scale farmers are also adopting the unsustainable practices of industrial agriculture,

<sup>(48)</sup> <https://blogs.worldbank.org/es/voices/coronavirus-y-el-efecto-pangolin-el-incremento-de-exposicion-la-vida-silvestre-plantea>, accessed 4 April 2020.

<sup>(49)</sup> Allen T. et al. (2017). Global hotspots and correlates of emerging zoonotic diseases. *Nature Communications* 8(1), 1124.

<sup>(50)</sup> <https://www.nytimes.com/2012/07/15/sunday-review/the-ecology-of-disease.html>, accessed 4 April 2020.

<sup>(51)</sup> <https://blogs.iadb.org/sostenibilidad/es/cual-es-el-vinculo-entre-covid-19-y-las-emergencias-ecologicas-y-climaticas/>, accessed 3 April 2020.

<sup>(52)</sup> FAO (2016). State of the World's Forests 2016. Forests and agriculture: land-use challenges and opportunities. Rome. <http://www.fao.org/americas/noticias/ver/en/ci/425600/>

<sup>(53)</sup> Keenan R.J. et al. (2015). Op cit.

<sup>(54)</sup> [http://www.wwf.org.py/que\\_hacemos/proyectos/iniciativa\\_de\\_transformacion\\_de\\_mercados\\_mti/la\\_expansion\\_soja\\_en\\_paraguay/](http://www.wwf.org.py/que_hacemos/proyectos/iniciativa_de_transformacion_de_mercados_mti/la_expansion_soja_en_paraguay/)



^ *Oil palm plantation, Peru. In recent decades, the development of agricultural activities largely linked to animal production, such as soybean cultivation and cattle ranching, was the main cause of deforestation. More recently, African oil palm plantations have also begun to expand in Central America, Colombia, Peru and Ecuador. (© Robert Guimaraes Vasquez/Climate Alliance Org)*

such as the intensive use of pesticides, while shifting towards more commercial crops and varieties, to the detriment of agrobiodiversity. Deforestation is also driven by the production of illicit crops or to disguise illegal activities. In the Northern Triangle of Central America (Guatemala, Honduras, El Salvador), sowing grassland and planting oil palm are a common form of land grabbing for organised crime.<sup>55</sup> Currently, 35 % of the land area in the region's developing countries is devoted exclusively to agriculture.<sup>56</sup>

Small and large-scale farmers and ranchers commonly use fire to promote the regrowth of herbaceous plants as forage for livestock or to remove unwanted biomass in plots intended for crops. Improperly managed, fires can become uncontrolled and devastate large productive areas and ecosystems. Between 2003 and 2012, an average of 72 million hectares were burned each year in Latin America. Almost half of this area (37 million hectares) was forested, making this the number one region for burned forest worldwide<sup>57</sup>. Although globally the tendency to burn forests has declined in recent years<sup>58</sup>, 2019 saw record numbers of forest fires and burned surface area, and an increase in the number of mega-fires or fires of the sixth generation (characterised by the formation of pirocumulonimbus, which generate firestorms)<sup>59</sup>.

#### Impacts:

- Fragmentation and extensive loss of natural habitats and associated species due to the conversion of natural areas for agriculture and livestock.
- Loss of genetic diversity due to replacing traditional crops with large-scale monocultures.
- Soil degradation: a higher proportion of bare soil, recurrent use of fire as well as overgrazing and trampling by livestock increase the propensity for water and wind erosion, lead to nutrient loss and accentuate water evaporation, leading to salinisation.
- Changes in the hydrological cycle and water pollution: sediment runoff and surface salts physically and chemically modify the dynamics of water bodies; the impacts of sedimentation are particularly severe in coastal areas. Substances such as nitrogen, phosphorus, pesticides, herbicides and antibiotics accumulate in aquatic systems, causing adverse effects on the health of both humans and aquatic organisms.
- A decrease in pollinators due to pesticide use, changes in land use, climate change, invasive species, diseases and pathogens. This decline threatens agricultural productivity.
- Changes in floral and faunal composition: the high animal load in livestock areas modifies plant composition, often favouring the proliferation of alien species. As a consequence of habitat destruction and competition for resources, animal populations are also affected: in arid Patagonia, livestock is responsible for a noticeable reduction in the populations of mara (*Dolichotis patagonum*), guanaco (*Lama guanicoe*) and tuco-tuco (*Ctenomys* sp.).
- Competition between livestock and native fauna for access to pastures and water.
- Killing of native predators: scarcity of native prey for jaguars and puma results in predation on livestock and retaliatory killing by farmers.

<sup>(55)</sup> Keenan Aylward K. (2018). Integrating Security & Conservation Policy in the Northern Triangle of Central America. WCS.

<sup>(56)</sup> World Bank Group (2016). <http://www.bancomundial.org/>

<sup>(57)</sup> Van Lierop P., E. Lindquist, S. Sathyapala and G. Franceschini (2015). Global forest area disturbance from fire, insect pests, diseases and severe weather events. *Forest Ecology & Management*, 352(7), pp. 78-88.

<sup>(58)</sup> Ibid.

<sup>(59)</sup> Castellnou, M. et al. (2019). Field journal: Bolivia. Learning to fight a new kind of fire. In: *Wildfire*, 28:5, pp. 26-34.



## Box 2 IMPACTS OF LIVESTOCK IN THE CHACO

In 1979, the South American Chaco was identified as highly vulnerable due to historical overgrazing and trampling by domestic livestock, which caused significant desertification. In 1981, the situation was described as the most important silent ecological catastrophe on the Latin American plains. Livestock depleted the pastures, slowed the natural regeneration of valuable trees and favoured the formation of thorny shrubland. Their concentration in pens and along watercourses was an important cause of erosion.<sup>a</sup> Opportunistic native species, like the plains viscacha (*Lagostomus maximus*) and the Chacoan mara (*Dolichotis salinicola*) as well as certain alien species, including the European hare (*Lepus europaeus*), proliferated in overexploited areas. In some places, these came to be regarded as a 'plague' because of the damage they caused to crops.<sup>b</sup>

The Patagonian region faces a similar challenge: desertification threatens 84 % of the territory, as a result of overgrazing, trampling and excessive use of fire linked to livestock rearing, principally sheep.<sup>c</sup>

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b: Ojasti J. (1993). *Utilización de la fauna silvestre e América Latina: Situación y perspectiva para un manejo sostenible*. Vol. 25, GUIA FAO CONSERVACION. 251 pp.

c: Strauch, O. and N. Covacevich (2001). *Antecedentes para el establecimiento y la regeneración de la pradera*. Boletín Especial INIA No.57.

## 2.2.2 Urban expansion, infrastructure development and extractive industries

The populations and economies of most countries in the region have grown in recent decades, causing urban expansion as well as increased infrastructure and associated industries. Urban development is particularly prevalent in coastal areas.

As part of the Initiative for the Integration of Regional Infrastructure in South America (IIRSA), 12 countries agreed on over 500 transport, energy and communications infrastructure projects, at a cost of over USD 96 billion. The initiative began with the 2005-2010 Implementation Agenda based on Consensus (IAC) 2005-2010, which included 31 priority projects, including the construction or improvement of roads, bridges, railways,

ports, waterways and pipelines<sup>60</sup>. IIRSA was conceived to facilitate mobility in the territory and promote economic development. In particular, it facilitates connectivity of production sectors, such as hydrocarbon exploitation and mining.

Extractive industries play a central role in many of the region's economies, including Venezuela, Ecuador, Bolivia, Colombia, Chile, Jamaica and others. Governments tend to give them the highest priority, irrespective of the impacts on strategic ecosystems and sensitive areas (e.g. cases of exploitation allowed in protected areas and indigenous territories). Conventional oil and gas exploitation has principally been developed in the Andean foothills and on the Caribbean coast of Central America. With the emergence of non-conventional extraction systems, there is concern about production expanding onto the plains, as well as about the impacts of new techniques (such as fracking).

<sup>(60)</sup> IIRSA (2011). *IIRSA 10 años después: sus logros y desafíos*. Buenos Aires: BID-INTAL. Available online at: [http://www.iirsa.org/admin\\_iirsa\\_web/Uploads/Documents/lb\\_iirsa\\_10\\_a%C3%B1os\\_sus\\_logros\\_y\\_desafios.pdf](http://www.iirsa.org/admin_iirsa_web/Uploads/Documents/lb_iirsa_10_a%C3%B1os_sus_logros_y_desafios.pdf)



◁ *Brasilia, the federal capital of Brazil, was created at the end of the 1950s. Roads connecting it to the rest of the country facilitated the conversion of the Cerrado ecoregion (in which it is located) for agriculture and cattle grazing. This land-use now applies in 40 % of the biome. (© Ting Chen)*

Investment in the metal and precious stone mining sector – predominant in the Andes and Central America – has also increased. At the same time, illegal mining is on the rise, particularly in the Amazon and Orinoco Basins, using rudimentary technology and driven by the high price of gold<sup>61</sup>. Sand and gravel extraction is also increasing for the construction sector. Mining is one of the sectors with the greatest social and environmental impact, particularly when it concerns informal mining, and is often associated with insecurity and human rights violations. The industry also requires large amounts of energy and water.

The development of hydraulic infrastructure is also advancing at great speed in Latin America and the Caribbean. Large projects are under way for the construction of dams, embankments and canal systems for energy production, as well as for agricultural and industrial use and the development of communication routes. In 2016, in the Amazon Basin alone, 416 dams were either in operation or under construction and another 334 were being planned<sup>62</sup>. Brazil, Chile and Ecuador have the highest density of new dam projects.

Although fossil fuels remain the main energy source in Latin America, renewable energy sources supply approximately 25 % of energy, twice the global average. Hydropower is the main source of this renewable energy, but its scale is diminishing for environmental reasons (e.g. droughts), social reasons and lack of new locations to exploit<sup>63</sup>.

#### Impacts:

- Habitat loss and fragmentation: the increase in housing, road and hydraulic infrastructure results in land-use change. This has been most significant on the coast, but is affecting the interior, too. The expansion of communication and trade routes also drives the spread of illegal activities (logging,

mining, hunting, etc.) and new settlements, as well as faster urbanisation, which in turn increases demand for yet more roads<sup>64</sup>. The combined result is a further fragmentation of terrestrial and aquatic ecosystems and isolates PAs.

- Displacement of agricultural activities: much urban expansion takes place in agricultural areas, displacing producers to increasingly marginal lands, which tend to be natural spaces. This is particularly critical in the Caribbean, where population density is high and available land is very limited.
- Social impacts of extractive industries: mining and hydrocarbon exploitation often provoke disputes relating to water use and land acquisition at the expense of local communities; there are negative impacts on health, livelihoods, traditional governance structures and productive activities; and local people become frustrated when their income expectations are not realised<sup>65</sup>.
- Hydrological alterations: the construction of roads and, in particular, hydraulic infrastructure fragments watercourses and significantly alters hydrological processes (e.g. seasonal flooding and soil fertilisation with sediment). As a result, biological processes are being modified, affecting migratory aquatic species in particular. This affects human populations downstream, due to water shortages and declining fishery resources and soil fertility.
- Soil and water pollution: inadequate treatment of urban and industrial waste has resulted in alarming levels of soil contamination and the pollution of groundwater, surface water and coastal areas in the region. Episodes of massive pollution are not uncommon, such as the accidental rupture of mining dams (there have been several cases in Brazil in recent years), or the destruction of oil pipelines in conflict zones (particularly in Colombia).

<sup>(61)</sup> See for example the SOS Orinoco reports about gold mining in national parks of Venezuela: [https://drive.google.com/file/d/1tLJW-hmZ6ES6B14dse\\_gPKdP8DRi9n9N/view](https://drive.google.com/file/d/1tLJW-hmZ6ES6B14dse_gPKdP8DRi9n9N/view) and [https://drive.google.com/file/d/1akOuQ8aXiBwxbb6\\_jODPmITJRx2YHpBs/view](https://drive.google.com/file/d/1akOuQ8aXiBwxbb6_jODPmITJRx2YHpBs/view)

<sup>(62)</sup> Winemiller K.O. et al. (2016) Balancing Hydropower and Biodiversity in the Amazon, Congo, and Mekong. *Science* 351, pp. 128-129.

<sup>(63)</sup> Abi Morshed F. and M. Zewuster (2018). Energy Monitor: Renewable energy in Latin America. Group Economics. See: <https://insights.abnamro.nl/en/2018/05/energy-monitor-renewable-energy-in-latin-america/>

<sup>(64)</sup> Little P.E. (2013). Megaproyectos en la Amazonia: Un análisis geopolítico y socioambiental con propuestas de mejor gobierno para la Amazonía. 92 pp.

<sup>(65)</sup> Economic Commission for Latin America and the Caribbean (ECLAC) (2015). La Inversión Extranjera Directa en América Latina y el Caribe (LC/G.2641-P). Santiago de Chile.

FIGURE 2.2 Existing and projected roads in South America (map created in 2018)





^ *Hol Chan Marine Reserve, Belize. The volume of waste in LAC is growing in line with population and economic growth: in 2017 some 540 000 tonnes of municipal solid waste were produced daily. Most is deposited in landfills, often near or directly into watercourses or the sea. Pollution linked to the discharge of untreated sewage is also a major source of concern. (© Anthony B. Rath/WWF Regional)*

### Box 3 WATER POLLUTION

The quality of freshwater in rural and urban areas, and of water discharged into the sea, is an issue of enormous concern throughout Latin America and the Caribbean. Pollution is accompanied by water acidification and the proliferation of diseases, algae and other opportunistic species.

It has serious implications for human health. For example, intestinal diseases are one of the main causes of infant mortality in the region and their incidence correlates with poverty levels and a lack of access to drinking water<sup>a</sup>. Water quality is also key to the biodiversity of aquatic ecosystems. Marine and coastal pollution has been linked to the deterioration of coral populations, while changes detected in some shallow-water areas in the anatomy and physiology of aquatic fauna are thought to be due partly to pollution.

Water pollution in the region is mainly due to the inadequate treatment of urban, industrial, agricultural and mining waste. Mining and other industries emit significant concentrations of toxic substances, including metals (cadmium, lead, mercury and arsenic) and organochlorine compounds such as polychlorinated biphenyls (PCBs) and dichlorodiphenyltrichloroethane (DDT). The oil and gas industry also adds pollution: most of the Caribbean Sea, for example, could be affected by oil spills. There are also concerns that new projects involving fracking, a practice banned in Germany and France, may affect deep aquifers as well as surface water.

As economies and populations have grown, so has the volume of waste: approximately 540 000 tons of urban solid waste was produced daily in 2017, a figure expected to reach 671 000 tons a day by 2050<sup>b</sup>. Most of this waste is deposited in landfills and dumps, often close to or directly into watercourses, where it is swept away in periods of flood. Organic and inorganic pollutants infiltrate the soil and run off into watercourses or groundwater. It is estimated that only 20 % of wastewater is treated effectively.

Sources of nitrogen contamination, which affects 96.7 million m<sup>3</sup> of water each year, are crops (46 %), domestic use (37 %) and industry (17 %)<sup>c</sup>. High concentrations of nitrates and phosphates lead to eutrophication and algal blooms that reduce oxygen levels and can result in 'dead zones', where biodiversity cannot survive<sup>d,e</sup>. Fifteen such zones have been identified in the marine waters around Latin America and the Caribbean, most of them linked to urban areas: Buenos Aires (Argentina), Recife, Rio de Janeiro and São Paulo (Brazil), Cancun (Mexico), Lima (Peru) and Montevideo (Uruguay), among others.<sup>f</sup>

The backdrop to this problem is the inadequate implementation of urban waste management policies at a local level, compounded by the poor enforcement of environmental regulations applying to industrial, agricultural and extractive sectors.

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- b: <https://www.unenvironment.org/es/noticias-y-reportajes/reportajes/aumenta-la-generacion-de-residuos-en-america-latina-y-el-caribe>
- c: Mekonnen, M. M. y Hoekstra, A. Y. (2015). Global gray water footprint and water pollution levels related to anthropogenic nitrogen loads to fresh water. *Environmental Science and Technology*, 49(21), 12860–12868.
- d: Diaz R.J. and R. Rosenberg (2008). Spreading dead zones and consequences for marine ecosystems. *Science* 321(5891), pp. 926–929.
- e: National Oceanic Atmospheric Administration. <https://www.noaa.gov/>
- f: <https://earthobservatory.nasa.gov/images/44677/aquatic-dead-zones>



*^ In Minas Gerais (Brazil), in less than five years, three dams built to contain iron ore mining waste have collapsed, releasing rivers of toxic sludge that killed 300 people and destroyed natural ecosystems and biodiversity in the basin. Pressure from legal and illegal mining is increasing as the price of minerals on the international market rises. This often brings pollution and conflicts with local and indigenous populations. (© Felipe Werneck/Ibama)*

#### **Box 4**    **COLLAPSE OF MINING DAMS IN BRAZIL**

In less than 5 years, 3 dams belonging to large mining companies collapsed in the state of Minas Gerais in Brazil, with profound consequences.

The Bento Rodrigues dam catastrophe happened on 5 November 2015. Two dams built to hold iron ore mining waste burst, creating a river of contaminated mud that killed 19 people and flowed for 600 kilometres. The mud flowed into the Doce river, which supplies water to some 230 municipalities.

In a tragic echo of the earlier disaster, another mining dam burst on 25 January 2019, this time in Brumadinho. The same company, Samarco Mineração S.A., a consortium of Vale S.A. and BHP Billiton, managed the mine. The wave of mud left an estimated 300 people dead and contaminated more than 300 kilometres of the Paraopeba river.

According to the Minas Gerais authorities, at least 5 % of the state's 450 mining dams have stability problems.

### **2.2.3 Wildlife trafficking and unsustainable use of biological resources**

Throughout the region, the use of natural resources (such as food, fuel, construction materials and medicine) provides subsistence for a significant portion of the rural population, particularly the most vulnerable indigenous, peasant and Afro-descendent groups. This is socially accepted and protected by legislation in some countries.

Additionally, the extraction of wild species for international markets is not a new phenomenon in Latin America and the Caribbean. Since the 17th century, wood, medicinal plants, live animals, furs and feathers have been exported. Extractive practices have, however, intensified since the second half of the 20<sup>th</sup> century, due to population growth, the opening of new markets and an increase in international trade and tourism,





^ *Fishermen in the Orinoco river basin in Colombia catch ornamental fish destined for the international market. When the practice respects management rules, it is sustainable and generates income for local communities. However, overfishing can endanger both commercial species and accidental bycatch. (© Meridith Kohut/WWF-USR)*

coupled with technological advances and improved access to biodiversity-rich areas<sup>66</sup>. As a result, these practices have come to affect the regeneration capacity of certain species of plants and animals.

The demand for some wild species is much greater than their legal supply, when this exists, which creates fertile ground for illegal trade. It can be highly profitable: certain wild species are worth more than their weight in gold, diamonds or narcotics<sup>67</sup>. It attracts organised criminal networks (of poachers, intermediaries, smugglers and vendors)<sup>68</sup>, which are able to develop especially where the state's presence is limited. This threat is present throughout the region in varying degrees of intensity, although it is difficult to quantify, due to the lack of records and trade statistics on local and international markets (except those listed in CITES) and a lack of objective information on illegal trade.

The development of regulations in recent decades and the ratification of CITES by most countries in the region has contributed to reducing the international illegal trafficking of

listed species. However, the extent to which regulations are effectively applied varies: much effort has been made by LAC countries to control the trade in illegal timber, but wildlife trafficking has received little attention in comparison. The trafficking of threatened species remains a low-risk-high-benefit crime, with minimal chance of punishment in most countries, despite laws regarding the capture, hunting, fishing and sale of wild specimens.

The main obstacles to tackling illegal trafficking are: (a) a lack of information on the extent, dynamics and structure of illegal wildlife supply chains; (b) its low priority for governments in the region, and corruption; (c) poorly structured, poorly understood and/or inconsistently implemented legal frameworks; (d) the weakness of international and intergovernmental cooperation regarding the implementation of laws on wildlife trafficking; (e) a lack of capacity to combat wildlife trafficking in judicial and police agencies; and (f) poor collaboration between governments and civil society to combat this trade.

<sup>(66)</sup> Reuter A., J. Kunen and S. Robertson (2018). Tráfico de vida silvestre en Latinoamérica. Medidas para evitar una crisis. New York, NY, WCS.

<sup>(67)</sup> Sellar J.M. (2007). International Illicit Trafficking in Wildlife. *The Police Chief* Vol. 74, no 6 June 2007. International Association of Chiefs of Police, USA.

<sup>(68)</sup> Reuter A. (2007). Consideraciones sobre el comercio de especies, partes y derivados de origen silvestre en Centroamérica. En: *La Serie*. Tomo 7. Ambiente y Comercio. UICN, San José, Costa Rica, pp. 55-70.

## Overexploitation and trafficking of wildlife

Overexploitation of wildlife, although of lesser impact than habitat conversion, is one of the main pressures affecting fauna in the region<sup>69</sup>. Direct forms of wildlife overexploitation include unsustainable hunting and poaching. Legal and illegal capture that ignore sustainability criteria are also a threat. Indirect forms involve the killing of non-target species, such as fishery by-catch. Extraction for local consumption has a considerable impact, but more significant is the commercial extraction for sectors such as gastronomy, fashion, pets, collectors, pharmaceutical products and others. Wildlife traffic has three main destinations:

- Within the region: the traffic of live animals for pets – particularly birds – and of bushmeat is growing, in response to demand from a growing urban middle class. Compared to other trade, transporting animals is relatively easy. Reports indicate that smugglers often use public transport routes.
- Traffic to Europe and the United States of America: trafficking to these destinations concerns mainly (a) live birds, amphibians and reptiles destined for the pet market; (b) parts and derivatives valued in the fashion industry or acquired by tourists as 'souvenirs', such as feathers, black coral, stuffed animals, claws or fangs of various carnivores, turtle shell and fine wool of the Andean camelids. The preferred transit means for traffickers is commercial air passenger transport.
- Asia and particularly China: the growth of traffic to these areas is cause for greater alarm. Although wildlife trafficking in Latin America has not reached levels observed in Asia and Africa, current trends are similar to those observed less than two decades ago in Africa before the marked deterioration in African megafauna driven by Asian demand<sup>70</sup>. The acceleration in trade with Asian countries and their investment in Latin America has been accompanied by a massive increase in trans-Pacific organised crime, including trafficking in people, drugs, weapons, counterfeit items and money laundering<sup>71</sup>. There are signs that wildlife trafficking is following the same dynamic: rapid growth and criminal networks involved in certain supply chains. Different species are exported for culinary or medicinal purposes, such as land and aquatic turtles, totoaba fish, sharks and sea cucumbers. Some large mammals such as the jaguar, Andean bear and anteater are sought for traditional medicinal purposes similar to those of the Asian tiger, bear and pangolin.

Some species have been pushed to the brink of extinction by illegal trafficking. This is the case of the vaquita (*Phocoena sinus*), a porpoise endemic to Mexico with a wild population estimated to number less than 22 individuals in 2019 (all inside the Vaquita Refuge, declared a zero tolerance zone)<sup>72</sup>. The species is an indirect victim of the illegal capture of the totoaba fish (*Totoaba macdonaldi*), whose bladder is highly valued in Asia. Another example is Spix's macaw (*Cyanopsitta spixii*), a parrot native to Brazil that may be extinct in the wild due to the illegal trafficking of live specimens for collectors. Birds (cracids, psittacids, toucans, tinamous, etc.), rodents, primates, peccaries, edentates (armadillos and anteaters), deer and tortoises are among the terrestrial groups most affected in terms of the number of specimens extracted<sup>73,74</sup>. It should be noted that some species cannot be harvested sustainably because they are unable to withstand even low levels of extraction. This is the case for threatened, less numerous or highly specialised species (e.g. high or complex requirements in terms of habitat or food, late maturity, low reproductive rates, etc.). It includes certain umbrella species defined in this analysis, such as tapirs (*Tapirus* sp.), due to their large size, and extensive resource and space requirements.

Beyond its impacts on the affected species, wildlife trafficking carries risks for human health. Contact with captured animals and their transport over long distances increases the probability of transmitting pathogens from animal to man<sup>75</sup>.

## Overfishing

Overfishing in freshwater, marine and coastal ecosystems has significantly affected resources that support the diet of many local populations and sustain large export industries. The region accounts for about 24 % of the global fish catch.<sup>76</sup> Peru, Chile, Mexico, Argentina and Ecuador rank among the major fishing countries.<sup>77</sup> Overfishing, together with certain climate change effects, has given rise to enormous fluctuations in annual catches and even fears that the fisheries sector might collapse.

## Timber exploitation and trafficking

Logging is a large industry in LAC, where it is mostly geared to the production of high-value timber for the global market. Available figures for roundwood indicate a steady increase over the last decade; in 2014, the harvest was estimated to be 504 million m<sup>3</sup> for the whole region<sup>78</sup>. State planning and monitoring of forest management plans has increased

<sup>(69)</sup> IUCN (2016). The IUCN Red List of Threatened Species. Version 2016-1. Available at: <http://www.iucnredlist.org/>

<sup>(70)</sup> Reuter, A. et al. (2018). Op cit.

<sup>(71)</sup> Myers M. and Wise C. (Eds.) (2016). The political economy of China-Latin America relations in the new millennium: Brave new world. 290 pp.

<sup>(72)</sup> <https://www.gob.mx/profepa/articulos/vaquita-marina-la-marsopa-mas-pequena-del-mundo>

<sup>(73)</sup> Ojasti J. (1993). Utilización de la fauna silvestre e América Latina: Situación y perspectiva para un manejo sostenible. Vol. 25. FAO. 251 pp.

<sup>(74)</sup> Wildlife Conservation Society (WCS) (2004). La caza en bosques neotropicales: repaso de los temas, identificación de lagunas y definición de estrategias. 206 pp.

<sup>(75)</sup> <https://blogs.worldbank.org/es/voices/coronavirus-y-el-efecto-pangolin-el-incremento-de-exposicion-la-vida-silvestre-plantea>, accessed 4 April 2020.

<sup>(76)</sup> Pérez-Ramírez, M., M. Almendarez Hernández, G. Avilés, Gerzain and L.F. Beltrán-Morales (2015). Consumer Acceptance of Eco-Labeled Fish: A Mexican Case Study, 2015(7), pp. 4625-4642.

<sup>(77)</sup> <http://www.fao.org/state-of-fisheries-aquaculture>

<sup>(78)</sup> Köhl M. et al. (2016). Changes in forest production, biomass and carbon: Results from the 2015 UN FAO Global Forest Resource Assessment. *Forest Ecology and Management* 352, pp. 21-34.



*^ Logs being shipped on the Amazon, Peru. Logging is a major industry in LAC. It is mainly oriented towards the production of high-value wood for the international market. While government planning and monitoring of sustainable forest management plans is improving, illegal timber trafficking remains widespread in certain countries, destined in particular for the (less tightly controlled) domestic market or for countries with few traceability requirements. (© Peru Science Photo Library/Alamy Stock Photo)*

substantially but is still insufficient. Central America is the sub-region with the highest proportion of forest under management plans (more than 60 % of the forest area) and in this regard it is the world leader. In the Caribbean, the values are intermediate (30 to 40 %), while in South America they are very low (around 15 %) <sup>79</sup>. In 2006, the World Bank estimated that the proportion of timber from illegal logging was 80 % in Bolivia and Peru, 70 % in Ecuador and 42 % in Colombia. <sup>80</sup> There is a strong correlation between timber trafficking and deforestation for agricultural and livestock purposes, often performed without

permits. The preferred destination for illegal timber is the domestic market, where there is often little or no control over its origin, as well as countries such as China which impose few traceability requirements. Some timber is illegally extracted for firewood, which is an important energy source, particularly in poorer areas; it provides for 75 % of the energy consumed in Haiti and accounts for 80 % of the wood cut in Jamaica <sup>81</sup>. The unsustainable exploitation of non-timber forest products is also intensifying, related to the cosmetics and pharmaceutical industries.

<sup>(79)</sup> MacDicken K.G. et al. (2016). Global progress toward sustainable forest management. *Forest Ecology and Management* 352, pp. 47-56.

<sup>(80)</sup> World Bank (2006). Strengthening Law Enforcement and Governance: Addressing a Systemic Constraint to Sustainable Development. Report No 36638-GLB. August. World Bank, Washington, DC. Available at: <http://documents1.worldbank.org/curated/en/330441468161667685/pdf/366380REVISED010ForestOLaw01PUBLIC1.pdf>

<sup>(81)</sup> Critical Ecosystem Partnership Fund (CEPF) (2010). Ecosystem profile: the Caribbean Islands biodiversity hotspot. BirdLife International.



**Impacts:**

- Species population reduction and extinction: some forest species as well as terrestrial and aquatic fauna are facing a severe reduction in their range and population, which may even lead to extinction, due to unsustainable exploitation<sup>82</sup>. For example, due to its high value, the range of mahogany (*Swietenia macrophylla*) has been reduced by more than 60 % in Central America and 20 % in South America<sup>83</sup>.
- Decreased provision of ecosystem services: logging impacts the habitats and refuges of certain species, and reduces carbon sequestration capacity and soil erosion regulation. It alters hydrological processes and local climate conditions, causing certain forests to become more fire-prone. The loss of biodiversity due to wildlife trafficking also affects the provision of ecosystem resilience services: pollination, pest control, waste assimilation and so on.
- Further land-use change: new roads and forest trails for logging provide easier access for illegal logging activities, hunting, fishing and, ultimately, agriculture.
- Threat to traditional ways of life: local populations, particularly indigenous peoples, suffer the consequences of biodiversity loss due to overexploitation. Operators of wildlife and timber trafficking networks with greater financial or other capacities often take advantage of local communities, defraud them, and/or compete with traditional management practices, depriving the former of control over territory and natural resources. Illegal practices increase community-level inequalities.<sup>84</sup>
- Increased crime: the potential earnings from wildlife trafficking attract criminal groups with the capacity to threaten the safety of local communities and cause civil unrest.
- Cycle of illegality: illegal extraction leads to unfair competition that can discourage the development of the formal sector.
- Increased risk of zoonosis due to contamination by hunters, marketers and buyers / consumers of wildlife species.

<sup>82</sup> Rodríguez, S.L.R. (Ed.) (2010). Informe Avances en el Desarrollo del Programa de Trabajo Sobre Áreas Protegidas Región: Bioma Amazónico. 250 pp.

<sup>83</sup> World Wide Fund for Nature (WWF) (2015). Big-leaf Mahogany. Available at: [https://www.panda.org/our\\_work/wildlife/profiles/plants/big\\_leaf\\_mahogany/](https://www.panda.org/our_work/wildlife/profiles/plants/big_leaf_mahogany/)

<sup>84</sup> WWF-Colombia (2009). Un voto de conservación para los bosques en Colombia. Press release. 4 pp.



< *Introduced 70 years ago to Argentina, the North American beaver (*Castor canadensis*) has multiplied throughout Patagonia, to the point of becoming one of the greatest threats to native forests. To build dams, beavers significantly alter riverbank environments and well as the physical and chemical conditions of rivers and their biodiversity. It is estimated that they have already altered 50 % of the riparian forests of Tierra del Fuego. (© Gerry Bishop/Alamy Stock Photo)*

#### 2.2.4 Invasive alien species

The proliferation of alien species has become one of the main causes of biodiversity loss in Latin America and the Caribbean after habitat destruction and wildlife overexploitation.<sup>85</sup> It is now considered the main threat in the Caribbean islands: in 2010, hundreds of animal species (449 terrestrial, 55 freshwater and 18 marine), and at least 281 plant species (including 179 trees) were identified as seriously affecting local populations in this subregion<sup>86</sup>. Due to the generally small size of their populations, native island species tend to be more vulnerable to this threat.

Many invasive species were introduced accidentally or for financial and recreational purposes. The growth and globalisation of trade and tourism has facilitated the arrival of new species that, combined with inadequate control measures, have contributed to both the availability of dispersion vectors and propagation routes. At the same time, the fragmentation and degradation of the natural environment, as well as climate change, enable new species to become established<sup>87</sup>.

Some countries in the region have taken steps to address the threat. There have been at least 175 successful eradications of invasive species, including 20 species of vertebrate in island environments in 15 countries. However, many eradication programmes have not been successful. Not only do they require complex and expensive interventions but they have also been challenged by local communities that value the introduced species either as food or for recreation.

##### *Impacts:*

- Displacement or extinction of native species through competition, predation or disease transmission.
- Significant modification of natural ecological processes through changes in ecosystems' fauna or flora.
- Effects on the economy, health and quality of life of people due to changes to ecosystems on which their livelihoods depend. Of course, some exotic species have positive economic effects, as they are eaten or exploited in other ways, including in industry.

<sup>85</sup> IUCN (2016). Op cit.

<sup>86</sup> CEPF (2010). Op cit.

<sup>87</sup> IUCN. (2000). Guidelines for prevention of biodiversity loss caused by alien invasive species. SSC Invasive Species Specialist Group. 24 pp.

## Box 5 INVASIVE ALIEN SPECIES IN LATIN AMERICA AND THE CARIBBEAN

Some invasive alien species in LAC have a high regional impact, while others have significant local impacts. Emblematic cases are presented below.

### Terrestrial environments

The wild boar (*Sus scrofa*), red deer (*Cervus elaphus*) and spotted deer (*Axis axis*) were introduced for hunting in closed reserves of Argentine Patagonia. They quickly escaped and became widely dispersed, including in protected areas. They cause particular damage to the structure of the landscape and the composition of vegetation, they carry diseases, and compete for resources and space with native fauna, such as guanaco (*Lama guanicoe*) and South Andean deer (*Hippocamelus bisulcus*).

In the Pampas region, around 40 invasive woody species have been detected. In areas with better-drained soils, floral invasion has attained such a level that they are forming entire forests of alien species.

On some Caribbean islands, the Javan mongoose (*Herpestes javanicus*), a small carnivorous mammal that was introduced to control populations of ophidians and rodents in crops, preys on the eggs and young of native vertebrates and has attained plague proportions.

### Freshwater environments

Several species of carnivorous fish, such as the Nile tilapia (*Oreochromis* sp.), largemouth perch (*Percichthys colgapiensis*), rainbow trout (*Oncorhynchus mykiss*) and brown trout (*Salmo trutta*) were introduced for aquaculture and fishing. As they expanded through the region's waterways, they displaced many native fish species and reduced the populations of invertebrates and amphibians.

In the extreme south of the continent, the North American beaver (*Castor canadensis*), a species with a high potential to colonise at the local level, has significantly modified the riverine forests, wetlands and peripheral areas. By felling trees near watercourses to build dams, the beaver alters the physical and chemical conditions of the water as well as the biodiversity.

The golden mussel (*Limnoperna fortunei*), a bivalve originally from China and inadvertently transported via the ballast water in ships, is spreading fast across Latin America. Detected in 1991 in northern Argentina, it has spread to the Amazon basin. As well as modifying aquatic biodiversity, it causes 'macrofouling', blocking pipes and filters of water intake for human consumption, industrial refrigeration, irrigation canals and power plant generators<sup>a</sup>.

### Marine environments

In Central America and the Caribbean, certain alien algae are a serious local issue as well as potentially problematic at the regional level. Species such as the green feather algae (*Caulerpa sertularioides*) and red algae (*Acanthophora spicifera*) have proliferated to the point that they now form meadows, affecting corals and associated reef fauna.<sup>b</sup>

In addition, huge quantities of sargassum (*Sargassum* spp.) have proliferated and washed ashore on the Caribbean coast over the past decade, due to a combination of nitrate and phosphate pollution from South America and the overfishing of its main natural predator, the queen conch (*Lobatus gigas*). As it decomposes, the sargassum releases hydrogen sulphide, which affects human health and the fishing and tourist industries.

#### References:

a: <https://www.conicet.gov.ar/el-problema-del-mejillon-dorado-eso-que-los-barcos-llevar-y-traen/> (2016)

b: Personal communication with Cindy Fernández, Centro de Investigación en Ciencias del Mar, Universidad de Costa Rica.



^ Bleached Boulder brain coral (*Colpophyllia natans*), Cayman Islands, British West Indies. Ocean warming and acidification are affecting coral reefs. Coral bleaching has been observed since 1998 and is particularly noticeable around the Caribbean islands and the coast of Central America. (© Nature Picture Library/Alamy Stock Photo)

### 2.2.5 Climate change

CO<sub>2</sub> emissions from LAC increased by 646 % from 1960 to 2013, but overall represent just 5.2 % of total global emissions<sup>88</sup>. Unlike most industrialised regions, where over 80 % of greenhouse gases are emitted by the energy, industry and transport sectors, around 50 % of emissions in LAC come from land-use change, agriculture and deforestation<sup>89</sup>. The environmental degradation factors observed in the region (deforestation, landscape fragmentation, pollution, overexploitation of species, etc.) reduce the resilience of populations and ecosystems, and exacerbate the impacts of climate change (CC).

These factors are multiple, complex and with unpredictable trajectories, particularly in such a diverse region. However, some

effects are already evident and the scientific community has been developing modelling studies to predict future impacts in a broad outline.

CC could be affecting the magnitude of the El Niño phenomenon, which dictates the rhythm of rainfall and drought periods in much of South America.<sup>90,91</sup> The most vulnerable ecosystems include marine and coastal areas, Andean environments and wetlands.<sup>92</sup>

In the Caribbean, the main risks are a rise in sea level, greater frequency and magnitude of extreme weather events, in particular hurricanes and tropical storms, the lack of fresh water and food security. Ocean warming and acidification affect coral reefs: coral bleaching has been observed since 1998 and is particularly noticeable around the Caribbean islands and the coast of Central America<sup>93</sup>.

<sup>(88)</sup> Banco Mundial (2016). [datos.bancomundial.org](http://datos.bancomundial.org)

<sup>(89)</sup> Gudynas E. and S. Ghione (2010). Agricultura, ganadería, biodiversidad, cambio climático: estrechamente vinculados. *Revista de Agroecología – LEISA* 26(4), pp. 40-43. Lima.

<sup>(90)</sup> Cai, W. et al. (2014). Increasing frequency of extreme El Niño events due to greenhouse warming. *Nature Climate Change* 4, pp. 111-116.

<sup>(91)</sup> Johnson, N.C. (2014). Atmospheric science: a boost in big El Niño. *Nature Climate Change* 4, pp. 90-91.

<sup>(92)</sup> UNEP (2016). Op cit.

<sup>(93)</sup> Reef Base (2014). Global Information System for Coral Reefs, GIS & Maps. Available at: [www.reefbase.org/main.aspx](http://www.reefbase.org/main.aspx)

In the tropical Andes, a rise in temperatures (+0.7°C between 1939 and 2006) is already causing severe melting of the glaciers. This will increasingly restrict available water for ecosystems, human consumption, agriculture and energy production in vast regions of the continent<sup>94,95</sup> (especially Chaco, Chiquitano dry forest, high mountain areas, semi-arid regions of Mexico, Central America and the central area of Chile) and several large cities (La Paz, Santiago and Mexico City). Limited access to water and gradual desertification of ecosystems and agricultural lands are likely to drive local and regional migration (climate refugees), and is already being observed with the emigration of farmers from the Central American dry corridor.

In Central and South America, the most obvious risks are impacts on wetlands, reduction in the availability of fresh water in semi-arid regions (mainly Chaco, Caatinga, Patagonia and Puna), an increase in landslides and flooding at sites with higher rainfall, lower food production and expansion of vector-borne disease at latitudinal and altitudinal scales (e.g. mosquito-borne diseases such as dengue, yellow fever, chikungunya and Zika).

On the South American plains, rising temperatures, changing rainfall patterns and an increase in extreme weather events heighten the fire risk. This is particularly critical in tropical and temperate seasonal ecosystems (humid Pampa, Chaco, Chiquitano dry forest and Cerrado) and in the arid areas of Argentina, north-central Chile and southern Peru. In tropical forest ecosystems (Amazonia, among others), these factors, exacerbated by deforestation, are driving a shift in vegetation ('savannisation')<sup>96</sup>, leading to the loss of biodiversity and ecosystem services, and contributing to local and regional climate change<sup>97</sup>.

In the temperate and southern marine coasts, CC will lead to a reduction in populations of crustaceans (for example in krill banks), fish and marine mammals. A decline in populations of Adélie and chinstrap penguins (*Pygoscelis adeliae* and *P.*

*antártica*) has been observed at the southern tip of the region, a result of food shortages and parasite pressure due to increased temperatures<sup>98</sup>.

In general terms, changes in water availability and other resources can alter the density and distribution of species. They modify the seasonal rhythms of plants and reproductive cycles of animals, the patterns of plant-pollinator, predator-prey and parasite-host interactions, and foster the proliferation of some exotic species<sup>99</sup>. For example, on the moors of Chingaza (Colombia), higher temperatures raised the altitudinal range of a group of moths (*Hellinsia* sp.) whose larvae enter the base of the 'frailejones' leaves (plants of the genus *Espeletia*) and allow fungal contamination, which contributes to destroying the entire plant<sup>100</sup>.

The species most susceptible to extinction due to CC are those with narrow ranges of geographical distribution, migratory birds with specific habitat conditions and altitude, medium-high and high mountain amphibians, reptiles of the arid plains, mammals that require ample geographical spaces to maintain viable populations, species belonging to the biotic communities of corals, mangroves and intertidal areas, and the aquatic fauna of rivers and streams in medium-high and high mountains<sup>101</sup>.

The expansion of pests and diseases in crops, livestock and farm animals is another direct consequence of CC. There has been an increase in diseases in banana, coffee, potato, cocoa, corn and cassava crops in LAC as a result of the increase in temperature and humidity<sup>102</sup>.

By 2050, it is estimated that the economic cost of climate change in LAC will represent between 1.5 % and 5.0 % of regional GDP.<sup>103</sup> Its effects will have most impact on rural populations engaged in agriculture, fishing, tourism and other activities that are highly dependent on ecosystem services.<sup>104</sup>

<sup>(94)</sup> Ramírez E. (2008). Impactos del cambio climático y gestión del agua sobre la disponibilidad de recursos hídricos para las ciudades de La Paz y El Alto, Bolivia. *Revista Virtual REDESMA* 2(3). La Paz, Bolivia.

<sup>(95)</sup> Condom T. et al. (2014). Retroceso de glaciares y recursos hídricos en los Andes peruanos en las últimas décadas. pp. 113-122. In: González S. and J.J. Vacher (Eds.). *El Perú frente al cambio climático. Resultados de investigaciones franco-peruanas*. Ministerio del Ambiente del Perú – IRD. 156 pp. Lima, Peru.

<sup>(96)</sup> Nobre P., M. Malagutti, D.F. Urbano, R. de Almeida and F. Giarolla (2009). Amazon deforestation and climate change in a coupled model simulation. *Journal of Climate* 22, pp. 5686-5697.

<sup>(97)</sup> Salazar L.F., C.A. Nobre and M.D. Oyama (2007). Climate change consequences on the biome distribution in tropical South America, *Geophysical Research Letters* 34, L09708, doi:10.1029/2007GL029695

<sup>(98)</sup> Barbosa A. (2011). Efectos del cambio climático sobre pingüinos antárticos. *Ecosistemas* 20(1), pp. 33-4.

<sup>(99)</sup> Uribe Botero E. (2015). El cambio climático y sus efectos en la biodiversidad en América Latina. CEPAL. Naciones Unidas. Euroclima, Unión Europea. Santiago, Chile. 84 pp.

<sup>(100)</sup> Salinas C., L.A.S. Fuentes and L. Hernández (2013). Caracterización de los lepidópteros fitófagos asociados a la herbivoría de frailejones en la microcuenca de la quebrada Calostros del Parque Nacional Natural Chingaza. *Revista Mutis* 3(1), pp. 1-22. Univ. Jorge Tadeo Lozano, Colombia.

<sup>(101)</sup> BIOMARCC-SINAC-GIZ (2013). Impactos del cambio climático sobre la biodiversidad y los servicios ecosistémicos con énfasis en áreas silvestres protegidas: Síntesis del estado del arte 2009-2011. San José-Costa Rica. 39 pp.

<sup>(102)</sup> Vergara W., A.R. Ríos, P. Trapido and H. Malarín (2014). Agricultura y clima future en América Latina y el Caribe: impactos sistémicos y posibles respuestas. Banco Interamericano de Desarrollo. Documento de Debate IDB-DP-329.

<sup>(103)</sup> Samaniego J.L. (2014). The economics of climate change in Latin America and the Caribbean: paradoxes and challenges. Overview for 2014. Santiago: ECLAC. Available at: [https://repositorio.cepal.org/bitstream/handle/11362/37056/S1420806\\_en.pdf](https://repositorio.cepal.org/bitstream/handle/11362/37056/S1420806_en.pdf).

<sup>(104)</sup> Uribe Botero E. (2015). Op cit.



**FIGURE 2.3** Expected impacts of climate change in Latin America and the Caribbean and its effects on ecosystem services and biodiversity



Source: UNEP (2009). *Gráficos vitales del cambio climático para América Latina y El Caribe*. United Nations Environment Programme.



^ In southern Chile, the salmon industry is a significant source of contamination in coastal marine ecosystems and has led to major fish disease outbreaks. (© Sam Beebe)

## 2.2.6 Other direct threats

### Expansion of aquaculture

Aquaculture is expanding rapidly to meet a growing global demand for fish, molluscs, crustaceans and aquatic plants. Currently, it provides half of all the fish intended for human consumption and is growing more than any other sector of animal foodstuff production<sup>105</sup>.

The world's leading aquaculture nations include Chile (9th in 2014), Brazil (14th) and Ecuador (18th). The main species cultivated in the region are:

- Salmonids (salmon and trout), mainly along the southern coast of Chile;
- Tilapias, of which Ecuador and Colombia are among the biggest producers in the world;
- Shrimp (or prawns), mainly in mangroves and river estuaries in South and Central America, with Ecuador being the world's second-largest exporter.

Much of the current output is unsustainably managed. The expansion of shrimp farming in coastal areas has resulted in the loss of a large part of tropical mangrove cover. This impact is especially pronounced in Ecuador, where 200 000 hectares were under cultivation in 2015. El Salvador has also suffered extreme degradation: by 2013 it had lost 60 % of its mangroves, mainly due to the expansion of salt evaporation ponds and

shrimp farms<sup>106</sup>. Pollution of coastal marine ecosystems due to salmon farming is significant in southern Chile, where the carrying capacity of coastal ecosystems has often been exceeded by the industry, which has led to major fish disease outbreaks. The threats are so intense that they have justified the development of specific programmes, such as the Blue Growth Initiative, the Food and Agriculture Organisation of the United Nations' (FAO) model for sustainably developing fisheries and aquaculture.

#### Impacts:

- Water pollution by organic wastes involving, among other things, high concentrations of nitrite and ammonia. Added to this is contamination by antibiotics, antiparasitics, fungicides, algacides and chemicals used to repair fish cages or sterilise ponds between each breeding cycle.
- Soil salinisation, acidification and pollution by toxic chemicals: pond cultivation changes the physical, chemical and microbiological structure of the soil. When the ponds are abandoned, due to disease or other reasons, they are unsuitable for other uses, causing the loss of agricultural land.
- Changes in aquatic food chains: one upshot of pollution is a significant increase in the abundance of toxic phytoplankton species and opportunistic polychaetes (like *Capitella* and *Scolecopsis*) in nearby areas and, consequently, a general collapse of biodiversity levels<sup>107</sup>.
- Loss of terrestrial and aquatic biodiversity due to the use of potentially invasive alien species for fish farming. The

<sup>(105)</sup> FAO (2016). El estado mundial de la pesca y la acuicultura 2016. Contribución a la seguridad alimentaria y la nutrición para todos. Roma. 224 pp.

<sup>(106)</sup> MARN (2013). Estrategia Nacional de Biodiversidad. San Salvador, El Salvador. 24 pp.

<sup>(107)</sup> Buschamann A.H. (2001). Impacto Ambiental de la Acuicultura; El Estado de la Investigación en Chile y el Mundo. Universidad de Los Lagos, Osorno, Chile. Terram Publicaciones. 67 pp.



^ *Santa Barbara, Curaçao. Tourism development in coastal areas can destroy and degrade natural ecosystems. Beach erosion due to coral reef damage or coastal infrastructure and dune removal for construction or sand extraction affect biodiversity. Species pushed to the brink of extinction include the hawksbill turtle, whose favourite nesting sites are leeward beaches with gentle waves. (© Falco Emert)*

most commonly used taxa are North American salmonids, African cichlids, tilapia, carp and the carnivorous Asian catfish, the basa<sup>108</sup>.

- Alteration of natural hydraulic flows caused either by the construction of embankments that impede tidal action<sup>109</sup> or the diversion of saltwater or freshwater for pond production.
- Loss of the coastal strip's protective effect against severe weather events (cyclones, hurricanes) due to mangroves being destroyed for aquaculture. Coastal areas are also more prone to saltwater intrusion into agricultural land and water sources.
- Significant reduction of fishery resources through the degradation of coastal ecosystems, particularly mangroves, which provide an essential refuge, nursery and food source for many fish, crustacean and mollusc species during key stages in their life cycles.
- Risk to coastal economies due to the loss of fishery and numerous coastal forest resources (building materials, charcoal, tannins, medicines and honey) that sustain local communities. Industrial aquaculture has also been linked with human rights violations, including the confiscation of land, forest and water resources, and the eviction of local populations<sup>110</sup>.

### Unsustainable tourism

Although tourism often relies on nature's attractiveness, massive and unsustainably managed tourism has often had a

strong impact, especially in the Caribbean, where countries are highly dependent on the sector and island ecosystems tend to be fragile. Tourism-related infrastructure in coastal areas is responsible, for example, for the destruction of 80 % of the mangroves in the British Virgin Islands<sup>111</sup>.

#### Impacts:

- Destruction and degradation of natural coastal habitats: removal of vegetation, dredging, canalising and filling of coastal wetlands and mangroves to construct hotels, marinas and ports. Sand extraction causes beach and dune erosion and directly affects biodiversity, pushing certain species to the brink of extinction, including the hawksbill turtle (*Eretmochelys imbricata*), whose favourite nesting sites are leeward beaches with gentle waves.
- Effect on the quality and quantity of fresh water: tourism-related urban expansion increases the pollution of water bodies with untreated wastewater and solid waste. Excessive consumption of surface- and groundwater result in saline intrusion and changes in ecosystem functions.
- Driver of wildlife trafficking: tourism encourages trade in wildlife, for both food and other uses. For example, the lowland or spotted paca (*Cuniculus paca*) and the white-tailed deer (*Odocoileus virginianus*) are among the most requested species and on the menu of many restaurants in Central America<sup>112</sup>.

<sup>(108)</sup> Tognelli M.F., C.A. Lasso, C.A. Bota-Sierra, L.F. Jimenez-Segura and N.A. Cox (Eds.) (2016). Estado de Conservación y Distribución de la Biodiversidad de Agua Dulce en los Andes Tropicales. Gland, Suiza, Cambridge, UK y Arlington, USA: UICN. xii + 199 pp.

<sup>(109)</sup> Yáñez-Arancibia A. and A.L. Lara-Domínguez (1999). Los manglares de América Latina en la encrucijada, pp. 9-16. In: A. Yáñez-Arancibia and A.L. Lara-Domínguez (Eds.). Ecosistemas de Manglar en América Tropical. Instituto de Ecología A.C. Mexico, UICN/ORMA, Costa Rica, NOAA/NMFS Silver Spring MD USA. 380 pp.

<sup>(110)</sup> World Rainforest Movement (2002). Mangroves: Local livelihoods vs corporate profits. 69 pp.

<sup>(111)</sup> CEPF (2010). Op cit.

<sup>(112)</sup> WCS (2004). Op cit.



^ *With the perpetrators of attacks on environment defenders rarely punished in Mexico, activists like Isela Gonzalez Diaz, the Chairperson of Alianza Sierra Madre, find their work restricted by the threat of attacks. (© Thom Pierce/Guardian/Global Witness/UN Environment)*

### Illicit activities and land grabbing

Protected areas and the remnants of natural ecosystems are generally remote, sparsely populated and poorly guarded. This makes them attractive to criminal networks engaged in the trafficking of drugs, people, arms and wildlife, and illegal mining. This is a widespread problem in the region, and especially so in protected transboundary and coastal-marine areas, where the illicit activities drive deforestation, chemical pollution and other pressures on ecosystems and biodiversity. The threat to the rangers' personal security and the governance of protected areas is severe.

More widely, forced land grabbing endangers indigenous peoples and other defenders of nature. In 2019, more than 200 environment defenders were killed worldwide, and more than two-thirds of these deaths were in LAC. Many indigenous and community leaders were among the victims. In addition to murder, nature's defenders are subject to death threats, blackmail, illegal surveillance, cyberattacks, sexual assault, unjustified arrest and judicial harassment. Agroindustry and mining are the sectors most associated with violence, followed by hunting, illegal logging and hydroelectric infrastructures. Among the countries most affected by this type of violence are Colombia (64 murders in 2019), Brazil (24), Mexico (18), Honduras, Guatemala and Venezuela<sup>113</sup>.

## 2.3 DRIVERS OF THE THREATS

### 2.3.1 Population growth and changing consumption patterns

LAC is home to 8.8 % of the global human population. By 2050, the number of people in the region will reach 800 million; already, 80 % live in urban areas. Insufficient planning of urban growth, the lack of wastewater and solid waste treatment and measures to control air pollution are placing increasing pressure on ecosystems and affecting people's quality of life in urban and peri-urban areas.

Consumption habits are changing due to the growth of the middle class. There is an increased demand for meat and dairy products, which require more land to produce than the equivalent amount of vegetable protein and so contribute to agricultural expansion. At the same time, per-capita energy use is increasing.

In response to the demand, governments are boosting public and private investment in large-scale energy, agriculture and extractive industry projects, and the associated infrastructure. This dynamic is progressing from more populated coastal areas to more pristine areas in the centre of the continent and the desert or cold areas, adding to the pressures and degradation.

<sup>113</sup> Global Witness (2020). Download the full report *Defending Tomorrow: The climate crisis and threats against land and environmental defenders*. 52 pp. Available at: <https://www.globalwitness.org/en/campaigns/environmental-activists/defending-tomorrow/>



^ *Field of pineapples, Puerto Viejo, Costa Rica. Driven by state incentives, pineapple has become one of the main export products of Costa Rica since 2000. Although this boosts jobs and incomes, the expansion of production into ecologically sensitive areas and pollution due to the associated excessive use of agrochemicals have made the policy controversial. (© Ondrej Prosicky/Shutterstock)*

### 2.3.2 Market forces and perverse subsidies

The regional and international demand for raw materials and natural resources (minerals, hydrocarbons, meat and dairy products, grains for food and biofuels, etc.) has increased as a result of population and economic growth. Taking advantage of the demand, governments are encouraging productive activities and trade, promoting international agreements and transport infrastructure through favourable legal frameworks and support formulas from both the public and private sectors (direct subsidies, subsidised credit, tax incentives). However, such policies tend to be sector-based and short-sighted, underestimating the impact on natural capital and the economic and social costs linked to its degradation.

Likewise, the market usually reflects only the private costs of the production process, overlooking the cost of environmental externalities that are transferred to society (e.g. pollution or the reduction of access to natural resources).

All too often, development policies overlap or take precedence over land-use planning, where it exists. Many economic activities come into conflict, not only with biodiversity conservation but also the sustainable management of strategic resources such

as water and soil. Among other things, support policies have often promoted the unsustainable intensification and expansion of agriculture and livestock. Many governments, for example, promote subsistence farming systems that require the use of agrochemicals. Economic development policies tend to focus on fast profits and attracting foreign capital. To this end, many countries subsidise agro-industrial crops, either directly or indirectly, despite the impact the sector has in terms of deforestation, fires, water pollution, soil degradation and so on. For example, soybean cultivation has benefited from fiscal incentives in Argentina, Paraguay, Uruguay and Brazil, as has meat production in Argentina and Brazil.

International trade agreements, by partially or totally opening new markets, can give a significant stimulus to some sectors, without consideration for the environmental impacts of larger scale production. This is the case for pineapple production in Costa Rica (the top exporter in the world since 2007), which is free of any tax liability in the USA under the Caribbean Basin Initiative (CBI) and the Central America Free Trade Agreement (CAFTA). In addition, under the free trade zone regime, most inputs needed for the crop are not taxed internally in Costa Rica.<sup>114</sup>

<sup>114</sup> La Gaceta Oficial (2014). No 227, file 19.371, 25/11/2014. Available at: [https://www.imprentanacional.go.cr/pub/2014/11/25/COMP\\_25\\_11\\_2014.pdf](https://www.imprentanacional.go.cr/pub/2014/11/25/COMP_25_11_2014.pdf)



^ *Illegal gold mining, Madre de Dios river, Peru. Mineral extraction is among the sectors that generate the highest income in the region. Although there are legal frameworks governing activities, these are often overlooked and the institutions responsible for monitoring lack the necessary means. Informal gold mining, which is on the rise in the Amazon and Orinoco, lead to forest loss, water contamination and social conflict, creating a favourable environment for criminal activities and networks.*  
(© David Tipling/Alamy Stock Photo)

### 2.3.3 Weak governance and lack of political will

While many countries of the region have territorial planning and regulations, these generally have insufficient environmental sustainability criteria and are often subject to political and economic pressures. Even where adequate legal frameworks exist, these are often bypassed. It is common for laws relating to biodiversity conservation to conflict with other legal provisions, such as those concerning infrastructure development<sup>115</sup>.

Shortcomings in legislation and its application are due, in part, to the work of lobbies that direct public policies towards certain

economic and political interests. Conservation is rarely considered a priority since the value of ecosystem services is generally underestimated. High levels of corruption compound the problem. As a result, the institutions responsible for enforcing environmental regulations lack the necessary means, and the police and courts pay limited attention to the problem.

The resulting absence of efficient planning, regulation, state control and local oversight enables unsustainable production and extraction practices, which generate social and environmental conflicts. It also provides favourable conditions for illicit activities and illegal networks.

<sup>115</sup> UNEP (2011). Environmental outlook: Latin America and the Caribbean. GEO LAC 3. 49 pp.

## Box 6 CONSERVATION AND PROPERTY RIGHTS

According to the United Nations Environment Programme (UNEP)<sup>a</sup>, one of the most pressing governance problems is the uncertainty associated with property and tenure rights. This contributes to an increase in unsustainable practices, both by communities and the private sector. In fact, in many countries in the region there are significant movements of illegal occupation of forest land for agricultural and livestock activities. The most vulnerable populations (particularly indigenous communities) have suffered from the often-illegal historical changes in land tenure, including forced displacement as a result of civil conflicts or land-grab schemes. Transaction costs can be a major obstacle to the registration of ownership for these populations. This hinders land-use planning processes and is a source of local conflict, which must be resolved to guarantee conservation or initiate restoration processes.

Land-use planning processes are generally not adapted to the requirements of minority groups, nor are they equitable. Many land administration projects are based on a simple territorial demarcation and a title deed issued in the name of the group. Due attention is not given to dialogue between stakeholders or the communication of their rights to free, prior and informed consent processes, nor to the identification and implementation of appropriate accompanying measures.

Reference:

a: UNEP (2012). *Global Environment Outlook-5: Environment for the future we want*. United Nations Environment Programme.

## Box 7 TIMBER TRAFFICKING IN PERU

In 2016, Peru's National Forest and Wildlife Service (SERFOR) changed the format of visual inspection records for timber, which resulted in the elimination of all information that would allow the origin and destination of the wood to be traced. According to the Environmental Investigation Agency<sup>a</sup>, weakening traceability and inspection tools for the timber trade results in 'cleaner papers' but not actually 'cleaner timber', since wood becomes more difficult (if not impossible) to track. Recent research conducted in Peru has also detected irregularities in logging companies certified by the Forest Stewardship Council (FSC).

The timber 'laundering' operations typically include the preparation of partially or entirely false forest inventories, approved without genuine on-the-ground verification, which mention volumes of trees that do not exist. They also include the acquisition of black-market transport permits to remove and transport wood from undeclared or unauthorised sites. In addition, not only is timber transported from areas other than those indicated, but other species are also traded, and in greater quantities than those recorded. Many timber-processing industries accept the transport permit delivered by suppliers without question, and take no responsibility for verifying the origin of the product.<sup>b</sup> Such operations are possible because of low control capabilities of the institutions in charge and corruption possibilities.

Reference:

a: Urrunaga, J., A. Johnson and I.D. Orbegozo Sánchez (2018). *Moment of Truth: Promise or Peril for the Amazon as Peru Confronts its Illegal Timber Trade*. EIA. Available at: <https://eia-global.org/reports/momentoftruth>

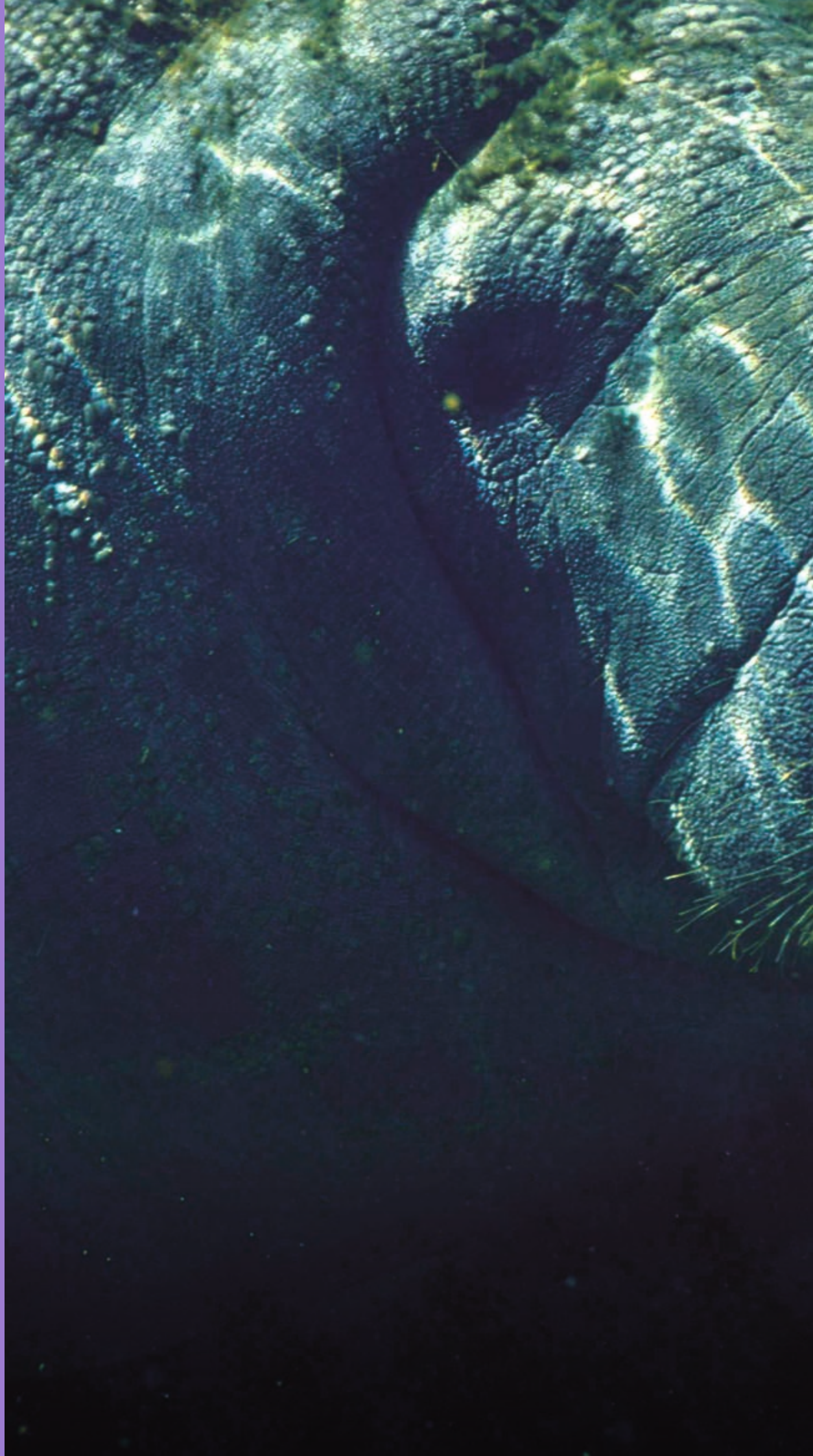
b: Aguirre, M. (2007) ¡A quién le importan esas vidas! Un reportaje sobre la tala ilegal en el Parque Nacional Yasuní. CICAME: Quito.

## Box 8 THE DESTRUCTION OF MANGROVE FORESTS BY THE SHRIMP SECTOR

One of the drivers of the massive loss of mangroves is a failure to recognise their value. Historically, mangroves were considered worthless by outside actors, and so were converted for lucrative shrimp farming. Governments supported this activity for decades: in Ecuador it was touted as the 'Blue Revolution'; in Colombia it was supported by the Ministry of Agriculture and the Ministry of Foreign Trade. Inadequate or poorly implemented regulations have left the way open for highly harmful practices from a social and environmental impact perspective. In Ecuador, despite a 1986 declaration on mangrove protection and a ban on logging and construction of new shrimp ponds in 1994, an estimated 95 % of shrimp farm concessions have been granted in mangrove or agricultural areas, despite documentation referring instead to beaches and bays<sup>a</sup>.

Reference:

a: World Rainforest Movement (2002). *Op. cit.*





# #3

## Ongoing conservation efforts ▶

*The Antillean manatee (*Trichechus manatus*), is present in 19 countries of the Wider Caribbean. It serves as an indicator of the general ecological health of its ecosystem (rivers, estuaries and coastal areas). However, the slow-moving sea mammal is listed as endangered and faces severe habitat fragmentation, encroachment related to tourism, water pollution and poaching. Its reproductive processes are slow, which means the long-term future of the species is tenuous and dependent on the implementation of a regional protection programme. (© Ryan Hagerty)*

## #3 \_ Ongoing conservation efforts

Efforts to protect the environment in LAC have focused largely on the consolidation of protected areas. In addition, many countries have reported progress in incorporating biodiversity and ecosystem services into territorial planning. Increasingly, concrete measures include biological diversity in development policies and, to a lesser extent, in macroeconomic management<sup>116</sup>. A non-exhaustive overview of some of the main organisations that promote conservation in the region and of the various efforts implemented is provided below.

### 3.1 CONSERVATION ORGANISATIONS AND NETWORKS

#### 3.1.1 Intergovernmental institutions

Much environmental conservation in the region has been driven by interstate agencies as part of thematic consultations and broader policies. In some cases, they are also implementing programmes and projects on the ground. The institutions listed here-under have diverse political and operational mandates in the field of environment, as well as diverse levels of capacities.

The most important international institutions for the region include the United Nations, particularly present through the Regional Economic Commission for Latin America and the Caribbean (ECLAC), which work in the framework of the 2030 Agenda for Sustainable Development. Other relevant UN agencies for biodiversity are the UNEP and the FAO, as well as those that intervene on specific dimensions; for example the UN's

Development Programme (UNDP), the UN's Office on Drugs and Crime (UNODC), the UN's Educational, Scientific and Cultural Organisation (UNESCO), etc.

Relevant continental institutions include the Organisation of American States (OAS), the Community of Latin American and Caribbean States (CELAC), the Inter-American Development Bank (IDB) and the Development Bank of Latin America (CAF). The IUCN, in addition to setting international standards for different categories of protected areas and species, plays a significant role in coordinating biodiversity conservation, through a work programme tailored to LAC needs.

To mention some relevant sub-regional bodies, in Central America there is the Central American Commission for Environment and Development (CCAD), created within the scope of the Central American Integration System (SICA), as well as the Central American Economic Integration Bank (CABEI). Also significant is the Caribbean Community (CARICOM), which focuses on the integration of Caribbean states and is among others, active on climate change adaptation. The Association of Caribbean States (ACS) includes, as one of its five areas of focus, the preservation and conservation of the Caribbean Sea.

For South America, some of the main country groupings are the Southern Common Market (MERCOSUR) and the Andean Community (CAN), which is focused on integrating the Andean countries and the Amazon Cooperation Treaty Organisation (ACTO), supporting harmonious development in the Amazon Basin. The Integration Area of the Centre West of South America (ZICOSUR) brings together sub-national governments.

#### Box 9 ZICOSUR, A NOVEL WAY OF ORGANISING SUB-NATIONAL GOVERNMENTS

The **Integration Area of the Centre West of South America (ZICOSUR)** comprises sub-national administrative units of 7 countries (Argentina, Bolivia, Brazil, Chile, Paraguay, Uruguay and Peru). Its main objective is to develop foreign trade by coordinating communication routes and to promote social and cultural integration. It has an environmental commission that is charged with promoting regional strategic guidelines for conservation, sustainable development and climate change adaptation. It interacts with the relevant authorities and stakeholders, and seeks to promote environmental issues as a cross-cutting theme for other commissions, in particular infrastructure, energy, industry and trade and production. Since 2014, it has organised annual meetings of protected areas and sustainable development in ZICOSUR, developing recommendations and a formal declaration for plenary authorities to adopt, which can then be considered the basis of a regional policy.

<sup>(116)</sup> CBD (2015). Op. cit.



^ *Transoceanic Road, San Jose, Bolivia. The Integration Area of Central-West South America (ZICOSUR) is an association of sub-national governments in Argentina, Bolivia, Brazil, Chile, Paraguay, Uruguay and Peru. It promotes regional integration, in particular by improving transport links. However, one of its committees also promotes policies aimed at mitigating the socio-environmental impact of new infrastructure. (© Leon Merlot)*

### 3.1.2 International support

#### International public partners

Many international cooperation partners, both multilateral and bilateral, have established policy dialogues and provide grants or loans, channelled through individual countries or at regional level. They fund government policies and/or projects undertaken by civil society organisations (CSOs) or other agencies, and some operate their own programmes. These partners provide a significant source of environmental funding in Latin America and the Caribbean.

The EU is a key multilateral actor that promotes sustainable use and conservation of biodiversity in the region. Through its political dialogue channels and its international cooperation instruments, it contributes to numerous efforts in the field (see Chapter 6).

Multilateral organisations that contribute to conservation in LAC include several international development banks. These operate primarily through loans but may also provide supplementary

funds for technical assistance. The IDB is the main source of multilateral funding for Latin America, supporting numerous projects in the region, particularly in Brazil. The World Bank has numerous environment-related projects, among others in the implementation of the Global Environment Facility (GEF). Others include the Development Bank of Latin America (CAF), the Central American Bank for Economic Integration (CABEI) and several funds with a more specific focus, such as the Financial Fund for the Development of the River Plate Basin (FONPLATA).

Bilateral cooperation that supports sustainable development initiatives include agencies from the EU Member States, such as France, Germany, Spain, Denmark, the Netherlands, Belgium, Austria, Italy and others. Countries such as Norway, Switzerland, the United Kingdom, Canada, the United States of America, Japan and others also have significant presence in support of biodiversity and sustainable development in one or more LAC countries. Climate funds should not be forgotten, as they are an increasing source of finance for ecosystem conservation.

#### Box 10 THE CEPF, MULTIPLE DONORS FUNDING FOR CONSERVATION

The **Critical Ecosystem Partnership Fund (CEPF)** brings together 6 governmental, multilateral and civil society organisations: European Union, Conservation International, French Development Agency, GEF, Government of Japan, World Bank. It provides grants mainly to CSOs, including small community organisations, to strengthen their role in protecting biodiversity hotspots. It has been active in LAC in the Cerrado of Brazil, the tropical Andes, the Caribbean and Mesoamerica.

#### Reference

[http://www.cepf.net/about\\_cepf/Pages/default.aspx](http://www.cepf.net/about_cepf/Pages/default.aspx)

### Non-governmental organisations

International non-governmental organisations (NGOs) support conservation strategies and implement projects and programmes, either directly or through local partners. The biggest mainly operate using resources channelled through donations and endowments, but many depend on funding from international cooperation. Others are private foundations and are self-financing.

In some cases, NGOs have helped strengthen local management capacities. For example, they have become part of the management structure of environmental funds in their initial stages of institutional development, withdrawing once an adequate level of sustainability is guaranteed. Their image and credibility in terms of technical and financial management facilitate the access of these funds to financing mechanisms (debt swaps, compensation funds for major projects, etc.) and optimise investments to maximise their profitability.

They are also important due to their role in information generation, communication and political advocacy. They carry out international advocacy work, for example in the different Rio Convention meetings and with the international partners mentioned above<sup>117</sup>.

In LAC, some of the widely active international NGOs in the environmental field include, notably, Conservation International (CI), The Nature Conservancy (TNC), World Wide Fund for Nature (WWF), Wildlife Conservation Society (WCS), Gordon and Betty Moore Foundation, BirdLife, the Smithsonian Institute, Conservation Land Trust and Rainforest Alliance.

Most fundamental are the numerous national and local NGOs and other CSOs, which operate across the region. Although too numerous to name, they are at the forefront of conservation efforts in their countries and communities, contributing to the identification, implementation and viability of conservation efforts, and promoting awareness that has a multiplier effect. Their strong capacity for project and programme development makes them valuable partners at national level, and indispensable ones at local level. Stringent requirements for access to funding can present a barrier to smaller organisations. In some countries, the capacity for action and advocacy power of NGOs have decreased in recent years, as a result of government decisions,

pressure from conflicting interests, a lack of funding and/or the use of NGOs for political purposes, with agendas that diverge from their original goals.

### 3.1.3 Regional networks and alliances

Partnerships are essential for achieving conservation goals. To this end, collaboration between civil society organisations, government organisations and the private sector is vital to ensure democratic decision-making and a diversity of approaches. Networks that bring together different stakeholders can often strengthen conservation efforts by developing synergies.

Good examples of networks between government institutions are the Caribbean Biological Corridor and the Latin American Technical Cooperation Network on National Parks, Other Protected Areas, Wild Flora and Fauna (REDPARQUES)<sup>118</sup>. The latter is a technically oriented mechanism that involves private institutions and specialist organisations. Another important network, which incorporates governmental and non-governmental organisations, in addition to UNESCO, is the Ibero-American and Caribbean Network of Committees and Biosphere Reserves (IberoMAB)<sup>119</sup>.

Alliances led by civil society include the Amazon Geo-Referenced Socio-Environmental Information Network (RAISG)<sup>120</sup>, the Latin American and Caribbean Network of Environmental Funds (RedLAC)<sup>121</sup>, Redes Chaco (Chaco Networks)<sup>122</sup>, the Grassland Alliance<sup>123</sup> and the Forum for the Conservation of the Patagonian Sea<sup>124</sup>. There are also networks of academic institutions, such as the Alianza Andes Tropicales (Tropical Andes Alliance), and networks that involve many private stakeholders, such as the Alianza Latinoamericana para la Conservación de Reservas Naturales Privadas (Latin American Alliance for the Conservation of Private Natural Reserves).

The private sector is also involved in different networks that indirectly contribute to the conservation of biodiversity, through the promotion of good practices from production to commercialisation. In particular, there are round tables that promote greater sustainability of the main agricultural productions in the region, such as soybeans, beef, palm oil, pineapple and others (see Section 5.2.2).

<sup>(117)</sup> Landreau B., A. Guereña, C. Monteiro and X. Op de Laak (2013). Mecanismos de Movilización de Recursos para Fondos Ambientales: Proyecto de Desarrollo de Capacidades de RedLAC para Fondos Ambientales. RedLAC, Río de Janeiro. 99 pp.

<sup>(118)</sup> <http://redparques.com/>

<sup>(119)</sup> <http://www.unesco.org/new/es/natural-sciences/environment/ecological-sciences/man-and-biosphere-programme/networks/iberomab/>

<sup>(120)</sup> <https://www.amazoniasocioambiental.org/es/>

<sup>(121)</sup> <https://redlac.org/>

<sup>(122)</sup> <http://www.redschaco.org/>

<sup>(123)</sup> <http://www.alianzadelpastizal.org/>

<sup>(124)</sup> <https://marpatagonico.org/en/>



^ *The Aguas Negras observation station in the Cuyabeno Wildlife Reserve, Ecuador, is located in a transboundary landscape where the EU supports coordination between the protected area management teams of Colombia, Peru and Ecuador, through the Integration of the Protected Areas of the Amazon biome (IAPA) project. (© Sergio Garrido/Visión Amazónica)*

Many government and academic institutions, NGOs and projects make a significant effort to produce information and provide it to the public, for example via virtual platforms<sup>125</sup>. This contributes to large-scale coordination in the region and is particularly significant for geo-referenced information, which enables a better understanding of how environmental and human factors are distributed and interact, and guides decision-making for conservation. In addition to RAISG, other interesting initiatives include the Biodiversity and Protected Areas Management Programme (BIOPAMA), which supports biodiversity observatories, and the Biodiversity Information System (SIB) of the Argentine National Parks Administration<sup>126</sup> and the CONABIO's geoinformation system in Mexico<sup>127</sup>, which provide scientific, institutional and cartographic data online.

## 3.2 PROTECTED AREAS

One of the most recognised strategies globally for biodiversity conservation is the development of protected areas (PAs). In LAC there has been varied progress in setting up national and sub-national PA systems<sup>128</sup>.

### 3.2.1 Protected area coverage

LAC is the world region with the highest percentage of territory covered by PAs, rising from 8.8 % in 1990 to 23.4 % in 2014<sup>129</sup>. According to UNEP<sup>130</sup>, there are around 8 500 PAs in the region, covering slightly more than 4.8 million km<sup>2</sup> on land and close to 5 million km<sup>2</sup> on the sea.

<sup>(125)</sup> UNEP (2016). Op. cit.

<sup>(126)</sup> <https://sib.gob.ar/portada>

<sup>(127)</sup> <http://www.conabio.gob.mx/informacion/gis/>

<sup>(128)</sup> Elbers J. (Ed.) 2011. Op. cit.

<sup>(129)</sup> United Nations (UN) (2015). Millennium Development Goals: Report 2015. 75 pp.

<sup>(130)</sup> UNEP statistics consulted on 29 March 2019 in: The World Database on Protected Areas (WDPA). Available at: [www.protectedplanet.net](http://www.protectedplanet.net)



^ The 'castles' rock formation in the Quebrada de las Conchas natural reserve, Salta, Argentina. Argentina was the first country in Latin America (and the third in the world) to devote areas for the protection of biodiversity and ecosystems. Its national park system comprises 48 protected areas covering nearly 15 million hectares. They are home to four of the country's flagship species: the southern right whale, two Andean deer (the huemul and the taruca) and the jaguar. (© Ebone/Shutterstock)

However, the efforts consented by each country are highly variable. Brazil has almost half the protected surface in the region and is the country with the largest network of PAs in the world<sup>131</sup>. This is followed in the region by Venezuela, Bolivia, Colombia, Mexico, Peru and Argentina in terms of the surface under protection. More than a third of Venezuela, French Guyana, Nicaragua and Belize have some kind of protection. In Uruguay, Argentina, Guyana and El Salvador in contrast, less than 10 % of territory is protected (see Annex 2). Official databases in certain countries, such as Venezuela, have not been recently updated or validated so figures may not be accurate.

Within the region, South America accounts for approximately 62 % of PAs and 90 % of the protected surface area, Central America has 21 % of the PAs and 5 % of the protected surface area, and the Caribbean has 27 % of the PAs and only 5 % of the surface area. This is due to the fact that in Central America

and the Caribbean PAs tend to be much smaller. The largest PA in Argentina (Los Andes Wildlife reserve, in Salta Province) covers approximately 1.5 million hectares, equivalent to all the Costa Rican PAs put together. In fact, in the entire region, almost 70 % of the terrestrial and marine PAs are no bigger than 100 km<sup>2</sup>, while only 12 % cover a surface area greater than 1 000 km<sup>2</sup>. Many of the PAs in the region are thought to be too small to maintain functional ecosystems and ensure viable populations of certain species.

Although a large number of PAs are isolated, the degree of connectivity in the Americas is greater than that of other continents, as indicated by the dispersal of terrestrial mammals. However, this varies widely between countries. Connectivity is greatest in Venezuela, for example, followed by French Guyana and Chile. At the opposite extreme are Mexico, Panama, Argentina and Uruguay.<sup>132</sup> In general, transboundary connectivity is

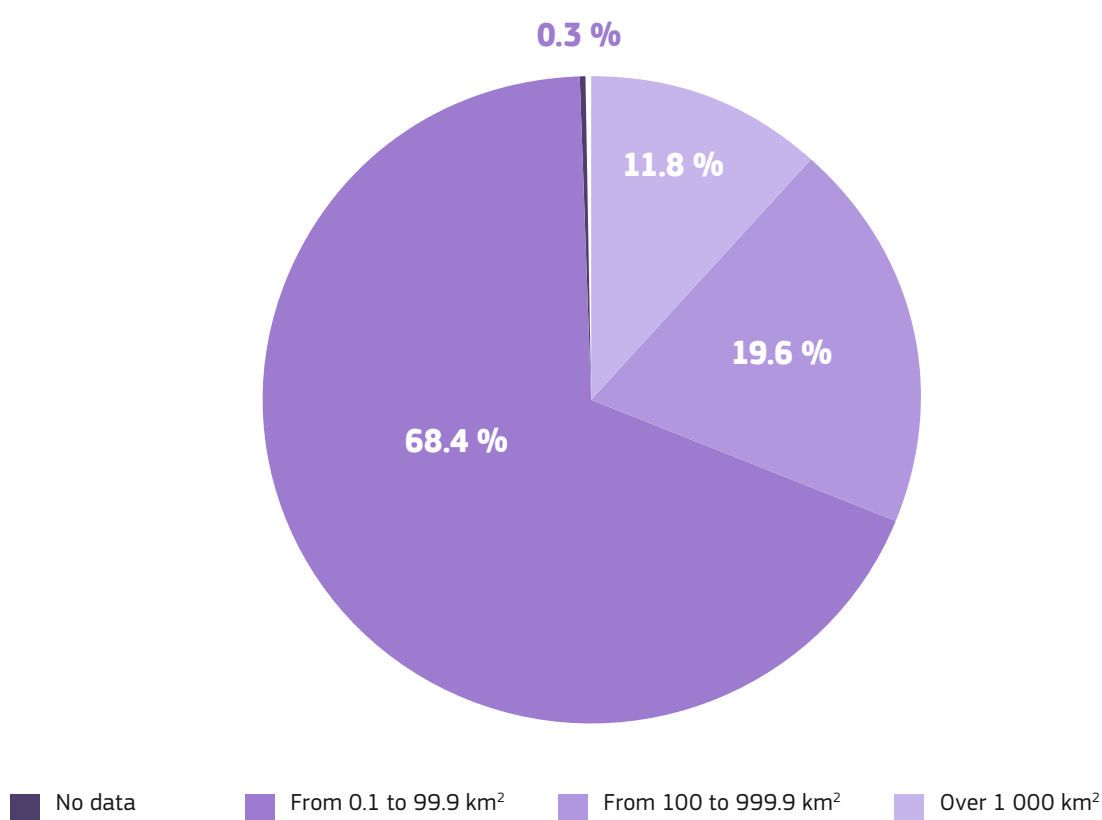
<sup>(131)</sup> UNEP-WCMC and IUCN. 2016. Protected Planet Report 2016. 74 pp.

<sup>(132)</sup> Santini L., S. Saura and C. Rondinini (2016). Connectivity of the global network of protected areas. *Diversity and Distributions* 22(2), pp. 199-211.

considered a priority in South America, prompting efforts to expand and connect PAs<sup>133</sup>. The mechanisms for coordination and exchange of experiences developed by REDPARQUES stand out for their contributions to this objective. This network brings together national PA administrations from 19 LAC countries, as well as private institutions and specialists in the region.

Administrative, budgetary and land property regime criteria have always been influential in the design and creation of PAs, to the extent that ecological criteria may be relegated, resulting in PAs with poor functionality at the landscape scale.

**FIGURE 3.1** The size of protected areas in Latin America and the Caribbean (as a percentage of the total number of PAs)



Source: Prepared from IUCN-UNEP-WCMC (2016). *The World Database on Protected Areas (WDPA)*. Available at: [www.protectedplanet.net](http://www.protectedplanet.net)

There is significant disparity in the representation of different biomes in PA coverage. PAs cover mainly tropical forests and, to a lesser extent, mangroves and temperate forests. Temperate savannah and shrubland and Mediterranean forest and shrubland are poorly protected.

It is also notable that national public bodies only manage 27 % of PAs, while 50 % are governed at the sub-national, private or community levels. Indigenous and local communities manage around 10 %. This figure is particularly significant in South America, which together with Oceania leads the world in this regard.<sup>134</sup>

<sup>(133)</sup> Blackman A., R. Epachin-Niell, J. Siikamäki and D. Velez-López (2012). *Prioritizing policies for biodiversity conservation in Latin America and the Caribbean: A rapid assessment*. 157 pp.

<sup>(134)</sup> UN (2015). Op. cit.

### **Box 11** TAX ON THE MOVEMENT OF PRODUCTS AND SERVICES IN BRAZIL

The Brazilian Constitution of 1988 stipulates that states must establish a tax on the circulation of goods and services (Impuesto sobre el Movimiento de Productos y Servicios, ICMS). Of the revenue collected, 25 % goes to municipalities, a quarter of which (i.e. 6.25 % of the total ICMS) is redistributed at the discretion of a specific state law.

On the basis of this tax, several states have adopted the ICMS Ecológico, where the redistribution is based on environmental criteria. This takes into account the percentage of territory that municipalities allocate for conservation. In this way, it rewards those that have PAs and encourages the creation of new PAs.

#### *References*

Ojidos F. and G. Baggio (2010). *El ICMS Ecológico como fuente de fondos para las Reservas Privadas del Patrimonio Natural en Brasil*. IX Congreso Interamericano y I Congreso Iberoamericano de Conservación de Tierras Privadas, Guatemala.

### **3.2.2 Sub-national protected areas**

Local governments have often been reluctant to take the lead in creating and managing PAs, despite the fact that in many countries there are laws facilitating this. One possible reason is the fear of losing tax revenue from more lucrative land uses.

One notable exception is Santa Cruz municipality in Bolivia, which has a system of peri-urban PAs equipped with guards and operational resources. The investment significantly exceeds those of the larger-scale sub-national systems in the country as well as others in the region. Another striking case is in Brazil, where more than 50 % of some municipalities are designated a protected area. This is due to the ICMS-Ecológico tax incentive, which rewards municipalities for the area of their territory that is protected.

### **3.2.3 Protected area management shared with indigenous people and local communities**

Indigenous peoples account for close to 10 % of the population of Latin America, with an estimated population of between 30 and 50 million belonging to more than 600 peoples<sup>135</sup>. Since the beginning of the 21st century, as part of the political recognition of the presence of traditional social groups in the region, numerous indigenous territories have been recognised and many 'managed PAs' (category VI: sustainable use of natural resources, according to IUCN classification) have been created.

There is a close relationship between indigenous territories and protected areas. According to the IUCN World Commission on Protected Areas' (WCPA) global database, around 10 % of PAs in LAC (representing close to 20 % of all the protected territory) are managed by indigenous populations. The region has the highest proportion of indigenous land in the world, and much more involvement of indigenous or local populations in PA governance than other world regions. PAs overlap with indigenous territories in 27 % of the more than 800 national PAs in South America<sup>136</sup>, especially in the Amazon Basin (particularly Brazil, Bolivia, Ecuador, Peru, Venezuela and Colombia). Finally, some PAs cover ancestral territories of indigenous populations in voluntary isolation, or who have never been contacted.

<sup>(135)</sup> Aylwin J. and X. Cuadra (2011). *Los desafíos de la conservación en los territorios indígenas en Chile*. International Development Research Centre. Human Rights Observatory for Indigenous Peoples. ISBN 978-956-8775-03-2. 131 pp.

<sup>(136)</sup> Cisneros P. and J. McBreen (2010). *Superposición de territorios indígenas y áreas protegidas en América del Sur*. Executive summary. UICN-DFID. 164 pp.

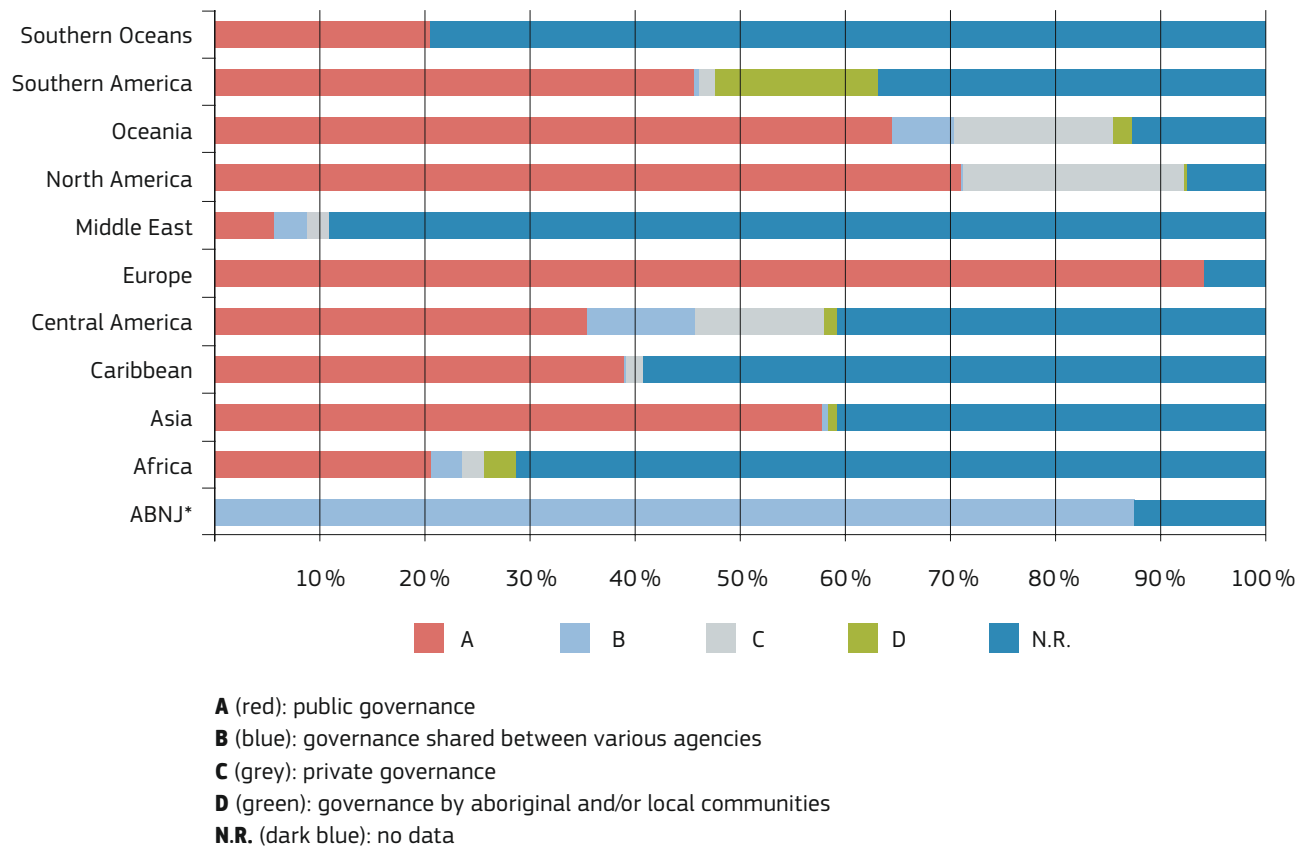


FIGURE 3.2 Protected areas in Latin America and the Caribbean



Source: Prepared from IUCN – UNEP-WCMC Protected Planet (2020), <https://www.protectedplanet.net/en/thematic-areas/wdpa?tab=WDPA>

**FIGURE 3.3** Comparison of protected area governance types across the world



\* ABNJ: Areas Beyond National Jurisdiction

Source: Deguignet M. et al. (2014). 2014 United Nations List of Protected Areas. UNEP-WCMC, Cambridge, UK. 44 pp.

Schemes to manage protected areas with governance shared between native populations and public bodies have had mixed success. Among relatively successful cases are the co-management schemes developed in Colombia (see Box 12). Also of interest are the experiences of the Kaa Iya Park (Bolivian Chaco)<sup>137</sup>, under a co-management regime with indigenous Guarani people, and the Baritú National Park (Argentine Yungas Salteñas), where activities are planned in conjunction with Koya communities. In the southern areas of Chile and Argentina, there are several instances of shared management schemes where PAs overlap with Mapuche communities.

However, the experience of the Desierto de los Leones National Park in Mexico shows that establishing a co-management regime is complex and can involve a long process of negotiation and conflict resolution. From the start, relations between government and community stakeholders were complicated, due on the one hand to territorial conflicts between indigenous peoples and on the other to their disagreements with government authorities. The parties gradually reached agreement, thanks to an advisory council that brought together communities, representatives of the three levels of government and academic and civil society organisations. This helped to reach agreements, define common work programmes and coordinate environmental monitoring and restoration activities.

<sup>(137)</sup> Mason D., M. Baudoin, H. Kammerbauer and Z. Lehm (2010). Co-management of National Protected Areas: Lessons Learned From Bolivia. *Journal of Sustainable Forestry* 29 (2-4), pp. 403-431. Access: <https://doi.org/10.1080/10549810903550837>

**FIGURE 3.4** Governance of protected areas in Latin America and the Caribbean





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*Cassava producer in the Juma Sustainable Development Reserve in the Amazon. The reserve's management model is considered a good practice example of how to combine forest protection and income provision for the local population. It is supported by national and international companies through REDD+ mechanisms.*  
(© Neil Palmer/CIAT)

In addition to co-management mechanisms, incentive systems can encourage local populations to contribute to the conservation of protected areas. An iconic case is the Bolsa Floresta System, in Amazonas State, Brazil, which supports local communities living within protected areas and helps preserve natural ecosystems. It also reinforces community organisation, supports sustainable livelihoods, and provides resources for improving education, health, communications and local transport systems<sup>138</sup>. In some ways, it is analogous to a system of payment for ecosystem services.

#### **Box 12** SPECIAL MANAGEMENT REGIMES IN PROTECTED AREAS OF THE NATIONAL NATURAL PARKS SYSTEM OVERLAPPING WITH INDIGENOUS RESERVES IN COLOMBIA

Special management regimes (SMRs) were established for the first time in Decree 622 (1977), the standard for National Natural Park management in Colombia. The document states that when there is a territorial overlap between areas that are part of the National Park System and an indigenous reserve (today called indigenous territories), an SMR should be established in favour of indigenous peoples. The setting up, formalisation and implementation of the SMR embodies the principles and strategic guidelines of the Social Participation in Conservation Policy for protected areas in Colombia.

The main elements around which these instruments are structured are culture, territory and governance, as part of a favourable framework for biodiversity conservation and the cultural continuity of ethnic communities related to protected areas. They imply territorial environmental organisation, joint regulation of the use and management of natural resources, and effective coordination of the public service of conservation between the two authorities. Establishing an SMR has strengthened the local governance of protected areas; alliances have been made that have led, among other things, to:

- reserves being set up that protect indigenous medicinal plants, such as the yagé (Medicinal Plants Orito Ingi-Ande Flora Sanctuary);
- the territory of uncontacted indigenous peoples or those in voluntary isolation being protected (Río Puré National Natural Park);
- the strengthening of mechanisms for the protection and integral conservation of the indigenous territory, and its tangible and intangible cultural values (Yaigojé – Apaporis National Natural Park).

In each of these protected areas, the recognition of traditional indigenous territories and cultural values has proved crucial for conservation. This has led to better results than the National Parks environmental authority could have achieved alone, and underlines the advantage of dual protection.

*Reference:*

<http://www.parquesnacionales.gov.co/portal/es/sistema-de-parques-nacionales-naturales/linea-tematica-de-manejo-regimenes-espaciales-de-manejo/> with contributions from Sandra Sguerra

<sup>(138)</sup> UNDP (2010). Latin America and the Caribbean: a biodiversity superpower. United Nations Development Programme. 20 pp.



### Box 13 BOLSA FLORESTA IN BRAZIL

The Bolsa Floresta Programme (BFP) is a public policy created by the Amazonas State government in Brazil, in partnership with the private sector. The BFP was institutionalised through Law No 3135 on Climate Change, Environmental Conservation, and Sustainable Development in Amazonas, and Supplementary Law No 53, on the State System of Conservation Units, both enacted in June 2007.

The Secretariat of Environment and Sustainable Development initiated the BFP in 2007, and since 2008 it has been run by the Amazonas Sustainable Foundation. The programme's purpose is to support populations living in or near PAs in the state. Villagers take part in the programme voluntarily, but those that do must attend workshops and training sessions on climate change and ecosystem services, send their children for full-time schooling, and commit not to clear new areas of primary forest for agriculture.

The BFP has four components:

- 1) **Income:** this aims to boost productive activities, which are selected in a participatory manner in the communities served by the programme, from the perspective of innovation and sustainable development.
- 2) **Social:** focused on enhancing and supporting the development of health, education, communication, transport and other activities.
- 3) **Associative:** aimed at strengthening organisation, activism, participation and social oversight. It promotes participatory management through autonomy, empowerment and highlighting the role of communities. It also contributes to associative leadership, by means of training for political and citizenship competences, through workshops, meetings, conferences and seminars. It provides access to knowledge, means, resources and methods to increase community participation and reclaim the rights of citizens.
- 4) **Family:** a monthly credit of BRL 50 is paid to the mothers of families living in the PAs within the programme.

*Reference:*

<https://fas-amazonas.org/pbf/>



### 3.2.4 Private protected areas

Combining PA institutional systems with privately owned conservation initiatives is a strategy to achieve the objectives of the Convention on Biological Diversity. Since the mid-1980s, ecosystem conservation on private land, by owners (individuals and companies) and environmental NGOs, has gained momentum in LAC.

Many countries in the region have developed legal frameworks to support private conservation. However, few provide any incentive to landowners due to cumbersome requirements and the absence or poor implementation of benefits. One exception is the Brazilian private reserves law, enacted in 1990 and probably the strongest in the region since it provides for the creation of reserves in perpetuity. Costa Rica and Ecuador also have fairly well defined legal systems, although the reserve can only be established for a set number of years<sup>139</sup>.

Besides formally declared private reserves, there are a significant number of informal nature reserves. Some have been acquired and are managed by NGOs, while others are derived from payment systems for ecosystem services or economic incentives in exchange for a commitment to forest conservation. Costa Rica was the first country in the region to use ecological easements for conservation purposes, beginning in 1992. Later, Peru (with its Regulation of Private Conservation Areas or Ecological Easements<sup>140</sup>), as well as Mexico, Honduras, Ecuador, Guatemala, Paraguay and Argentina, joined the initiative.

In most LAC countries, there are networks of private reserve owners and other stakeholders, such as NGOs, academic institutions and researchers. These provide a means to exchange experiences and coordinate joint actions. In recent years, they have been strengthened and form regional networks.

<sup>(139)</sup> Environmental Law Institute (2003). *Legal Tools and Incentives for Private Lands Conservation in Latin America: Building Models for Success*. 175 pp.

<sup>(140)</sup> Capella J.L., M. Cerdán and P. Solano (2007). *Manual de instrumentos legales para la conservación privada en el Perú*. Sociedad Peruana de Derecho Ambiental, Lima, Peru. 279 pp.

<sup>(141)</sup> <http://arpa.mma.gov.br/>

<sup>(142)</sup> <https://costaricaporsiempre.org/>

<sup>(143)</sup> <https://www.patrimonionatural.org.co/redes-y-plataformas/heco/>

< *Pumalin National Park in southern Chile was initially a private reserve. From 1991, late US philanthropist Douglas Tomkins and the Conservation Land Trust that he co-founded gradually purchased the land, later transferring it to Chilean organisation Fundación Pumalin. In 2017, more than 400 000 hectares were thus passed to the Chilean state; Pumalin National Park was created in 2018. (© Galyna Andrushko/Alamy Stock Photo)*

### 3.2.5 Sustainable financing of protected areas

In LAC, policies for the financial sustainability of PAs have been developed, notably in Brazil (ARPA for life<sup>141</sup>), Costa Rica (Costa Rica Forever<sup>142</sup>), and more recently Colombia (Inheritance Colombia<sup>143</sup>) and Peru (Natural Heritage of Peru). These seek to develop financial management mechanisms for the long-term financial sustainability of PAs.

In Brazil, the 'ARPA for life' programme includes the creation of a transition fund, fed by private companies, NGOs and international organisations. The fund will slowly decrease, while public financing for the management of PAs increases until 2040, by which time the federal and state governments are expected to cover 100 % of the expenses.

The success of financing programmes to ensure the permanence of PAs lies in alliances between governments, international organisations, the private sector and civil society. As an example, the Inheritance Colombia programme is led by the Ministry of Environment and Sustainable Development, Natural National Parks, Natural Heritage, the Gordon and Betty Moore Foundation, CI, WCS and WWF, and has the support of GEF, Heart of Amazon and the World Bank, among others.

### 3.2.6 Training of protected area officials

PAs in the region have historically been managed by university-trained professionals, with degrees in subjects related to the management of natural resources (forestry engineers, biologists, geographers, etc.). However, experience has shown that, in addition to technical knowledge, PA managers also need skills in public administration, financial management, strategic planning, tourism, sociology, legislation and human resources, among others. Similarly, park rangers, who are typically local people without higher education, need specific and comprehensive training to enable them to fulfil a variety of functions.

Given the cross-cutting requirements, some countries have designed specific degrees to train their technical managers. Argentina has developed many degrees for park rangers. In Mexico, the National College for Park Rangers was recently created, while Uruguay, Chile and Bolivia have relevant skills accreditation programmes.

#### Box 14 THE ARGENTINE EXPERIENCE OF TRAINING RANGERS

Argentina offers training for park rangers and technical careers in both university centres and higher education institutes.

The Centre for Education and Training in Protected Areas, managed by the National Parks Administration (APN), has trained almost 30 graduating classes of national park rangers to date. Given its experience and the high demand, in 2013 it began offering international courses for park rangers and PA managers in Latin America, with the support of the Japan International Cooperation Agency (JICA). As well as being trained in the management and administration of PAs, participants learn from others' experiences and develop collective knowledge and a basis for future collaboration. Access to the course is via a system of scholarships.

Through the centre's virtual platform, a collaboration was formed with the Forum for the Conservation of the Patagonian Sea and Areas of Influence for the implementation of a competence-based training pilot for managers of marine PAs in the Southern Cone (Argentina, Chile and Uruguay).



^ Park rangers in Sajama National Park, Bolivia, prepare a baseline to monitor management effectiveness of the protected area. The capacity-building exercise was initiated in 2015 with EU support. (© Leon Merlot)

#### Box 15 COMPLEMENTARY TRAINING PLAN FOR PARK RANGERS IN BOLIVIA

Until 2015 in Bolivia, there was no official recognition for rangers' competencies, regardless of their experience or any courses they had completed on PA management (mostly financed through international cooperation).

EU budget support for the national protected area system (PACSBIO) helped develop a professional standard for park rangers, identifying the required skills. The Bolivian Association of Park Rangers – Conservation Agents (ABOLAC), the National Protected Areas Service (SERNAP), the General Directorate of Biodiversity and the University for International Cooperation took part in the programme. Between 2015 and 2018, 198 park rangers (almost 70 % of the national PA protection body) were certified.<sup>a</sup>

There was also a need to improve the technical skills of park rangers. The needs and expectations were defined, and the Ministry of Education and SERNAP, in collaboration with WCS and the Italian Agency for Development Cooperation (AICS), produced a complementary training plan for park rangers, which was approved in 2018.

The plan focuses on key responsibilities of PA management: conceptual, institutional and regulatory framework of the PA system, control and surveillance, planning and territorial management, mitigation of project impacts (including the mitigation hierarchy), comprehensive monitoring, natural resource management, tourism, climate change and risk management, culture and conservation, social participation, environmental education and communication, and the administration of goods and services. Three levels of accreditation were defined, based on theoretical and practical courses: 1) Basic technician – PA park ranger; 2) Auxiliary technician – Technician in the conservation of natural resources; 3) Medium technician – Technician in environmental management, conservation and the management of natural resources<sup>b</sup>.

By mid-2019, more than 100 national and subnational PA rangers had been certified at an auxiliary technical level<sup>c</sup>. By ensuring that PA staff has access to a continuous process of professionalisation and certification of their studies, the programme builds their capacity and commitment to the conservation of PAs.

#### References:

- a: <https://bolivia.wcs.org/es-es/Recursos-Informativos/Sala-de-noticias/articleType/ArticleView/articleId/11367/Se-aprueba-el-Plan-de-Formacion-para-los-Guardaparques-del-Sistema-Nacional-de-Areas-Protegidas-de-Bolivia.aspx>
- b: Ministerio de Educación, Viceministerio de Educación Alternativa y Especial & SERNAP (2018). Plan de formación complementaria 'Gestión de Áreas Protegidas'. Guardaparques – Agentes de Conservación. Bolivia: La Paz.
- c: <https://www.eldeber.com.bo/amp/tendencias/Capacitan-a-guardaparques-de-areas-protegidas--20190605-9399.html>



Although less numerous, there are also university-level technical training programmes for PA managers, which are offered regionally. One example is the Escuela Latinoamericana de Áreas Protegidas (ELAP) (Latin American School of Protected Areas), part of the University of International Cooperation in Costa Rica. At a postgraduate level, courses include a master's degree in Amazonian protected areas, offered by the National Institute of Amazonian Research (INPA) in Amazonas State (Brazil).

Of a number of successful training courses for PA management, three have a particularly good track record. The first, offered by the Tropical Agricultural Research and Higher Education Centre (CATIE) in Costa Rica, is considered one of the pioneers in the field. The second is the RESERVA training programme, from DUMAC in Mexico, which offers a diploma in Natural Resources Management and Conservation. Finally, the University of Colorado in the USA offers a Protected Area Management course in Spanish that is aimed at Latin Americans.

Intergovernmental training initiatives include the Capacity Development Group of REDPARQUES, created in 2018. With the support of the Spanish National Parks Agency and the Spanish Agency for International Development Cooperation (AECID), it seeks to implement recommendations of the IUCN Strategic Framework for Capacity Development in PAs and other conservation areas (2015–2025) in the LAC region<sup>144</sup>.

### 3.3 CHANGES IN PRODUCTION PRACTICES

#### 3.3.1 Sustainable use of natural capital

Across LAC there are multiple initiatives to promote development based on natural resources and their long-term conservation.

Tourism, in particular, is one of the fastest-growing economic sectors in the region. It is mainly associated with the coastal areas and is closely linked to nature. Ecotourism is heavily developed in countries rich in biodiversity. Costa Rica has pioneered the development of this activity, followed by Peru, Ecuador and Mexico<sup>145</sup>. When properly managed, as in Costa Rica, it has proven to be a conservation agent, while generating income for families who turn their properties into small PAs with services for visitors.

Other successful experiences of development in harmony with conservation include: regulating anchoveta catches in Peru (artisanal fisheries); the Green Gold-Oro Verde programme in the Chocó area in Colombia (artisanal mining); the 'extractive reserves' in Brazil; forestry production by Chiquitano communities in Bolivia; coffee and cocoa agroforestry production in the Dominican Republic; the development of beekeeping in Nicaragua; the implementation of productive restoration techniques through agroforestry systems or the system of 'milpa' (annual crops) interspersed with fruit trees in Mexico; and traditional models of sustainable livestock production in Uruguay.

#### Box 16 BABAÇU PRODUCTION IN BRAZIL

The seed of the babaçu or cusi palm (*Attalea speciosa*), native to the Amazon basin, contains an oil used as a natural remedy, in beauty products and in detergents. It is the second highest selling non-timber forest product in Brazil, with production reaching 148 000 tons in 2012, generating an income of more than USD 50 million. It is produced by around 400 000 people, mostly women.

This is a successful example of sustainable use of biodiversity, both from an ecological and socio-economic standpoint: collecting babaçu fruits entails protection for these palm trees, generates significant local income and contributes to women's empowerment.

In the face of increasing deforestation of native forests, where babaçu is collected, producers have joined forces to protect their livelihoods (e.g. Interstate Movement of Babaçu Nut Breakers). They have succeeded in establishing several extractive reserves and the adoption of laws for the protection and free collection of babaçu in several municipalities and states.

However, like many environmental activists in Brazil, they face challenges related to the effective application of these laws, and are subjected to pressure and threats.

Reference:  
<https://www.miqcb.org/>

<sup>(144)</sup> IUCN-WCPA (2015). Strategic Framework for Capacity Development in protected areas and other conserved territories 2015–2025. 24 pp. Access: <https://portals.iucn.org/library/node/45827>

<sup>(145)</sup> UNDP (2010). Op. cit.



^ A woman breaks babaçu (*Attalea speciosa*) in the Tocantins extractive reserve (a sustainable use protected area) in Brazil. Harvesting the seed of this native palm tree encourages the protection of forest ecosystems in which it grows and generates significant income for its collectors, most of whom are women. (© Pulsar Imagens/Alamy Stock Photo)

In areas where demand for wildlife products is very high or is closely linked to cultural practices (diet, rituals, etc.), promoting sustainable use can be necessary. As an example, the management unit system for wildlife conservation<sup>146</sup>, implemented in Mexico, allows small landowners or communities to collect and breed wildlife species under state regulation. They must conserve or restore the habitat of the harvested species or allocate part of their production to the recovery of wild populations. This mechanism seeks to provide economic development opportunities, while committing communities to the conservation of priority habitats and species.

### 3.3.2 Development of public policies for sustainable production

Although there is still legislation that favours farm and land management models that may adversely impact the environment and local communities, there are increasing examples of policies that mainstream biodiversity in productive sectors. This means including biodiversity objectives in decision-making processes and involving agencies that are not directly related to biodiversity. More than 15 countries in the region have reported that they have policies to promote sustainable land use and production, including certification systems, organic farming frameworks and fishery regulations. However, data on the effects of these policies is not very accurate<sup>147</sup>.

Export-driven farming is one of the main drivers of land-use change in the region, and a continental-scale effort is being made to stop its devastating effects, or to use the sector's resources to mitigate its impacts. In Argentina, for example, a portion of tax deductions for soy exports and other agricultural products is used to fund native forest conservation, under a federal law that obliges provinces to protect forests, through the so-called Territorial Organisation of Native Forests (Ordenamiento Territorial de Bosques Nativos, or OTBN). The OTBN seeks to ensure that land-use change occurs only on sites that do not affect certain ecosystem services that are protected in the Law on Minimum Budget for Environmental Protection of Native Forests.

Often, public policies favourable to sustainable production are implemented through partnerships with the private sector. As an example, in Brazil, the federal prosecutor's office has reached an agreement with meat packing companies and major supermarket chains to prohibit the purchase of meat from illegally deforested Amazonian lands. The Brazilian Meat Exporters' Association has also promised to ban the purchase of livestock from areas in the Brazilian Amazon that have recently been deforested. The soybean industry, for its part, has imposed a moratorium on the purchase of soybeans produced on land from moist forests deforested since 2006, and the private sector has launched a movement for the sustainable use of biological diversity<sup>148</sup>.

<sup>(146)</sup> Robles de Benito R. (2009). Las unidades de manejo para la conservación de vida silvestre y el Corredor Biológico Mesoamericano México. México : Comisión Nacional para el Conocimiento y Uso de la Biodiversidad, Corredor Biológico Mesoamericano México. 130 pp.

<sup>(147)</sup> UNEP (2016). Op. cit.

<sup>(148)</sup> UNDP (2010). Op. cit.



^ *Ledesma sugar cane plantation, Tucuman, Argentina. Environmental certification programmes are increasingly popular in Latin America and the Caribbean. In northern Argentina, land-use planning for certain sugar companies includes the protection of large blocks of native forest (including wildlife). The companies benefit from the certification obtained thanks to this policy both in terms of public image and for access to certain financing schemes. (© José Luis Rodríguez/Proyungas)*

Several countries have introduced policies to encourage intensification of small and medium-sized farms to increase family incomes without the need to convert new lands. Another option is to enhance the value based on the producers' contribution to conservation. In Mexico, some agroforestry systems (e.g. coffee, cocoa and vanilla) have been included in regulations regarding payment schemes for ecosystem services. This is particularly important in regions where a production system is at risk of disappearing in favour of less environmentally friendly land use, as a result of the impacts of climate change or pest problems<sup>149</sup>.

Two countries on the continent involved in the timber value chain, Honduras and Guyana, have negotiated Voluntary Partnership Agreements (VPA) with the EU as part of the EU FLEGT (Law Enforcement, Forest Governance and Trade) initiative. Under the VPA, they must guarantee the legality of their trade in wood products<sup>150</sup>. They are a good example of participatory governance, in which civil society, indigenous peoples and the private sector are part of the dialogue and their respective interests are taken into consideration.

In countries with a high dependence on wood and coal for cooking and heating, such as Haiti, energy policy is critical for biodiversity conservation.

The implementation of policies that clarify land tenure often contributes to a more sustainable use of forests and other natural resources.

### 3.3.3 Environmental certification and corporate responsibility

Environmental certification programmes are becoming increasingly popular in Latin America and the Caribbean. Certification initiatives cover a wide variety of products, including high-value agricultural and forestry products, processed products (for example, furniture or paper) and services (like tourism).

LAC is a world leader in organic farming certification for many tropical products, producing 97 % of certified bananas, 75 % of certified coffee and 48 % of certified cocoa<sup>151</sup>.

It is also the second-ranked region for the FSC's Forest Management Certificates, after Europe. About 12.8 million hectares were already under FSC certification up to June 2015, nearly half of these in Brazil<sup>152</sup>. The Programme for the Endorsement of Forest Certification (PEFC), another major certification scheme, is less developed, but Argentina, Brazil,

<sup>(149)</sup> Cabrera-García C. (2015). Identificación de zonas cafetaleras clave para la conservación de la biodiversidad en el centro del estado de Veracruz. Benémerita Universidad Autónoma de Puebla. 99 pp.

<sup>(150)</sup> <http://www.euflegt.efi.int/vpa>

<sup>(151)</sup> Potts et al. (Eds.) (2010). The State of Sustainability Initiatives review 2010: The state of sustainability and transparency. Winnipeg: IISD. Available at: [https://www.iisd.org/pdf/2010/ssi\\_sustainability\\_review\\_2010.pdf](https://www.iisd.org/pdf/2010/ssi_sustainability_review_2010.pdf)

<sup>(152)</sup> Forest Stewardship Council (2016). Forest Management Certification. Available at: <https://ic.fsc.org/en/certification/types-of-certification/forest-management-certification>

Chile and Uruguay already have national standards approved by the programme<sup>153</sup>. Companies have launched other important conservation initiatives: in Brazil, two well-known examples are O Boticário and Natura. The latter, a multinational cosmetics firm, promotes organic production and the equitable exchange of benefits. It has 56 supply agreements for natural products with small farms, companies, and communities. This strategy has not only improved its image but has boosted its income from BRL 1.41 million in 2002 to BRL 7.7 million in 2017<sup>154</sup>.

### 3.3.4 Mechanisms for mitigating environmental damage

In Latin America and the Caribbean, private and public projects are generally subject to an environmental licence, which governs, notably, impact mitigation and compensation actions. More and more countries are increasingly imposing such licences, and their terms are getting stricter<sup>155</sup>. However, a review of environmental policies in 7 countries (Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela) indicates that these tend to focus more on damage compensation (the least desirable action), while requirements to avoid or minimise damage are less robust<sup>156,157</sup>. Some global organisations, such as the International Finance Corporation<sup>158</sup>, are recommending that a ‘mitigation hierarchy’ is adopted in projects they finance, which sets out a sequential application of measures to avoid, minimise, restore and ultimately compensate for socio-environmental impacts.

An adequate legal and institutional framework, as well as good negotiation with companies in charge of development projects, is important to both mitigate impacts and raise resources for conservation. For example, for the construction of a gas pipeline through the Kaa Iya National Park (Bolivia), WCS facilitated a negotiation between the indigenous Iyoseño organisation, which co-managed the protected area with SERNAP, and the energy company operating the pipeline (Gas TransBoliviano). This led to the creation of a new funding model for regional conservation, comprising a plan for indigenous development, environmental mitigation and monitoring, a trust fund and a long-term

co-financing programme for conservation in and around the PA.

In north-west Argentina, a conflict and subsequent dialogue over the installation of a gas pipeline across an important sector of Las Yungas led to compensation being awarded for the 70 cleared hectares, comprising the protection of almost 20 000 hectares in the area and improved infrastructure for local communities. The region’s high profile in the media led to an area of 1.3 million hectares being declared a Biosphere Reserve in 2002.

## 3.4 PAYMENT SYSTEMS FOR ECOSYSTEM SERVICES

### 3.4.1 Payment for ecosystem services as a public system

Ecosystem services are increasingly recognised in the conservation and development sphere. In LAC, there are a large number of formulas for the payment of such services. Countries such as Costa Rica, Mexico, Ecuador, Colombia and Brazil lead the region with such initiatives.<sup>159</sup>

Costa Rica’s Payment for Environmental Services Programme (PESP) is a good example of how to ensure the sustainability of this type of mechanism (see Box 17).

Paraguay has run environmental service payment systems since 2013, financed through compensation payments for high-impact activities (e.g. road and dam construction, pipelines, industries with high levels of gas emissions, discharge of urban and industrial effluents, etc.). Operators must purchase environmental services certificates for at least 1 % of either the cost of the work or the activity’s annual operating budget<sup>160</sup>.

<sup>(153)</sup> <https://www.pefc.org/discover-pefc/facts-and-figures>

<sup>(154)</sup> <https://www.natura.com.mx/sites/all/modules/downloads/pdf/natura-informe-gri-2017.pdf>

<sup>(155)</sup> Blackman A. et al. (2012). Op. cit.

<sup>(156)</sup> UNEP (2016). Op. cit.

<sup>(157)</sup> Sarmiento M., L. Buitrago and W. Cardona (2015). Orientaciones para el diseño e implementación efectiva de planes de compensación ambiental en la Amazonía Andina de Colombia, Peru y Ecuador. WCS.

<sup>(158)</sup> [https://www.ifc.org/wps/wcm/connect/topics\\_ext\\_content/ifc\\_external\\_corporate\\_site/sustainability-at-ifc/policies-standards/performance-standards/ps6](https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/performance-standards/ps6)

<sup>(159)</sup> FAO (2009). Pago por servicios ambientales en áreas protegidas en América Latina: Programa FAO/OAPN, fortalecimiento del manejo sostenible de los recursos naturales en las áreas protegidas de América Latina. Rome. FAO. Available at: <http://www.fao.org/3/a-i0822s.pdf>

<sup>(160)</sup> <http://www.bacn.gov.py/leyes-paraguayas/2085/ley-n-3001-valoracion-y-retribucion-de-los-servicios-ambientales>



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*Keel-billed toucan (Ramphastos Sulfuratus), Costa Rica. Costa Rica was a pioneer in using nature to boost international tourism. Today the sector is one of the country's main sources of international revenue. To preserve its natural capital, a government payment for environmental services programme rewards landowners for conserving forest ecosystems and biodiversity. (© Petr Simon/Shutterstock)*

#### **Box 17** THE NATIONAL FOREST FINANCING FUND IN COSTA RICA

The Payment for Environmental Services Programme (PESP) in Costa Rica consists of forest and forest plantation owners and holders receiving financial recognition for the ecosystem services they provide. This recognition is awarded by the National Forest Financing Fund in Costa Rica (FONAFIFO). In accordance with Forest Law No 7575, Costa Rica recognises the following ecosystem services:

- Mitigation of greenhouse gas emissions (fixation, reduction, sequestration, storage and absorption);
- Protection of water for urban, rural or hydroelectric use;
- Protection of biodiversity for conservation and sustainable, scientific, and pharmaceutical uses, research and genetic improvement, and the protection of ecosystems and ways of life;
- Natural scenic beauty for tourism and scientific ends.

The most important feature of the PESP is that it changed the traditional concept of 'subsidies' and 'incentives' to 'financial recognition' for ecosystem services that the forest provides.

As a funding mechanism for managing, conserving, and sustainably developing forest resources and biodiversity, it has four key areas: institutions, legal framework, financing, and monitoring and evaluation. Since its launch, the mechanism has succeeded in bringing together different stakeholders in the forestry sector, and adopted a new financial scheme that integrates the National System of Conservation Areas, FONAFIFO, the National Forestry Office, Forest Regents, the College of Agricultural Engineers, cooperatives, cantonal agricultural centres and NGOs, as well as beneficiaries.

Initially, the main source of funding consisted of allocating one third of resources generated by fuel excise, in accordance with Article 69 of Law 7575. Subsequent to the Law of Tax Simplification there is now a single tax on fuels, of which 3.5 % funds the PESP. This decision reflects a clear legislative vision to ensure the sustainability of the programme.

*Reference:*

<https://www.fonafifo.go.cr/es/servicios/pago-de-servicios-ambientales>



^ *The spectacled bear (Tremarctos ornatus) is one of the Andes' main endangered umbrella species, and strengthening protected areas where it lives is key to its conservation. In Cordillera Azul National Park in the Peruvian Andes, the REDD+ programme helps to finance the park's management; its delegated management agreement was one of the first of its kind in LAC. (© Christian Musat/Shutterstock)*

### 3.4.2 REDD+ and carbon markets

Forests, particularly rainforests, play a significant role in carbon storage, and efforts are being made to financially recognise this function. The REDD+ mechanism (Reducing Emissions from Deforestation and forest Degradation), negotiated in the United Nations Framework Convention on Climate Change (UNFCCC) since 2005, was set up for this purpose. It aims to mitigate climate change through reducing deforestation and forest degradation, in developing countries, by means of payment for results in terms of related greenhouse gas emission reductions. One strategy is to incentivise private operators to invest in the conservation and/or restoration of tropical forests through the purchase of emission-reduction certificates.

The World Bank's Forest Carbon Partnership Facility (FCPF) and the UN Programme for Reducing Emissions from Deforestation and Forest Degradation (UN REDD+) support developing countries to prepare for REDD+ implementation. Most countries in the region take part in one of these initiatives.<sup>161</sup>

Parallel to the global effort, regional initiatives include the Guyana REDD+ Investment Fund (GRIF) based on a bilateral agreement between Norway and Guyana<sup>162</sup>, and the REDD+ Early Movers Programme (REM Programme) funded by KfW, a German development bank, with support from the United Kingdom and Norway<sup>163, 164</sup>.

The LAC countries with the largest number of REDD+ projects are Brazil, Peru, Colombia, Ecuador and Mexico. In some countries (e.g. Ecuador), the national government manages the mechanism. In most cases, however, it promotes transactions between private stakeholders.

Several countries also promote the creation of domestic carbon markets, such as the BanCO<sub>2</sub> system<sup>165</sup> and the Voluntary Mitigation Mechanism of greenhouse gas emissions<sup>166</sup> in Colombia, and MEXICO<sub>2</sub>, the first platform for an environmental market in Mexico<sup>167</sup>.

The international dimension of payment mechanisms for ecosystem services still requires adjustments to be fully operational. The challenges of monitoring the making of economic contributions effective have led some innovative attempts to fail. At the moment, only a tiny proportion of the enormous carbon sequestration capacity of the region's forests is being financially rewarded.

The REDD+ mechanism and its relationship with the carbon market have been controversial. For example, the Bolivian government accused the mechanism of promoting the commodification of nature and rejected it. As an alternative, Bolivia developed the Joint Mitigation and Adaptation Mechanism for Comprehensive and Sustainable Forest Management, which works on a smaller scale, without conclusive results to date.<sup>168</sup>

<sup>(161)</sup> United Nations Environment Programme (UNEP). 2016. The state of biodiversity in Latin America and the Caribbean: A mid-term review of progress towards the Aichi Biodiversity Targets. 140 pp.

<sup>(162)</sup> <http://www.guyanareddfund.org>

<sup>(163)</sup> <https://www.giz.de/en/worldwide/33356.html>

<sup>(164)</sup> [http://www.forest-trends.org/documents/files/doc\\_5020.pdf](http://www.forest-trends.org/documents/files/doc_5020.pdf)

<sup>(165)</sup> <http://www.banco2.com>

<sup>(166)</sup> <http://www.natura.org.co/mvc-mecanismo-de-mitigacion-voluntaria-de-gases-efecto-invernadero-en-colombia/>

<sup>(167)</sup> <http://www.mexico2.com.mx/index.php>

<sup>(168)</sup> <https://es.mongabay.com/2018/11/mecanismo-conjunto-deforestacion-ilegal-bolivia-bosques/>



^ People in San Carlos, Bolivia, take part in the annual delivery of farm equipment within the framework of Fundación Natura's ARA programme, which compensates smallholders for preserving forest in areas that feed local drinking water supplies. The funds are raised via voluntary contributions. (© Leon Merlot)

### 3.4.3 Payment for watershed services

Water is a unifying theme and payment for watershed services is the most common throughout the region. It contributes to reducing water scarcity by improving protection and management. The principle is to encourage landowners in upper watersheds to restrict deforestation, reforest and/or adopt more environmentally friendly production models, such as agroforestry or agroecology. This preserves the capacity for, and quality of, infiltration and runoff that rivers need to maintain their flow over time. It aims to ensure that users and producers in middle and lower basins have access to sufficient quantities and quality of water.

About 20 Water Funds have been consolidated in the region (mainly in Colombia, Costa Rica, Ecuador, Brazil, Mexico, Peru and the Dominican Republic), to which the Latin American Water Funds Alliance has been key<sup>169</sup>.

This type of payment is particularly common in the Andes sub-region, which combines glaciers, headwaters, forest cover and a dense human population. The schemes are unevenly distributed between the Andean countries, however: Ecuador has three of the oldest programmes (PROFAFOR, Pimampiro and Socio Bosque), while in Bolivia, Argentina and Chile the schemes are either not developed or are at an early stage. In the Amazon river basins such schemes are limited because water is abundant, the land is flat and the most densely forested regions are sparsely populated. Despite this, the experience of Brazil at the sub-national level (Proambiente) and, particularly, at the state level (Bolsa Floresta) is instructive. In the case of Central America and

the Caribbean, payment mechanisms for watershed services are relatively common; two of the largest and oldest national programmes are in Costa Rica and Mexico<sup>170</sup>.

Mexico's Payment for Hydrological Environmental Services (PSAH) is financed through federal water-use taxes. The recipients of PSAH (landowners and populations) are selected according to criteria such as the value of water and poverty levels in the affected area (giving priority to marginal populations). PSAH payments have also been used to develop agroforestry initiatives in 7 Mexican states. The success of PSAH has been such that between 2003 and 2005 less than 0.1 % of the nearly 300 000 hectares covered was deforested<sup>171</sup>.

While much of the payment for ecosystem services comes through public agencies, in some cases private entities promote the recognition process. In fact, many of the ecosystem services are provided by and enjoyed by private actors.

A notable and successful example is that of Fundación Natura in Bolivia, involving a programme of Reciprocal Water Agreements (ARA)<sup>172</sup>. Nearly 200 000 water users have signed agreements with 3 200 upper basin landowners to conserve 180 000 hectares of water-producing forest. The conservation agreements are reciprocal: in exchange for the conservation of forests, the upper basin producers receive incentives for alternative development projects (drip irrigation systems, fruit and honey production, livestock management, etc.).

<sup>(169)</sup> <http://fundosdeagua.org/es>

<sup>(170)</sup> Blackman A. et al. (2012). Op. cit.

<sup>(171)</sup> UNDP (2010). Op. cit.

<sup>(172)</sup> <http://www.naturabolivia.org/es/acuerdos-reciprosos-por-agua/>

### 3.4.4 The social dimension of ecosystem services payments

Payments for ecosystem services represent an opportunity to proactively recognise the role of local populations in conservation, and to harmonise this with their development expectations. In some cases, much emphasis is placed on their potential to promote local development. This is how PSAH in Mexico is implemented, prioritising the poorest areas. Another example is the Socio Bosque programme in Ecuador, which comprises numerous local collectives and communities, including indigenous peoples.

## 3.5 REGIONAL AND TERRITORIAL PLANNING

### 3.5.1 The valuation of ecosystem services in territorial planning

Natural capital accounting, if included in macro-economic accounting, would help decision-makers in territorial planning processes. Knowing the economic value of services provided by ecosystems would enable policies to be assessed for their real benefits and impacts, and thus focused towards greater sustainability.

In this sense, the Natural Capital Accounting and Valuation of Ecosystem Services project, funded by the European Union (NCAVES, 2017-2020), aims to assist 5 partner countries (including Brazil and Mexico in LAC) to advance knowledge on environmental-economic accounting, in particular ecosystem services accounting<sup>173</sup>. To promote harmonised and more accurate natural capital accounting, the UN Statistical Commission adopted the System of Environmental Economic Accounting (SEEA) in 2012.<sup>174</sup> It organises and presents statistics on the environment and its relationship with the economy.

#### Box 18 SOCIO BOSQUE IN ECUADOR<sup>a</sup>

Socio Bosque is an initiative of Ecuador's Ministry of the Environment and was set up in 2008 as part of the new forest governance model, with the aim of preserving the remnants of forests, páramos and native vegetation. Through voluntary agreements, participants commit to conserve certain areas and, in exchange, receive a financial incentive from the Environment Ministry. The incentive can be up to USD 30 per hectare, per year.

By 2018, Socio Bosque had signed 2 681 agreements, protecting 1 616 263 hectares of native forest and páramo, and benefiting almost 175 000 people<sup>b</sup>. The large majority of agreements were signed with individual landowners, although collective and community partners represent the largest percentage of beneficiaries with areas under conservation. In addition, agreements have been signed with numerous Mestizo, Afro-Ecuadorian and indigenous communities.

One of the cornerstones of Socio Bosque is the social aspect, because although its main objective is environmental, human welfare and development are of fundamental importance.

Socio Bosque is increasingly recognised at international level and is becoming a benchmark in the region. Peru and the government of Pando, in Bolivia, have already replicated it, and further Latin American countries are also showing an interest.

#### References:

a: <http://www.ambiente.gob.ec/programa-socio-bosque/>

b: <http://sociobosque.ambiente.gob.ec/node/44>

<sup>(173)</sup> <https://seea.un.org/home/Natural-Capital-Accounting-Project>

<sup>(174)</sup> <https://seea.un.org/content/homepage>





^ In the central highlands of Guatemala, the multiple-use reserve of Lake Atitlan basin is part of the Mesoamerican Biological Corridor, an example of transboundary regional planning in Latin America. Eight countries from Mexico to Panama are involved in the initiative, which began in 1990. Today it faces challenges linked to governance, population growth, urbanisation and the fragmentation of its ecosystems. (© Autum Sky Photography/Alamy Stock Photo)

### 3.5.2 Planning at ecoregion and biome scale

The conservation sector is aware of the need to work on a large scale to maintain ecosystem functionality. In LAC, countless initiatives and planning proposals have been developed at the ecoregion, landscape and biome scale, to set up large biological corridors and other management schemes with a broad territorial scope.

These have largely been initiatives by private organisations, mainly NGOs. Implementation has generally lacked government support, as few national governments have promoted land-use planning beyond PAs and subnational jurisdictions. Planning and

management efforts in the region tend to prioritise geopolitical and socio-economic aspects.

However, there are cross-border initiatives developed jointly by different countries. One of the most relevant examples of this approach is the Mesoamerican Biological Corridor, which runs through 8 countries in Central America. Planning processes are also being developed associated with large ecosystems preservation in the Chaco, Patagonia, Amazon basin and other ecoregions. In addition, there are initiatives to conserve coastal and marine ecosystems at landscape level, such as efforts to conserve the Mesoamerican reef system that encompass the relevant watersheds, coasts and the ocean<sup>175</sup>.

#### Box 19 THE ECONOMICS OF ECOSYSTEMS AND BIODIVERSITY

The Economics of Ecosystems and Biodiversity (TEEB)<sup>a</sup> initiative has as its principal objective to mainstream the values of biodiversity and ecosystem services into decision-making at all levels.

In Ecuador for example, TEEB is helping policymakers assess how investing in natural capital might redirect the country's productive and energy matrix<sup>b</sup>. In the Coca watershed, where the country's largest hydropower project is under development, TEEB analyses the changes in ecosystem service provisioning under various scenarios of incentive programmes for ecosystem restoration, conservation and sustainable use. In the Guayas watershed, which provides water and food security for many Ecuadorians, TEEB examines the impacts of different growth scenarios, focusing on the sectors prioritised by the state.

TEEB analysis should provide, among other things, evidence of the benefits of sustained financing of the Socio-Bosque programme, including the importance of improving the resilience of rural communities as a cost-effective strategy for climate change adaptation.

#### References:

a: <http://www.teebweb.org/>

b: <http://www.teebweb.org/areas-of-work/teeb-country-studies/Ecuador-2/>

<sup>(175)</sup> [http://www.wfca.org/especies\\_yllugares/arrecife\\_mesoamericano/](http://www.wfca.org/especies_yllugares/arrecife_mesoamericano/)



^ *The pink dolphin (Inia geoffrensis) is one of the umbrella species of the Amazon and Orinoco basins. Precise data on the status of its three subspecies are not available. They are the subject of monitoring and conservation plans throughout their area of distribution. (© Jaime Rojo/WWF-US Regional)*

### 3.5.3 Umbrella species conservation

Geographic knowledge of human activities and umbrella species requirements is important to identify the connectivity needs between PAs and define an appropriate scale of intervention<sup>176</sup>. This approach is reflected in various initiatives in LAC, mainly in the regional planning efforts for conservation of jaguar<sup>177,178</sup>, pink dolphin<sup>179</sup> and Andean bear<sup>180</sup>.

One successful initiative was to make the jaguar (*Panthera onca*) a tourist attraction in the Pantanal (Brazil), which prompted a significant switch from livestock activity to ecotourism in the area. This reversed the threat to the feline, and also encouraged conservation and restoration of the ecosystem, benefiting a wide range of species.

In Mexico, several NGOs have formed the National Alliance for

the Conservation of the Jaguar, which supports studies and efforts to combat environmental crimes affecting the species<sup>181</sup>. Recognition of the jaguar as national heritage, based on its role in local culture, is also being sought to promote greater conservation efforts<sup>182</sup>.

Recently, these small initiatives have joined together in the jaguar corridor initiative<sup>183</sup>, covering a territory of 6 million km<sup>2</sup> in 18 countries from Mexico to Argentina, to connect and protect core jaguar populations<sup>184</sup>. Working with governments, corporations and local communities, the initiative supports land developments that are both economically profitable and ecologically sustainable, and compatible with the safe passage of jaguars and other wildlife. An action plan, known as the Jaguar 2030 Roadmap<sup>185</sup>, was launched in 2018 by the UNDP, conservation organisations and 14 states in the jaguar corridor.

<sup>(176)</sup> Painter R.L.E., R.B. Wallace and H. Gómez (2006). Landscape conservation in the Greater Madidi Landscape in north-western Bolivia: planning for wildlife across different scales and jurisdictions. Case Study 2.2 in *Principles of Conservation Biology*, 3rd edition. Groom M.J., G.K. Meffe, C. Ronald Carroll and contributors. Sinauer Associates Inc., Massachusetts, USA.

<sup>(177)</sup> Sanderson E.W. et al. (2001). Planning to Save a Species: the Jaguar as a Model. *Conservation Biology* 16, pp. 58-72.

<sup>(178)</sup> PNUD, WCS and Panthera (2019). Plan Jaguar 2030: Plan Regional para la Conservación del Jaguar para las Américas.

<sup>(179)</sup> Trujillo F., E. Crespo, P. Van Damme and J.S. Usma (Eds.) (2011). Plan de Acción para la conservación los Delfines de Río en Sudamérica. Resumen ejecutivo y avances 2010-2020. WWF, Fundación Omacha, WDS, WDCS, Solamac. Bogotá, D.C., Colombia. 104 pp. Available at: [http://awsassets.panda.org/downloads/plan\\_accion\\_conservacion\\_delfines\\_de\\_rio\\_sudamerica\\_espanol.pdf](http://awsassets.panda.org/downloads/plan_accion_conservacion_delfines_de_rio_sudamerica_espanol.pdf)

<sup>(180)</sup> Wallace R.B. et al. (2014). Unidades de Conservación Prioritarias del Oso Andino en Bolivia y en Perú. WCS, Centro de Biodiversidad y Genética de la Universidad Mayor de San Simón de Bolivia, Universidad Cayetano Heredia de Perú y Universidad de Antwerpen de Bélgica. La Paz, Bolivia. 82 pp.

<sup>(181)</sup> Morales A.D. and J.J. Morales (2018). Justicia y vida silvestre: dos estudios de caso sobre ilícitos ambientales del orden federal asociados al jaguar en México. *dA.Derecho Animal (Forum of Animal Law Studies)* 2018, vol. 9/3, pp. 92-107.

<sup>(182)</sup> Morales A.D. and J.J. Morales (2019). Patrimonio cultural y biodiversidad; el caso del jaguar mexicano. *Boletín Mexicano de Derecho Comparado*, [S.l.], p. 973-999, June 2019. ISSN 2448-4873. Available at: <https://revistas.juridicas.unam.mx/index.php/derecho-comparado/article/view/13664>

<sup>(183)</sup> <https://www.panthera.org/initiative/jaguar-corridor-initiative>

<sup>(184)</sup> Rabinowitz A.R. and K.A. Zeller (2010). A range-wide model of landscape connectivity and conservation for the jaguar, *Panthera onca*. *Biological Conservation* 143(4), pp. 939-945.

<sup>(185)</sup> [https://www.panthera.org/cms/sites/default/files/Panthera\\_Jaguar2030Roadmap\\_ENG.pdf](https://www.panthera.org/cms/sites/default/files/Panthera_Jaguar2030Roadmap_ENG.pdf)



*^ 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. (© Álvaro Mier)*

### 3.5.4 Sustainable cities

LAC is the second most urbanised region in the planet. Close to 80 % of the population lives in urban centres, a percentage expected to rise to 85 % by 2030<sup>186</sup>. As most people will live in large cities, it is increasingly urgent to improve their design and operation, especially in emerging cities, where it is still possible to influence their development.

Since 2010, the Inter-American Development Bank (IDB) has promoted the Emerging and Sustainable Cities Initiative (ESCI), aimed at improving quality of life. The programme is based on urban sustainability in 3 areas: the environment and climate change; the city; and taxation and governance<sup>187</sup>. It consists of assessing cities to identify major challenges to be addressed through a plan of action. The plan should reflect priority interventions, as well as short, medium, and long-term strategies, with a series of pre-investment studies about the priority interventions and a citizen monitoring system.

## 3.6 RESTORATION INITIATIVES

### 3.6.1 Ecosystem restoration

Ecosystem restoration is understood as the restoration of natural goods and services so that they can be enjoyed and used by society. However, in LAC, the focus has been almost exclusively on allowing recovery to occur naturally over time (passive restoration), and less on revegetation efforts (active restoration).

The national reports of the Convention on Biological Diversity demonstrate that forest and mangrove regeneration processes are taking place throughout the region, although they are insignificant compared with the rate of ecosystem degradation. In Cuba, forest cover has been increasing since 2000 thanks to management efforts, despite the fact there are no direct reforestation or forest restoration actions.

<sup>(186)</sup> De Miguel C. and M. Tavares (2015). El desafío de la sostenibilidad en América Latina y el Caribe. ECLAC - United Nations. 148 pp.

<sup>(187)</sup> BID (2014). 'Guía metodológica. Iniciativa Ciudades Emergentes y Sostenibles. Segunda edición Julio de 2014.' Inter-American Development Bank.



^ Reforestation of a mangrove area in Barras Cuero y Salado wildlife refuge, Honduras. Forest and mangrove regeneration processes are gradually being established throughout the region. The main benefits to local communities expected in the mid-term are coastal protection from extreme weather events, and positive impacts on fishing and tourism. (© Brian Atkinson/Alamy Stock Photo)

### 3.6.2 Rehabilitation of fauna as an ecological restoration and local development strategy

Much ecological restoration in the region is focused on the natural recovery of biodiversity. In an innovative experience in the Esteros del Iberá reserve in Argentina, a private organisation is reintroducing extinct fauna and developing tourism in local communities. The project differs from other animal release actions in that it takes place in a large protected territory from which threats have supposedly been removed. In addition, the released individuals are permanently monitored and the staff is able to ensure the long-term continuity of the project.

## 3.7 FULFILMENT OF AICHI TARGETS

In 2010, the Parties to the Convention on Biological Diversity adopted the Strategic Plan for Biological Diversity 2011–2020, with 20 targets (the ‘Aichi targets’). The second edition of *The State of Biodiversity in Latin America and the Caribbean*, published in 2016, presents a mid-term analysis of the status and trends in meeting these targets in the region.<sup>188</sup> It is a good tool for evaluating the results of ongoing efforts described in this chapter.

According to the report, overall progress toward the Aichi biodiversity targets in LAC is similar to global progress, although the information available and progress varies by country.

In general, there has been positive progress on most targets, although progress has been more modest than expected. None of the targets will be reached by 2020. The most positive trends are visible for target 11 (protected areas), target 17 (adoption and implementation of political instruments) and, to a lesser extent, targets 18 (recognition of traditional knowledge) and 19 (improved knowledge management on biodiversity). No progress was made on targets 2 (consideration of biodiversity values in decision-making processes), 6 (sustainable management of living marine resources), 8 (reduction of pollution) and 12 (prevention of extinctions). Finally, the situation has deteriorated in the fields of targets 10 (reduction of pressures on vulnerable ecosystems) and 14 (safeguarding of ecosystems and essential services).

<sup>(188)</sup> UNEP-WCMC (2016). El estado de la biodiversidad en América Latina y el Caribe. UNEP-WCMC, Cambridge, UK.



^ In the Iberá Wetlands Reserve in Argentina, Rewilding Argentina, a private organisation set up by the Conservation Land Trust, is reintroducing the region's extinct wildlife species. It started its anteater programme in 2007 and today has more than 150 individuals in four areas. Efforts to reintroduce Pampas deer, tapirs, peccaries, jaguars and red brocket deer are underway and there are plans to add other species such as giant otters and marsh deer. (© Blickwinkel / Alamy Stock Photo)

#### Box 20 REHABILITATION IN THE IBERÁ RESERVE, ARGENTINA

The Iberá basin has a vast wetland with enormous biodiversity. In the 20th century, the region experienced the greatest faunal losses seen in northern Argentina, with the extinction of 6 species of mammals and 3 birds and an increasing scarcity of other species.

Starting in 2006, a process of environmental and social change was initiated with the creation of a mosaic of zones totalling 700 000 hectares, rigorously managed by the provincial state and Conservation Land Trust (CLT). CLT worked to re-establish populations of large animals extinct in the area in order to restore the ecological integrity and functionality of the ecosystem. The project also helped local communities to develop nature-related tourism. Achieved with the cooperation of national, provincial and municipal governments, NGOs, businesses, scientific institutions and the media, its goal was to build support for the ecological restoration activities while boosting the recovery of local culture and traditions.

Results include the reintroduction and close monitoring of 75 giant anteaters, 90-100 pampas deer, 40 collared peccaries, 2 tapirs and 10 scarlet macaws. A modern jaguar breeding centre was built, with over 30 hectares of land, and CLT donated 150 000 hectares to the national government for the creation of the Iberá National Park. The region is now one of the main destinations for nature tourism in Argentina and South America.

#### References

<http://www.proyectoibera.org> and contributions from S. Di Martino.



# #4

## Lessons learned and promising approaches ▶

*The páramos are unique high mountain ecosystems that lie between the upper limit of arboreal vegetation and glaciers. They are home to a wealth of wildlife, including iconic species such as the jaguar and the elusive spectacled bear. Their soils and vegetation are efficient at storing carbon and their ecosystem services sustain life, through the production of water for use in cities, irrigation and hydropower generation. In Colombia and Ecuador alone, some 450 000 people live in the páramos. (© Felipe Rodríguez Moreno)*

## #4 \_ Lessons learned and promising approaches

### 4.1 FINANCIAL SUSTAINABILITY OF CONSERVATION AND POLITICAL WILL

#### The challenge

Conservation programmes generally have complex long-range objectives, such as ecosystem restoration, species recovery, improved governance mechanisms, changes in regional management practices and resource use. Project cycles in international cooperation are generally too short, therefore, to enable delivery of the objectives. Variability in national and international policies also undermines continuity. In addition, over the last decade, international cooperation funding for LAC has taken a downturn, particularly for environmental projects, and national funding has failed to fill the gap. Even in countries with a clear drive toward sustainable development, such as Argentina, Colombia, Costa Rica, Mexico, Dominica and Trinidad and Tobago, total environmental expenditure (public and private) has rarely exceeded 1 % of GDP over the last decade, while state spending on the environment is mostly below 3 % of public expenditure.

When it comes to PA funding, a 2010 study of 18 countries in the region by UNDP and TNC<sup>189</sup> found that government spending on protected areas averages 1 % of their environmental budget (0.006 % of GDP). Consequently, many PAs are not able to fulfil their function. It is reported that some PAs are merely 'paper parks', without effective implementation in the field, particularly in areas where government presence is very limited<sup>190</sup>.

The patchy integration of environmental issues into national development policies limits improvement in this regard. It will be important for the future to move towards recognising nature conservation as a basic public service, like education or health (because of the associated ecosystem services), which is integrated in national budgets and allocated sufficient funding.

Nevertheless, it is a real challenge to find mechanisms capable of providing a stable economic basis for conservation actions and long-term planning (50-100 years). Valuable lessons can be learnt from sustainable financing programmes for PAs developed in several LAC countries (see Section 3.2.5.). The Conservation Financing Alliance<sup>191</sup> and RedLAC are also conducting analysis and training processes on the topic.

#### Lessons learned

- International cooperation must avoid replacing the state's role in conservation, in particular with regard to PAs. Public funds must, over time, cover the costs of ongoing management processes. This is particularly important for monitoring systems, tackling environmental crimes and other aspects that require continuous application. If there is a lack of political will to manage PA institutional systems, international cooperation should invest in specific areas (infrastructure, equipment, knowledge generation, development of management tools or training).
- Governments need to identify alternative funding sources and increase investment in conservation and natural capital management. They can channel funding through environmentally friendly economic instruments (taxes, fees, charges and other specialised mechanisms). Governments also play a vital role in providing a legal and institutional framework that enables mobilisation of new resources for conservation.
- Autonomous territorial units should strengthen their collection mechanisms (royalties, tax sharing, etc.), and explore how to diversify their PA income and revenue systems (e.g. payments for entry to conservation sites and related services, income obtained from legally granted concessions to third parties in PAs, payment for services to society or private enterprises, charges for public use, etc.) Policies and regulations that support such systems are also needed.
- The success of a programme or project depends largely on political will. Conservation efforts thus need to align with national policies and strategies. Proposals for biodiversity conservation and the sustainable management of natural resources generally gain traction with governments (and other donors) if they make a visible contribution to other objectives considered a higher priority. Issues currently prioritised in the region include increasing resilience and improving climate change mitigation measures, protecting water resources and controlling pollution levels<sup>192</sup>.
- In regions that face economic and social challenges, such as LAC, it is important to highlight synergies between conservation and development. To effectively integrate environmental policy into public policies for regional development requires a sustained effort of communication and raising awareness with the authorities and greater intersectoral coordination. It is necessary to apply environmental criteria and safeguards in the design and evaluation of development projects (industrial, infrastructure, energy, agriculture, etc.). This requires political will and efficient coordination between the relevant sectors.





*^ Park rangers in Peru carry out monitoring tasks. The long-term management of protected areas is dependent on sustainable financing at a level that corresponds to their needs in terms of human resources, equipment and operations. (© Ministerio de Ambiente Peru)*

## 4.2 LANDSCAPE APPROACHES

### The challenge

As the human population grows, so does our dependence on land and natural resources. We expect an increasing return from the land and its functions.<sup>193</sup> Conservation at PA level alone is no longer sufficient to ensure the regional conservation of species diversity and ecosystems. Much of the territory outside conservation zones is subject to significant man-made pressures and conversion processes, usually under private ownership.

Conventional approaches to addressing often interconnected social, environmental, economic and political challenges are proving insufficient.<sup>194</sup> Public policies need to transcend both the traditional sectoral approach and the protected site conservation approach<sup>195</sup>. An alternative is to focus on integrated landscape-scale solutions, or 'landscape approaches'.

<sup>(189)</sup> Bovarnik A (2010). Financial Sustainability of Protected Areas in Latin America and the Caribbean: Guide to Investment Policies. UNDP/TNC, New York.

<sup>(190)</sup> Bonilla Mejía L. and I. Higuera Mendieta I. (2016) ¿Parques de papel? Áreas protegidas y deforestación en Colombia. Documentos de Trabajo Sobre Economía Regional, no 248. Available at: [http://www.banrep.gov.co/sites/default/files/publicaciones/archivos/dtser\\_248.pdf](http://www.banrep.gov.co/sites/default/files/publicaciones/archivos/dtser_248.pdf)

<sup>(191)</sup> <https://www.conservationfinancealliance.org/>

<sup>(192)</sup> This strategy was ratified by those attending a meeting coordinated by the Latin American Network for Technical Cooperation in Protected Areas (REDPARQUES) with the support of WWF's Living Amazon Initiative and the German Ministry of the Environment (BMUB). A parallel event was held at COP21 of the Convention on Climate Change to discuss the problems of financing PA institutional systems, among other issues.

<sup>(193)</sup> Sayer J. et al. (2013). Ten principles for a landscape approach to reconciling agriculture, conservation, and other competing land uses. Proceedings of the National Academy of Sciences of the United States of America 110, pp. 8349-8356.

<sup>(194)</sup> Tscharntke T. et al. (2012). Landscape moderation of biodiversity patterns and processes – eight hypotheses. Biological Reviews 87, pp. 661-685.

<sup>(195)</sup> UNEP (2012). Global Environment Outlook-5: Environment for the future we want. United Nations Environment Programme.

Landscape approaches have been refined through attempts to integrate social and economic development with biodiversity conservation and climate change mitigation. They cover a diversity of approaches, many very similar to an ecosystem approach, which tends to be preferred by ecologists, while water resource managers talk about integrated water resource management and agricultural scientists about integrated natural resource management<sup>196</sup>. The innovation of a landscape approach is recognising the need to address interactions between different spatial scales, while taking account of human institutions and behaviours. Landscape approaches are process-oriented and integrate bottom-up negotiated actions within a long-term vision.

A landscape approach can be defined as a framework to integrate policy and practice for multiple competing land uses through the implementation of adaptive and integrated management system<sup>197</sup>. It is as an iterative, flexible and ongoing process of negotiation, decision-making and re-evaluation, informed by science but shaped by human values and aspirations. The landscape is defined in broad conceptual terms rather than simply as a physical space.<sup>198</sup>

Although the need for landscape approaches has been widely recognised in scientific literature and institutions that promote conservation and sustainable development, there are few examples of implementation. Conservation programmes use this type of approach in Yasuni (Ecuador), the Selva Maya (Guatemala), Mamiraua (Brazil) and Madidi-Tambopata (Peru and Bolivia)<sup>199</sup>, among others, as well as landscape management projects financed by the EU in 8 LAC countries, and by the GEF in the Amazon. Likewise, the numerous biosphere reserves in the region offer a good opportunity for the application of these approaches, since one of their main objectives is to promote solutions to reconcile biodiversity conservation with its sustainable use, economic development, research and education.

### Lessons learned

- Institutional and governance concerns are the main obstacles to implementing landscape approaches. Countries need adequate institutional capacity and resources to maintain complex multiple-stakeholder processes for the necessary time.
- The timescales involved and the difficulty of defining and measuring progress (given the complexity and constant evolution of landscape processes) make it hard to retain the interest of donors. Landscape approaches would benefit from long-term investment programmes and specific monitoring systems.
- All measures that are beneficial to the objectives of a landscape approach must be integrated, from economic instruments, such as subsidies and fiscal measures, to planning tools and information and knowledge technologies.
- Inter-sectoral and inter-institutional coordination is a critical success factor. To address biodiversity pressures, many

countries in the region are introducing a landscape approach in their environmental policies and in legislation that integrates agriculture with other productive and conservation activities in local-level planning processes. In this context, public sector interventions require an inter-sectoral approach with good coordination between the different state levels and agencies.<sup>200</sup> Close cooperation with NGOs and academic institutions, as well as active participation by local communities and the private sector, are necessary for a successful outcome.<sup>201</sup> Stakeholders must be willing to work across disciplinary, sectoral and political silos. Among early experiences of comprehensive landscape-scale development planning was the Protected Productive Landscapes model. A land management model applied in northern Argentina, this demonstrates the viability of this type of process, which is based on partnerships among the different stakeholders in the territory. Key to this case was partnerships involving large companies in the agroindustry sector (sugar, citrus fruits, forestry, livestock, soybean, etc.) within a well-defined geographical area<sup>202</sup>.

- Local stakeholders are empowered by identifying their needs rather than what they are prepared to accept.<sup>203</sup> Nevertheless, how they define their needs or the way to fulfil them can vary according to their access to information. When adequately informed of the benefits, communities are willing to trade land-use practices that provide short-term economic gains with high environmental cost for those that provide long-term social and environmental gains.<sup>204</sup>
- PAs must be central to local and regional planning of the territory. If they are conceived in isolation, the same will apply to their management and financing.
- The biological corridor concept has made it possible to design landscape-scale conservation and development plans outside PAs that integrate biodiversity conservation, habitat connectivity, the preservation of ecosystem services, increased resiliency of ecosystems in the face of climate change and local development. This model not only allows these topics to be integrated, but also facilitates coordination with local governments, which are crucial stakeholders in territorial governance. Cross-border collaboration is required in some cases.
- The ecosystem approach, adopted by the CBD, proposes 12 principles aligned with some of the most promising areas of work for Latin America and the Caribbean.<sup>205</sup> It is essential for preparing national and local strategies in response to climate change and for biodiversity conservation, in particular by taking into account the value that ecosystems contribute via their ecosystem services and the external costs of biodiversity loss.
- As part of a landscape approach, the design of biodiversity conservation strategies based on umbrella species makes it possible to comprehensively address problems associated with species, ecosystems, communities and the productive sector. These strategies involve maintaining or recovering



^ *Mayan pyramid in Calakmul Biosphere Reserve, Mexico. The landscape approach allows for different types of land use and protection status to support connectivity. The Sian Ka'an - Calakmul biological corridor, which contains major archaeological sites, connects two biosphere reserves, enabling the passage of several umbrella species, such as the jaguar (*Panthera onca*) and the tapir (*Tapirus bairdii*). It is part of the Mesoamerican Biological Corridor. (© Universal Images Group North America LLC/Alamy Stock Photo)*

the ecological integrity of the species' habitats (whether for reproduction, feeding, shelter or migration). They indirectly contribute to the conservation of many other species, as well as associated ecosystem services, and can help maintain connectivity among the intact forest blocks that still exist in the region.

- When measures are taken to limit environmental pressure on a given ecoregion, there is a risk that the pressures are transferred to another ecoregion without adequate measures in place, or one that is less visible to the public or other institutions. This was the case, for example, when
- deforestation for soybean cultivation was displaced from the Amazon basin to the Cerrado. A comprehensive regional perspective, including a cross-border viewpoint in some cases, is important and takes into account the risk of transferring pressures between macro ecoregions when designing policies.
- Ecosystems are interconnected: mining activity in the Andes can impact fish availability downstream, affecting non-adjacent ecosystems in remote areas; deforestation in the Amazon basin can affect rainfall in parts of southern Brazil; and forest clearing in the centre of the continent

<sup>(196)</sup> Reed J., J. Van Vianen, E.L. Deakin, J. Barlow and T. Sunderland (2016). Integrated landscape approaches to managing social and environmental issues in the tropics: learning from the past to guide the future. *Global Change Biology* 22, pp. 2540-2554.

<sup>(197)</sup> Ibid.

<sup>(198)</sup> Sayer et al. (2013). Op. cit.

<sup>(199)</sup> Painter M. et al. (2008). Landscape Conservation in the Amazon Region: Progress and Lessons.

<sup>(200)</sup> Diaz S. (2010). Biodiversity and Human Well-being in Latin America and the Caribbean: A Multi-Sectoral Contribution to the Science-Policy Interface. Policy Brief. International Council for Science (ICSU)-ROLAC.

<sup>(201)</sup> UNEP (2012). Global Environment Outlook-5: Environment for the future we want. United Nations Environment Programme.

<sup>(202)</sup> Fundación ProYungas (2011). Paisaje Productivo Protegido. Un camino para conciliar la conservación de la naturaleza con la producción en sitios de alta valoración ambiental. Ediciones del Subtrópico. Tucumán, Argentina.

<sup>(203)</sup> Costanza R. (2003). A vision of the future of science: reintegrating the study of humans and the rest of nature. *Futures* 35, pp. 651-671.

<sup>(204)</sup> Keough H.L. and D.J. Blahna (2006). Achieving integrative, collaborative ecosystem management. *Conservation Biology* 20, pp. 1373-1382.

<sup>(205)</sup> Secretaría del Convenio sobre la Diversidad Biológica (2004). Enfoque por Ecosistemas, 50 pp. (Directrices del CDB). Access: <https://www.cbd.int/doc/publications/ea-text-es.pdf>

causes erosion that clogs rivers and affects productivity and scenic beauty on the coast. Understanding the functional relationships between ecosystems is thus vital when designing projects. More ambitious and comprehensive environmental impact assessments are needed for development projects, which take into account the full area of influence and consider cumulative and combined impacts of past, present or planned activities.

- The interplay of environmental goods and services between the different components of an ecoregion must be recognised to ensure its continued functioning. Forests tends to overshadow other systems within an ecoregion that are, nevertheless, indispensable to its equilibrium. Regional and

landscape-scale biodiversity conservation plans require a comprehensive vision of ecosystem functioning, which includes environments such as grasslands, wetlands and savannah in addition to forested areas.<sup>206</sup>

- Landscape approaches must tackle the cross-cutting challenges of gender equity, food security and climate change, which are key in rural landscapes.

### Box 21 PRINCIPLES OF THE LANDSCAPE APPROACH

The 10 principles of the landscape approach, which aim to guide decision-making over land use, emphasise that the integration of productive and environmental priorities requires a people-centred approach, applied at landscape scales. They represent a broad consensus of opinion and have been adopted by the CBD's Subsidiary Body on Scientific, Technical and Technological Advice.

**Principle 1: Continual learning and adaptive management**, since landscape processes are dynamic. (Classical spatial planning may be insufficiently flexible to accommodate multiple and changing perspectives.)

**Principle 2: Common concern entry point**. Solutions to problems need to be built on shared negotiation processes based on trust.

**Principle 3: Multiple scales**, since outcomes at any scale are shaped by processes operating at other scales.

**Principle 4: Multifunctionality**. Trade-offs exist among the differing landscape uses and need to be reconciled.

**Principle 5: Multiple stakeholders**. All stakeholders should be recognised, and solutions should encompass a fair distribution of benefits and incentives, although satisfying all stakeholders will often be unachievable.

**Principle 6: Negotiated and transparent change logic**, as a basis for good management, which is needed to avoid or resolve conflicts.

**Principle 7: Clarification of rights and responsibilities**, taking into account that rules on resource access and land use shape social and conservation outcomes.

**Principle 8: Participatory and user-friendly monitoring**, to facilitate shared learning, while recognising the validity of different knowledge systems.

**Principle 9: Resilience**, addressed through active recognition of threats and vulnerabilities of landscapes.

**Principle 10: Strengthened stakeholder capacity**, so that people can participate effectively and accept various roles and responsibilities.

*Reference:*

*Sayer J. et al. (2013). Op. cit.*



^ In Cuba's Sabana-Camagüey archipelago, coastal ecosystems are not only a refuge for biodiversity such as the Caribbean flamingo (*Phoenicopterus ruber*). By absorbing the impacts of hurricanes and storms, reducing coastal erosion, purifying water and providing a habitat for fish and birds, they also offer nature-based solutions to protect local communities and increase their resilience to the effects of climate change. (© YAY Media ASI/Alamy Stock Photo)

### 4.3 LINKS BETWEEN BIODIVERSITY AND CLIMATE CHANGE

#### The challenge

Humanity is facing two major crises: climate change and biodiversity loss. Both are affecting societies and our environment in fundamental ways. The two challenges are interconnected and cannot be resolved separately.

The impact of climate change on biodiversity is growing rapidly and may exacerbate the effect of other pressures caused by human intervention, such as habitat fragmentation, ecosystem conversion, the overexploitation of natural resources and the incidence of invasive species or contamination (see Section 2.2.5).

In contrast, biodiversity conservation can contribute decisively to mitigating and adapting to climate change. Natural ecosystems play an important role in mitigation, by capturing and storing around 50 % of manmade greenhouse gas (GHG) emissions each

year<sup>207</sup>. The transformation or destruction of ecosystems not only causes GHG emissions; it also contributes to reducing the global absorption capacity.

Healthy ecosystems are also important for adaptation, as they contribute to increasing resilience to the effects of climate change. For example, forests stabilise soils and reduce the risk of landslides caused by heavy rain; they also regulate water cycles and climate at a local scale. Wetlands store water resources during droughts and reduce flood risks during the rainy season. Mangroves, dunes and coral reefs act as barriers against wave and coastal erosion and lessen the impact of hurricanes.

Because of these important contributions, 'nature-based solutions' (measures that conserve and restore ecosystems while addressing other outcomes) to climate change present a more cost-effective and locally appropriate response than those based on heavy infrastructure and technology, over the long term.

(206) Torres R, N.I. Gasparri, P.G. Blendinger and H.R. Grau (2014). Land-use and land-cover effects on regional biodiversity distribution in a subtropical dry forest: a hierarchical integrative multi-taxa study. *Regional Environmental Change* 14(4), pp. 1549-1561.

(207) IUCN French Committee (2019). Nature-based Solutions for Climate Change Adaptation and Disaster Risk Reduction. Paris, France.



^ Tierra del Fuego National Park, Patagonia, Argentina. The important role of peatlands in mitigating climate change is well known. These ecosystems have a greater CO<sub>2</sub> sequestration capacity per hectare than forests. In southern Patagonia they cover more than 40 000 km<sup>2</sup> and are estimated to store 6.9 billion tons of carbon. (© Oleg Senkov/Alamy Stock Photo)

## Lessons learned

### Mitigation:

- Due to the scale of forest ecosystems and their efficiency as a carbon sink, forest conservation is a priority in absorption and storage mitigation strategies. Wetlands, particularly peatlands and marine ecosystems, are also important.
- The transformation of forests (for conversion to grazing land, for example) causes 10 % to 15 % of global GHG emissions and is particularly severe in Latin America. Reducing emissions from deforestation and forest degradation (REDD/REDD+) is one of the most relevant strategies for the region to contribute to global strategies of mitigation through GHG reduction.
- Besides forests, removing vegetation from any ecosystem (for agriculture, urban areas or other reasons) generates large amounts of GHGs. These emissions should also be limited.

### Adaptation:

- According to the Ecosystem-based Adaptation (EbA) approach, adaptation involves first halting the degradation of ecosystems, with a priority focus on reducing 'non-climate' stress. Actions may include, for example: restoration of coastal habitats, agroforestry, integrated management of water resources, strengthening and expanding PAs and their networks, diversification of agricultural systems and conservation of agrobiodiversity and forest fire prevention, or other types of sustainable ecosystem management that use nature to reduce vulnerability to climate change.

- EbA may require ecosystem management to provide a particular service at the expense of others. For example, the restoration of mangroves for coastal protection can lead to the accumulation and stabilisation of silts, which may affect the habitat of certain species as well as tourist attractions in nearby ecosystems. The implementation of EbA measures should therefore be subject to a prior risk analysis, different scenarios should be evaluated in the planning processes and an adaptive management approach should be applied, recognising and incorporating costs and benefits of measures and allowing dialogue between stakeholders.
- Adaptation actions must involve local communities, for whom they can generate multiple social, economic and cultural benefits. In fact, the success of EbA largely depends on knowledge transfer, capacity building and the integration of science and local knowledge.
- It is also essential to increase public and decision-makers' awareness about the effects of climate change, the benefits and opportunities of the rational management of ecosystems, and the importance of their natural capital (see Section 5.2.5).



^ *Bañado la Estrella, North Argentina. In addition to hosting dazzling biodiversity, wetlands in the upper La Plata basin play a fundamental role in regulating water dynamics. In the rainy season they mitigate flood risks by absorbing excess rainfall. In the dry season the gradual release of this water helps to maintain the river's level and its navigability. (© Mbmtheu)*

## Box 22 ECOSYSTEM-BASED ADAPTATION APPROACH<sup>a,b</sup>

The Ecosystem-based Adaptation (EbA) approach enhances the role of biodiversity and ecosystem services in the framework of a comprehensive adaptation strategy. It focuses primarily on reducing 'non-climatic' stress (such as pollution, overexploitation, habitat loss and fragmentation, and the introduction of invasive alien species). It aims to reduce population vulnerability and increase resilience to climate change, taking advantage of the opportunities provided by the sustainable management, conservation and restoration of ecosystems.<sup>c,d</sup>

EbA is consistent with the landscape approach as it can be applied at the local (ecosystem or landscape), national or regional levels, through the execution of specific projects or within the framework of broader programmes and strategies. It favours dialogue and intersectoral coordination, as it promotes sustainability in multiple sectors (such as agriculture, forestry, energy, water, health, education, etc.) and the diversification of livelihoods. It contributes to economic development through the conservation of healthy ecosystems, maintaining vital ecosystem services for production and quality of life.

### References:

a: [www.ebacommunity.com](http://www.ebacommunity.com)

b: *Adaptación basada en Ecosistemas (AbE) (2019). Evidencias sobre Adaptación basada en Ecosistemas en América Latina y el Caribe. Available at: [http://comunidadpnacc.com/wp-content/uploads/2019/09/AbE\\_-\\_Casos\\_de\\_Estudio\\_ESPvs.pdf](http://comunidadpnacc.com/wp-content/uploads/2019/09/AbE_-_Casos_de_Estudio_ESPvs.pdf)*

c: *Secretaría del Convenio sobre la Diversidad Biológica (CDB) (2009). Connecting Biodiversity and Climate Change Mitigation and Adaptation: Informe del Segundo grupo Ad Hoc de Expertos técnicos sobre biodiversidad y Cambio Climático. montreal, Serie técnica No 41.*

d: *FEBA (Friends of Ecosystem-based Adaptation) (2017). Making Ecosystem-based Adaptation Effective: A Framework for Defining Qualification Criteria and Quality Standards (FEBA technical paper developed for UNFCCC-SBSTA 46). Bertram, M., 1 Barrow, E., 2 Blackwood, K., 3 Rizvi, A.R., 3 Reid, H., 4 and von Schelliha-Dawid, S.5 (authors). GIZ, Bonn, Germany; IIED, London, UK; and IUCN, Gland, Switzerland. 14 pp.*

## 4.4 COORDINATION BETWEEN DIFFERENT PROTECTED AREA SYSTEMS

### The challenge

Historically, the importance of national PA institutional systems has been recognised, but not that of sub-national and private systems. The need to address biodiversity conservation at the landscape scale is now understood, as is ineffectiveness in the long term for isolated PAs. National-level systems must be complemented with sub-national systems to meet international goals such as Aichi target 11. The challenge is, therefore, to

consolidate them and form networks in order to integrate efforts and achieve conservation objectives at the level of large landscapes.

Table 4.1 shows that there are slightly fewer sub-national PAs than national or federal PAs; the former represents 18.75 % of the territorial conservation effort. However, given the international communication and management shortcomings typical at this level of government, it is possible that many PAs in the 'not reported' category are sub-national, and that the numbers shown are far lower than the reality.

**TABLE 4.1** Number and surface area of PAs in Latin America and the Caribbean, according to governance type

Governance type	Quantity of PA	% of total	Surface area (km <sup>2</sup> )	% surface area
National or federal	1 722	26.92 %	1 559 942	30.25 %
Local and indigenous communities	765	11.96 %	1 148 296	22.27 %
Sub-national	1 435	22.43 %	966 693	18.75 %
Other types of governance	854	13.35 %	49 700	0.96 %
Not reported	1 621	25.34 %	1 432 082	27.77 %
<b>TOTAL</b>	<b>6 397</b>	<b>100 %</b>	<b>5 156 715</b>	<b>100 %</b>

Source: Produced using WCPA-IUCN data.

### Lessons learned

- PA institutional systems should not only be organised horizontally (between systems in different countries and through cross-border initiatives), but also vertically (between systems managed by national and sub-national governments, as well as private areas). Several initiatives in the region are moving in this direction, such as the Central American System of PAs or the recent development of a system for integrating PAs in ZICOSUR<sup>208</sup>.
- Sub-national PA institutional systems (departmental, provincial, state, municipal, etc.) are an important complement to national systems. Working with sub-national systems offers advantages compared to national systems:
  - In cases where policies are less rigid, there are opportunities to innovate and modernise management systems;
  - Processes for the creation of new PAs are generally less complex;
  - Lack of international support has forced local governments to fully fund their management, generating significant (though still insufficient) political commitment.
- The sub-national PA institutional systems need direct support to ensure they complement national systems. Attention should be paid to consolidating their achievements in terms of management policies and institutional strengthening over the long term. This is particularly important considering the main weaknesses of the sub-national systems:
  - Their political fragility means that good practices can be established and then abandoned relatively easily. According to the level of governmental decentralisation, certain sectors' interests may be more strongly represented by the authorities in office; this can provoke a significant drift in public policy adoption and implementation.
  - Management effectiveness in these PAs is generally very low, because the authorities usually have little presence on the ground.
  - Control mechanisms are sometimes hampered by political interference from economic sectors with competing interests.
  - The operations often depend entirely on government budgets, and so mobilising funds can be difficult due to cumbersome bureaucratic procedures.
- Private PAs have proved an efficient complement to public sector efforts to conserve priority sites and species effectively. Like public PAs, private PAs have demonstrated potential for:
  - They provide options for environmental education (Parque El Boldo in Chile educates local communities; the Mbaracayú Forest Nature Reserve in Paraguay has an environmental educational centre for women<sup>219</sup>).
  - By supporting species conservation (in the Nevados del Chillán biological corridor in Chile, Hacienda El Durazno focuses on reintroducing the guanaco, complementing efforts in Huemules del Niblinto National Reserve to protect the south Andean deer).
  - Through combining conservation with income-generating activities such as tourism (the Maquipucuna Reserve in Ecuador, the Valdivian Coastal Reserve, Karukinka Park and the Cascada de las Ánimas in Chile).
- Organising PAs into networks facilitates the exchange of experiences, reinforces their potential to achieve joint conservation objectives and increases management efficiency. In recent decades several private PA networks have been formed (the Argentine Network of Private Natural Reserves, Así Conserva Chile, Paraguayan Network of Conservation on private land and the Colombian Network of Civil Society Natural Reserves<sup>210</sup>).
- In Brazil, institutional mechanisms have been developed to link PAs within the same ecoregion. Although independent units, the PAs form a complementary mosaic of environmental situations. Developing synergies among PAs within functional landscapes contributes to maintaining the continuity of large geographical areas in a good state of conservation. The

<sup>(208)</sup> ZICOSUR Integration Zone in the Centre West of South America. See <http://zicosur.co/wp-content/uploads/2018/05/AREASDEGESTIONCOMPARTIDA.pdf>

<sup>(209)</sup> [https://www.mbertoni.org.py/at\\_centro\\_mbaracayu.php](https://www.mbertoni.org.py/at_centro_mbaracayu.php)

<sup>(210)</sup> <http://reservasprivadas.org.ar/>; <http://www.asiconservachile.org/>; <http://www.conservacionprivadapy.org/>; <https://www.resnatur.org.co/>





^ Environmental monitoring officer on the Gurupi River, Brazil. In Brazil, 'conservation mosaics' link different types of protected areas within the same ecoregion. Coordination between their administrations facilitates their management and the maintenance of connectivity between them. In the states of Pará and Maranhão, the Gurupi Mosaic includes a national protected area and six indigenous territories in one of the most deforested regions of the Amazon. (© Tarcisio Schneider/Shutterstock)

coordination of different types and levels of protection is particularly important to enhance adaptation to climate change. Achievements of this approach include a more efficient use of resources in the participating institutions and organisations, conservation objectives that would be unattainable for any of the units individually, and a modified scale with regard to the analysis, planning and territorial management practised by the actors involved.

For landscape-scale conservation efforts, in addition to national, sub-national and private PAs, indigenous territories represent a very interesting alternative.

## 4.5 ROLE OF INDIGENOUS COMMUNITIES IN CONSERVATION

### The challenge

In Latin America and the Caribbean, PAs and indigenous communities are closely linked, with a very high proportion of overlap between PAs and ancestral territories. These communities are more involved in PA management than in any other region in the world, a situation that has led to several shared governance experiences.

### Lessons learned

- Conservation efforts must incorporate an ethnic perspective, particularly when they have implications for indigenous peoples. They must abide by the principle of free, prior and informed consent, and by the provisions of the International Labour Organisation (ILO) Convention 169 in those countries where it has been ratified.<sup>211</sup> This means respecting not only the original populations' culture, but also their right to manage their territories and take an active role in the decision-making processes of projects, plans and programmes that affect them. It is therefore important to promote joint working approaches among the entities that intervene in or manage the PAs and native populations' authorities, so that conservation objectives can be achieved in harmony with the communities' culture and development.
- Providing incentives for PA inhabitants in the form of payment systems for ecosystem services encourages indigenous and other local communities to become involved in managing them well. The Bolsa Floresta System, in Brazil's Amazonas state, is a successful example of this proposal.
- Any incentives that contribute to improving livelihoods, in the PAs or their area of influence, should be planned with caution, as these can attract larger populations and so lead to greater pressures on the environment and on indigenous communities.

<sup>(211)</sup> LAC countries that have ratified ILO Convention 169: Argentina (2000), Bolivia (1991), Brazil (2002), Chile (2008), Colombia (1991), Costa Rica (1993), Dominican Republic (2002), Ecuador (1998), Guatemala (1996), Honduras (1995), Mexico (1990), Nicaragua (2010), Paraguay (1993), Peru (1994) and Venezuela (2002). Source: International Work Group for Indigenous Affairs (IWGIA). Available at: <http://www.iwgia.org/derechos-humanos/procesos-internacionales/oit/paises-que-ratificaron-el-169>

- Indigenous territories have generally proven more efficient than PAs at protecting the environment, and for Amazon forests in particular<sup>212</sup>. Maintaining traditional practices contributes to decreasing the rate of deforestation and moving toward sustainable resource management, including a series of environmental co-benefits. Without falling into the stereotype of appointing indigenous peoples as innate guardians of the environment, and taking into account changes that may have occurred in their productive practices and due to demographic pressure, it is important to recognise and strengthen their role in conservation efforts, along with that of other local communities. Support for the consolidation of their territorial rights and territorial management capabilities are thus essential.

## 4.6 GOOD GOVERNANCE

### The challenge

Many rural communities in LAC remain highly dependent on access to biodiverse resources. They are threatened by large-scale production and the construction of infrastructure where this makes intensive use of natural resources (soil, timber, minerals, etc.). In many cases, these projects are managed from distant locations, with little sensitivity to their local impacts.

Of course, conservation is also sometimes perceived as a constraint to local development, when it restricts access to natural resources. This situation is less of an issue in Latin America than in other world regions, since most PAs were established in the last three decades, when concepts of participation and consultation were being incorporated into public policies.

However, conflicts often arise for access and control over natural resources. Much-discussed cases in Latin America include conservation-versus-industrial exploitation of the Amazon; the protection or use of large rivers for hydroelectricity or irrigation water on the great American plains; protecting natural conditions in coastal areas or converting them into large salmon farms in southern Chile, or into tourist infrastructure in the Caribbean; the preservation of glaciers from mining in the Andes; and the preservation of the Amazon, Cerrado, Chaco and Chiquitano forests against export-driven agricultural production.

Large blocks of well-preserved ecosystems generally extend into regions where there is little government presence and oversight, and limited access by land. Organised groups engaging in highly

profitable unlawful activities (illegal mining, coca cultivation, illegal logging, etc.) exploit these areas where local populations lack the means to control the territory's use. This can lead to unplanned settlements, which are synonymous with environmental degradation, insecurity and poverty, and have grave consequences for the safety of park rangers, technicians, officials and community leaders in some of the region's priority areas.

### Lessons learned

- New legal frameworks have proved to be ineffective when insufficient attention has been paid to stakeholder dialogue and the communication of their rights<sup>213</sup>. It is much more important to reach general agreements about land-use policies as part of a process of integrating environmental considerations into development policies, than to try to attain a technically perfect legal framework.
- The replication of organisational and regulatory models from one country to another is not recommended. Models appropriate to each context must be developed, taking into account their own socio-economic, environmental and political characteristics.
- Strengthening decentralised governance is fundamental to improving the conservation of vast natural spaces that are still preserved. Community organisations and sub-national governments must shift from being spectators to participating in decision-making related to the management of their territories. The aim is to take decisions at the most appropriate scale, thereby gaining precision and speed, as well as increasing local awareness and capacity to manage the territory. The strategies developed in this regard should strengthen social and local organisation and control, build conservation agreements and, when necessary, formalise land ownership.
- Land tenure security generates a greater sense of territorial ownership and reinforces the legitimacy of local organisations to exercise control over natural resource use.
- Given the existence of conflicts over natural resources, governance mechanisms must take into account different civil society sectors' opinions, so that politicians do not cater only to certain interests. In an interesting case in Costa Rica, civil society put pressure on the government to establish public policies that banned hydrocarbon exploitation throughout the country. In Argentina, a law to protect glaciers recognised civil society's interest in prioritising the protection of this resource over any extractive activity, notably mining.
- Many farmer or indigenous communities coexisting in a region have experienced years of struggle for their right to access resources. As a result, they have often developed a shared vision of these resources, as well as relationships of

<sup>(212)</sup> Campos M.T. and D.C. Nepstad (2006). Smallholders, The Amazon's New Conservationists. *Conservation Biology: the journal of the Society for Conservation Biology* 20(5), pp. 1553-1556.

<sup>(213)</sup> UNEP (2012). Global Environment Outlook-5: Environment for the future we want. United Nations Environment Programme.



^ *Kogi children, Tayrona National Park, Colombia. Since 1977, Colombia has applied a special management regime for national parks that overlap with indigenous territories, providing for joint planning and the regulation of natural resource management. This has improved park governance as indigenous people's knowledge contributes to enhanced management and ensures compatibility between conservation measures and the livelihoods of local communities. (© Days Edge Productions/WWF-US Regional)*

trust and reciprocity, which are at the core of the cultural identity of the inhabitants of a given landscape. This cultural 'belonging' to a landscape can facilitate a management consensus that favours conservation. It is thus considered an important social capital element for conservation.

- In cases where there are conflicts between local communities, for example between indigenous people and new settlers, it is important to promote conflict resolution as part of the environmental planning processes.
- The most successful conservation processes are those that are understood and accepted by local communities. For them to be effective, it is important for the distribution of their costs and benefits to be as concerted and equitable as possible. When expanding ecosystem protection, the current challenge is to integrate conservation processes, particularly PAs, with their socio-economic surroundings. This implies achieving territorial governance that is compatible with the interests of the parties involved, which, in addition, achieves synergies to advance these communities' conservation and development objectives. The region has made major strides in this direction, but still faces great challenges. The agencies that manage PAs face the challenge of developing governance mechanisms that ensure the full and effective participation of all stakeholders, especially indigenous and local communities, without each decision becoming a tedious exercise in reconciling interests.
- Good governance contributes to the long-term sustainability of conservation processes. Important factors in strengthening environmental governance frameworks<sup>214</sup>

include the availability of adequate financial, logistical and human resources, access to relevant information, training and raising awareness on environmental issues amongst the people involved. Essentially, it is necessary to increase the transparency of decisions and strengthen accountability mechanisms, improve the delivery of public services, establish participatory and inclusive procedures for all stakeholders when implementing actions, and ensure adequate levels of inter-institutional and inter-sectoral coordination. Despite the many attempts at this kind of comprehensive approach, there have been few successes. One exception is the Multisectorial Roundtable for Guatemala's Maya Biosphere Reserve, which should be studied to provide inspiration for the management of other key areas in the region.

- Finally, better environmental governance, associated with greater social control and transparency of information, helps limit environmental crimes.

(<sup>214</sup>) UNEP (2012). Op. Cit.

## Box 23 RIGHTS-BASED APPROACH

The 2017 New European Consensus on Development commits the EU and its Member States to implementing a rights-based approach to international cooperation, encompassing all human rights. This approach goes beyond the 'do no harm' principle and aims at improving the quality of outcomes. It applies to all sectors, modalities and steps of the project cycle. Its working principles are:

- applying all rights (legality, universality and indivisibility of human rights);
- participation and access to the decision-making process (more than consultation or a technical step in project preparation, participation as a right and the basis for active citizenship);
- non-discrimination and equal access (development interventions have to prioritise the most marginalised groups and avoid contributing to established patterns of discrimination);
- accountability and access to the rule of law (cooperation has to promote accessible, transparent and effective mechanisms of accountability at different levels, both donors and recipients have to be accountable to rights holders);
- transparency and access to information (development programmes and projects have to be transparent, with information available in accessible formats, including for marginalised groups).<sup>a</sup>

Source: *The new European consensus on development, 'Our world, our dignity, our future' (2017). Joint statement by the Council and the representatives of the governments of the Member States meeting within the Council, the European Parliament, and the European Commission*

Reference:

a: [https://ec.europa.eu/international-partnerships/system/files/online-170621-eidhr-rba-toolbox-en-a5-lc\\_en.pdf](https://ec.europa.eu/international-partnerships/system/files/online-170621-eidhr-rba-toolbox-en-a5-lc_en.pdf)

## 4.7 ENVIRONMENTAL MONITORING AND ACCESS TO JUSTICE

### The challenge

In most countries of the region, environmental crimes are rife, including illegal logging, trafficking of endangered species and pollution of soil and water. Control agencies have limited efficiency due to lack of resources and penalties are relatively light. Added to these problems are legal gaps and a frequent overlap of responsibilities between government institutions, which create confusion. The judiciary's role in effectively protecting rights related to the environment and nature is becoming increasingly important. However, legal professionals often lack training in this area. The relationship between criminal and environmental law presents numerous challenges, particularly with regard to its practical application.

### Lessons learned

- In some countries, such as Bolivia, environmental crimes in PAs are addressed through administrative procedures. This type of treatment increases the likelihood that the process will be influenced by political interests, coercion by locals or attempts at bribery, as it rests in the hands of officials who are more vulnerable to these pressures.

- Other countries treat the violation of environmental laws as a judicial matter, like in the Galapagos Islands in Ecuador. This usually shields processes from political interference or other pressures, despite not being completely exempt from these issues. The role of the Public Prosecutor's Office in pushing environmental criminal proceedings is decisive in achieving effective judicial protection in this area<sup>215</sup>.
- To combat environmental crimes, they should be treated as serious, while all victims should have access to environmental justice<sup>216</sup>.
- For administrative or judicial proceedings regarding environmental crimes to be effective, it is essential that the capacities of officials in charge are strengthened by providing them with the necessary means and authority.
- Public information systems allow the exercise of supervision and monitoring in a more transparent and timely manner. For example, the consolidation of cadastral information systems helps to combat improper occupation.

<sup>(215)</sup> Echeverría H. (2012). Aplicación del derecho penal ambiental en Galápagos. In: Manual sobre Derecho Ambiental Penal Ecuatoriano. Fiscalía General del Estado – Sea Shepherd Conservation Society, Quito, Ecuador.

<sup>(216)</sup> Morales A.D. and J.J. Morales (2017). Combate efectivo de los delitos contra la biodiversidad en México como una herramienta de conservación de la biodiversidad. *Nómaditas. Critical Journal of Social and Juridical Sciences* Vol. 51(2). Euro-Mediterranean University Institute Roma, Italy.



^ In the tri-national conservation corridor of La Paya (Colombia), Cuyabeno (Ecuador) and Güeppi-Sekime (Peru) National Parks, overfishing in the Putumayo River has come to threaten the survival of the main commercial species. Working with local communities, the parks promote management and control measures that support sustainable fishing for the benefit of those who live in the corridor. (© Sergio Garrido/Visión Amazónica)

## 4.8 CHANGES IN PRODUCTION PRACTICES

### The challenge

Inequity in natural resource use is often a source of unsustainability, notably when public or private productive enterprises make intensive use of natural resources to the detriment of the other services provided by ecosystems to society. Economic development strategies and policies often focus on achieving short-term returns, without taking into account the social and environmental impacts<sup>217</sup>.

The production of soybean, meat and other raw materials are drivers of large-scale deforestation and the degradation of ecosystems. Although on a smaller scale, the expansion of family farming using unsustainable practices is another significant factor of degradation, particularly in Central America and the Andean foothills.

With effects of climate change and the biodiversity crisis becoming increasingly evident, some countries and corporate

buyers of raw materials and commodities<sup>218</sup> are beginning to address their share of responsibility. Consultation processes have been set in motion to identify and implement traceability and certification mechanisms, aimed at promoting sustainable or lower impact production practices. This is an opportunity to reconcile production and conservation while respecting ecosystem limits.

In countries such as Colombia, Guyana, Honduras and Costa Rica, among others, much effort has been made to address sustainable forest exploitation. Similar efforts have been made in the Amazon basin with respect to the communal use of fish stocks for local consumption. Agro-industrial activities in countries such as Costa Rica, Argentina and some Brazilian states have made positive progress with efforts to remain within the levels of ecosystem resilience.

The advances in round-table discussions between producers, buyers, governments and civil society, including in consumer countries, are encouraging. They have allowed the establishment of sustainable production standards that are already being applied, although these take time to disseminate and deliver results.

<sup>(217)</sup> UNEP (2011). Towards a green economy. Pathways to Sustainable Development and Poverty Eradication. A summary for policymakers. 52 pp.

<sup>(218)</sup> Commodities: products or goods for which there is market demand, and which are basic components of more complex products, e.g. soy, coffee, sugar and other goods.

## Lessons learned

- A major bottleneck is understanding, identifying and monitoring the ceilings that must be respected to manage productive activities. This requires a great deal of study, experimentation and efficient adaptive management. Other boundaries, besides ecological, must be considered, such as cost-benefit or political, social and cultural boundaries, which play a fundamental role in the sustainability of resource use models.
- When identifying good productive practices all forms of relevant information must be considered, including the knowledge, innovations and practices of indigenous and local communities. Many planning processes in PAs in the Puna grassland or high Andean zones incorporate the knowledge of indigenous communities who have been producing food and income sources for hundreds of years in this extreme environment.
- Certain market mechanisms can be used for conservation, such as certification. The possibility to access markets or sell value-added products is an important economic incentive that can encourage a more sustainable use of territories. LAC have a long experience of obtaining environmental certificates in various industries (tourism, forestry, agriculture and livestock, etc.), with varying degrees of adequacy and strength in terms of certification criteria and verification mechanisms.
- Consumer awareness at a regional and global scale is essential for the success of voluntary certification mechanisms, given that it determines their choice and/or willingness to pay a higher price for certified products.
- Certification systems should be flexible enough to adapt to different situations. Certification standards should be analysed and reinforced to include specific protection measures for ecosystems and biodiversity, especially in the most environmentally valuable regions of production. In the case of soybean cultivation, according to the Socio-Environmental Soy Observatory (OSAS), certified areas are mostly located in traditionally agricultural regions, such as the Argentine Pampas, where few critical conservation areas remain. In contrast, its application is limited and not well adapted to regions that still have large tracts of natural ecosystems. However, this is where there is the greatest risk of deforestation and habitat degradation. In the forestry sector, most certification systems do not fully take into account biodiversity conservation. For example, FSC standards allow the certification of large single-species forest plantations (even though these have contributed to biodiversity loss in the past, with the conversion of natural forest), but require that areas of high value for conservation are maintained in remaining patches of native forest.
- In addition to regulation-based policies (land-use planning, prohibition of the use of fire and certain pesticides, etc.), incentive-based public policies offer important tools for promoting more sustainable production models. These can be market incentives (sustainability certificates), or fiscal and technological support (sustainability plans). However, it is clear that work must be undertaken in parallel to eliminate public incentives that promote environmentally damaging production models.
- Even when accompanied by incentives or compensatory mechanisms (subsidies, payment for ecosystem services, etc.), the adoption of good production practices can be slow and insufficient. Producers are usually reluctant to modify practices rooted in their culture and which provide immediate individual benefits (income) over future common benefits (sustainable provision of ecosystem services). To tackle this situation, providing information about the long-term impacts is a way of raising public and producer awareness.
- To facilitate the acceptance and appropriation of innovations by local populations, the necessary changes and solutions should be identified in collaboration with producers and their families. The role of women and youth is key to raising awareness and adopting cultural and technological change.

## 4.9 PAYMENT SYSTEMS FOR ECOSYSTEM SERVICES

### The challenge

The conservation sector has struggled to get its message through to decision-makers, since it tends to use an approach and a language that may not be aligned with their interests. While conservationists talk about the importance of biodiversity *per se*, policy-makers feel pressure from groups demanding solutions to economic problems. Incorporating the concept of ecosystem goods and services offers a way to present conservation benefits in a language that decision-makers can understand and use.

There are a number of promising approaches, including estimating total economic value, mapping essential natural capital and accounting for natural capital, that have allowed the monetary value of terrestrial ecosystem services in the Americas to be estimated at USD 24.3 trillion per year, a value similar to the total GDP of the continent<sup>219</sup>.

Ecosystem services are estimated to represent between 47 % and 89 % of the total livelihood of poor rural families.<sup>220</sup> At the regional or national level, the contribution of water resources from PAs can be valued in millions of dollars annually, particularly when these feed hydroelectric power plants, irrigated production areas and drinking water distribution systems in medium-sized and large cities. According to one study, the PA system in Peru had an annual impact on the national economy worth USD 1.132 billion in 2007.<sup>221</sup> In the case of Costa Rica, the same calculation indicated that the contribution of PAs to GDP was USD 814 million in 2005.<sup>222</sup>



^ *The Canete river in the Nor Yauyos-Cochas Nature Reserve, Peru. At a regional or national level, the value of water resources from protected areas is worth millions of dollars annually, particularly when these feed hydroelectric power plants, irrigated production areas and drinking water distribution systems in medium-sized and large cities. The waters of the Canete are used to irrigate vegetables destined for Lima. (© Marisa Estivill/Shutterstock)*

Ecosystem service payments have become one of the most promising alternative mechanisms for mobilising conservation funds in most countries of the region. Many forms exist, from compensation for water use to the sale of carbon credits (REDD+), and there is room for further innovation. Very robust systems for these mechanisms have been developed as a result of complex design, analysis and financial engineering. They are often linked to cooperation agencies that promote and fund them. The main challenges involve greater mobilisation of financial resources and capacity building to further develop the mechanisms at different scales, both in the public and private sectors as well as with civil society.

There is not unanimous support for payments for ecosystem service mechanisms. Countries of the ALBA-TCP (Bolivarian Alliance for the Americas – Peoples' Trade Agreement) have criticised them as perverse incentives, treating conservation as a business and natural resources as natural capital. They have developed theoretical proposals for alternative mechanisms.

### Lessons learned

- The development of payment mechanisms for ecosystem services must be integrated into a broad and reliable legal, institutional and political framework that offers transparency, legal certainty, clear land tenure and access to reliable information for investors. The role of the state is key in this regard.
- To implement ecosystem service payments, the benefits must be clearly identified and valued, always keeping in mind that there are no absolute values, only approximations.
- Stakeholders (public authorities, the productive sector, communities, civil society, etc.) must be clearly informed and trained to fulfil their roles, whether in technical (e.g. land-use activities), administrative (e.g. benefit management) or legal terms (e.g. contractual obligations).
- The mechanism's governance scheme must ensure joint decision-making between the entity leading the initiative and the landowners regarding the use of the land for which they will be receiving payment or compensation.

<sup>(219)</sup> IPBES (2018). Op. cit.

<sup>(220)</sup> The Economics of Ecosystems and Biodiversity (TEEB) (2010). Mainstreaming the Economics of Nature: A Synthesis of the Approach, Conclusions and Recommendations of TEEB.

<sup>(221)</sup> León F. (2007). El aporte de las áreas naturales protegidas a la Economía Nacional. INRENA. Lima, Peru. 147 pp.

<sup>(222)</sup> Fürst E., M.L. Moreno, D. García and E. Zamora (2005). Sistematización y análisis del aporte de los Parques Nacionales y Reservas Biológicas al desarrollo económico y social en Costa Rica: los casos del Parque Nacional Chirripó, Parque Nacional Cahuita y Parque Nacional Volcán Poás. IMBio. CINPE. San José, Costa Rica. 219 pp.

- Participation contracts or agreements must establish rules, obligations and penalties for the parties, in a clear and simple way to reduce barriers to participation.
- Showing accountability in a transparent manner and guaranteeing equitable access to the benefits generated by these mechanisms are other success factors, as they are key to the involvement of local stakeholders.
- It is important to track and monitor impacts, to verify that the agreed objectives are being met. The cost associated with this task is usually a challenge.
- A key factor in environmental service payment systems is that they are linked to permanent funds and do not depend, as has often been the case, on projects or programmes that are not maintained over time.
- A diversity of service buyers is key for reducing risks and ensuring financial sustainability of the payment scheme.
- It is better to focus on simplicity and practicality as much as possible when designing payment mechanisms, as administrative and transaction costs are usually a limitation. Integrating mechanisms into a broader institutional framework can help to standardise processes, simplify procedures and thus lower administrative costs.
- Implementing compensation or payment mechanisms for ecosystem service provision is valid on private land and is a good complement to classic conservation mechanisms. It involves establishing agreements between local owners in important areas for service provision (for example, headwaters) and their beneficiaries (irrigators and consumers). Generally, these processes are driven by NGOs; however, the participation of local authorities, such as municipalities, facilitates the institutionalisation of the mechanisms implemented and contributes to their sustainability.
- Depending on local needs, models can be implemented in which the payments are not made in cash. Some environmental service providers obtain land tenure security (for example, by justifying its economic and social function), in-kind compensation (e.g. grain) to improve food security<sup>223</sup>, or compensation through work, materials and technical support, as in the case of the Reciprocal Water Agreements (ARAs) in Bolivia<sup>224</sup>.

## 4.10 WATERSHED APPROACH

### The challenge

Water has become a crucial issue in LAC, despite its apparent plentiful provision. The region contains an estimated 31 % of the planet's 35 million k<sup>3</sup> of fresh water.<sup>225</sup> Total renewable water resources (TRWR) per person in the various sub-regions of LAC are between 2.6 and 6.7 times higher than the world average.

However, despite this average availability, certain locations suffer enormous water stress (high Andes, deserts, and arid or semi-arid territories) and in other areas the TRWR is extremely low, as in the Caribbean islands, where the small size of some islands limits catchment capacity, and aquifers have saline infiltration, forcing occupants to rely almost exclusively on rainwater<sup>226</sup>.

There are major challenges in the region regarding the regimes of water ownership and use, which must ensure equitable access to the resource and prevent it being monopolised by certain sectors. Civil society in LAC is increasingly demanding access to water, in adequate quantity and quality, as a human right.

Likewise, there is a gradually increasing awareness of the importance of conserving ecosystems that contribute to water supply and water regulation.

<sup>(223)</sup> FAO (2014). International Forum on Payment for Tropical Forest Environmental Services, summary documents.

<sup>(224)</sup> <http://www.naturabolivia.org/es/acuerdos-reciprosos-por-agua/>

<sup>(225)</sup> UNEP (2010). Environmental outlook: Latin America and the Caribbean. United Nations Environment Programme (UNEP), Panama, ISBN: 978-92-807-2956-6, p. 107.

<sup>(226)</sup> *Ibid.*





^ Water has become a crucial issue in LAC. Despite its average abundance, certain locations suffer enormous water stress. The region thus faces major challenges to ensure equitable access to water and prevent conflicts between its multiple users, while ensuring that the ecological flow is maintained. There are increasing calls from civil society to guarantee that the human right to water is fully implemented.  
(© Daniel Alarcón)

### Lessons learned

- Highlighting benefits to water as a central aim will help make projects more socially acceptable. Presenting conservation efforts as a solution for protecting water resources in a region will gain local people's approval and, therefore, that of the political authorities. That is why it is important to relate the ecosystem service of water production to the natural environment's health, so that conservation efforts are perceived as a social investment.
- Working at the territorial level using the watershed as a geographic unit greatly facilitates the application of the water-based approach and the use of the water resource as the unifying element. Watersheds are geographical spaces that usually have their own socio-economic identity and functional ecosystem logic. This enables functional relationships to be established between natural resource use and the social and economic matrix, with water as the unifying element. Water quality largely reflects the environmental management capacity within the watershed. There are many territorial management initiatives that follow this approach and some guides have been produced that propose tools for their implementation.
- The watershed approach requires comprehensive proposals, mobilising a wide range of expertise. It offers an opportunity to boost intersectoral coordination. For example, the C6-coastal watersheds project<sup>227</sup> in Mexico is based on an alliance between the National Commission of Natural Protected Areas (experience in PA management), the National Forestry Commission (experience in forest management and the application of payment for ecosystem services schemes), the National Institute of Ecology and Climate Change (experience in the diagnosis of environmental resources and participatory monitoring) and the Mexican Fund for the Conservation of Nature (experience in the management of financial resources and public relations).
- Where watersheds or water bodies are shared between countries, the creation of cross-border commissions for joint management is important, in order to avoid conflicts over water use. Some examples in the region are the Trinational Commission for the Development of the Pilcomayo River Basin<sup>228</sup>, the Administrative Commission of the Río de la Plata<sup>229</sup> and the Binational Authority of Lake Titicaca<sup>230</sup>.
- Whatever the water management regime (public or private), it is vital that water-use regulations take account, not only of the rights of different users but also of the needs of aquatic and riverine flora and fauna, which implies the identification and maintenance of a minimum ecological flow.

<sup>(227)</sup> <http://www.c6.org.mx/>

<sup>(228)</sup> <https://www.pilcomayo.net>

<sup>(229)</sup> <https://www.comisionriodelaplata.org>

<sup>(230)</sup> <http://www.alt-perubolivia.org/web/>



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*Conservation, particularly using a landscape approach, requires an ongoing production and analysis of relevant information and a multidisciplinary approach that brings together relevant scientific disciplines and all sectors of society. In the Paraguayan Chaco, indigenous Ayoreo people from the Chaidi community are being trained to monitor deforestation and warn of fires in the region.*

(© World Resources Institute)

## 4.11 KNOWLEDGE MANAGEMENT

### The challenge

Although the region has considerable knowledge capital and management experience, there is room for improvement<sup>231</sup>. Large gaps and significant fragmentation exist in information about territorial management and biodiversity. It is vital to promote data creation, compilation and dissemination, including the sharing of experiences that demonstrate progress in environmental management, in order to draw on lessons learned for the development of other initiatives.

Conservation, particularly in a landscape approach, requires a multidisciplinary and multisectoral vision. All sectors of society and the relevant scientific disciplines must be involved to comprehensively interpret what is happening in the territory, adequately balance proposals, and promote interventions and change.

### Lessons learned

- Interdisciplinary work strengthens conservation decisions. The joint work of academic, technical and civil society organisations can generate reference materials to guide long-term conservation action in critical ecoregions. For example, the Ecoregional evaluation of the Great American Chaco (Evaluación ecorregional del Gran Chaco), published

in 2005, which involved experts from numerous organisations<sup>232</sup>, is a mandatory reference work for anyone drafting regional strategic plans and management plans for PAs in Argentina.

- Sharing experiences and information (via web platforms, conferences, workshops, seminars, exchange visits, etc.), at all levels, especially when this involves local stakeholders, has been shown to have a very positive effect on promoting the application of good practices, as these can be replicated after being adapted to different contexts.

## 4.12 URBAN INFLUENCE ON CONSERVATION

### The challenge

The most important link between the urban and rural worlds lies in ecosystem services, since most beneficiaries of these services are in cities<sup>233</sup>. They require service delivery areas between 500 and 1 000 times larger than their own area. Conversely, the pressures they exert on natural ecosystems are enormous (solid waste, water and air pollution, consumption of water and firewood, loss and fragmentation of habitats, etc.). Some cities, like Curitiba (Brazil), have been pioneers in minimising their environmental footprint. Given the increasing urbanisation in the region, it is important to promote the application of a landscape

<sup>(231)</sup> Proceedings of the Workshop Seminar: Estrategia Global de la UICN para el Desarrollo de Capacidades (EGDC): Plan de Acción para su Aplicación en Parques Nacionales y otras Áreas Protegidas en América Latina y el Caribe. OAPN - AECID - IUCN/WCPA Montevideo, November 2017. Available at: <http://fiiphtml5.com/nhbnh/ky/lb/basic>

<sup>(232)</sup> The Nature Conservancy (TNC), Fundación Vida Silvestre Argentina (FVSA), Fundación para el Desarrollo Sustentable del Chaco (DeSdel Chaco) and the Wildlife Conservation Society Bolivia (WCS) (2005). Evaluación Ecorregional del Gran Chaco Americano / Gran Chaco Americano Ecoregional Assessment. Buenos Aires. Fundación Vida Silvestre Argentina.

<sup>(233)</sup> Carabias J., A. Mohar and E. Provencio (2008). Retos y riesgos en el uso de la biodiversidad, en Capital natural de México, vol. III: Políticas públicas y perspectivas de sustentabilidad. Conabio, Mexico, pp. 285-295.

approach in the design of sustainable urban projects, taking into account their requirements and long-term impacts.

The Emerging and Sustainable Cities Initiative (ESCI) is an innovative approach regarding environmental management in cities, a particular challenge in LAC given the current and future demographic dynamics. Some of the lessons learned in the framework of this initiative are mentioned below.<sup>234</sup>

### Lessons learned

- It is critically important to be able to access long-term financing to meet the large investments required for urban infrastructure. This is only possible with consolidated fiscal sustainability and strong governance.
- Cities must know their comparative advantages and have a clear strategy to create jobs through better environmental management.
- The perception of how important ecosystem services are for human life and development is growing among the general public, media and policy-makers. In this context, protected spaces in urban and peri-urban areas are important as they generate environmental sensitivity. They can lead to concrete civil-society actions associated with the enhancement and protection of critical ecosystems, such as the creation of the São Paulo City Green Belt Biosphere Reserve in Brazil.

## 4.13 GENDER IN BIODIVERSITY STRATEGIES

### The challenge

Distinct social groups tend to use natural resources in different ways, in addition to possessing diverse skills and knowledge in relation to their management. The success of conservation efforts depends largely on the degree of inclusion and participation of the various resource users. In this sense, the fundamental roles that women play in biodiversity management and conservation must be considered. Among other things, women tend to have a key role in the conservation of underutilised agricultural species, the collection of wild plants for food and knowledge transmission about natural medicine.

However, in LAC, as in many regions of the world, gender inequality is strongly rooted in social structures and is also expressed in: unequal access to and control of biological resources

and in the distribution of benefits derived from their use; land tenure systems; access to training, credit and benefits of development programmes; and underrepresentation in decision-making<sup>235</sup>. According to the global gender gap index of the World Economic Forum<sup>236</sup>, gender inequality is relatively lower in LAC than in Asia and Africa. Belize, Guatemala, Paraguay and Brazil are the countries with the largest gender gap in LAC, while Nicaragua, Barbados, Costa Rica, Cuba and Bolivia have the smallest gap, demonstrating that gender equality does not depend on the country's level of economic development.

The CBD recognises that social and gender equity and the empowerment of women are important prerequisites for environmental conservation and for sustainable development. At the same time, biodiversity conservation efforts are an opportunity to promote gender equality, human rights and social justice. The gender perspective must be integrated transversally in the conceptual frameworks, policies and projects for biodiversity conservation, where it is usually absent or insufficient. The action plan on gender in the framework of the CBD is a reference document in this regard<sup>237</sup>.

### Lessons learned

- Promoting gender equality, in terms of human resources, within the institutions and organisations involved in designing and implementing biodiversity conservation programmes, contributes to a 'downward propagation effect'.
- Gender-sensitive data and data disaggregated by sex are important in order to design and monitor biodiversity strategies that efficiently integrate the gender approach. In many cases, a thorough review of the framework and data collection process is necessary for a systematic inclusion of gender considerations<sup>238</sup> (e.g. differentiated roles in agriculture and the use of forest resources, differentiated access to land tenure, distinct expectations regarding development, etc.).
- To reverse the lack of female participation in decision-making processes related to their lives and communities, strategies and methodologies must be developed for each context (taking into account women's responsibilities and schedules, power structure, retaliation risks, etc.).

<sup>(234)</sup> BID (2016). Guía metodológica del Programa de Ciudades Emergentes y Sostenibles: tercera edición. Banco Interamericano de Desarrollo. 172 pp. Available at: <https://publications.iadb.org/es/guia-metodologica-programa-de-ciudades-emergentes-y-sostenibles-tercera-edicion>

<sup>(235)</sup> Sasvari A., L. Aguilar, M. Khan and F. Schmitt (2010). Guía para la transversalización de género en las Estrategias Nacionales de Biodiversidad y Planes de Acción. IUCN, Gland, Switzerland. viii + 88 pp.

<sup>(236)</sup> World Economic Forum (2018). The Global Gender Gap Report 2018. <https://www.weforum.org/reports/the-global-gender-gap-report-2018>

<sup>(237)</sup> <https://www.cbd.int/gender/doc/CBD-GenderPlanofAction-ES-WEB.pdf>

<sup>(238)</sup> Corner L. (2003). From Margins to Mainstream, From Gender Statistics to Engendering Statistical Systems.






# #5



## Strategic approaches



*The Hyacinth macaw (*Anodorhynchus hyacinthinus*) is the world's largest parrot and is listed by the IUCN as endangered. Besides being illegally hunted in Bolivia, Brazil and Paraguay to be traded as pets, its population is also threatened by seasonal burning of pastures, contributing to the degradation of its natural habitat. (© Steffen Reichle)*



## #5 \_ Strategic approaches

### 5.1 KEY LANDSCAPES FOR CONSERVATION

#### 5.1.1 Priority criteria

In each of the sub-regions covered in this document, a number of priority geographic areas have been identified, in order to implement the strategic approach presented. These areas host key conservation elements and contribute to the preservation of a range of species, ecosystems, ecosystem services and associated ecological processes within their natural variability. They also include production areas, urban areas, infrastructure and extractive industries. They provide an opportunity to integrate biodiversity conservation with sustainable development. For the purposes of this report, they are referred to as key landscapes for conservation (KLCs).

Various information sources were consulted in selecting the KLCs, particularly work carried out by universities, NGOs and conservation institutions with a long history in the region. For example:

- Key biodiversity areas defined by the Critical Ecosystem Partnership Fund (CEPF)<sup>239</sup>;
- Priority Global Ecoregions (Global 200) with exceptional biodiversity, identified by Olson and Dinerstein (2002)<sup>240</sup>;
- Priority areas identified by WWF<sup>241</sup>;
- Important bird areas (IBAs) identified by BirdLife and its partners<sup>242,243</sup>;
- Priority sites for the Alliance for Zero Extinction (AZE)<sup>244</sup>;
- Priority areas selected by WCS in collaboration with local stakeholders<sup>245</sup>;
- Areas with intact forest landscape (IFL) identified by Potapov et al. (2008)<sup>246</sup>.

<sup>(239)</sup> [https://www.cepf.net/sites/default/files/tropical\\_andes\\_profile\\_final\\_4\\_2015.pdf](https://www.cepf.net/sites/default/files/tropical_andes_profile_final_4_2015.pdf)

<sup>(240)</sup> Olson D.M. and E. Dinerstein (2002). The Global 200: Priority ecoregions for global conservation. *Annals of the Missouri Botanical Garden* 89(2), pp. 199-224.

<sup>(241)</sup> WWF (2013). A Roadmap for a Living Planet. Available at: [http://d2ouvy59p0dg6k.cloudfront.net/downloads/roadmap\\_sign\\_off\\_fin.pdf](http://d2ouvy59p0dg6k.cloudfront.net/downloads/roadmap_sign_off_fin.pdf)

<sup>(242)</sup> Devenish C., D.F. Díaz, R.P. Clay, I.J. Davidson and I.Y. Zabala (Eds.) (2009). Important Bird Areas in the Americas – priority sites for biodiversity conservation. BirdLife International, Quito. Available at: <http://datazone.birdlife.org/info/ibasamer>

<sup>(243)</sup> Stattersfield A.J., M.J. Crosby, A.J. Long and D.C. Wege (1998). Endemic Bird Areas of the World: Priorities for Biodiversity Conservation represent an effort to document in detail the endemic biodiversity conservation importance of the world's Endemic Bird Areas. BirdLife Conservation Series 7, BirdLife International. 846 pp.

<sup>(244)</sup> Alliance for Zero Extinction (2010). Available at: [www.zeroextinction.org](http://www.zeroextinction.org)

<sup>(245)</sup> WCS (2016). Wild Places. Available at: <https://www.wcs.org/our-work/places>

<sup>(246)</sup> Potapov P. et al. (2008). Mapping the world's intact forest landscapes by remote sensing. *Ecology and Society* 13(2), p. 51. Available at: <http://www.ecologyandsociety.org/vol13/iss2/art51/>



<  
*Iguazú National Park on the border between Argentina and Brazil is among the world's most stunning natural sites, in both a visual and acoustic sense, due to its massive waterfalls. It also hosts a significant remnant of the Atlantic Forest, a biome identified as a global conservation priority due to the severe threats it faces. As a major international and domestic tourism destination, the park offers opportunities for awareness raising and funding for nature conservation. Transboundary collaboration on law enforcement in the area has led to reduced poaching, notably of jaguars, whose local population has increased. (© Mederic)*

Based on areas identified by the sources, a prioritisation was carried out in cooperation with experts and according to a combination of the following criteria:

- Sites that conserve key ecosystems and important biological corridors and threatened, endangered, rare or endemic species;
- Sites that protect key ecosystem services for a large number of people (for example, water for human consumption, food production, disaster prevention and carbon sequestration);
- Sites that protect key ecosystems for particularly vulnerable human groups (for example, indigenous groups or communities with traditional production models that depend on natural resources);
- Sites that combine high ecological or social values with particularly high relative transformation rates, where it is urgent to focus conservation efforts and ecosystem restoration;
- Sites where promising conservation and sustainable development initiatives have been developed that can be enhanced.

### 5.1.2 Characteristics of the key landscapes selected

A total of 102 KLCs have been prioritised based on the information currently available, which together cover a little over 8 million km<sup>2</sup>. They include key portions of the different biomes, such as wet and dry forests, mangroves, grasslands, savannahs, deserts and others. They are summarised in Annex 3 and in more detail in the sub-regional reports.

FIGURE 5.1 Map of key landscapes for conservation in the LAC region





TABLE 5.1

List of key landscapes for conservation in Latin America and the Caribbean

1	Chihuahua and Tehuacán deserts	35	Flowering desert	69	Pantanal and Sunsas mountain range
2	Mesoamerican Pacific	36	Chilean shrubland	70	Bañados del Izozog
3	Selva Maya	37	Apure and Orinoco rivers	71	Chaco Biosphere Reserve
4	Zapata wetlands	38	Caura river and Orinoco delta	72	Bañado La Estrella
5	Central mountain range – Northern mountain range	39	Tepui area	73	Alto Paraná Atlantic forest
6	Massif de la Selle – Bahoruco and Enriquillo wetlands – Jaragua	40	Guyana Shield	74	Iberá estuaries
7	Macaya Peak	41	Coastal zone inlets	75	Upper Bermejo river basin
8	Portland Bight protected area	42	Deforestation arc	76	Quebrada de Humahuaca
9	Cockpit Country – North coast forest – Black River Great Morass	43	Terra do Meio	77	Aconquija mountain range – Calchaquies peaks
10	Moist forest of the Atlantic isthmus	44	Tapajós river basin	78	Montiel Forest – Guayquiraró river basin
11	Forests of Talamanca and Pacific isthmus	45	Purús river basin	79	Uruguay river corridor
12	Moist forests of Chocó – Darien	46	Negro river basin	80	Campos del Norte grasslands
13	Montane forests of the Venezuelan coast and xeric shrublands	47	Andes – Orinoco – Amazon connectivity	81	Eastern mountain range
14	Mountains of St Vincent and the Grenadines	48	Mid-Orinoco basin	82	Eastern wetlands
15	Venezuelan Andes	49	Piedmont plains – Meta, Casanare and Arauca river	83	Pampa Deprimida grasslands
16	Sierra Nevada de Santa Marta	50	Andean-Amazonian Piedmont	84	South-eastern Buenos Aires dunes
17	Darién	51	Peru – Ecuador – Colombia border block	85	Austral Pampa grasslands
18	Chocó – Cauca Valley	52	Chiribiquete mountain range – Yaigoje Apaporis	86	Caldenal Core Area
19	Paraguas – Munchique	53	Leticia – Tabatinga	87	San Luis semi-arid grasslands
20	Cauca – Nariño	54	Abanico del Pastaza	88	Payunia – Auca Mahuida
21	Cotacachi – Awá	55	Cordillera Azul – Pacaya – Samiria – Sierra del Divisor	89	Nevados de Chillán – Laguna del Laja
22	North-western Pichincha	56	Juvari valley	90	Maulino Costero forest
23	Ecuadorian Chocó	57	Chico Méndes – Cazumbá – Iracema	91	Nahuelbuta mountain range
24	Galapagos Islands	58	Madre de Dios – Manu – Alto Purús	92	San Pedro river
25	Pacoche – Machalilla – Chongón Colonche	59	Madidi – Manuripi – Mojos flatlands	93	Valdivian coastal buffer area
26	El Oro – Loja – Piura – Tumbes	60	Iteñez river basin – Chiquitanean dry forest transition	94	Mapu Lahual park network
27	Cóndor – Kutukú – Palanda mountain range	61	Mosaics network and Mata Atlántica Biosphere Reserve	95	Los Lagos cross-border landscape
28	Pómac – Laquipampa	62	Catimbau valley	96	Somuncurá plateau
29	North-western Peru	63	Mirador Mesas	97	Valdés peninsula
30	Vilcanota mountain range	64	Capivara mountain range	98	General Carrera Lake/ Buenos Aires Lake
31	Paracas – Atiquipa	65	Matopiba central corridor	99	Continental ice fields
32	Salt lakes of the Chilean-Bolivian Altiplano	66	Veadeiros – Pouso Alto – Kalunga	100	Monte León – Coyle river
33	Atacama desert	67	Sertão Veredas – Peruaçu	101	Gallegos river – Strait of Magellan
34	Trinational Puna grassland	68	Peruaçu caves	102	Cape Horn – Tierra del Fuego

## 5.2 THEMATIC AREAS OF INTERVENTION

The proposed strategic approaches fit the framework of a landscape approach, the main objective of which is sustainable development based on an integrated management of the territory (see Section 4.2). The general intervention logic involves coordinating efforts around KLCs, which present a mosaic of natural ecosystems and areas used by humans (production zones, urban areas and others).

Priority actions must consider short, medium, and long-term programmes to promote sustainable use of the territory. Although their main focus is the conservation of biodiversity, their application will increase the local populations' economic development options and will generate significant impacts in

terms of mitigation and adaptation to climate change. They should integrate the achievements expected under the three major international initiatives:

- Objectives of the 2030 Agenda for Sustainable Development<sup>247</sup>;
- Aichi Targets of the Convention on Biological Diversity<sup>248</sup>;
- Climate change adaptation and mitigation processes and the Paris Agreement<sup>249</sup>.

To advance towards these goals, 6 complementary priority thematic areas of intervention have been chosen. They can and should be adapted according to the peculiarities of each sub-region and KLC.

**FIGURE 5.2** Thematic areas of intervention for the conservation of biodiversity in LAC





^ *The lethally toxic golden poison frog (Phylllobates terribilis) is endemic to the Choco-Darien hotspot. In this area, rainforests are among the richest in the world for biodiversity, with high levels of endemism and speciation (the formation of new species). Located on the Panamanian-Colombian border, they form a vital ecological link between Central and South America. With human settlements and illicit activities on the rise in the landscape, there is an urgent need to strengthen the rule of law and engage local communities in environmental governance. (© Michael Schmidt Photography Vancouver/Alamy Stock Photo)*

1) Conservation and restoration of ecosystems and key species to keep the functionality of natural spaces intact or with little intervention, to reverse the damage caused by previous interventions that were carried out with no sustainability criteria and to prevent additional damage to the ecosystem's functionality.

2) Encouraging sustainability in production systems, so that people continue to obtain the ecosystem's goods and services in a sustained manner in time and space.

3) Biodiversity and ecosystem service management in urban and peri-urban environments, so as to contribute to more sustainable cities and create greater awareness of their connection with the environment.

4) Good governance of land-management processes and PAs, in particular by encouraging greater participation by local stakeholders.

5) Adequate knowledge management to increase environmental awareness among the public and

decision-makers, and streamline processes through research, capitalisation of experiences and strategic communication.

6) Design and implementation of environmentally sound public policies appropriate to all levels of government, particularly considering land-use planning within an ecosystem, with a functional and intersectoral approach.

The main strategic actions recommended for each of the thematic areas of intervention are set out below. Although their application focuses on the KLCs, many should be implemented or have implications at larger scales (sub-national, national and regional levels).

As an example, a series of specific recommendations is suggested for small island developing states, whose peculiarities generate a fairly different context from the rest of the region (see Box 24).

<sup>(247)</sup> United Nations (2015). Transform our world: the 2030 Agenda for Sustainable Development. Resolution adopted by the General Assembly of the United Nations on 25 September 2015, (A/RES/70/1). New York.

<sup>(248)</sup> Secretariat of the Convention on Biological Diversity (2011). Strategic Plan for Biodiversity 2011-2020, including Aichi Biodiversity Targets: Living in harmony with nature. Convention on Biological Diversity, Montreal, Quebec.

<sup>(249)</sup> Framework Convention on Climate Change (2015). Approval of the Paris Agreement. Conference of the Parties 21st session. Paris, 30 November to 11 December 2015.

## Box 24 PRIORITIES FOR CONSERVATION IN SMALL ISLAND DEVELOPING STATES

Small Island Developing States (SIDS) were recognised as a distinct group of developing countries at the United Nations conference on development and environment in Rio in June 1992. SIDS in the Caribbean include 16 independent states plus 14 islands linked to European countries or the USA.<sup>a</sup>

SIDS' specific characteristics (small size, remoteness, limited resource base and export products, etc.) make them highly vulnerable to external economic shocks, as well as global environmental problems. The effects of climate change and natural disasters, of which the latter are becoming increasingly intense, particularly affect them.<sup>b</sup> The average annual cost of natural disasters to SIDS is equivalent to 13 % of their GDP, compared to less than 1 % for other countries<sup>c</sup>.

The Caribbean biodiversity hotspot stands out not only for its diversity but also for its very high level of endemism, which is characteristic of islands. Biodiversity is an important pillar of SIDS' economies, which rely heavily on fishing and tourism. Likewise, they depend heavily on certain ecosystem services, which contribute to reducing their vulnerability to the main effects of climate change. Ecosystem-based adaptation strategies (Thematic Area 1), where nature provides the infrastructure (e.g. coral reefs and mangroves to limit coastal erosion and protect against sea-level rise and hurricane impacts) are particularly suited to this context.

However, ecosystems in the Caribbean hotspot are under pressure. It is estimated that only 11.3 % of the original habitat remains intact; and, according to the IUCN red list, more than 700 species are threatened with extinction. It is a fact that most species extinctions globally have occurred on islands (95 % of extinctions in birds, 9 % in reptiles, 69 % in mammals and 68 % in flora). Despite the contribution of coral reefs to the regional economy, estimated at USD 2 trillion a year (for their contribution to tourism, fishing and coastal protection), 75 % of them are threatened and less than 10 % are in good condition<sup>d</sup>.

Along with climate change, the main vector of threats to biodiversity is population growth. Population density in SIDSs often exceeds that of heavily populated European countries (more than 1 000 inhabitants/km<sup>2</sup> in Sint Maarten). The rapid growth of tourism in most of the Caribbean adds a seasonal flow of visitors that significantly increases the population density. It results in the destruction and fragmentation of habitats due to urban development and tourist infrastructure, agriculture, over-exploitation of natural resources (water, fishing, construction materials, firewood, etc.). Furthermore, sedimentation and contamination by sewage and discharged chemicals (including from cruise ships) affect the islands' water resources and terrestrial and marine ecosystems. Coastal areas, home to more than 70 % of the population, are the worst affected.

Faced with these pressures, expanding the area of existing terrestrial PAs is neither a realistic nor a sufficient option. Rather, the systematic application of a landscape approach integrating conservation and development objectives is urgently needed.

The implementation of connectivity corridors can support diverse measures, such as the restoration of degraded habitats that provide key services (mangroves and reefs, forests at headwater basins and water recharge areas) and the protection of endemic and threatened species against invasive species (Thematic Area 1), with the promotion of good practices in the productive and touristic areas of the corridor (Thematic Area 2). In coastal areas in particular, urban development should be the object of careful planning, which includes adequate environmental management measures (Thematic Area 3). A transboundary approach, like that of the Caribbean Biological Corridor<sup>e</sup>, provides additional value.

The application of a landscape approach implies transversal actions, which include the strengthening of technical capacities, innovative governance models (Thematic Area 4) that allow the participation and coordination of the different actors involved (e.g. government institutions, fishermen, tour operators, etc.), and appropriate public policies and regulatory frameworks (Thematic Area 6). Good knowledge management and strategic communication for authorities, public opinion and the different sectors (Thematic Area 5) will help build support for the development and adoption of appropriate conservation measures.

Strengthening cooperative initiatives within the framework of regional networks would optimise the use of SIDS' scarce resources. In particular, it would facilitate the generation and exchange of information to monitor the state of the environment, as well as continuous capacity building of public administrations and civil society. It is essential to develop adaptive management measures to be able to face a rapidly evolving reality caused by the sensitivity of the Caribbean to global changes.

### References:

a: List of SIDS available at: <https://sustainabledevelopment.un.org/topics/sids/list>

b: Article 178 of the final document of the UN conference on sustainable development (Rio +20) 2012.

c: UN-OHRLLS (2017) SIDS in numbers: Biodiversity and oceans

d: <https://www.caribbeanchallengeinitiative.org/about/caribbean-s-marine-environment>

e: [https://www.ecured.cu/Corredor\\_Bio%C3%B3gico\\_en\\_el\\_Caribe](https://www.ecured.cu/Corredor_Bio%C3%B3gico_en_el_Caribe)



^ Like most small island developing states, St Martin has to cope with limited resources and a highly fragile environment. It is also the most densely populated island in the Caribbean. Tourism-related activities have exacerbated biodiversity loss, and the island has no protected areas on land. Conservation priorities include restoring mangroves, montane dry forest and coastal scrub, aiming to restore the habitat of native species and to secure the provision of ecosystem services. (© DiegoMariottini / Shutterstock)

### 5.2.1 Conservation and restoration

Historically, PAs have proven the most effective instrument for biodiversity conservation. However, given current pressures, they will not be sufficient to halt the transformation of ecosystems, their biodiversity loss and their functionality degradation. To guarantee a long-term provision of ecosystem services, indispensable to development in the region, it is not only necessary to strengthen PAs and increase their coverage, but to also develop alternative conservation mechanisms beyond these spaces. The emergence of the landscape conservation approach offers a suitable response.

#### Coordination and extension of area-based conservation

Aichi Target 11 establishes that, by 2020, at least 17 % of the terrestrial and inland water areas and 10 % of the marine and coastal areas will be protected.

The total protected area must be expanded in biomes that do not yet meet these objectives, especially in sites of particular importance for the provision of environmental services, as well as for the in situ conservation of key species and ecosystems.

Despite significant progress, the creation and expansion of PAs is not enough to achieve the target and it faces growing resistance.

This is why the CBD calls on its parties to promote, identify, implement, consolidate and register other effective area-based conservation measures (OECMs).<sup>250,251</sup> It defines them as 'geographically delimited areas other than a protected area, which is managed in such a way that positive and long-term results are achieved for the in situ conservation of biodiversity, associated ecosystem functions and services and, where appropriate, cultural, spiritual and socio-economic services, as well as other locally relevant values'.

<sup>(250)</sup> CBD/COP/DEC/14/8. Áreas Protegidas y otras medidas eficaces de conservación basadas en áreas. Egypt, 30 November 2018.

<sup>(251)</sup> IUCN WCPA (2019). Guidelines for Recognising and Reporting Other Effective Area-based Conservation Measures. IUCN, Switzerland.

This definition applies to different figures. Indigenous Peoples' and Community Conserved Areas and Territories (ICCAs) stand out as one of the most effective (see Box 24). Sub-national, local and private PAs closely follow them.

Other areas subject to protection or sustainable management are also perceived as potential OECMs, such as areas of international recognition (Ramsar, IBAs, etc.), forest reserves or concessions, areas of protection of water resources and other ecological easements, areas with fishing agreements or extractives management plans, tourist development zones, military lands and others <sup>252</sup>.

The consolidation of PAs and OECMs depends on the existence of a legal support system. Their efficient application will largely depend on the simplicity of their requirements and the presence of financial incentives that complement them.

For PAs to fulfil their functions, there also needs to be greater efficiency in their management. The following measures, which generally apply to OECMs as well, can contribute to this objective:

- Foster the appropriation of conservation objectives by local stakeholders (communities established within or near protected areas, authorities, organised civil society, private companies, etc.);
- Estimate the value and take into account the contributions of PAs and OECMs in the framework of territorial planning processes (ecosystem services, opportunities for improving income and livelihoods of local communities, etc.);
- Establish conservation models adapted to local conditions and that take into account local formal and informal governance contexts. Support the emergence of innovative governance systems that facilitate the participation of local stakeholders in the design and management of PAs, such as management committees, conflict resolution bodies, or supranational coordination mechanisms (see Thematic Area 4);
- Invest enough effort in processes for free, prior and informed consent (FPIC) of indigenous and other local communities. It is essential for the successful promotion of both conservation and livelihood goals;
- Ensure the availability of adequate material, financial and human resources;
- Address continuous capacity building needs. Administrative and technical staff must have up-to-date competencies necessary to effectively manage PAs (planning, monitoring

and control, knowledge and application of the legal framework, sustainable use of natural resources, conflict management, etc.). Other stakeholders that influence PA management should also be provided with capacity building;

- Supply PAs with efficient planning instruments (management plans, zoning, regulations, monitoring systems, etc.) and encourage the use of more efficient technologies and practices, including information technologies and traditional practices where relevant;
- Facilitate cross-border collaboration, in relevant cases, to ensure a sufficient scale for the viability of protected ecosystems and to benefit from economies of scale in PA management;
- Support the production and sharing of quality information to feed policy and management choices at all levels. Both formal scientific information and traditional knowledge of local communities should be considered. Communication strategies (see Area 5. Knowledge management and awareness), must demonstrate the positive contributions of PAs to the productive sector and the well-being of the population (ecosystem services, tourist attractions, etc.).

In most countries in the region at present, the desired management efficiency level cannot be achieved without increased funding to the conservation sector. While international cooperation can and should continue to support conservation, external financing should not cover the routine costs of PA maintenance. To reach sustainability, those costs should be included in the budget of public authorities and private stakeholders responsible for their management.

To reach this objective, besides encouraging an increase in public investment, it is necessary to foster the development of sustainable financing mechanisms. There are several income-generating options available to PAs, such as the collection of tickets and services to visitors, payments for ecosystem services and other fundraising mechanisms. However, a number of favourable conditions are necessary for these options to be contemplated, and not all PAs meet them. Another alternative is public and/or private funds available for conservation financing. They are fed through mechanisms such as trust funds, fees and taxes, environmental safeguards, voluntary contributions from companies and individuals, etc. An effort is necessary to diversify and consolidate these sources.

Over the past decade, an objective measurement of management efficiency has become a major concern for the sector. The IUCN

<sup>(252)</sup> Sofrony C. (2019). Otras medidas efectivas de conservación basadas en área – OMEC: Aportes del bioma amazónico a los desafíos post 2020. Proyecto IAPA – Visión Amazónica. Unión Europea, REDPARQUES, WWF, FAO, UICN, ONU Medio Ambiente. Bogotá, Colombia. 21 pp.



^ The REDPARQUES network for protected areas helps to improve technological and management capacity in Latin American parks, through knowledge and experience exchange. At the 2019 Congress of Protected Areas of Latin America and the Caribbean, representatives of national administration for protected areas in five countries participate in a panel to discuss strategic orientations. (© Visión Amazónica)

is promoting adherence to a 'green list', which awards conservation units that demonstrate compliance with good management criteria. In this context, various methodologies, tools and approaches are emerging and being applied. The definition of standards for monitoring and reporting is essential, to give greater coherence to the information generated and to obtain a global vision of the situation of PAs in the region.

To complement measures that strengthen PA management at the local level, it is also important also to support national structures. This may require an updating of institutional regulatory frameworks or capacity building for managers in these administrations.

Regional integration of PAs and collaboration between national conservation institutions has made progress in LAC with the creation of REDPARQUES, which already groups the PA systems

of 19 countries. Strengthening its management and encouraging membership of this organisation would contribute to increased cooperation between LAC countries, and offer greater scope for the joint planning of PAs and other biodiversity-relevant actions and policies. The definition of common objectives and strategies, the development of synergies and the creation of alliances in international fora contribute to expanding conservation efforts in the region, strengthening their coherence and raising their chances of success.

**Connectivity corridors**

As noted earlier, alternative conservation mechanisms to PAs must be developed. The main role of biodiversity corridors, within this strategy, is to connect PAs between themselves, with OECMs and with the remaining unprotected habitats and ecosystems. This will facilitate the transit of wild species and help expand the capacity of transformed areas to provide ecosystem services.



^ *The yellow-headed parrot (Amazona oratrix) is an endangered species, but it can still be found in the silvopastoral systems that form part of the Mesoamerican Biological Corridor in Tabasco state, Mexico. The introduction of more native trees in these systems has increased the diversity of habitats, boosting connectivity between better preserved patches of natural ecosystems.* (© Kamira/Shutterstock)

The main actions that can be supported as part of this strategy are as follows:

- Identification of priority corridors (pre-existing or to be implemented);
- Participatory territorial land-use planning, multi-stakeholder dialogues for creating consensus and coordinating implementation;
- Technical assistance for designing legal mechanisms, such as ordinances and regulations that legally support the agreements and consensus reached and give effective legal protection to corridors;
- Promotion of the implementation of good practices in the production sector and infrastructure (see Thematic Area 2, Sustainable production);
- Development and implementation of sustainable funding mechanisms for landscape restoration, the conservation of remaining ecosystems, and the establishment of good agricultural practices.

Consolidating a connectivity corridor requires extensive cooperation with local stakeholders and intersectoral dialogue (production, infrastructure, transport, energy, etc.), which should feed territorial planning processes. To ensure good-quality dialogue and the proper implementation of any agreements reached, it is important to promote efficient, inclusive and transparent territorial governance systems (see Thematic Area 4, Governance). An independent body should ideally facilitate dialogue and participation in the different processes.

It is desirable to seek a regional-scale impact, with a particular focus on transboundary biodiversity corridors (such as the Caribbean Biological Corridor or the Mesoamerican Biological Corridor) and taking into account connectivity needs at large basin level.

The impact of climate change on species habitat and distribution should be taken into account when identifying biodiversity corridors, so that these can guarantee the movement of species in the long term. Species with relatively restricted habitat (e.g. high mountain species) are in particular need of these 'climate corridors'.<sup>253</sup>

<sup>(253)</sup> See for example the species range models produced as part of the SPARC project: <http://www.sparc-website.org/range-mapper>



## **Box 25** CONSOLIDATION OF ICCAs OR HOW TO RECOGNISE AND ENHANCE THE CONTRIBUTION OF INDIGENOUS PEOPLES TO THE CONSERVATION OF BIODIVERSITY

The region has the highest percentage in the world of PAs either managed by indigenous groups or which are partly overlapping their territories. Some of these areas contribute to the preservation of populations in voluntary isolation or who are uncontacted.

Even when they do not coincide with PAs, indigenous territories generally present the best-preserved ecosystems, compared to their environment. This is particularly notable in the Brazilian deforestation arc and in the countries of Central America.

The objective of the ICCA consortium<sup>a</sup> is to contribute to the conservation of biological and cultural diversity through the consolidation of these territories. The international association is made up of more than 150 indigenous organisations and NGOs from 80 countries.

An ICCA is understood to be a territory or area conserved by indigenous people and local communities that respond to three characteristics:

- There is a deep and close connection between a territory and an indigenous people or local community.
- The people administer the territory through a functional governance institution.
- The decisions of this entity contribute to the conservation of nature and the well-being of the community.

The consortium has members in most of the LAC countries. At its first regional assembly in Fusagasugá (Colombia) in November 2018, it issued a declaration<sup>b</sup> defining its demands and objectives for the region.

The main action points proposed coincide with the priorities identified in this report:

- Consolidate communities' rights, aiming to guarantee their proprietary right and the autonomy of government in their traditional territories. The minimum requirement is to guarantee the application of international agreements such as ILO Convention 169, particularly regarding FPIC, to any intervention in its territory, or the Nagoya protocol for the equitable distribution of benefits generated by the use of resources or knowledge.
- Promote the recognition of ICCAs by national governments, considering that some are contested, such as the Shuar territory in Ecuador<sup>c</sup>, in conflict due to mining interests.
- Strengthen indigenous organisations and build capacity to reduce the asymmetry when compared to external interlocutors (governments, companies and other organised groups), facilitate dialogue and resolve possible conflicts.
- Protect and revive traditional knowledge and livelihoods to contribute to the conservation of the territory and inspire the definition of new conservation strategies and programmes. This point is particularly important in the territories most exposed to external influence. Young people often tend to migrate to urban centres, or when they stay, gradually abandon their ancestral customs to adopt a lifestyle that, perhaps, they consider more modern and comfortable. This situation is widely observed, for example, in the high Andes and in territories located in the agricultural frontier areas across the region.
- Offer sustainable development alternatives to local populations that reconcile conservation objectives and customs with a positive dynamic of economic development.
- Encourage the creation of 'no-go zones' in indigenous territories for large-scale projects, such as extractive projects, hydroelectric dams, monoculture expansion, logistics corridors and large water channels; or at least lessen the grant of licences or concessions by states. When such projects cannot be prevented, the application of the principle of prior consultation regarding the details of the project and respect for the rights of local communities in general must be guaranteed.

The successful application of the ICCA concept contributes significantly to ambitious strategies.

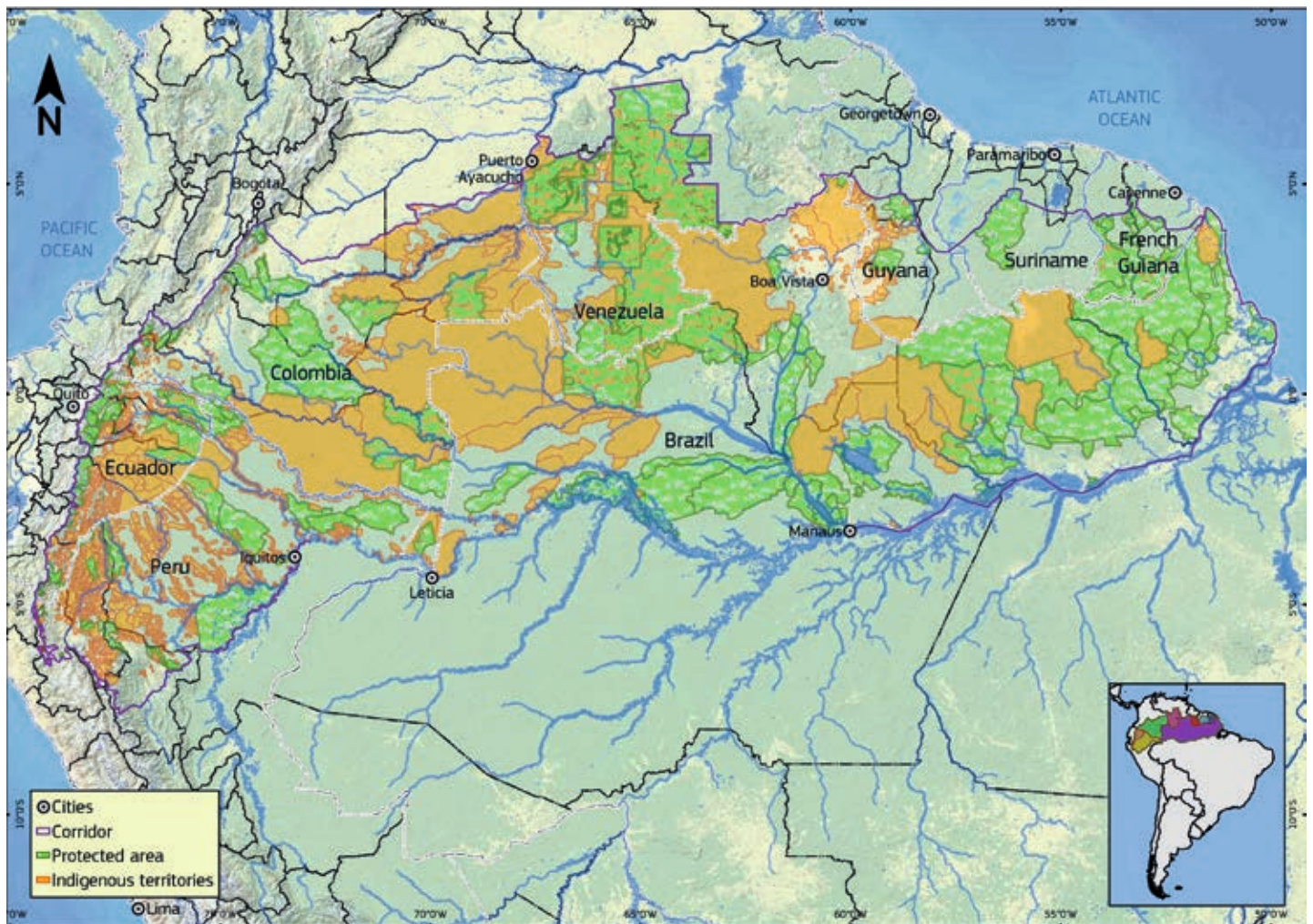
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a: Information available at: <https://www.iccaconsortium.org/index.php/es/descubra/>

b: <https://www.iccaconsortium.org/wp-content/uploads/2018/11/Declaracio%CC%81n-Encuentro-Regional-Fusagasug%C3%A1-FINAL.pdf>

c: <http://www.pueblo-shuararutam.org/>

**FIGURE 5.3** Proposed outline of the Andes-Amazon-Atlantic Biological Corridor



Source: [www.gaiaamazonas.org](http://www.gaiaamazonas.org)

## Box 26 ANDES-AMAZON-ATLANTIC CORRIDOR

The AAA corridor covers 265 million hectares in the northern Amazon. It is considered to be the largest and best-preserved continuum of tropical rainforest in the world, connecting the Andean, Amazonian and Atlantic ecosystems.

An initiative to consolidate this connectivity corridor, promoted by the North Amazon Alliance<sup>a</sup>, aims to scale up conservation and enable countries of the Amazon to make a globally important contribution to combat biodiversity loss and mitigate climate change. The initiative is based on three decades of work in the region by governments, civil society organisations and indigenous peoples.

Members of the North Amazon Alliance include: Gaia Amazonas Foundation in Colombia, Iepé – Instituto de Pesquisa e Formação Indígena in Brazil, Sociedad Peruana de Derecho Ambiental and Instituto del Bien Común in Peru, Nature and Culture International Ecuador and Ecociencia in Ecuador, Wataniba Foundation in Venezuela and the Guyana Society for Biodiversity and Ecosystems.

For the yet-to-be-protected portions, some sort of flexible management system is needed that takes account of local populations' socio-economic needs and the conservation of ecosystem services.

References:

a: Information available at: <https://www.iccaconsortium.org/index.php/es/descubra/>

## Restoration of priority ecosystems

In many cases, ecosystem restoration is one of the main instruments for creating or strengthening connectivity corridors or reaching critical size thresholds for remaining ecosystem patches. This does not necessarily involve returning the landscape to its original state, but rather maintaining or preserving its functionality and resilience. Climate change has to be taken into account when planning restoration targets; however, this is a relatively new discipline and still underdeveloped in most LAC countries.

Restoration plans may include natural (passive) or assisted (active) restoration activities promoting the establishment of forest-friendly livelihoods such as agroforestry or silvopastoral systems, adequate management of plantations, reforestation, control of exotic and/or invasive species, or other measures. Restoration processes should be based on native and endemic plant species, with priority given to natural regeneration whenever possible, and the management of invasive species.

Planning and implementation should take place at various scales (landscape, national or regional) with regard to priority ecosystem restoration plans. These may include, for example, riverbanks, buffer zones, coastal ecosystems, wetlands, and other key sites for the production of ecosystem services or for achieving connectivity between PAs and other relevant conservation sites. As for PA creation, participatory planning is essential for the long-term success of restoration actions.

The main actions that can be supported as part of this strategy are:

- identification and prioritisation of degraded areas to restore the characterisation of the original ecosystem as far as possible, and the design of climate-smart restoration plans, that take into account local communities' needs and knowledge;
- development of restoration plans or pilot studies, including, if possible, mechanisms ensuring that both beneficiaries and those responsible for the degradation contribute towards funding the restoration programmes (e.g. payment mechanisms for ecosystem services and environmental safeguards in the regulatory framework; see Thematic Area 6. Public policies);
- strengthening or implementation of seed banks and nurseries for native plants. This should include certification of origin and provenance, and the development of technical recommendations and incentives that promote planting native species;
- strengthening or implementation of breeding centres for native fauna species to be reintroduced;
- development and implementation of restoration projects involving native species in degraded areas, promoting natural regeneration and/or active plantation;
- strengthening of local and national capacities and regional collaboration for the management of fire and

natural disasters (prevention, monitoring, control of fire and restoration of affected land);

- design and implementation of comprehensive plans to control, eradicate, and prevent the entry of alien species, pests and diseases that have critical effects on the region's ecosystems, and strengthen regional collaboration;
- monitoring of restoration results, to adjust the methodologies developed to each ecosystem's specific conditions.

## Conservation of umbrella species

Umbrella or landscape species are one of the central conservation elements described in Chapter 1. Conservation strategies for these umbrella or landscape species, which are also charismatic, imply a control or ban on their exploitation and the protection of large natural areas and biological corridors at national and transnational scales. This benefits many other species, with lower needs, that inhabit these areas. The strategies may include declaring new PAs, strengthening the management of existing and indigenous territories, participatory ecological restoration, control of illegal resource extraction and wildlife trafficking, promoting good practices and local production alternatives to minimise pressures on umbrella species or their habitats, generating sectoral agreements to avoid or minimise the impact of development and infrastructure projects, complementary *ex-situ* conservation measures, such as a germplasm bank, sanctuaries and so on.

The following main actions should be supported:

- Strengthening local and regional research and monitoring networks, with emphasis on species biology and ecology, ecosystem health, pressure sources and the impact of conservation policies (e.g. research motives for deforestation and monitor anti-predation measures);
- Implementing local and regional communication and dissemination strategies;
- Formulating plans or specific conservation programmes for umbrella species, including international strategies to combat wildlife trafficking of these species;
- Establishing alliances and inter-agency agreements to implement and sustainably fund plans to conserve species;
- Establishing regional agreements among national authorities to protect umbrella species in shared ecosystems;
- Establishing local agreements for the conservation of umbrella species, including with local producers, defining the role of different stakeholders, as well as local and regional decision-making and conflict-resolution mechanisms;
- Implementing mechanisms to monitor and evaluate progress.

### Fight against illegal wildlife trafficking

Although little known internationally, illegal wildlife trafficking in LAC bears many similarities to what is happening in Africa and Asia. Poaching, trapping and illegal wildlife trade in the region represent a direct and widespread threat, with some species nearly or fully driven to extinction by trafficking.

The following efforts should be supported:

- Document the crisis: population-based studies on affected species; systematisation and analysis of data on crimes and offences, seizures, rescues, etc.; analysis of socio-legal methods to combat trafficking; research into trade and trafficking routes; identification of potential areas for strategic intervention; development and promotion of frameworks for the exchange of information on illegal cross-border wildlife movements;
- Prevent poaching, capture and the illegal collection of plant and animal species: through the provision of tools, equipment, training and resources to park rangers and other technical personnel engaged in combating practices like poaching or illegal capture and extraction; improve PA governance and management, in addition to other areas important to wildlife, with the involvement of local and indigenous communities and public participation;
- Stop trafficking: (a) strengthen the capacity of agents responsible for the application of the CITES Convention as well as authorities' capacity throughout the trafficking chain, provide the required materials and reference tools (guidelines and protocols for operational procedures, materials to help identify specimens, manuals on how to handle wildlife, and biosafety starter kits); (b) review and strengthen legal frameworks and promote harmonised regulatory approaches in Latin America and the Caribbean; (c) implement collaborative efforts among government agencies, backed by international institutions and organisations (CITES, Interpol, UNODC, etc.) and NGOs with specialist expertise; (d) strengthen environmental defenders from a legal perspective;
- Stop the demand: target outreach actions at key demographic groups and audiences to raise awareness of illegality (and possible sanctions); inform populations that consume wild specimens, in LAC and external markets, about the negative impacts and criminal risks involved; organise communication campaigns in species' hotspots of origin, as well as for a broader audience;
- Develop sustainable alternatives: support and promote legal and sustainable alternatives where feasible, particularly in areas where demand is very high or is closely linked to cultural practices; promote the replacement of products from threatened species by synthetic materials when possible;

- Policies and advocacy: a) facilitate binational and regional meetings between authorities and civil society organisations to encourage the development of collaboration agreements and/or the implementation of existing ones; (b) distribute and disseminate information on species trafficking and combating illegal wildlife trade among mid-level and senior officials and through key fora; (c) promote and support collaborative efforts among national authorities in the region and important international instruments/agencies (Interpol, UNODC, ICCWC, Wildlife Enforcement Network, etc.); (d) ensure that priority issues in the fight against IWT relating to Latin America and the Caribbean are incorporated into relevant international agendas, key fora and multi-regional/global initiatives.

### Sustainable financing of conservation and restoration

New and sustainable funding sources and mechanisms need to be designed, implemented and strengthened, to compensate for the decline in traditional sources (foundations, international cooperation, etc.) and the generally insufficient funding via national budgets. In this context, the CBD recognises five innovative funding mechanisms that are not mutually exclusive.<sup>254</sup>

- Environmental fiscal reform (taxes, fees, charges): this could help encourage an increase in national conservation budgets (for example, by including environmental safeguards in the regulatory framework that involve payment of compensation for biodiversity loss).
- Environmental safeguards: the budgets of development programmes and projects should include budget lines aimed at avoiding, minimising, restoring and compensating for both direct and indirect socio-environmental impacts. It is also essential to exercise control over the financing mechanisms and orient the use of these resources to ensure its transparency, efficiency and adequacy.
- Payment for ecosystem services: there have been worthwhile examples at various scales in the region, and these currently represent a significant source of conservation funding. This is a versatile tool associated with an effort to raise the awareness of civil society, which participates in the process.
- Inclusion of biodiversity in development funding: the aim is for biodiversity conservation to become a cross-cutting objective in all development sectors ('mainstreaming') and for this approach to be used to develop innovative funding mechanisms. Such mechanisms should promote private sector involvement to complement public sources in the form of both grants and loans. One of the main difficulties is to design mechanisms that are easy to apply.
- Development of markets for green products (i.e. organic, ecological and environmentally friendly): many examples in

<sup>(254)</sup> OECD, World Bank, GEF and the European Commission (2012). Finance Mechanisms for Biodiversity: Examining Opportunities and Challenges. Co-Chairs Summary of an International Workshop convened by the OECD, World Bank, GEF and the European Commission, together with Sweden and India. 8 pp. Available at: <https://www.cbd.int/doc/meetings/fin/wsfmb-eoc-01/official/wsfmb-eoc-01-chairs-summary-en.pdf>



^ Cocoa grower from the Naranjillo cooperative in rainforest close to Tingo Maria National Park, Peru, where productive activities are managed alongside tourism. Coffee and cocoa are valuable commodity crops and if produced sustainably have good potential for green marketing, which can contribute to sustainable financing of forestry and biodiversity conservation. (© haak78/Shutterstock)

the region, at different scales, involve both small producers (coffee, cocoa) and agro-industrial enterprises (soybeans, meat). This approach succeeds in combining sustainable production regulations with economic interests and helps to encourage the private sector to contribute to conservation efforts.

Most of these approaches have been maturing over the last 10 to 15 years. They involve voluntary or non-voluntary contributions from non-traditional sources of conservation funding (civil society and/or the private sector), which must be aware of the issues. In addition, to be effective and sustainable, the proposals must be integrated into a legal, institutional and political framework that is clear, transparent and reliable. This requires, among other things, effective procedures for monitoring, verification and accountability.

Contributions to the pre-investment costs associated with implementation would facilitate the adoption of these mechanisms. The major activities for promoting this strategy are:

- lobbying public sector authorities, donors, civil society stakeholders and the private sector to facilitate the adoption and acceptance of the mechanisms proposed;
- support for design and implementation of mechanisms adapted to the context of KLCs, including control measures to ensure transparency;

- technical assistance to make the necessary adjustments to the corresponding institutional policy framework;
- strengthening the capacity of those involved (public sector, private sector, civil society, etc.) so that they have the skills necessary to apply and control the mechanisms;
- facilitate intersectoral dialogue (production, infrastructure, energy) as well as with the private sector to encourage their contribution;
- technical and financial assistance to identify, design and implement programmes and projects in the KLCs that facilitate the application of the mechanisms or are supported by them.

Finally, in parallel to efforts to promote conservation and restoration incentive mechanisms, it is important to identify any counterproductive incentives (state and regional) that harm biodiversity and to try to eliminate them. Likewise, it would be appropriate to strengthen the economic valuation of biodiversity and the return on investment calculations of conservation initiatives, to promote the participation of more institutions in alternative financing mechanisms.



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*Enhancing biodiversity in landscapes and productive sectors is an important complement to area-based conservation. In the Sabana-Camagüey ecosystem in Cuba, producers were encouraged to revert lands formerly used for sugarcane monoculture. Crop diversification and agroforestry are among practices that contribute to greater sustainability of agrarian systems. (© UNDP EBD)*

## 5.2.2 Sustainable production

### Promoting good practices

Most food production is no longer destined for local consumption and is processed before it reaches the consumer. A series of intermediaries (input suppliers, processing and trading companies, retailers) is largely responsible for shaping supply and demand. Both large and small producers often adapt their systems to the logic of short-term financial gain, to address their immediate needs when they are in poverty, or to maximise their benefits. For this reason, they expand production areas and use highly input-dependent systems, with significant environmental impacts. This is particularly common with large producers of raw materials destined for the international market (palm oil, soybeans, meat, sugar cane, etc.).

Intervention in supply chains is necessary to encourage the adoption of good practices at every level. Especially in KLCs, the focus should be on adopting good production practices based on ecosystem management principles and sustainable land and water use. Good practices must also be promoted for the other links in the chain (transport, processing and marketing). Sustainable production is closely linked to sustainable consumption, and so depends on efforts to change consumption patterns, not only in LAC but also in importing countries.

Good models include sustainable production platforms, both global (Roundtable on Sustainable Palm Oil<sup>255</sup>, Round Table for a Sustainable Cocoa Economy, etc.), and national (National Platform for the Responsible Production and Trade of Pineapple in Costa Rica<sup>256</sup>, National Platform for Green Commodities in Paraguay<sup>257</sup>, etc.). The public sector plays a fundamental role, providing incentive mechanisms for good practices (see Thematic Area 6), adjusting the legal framework and coordinating different sectors. The need to adapt systems to climate change is a good way to enter into constructive dialogue with all sectors.

The primary target for the promotion of good practice should be the agribusiness sector, since it causes the greatest impacts regionally. However, peasant agriculture and family use of firewood and coal also needs addressing in areas where they contribute to environmental degradation.

The main actions that can be supported as part of this strategy are as follows:

- Include sustainable production standards in international trade agreements;
- Improve consumer awareness and promote responsible consumption (see Thematic Area 5);
- Develop regulations and guidelines for good practices in the productive and service sectors (e.g. agroforestry and silvopastoral models, sustainable tourism, etc.) and promote adapted techniques, taking into account a gender approach;
- Coordinate efforts among public agencies, academia, NGOs, private sector and producers so that practices are compatible with biodiversity and ecosystem conservation objectives at a landscape scale;
- Promote the development of demonstration activities or pilot sustainable production practices as part of a training strategy for public and private stakeholders;
- Disseminate and scale up practices that deliver good results;
- Create and/or strengthen global and national platforms for sustainable production, aiming for massive involvement of the production sector;
- Suspend economic incentives to unsustainable production systems and implement incentives for adopting good practices and more forest-friendly livelihoods (environmental service payment systems, meat certification, etc.);
- Ensure control and supervision capacities in case of violation of the regulatory framework;
- Coordinate and reconcile cross-sectoral policies for agricultural and forestry development, water management, climate and biodiversity conservation;

<sup>(255)</sup> <https://rspo.org/>

<sup>(256)</sup> <http://pnp.cr/>

<sup>(257)</sup> <https://greencommoditiesparaguay.org/>

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*The açai palm (Euterpe oleracea), found in Amazon forests, is widely used by local communities for its fruit, heart, leaves and wood. Now that its berries have acquired a 'superfood' reputation worldwide, it has become a major contributor to local economies and could aid conservation through environmentally friendly production models. This açai nursery in Acre, Brazil, is a state government initiative to assist reforestation with native species.*

(© Kate Evans/CIFOR)



- Develop environmental legislation that recognises the rights of rural communities (indigenous, Afro-descendants, farming and others).

### Promoting alternative production activities

Strategies for alternative production that enable diversified production and economic benefit without major transformation of natural areas should be promoted. Examples include ecotourism, beekeeping, sustainable management of timber and non-timber forest products, and management of wild species (ranching, creation of sustainable fishing or hunting areas, etc.). The types are of particular importance within PAs, their buffer zones and biological corridors. They can also link conservation with the protection of culture and traditional territories.

The following main actions should be supported:

- Research into sustainable production patterns and alternative activities, with a gender approach;
- Control of illegal or non-sustainable activities;
- Strengthening sustainable value chains for local products and services, promoting easy access to products from sustainable practices and short supply chains;
- Development of marketing instruments (market opening, commercial chains, certification, green seals, labels of origin, etc.);
- Development of financial instruments adapted to this type of venture.

### 'Clean product' certification

To encourage good practices and alternative production activities, certification plans that promote the environmental, social and economic sustainability of production and their positive impacts on biodiversity conservation should be strengthened. Product certification has the advantage of adding value to the item. This strategy can be adapted at any scale, from small to industrial producers (agricultural, forestry, mining, etc.). The following actions could be considered:

- Coordinating intersectoral and inter-institutional efforts for the certification of good practice standards;
- Strengthening the reliability of these systems (verification mechanisms, criteria coverage particularly in terms of biodiversity conservation, respect for human rights, etc.);
- Awareness-raising campaigns and training directed at the primary production sector;
- Consumer awareness campaigns directed at national and international markets.

### Agrobiodiversity conservation

This strategy is linked to food security principles. It involves maintaining genetic diversity by recovering indigenous varieties, as well as promoting traditional production methods, among other strategies. It encourages local values and ways of life that respect the environment, in contrast to the exclusively commercial logic and homogenisation characteristic of agribusiness.

The following main actions should be supported:

- Strengthen organisations involved in agrobiodiversity conservation, networking and knowledge exchange;
- Promote the maintenance, registration and dissemination of traditional knowledge relating to local production systems and native plants of current or potential high nutritional value (plants for the future), and medicinal plants and phytotherapy plants;
- Conservation and recovery of genetic material.

### 5.2.3 Environmental management in urban and peri-urban environments

In LAC, large and medium-sized cities are growing rapidly, generally in a disorderly fashion. The expansion of urban areas, increased service demand and poor waste management are causing negative impacts on the environment and compromising inhabitants' quality of life. It is important to develop more sustainable city models, with planned development, to achieve integrated and environmentally sustainable management and thus minimise the effects of this expansion on the natural and rural environment.

On the other hand, cities are where most of the population lives today, and their awareness of environmental issues gives them power, both as consumers and as influencers of public policies. The young public (ages 14 to 29) play a fundamental role in transforming environments for the future and must be part of the target audience for green citizenship strategies.

Beyond large urban centres, rural areas and small urban centres are becoming more prosperous and require improved services (water, heating, electricity, waste, transport and communications). Low-impact alternatives should be identified and promoted to these populations.

#### Managing urban biodiversity and protected peri-urban areas

Natural spaces can often be found within the urban fabric or close to cities, whether due to political decision, topographic characteristics or accelerated and disordered growth. These remaining patches of forest, wetlands, lakes or other ecosystems continue to harbour biodiversity and often provide important ecosystem services (water supply, soil protection, wave protection, recreational areas, etc.). Their preservation and management thus deserve particular attention. In planning processes, it is important to encourage the growth of vegetation cover in urban environments, generating connectivity corridors through urban parks, traffic routes and other places. Because of their proximity to the urban population, urban and peri-urban natural spaces can also play a role in strategies to raise public awareness of environmental issues.

The priority actions to be supported are the following:

- Inventory and assess the conservation status of natural spaces in urban and peri-urban areas;
- Strengthen urban and peri-urban PAs;
- Develop and implement municipal policies for ecosystem conservation and management, including measures to minimise border effects and conflicts between urban areas and surrounding PAs and natural landscapes;
- Design and implement communication strategies to strengthen the public awareness of the environment.

#### Consumer payments for ecosystem services

The region already has promising initiatives in which the consumer pays for ecosystem services, such as water provision for consumption, production and hydroelectric power generation. In this case, a tax agreed between water suppliers and consumers can contribute to the protection of water sources (e.g. by financing reforestation and improved production practices).

The main actions for supporting this kind of initiative are the following:

- Identify the ecosystem services provided; estimate their value and the management costs of ensuring their sustainability;
- Design and implement mechanisms to finance municipal environmental funds (payment for ecosystem services, corporate socio-environmental responsibility, voluntary contributions).

#### Renewable energies and comprehensive waste management

Globally, there is already a trend towards policies that increase the efficiency of the 'urban ecosystem'<sup>258</sup>, by reducing resource demand, waste and emissions through circular economy models. An increasing number of governments, donors and international agencies are adopting this approach. It aims to improve the quality of life of urban populations and drive a transition to a green economy, creating many jobs in public transport, renewable energy, protection from adverse weather conditions and ecosystem restoration<sup>259</sup>.

These issues are also the subject of efforts in other cooperation sectors. To avoid duplication, we mention them here but do not identify priority actions.

<sup>(258)</sup> UNEP (2012). Sustainable, Resource Efficient Cities – Making it Happen.

<sup>(259)</sup> UNEP (2011). Towards a green economy: Pathways to Sustainable Development and Poverty Eradication. Available at: [www.unep.org/greeneconomy](http://www.unep.org/greeneconomy)





^ *Urban and peri-urban protected areas provide key ecosystem services to cities. The Tijuca National Park is vital for the safety, health and economy of the population of Rio de Janeiro, Brazil: it prevents hillside erosion, thus reducing floods and landslides; it cuts air pollution and protects the city's water sources; and it provides leisure and tourism opportunities. (© Vitormarigo / Shutterstock)*

## 5.2.4 Environmental governance

### More participatory governance models

Defining and applying efficient and equitable governance models, suited to the local context, is one of the greatest challenges in natural resource conservation. Locally, they exert considerable influence over the maintenance of favourable conditions in the financial, political and social context surrounding PAs and other conservation spaces. Nationally and regionally, they are indispensable for effectively implementing international agreements, policies, strategies and regulations. Currently, in Latin America and the Caribbean, governance mechanisms tend to be unclear and often end up favouring sectors with the most political and economic power.

Experience shows that decentralising the responsibility for natural resource management and enforcement control to the lowest appropriate levels (local governments and organisations) often contributes to the success of PA institutional systems, because it generates a greater feeling of local ownership and accountability. The closer the management is to the ecosystem, the greater their responsibility, accountability, participation and use of local knowledge. However, local efforts must be integrated into larger-scale territorial planning, following guidelines that ensure the functionality of landscapes (see Thematic Area 6).

Particular attention should be paid to:

- promoting governance systems that encourage collaboration among different state sectors and levels and safeguard the rights of local stakeholders;
- promoting citizen participation in environmental issues, for example through citizen councils;
- framing actions within a legal framework, promoting their correct implementation, and contributing to making any necessary improvements;
- promoting the clarity and fairness of the legal framework on the tenure and use of land, water and forest resources, as well as its effective implementation and monitoring, to improve the sustainability of resource management and reduce conflict;
- helping to strengthen land management capacities in sub-national governments and other sub-regional management and control bodies, to ensure the effective implementation of conservation policies;
- strengthening land management capacities in organisations, especially indigenous people in collective territories;
- facilitating dialogue between implementing organisations, competent administrations, rights holders and other stakeholders, especially in PAs (e.g. joint training courses and roundtables on comprehensive land-use planning, incorporating different sectors – forestry, agriculture, livestock, extraction, tourism, etc. – and relevant institutions);
- guaranteeing transparency in reporting and accountability processes;
- establishing efficient systems for early detection and resolution of conflicts.

*Experts and community members from San Juan, Paraguay, attend a workshop to share lessons learned on forest conservation through the REDD+ approach. An important challenge for conservation is the dissemination and appropriate use of related knowledge, and making access to information more democratic. (© UNREDD)*

The following governance approaches have been identified as promising for the future in LAC:

- Design and implementation of inclusive PA governance models, considering in particular the 5 principles for good governance promoted by the IUCN (legitimacy and voice, direction, performance, accountability, and fairness and rights)<sup>260</sup>;
- Empowerment of main local stakeholders and bodies, such as management committees;
- Education and outreach campaigns on the environmental emergency and the crucial contribution of PAs, targeting urban and rural populations;
- Local governance focused on empowering indigenous and rural leaders;
- Indigenous territorial management over collective territories;
- Local governance with a gender focus, based on women's groups, either through leaders or by promoting the effective participation of women in organisations;
- Governance that includes the maintenance and/or recovery of ancestral indigenous customs and knowledge, and the strict protection of vast territories, as well as the application of ILO Convention 169, in particular regarding free, prior and informed consent;
- Rescue and protection of tangible and intangible biocultural heritage and knowledge;
- Application of the second principle of the Ecosystem Approach: 'Management must be decentralised to the lowest appropriate level.'

Considering the existing power asymmetries, special attention must be paid to strengthening the capacities of indigenous people, rural communities and civil society organisations regarding environmental management, with a view to increasing their influence.

As a specific point, there is an urgent need to guarantee the safety of people who defend nature. In Central America (particularly Mexico, Honduras and Guatemala), as well as Brazil and Colombia, more environmental activists are murdered than in any other region in the world, a situation that severely undermines human rights and active participation in landscape and PAs governance.

### Governance in PAs

As mentioned in Thematic Area 1, better governance is the key to strengthening PAs and enabling them to fulfil their role. To improve the governance mechanisms relating to these areas, crucial strategic lines need to be addressed or strengthened:

- Analysis and evaluation of the status of PA governance at system and sub-system level in the region;
- Institutional strengthening, also providing the necessary technical capacities to apply FPIC principles, to update participatory management plans in PAs, to prevent and manage socio-environmental conflicts, and to apply adaptive management techniques;
- Design and promotion of effective and innovative mechanisms for PA governance that encourage management sustainability (for example, participatory community management bodies, co-management and intercultural management approaches with indigenous communities in PAs, including, but not limited to, consulting or working groups and advisory or consulting councils). These must take into account agreements between environmental authorities and communities for the sustainable use of natural resources within PAs;
- Strengthening of legal and regulatory frameworks that determine the participation of regional and local stakeholders in decision-making regarding PA management, including adequate budgetary allocations;
- Promotion of a regional coordination body that supports the long-term strengthening of participatory management in PAs;
- Promotion of greater regional awareness and understanding in Latin America and the Caribbean related to PA governance policies and good practices for supporting institutions and civil society;
- Reduction of power asymmetries by building the capacities of rural communities and indigenous peoples, as well as improving their access to information; preferentially supporting indigenous territories and other PAs in which these groups are involved.

<sup>(260)</sup> Borrini-Feyerabend G. et al. (2013). Governance of Protected Areas: From understanding to action. Best Practice Protected Area Guidelines Series No 20, Gland, Switzerland: IUCN. xvi + 124 pp. Available at: [https://www.iucn.org/sites/dev/files/content/documents/governance\\_of\\_protected\\_areas\\_from\\_understanding\\_to\\_action.pdf](https://www.iucn.org/sites/dev/files/content/documents/governance_of_protected_areas_from_understanding_to_action.pdf)



### 5.2.5 Knowledge management and awareness

This is a cross-cutting issue for streamlining all processes related to conservation and sustainable development.

#### Applied research

There are still considerable information and knowledge gaps regarding biodiversity conservation in the region. This requires setting up research projects, the results of which are then presented in a format that is accessible to all and useful for decision-making.

Generating information at the regional level is important, as it encourages and facilitates decision-making at the supra-national level. A regional information management mechanism to facilitate compilation and use of information (traditional and scientific sources) would be useful.

Some of the key themes to be prioritised in research efforts are:

- a baseline of biodiversity conservation status, the state of natural resources and ecosystem services provision in each of the KLCs, and their evolution in the light of climate change scenarios;
- an assessment of the physical and monetary contribution (in terms of ecosystem services) provided by PAs and KLCs to the socio-economic development processes and quality of life at the local/ national/ regional level;
- an assessment of the positive or negative impact of distinct land uses (production, infrastructure development, extraction, management) on the provision of ecosystem services;
- an evaluation of illegal practices affecting biodiversity and analysis of reforms and actions in order to strengthen law as a tool for conservation;
- gathering knowledge on the sociocultural characteristics and governance systems of populations in the KLCs, including indigenous people;
- an evaluation of the different sustainable production models, appropriate to each KLC;
- an evaluation of the effectiveness of interventions for conservation and sustainable development;
- monitoring the changes in each region regarding vegetation cover, the spread of invasive species, fires and the populations status of key species.

### Preserving traditional knowledge

The conservation strategies must include preserving cultural heritage, oral memory and traditional knowledge and practices of indigenous communities and rural populations that are linked to the use of natural resources. It is important to take into account the role of women and the elderly in the conservation and transmission of this knowledge.

This knowledge comes from a deep understanding of the territory and its changes over time and is important for the sustainability of the way of life of these groups. It can also help in the design of good practices in terms of production systems and climate change mitigation measures, which can be reproduced or adapted to other contexts. The potential benefits in various sectors, such as healthcare, should be recognised.

Fifteen countries in the region ratified the Nagoya Protocol of 'access to genetic resources and fair and equitable sharing of the benefits derived from their use'. This requires the prior informed consent of the communities and the negotiation of mutually agreed terms for access to their associated traditional knowledge. It would be necessary to support the implementation of effective national regimes to ensure that access and benefit-sharing (ABS) modalities are operational. Indeed, the complexity of the agreement as well as the evolution of information technologies and the availability of a great deal of information in open access, creates serious challenges for its effective implementation. It could, nevertheless, help bring concrete benefits (monetary or others) to indigenous and local communities for the use of their traditional knowledge in relation to the use of biodiversity<sup>261</sup>. This is important for reasons of equity and to generate a broader commitment to conservation.

### Learning platforms and networks

Knowledge regarding land management is fragmented among universities, NGO technicians, government institutions and local populations. A lack of connection between knowledge production and the development and implementation of public policies is particularly worrying. It is therefore necessary to promote the science-policy interface regarding links between biodiversity, ecosystem services and human well-being<sup>262</sup>. In particular, scientific information produced with public funds must be made accessible to all.

Better inter-institutional management of environmental information must be encouraged, as this is fundamental for managing and addressing environmental and conservation problems. To achieve this, an important challenge is to create spaces for the dissemination and appropriate use of this knowledge, making access to information more democratic.

Inter-institutional working groups should be established or strengthened, and thematic learning communities set up (e.g. on sustainable production models or effective PA management). This process must feed into coordination and decision-making processes involving a great diversity of stakeholders<sup>263</sup>. Appropriate platforms have not yet been fully developed in the region, but numerous initiatives exist. To avoid duplicating efforts, new networks and knowledge centres must build on existing thematic platforms, as well as on the various national and regional systems for biodiversity data collection, monitoring and analysis.

### Capacity building and training institutions

There is a widespread lack of skills and knowledge among technicians, those responsible for land management and the wider public on conservation and the sustainable use of natural resources.

Given the need (already mentioned) for public authorities at a sub-national level to lead the planning, promotion and monitoring of conservation and sustainable development processes in KLCs, it is vital to provide them with technical assistance and capacity building programmes. These programmes should have access to financial support, be able to facilitate negotiations with national governments for budget allocations, and develop and implement sustainable funding systems.

Likewise, it is important to strengthen staff capacities in institutions in charge of supervising the application of environmental regulations, particularly in terms of land use, use of forest and wildlife resources, impact management for infrastructures and extractive projects, PA management (monitoring effectiveness), etc.

The study of conservation and the sustainable use of natural resources should be incorporated into university programmes and technical degrees related to land use (e.g. biology, tourism, agronomy, technical programmes for the hydrocarbon and mining industries, etc.).

Finally, and more specifically, it is important to promote capacity development and the transfer of knowledge, skills and experiences to PA managers and local stakeholders that participate in co-management mechanisms. This means promoting the professionalisation of PA managers and staff, with a gender approach, and supporting specific training programmes (e.g. ranger training schools) on topical issues (including the facilitation of dialogue with multiple stakeholders, networking, etc.).

(261) Silvestri L.C. (2017). Protocolo de Nagoya: Desafíos originados a partir de un texto complejo, ambiguo y controversial. Anuario Mexicano de Derecho Internacional 17, pp. 697-716.

(262) UNEP (2010). State of biodiversity in Latin America and the Caribbean.

(263) Albornoz M. and C. Alfaraz (2006). Redes de conocimiento; construcción, dinámica y gestión. The Network for Science and Technology Indicators – Ibero-American and Inter-American – (RICYT) of the Ibero-American Programme on Science and Technology for Development (CYTED) and UNESCO's Regional Bureau for Science in Latin America and the Caribbean.



^ *Communication campaigns, such as this photo exhibition in Rio de Janeiro, must be strategically designed to raise awareness about the importance of ecosystems. Urban dwellers are a key target group due to their role as consumers of ecosystem goods and services, and their power to influence local and national policymaking. (© Hua Lin)*

### Raising awareness

Awareness raising, communication and education is vital to help people understand the importance of ecosystems, for their contribution to vital services and the quality of life, and for their intrinsic value linked to the dignity of human beings. This strategy must be integrated across all conservation and sustainable development programmes.

Communication campaigns must be strategically designed for the different target audiences: consumers, the production sector, authorities and decision-makers at different levels, different ages, men and women, and so on. In general, they should aim to:

- raise public awareness, particularly among children and young people, and encourage mobilisation for biodiversity protection through new technologies, such as the iNaturalist initiative, for example<sup>264</sup>;
- incentivise and facilitate the use of extensive scientific knowledge on biodiversity conservation and restoration by authorities when making decisions;
- encourage the private sector to adopt more sustainable practices.

### 5.2.6 Public policies and environmental planning

The existence of adequate public policies and legal frameworks are key to successfully implementing the most recommended conservation and sustainable development actions.

Countries in the region have ratified practically all of the international environmental treaties, including the CBD, UNFCCC, CITES, and others. They also have a large number of national and local environmental regulations, most of which have a sound technical basis. On climate change, for example, LAC countries have signed the Paris Agreement, and have been developing public policies aimed at adaptation and mitigation thanks to significant public awareness of the issue.

However, there is some way to go to ensure that environmental policies are implemented effectively in the field. In addition, policies to promote development often contradict environmental regulations. This is why it is so important to foster inter-sectorial dialogue, generate a more comprehensive approach and strengthen socio-environmental safeguards in development projects, and correspondingly adjust policies and legislation.

<sup>(264)</sup> <https://www.inaturalist.org/>



^ *International standards for impact management of development projects recommend making environmental compensation for impacts that cannot be avoided, minimised or restored, or even to achieve a net positive impact. This could entail implementing restoration and conservation measures in an area ecologically similar to the affected area, an approach applied in the Via Parque Isla de Salamanca, which benefited from environmental compensation funds for the construction of the 2.28 km Pumarejo bridge over the Magdalena river. It enabled the rehabilitation of drainage channels and the restoration of mangroves in this protected area in the Colombian Caribbean known as the ‘international airport for migratory birds’.* (© EFE News Agency/Alamy Stock Photo; © AGAMI Photo Agency/Alamy Stock Photo)

### Landscape approaches

Territorial planning, if participatory, allows conservation initiatives to gain formal recognition and social legitimacy. It can integrate, for example, the design and implementation of biological corridors, the creation of conservation plans for threatened species (including governance and funding mechanisms) and the design of major infrastructure work taking into account the impact mitigation hierarchy. It can also define inter-institutional and inter-jurisdictional actions to avoid or mitigate impacts caused by production activities in areas adjacent to PAs or in urban centres adjacent to or within PAs.

A landscape approach involves taking environmental issues out of the environmentalist bubble, crossing sectoral boundaries and working with all stakeholders involved in land use and management. To ensure the coexistence of land uses with both conservation and production objectives, it is of vital importance to integrate and harmonise institutions and policies for the environment with those of other sectors (agriculture, infrastructure, extractive industries, etc.).

Applying a landscape approach requires changes to the scale of territorial analysis, beyond the limits of national, sub-national or PA jurisdictions. Land-use planning provided by law is a fundamental tool in conservation, which gains from integrating the different planning levels (local, regional, national and transboundary).

### Regional integration of policies

Cross-border coordination is especially relevant for harmonising policies at an ecologically appropriate scale. This includes the comprehensive and transboundary management of priority or threatened ecosystems and watersheds shared by several countries, and ensuring the proper control of border crossings of agricultural products, including cows, to ensure the integrity of deforestation-free supply chains.

It is important to promote integration of environmental policies between the relevant bodies in different countries. Other structures suitable for this aim include the ZICOSUR (Centre West of South America Integration Zone), Forum of the Patagonian Sea and Area of Influence, Central American System of Protected Areas (SICAP) and numerous platforms that exist at the scale of the different biomes.

### Impact management in development projects (social and environmental safeguards)

To respond to the increasing global demand for raw materials and to short-term needs for jobs and income, regional and national development policies often promote large public and private economic development projects (agribusiness, road and energy infrastructure, etc.), despite their negative social and environmental impacts. Current environmental legislations in the region include mechanisms to control the direct impacts of such projects, but for various reasons (imprecise laws and regulations, lack of resources and institutional capacity, limited political will, etc.) their implementation and enforcement is often limited. Indirect and cumulative impacts are rarely taken into account.

It is necessary to promote the strengthening of national legal frameworks so that these include their own environmental and social safeguards as part of development projects and programmes and thus guarantee their application. Such systems must at least contribute to:

- Avoiding, reducing, restoring and/or compensating for direct and indirect adverse impacts to the population, biodiversity and natural habitats;
- Considering climate risk at project level, across all operations;
- Promoting sustainability in the use of natural resources and ecosystem services;
- Encouraging stakeholder participation;
- Ensuring compliance with international commitments regarding the rights of indigenous peoples, other minorities and vulnerable groups;
- Ensuring compliance with international environment and climate agreements (CBD, CITES, UNFCCC, etc.).

These measures must be implemented through clear rules and guidelines, both for programme implementers and the donors and financial institutions that support them. Entities with adequate authority, capacity and resources must be in place to ensure compliance with established rules through transparent and independent monitoring and supervision systems. Complaint mechanisms with financial guarantees can contribute to this last point, allowing the people affected to exercise their rights, report failures and demand compliance with the safeguards.

The main actions to consider for implementing this strategy are:

- Awareness raising and lobbying to promote the adoption or strengthening of safeguards, targeting international bodies (e.g. IIRSA for international infrastructure projects), national and sub-national authorities (to reiterate, this is due to the territorial level at which sub-national governments work, meaning they are often more in touch with the reality of the local populations affected by investments, and generally have specific competencies over territorial management and natural resource management);
- Supporting the development, revision and/or adaptation of the legal and institutional regulatory framework for applying and controlling safeguards;
- Strengthening of public, private and civil society capacities regarding implementation;
- Implementing or strengthening monitoring and control mechanisms.

### **Establishing 'no-go zones' for development projects**

Achieving protected area status for the preservation of key habitats and ecosystems has long been considered strategic for biodiversity conservation in a given area. However, the advantages derived from this status are endangered by the actions of governments that change PA boundaries to fit around production and urban development projects.

To prevent this, political and legal mechanisms are required that define areas as protected from extractive activities ('no-go zones'). The aim of this is to conserve natural resources and preserve human ways of life for populations related to the territories, through PAs, indigenous territories or other forms of conservation.

The priority activities are the following:

- Establish the principle of 'no-go zones' within environmental policies and social safeguards for extractive projects;
- Identify territorial areas where pilot 'no-go zones' can be implemented to safeguard biodiversity, ecosystem services and the existence of traditional populations;
- Increase social awareness and sectoral coordination to reach agreements that support and strengthen these sites;
- Review legal and policy frameworks to ensure the permanence in perpetuity of the different types of PAs and legally established indigenous territories.

### **Environmental control and monitoring mechanisms**

Control mechanisms and efficient environmental monitoring are essential for ensuring proper implementation of the different public policies and respect for environmental conservation laws. Key actions should be:

- Strengthening of control, surveillance and monitoring actions to reduce illegal activities (mining, illegal deforestation and logging, wildlife trafficking, forest fires). This necessarily involves creating quality regulations, strengthening competent public bodies, promoting training and experience exchange, and seeking more effective, transparent, and participatory mechanisms, such as the formation of community brigades;
- Ensuring adequate surveillance and control at international borders where contraband agricultural products, including cattle, have the potential to undermine the impact of deforestation-free supply chains and national level policies;
- Strengthening environmental control with respect to project licensing processes and monitoring compliance with the obligations of the licences granted, within a framework of transparency and quality regulations;
- Implementing standardised monitoring systems for the areas covered, using remote sensing and participatory territorial monitoring systems with local communities, in collaboration with academia and research institutes (e.g. early warning systems for deforestation and loss of natural cover, and forest fire prevention, control and monitoring systems, etc.);
- Implementing or strengthening protection mechanisms for whistle-blowers and environmental defenders.





# #6

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## The European Union and biodiversity conservation in Latin America and the Caribbean

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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 km<sup>2</sup> Southern Patagonian Ice Field that surrounds it, it is one of the largest freshwater reserves in the hemisphere. (© Martín Harvey/WWF Regional)*



## #6 \_ The European Union and biodiversity conservation in Latin America and the Caribbean

### 6.1 POLITICAL RELATIONS

Cooperation between the EU and the LAC region began in the 1960s and 1970s. The first cooperation agreements between the two regions were formalised in 1990. Their history can be divided into three periods.

The first period was characterised by an institutionalisation of political dialogue between the two regions. This was formalised when the Declaration of Rome<sup>265</sup> was signed by the European Community, its Member States and the Rio Group<sup>266</sup> on 20 December 1990. The cooperation areas in the document included, among others, protection of tropical forests and marine resources<sup>267</sup>. Throughout the 1990s, as part of this same declaration, other agreements were signed or updated with MERCOSUR, the Andean Pact, the Caribbean Forum of African,

Caribbean and Pacific States (CARIFORUM), Chile, Mexico and several Central American countries. These included the São Paulo Declaration (1994), which proposed strengthening cooperation between the EU and the LAC region to form a strategic alliance.

The second period began with the formalisation of a strategic alliance at the first summit of the EU-LAC Heads of State (Rio de Janeiro, 1999). This was fixed in the Rio Declaration<sup>268</sup>, which raised the level of ambition and increased the scope of cooperation between the two regions. From this point on, LAC cooperation incorporated the United Nations' conventions on biodiversity, climate change, desertification and land degradation. The Rio Declaration also committed the signatory countries to the sustainable use of natural resources, preservation of the 'global ecosystem', 'clean development' mechanisms, education for environmental protection, and a reduction in 'forest destruction', environmental degradation and natural disasters.

<sup>(265)</sup> Declaration adopted at the Rome Conference on 20 December 1990 by the representatives of the European Community and its Member States and the signatories of the Caracas Declaration of the Rio Group, Rome, Italy.

<sup>(266)</sup> The countries of the so-called 'Rio Group' included Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay and Venezuela.

<sup>(267)</sup> The scope of cooperation on environmental issues proposed to: 'improve national policies aimed at protecting the environment and strengthening regional and international cooperation [and focusing] priority attention on those other environmental problems that urgently require appropriate measures, such as the deterioration of the ozone layer, global warming, the international transfer of toxic waste, acid rain, and the protection of tropical forests and marine resources'.

<sup>(268)</sup> Rio de Janeiro Declaration, 29 June 1999.

&lt;

*To meet climate- and environment-related challenges, the EU promotes a more efficient use of resources within the framework of a circular economy. Like in Brazil, recycling of waste, and in particular plastics, is one practice that can be adopted to help halt the loss of biodiversity. (© LAC IDB Lab)*

The third period began in 2011, with the establishment of the Community of Latin American and Caribbean States (CELAC). This was the first intergovernmental mechanism to bring together the 33 countries of Latin America and the Caribbean. It replaced the Rio Group as the official EU counterpart and gave regional scope to the EU-CELAC strategic alliance. It is characterised by regular summits that bring together Heads of State, trade unions, businesses, mayors, civil society, young people and academia. As a result of these meetings, action plans are presented, often with biodiversity protection as one of the top priorities<sup>269</sup>. In April 2019, a Joint Communication, 'EU-LAC: joining forces for a common future', was adopted.<sup>270</sup>

The EU also maintains a specific cooperation framework through Partnership Agreements with the Caribbean (EU-CARIFORUM Economic Partnership Agreement concluded in 2008), Central America (since 2009), MERCOSUR (since 2019), Chile (since 2003) and Mexico (since 1997 with a Global Agreement, then reinforced by a Strategic Association in 2008). Finally, the Caribbean, as part of the African, Caribbean and Pacific (ACP) Group of States, receives support through the European Development Fund (EDF) and the EU general budget.

## 6.2 LINKS WITH THE MAIN EU POLICY AGENDAS

The New European Consensus on Development, *Our world, our dignity, our future*<sup>271</sup>, published in 2017, establishes a general framework for the European Union's development cooperation. The Consensus, based on Agenda 2030 and the Sustainable Development Goals, insists on poverty eradication and sustainable development as the primary objectives of European cooperation. Its framework of action integrates a 'planet' dimension and proposes guiding agreements, strategies, frameworks, collaboration and regional policies with the LAC partner countries.

The European Green Deal<sup>272</sup>, adopted in 2019, is an ambitious EU response to tackle the climate and environment-related challenges that the EU and the planet are facing. It sets a

roadmap of actions to boost the efficient use of resources by moving to a clean, circular economy, and to stop climate change, revert biodiversity loss and cut pollution. In its external dimension, the EU proposes to countries and regions, including LAC, to join forces for this global transformation agenda. One of the first products of the Green Deal is the new EU Biodiversity Strategy for 2030, aimed at intensifying measures to prevent further biodiversity loss and restore ecosystems. It will build on the lessons learned from the EU Strategy on biodiversity to 2020, *Our life insurance, our natural capital*<sup>273</sup>, adopted in 2011. Framing the EU's role and action in support of global biodiversity, it aims, in particular, at:

- reducing the impact of EU consumption patterns on biodiversity;
- increasing trade policy contribution to biodiversity conservation;
- giving the market favourable signs with regard to biodiversity conservation, eliminating harmful subsidies and offering new incentives;
- significantly increasing the resources devoted to planetary biodiversity;
- improving the effectiveness of European funding for protecting the world's biodiversity;
- minimising the repercussions of European cooperation projects and programmes on biodiversity;
- regulating access to genetic resources and equitably sharing benefits arising from their use.

Europe is the largest net importer of energy and raw material per person, and its economy relies heavily on these resources. In response to this situation, the EU has launched the initiative 'a resource-efficient Europe' with the associated Roadmap to a Resource Efficient Europe<sup>274</sup>. It proposes decoupling economic growth from resource exploitation and monitoring and reducing the EU's overall environmental impact. More ambitious, in the framework of the European Green Deal, the EU has proposed in 2020 a Circular Economy Action Plan<sup>275</sup>, to transform the patterns of production and consumption, in view of greater sustainability and neutrality in terms of carbon balance.

<sup>(269)</sup> ECLAC, however, has been in crisis since 2017, and its work has been paralysed due to an ideological division over the situation in Venezuela and, more recently, Nicaragua. Pending the effective return of a regional organisation, the EU is currently cooperating with important sub-regional organisations, such as CARICOM, the Pacific Alliance, SICA and Mercosur.

<sup>(270)</sup> [https://ec.europa.eu/europeaid/news-and-events/eu-and-lac-joining-forces-common-future\\_en](https://ec.europa.eu/europeaid/news-and-events/eu-and-lac-joining-forces-common-future_en)

<sup>(271)</sup> European Commission (2017). New European Consensus on Development: 'Our world, our dignity, our future'. 28 pp. Available at: <https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=OJ:C:2017:210:FULL&from=EN>

<sup>(272)</sup> [https://ec.europa.eu/info/sites/info/files/european-green-deal-communication\\_en.pdf](https://ec.europa.eu/info/sites/info/files/european-green-deal-communication_en.pdf)

<sup>(273)</sup> European Commission (2011). Our life insurance and natural capital: the EU Strategy on Biodiversity to 2020. 19 pp. Available at: <https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=CELEX:52011DC0244&from=EN>

<sup>(274)</sup> European Commission (2011). Roadmap to a Resource-Efficient Europe, 32 pp. Available at: <https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=CELEX:52011DC0571&from=EN>

<sup>(275)</sup> <https://ec.europa.eu/environment/circular-economy>

The EU recognises its global impact on deforestation. According to its own estimates, it was responsible for one third of the imports of all deforestation-associated products between 1980 and 2008<sup>276</sup>. In response to this, in March 2013 the European Union Timber Regulation<sup>277,278</sup> came into force as part of the EU FLEGT Action Plan (Forest Law Enforcement, Governance and Trade). Its goal is to reduce illegal logging and ensure that no timber product from an illegal source can be sold in the EU. By improving governance, clarifying legal frameworks, and implementing trade measures, the FLEGT Action Plan helps address deforestation and forest degradation in producing countries. In July 2019 the European Commission presented a strategy to accelerate EU measures to 'protect and restore the world's forests'<sup>279</sup>, setting out five priorities:

- Reduce the EU consumption footprint on land and encourage the consumption of products from deforestation-free supply chains in the EU;
- Work in partnership with producing countries to reduce pressures on forests and to 'deforest-proof' EU development cooperation;
- Strengthen international cooperation to halt deforestation and forest degradation, and encourage forest restoration;
- Redirect finance to support more sustainable land-use practices;
- Support the availability of, quality of and access to information on forests and commodity supply chains, and support research and innovation.

As part of this, the EU is proposing Forest Partnerships to interested countries to enable them to restore, conserve and sustainably manage forests.

The European Agenda on Security<sup>280</sup> recognises the impacts of environmental degradation in a broader way and includes its links to organised crime. In February 2016, the European Commission adopted the EU Action Plan Against Wildlife Trafficking<sup>281</sup>, whose priorities are:

- preventing trafficking of wild species and addressing root causes;
- implementing and enforcing existing rules more effectively, and more effectively fighting wildlife crime;
- strengthening the global collaboration of source, transit and consumption countries against wildlife trafficking.

The EU supports the various resolutions of the United Nations General Assembly on wildlife trafficking and, in July 2015, it became the first regional economic integration organisation to become a Party to CITES.

The mainstreaming of biodiversity in the set of policies and in the European budget is essential for ensuring that EU development aid has positive impacts with regard to the environment. This is consistent with the new European Consensus on Development's emphasis on policy coherence and the need to integrate sustainable development into all EU policies, with particular focus on finance, the environment, climate change, food security, migration and security. In this respect, an important measure has been the inclusion of provisions for implementing multilateral environmental agreements in free trade agreements between the EU and third countries.

### 6.3 EU FUNDING FOR BIODIVERSITY CONSERVATION

The European Union, including its Member States, is the world's largest provider of development cooperation funding, including for biodiversity. However, significant efforts are still needed to fulfil the Hyderabad call<sup>282</sup>, aimed at doubling the total flow of financial resources devoted to biodiversity for 2015 (compared with the levels of 2006-2010) and maintaining these until at least 2020. In 2017, 7.7 % of general European funds intended for international cooperation and development assistance on a global scale were assigned for biodiversity protection. That same year, the LAC region received 7.1 % of these general funds<sup>283</sup>.

<sup>(276)</sup> European Commission (2013). The impact of EU consumption on deforestation: Comprehensive analysis of the impact of EU consumption on deforestation. Technical report 2013-063.

<sup>(277)</sup> Regulation (EU) No 955/2010 of the European Parliament and of the Council, of 20 October 2010, setting out obligations for operators who commercialise timber and wood products. 12 pp. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32010R0955>

<sup>(278)</sup> [http://ec.europa.eu/environment/forests/timber\\_regulation.htm](http://ec.europa.eu/environment/forests/timber_regulation.htm)

<sup>(279)</sup> [https://ec.europa.eu/info/files/communication-2019-stepping-eu-action-protect-and-restore-worlds-forests\\_en](https://ec.europa.eu/info/files/communication-2019-stepping-eu-action-protect-and-restore-worlds-forests_en)

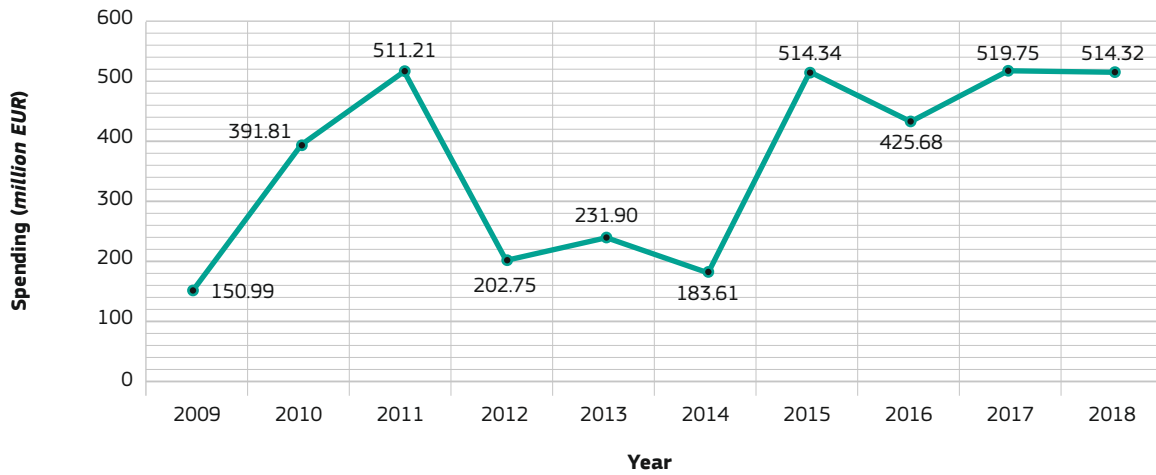
<sup>(280)</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015DC0185>

<sup>(281)</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016DC0087>

<sup>(282)</sup> European Commission (2015). Commission report to the European Parliament and the Council: Mid-term review of the EU Strategy on Biodiversity to 2020. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015DC0478>

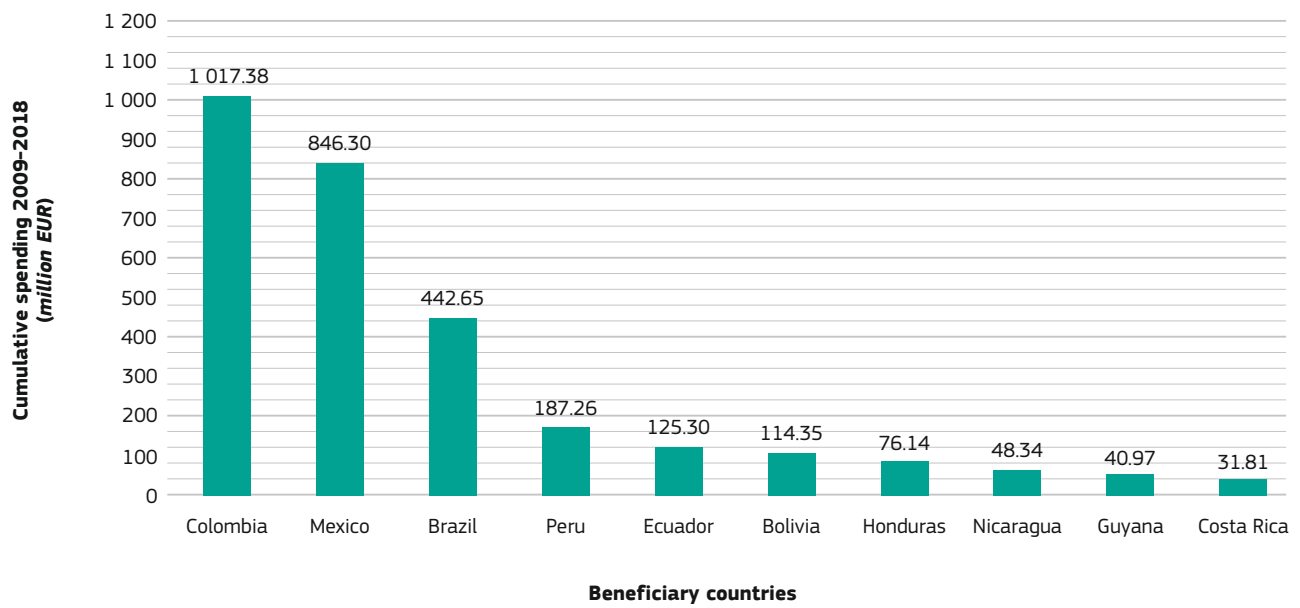
<sup>(283)</sup> Directorate-General for International Partnerships (2018). 2017 results. Available at: [https://ec.europa.eu/international-partnerships/system/files/brochure-results-201807\\_en.pdf](https://ec.europa.eu/international-partnerships/system/files/brochure-results-201807_en.pdf)

**TABLE 6.1** Annual expenditure by the EU and its Member States on general environmental protection in LAC



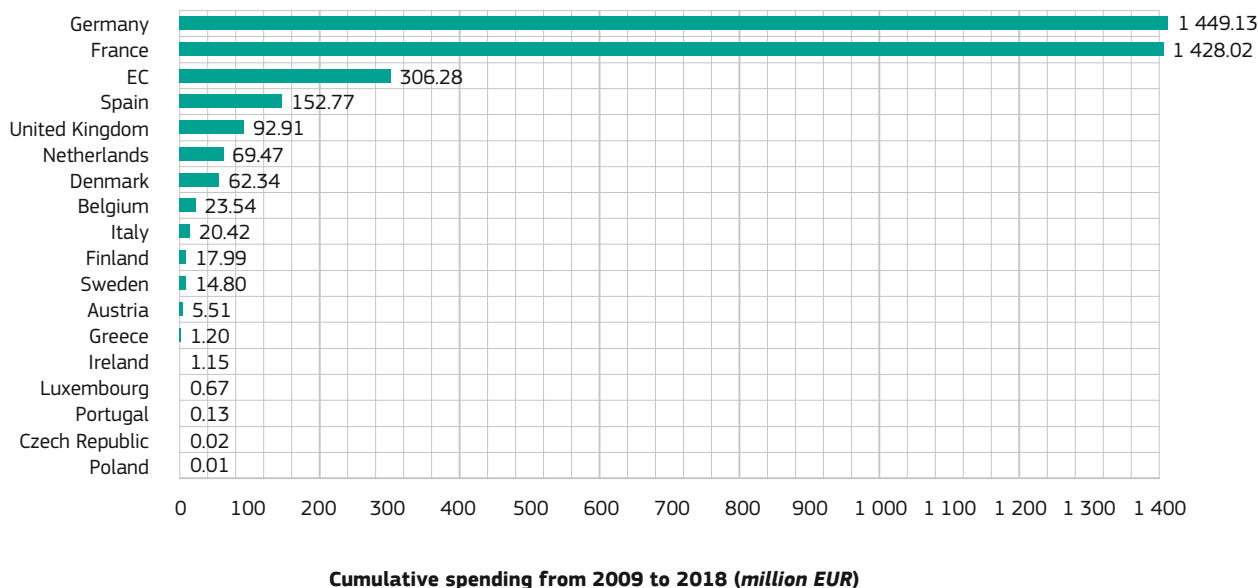
Source: Data from the EC and OECD, available at [https://euaidexplorer.ec.europa.eu/content/explore/recipients\\_en](https://euaidexplorer.ec.europa.eu/content/explore/recipients_en), accessed 7 May 2020.

**TABLE 6.2** Countries benefiting from European cooperation funds for general environmental protection in Latin America and the Caribbean (2009-2018)



Source: Data from the EC and OECD, available at [https://euaidexplorer.ec.europa.eu/content/explore/recipients\\_en](https://euaidexplorer.ec.europa.eu/content/explore/recipients_en), accessed 7 May 2020.

**TABLE 6.3** European donors of cooperation funds for general environmental protection in Latin America and the Caribbean (2009-2018)



Source: Data from the EC and OECD, available at [https://euaidexplorer.ec.europa.eu/content/explore/recipients\\_en](https://euaidexplorer.ec.europa.eu/content/explore/recipients_en), accessed 7 May 2020.

## 6.4 ENGAGING WITH DEVELOPMENT PARTNERS

The European Union operates through a combination of political dialogue, projects, budget support, investment, and trade and cooperation agreements focused on each country's or region's priorities. Its development partners are varied and include regional and international organisations, governments, civil society and the private sector. Sustainable development is one of the keystones of its cooperation model, and biodiversity is a cross-cutting topic of growing importance. As both biodiversity and ecosystem services play fundamental roles in development and cannot be separated from it, they should be fully integrated into the various lines of work the EU undertakes with its development partners.

This was highlighted in the European Green Deal, but there are several obstacles in this regard. These include the large number of issues covered in the dialogues, the frequent consideration of the environment and biodiversity as niche or low-priority issues, and the fact that for several governments their relationship with the European Union is just one of many bilateral relationships they maintain (particularly larger economies). This section describes some examples of how these challenges have been addressed and lessons learned from them.

### 6.4.1 Links with international agendas

LAC and EU countries, committed to multilateralism, are signatories to most of the key conventions on climate and biodiversity (CBD, CITES, UNFCCC, etc.), as well as the SDGs of the 2030 Agenda. They have demonstrated a common interest in promoting their application and joining forces to influence the orientation of future agreements. Through its cooperation instruments, the EU often supports the participation of LAC countries in these international conventions, as well as their integration into national and regional policies and plans.

Together, the two regions represent around a third of the members of the United Nations, a considerable number of members of the G20 and two thirds of the members of the Organisation for Economic Cooperation and Development (OECD), which provides opportunities to guide and advance the international agenda in matters of climate and biodiversity. Collective work is particularly needed to ensure the effective implementation of the 2015 Paris Agreement (COP 21 UNFCCC) and globally promote the use of nature-based solutions (NBS) to achieve joint benefits for climate and biodiversity.

However, it is not only the governments of both regions, but also civil society, sub-national authorities, the productive and financial sectors, and others that have been mobilising to face the

biodiversity crisis. They are cooperating to achieve a more effective implementation of multilateral environmental agreements (CBD), including the Aichi Biodiversity Targets, the Strategic Plan for Biological Diversity and a robust post-2020 biodiversity framework. Close cooperation is also necessary to promote the effective application of the United Nations Convention on the Law of the Sea (UNCLOS) and its implementing agreements. This is in order to achieve the conservation and sustainable use of marine biodiversity in areas outside national jurisdiction and to combat illegal fishing.

Environmental crimes (illegal mining, dumping and deforestation, trafficking of wild species, wood and waste, etc.) are another topic of collaboration between the EU and LAC in the international context. This is conducted through the International Consortium on Combating Wildlife Crime (ICWC), a collaborative initiative between the CITES secretariat, INTERPOL, the UNODC, the World Bank and the World Customs Organisation (WCO), among others. The EU's support aims to facilitate a coordinated effort with the criminal justice systems of countries and regions, so as to combat wildlife and forest-related crimes. Other important agreements and commitments, where both regions are called to collaborate, are covered elsewhere in this study (see Section 1.3.3).

In summary, the EU-LAC partnership has great potential to promote global public goods such as biodiversity more effectively in multilateral forums. Achieving this goal requires an ambitious and innovative approach, carried out in the spirit of the 2030 Agenda for Sustainable Development and the European Green Deal. For this reason, the EU seeks a more strategic approach with LAC, improving the way it interacts with the region, politically and through its trade and investment and cooperation instruments. Likewise, the Green Alliances proposed within the framework of the Green Deal aim to deepen the association with countries or regional groups that wish to and can intensify their commitment to shared objectives.

## 6.4.2 Working through political dialogue

Since the Paris Agreement (2015) and the Los Cabos Declaration (2017), the political exchanges and institutional relations between the EU and LAC on the environmental and climate change have been substantially reinforced. This trend is characterised by increased dialogue on sectorial policies, in particular on the issues of climate change (facilitated by EU initiatives such as the Global Climate Change Alliance and EUROCLIMA), forests (through FLEGT) and water management<sup>284</sup>, and by intensified scientific and technical dialogue between the two regions. This bi-regional dialogue must respond to the priorities identified in the joint Communication from April 2019<sup>285</sup>:

- Partnering for prosperity – by supporting sustainable growth and decent jobs; reducing socio-economic inequalities; transitioning towards a digital, green and circular economy; as well as further strengthening and deepening the already solid trade and investment relationship;
- Partnering for democracy – by strengthening the international human rights regime including gender equality; empowering civil society; consolidating the rule of law; and ensuring credible elections and effective public institutions;
- Partnering for resilience – by improving climate resilience, environment and biodiversity; fighting against inequalities through fair taxation and social protection; fighting organised crime; and deepening dialogue and cooperation on migration and mobility, in particular to prevent irregular migration and trafficking in human beings;
- Partnering for effective global governance – by strengthening the multilateral system, including for climate and environmental governance; deepening cooperation on peace and security; and implementing the 2030 Agenda.

A number of countries in the region suffer serious environmental problems, around which has risen the political profile of environmental issues, especially when they have caused financial losses and health or public safety crises. In many cases, the above-mentioned problems are directly related to biodiversity and ecosystem service preservation, resulting in their greater weight on the political agenda perhaps facilitating dialogue on these issues. In addition, environmental issues tend to be politically less sensitive than economic cooperation, trade or security, and can thus provide a general entry point for cooperation between governments.

In order to build bridges between biodiversity conservation and other lines of environmental intervention and thus achieve mutual benefits, it is important to understand each country's priorities. A recent Ipsos survey (2019) analysed the environmental issues that people of various nationalities from across the globe perceived to be priorities.<sup>286</sup> In the 6 Latin American countries studied<sup>287</sup>, deforestation takes first place, followed by air pollution, water pollution and climate change. The Brazilians, Argentinians and Mexicans are the most concerned about deforestation, while for Chileans and Colombians air pollution is the main environmental threat. On the other hand, climate change is viewed with concern by Mexicans and Peruvians, and of the 28 countries surveyed, the Argentinians and Peruvians place the greatest importance on flooding risks. It is important to disseminate the message that biodiversity and ecosystem services are among the main areas of action to respond to these challenges. In particular, land-use management-based solutions have huge potential for climate change mitigation, water purification, and flood protection. In turn, the sustainable use of

<sup>(284)</sup> European Commission (2019). Evaluation of the European Union's Regional Development Cooperation with Latin America (2009-2017).

<sup>(285)</sup> [https://eeas.europa.eu/headquarters/headquarters-homepage/60853/eu-lac-joint-communication\\_en](https://eeas.europa.eu/headquarters/headquarters-homepage/60853/eu-lac-joint-communication_en)

<sup>(286)</sup> <https://www.ipsos.com/en/climate-change-increases-importance-citizens-around-world>

<sup>(287)</sup> Argentina, Brazil, Chile, Colombia, Mexico and Peru.



^ Franz Timmermans, Executive Vice-President of the European Commission during the presentation of the EU Biodiversity Strategy, May 2020. The European Green Deal and its specific strategies will guide the definition of future EU internal policies as well as political dialogue with LAC governments and other international partners. (© Jennifer Jacquemart/EU)

forest resources is a prerequisite for conserving water and the enormous biodiversity found in forests.

One of the priorities of the EU Action Plan against wildlife trafficking is strengthening the global partnership of source, consumer and transit countries against wildlife trafficking (Priority 3). To achieve this objective, actions include identifying priority countries, establishing specific structures for dialogue and technical cooperation, including this topic on the agenda of political and sectoral dialogues and in high-level meetings with the main third countries or regions. The need to create a network of contact points in the relevant countries' delegations and embassies is also recognised, making use, where appropriate, of existing structures such as the Green Diplomacy Network.

Political dialogue needs to be based on a proper understanding of the interests of different groups and stakeholders, as well as national priorities and the relevant areas of action. Non-environmental sectoral policies may also be highly relevant.

Policies and regulations aimed at combating corruption and the laundering of money and tax revenues are generally decisive in addressing the unsustainable and illegal use of resources within a framework of effective cooperation. Finally, so that the political dialogue has relevant and constructive results, it is essential to have access to the best and most up-to-date information on biodiversity, ecosystem services and other issues of environmental importance.

### 6.4.3 Using the best information available

The construction of powerful and politically and culturally relevant arguments about the importance of biodiversity and ecosystem services must be based on adequate knowledge together with a combination of data and examples. The purpose of *Larger than Jaguars* is to provide inputs to a strategic regional vision of the priority biodiversity conservation topics. However, in many cases,



political dialogue will also require analysis at other scales (global, national or sub-national) to appeal to political decision-makers in partner countries. When this is the case, the EU and its partners will have to combine and summarise the information available to make it relevant and accessible to policy-makers.

Some of the most useful information sources are listed below:

#### Global level:

- The general assessment of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES, 2019).<sup>288</sup>
- The overview of global resources drafted by the United Nations Environment Programme (UNEP, 2019).<sup>289</sup>
- The Living Planet Report by the World Wide Fund for Nature (WWF, 2018).<sup>290</sup>
- The IUCN red lists of species and ecosystems.<sup>291</sup>
- The World Database of Key Biodiversity Areas, managed by BirdLife International.<sup>292</sup>

#### Regional or ecosystem level:

- The regional evaluation of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES, 2018).<sup>293</sup>
- The State of Biodiversity in the Caribbean Community: A Review of Progress Towards the Aichi Biodiversity Targets (UNEP, 2018).<sup>294</sup>
- The ecosystem profiles and information on key sites for biodiversity and threatened species by the Critical Ecosystem Partnership Fund (CEPF).<sup>295</sup>
- The Regional Reference Information System of the Caribbean Protected Areas Gateway, of the BIOPAMA observatory.<sup>296</sup>
- The latest global Forest Resources Assessment (FRA, 2015) by the FAO.<sup>297</sup>

#### National and subnational level:

- National biodiversity strategies and action plans in the field of biological diversity (including the strategies and plans submitted within the CBD).<sup>298</sup>
- The environmental profiles developed by the EU<sup>299</sup> and the United States Agency for International Development (USAID)<sup>300</sup>.

#### Wildlife trafficking:

- The World Wildlife Crime Report<sup>301</sup> and The Wildlife and Forest Crime Analytic Toolkit.<sup>302</sup> by the UNODC.
- Government reports and relevant documents submitted to CITES.

#### Importance of biodiversity and ecosystem services for livelihoods and financial benefits:

- Studies by the Economics of Ecosystems and Biodiversity (TEEB) initiative.<sup>303</sup>
- Reports from the Global Alliance for Wealth Accounting and Valuation of Ecosystem Services (WAVES).

The EU Joint Research Centre (JRC) can play a key role in generating and using relevant information at an international scale. Several products and instruments are based on satellite observation of the Copernicus system, such as the globally accessible Global Wildfire Information System, or more specific products on demand from countries. The JRC has also established bilateral collaborations with some research partners, such as the Brazilian National Institute for Space Research.

<sup>(288)</sup> [https://www.ipbes.net/sites/default/files/downloads/spm\\_unedited\\_advance\\_for\\_posting\\_htrn.pdf](https://www.ipbes.net/sites/default/files/downloads/spm_unedited_advance_for_posting_htrn.pdf)

<sup>(289)</sup> <https://www.resourcepanel.org/reports/global-resources-outlook>

<sup>(290)</sup> [wwf.panda.org/knowledge\\_hub/all\\_publications/living\\_planet\\_report\\_2018/](http://wwf.panda.org/knowledge_hub/all_publications/living_planet_report_2018/)

<sup>(291)</sup> <https://www.iucnredlist.org/> y <https://iucnrl.org/>

<sup>(292)</sup> <http://www.keybiodiversityareas.org/about>

<sup>(293)</sup> [https://www.ipbes.net/system/tdf/2018\\_americas\\_full\\_report\\_book\\_v5\\_pages\\_0.pdf?file=1&type=node&id=29404](https://www.ipbes.net/system/tdf/2018_americas_full_report_book_v5_pages_0.pdf?file=1&type=node&id=29404)

<sup>(294)</sup> <https://www.unenvironment.org/resources/publication/state-biodiversity-caribbean-community-review-progress-towards-aichi>

<sup>(295)</sup> <https://www.cepf.net/our-work/biodiversity-hotspots>

<sup>(296)</sup> <http://caribbean-rris.biopama.org/>

<sup>(297)</sup> <http://www.fao.org/forest-resources-assessment/past-assessments/fra-2015/en/>

<sup>(298)</sup> <https://www.cbd.int/nbsap/search/default.shtml>

<sup>(299)</sup> The profiles for Bolivia, Brazil, Guyana, Honduras, Saint Lucia and Suriname are available at: <https://europa.eu/capacity4dev/public-environment-climate/minisite/tools-and-methods/country-environmental-profile>

<sup>(300)</sup> Available at: <https://portals.iucn.org/library/taxonomy/term/36166>

<sup>(301)</sup> [https://www.unodc.org/documents/data-and-analysis/wildlife/World\\_Wildlife\\_Crime\\_Report\\_2016\\_final.pdf](https://www.unodc.org/documents/data-and-analysis/wildlife/World_Wildlife_Crime_Report_2016_final.pdf)

<sup>(302)</sup> [https://www.unodc.org/documents/Wildlife/Toolkit\\_s.pdf](https://www.unodc.org/documents/Wildlife/Toolkit_s.pdf)

<sup>(303)</sup> [www.teebweb.org/our-publications/](http://www.teebweb.org/our-publications/)



^ *Illegal logging, Pirititi indigenous territory, Brazil. According to a 2019 survey, deforestation is the environmental problem that causes greatest concern in six major Latin American countries. The EU works with partner countries under the forest law enforcement, governance and trade (FLEGT) action plan (2003) to reduce illegal logging globally and prevent the sale of illegal timber products in the EU. A further recent policy initiative is the 2019 strategy to accelerate EU action to protect and restore the world's forests. (© Felipe Werneck/Ibama)*

#### 6.4.4 Engaging through trade relations

The EU has signed association, free trade, or political and cooperation agreements with 27 of the 33 countries in LAC. Clauses have been included at different degrees about biodiversity, climate and sustainable development that bind both parties in these areas.

Trade agreements negotiated with Mercosur, Mexico, Chile, Central America, CARIFORUM, Colombia, Peru and Ecuador include provisions on trade and sustainable development. They commit the parties to respect their national laws and international agreements in these areas. They also provide a vital opportunity to address biodiversity conservation, sustainable value chains, and sustainable management of natural resources. In particular, the issue of wildlife crime can also be introduced into discussions on trade governance. These agreements provide opportunities to give more weight to the monitoring of illegal activities, the protection of human rights defenders and the environment, and law enforcement. It is important that these and other biodiversity-related issues have a solid approach in bilateral summits or trade negotiations.

The pressure to adopt more sustainable trade rules may also come from industry leaders committed to adopting voluntary standards for raw materials from agriculture and mining. European companies, due to their accumulated experience in Europe, are well positioned to adopt and demonstrate good

practices, and adhere to EU standards in environmental and social matters, in their investments and commercial transactions with the LAC countries. This same experience gives them comparative advantages in the LAC market to export and invest in green products and technologies. The EU Communication on protecting and restoring the world's forests (2019) emphasises the promotion, through regulatory or other measures, of zero-deforestation supply chains.

In the timber sector, the EU FLEGT Action Plan supports, among others, exporting countries to improve governance, transparency and participatory decision making. This with the objective of ensuring full compliance with the law in this sector. In 2018, negotiations for Voluntary Partnership Agreements (VPAs) with Honduras and Guyana were concluded within the framework of FLEGT. The European Union Timber Regulation requires operators from all countries (EU and others) to take measures to ensure the legal origin of the wood they trade on the European market.

Lastly and with high relevance for aquatic ecosystems, within the framework of the EU Regulation to prevent, deter and eliminate illegal, unreported and unregulated fishing (in effect since 2010), only legally certified marine fishery products can be imported or exported by the EU. The EU actively collaborates with all stakeholders to ensure its implementation and has in-depth dialogues with various LAC countries.



^ In the Pantanal wetlands spanning Brazil, Bolivia and Paraguay, cattle raising is the primary productive activity. One EU project promotes a certification process for livestock farmers who apply sustainable production principles based on traditional knowledge and adaptive management. (© John Warburton-Lee/Alamy Stock Photo)

#### 6.4.5 Partnerships, financial assistance and capacity building

Partnerships are a cornerstone of the relationship between the EU and LAC. This includes cooperation at the regional, sub-regional and bilateral levels, and is based on a comprehensive and diversified set of partnership tools and programmes. Due to their increasing level of development, some countries are no longer recipients of bilateral aid, but participate in regional or thematic programmes, or are even providers of support in South-South or triangular cooperation mechanisms<sup>304</sup>.

The Multiannual Indicative Regional Programme for Latin America and the Caribbean (2014-2020) includes several references to biodiversity. In particular, they refer to the potential of ecosystems for mitigating and adapting to climate change, but also transition towards sustainable economies and the strengthening of public policies. Few current national indicative programmes (NIPs) (2014-20), which establish the framework of cooperation priorities between the EU and some LAC countries, deal specifically with biodiversity. However, they present important opportunities to integrate environmental sustainability into various sectors of cooperation. The next EU programming framework with these countries and region (2021-27) will reflect, among others, the priorities of the European Green Deal.

Examples of EU-funded multi-country projects with a direct objective on biodiversity and ecosystem protection include the following, in South and Central America:

- The EUROCLIMA+ programme seeks to promote more sustainable development from the perspective of environment and climate change in Latin America. This programme focuses on knowledge management, capacity development and strategic dialogue related to climate change. The programme implements pilot projects that respond to various challenges, including forestry, biodiversity conservation and ecosystem management, resource and energy efficiency, disaster risk mitigation and management, renewable energy and food security.
- In collaboration with the Committee on the Environment, Sustainable Development and Climate Change of the ZICOSUR (Centre West of South America Integration Zone) has a European endowment of EUR 12.5 million. It supports NGO consortia and sub-national organisations in the area, to implement actions for the conservation, sustainable use and good governance of biodiversity in four vulnerable biomes (Cerrado, Gran Chaco, Pantanal and Bosque Chiquitano).

<sup>(304)</sup> European Commission (2019). Evaluation of the European Union's Regional Development Cooperation with Latin America (2009-2017).



^ *An EU-backed project aims to combat wildlife and timber trafficking in the Andes and Amazon by boosting national governance and enforcement capacities related to this criminal activity in Bolivia, Ecuador, Colombia and Peru. (© WCS Peru)*

- The goal of the Páramos project (EUR 6.25 million) was to help maintain the hydrological regulation capacity and biodiversity conservation in the key páramo ecosystems of Colombia, Ecuador and Peru. It seeks to strengthen the management capacities of the communities and institutions involved in the administration of that area. Innovative aspects include the establishment of a regional system for monitoring the páramos, regional thematic studies, the discussion of management tools, and the assessment of conservation policy and funding instruments.
- The Amazon project 2.0, with a European subsidy of EUR 6 million, is empowering a set of indigenous and rural organisations in Brazil, Colombia, Ecuador, Guyana, Peru and Suriname to respond and act in an organised manner, in collaboration with national and international NGOs, to deforestation and degradation of Amazonian forests, the loss of their biodiversity and the deterioration of their ecosystem services.
- The project Combating Wildlife and Timber Trafficking in the Andes-Amazon, implemented by WWF and WCS, with a European grant of EUR 5.5 million, focuses on strengthening regional capacities for combating illegal timber and wildlife trafficking in Bolivia, Ecuador, Colombia and Peru.
- Through the Organisation of Eastern Caribbean States (OECS), the ACP Support Programme for Small Island Developing States (SIDS) and Coastal Countries has allocated EUR 12 million to the Caribbean region to strengthen capacities and support regional, national and local efforts to manage coastal and marine biodiversity, increase resilience to climate change and reinforce environmental sustainability partnerships.
- Through its Multiannual Indicative Programme for the Caribbean, the EU continues its support for the consolidation of the Caribbean Biological Corridor. It focuses on Cuba, Haiti and the Dominican Republic, with a budget of EUR 3.5 million for the 2017-2020 phase. This initiative aims to contribute to the long-term conservation of the biodiversity of the Caribbean islands.
- The BIOPAMA Programme, implemented by the IUCN and JRC, devotes EUR 60 million (about 20 % for the Caribbean) to improving long-term biodiversity conservation and reducing the poverty of populations living around PAs by strengthening institutions and networks.
- The Sustainable Wildlife Management programme is funded by the EU and implemented through the OACPS secretariat with the FAO, CIFOR, CIRAD and WCS in ACP countries. Guyana, the only representative from the Caribbean, has a budget of EUR 2.5 million. Its goal is to contribute to the conservation of wildlife, ecosystems and their services, as well as to improve the living conditions and food security of communities that depend on these resources.

A number of global programmes are also being implemented in Caribbean countries (including Belize, Guyana and Suriname), with funding from the EU under the supervision of the Organisation of Africa, Caribbean and Pacific States (OACPS).



^ In order to improve coordination and leverage more funds, EU cooperation seeks to coordinate with development finance institutions. The LAIF and CIF programmes have succeeded in channelling investments related to climate change mitigation or adaptation, especially in the areas of water and renewable energy. It is to be hoped that a growing interest among institutions and companies for 'green' investments should now provide opportunities to finance biodiversity efforts. (© gpachecop/Shutterstock)

- The marine biodiversity programme supports 8 projects for the conservation of marine and coastal biodiversity in the Caribbean Sea basin, with an allocation of about EUR 1 million each.
- The ACP-MEAs programme strengthens the capacities of these countries to implement the multilateral environmental agreements with a special focus on biodiversity (CBD, CITES, CMS...) and chemicals.

An important subset of European funds is available to civil society and employs regional and global (and sometimes bilateral) approaches. For example, these funds provide the means to strengthen the management of the Bruno Racua Departmental Wildlife Reserve in Bolivia, with a special focus on territorial governance and the promotion of sustainable and inclusive development with the government, municipal administrations and communities linked to the reserve. By supporting local CSOs, the European Union can also help ensure that the views of civil society are heard in national and international political fora and its efforts promoted as examples of good practice. This may be especially important in countries where CSOs are underdeveloped or have limited scope for action. Civil society action on corruption, transparency and public awareness indirectly benefits environmental governance, not limited to CSOs with specific environmental agendas.

Aiming for greater coordination and leveraging of funds, EU cooperation increasingly seeks to coordinate with development finance institutions, particularly from EU Member States,

developing mixed mechanisms like donations, loans, financial guarantees, etc. This also allows for a greater involvement of the private sector. For example, the Latin America Investment Facility (LAIF) and the Caribbean Investment Facility (CIF) have contributed to numerous investments relevant to mitigation or adaptation to climate change, especially in the fields of water and energy. The growing focus of many institutions and companies on sustainable finance and 'green' investments should offer new opportunities to finance biodiversity efforts.

Finally, the challenges identified in the evaluation of the EU's cooperation with LAC (2019) at a continental scale are, in particular:

- the use of lessons learned with regard to involving decision-makers from governments and civil society;
- greater multisectoral dialogue;
- strengthening sub-regional institutions;
- enhanced synergies between the various programmes.

All of the approaches described in this section are more effective when they take place within a coordination framework involving all the stakeholders and partners who support a similar agenda and who can contribute to this through their experience and resources, be they donors, national agencies, diplomatic missions or civil society organisations. The EU's convening power and its role as a long-term development partner in many countries in the region position it as an effective catalyst for joint efforts for biodiversity conservation.



A close-up photograph of a squirrel monkey's face, looking slightly to the left. The background is a blurred tropical rainforest with green foliage and brown tree trunks. A large, colorful brushstroke in shades of blue, green, and yellow is overlaid on the right side of the image. The word "Conclusion" is written in white, bold, sans-serif font, followed by a white right-pointing triangle. A thin white horizontal line is positioned above the text, and a dotted white horizontal line is positioned below it.

# Conclusion ▶

*The squirrel monkey (*Saimiri oerstedii*) is found primarily in tropical lowland rainforest from Paraguay to Costa Rica. Due to its inquisitive nature it is often a victim of the pet trade. This has consequences not only on the species' population but also, potentially, on disease transmission between wildlife and humans.*

*(© Avish Bosh)*



^ Man has coexisted for thousands of years with nature and a great diversity of species. Among these is the jaguar, an emblematic symbol in past and present Latin American cultural representations. The modern world challenges us to devise new forms of coexistence that reconcile our short-term needs with considerations of long-term sustainability. (© Jorge Mario Álvarez Arango; © Daniel Alarcón; © Yampol)

Latin America and the Caribbean harbour an extraordinary treasure of terrestrial, freshwater and marine species and ecosystems. Although these ecosystems are under pressure, they still provide and contribute to services of enormous global and regional importance, such as climate regulation and the provision of fresh water. This report presents a call to action for governments, industry and organisations active in LAC, and underlines the need for a coordinated and coherent response to the specific challenges of the biodiversity crisis faced by the region.

Fundamental to that response is a need to address the challenges and causes of environmental degradation: the expansion of agriculture, legal or illegal overexploitation of biological resources, the development of extractive industries and the accelerated processes of urbanisation and infrastructure development, linked to a growing population and the global demand for food and raw materials. The analysis of threats and needs in this report offers a tool for prioritising action and allocating resources to support biological diversity, and to address the conservation and sustainable development challenges.

Knowledge, applied to understanding and addressing threats and optimising sustainable benefits, is the foundation of successful

biodiversity conservation. While important gaps remain, work to understand the status and needs of species, to map ecosystem functioning and to learn from innovative solutions is ongoing throughout the region. Applying the results of scientific research to policy-making, planning and field management decisions can be made more effectively as technology facilitates interaction between people across geographic and language barriers.

The establishment of an extensive network of protected areas indicates that biodiversity is increasingly viewed as an asset to protect and manage wisely. The role of private reserves, although not yet well developed, is likely to grow as private sector corporations are encouraged to invest in ecosystem services, conservation and the greening of their own business processes. There is also increasing recognition of the role of indigenous communities in conservation, which are more heavily involved with protected area management in Latin America than in any other region in the world. Supporting and learning from these communities can make a vital contribution to biodiversity, as well as to social development.

Although LAC is the region of the world with the largest proportion of protected territory, there remain important challenges in order to ensure effective conservation inside PAs, improve the





representation of the different biomes and strengthen environmental connectivity. These are being addressed through hundreds of initiatives that will (i) make law enforcement more effective, (ii) engage with stakeholders, (iii) maximise benefits while maintaining ecological integrity, and (iv) find innovative ways to ensure sustainable financing.

Landscape territorial management is gaining recognition as an integral approach to promote biodiversity and ecosystem conservation. This approach is in line with the growing understanding that conservation is a foundation for economic development and long-term sustainability, not an alternative to it. As such, more and more consumers are demanding good agricultural and manufacturing practices, while major industries are progressively putting in place safeguards and reviewing the sustainability and impacts of their operations. Although truly integrated landscape management remains a rarity, many elements of such an approach are already being applied, and could be scaled-up, including biodiversity corridors, multi-stakeholder platforms for decision-making and schemes for the payment of ecosystem services.

In decision-making, the importance of taking environmental issues into account is increasingly recognised. As a result of

action by governments, civil society, business and ordinary citizens, there are thousands of positive initiatives across the region, and many opportunities to support and invest in the promotion of more sustainable economies and societies. Donor organisations, financial institutions and investors are increasingly supportive of initiatives, which recognise that economic activity should be based on, and contribute to, more equitable and sustainable social and environmental practices.

The European Union has been a very significant actor for the conservation and sustainable use of biodiversity in LAC, in particular through its development cooperation. With the European Green Deal adopted in 2019, it plans to reinforce this priority for the EU and the planet in its economic development strategy and therefore in all its policies. The preparation of this report contributes to promoting a new approach, which emphasises the vital importance of the environment-development nexus. It is hoped that *Larger than Jaguars* will be a tool that strengthens cooperation among national and international players working to ensure the preservation of our planet's irreplaceable natural resource base.





# Annexes ▶

*The yareta plant (*Azorella compacta*) is typical of the puna grassland ecosystem in the southern high Andes. It is found at elevations of 3 200-4 800 m above sea level in Bolivia, Chile, Argentina and Peru, grows at a rate of 1.5 cm per year and is extremely long-lived: certain plants are estimated to be over 3 000 years old. However, its use as fuel and in traditional medicine has led it to be overexploited in some areas, and the species is now threatened. (© Katie Wheeler)*

**ANNEX 1**

National public bodies that manage the main PA systems in Latin America and the Caribbean

Country	Entity	Hierarchical institution	Web address for contact
Argentina	National Parks Administration	Ministry of Environment	<a href="http://www.parquesnacionales.gov.ar">http://www.parquesnacionales.gov.ar</a>
Belize	Forestry Department		<a href="http://www.forestdepartment.gov.bz/">http://www.forestdepartment.gov.bz/</a> or <a href="https://www.facebook.com/fdbelize/">https://www.facebook.com/fdbelize/</a>
Bolivia	National Protected Areas Service	Ministry of Environment and Water	<a href="http://www.sernap.gob.bo">http://www.sernap.gob.bo</a>
Brazil	Chico Mendes Institute for Biodiversity Conservation	Ministry of the Environment	<a href="http://www.icmbio.gov.br/portal/">http://www.icmbio.gov.br/portal/</a>
Chile	Division of Natural Resources and Biodiversity	Ministry of Environment	<a href="http://portal.mma.gob.cl/">http://portal.mma.gob.cl/</a>
Colombia	Special Administrative Unit of the Network of National Natural Parks of Colombia	Ministry of Environment and Sustainable Development	<a href="http://www.parquesnacionales.gov.co">http://www.parquesnacionales.gov.co</a>
Costa Rica	Protected Areas Management	National System of Conservation Areas	<a href="http://www.sinac.go.cr/">http://www.sinac.go.cr/</a>
Cuba	National Centre for Protected Areas	Ministry of Science, Technology and the Environment	<a href="http://www.snap.cu">http://www.snap.cu</a>
Ecuador		Ministry of Environment	<a href="http://areasprotegidas.ambiente.gob.ec/">http://areasprotegidas.ambiente.gob.ec/</a>
El Salvador	Management of Protected Areas and Biological Corridor	Ministry of Environment and Natural Resources	<a href="http://www.marn.gob.sv/">http://www.marn.gob.sv/</a>
Guatemala	National Council of Protected Areas		<a href="https://conap.gob.gt/">https://conap.gob.gt/</a>
Guyana	Natural Resources Management Division	Environmental Protection Agency	<a href="http://www.epaguyana.org/">http://www.epaguyana.org/</a>
Honduras	Protected Areas and Wildlife Sub-Directorate	National Institute of Forest Conservation and Development, Protected Areas and Wildlife	<a href="https://portalunico.iaip.gob.hn/portal/index.php?portal=349">https://portalunico.iaip.gob.hn/portal/index.php?portal=349</a>
Mexico	National Commission of Natural Protected Areas	Secretariat of the Environment and Natural Resources	<a href="http://www.conanp.gob.mx">http://www.conanp.gob.mx</a>
Nicaragua	Specific Directorate of Protected Areas	General Directorate of Natural Heritage, Ministry of Environment and Natural Resources	<a href="http://www.marena.gob.ni">http://www.marena.gob.ni</a>
Panama	National Directorate of Protected Areas and Wildlife	Ministry of Environment	<a href="http://www.miambiente.gob.pa/">http://www.miambiente.gob.pa/</a>
Paraguay	General Directorate for the Protection and Conservation of Biodiversity	Secretariat of Environment	<a href="http://mades.gov.py/la-seam">http://mades.gov.py/la-seam</a>
Peru	National Service of Natural Areas Protected by the State	Ministry of the Environment	<a href="http://www.sernanp.gob.pe/">http://www.sernanp.gob.pe/</a>
Dominican Republic	Directorate of Protected Areas	Vice-Ministry of Protected Areas and Biodiversity	<a href="https://ambiente.gob.do/viceministerio-areas-protegidas-y-biodiversidad/">https://ambiente.gob.do/viceministerio-areas-protegidas-y-biodiversidad/</a>
Suriname	Nature Conservation Division	Ministry of Environment and Natural Resources	
Uruguay	National Protected Areas System Division	National Directorate for the Environment, Ministry of Housing, Spatial Planning and the Environment	<a href="https://www.gub.uy/ministerio-ambiente/areas-protegidas">https://www.gub.uy/ministerio-ambiente/areas-protegidas</a>
Venezuela	National Parks Institute	Ministry of People's Power for Eco socialism and Water	<a href="http://www.inparques.gob.ve/cms/">http://www.inparques.gob.ve/cms/</a>

## ANNEX 2

## Protected area coverage in LAC countries and territories

Sub-region and country or territory	Protected areas		
	Number	Land area (km <sup>2</sup> )	% of land area
<b>South America</b>			
Argentina	458	235 911	9 %
Bolivia	167	336 407	31 %
Brazil	2 299	2 509 321	29 %
Chile	211	155 155	20 %
Colombia	1 198	312 602	15 %
Ecuador	83	55 980	22 %
Guyana	5	17 953	8.5 %
French Guyana	39	43 588	52 %
Paraguay	98	57 473	14 %
Peru	252	279 620	22 %
Suriname	22	21 426	15 %
Uruguay	29	6 150	3.5 %
Venezuela	251	496 701	54 %
<b>Central America</b>			
Belize	120	8 402	38 %
Costa Rica	165	14 609	28 %
El Salvador	168	1 806	9 %
Guatemala	347	22 039	20 %
Honduras	113	27 060	24 %
Mexico	1 146	284 801	14 %
Nicaragua	95	48 104	37 %
Panama	95	15 773	21 %
<b>Caribbean</b>			
Antigua and Barbuda	16	85	19 %
Bahamas	54	4 930	37 %
Barbados	9	6	1.3 %
Bonaire	2	59	20 %
British Virgin Islands	88	16	9 %
Cayman Islands	58	31	11 %
Cuba	226	18 118	16 %
Curaçao	14	71	16 %
Dominica	10	173	22 %
Dominican Republic	147	12 727	26 %
Granada	49	37	10 %
Guadelupe	86	1 170	70 %
Haiti	20	1 954	7 %
Jamaica	140	1 760	16 %
Martinique	72	803	70 %
Puerto Rico	83	657	7 %
Saint Bartholomew	5	5	25 %
Saint Lucia	42	177	19 %
Saint Martin	22	8	13 %
Saint Vincent and the Grenadines	55	92	22 %
Trinidad and Tobago	44	1 595	31 %
Turks and Caicos	34	452	44 %
United States Virgin Islands	39	52	14 %

Region 1. Central America and the Caribbean						
No on map	Name of key landscape for conservation	Country	Ecotype / biome	Main protected areas	Particular characteristics	Surface (km <sup>2</sup> )
1	Chihuahua and Tehuacán deserts	Mexico	Deserts		<ul style="list-style-type: none"> <li>Exceptional richness of desert species</li> <li>High degree of endemism of certain taxa and unusual plant communities</li> </ul>	23 504
2	Mesoamerican Pacific	Mexico, Guatemala, El Salvador	Mangrove forests, coastal dry forests, montane conifer forests		<ul style="list-style-type: none"> <li>High biodiversity and high levels of endemism</li> <li>Habitat for many endangered species</li> <li>Important nesting sites</li> <li>Contains some of the most extensive subtropical coniferous forests</li> <li>Subject to ancient and intense pressures, resulting in high levels of fragmentation</li> </ul>	38 996
3	Selva Maya	Belize, Guatemala, Mexico	Moist forests	<ul style="list-style-type: none"> <li>Montañas Mayas – Chiquibul Biosphere Reserve</li> <li>Calakmul Biosphere Reserve</li> <li>Montes Azules NP</li> <li>Sierra del Lacandón NP</li> <li>Laguna del Tigre NP</li> <li>Chiquibul NP</li> </ul>	<ul style="list-style-type: none"> <li>Second largest block of tropical forest in the Americas, an important carbon sink and water catchment area.</li> <li>High level of endemism</li> <li>Endangered and vulnerable species</li> <li>200 archaeological sites</li> </ul>	127 486
4	Zapata wetlands	Cuba	Wetlands	<ul style="list-style-type: none"> <li>Ciénaga de Zapata Biosphere Reserve</li> <li>Ciénaga de Zapata NP</li> </ul>	<ul style="list-style-type: none"> <li>Largest wetlands in the Caribbean and among the best preserved, Ramsar site</li> <li>Important centre of diversity and endemism</li> <li>Provides habitats with unique vegetation and is ideal for numerous species</li> <li>Subjected to many pressures</li> </ul>	12 565
5	Central mountain range - Northern Plain	Dominican Republic, Haiti	Moist forests	<ul style="list-style-type: none"> <li>Armando Bermúdez NP</li> <li>José del Carmen Ramírez NP</li> </ul>	<ul style="list-style-type: none"> <li>Exceptionally distinctive island flora and fauna</li> <li>Part of the Caribbean Biological Corridor</li> <li>Provide fundamental ecosystem services to downstream communities</li> <li>Encompasses one of the sectors identified as intact forest landscape</li> </ul>	16 104
6	Massif de la Selle - Bahoruco and Enriquillo wetlands - Jaragua	Dominican Republic, Haiti	Coastal wetlands, dry, moist and montane forests	<ul style="list-style-type: none"> <li>Jaragua NP</li> <li>Jaragua – Bahoruco – Enriquillo Biosphere Reserve</li> </ul>	<ul style="list-style-type: none"> <li>Part of the Caribbean Biological Corridor</li> <li>Maintains a complete high-altitude corridor and high range of ecosystems</li> <li>Provides fundamental ecosystem services to communities</li> </ul>	10 815
7	Macaya Peak	Haiti	Coniferous forests	<ul style="list-style-type: none"> <li>Macaya NP</li> </ul>	<ul style="list-style-type: none"> <li>Important for generating water</li> <li>Conserves several endangered species, including endemic species</li> </ul>	6 953
8	Portland Bight protected area	Jamaica	Dry forests and mangrove forests	<ul style="list-style-type: none"> <li>Portland Bight Protected Area</li> </ul>	<ul style="list-style-type: none"> <li>Key Areas for Biodiversity</li> <li>Includes the largest area of dry limestone forest in the Caribbean and Central America</li> <li>Important for people who depend on coastal resources</li> </ul>	2 527

No on map	Name of key landscape for conservation	Country	Ecotype/biome	Main protected areas	Particular characteristics	Surface (km <sup>2</sup> )
9	Cockpit Country – North coast forest – Black River Great Morass	Jamaica	Moist forests		<ul style="list-style-type: none"> <li>• Largest block of moist forest in the Greater Antilles</li> <li>• Exceptionally distinctive island flora and fauna</li> <li>• Source of drinking water for 40 % of Jamaicans</li> <li>• Important flow rate and flood control functions</li> <li>• Tourism pressures</li> </ul>	2 632
10	Moist forest of the Atlantic isthmus	Honduras, Nicaragua, Costa Rica	Coastal moist forests	<ul style="list-style-type: none"> <li>• Rio Plátano Biosphere Reserve</li> <li>• Bosawas NR</li> <li>• Punta Gorda Indio Maiz NR</li> <li>• Tortuguero NR</li> </ul>	<ul style="list-style-type: none"> <li>• Remnants of forests classified as intact forest landscapes</li> <li>• Heart of the Mesoamerican Biological Corridor</li> <li>• High biodiversity</li> <li>• Migration route</li> </ul>	142 877
11	Forests of Talamanca and the Pacific isthmus	Costa Rica, Panama	Moist forests	<ul style="list-style-type: none"> <li>• La Amistad Biosphere Reserve</li> <li>• Santa Fe NP</li> <li>• Chagres NP</li> </ul>	<ul style="list-style-type: none"> <li>• Regional centre of endemism</li> <li>• Presence of indigenous communities</li> </ul>	31 685
12	Moist forests of Chocó - Darien	Panama, Colombia	Moist forests	<ul style="list-style-type: none"> <li>• Darien NP</li> </ul>	<ul style="list-style-type: none"> <li>• One of the largest active centres of speciation and endemism in the world</li> <li>• Exceptional biodiversity</li> <li>• Numerous indigenous communities</li> </ul>	60 422
13	Montane forests of the Venezuelan coast and xeric shrublands	Venezuela, Colombia	Montane and dry forests	<ul style="list-style-type: none"> <li>• Guatapo NP</li> <li>• Henri Pittier NP</li> <li>• Tirigua NP</li> </ul>	<ul style="list-style-type: none"> <li>• High levels of endemism</li> <li>• Habitat for many species of neotropical migratory birds</li> <li>• Encompasses a unique neotropical xerophytic area.</li> <li>• Subject to strong pressures</li> </ul>	132 288
14	Mountains of Saint Vincent and the Grenadines	Saint Vincent	Moist forests	<ul style="list-style-type: none"> <li>• Colonarie, Cumberland, Dalaway, Kingstown, Mount Pleasant, and Richmond Forest Reserves</li> <li>• La Soufrière NP</li> </ul>	<ul style="list-style-type: none"> <li>• Largest moist forest remnants in the Lesser Antilles</li> <li>• Maintains a complete high altitude corridor</li> <li>• Provides water to the entire island</li> </ul>	325
Partly included in 6, 7 and 13	Regional and South American Caribbean mangroves	Islands of the Caribbean, Guyana, Suriname, Trinidad and Tobago, and Venezuela	Mangrove forests, wetlands, and palm savannah	<ul style="list-style-type: none"> <li>• Medianos de Coro NP</li> <li>• Morrocoy NP</li> <li>• San Esteban NP</li> </ul>	<ul style="list-style-type: none"> <li>• Adapted to high, strong tides</li> <li>• High faunal diversity, including fish and migratory birds</li> <li>• Subject to strong pressures</li> </ul>	

Region 2. Andes and Pacific						
No on map	Name of key landscape for conservation	Country	Ecotype/biome	Main protected areas	Particular characteristics	Surface (km <sup>2</sup> )
15	Venezuelan Andes	Venezuela	Montane forests and páramos	<ul style="list-style-type: none"> <li>9 National Parks, including Tapo-Caparo, El Tama, Juan Pablo Peñalosa, Parque Sierra Nevada en la Mucuy, Guaramacal, Dhiira, Yacambu, and El Guache</li> <li>NNP Sierra Santa Marta</li> </ul>	<ul style="list-style-type: none"> <li>Connects the montane forests with the Andean páramos</li> <li>Hosts endemic plants</li> <li>Good conservation level</li> <li>Provides water for human consumption and hydroelectric power production for more than 1 million people</li> <li>Hosts endemic and endangered species</li> <li>Provides water for human consumption to 1.2 million people and other important ecosystem services</li> <li>Numerous indigenous communities</li> </ul>	34 622
16	Sierra Nevada de Santa Marta	Colombia	Montane forests and páramos	<ul style="list-style-type: none"> <li>Darien NP</li> <li>Los Katios NP</li> <li>Playona y La Loma de Caletala Regional District of Integrated Management</li> <li>Lago Azul Los Manaties Regional District of Integrated Management</li> <li>Rio León National Protective Forest Reserve</li> </ul>	<ul style="list-style-type: none"> <li>Includes cativo (<i>Pteridopygia</i>) forests that have a very high commercial value</li> <li>Hosts endangered mammals and more than 8 000 species of vascular flora</li> <li>Strong pressures from mining, forestry, and agricultural expansion</li> </ul>	14 438
17	Darién	Panama, Colombia	Moist and mangrove forests	<ul style="list-style-type: none"> <li>Farallones de Cali NP</li> <li>La Sierpe Regional NP</li> <li>Rio Anchicaya National Protective Forest Reserve</li> <li>Regional District of Integrated Management, Collective Territory of La Plata Community Council</li> <li>Uramba Bahía Málaga NP</li> </ul>	<ul style="list-style-type: none"> <li>Location of the Río San Juan delta, with high rates of species richness and diversity</li> <li>Strong pressures from mining, forestry, and agricultural expansion</li> </ul>	9 138
18	Chocó – Cauca Valley	Colombia	Moist and mangrove forests	<ul style="list-style-type: none"> <li>Sanquianga NP</li> </ul>	<ul style="list-style-type: none"> <li>Location of the Guandál Forests</li> <li>Includes mangroves, estuaries, deltas and beaches that are important for the feeding and reproduction of marine and estuarine species, and various bird species.</li> </ul>	6 171
19, 21 and 22	Paraguas – Munchique, Cotacachi – Awa and North-western Pichincha	Colombia, Ecuador	Montane and moist forests, and páramos	<ul style="list-style-type: none"> <li>Cayapas Mataje Mangrove Ecological Reserve</li> <li>Mache Chindul Ecological Reserve</li> <li>Galaras San Francisco Marine Reserve</li> <li>Rio Muisne Estuary Mangrove Wildlife Refuge</li> </ul>	<ul style="list-style-type: none"> <li>Hosts endangered species</li> <li>Provides water and other key ecosystem services for the cities and agricultural regions of Cali, Quito and the surrounding areas</li> <li>Awa and Embera indigenous communities and communities of African descent</li> </ul>	14 444 + 13 091 + 7 891
20	Cauca – Nariño	Colombia	Moist and mangrove forests	<ul style="list-style-type: none"> <li>Galapagos NP</li> <li>Galapagos Marine Reserve</li> <li>Archipiélago de Colón – Galápagos Biosphere Reserve</li> </ul>	<ul style="list-style-type: none"> <li>Biodiverse forest that contains a large number of endemic birds, and some endangered species</li> <li>Important sites for reproduction in the mangroves</li> <li>Pressures from tourism and shrimp farming</li> </ul>	7 231
23	Ecuadorian Chocó	Colombia, Ecuador	Moist and mangrove forests	<ul style="list-style-type: none"> <li>Galapagos NP</li> <li>Galapagos Marine Reserve</li> <li>Archipiélago de Colón – Galápagos Biosphere Reserve</li> </ul>	<ul style="list-style-type: none"> <li>High levels of biodiversity and endemism</li> <li>Degraded by tourism</li> </ul>	147 618
24	Galapagos Islands	Ecuador	Moist forest and marine archipelago			



No on map	Name of key landscape for conservation	Country	Ecotype/biome	Main protected areas	Particular characteristics	Surface (km <sup>2</sup> )
25	Pacocha – Machalilla – Chongón Colónche	Ecuador	Moist, dry, and mangrove forests	<ul style="list-style-type: none"> <li>Pacocha – Coastal Marine Wildlife Refuge</li> <li>Cantagallo – Machalilla Marine Reserve</li> <li>Machalilla NP</li> <li>El Pelao Marine Reserve</li> <li>Puntilla de Santa Elena Wildlife Production Reserve</li> <li>El Salado Mangrove Wildlife Production Reserve</li> <li>Churrete Mangrove Ecological Reserve</li> <li>Isla Santa Clara Wildlife Refuge</li> </ul>	<ul style="list-style-type: none"> <li>Transition zone between very humid systems on the north coast and seasonal and deciduous systems on the central coast</li> <li>Connects various important PAs</li> <li>High biodiversity</li> <li>Dry forest with high level of endemism</li> <li>Includes part of Guayaquil city, possibility of reconciling urban development with conservation and ecosystem recovery</li> </ul>	17 698
26	El Oro – Loja – Piura – Tumbes	Ecuador, Peru	Dry and mangrove forests	<ul style="list-style-type: none"> <li>Arenillas Ecological Reserve</li> <li>Tumbes National Mangrove Reserve</li> <li>Cerros de Amotape NP</li> <li>Tumbes National Reserve</li> <li>El Angolo Hunting Area</li> <li>Reserved areas of the Peruvian Tropical Pacific Nuro and Punta Sal reefs</li> </ul>	<ul style="list-style-type: none"> <li>Largest remnant of dry forest in western South America</li> <li>Plays an important role in controlling the advance of the Sechura Desert</li> <li>High degree of endemism, mainly flora and birds</li> <li>Hosts some endangered forest species</li> <li>Connects protected areas and important sites for biodiversity</li> </ul>	10 940
27	Cóndor – Kutukú – Palanda mountain range	Ecuador, Peru	Montane forests and páramos	<ul style="list-style-type: none"> <li>Yacuri NP</li> <li>Podocarpus NP</li> <li>Cordillera del Cóndor NP</li> <li>Santiago Comaina Reserved Zone</li> </ul>	<ul style="list-style-type: none"> <li>High level of biodiversity and endemism, with altitudes from the Amazon plain up to 3 000 metres above sea level (masl)</li> <li>Hosts endangered species</li> <li>Hydrographically important as the source of several Amazon rivers</li> <li>Presence of tepuis, with tourism potential</li> <li>Seriously threatened by mining and road construction</li> </ul>	51 473
28	Pómac – Laquipampa	Peru	Dry forests and deserts	<ul style="list-style-type: none"> <li>Pomac Forest Historic Sanctuary</li> <li>Laquipampa Wildlife Refuge</li> <li>Huerta del Chaparri Private Conservation Area</li> </ul>	<ul style="list-style-type: none"> <li>Includes 36 pyramids of the Sican Culture that make up an important archaeological complex.</li> <li>Important biological corridor on the northern coast</li> <li>Bird diversity and endemism</li> <li>Laquipampa retains an unaltered plant succession from dry forest to moist forest from 200 to 2 500 masl</li> <li>Pressure from the agroindustry</li> </ul>	9 213
29	North-western Peru	Peru	Montane forests and páramos		<ul style="list-style-type: none"> <li>Hosts endangered and endemic species</li> <li>Threatened by roads and dams</li> <li>Offers important ecosystem services (water supply, carbon storage)</li> </ul>	35 940
30	Vilcanota mountain range	Peru	Montane forests and páramos	<ul style="list-style-type: none"> <li>Historic Sanctuary of Machu Pichu</li> <li>Manu NP</li> </ul>	<ul style="list-style-type: none"> <li>Hosts endangered and endemic species</li> <li>Includes Huayuro and Q'ero indigenous communities</li> <li>Pressures from oil pipelines and the Inter-oceanic Highway</li> </ul>	26 825

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No on map	Name of key landscape for conservation	Country	Ecotype/biome	Main protected areas	Particular characteristics	Surface (km <sup>2</sup> )
31	Paracas – Atiquipa	Peru	Dry forests and deserts	<ul style="list-style-type: none"> <li>Paracas NR</li> <li>San Fernando NR</li> <li>Lomas de Atiquipa Private Conservation Area</li> <li>Punta Lomas NR</li> <li>Punta Lomitas NR</li> <li>San Juan NR, a priority area for Nazca conservation</li> <li>Isla Roca Tropical Reserved Pacific Ocean Zone</li> </ul>	<ul style="list-style-type: none"> <li>Has rich marine and marine-coastal biodiversity</li> <li>Includes a fragile biological corridor that allows typical Andean fauna (guanacos and condors) to descend almost to the coastal strip.</li> <li>Pressure from agriculture and mining</li> </ul>	15 573
32	Salt Lakes of the Chilean-Bolivian Altiplano	Chile, Bolivia	Salt lakes	<ul style="list-style-type: none"> <li>Salar de Uyuni</li> <li>Sajama NP</li> <li>Lauca NP</li> <li>Salar del Huasco NP</li> <li>Isluga Volcano NP</li> <li>Salar de Surire Natural Monument</li> </ul>	<ul style="list-style-type: none"> <li>Important opportunity for ecotourism</li> <li>Under pressure from mining, infrastructure, and tourism</li> </ul>	75 246
33	Atacama desert	Chile	Desert	<ul style="list-style-type: none"> <li>Pampa del Tamarugal NR</li> </ul>	<ul style="list-style-type: none"> <li>Includes sites with little or no representation within protected areas</li> <li>Important endemic flora in Las Lomas</li> <li>Pressure from mining and tourism</li> </ul>	16 506
34	Trinational Puna grassland	Bolivia, Chile, Argentina	Puna grassland	<ul style="list-style-type: none"> <li>Los Flamencos NR</li> <li>Alto Loa NR</li> <li>Eduardo Avaroa NR</li> <li>Lagunas de Vilama Ramsar site</li> <li>High Andean Chinchilla and Olaroz Cauchari Provincial Preserves</li> </ul>	<ul style="list-style-type: none"> <li>Under pressure from mining, infrastructure, and agricultural expansion</li> </ul>	41 560
35	Flowering desert	Chile	Shrubland	<ul style="list-style-type: none"> <li>Llanos del Challe National Park</li> <li>Punta de Choros Marine Reserve</li> </ul>	<ul style="list-style-type: none"> <li>Rich diversity of plant and animal species, with high levels of endemism</li> <li>Highly degraded and fragmented by the agroindustry</li> </ul>	29 245
36	Chilean shrubland	Chile	Shrubland	<ul style="list-style-type: none"> <li>Lago Peñuelas Forest Reserve</li> <li>Federico Santa Maria Natural Cliffs Sanctuary</li> </ul>	<ul style="list-style-type: none"> <li>Unique Mediterranean ecosystem in South America</li> <li>Low level of protection and conservation</li> <li>Includes parts of the cities of Valparaiso and Santiago, an opportunity to harmonise urban development with ecosystem conservation and recovery</li> </ul>	43 906

Region 3. Amazonia and Orinoquia						
No on map	Name of key landscape for conservation	Country	Ecotype/biome	Main protected areas	Particular characteristics	Surface (km <sup>2</sup> )
27	Condor - Kutuku – Palanda Mountain Range	Ecuador, Peru	Moist and montane forests, and páramos	<ul style="list-style-type: none"> <li>Yacuri NP</li> <li>Podocarpus NP</li> <li>Cordillera del Condor NP</li> <li>Santiago Comaina Reserved Zone</li> </ul>	<ul style="list-style-type: none"> <li>High level of biodiversity and endemism, with altitudes from the Amazon plain up to 3 000 masl</li> <li>Hosts endangered species</li> <li>Hydrographically important as the source of several Amazon rivers</li> <li>Presence of tepuis, with tourism potential</li> <li>Seriously threatened by mining and road construction</li> </ul>	51 475
37	Apure and Orinoco Rivers	Venezuela	Moist forest	<ul style="list-style-type: none"> <li>Tama NPP</li> <li>Sierra Nevada NP</li> <li>Guaramacal NP</li> <li>Sierra La Culata NP</li> <li>El Tama NP</li> </ul>	<ul style="list-style-type: none"> <li>Important for connectivity between many ecosystems (páramo, shrubland and cloud forest, savannah, wetlands, etc.)</li> <li>High level of species richness and presence of endangered species</li> <li>Threatened by agricultural and livestock activities and river canalisation</li> <li>Problems involving invasion of areas dedicated to conservation projects</li> </ul>	85 449
38	Caura river and Orinoco delta	Venezuela	Moist forest	<ul style="list-style-type: none"> <li>Orinoco Delta Biosphere Reserve</li> <li>Guatopo NP</li> </ul>	<ul style="list-style-type: none"> <li>Covers ecosystems not represented in the PA system</li> <li>Includes one of the largest wetlands in South America</li> <li>Plays an important role in carbon sequestration and water supply</li> <li>Includes centres of endemism, high level of species richness, and endangered species</li> <li>Inhabited by various indigenous populations</li> <li>Threatened by urban development, agricultural and livestock activities, hunting, fishing, mining, sand dredging, and dam construction</li> </ul>	84 940
39	Tepui area	Guyana	Moist forest and savannah	<ul style="list-style-type: none"> <li>Canaima NP</li> <li>Kaieteur NP</li> </ul>	<ul style="list-style-type: none"> <li>Among oldest rock formation on Earth</li> <li>Among most biodiverse areas in the world, with a high degree of endemism and recent speciation events</li> <li>Tepuis have spiritual value for communities and great scenic beauty with numerous waterfalls</li> <li>Many indigenous peoples</li> <li>Threatened by mining, hydrocarbon exploitation and the advance of the agricultural frontier</li> </ul>	294 259
40	Guyana Shield	Suriname, French Guiana,	Moist and dry forests and savannah	<ul style="list-style-type: none"> <li>Central Suriname NR</li> <li>Parc Amazonien de Guyane NP</li> <li>Kanuku Mountains PA</li> <li>Kanashen Amerindian PA</li> </ul>	<ul style="list-style-type: none"> <li>Among most biodiverse areas in the world, with a high degree of endemism</li> <li>Large continuous and ancient forested area</li> <li>Many indigenous peoples and experiences of indigenous territorial management</li> <li>Threatened by mining and logging</li> </ul>	176 845
41	Coastal zone inlets	Brazil	Moist forest, mangroves	<ul style="list-style-type: none"> <li>Arquipélago do Marajó Environmental Protection Area</li> </ul>	<ul style="list-style-type: none"> <li>Area of interest in the Amazon river estuary</li> <li>Presence of numerous local fishing communities</li> </ul>	
42	Deforestation Arc	Brazil	Moist and dry forests	<ul style="list-style-type: none"> <li>Many indigenous territories</li> </ul>	<ul style="list-style-type: none"> <li>Key area for reversing the deforestation that is moving toward the Amazon Basin</li> <li>High degradation and fragmentation by cattle ranching and soybean cultivation often for cattle feed</li> <li>Includes numerous indigenous territories but no state-owned protected areas</li> </ul>	677 204

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No on map	Name of key landscape for conservation	Country	Ecotype/biome	Main protected areas	Particular characteristics	Surface (km <sup>2</sup> )
43	Terra do Meio	Brazil	Moist forest	<ul style="list-style-type: none"> <li>Terra do Meio Ecological Station</li> </ul>	<ul style="list-style-type: none"> <li>Includes several very large indigenous territories and important protected areas</li> <li>Opportunity to strengthen territorial management as a barrier to the deforestation that is moving toward the interior of the Amazon Basin</li> </ul>	224 369
44	Tapajós river basin	Brazil	Moist forest	<ul style="list-style-type: none"> <li>Southern Amazon Mosaic</li> </ul>	<ul style="list-style-type: none"> <li>Includes the Southern Amazon Mosaic with more than 20 protected areas and several indigenous territories</li> <li>Enormous pressure from the Trans-Amazonian Highway and hydroelectric megaprojects</li> </ul>	428 812
45	Purus river basin	Brazil	Moist forest	<ul style="list-style-type: none"> <li>Matinguari NP</li> <li>Nascentes do Lago Jari NP</li> </ul>	<ul style="list-style-type: none"> <li>A great deal of potential for conservation projects and management of aquatic species</li> <li>Presence of riverine communities and indigenous territories</li> </ul>	265 327
46	Negro river basin	Brazil	Moist forest	<ul style="list-style-type: none"> <li>Do Jau NP</li> <li>Pico da Neblina NP</li> <li>Serra do Araca State Park</li> </ul>	<ul style="list-style-type: none"> <li>Comprises a mosaic of PAs and a biological corridor</li> <li>Presence of indigenous communities</li> <li>Threatened by the development of road infrastructure and urban growth</li> </ul>	451 752
47	Andes - Orinoco - Amazon connectivity	Colombia, Venezuela	Moist forest	<ul style="list-style-type: none"> <li>La Macarena Special Management Area</li> <li>Sierra de la Macarena PNN</li> <li>Tingua PNN</li> </ul>	<ul style="list-style-type: none"> <li>High level of biodiversity due to the confluence of flora from the Andes, Orinoco, and Amazon regions</li> <li>Presence of endemic and endangered species</li> <li>Water connectivity from west to east, including the sources of important Amazonian rivers</li> <li>Territory occupied mainly by indigenous communities</li> <li>Pressures from road infrastructure construction, illicit crops, and hydrocarbon and mining exploitation</li> </ul>	171 244
48	Mid-Orinoco basin	Colombia, Venezuela	Moist forest	<ul style="list-style-type: none"> <li>El Tuparro NNP</li> <li>El Tuparro Biosphere Reserve</li> <li>Puinawai Reserve</li> </ul>	<ul style="list-style-type: none"> <li>Amazon-Orinoco transition zone of high biotic importance</li> <li>High level of endemism, species richness, and presence of endangered species</li> <li>Plays an important role in carbon sequestration and water supply</li> <li>Inhabited by various indigenous communities</li> <li>Threatened by illegal crops, hunting, fishing, and mining</li> </ul>	52 383
49	Piedmont Plains - Meta, Casanare and Arauca river	Colombia, Venezuela	Moist forest	<ul style="list-style-type: none"> <li>El Cocuy NNP</li> <li>Chingaza NNP</li> <li>Sumapaz NNP</li> <li>Los Picachos NNP</li> </ul>	<ul style="list-style-type: none"> <li>Wide range of altitudes, associated with a high level of biodiversity</li> <li>Includes the Paramos Corridor, an extremely important area for the provision of fresh water</li> <li>Presence of several indigenous reservations</li> <li>Threatened by agricultural and livestock activities, roads, dams, and hydroelectric infrastructure</li> </ul>	127 169
50	Andean-Amazonian Piedmont	Ecuador, Colombia	Moist and montane forests	<ul style="list-style-type: none"> <li>Serranias de la Macarena NNP</li> <li>Tinagua NNP</li> <li>Cordillera de Los Picachos NNP</li> <li>Alto Fragua - Indiwasi NNP</li> <li>Cayambe Coca NP</li> <li>Sumaco Napo-Galeras NP Sangay NP</li> <li>Cofán-Bermejo Ecological Reserve</li> </ul>	<ul style="list-style-type: none"> <li>Biodiversity richness, endemism, and scenic beauty</li> <li>Large number of indigenous territories</li> <li>Protects the headwaters of many of the Amazon River tributaries</li> <li>Very threatened by agricultural activities, mining and hydrocarbon extraction</li> </ul>	79 467
51	Peru - Ecuador - Colombia border block	Peru, Ecuador, Colombia	Moist forest	<ul style="list-style-type: none"> <li>Cuyabeno Wildlife Production Reserve</li> <li>Yasuni NP</li> <li>La Paya NP</li> <li>Gueppi-Sekime NP</li> </ul>	<ul style="list-style-type: none"> <li>Enormous potential for guaranteeing biological and social connectivity</li> <li>Threatened by agricultural and livestock activities and hydrocarbon exploitation</li> </ul>	51 609

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No on map	Name of key landscape for conservation	Country	Ecotype/biome	Main protected areas	Particular characteristics	Surface (km <sup>2</sup> )
52	Chiribiquete mountain range - Yaigoje Apaporis	Colombia	Moist forest	<ul style="list-style-type: none"> <li>Serranía de Chiribiquete NP</li> <li>Yaigoje Apaporis NP</li> <li>Río Pure NP</li> <li>Cahuinari NP</li> </ul>	<ul style="list-style-type: none"> <li>Zone of high endemism</li> <li>Great scenic and cultural value, with ancient cave paintings</li> <li>Large number of indigenous communities</li> <li>The PAs protect forests in a good state of conservation</li> </ul>	125 377
53	Leticia - Tabatinga	Colombia, Brazil	Moist forest	<ul style="list-style-type: none"> <li>Amacayacu NP</li> </ul>	<ul style="list-style-type: none"> <li>Includes several indigenous territories as well as two very important Amazonian cities with potential for tourism</li> </ul>	81 942
54	Abanico del Pastaza	Peru	Moist forest	<ul style="list-style-type: none"> <li>Has no PA</li> </ul>	<ul style="list-style-type: none"> <li>Includes the largest Ramsar site in the entire Amazon Basin and one of the most productive aquatic ecosystems</li> <li>Enormous potential for the continuity of bioecological and evolutionary processes</li> <li>Concentration of indigenous ethnic groups</li> <li>Pressure from hydrocarbon activities</li> </ul>	36 770
55	Cordillera Azul – Pacaya - Samiria - Sierra del Divisor	Peru, Brazil	Moist forest	<ul style="list-style-type: none"> <li>Cordillera Azul NP</li> <li>Pacaya-Samiria National Reserve</li> <li>Sierra Divisor NP</li> </ul>	<ul style="list-style-type: none"> <li>High level of biodiversity characteristic of a significant range of altitude (4 000 to 2000 masl)</li> <li>Significant presence of indigenous and peasant communities</li> <li>Pressure from mining and hydrocarbon extraction, as well as logging</li> </ul>	211 123
56	Juvari valley	Brazil	Moist forest	<ul style="list-style-type: none"> <li>Vale do Javari indigenous territory</li> </ul>	<ul style="list-style-type: none"> <li>Land in a very good state of conservation, with very low population densities</li> <li>There are no protected areas, but there are territories belonging to a large number of ethnic groups</li> <li>Presence of indigenous groups in voluntary isolation</li> <li>Threatened by hydrocarbon and illegal activities</li> </ul>	123 258
57	Chico Méndes – Cazumbá - Iracema	Brazil	Moist forest	<ul style="list-style-type: none"> <li>Chico Méndes and Cazumbá-Iracema Extraction Reserves</li> <li>Chandless State Park</li> <li>Alto Purús NP</li> </ul>	<ul style="list-style-type: none"> <li>Well-conserved area</li> <li>Includes various indigenous territories</li> <li>Area has a wealth of experience of extractivist communities, threatened by changes to these ways of life.</li> </ul>	53 737
58	Madre de Dios – Manu – Alto Purús	Peru	Moist forest	<ul style="list-style-type: none"> <li>Manu NP</li> <li>Alto Purús NP</li> <li>Bahuaja Sonene NP</li> <li>Tambopata NR</li> </ul>	<ul style="list-style-type: none"> <li>Protects a high level of biodiversity and a large number of key upper river basins</li> <li>Presence of indigenous communities</li> <li>Problems of illicit activities (mining, hunting, etc.)</li> </ul>	120 369
59	Madidi – Manuripi – Mojos flatlands	Bolivia	Moist forest and savannah	<ul style="list-style-type: none"> <li>Madidi NP and Isiboro Sécura NP TCO</li> <li>Manuripi National Wildlife Reserve in the Amazon Basin</li> <li>TCO Pilón Lajas Biological Reserve</li> <li>Ríos Mato and Río Yata Ramsar sites</li> <li>Various Municipal PAs</li> </ul>	<ul style="list-style-type: none"> <li>Area of great biodiversity</li> <li>Wide range of altitudes, from 5 000 to 150 masl</li> <li>Includes the middle basins of two very significant rivers in the Amazon basin and large wetlands</li> <li>Good experiences of indigenous territorial management</li> <li>Concentration of archaeological remains in the plains</li> <li>Very threatened by advance of the agricultural frontier, timber trafficking, and hunting</li> </ul>	237 195
60	Iteñez river basin - Chiquitanian dry forest transition	Brazil, Bolivia	Moist and dry forests	<ul style="list-style-type: none"> <li>Corumbiaria State Park</li> <li>Noel Kempff Mercado NP</li> <li>Do Guaporé Biological Reserve</li> <li>Ríos Blanco y Negro Wildlife Reserve</li> <li>Iténez Departmental Park</li> <li>Río Blanco Ramsar site</li> </ul>	<ul style="list-style-type: none"> <li>Includes wetlands with enormous bird and endemic species biodiversity</li> <li>Enormous extent of indigenous territory</li> <li>Important for stopping the advance of the agricultural frontier in the Bolivian Amazon</li> </ul>	138 363

Region 4. South American Lowlands						
No on map	Name of key landscape for conservation	Country	Ecotype/biome	Main protected areas	Particular characteristics	Surface (km <sup>2</sup> )
60	Iténez river basin - Chiquitanian dry forest transition	Brazil, Bolivia	Moist and dry forests	<ul style="list-style-type: none"> <li>• Comumbria State Park</li> <li>• Noel Kempff Mercado NP</li> <li>• Do Guaporé Biological Reserve</li> <li>• Rios Blanco y Negro Wildlife Reserve</li> <li>• Iténez Departmental Park</li> </ul>	<ul style="list-style-type: none"> <li>• Includes wetlands with enormous bird and endemic species biodiversity</li> <li>• Large extension of indigenous territories</li> <li>• Important for stopping the advance of the agricultural frontier in the Bolivian Amazon</li> </ul>	138 363
61	Mosaics network and Mata Atlántica Biosphere Reserve	Brazil	Moist forests	<ul style="list-style-type: none"> <li>• Includes numerous protected areas</li> </ul>	<ul style="list-style-type: none"> <li>• Integrated into the Mata Atlántica Network of Mosaics and Corridors</li> <li>• Conservation Mosaics are an innovative way to manage divided conservation areas. Replication potential</li> </ul>	821 701
62	Catimbau valley	Brazil	Shrubland	<ul style="list-style-type: none"> <li>• Valle de Catimbau NP</li> </ul>	<ul style="list-style-type: none"> <li>• Area of extreme biological relevance, conserves one of the last areas of Caatinga</li> <li>• Second largest archaeological park in Brazil, with more than 30 sites</li> </ul>	12 492
63	Mirador Mesas	Brazil	Dry forest	<ul style="list-style-type: none"> <li>• Chapada das Mesas NP</li> <li>• Mirador State Park</li> <li>• Fossilizadas Árvores Natural Monument</li> <li>• Uruçuí-Una ecological station</li> </ul>	<ul style="list-style-type: none"> <li>• Variety of environments and enormous diversity of flora and fauna.</li> <li>• Vast expanses of non-transformed natural spaces</li> <li>• Lowest HDI in the ecoregion</li> <li>• Powerful guild organisations for the use of non-timber forest products</li> <li>• Threatened by agricultural frontier expansion plans</li> </ul>	55 370
64	Capivara mountain range	Brazil	Shrubland	<ul style="list-style-type: none"> <li>• Serra da Capivara NP</li> </ul>	<ul style="list-style-type: none"> <li>• High biodiversity</li> <li>• High archaeological and palaeontological value with cave paintings and one of the oldest records of human populations in Latin America (50 000 years).</li> <li>• Declared a UNESCO World Heritage Site</li> </ul>	27 898
65	Matopiba central corridor	Brazil	Dry forest	<ul style="list-style-type: none"> <li>• Rio Palmaíba NP</li> <li>• Serra Geral Ecological Station</li> <li>• Jalapao State Park</li> </ul>	<ul style="list-style-type: none"> <li>• Presence of continuous Cerrado vegetation</li> <li>• Mountains known for their scenic beauty, an alternative for ecotourism</li> <li>• Extractive products and crafts are important sources of income for local communities</li> <li>• Identified as new agricultural frontier of northern-northeastern Brazil</li> </ul>	96 749
66	Veadeiros - Pouso Alto - Kalunga	Brazil	Dry forest	<ul style="list-style-type: none"> <li>• Chapada dos Veadeiros NP</li> <li>• Pouso Alto PA</li> <li>• Recanto das Araras de Terra Ronca Extraction Reserve</li> </ul>	<ul style="list-style-type: none"> <li>• Region of enormous biological importance, habitat for endangered species</li> <li>• Relatively good state of conservation, important flow of ecotourism</li> <li>• High levels of poverty and presence of Afro-descendant communities</li> </ul>	78 185
67	Sertão Veredas - Peruaçu	Brazil	Dry forest	<ul style="list-style-type: none"> <li>• Grande Sertão Veredas NP</li> </ul>	<ul style="list-style-type: none"> <li>• Corridor that includes 1 indigenous territory and 14 protected areas</li> <li>• Numerous springs which supply water wells and some of the biggest tributaries of the São Francisco river</li> <li>• Great cultural wealth and diversity</li> <li>• Severely deteriorated due to agroindustry</li> </ul>	82 846
68	Peruaçu caves	Brazil	Shrubland	<ul style="list-style-type: none"> <li>• Cavernas de Peruaçu NP</li> </ul>	<ul style="list-style-type: none"> <li>• Important geological and archaeological heritage site, with more than 140 caves, more than 80 archaeological sites, and cave paintings</li> <li>• Presence of indigenous communities</li> </ul>	14 919

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No on map	Name of key landscape for conservation	Country	Ecotype/ biome	Main protected areas	Particular characteristics	Surface (km <sup>2</sup> )
69	Pantanal and Suncas mountain range	Bolivia, Brazil	Wetlands, dry forest	<ul style="list-style-type: none"> <li>Pantanal Biosphere Reserve</li> <li>San Matías Natural Area with Integrated Management</li> <li>Valle de Tucavaca municipal PA</li> <li>Otuquis NP</li> </ul>	<ul style="list-style-type: none"> <li>Pantanal declared World Heritage and Ramsar Site</li> <li>The Serranias play an important role in regulating water</li> <li>Practically no legal protection of the Pantanal</li> <li>High biodiversity and locally marked endemism</li> <li>Threatened by agroindustrial production and hydroelectric power plants in the Planalto of the Brazilian Cerrado</li> </ul>	221 948
70	Bañados del Izozog	Bolivia	Wetlands	<ul style="list-style-type: none"> <li>Kaa Iya NP</li> </ul>	<ul style="list-style-type: none"> <li>Key area for water supply</li> <li>Management shared with indigenous communities in the NP</li> <li>Threatened by colonisation and agricultural expansion</li> </ul>	59 974
71	Chaco Biosphere Reserve	Paraguay	Dry forest	<ul style="list-style-type: none"> <li>Defensores del Chaco NP</li> <li>Río Negro NP</li> <li>Mélanos del Chaco NP</li> <li>Teniente Agripino Enciso NP</li> <li>Cerro Cabrera Timane NR</li> </ul>	<ul style="list-style-type: none"> <li>Hosts endemic plants and several species of endangered plants and mammals</li> <li>Protects wild relatives of cultivated plants such as cassava, peanuts and peppers</li> <li>It is the ancestral territory of several indigenous groups</li> <li>Advance of agricultural activities and human settlements, significant hunting pressure, lack of infrastructure for effective protection.</li> </ul>	101 913
72	Bañado La Estrella	Bolivia, Argentina, Paraguay	Wetlands		<ul style="list-style-type: none"> <li>Significant area for biodiversity</li> <li>Virtually no protection</li> <li>Fish fauna has important local and regional economic value</li> <li>Presence of indigenous communities</li> </ul>	84 767
73	Alto Paraná Atlantic forest	Argentina, Paraguay, Brazil	Moist forests	<ul style="list-style-type: none"> <li>Yaboti Biosphere Reserve</li> <li>Ilha Grande NP</li> <li>Das Várzeas do Rio Ivinhema State Park</li> </ul>	<ul style="list-style-type: none"> <li>The largest remaining forest blocks still contain the original group of large vertebrates.</li> <li>Part of the Misionero Ecological Corridor</li> <li>Provides ecosystem services to more than 25 million people</li> <li>Forest extremely fragmented and degraded, especially due to agricultural expansion</li> </ul>	132 988
74	Iberá estuaries	Argentina	Wetlands	<ul style="list-style-type: none"> <li>Esteros del Iberá provincial NP and NR</li> </ul>	<ul style="list-style-type: none"> <li>Reintroduction programme for extinct species</li> <li>Growth of the tourism</li> </ul>	30 781
75	Upper Bermejo river basin	Bolivia, Argentina	Moist and montane forests	<ul style="list-style-type: none"> <li>Las Yungas Biosphere Reserve</li> <li>Tariquia Reserve</li> <li>Baritú NP</li> </ul>	<ul style="list-style-type: none"> <li>Largest continuous surface area of montane moist forests in Argentina</li> <li>Source of water and important timber, non-timber and environmental services, such as carbon storage and water regulation</li> <li>High level of biodiversity and persistence of large, endangered mammals</li> <li>Presence of indigenous communities from various ethnic groups</li> </ul>	31 847
76	Quebrada de Humahuaca	Argentina	Shrubland		<ul style="list-style-type: none"> <li>Most important physical link between the Andean highlands and the great temperate plains of southeastern South America</li> <li>Presence of indigenous communities</li> <li>Here, the natural environment is preserved in good condition, together with the hundreds of archaeological sites and architectural heritage</li> <li>Declared Cultural and Natural Heritage of Humanity by UNESCO</li> <li>Increasing pressure from tourism</li> </ul>	5 272
77	Aconquija mountain range - Calchaquies peaks	Argentina	Moist and montane forests	<ul style="list-style-type: none"> <li>Aconquija NP</li> </ul>	<ul style="list-style-type: none"> <li>Comprises almost half a million hectares of continuous forests, over a wide and continuous range of altitudes (500-5 000 metres above sea level)</li> <li>Important source of water for human consumption, irrigation and industry; planned hydroelectric project</li> <li>Preserves endangered wild populations and species declared as declared as 'natural monuments'</li> </ul>	12 827

Region 5. Southern Ecosystems						
No on map	Name of key landscape for conservation	Country	Ecotype/biome	Main protected areas	Particular characteristics	Surface (km <sup>2</sup> )
78	Montiel Forest - Guayquiraró river basin	Argentina	Espinal	<ul style="list-style-type: none"> <li>Multi-use provincial reserve</li> </ul>	<ul style="list-style-type: none"> <li>This sector of the Espinal has some of the highest diversity</li> <li>Includes relict Espinal forests, including important populations of native palm trees</li> <li>Has gallery forests that are very diverse and fragile, and which constitute biological corridors</li> <li>An excellent refuge for valuable fauna (particularly mammals and birds), including endangered species</li> <li>Threatened by the advance of the agricultural frontier</li> </ul>	15 403
79	Uruguay river corridor	Uruguay, Brazil	Temperate grasslands		<ul style="list-style-type: none"> <li>Comprises parts of forest park, or Espinalho, a very threatened ecosystem</li> <li>It hosts endangered birds, including Brazil's main yellow cardinal population.</li> <li>Is subjected to intensive agricultural use (mainly rice and sugar cane)</li> </ul>	4 119
80	Campos del Norte grasslands	Uruguay, Brazil	Temperate grasslands	<ul style="list-style-type: none"> <li>Pampa Biome Biosphere Reserve</li> <li>Ibirapuitá Federal Environmental Protection Area</li> </ul>	<ul style="list-style-type: none"> <li>Very pristine</li> <li>In addition to mountain pastures, it includes important areas of mountain, ravine, and riparian forests.</li> <li>It is home to two regionally endangered plant species, as well as numerous endangered wildlife species, such as Uruguay's largest wild population of Pampas deer</li> <li>There is an outstanding presence of endemic species</li> <li>It has been prioritised in climate change adaptation plans with family livestock producers.</li> </ul>	24 545
81	Eastern mountain range	Uruguay, Brazil	Temperate grasslands	<ul style="list-style-type: none"> <li>Bañados del Este Biosphere Reserve</li> </ul>	<ul style="list-style-type: none"> <li>High diversity of herbaceous plants</li> <li>Maintains populations of endangered animal species</li> <li>It has a relatively low degree of anthropisation</li> <li>Provides connection between a Biosphere Reserve and many protected areas</li> <li>It includes part of the main pastures for extensive livestock ranching in Uruguay, it has been prioritised in climate change adaptation plans with family livestock producers.</li> </ul>	67 692
82	Eastern wetlands	Uruguay, Brazil	Temperate grasslands		<ul style="list-style-type: none"> <li>Includes areas of the endemic jelly palm (<i>Butia capitata</i>).</li> <li>Hosts a rich variety of aquatic birds, some critically endangered</li> <li>Includes a Ramsar site</li> <li>It is subjected to intensive agricultural use (mainly rice)</li> </ul>	17 474
83	Pampa Deprimida grasslands	Argentina	Temperate grasslands	<ul style="list-style-type: none"> <li>Bahía Samborombón Wildlife Refuge (includes four provincial reserves and a national park)</li> <li>Biosphere reserves</li> </ul>	<ul style="list-style-type: none"> <li>It still has isolated grassland sites in a good state of conservation and even some remaining blocks larger than 15 000 ha</li> <li>Includes an important sector of the Río Salado basin, several wetlands, and the Bahía Samborombón Ramsar Site.</li> <li>It is the habitat of many birds and mammals typical of the subregion, and some endemic species of flora and fauna</li> <li>Includes stopover sites for migratory shorebirds</li> <li>In this matrix of grasslands for cattle breeding, the challenge is to promote sustainable livestock production</li> </ul>	101 855

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No on map	Name of key landscape for conservation	Country	Ecotype/biome	Main protected areas	Particular characteristics	Surface (km <sup>2</sup> )
84	South-eastern Buenos Aires dunes	Argentina	Temperate grasslands	<ul style="list-style-type: none"> <li>Arroyo Zabala Multiple Use Natural Reserve</li> </ul>	<ul style="list-style-type: none"> <li>Includes beaches, mobile and fixed dunes, with grasslands adapted to sandy soils and wet, saline grasslands.</li> <li>Some endemic flora and fauna</li> <li>Hosts endangered birds and is an important area for many migratory birds</li> <li>Threatened by tourism-related urban development, in addition to livestock and forestry activities involving exotic species</li> </ul>	16 042
85	Austral Pampa grasslands	Argentina	Temperate grasslands	<ul style="list-style-type: none"> <li>Ernesto Tornquist Provincial Park</li> <li>Bahía Blanca, Bahía Falga, and Bahía Verde Multiple Use Provincial Natural Reserve</li> </ul>	<ul style="list-style-type: none"> <li>Hosts vascular plants exclusive to the Ventania system, which are critically endangered</li> <li>Houses populations of endangered mammals, as well as endemic fauna.</li> <li>High environmental and landscape value, provides recreational, water supply, and flood control services</li> <li>Archaeological sites present</li> </ul>	18 363
86	Caldenal Core Area	Argentina	Espinal		<ul style="list-style-type: none"> <li>Includes critical areas of caldén (<i>Prosopis caldenia</i>) forest, a tree endemic to Argentina, subjected to pressures from forest exploitation, overgrazing and clearance for agriculture</li> <li>Continues to host part of its original plant and animal assemblage, including some particularly representative carnivores and herbivores</li> </ul>	14 903
87	San Luis semi-arid grasslands	Argentina	Temperate grasslands		<ul style="list-style-type: none"> <li>Contains dune steppes of grasses with islets of chañar (<i>Geoffroea decorticans</i>) and mountains of caldén (<i>Prosopis caldenia</i>)</li> <li>Home to species of endangered fauna</li> <li>Pasture in relatively good condition, but a significant portion of the area has been modified through the introduction of perennial pastures</li> </ul>	16 960
88	Payunia - Auca Mahuida	Argentina	Arid Patagonia and Andino-Patagonico forests	<ul style="list-style-type: none"> <li>La Payunia Reserve</li> <li>Auca Mahuida Multiple-use Reserve</li> </ul>	<ul style="list-style-type: none"> <li>The topography and marked precipitation gradients create a mosaic of ecosystems</li> <li>One of the most biologically intact areas in South America</li> <li>One of the areas of Arid Patagonia with the most diversity: home to the largest population of guanacos on the continent, numerous birds, pumas, and an important number of endemic plants and lizards</li> <li>Subjected to pressures of livestock rearing, oil exploitation and mining</li> </ul>	57 702
89	Nevados de Chillán – Laguna del Laja	Chile, Argentina	Arid Patagonia and Andino-Patagonico forests	<ul style="list-style-type: none"> <li>Nevados de Chillán – Laguna del Laja Biological Corridor Biosphere Reserve</li> <li>Nature Sanctuary and Los Huemules del Nublito NR</li> <li>Ñuble NR</li> <li>Laguna La Laja NP</li> <li>Lagunas de Epu Lauquén Provincial Reserve</li> </ul>	<ul style="list-style-type: none"> <li>Includes Temperate Valdivian Forests and 10 vegetation levels</li> <li>Holds the northernmost and most threatened population of south Andean deer, as well as other endangered mammals</li> <li>The corridor has a public-private management model established through cross-sectoral cooperation agreements</li> </ul>	6 036
90 and 91	Maulino Costero forest - Nahuelbuta mountain range	Chile	Arid Patagonia and Andino-Patagonico forests	<ul style="list-style-type: none"> <li>Los Rulles NR</li> <li>Los Queules NR</li> </ul>	<ul style="list-style-type: none"> <li>The Maulino forest includes endemic species of invertebrates and plants, some of which are endangered</li> <li>Corallera de Nahuelbuta hosts a great richness of species, due to the variability of mountain habitats. Hosts endangered flora</li> <li>These forests were largely replaced and fragmented by agricultural crops, and pine plantations</li> </ul>	5 632 + 7 049
92	San Pedro river	Chile	Arid Patagonia and Andino-Patagonico forests		<ul style="list-style-type: none"> <li>Biological corridor between the Andes and the coastal mountain ranges</li> <li>There is a public-private network of actors that promotes the integral development of the territory</li> </ul>	285

No on map	Name of key landscape for conservation	Country	Ecotype/biome	Main protected areas	Particular characteristics	Surface (km <sup>2</sup> )
93	Valdivian coastal buffer area	Chile	Arid Patagonia and Andino-Patagonico forests	<ul style="list-style-type: none"> <li>Alerce Costero NP</li> <li>Valdivian Coastal Reserve</li> </ul>	<ul style="list-style-type: none"> <li>Protects the Valdivian forest, particularly remnants of alerce (<i>Fitzroya cupressoides</i>) woodlands, a severely exploited species</li> <li>Presence of indigenous communities, involved in community development initiatives based on PAs</li> <li>A public-private Advisory Council operates in the PA</li> <li>Conservation initiative in indigenous territories involving nine Mapuche-Huilliche communities</li> </ul>	3 075
94	Mapu Lahual park network	Chile	Arid Patagonia and Andino-Patagonico forests	<ul style="list-style-type: none"> <li>Mapu Lahual</li> </ul>	<ul style="list-style-type: none"> <li>Includes very well-conserved plant communities and the headwaters of important basins</li> <li>Includes the Andino Norpatagónico ecoregional corridor</li> <li>Hosts strictly endemic and vulnerable species, plant species of high genetic value, and sustains populations of landscape species</li> <li>Presence of indigenous Mapuche and peasant communities</li> <li>There is an Integration Committee for the Los Lagos Region</li> </ul>	559
95	Los Lagos cross-border landscape	Chile, Argentina	Arid Patagonia and Andino-Patagonico forests	<ul style="list-style-type: none"> <li>Temperate Rainforests of the Andes Biosphere Reserve</li> <li>Andean Norpatagónica biosphere Reserve</li> <li>Numerous national parks and national and provincial reserves</li> </ul>	<ul style="list-style-type: none"> <li>Has low human footprint</li> <li>Speciation centre, inhabited by numerous endemic species</li> <li>It is home to a population of guanacos that still maintains its altitudinal migration patterns</li> <li>Headquarters of a successful condor reintroduction project</li> </ul>	64 264
96	Somuncurá plateau	Argentina	Arid Patagonia and Andino-Patagonico forests	<ul style="list-style-type: none"> <li>Somuncura Plateau Natural Protected Area</li> </ul>	<ul style="list-style-type: none"> <li>Coastal areas are home to breeding colonies and resting areas for birds and marine mammals (including the southern right whale), and are also used by migratory birds</li> <li>Continental area includes shrub and semi-arid grassland ecosystems that support important mammal populations</li> <li>Several good farming practice initiatives underway</li> </ul>	35 687
97	Valdés peninsula	Argentina	Arid Patagonia and Andino-Patagonico forests	<ul style="list-style-type: none"> <li>Integral Natural Reserve in the Chubut Province (World Heritage Site)</li> </ul>	<ul style="list-style-type: none"> <li>Significantly low human footprint, connectivity matrix in good state of conservation</li> <li>Includes the Cueva de las Manos, Río Pinturas, World Heritage Site</li> <li>Extremely significant population nucleus for the conservation of the south Andean deer, the guanaco and several birds</li> <li>Has a high level of endemic species</li> <li>Water bodies and watercourses represent important reserves for neighbouring communities</li> </ul>	10 643
98	General Carrera Lake - Buenos Aires Lake	Argentina, Chile	Arid Patagonia and Andino-Patagonico forests	<ul style="list-style-type: none"> <li>Lago Jéjimeni NR</li> <li>Lago Cochrane NR</li> <li>Patagonia Park</li> <li>Patagonia NP</li> <li>San Lorenzo Provincial Reserve</li> <li>Perito Moreno NP</li> </ul>	<ul style="list-style-type: none"> <li>Includes the largest continental ice fields outside the polar areas, which represent a large freshwater reservoir and the headwaters of important basins</li> <li>Includes important population nuclei of several landscape species, both coastal and Andean, that maintain their seasonal migratory pattern</li> <li>Very low human footprint: the activities are well located and mainly linked to artisanal fisheries, extensive livestock rearing and tourism</li> </ul>	25 483
99	Continental ice fields	Argentina, Chile	Arid Patagonia and Andino-Patagonico forests	<ul style="list-style-type: none"> <li>Torres del Paine Biosphere Reserve and NP</li> <li>Laguna San Rafael Biosphere Reserve and NP</li> <li>Los Glaciares NP (World Heritage Site)</li> <li>Bernardo O'Higgins NP</li> <li>Katalalixar NR</li> <li>Lago del Desierto Reserve</li> <li>Tucu-tucu Reserve</li> <li>Los Huemules and Lago San Martín private reserves</li> </ul>	<ul style="list-style-type: none"> <li>Includes the largest continental ice fields outside the polar areas, which represent a large freshwater reservoir and the headwaters of important basins</li> <li>Includes important population nuclei of several landscape species, both coastal and Andean, that maintain their seasonal migratory pattern</li> <li>Very low human footprint: the activities are well located and mainly linked to artisanal fisheries, extensive livestock rearing and tourism</li> </ul>	126 432

No on map	Name of key landscape for conservation	Country	Ecotype/biome	Main protected areas	Particular characteristics	Surface (km <sup>2</sup> )
100	Monte León – Coyle river	Argentina	Arid Patagonia and Andino-Patagonico forests	<ul style="list-style-type: none"> <li>Monte León NP</li> </ul>	<ul style="list-style-type: none"> <li>The coastal sector is an important habitat for numerous, fish, invertebrates, and birds (including the Magellanic penguin), and some endemic and endangered species.</li> <li>In the terrestrial sector, the Patagonian steppe is home to populations of Darwin's rhea (<i>Rhea pennata pennata</i>), guanacos, and pumas, under pressure from the ranches bordering the National Park.</li> </ul>	11 311
101	Gallegos river – Strait of Magellan	Argentina, Chile	Arid Patagonia and Andino-Patagonico forests	<ul style="list-style-type: none"> <li>Pali Aike NP</li> <li>Three coastal reserves</li> </ul>	<ul style="list-style-type: none"> <li>The arid shrubland is home to a wealth of endemic birds and micromammals</li> <li>Includes large marshlands, with important vegetation for boreal and neotropical migratory birds</li> <li>Its interior wet grasslands are the last reproductive habitats of the endangered ruddy-headed goose</li> <li>Pressures from extensive livestock farming and hydrocarbon fracking</li> </ul>	11 644
102	Cape Horn – Tierra del Fuego	Argentina, Chile	Arid Patagonia and Andino-Patagonico forests	<ul style="list-style-type: none"> <li>Cape Horn Biosphere Reserve</li> <li>Alberto de Agostini NP</li> <li>Cape Horn NP</li> <li>Yendegeia NP</li> <li>Karukinka Park</li> <li>Tierra del Fuego NP</li> <li>Corazón de la Isla Provincial Reserve</li> <li>Isla de los Estados Wildlife Reserve</li> </ul>	<ul style="list-style-type: none"> <li>Strongly insular area, with important of fjords and channels, where there is practically no perceptible human footprint</li> <li>Supports important colonies of seabirds and marine mammals (feeding and resting areas)</li> <li>Habitat of several species of landscape and endemic species, some of which are endangered</li> <li>Of special interest are endemic fish, lichen, and moss species, which along with riparian forests have been affected by the introduction of the beaver.</li> </ul>	68 331

## ANNEX 4

## Situation of certain key indicators related to biodiversity in LAC countries

Country	Convention on Biological Diversity Aichi Goal No 11		Agenda 2030 Sustainable Development Objective 15		
	Land area covered by protected areas (Target: 17 %)	Marine area covered by protected areas (Target: 10 %)	Forest cover change 2010-2015 (Target: ≥0)	Land area affected by land degradation (Target: 0 %)	Red List Index (Target: 1)
Antigua and Barbuda	16.83 %	0.34 %	0.00 %	4.20 %	0.89
Argentina	8.81 %	3.80 %	-1.06 %	35.96 %	0.86
Bahamas	35.59 %	7.64 %	0.00 %	49.80 %	0.70
Barbados	1.27 %	0.01 %	0.00 %	0.00 %	0.91
Belize	37.68 %	10.08 %	-0.36 %	6.75 %	0.74
Bolivia	30.87 %	n.a.	-0.52 %	15.95 %	0.87
Brazil	29.42 %	26.62 %	-0.20 %	17.13 %	0.9
Chile	18.49 %	28.81 %	1.79 %	3.80 %	0.76
Colombia	14.81 %	17.07 %	-0.05 %	8.14 %	0.74
Costa Rica	27.60 %	0.83 %	1.13 %	0.75 %	0.82
Cuba	16.55 %	4.32 %	1.76 %	1.80 %	0.65
Dominica	21.99 %	0.11 %	-0.60 %	0.00 %	0.67
Dominican Republic	26.24 %	17.96 %	1.76 %	0.88 %	0.73
Ecuador	21.69 %	13.35 %	-0.62 %	4.63 %	0.69
El Salvador	8.78 %	0.71 %	-1.58 %	3.90 %	0.83
Granada	9.78 %	0.09 %	0.00 %	0.00 %	0.76
Guatemala	20.05 %	0.90 %	-1.00 %	8.08 %	0.72
Guyana	8.74 %	0.01 %	-0.06 %	9.35 %	0.92
Haiti	1.95 %	0.00 %	-0.80 %	1.86 %	0.72
Honduras	23.89 %	4.16 %	-2.43 %	3.53 %	0.74
Jamaica	15.92 %	0.75 %	-0.11 %	0.29 %	0.72
Mexico	14.50 %	22.30 %	-0.14 %	20.30 %	0.68
Nicaragua	37.23 %	2.97 %	0.00 %	3.34 %	0.85
Panama	20.89 %	1.68 %	-0.35 %	2.48 %	0.73
Paraguay	14.31 %	n.a.	-2.00 %	48.56 %	0.95
Peru	21.31 %	0.48 %	-0.23 %	7.22 %	0.72
Saint Kitts and Nevis	3.32 %	0.17 %	0.00 %	0.46 %	0.73
Saint Lucia	18.75 %	0.22 %	-0.29 %	0.11 %	0.85
Saint Vincent and the Grenadines	22.42 %	0.22 %	0.00 %	0.00 %	0.77
Suriname	14.52 %	1.54 %	-0.02 %	9.41 %	0.99
Trinidad and Tobago	30.59 %	0.05 %	0.70 %	2.55 %	0.82
Uruguay	3.45 %	0.72 %	1.28 %	18.45 %	0.83
Venezuela	54.14 %	3.49 %	-0.35 %	8.97 %	0.83

Data sources: JRC (2018), FAO (2015) and IUCN (2018).

Values in this table are indicative, not official.

## ANNEX 5

## Participation status of the main international environmental agreements in LAC

Country	Convention on Biological Diversity (CBD)	Paris Agreement (UN Framework Convention on Climate Change) (UNFCCC)	United Nations Convention to Combat Desertification (UNCCD)	Nagoya Protocol (CBD)	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	Convention on the Conservation of Migratory Species of Wild Animals (CMS)
Antigua and Barbuda	P	P	P	P	P	P
Argentina	P	P	P	P	P	P
Bahamas	P	P	P	/	P	/
Barbados	P	P	P	/	P	/
Belize	P	P	P	/	P	/
Bolivia	P	P	P	P	P	P
Brazil	P	P	P	S	P	P
Chile	P	P	P	/	P	P
Colombia	P	P	P	S	P	/
Costa Rica	P	P	P	S	P	P
Cuba	P	P	P	P	P	P
Dominica	P	P	P	/	P	/
Dominican Republic	P	P	P	P	P	P
Ecuador	P	P	P	P	P	P
El Salvador	P	P	P	S	P	/
Granada	P	P	P	S	P	/
Guatemala	P	P	P	P	P	/
Guyana	P	P	P	P	P	/
Haiti	P	P	P	/	/	/
Honduras	P	P	P	P	P	P
Jamaica	P	P	P	/	P	/
Mexico	P	P	P	P	P	/
Nicaragua	P	P	P	/	P	/
Panama	P	P	P	P	P	P
Paraguay	P	P	P	/	P	P
Peru	P	P	P	P	P	P
Saint Kitts and Nevis	P	P	P	P	P	/
Saint Lucia	P	P	P	/	P	/
Saint Vincent and the Grenadines	P	P	P	/	P	/
Suriname	P	P	P	/	P	/
Trinidad and Tobago	P	P	P	/	P	P
Uruguay	P	P	P	P	P	P
Venezuela	P	P	P	P	P	/

Key: P = Party (parliamentary ratification) and S = Signatory (government commitment)

Country	Monetary value of ecosystem services		
	Country - Total (USD millions/year)	USD/ha/year	USD/per capita/year
Antigua and Barbuda	985	22 378	10 703
Argentina	2 212 877	7 926	50 969
Bahamas	28 623	20 622	73 771
Barbados	322	7 495	1 135
Belize	11 647	5 070	32 442
Bolivia	1 294 751	11 786	120 723
Brazil	6 768 369	7 948	32 564
Chile	298 938	3 951	16 656
Colombia	717 015	6 280	14 867
Costa Rica	42 444	8 306	5 828
Cuba	68 757	6 257	6 037
Dominica	585	7 815	8 029
Dominican Republic	26 451	5 135	2 512
Ecuador	160 915	6 277	9 967
El Salvador	14 953	7 107	2 441
Granada	289	8 252	2 699
Guatemala	58 361	5 355	3 571
Guyana	182 562	8 492	238 021
Haiti	15 837	5 707	1 479
Honduras	66 954	5 952	6 292
Jamaica	6 156	5 601	2 258
Mexico	848 935	4 322	6 684
Nicaragua	87 309	6 697	14 355
Panama	51 622	6 845	13 139
Paraguay	496 869	17 216	74 841
Peru	922 717	7 179	29 407
Saint Kitts and Nevis	201	7 734	3 591
Saint Lucia	537	8 667	2 905
Saint Vincent and the Grenadines	692	17 755	6 353
Suriname	141 562	8 641	260 703
Trinidad and Tobago	6 016	11 728	4 424
Uruguay	125 929	7 146	36 693
Venezuela	691 372	7 580	22 225

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