Protected natural areas for sustainable and inclusive conservation

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Protected natural areas for sustainable and inclusive conservation

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The importance of ecosystems and biodiversity in Latin America and the Caribbean

Latin America and the Caribbean (LAC) boasts a wealth of ecosystems, ranging from terrestrial landscapes such as the Amazon rainforest, humid forests, and arid zones with little to no precipitation, to marine and coastal environments such as mangroves, marshes, and coral reefs.[1] These ecosystems provide a multitude of benefits, known as ecosystem services, to human beings. These benefits include the supply of water, nutritious food, materials, and resources, regulation of ecological processes such as the climate, and provision of cultural services.[2]

Climate regulating services provided by ecosystems are key to climate change action.

Climate regulating services are key to climate change action.[1] In terms of mitigation, terrestrial and marine ecosystems alike absorb carbon dioxide (CO_2) from the atmosphere and store it in biomass, soils, and the ocean. In turn, they contribute to climate change adaptation by moderating extreme weather events and regulating local climate, as is the case with mangroves and coral reefs, which help reduce the effects or impacts of floods, among others.

Furthermore, ecosystems regulate other fundamental processes for human life through the maintenance of air and soil quality, water purification, regulation of the water cycle, pollination of plants and trees, disease regulation, and pest control.[1]

Cultural or non-material services are the benefits that ecosystems provide to people, both individually and collectively, favoring their spiritual enrichment, cognitive development, recreation, and aesthetic experiences.

A crucial dimension of ecosystems is biodiversity, which refers to the diversity of living organisms that inhabit them.

A crucial dimension of ecosystems is biodiversity,[a] which refers to the diversity of living organisms that inhabit them. Biodiversity determines not only the flow of ecosystem services but also the resilience of ecosystems, that is, their capacity to recover their properties and maintain their functions after being altered by a disturbance.[1]

LAC is a highly biodiverse region:

6 of the 17
most biodiverse countries in the world (Brazil, Colombia, Ecuador, Mexico, Peru and Venezuela)[4]

50% of global biodiversity
in its 20 million km^2

↳ representing **16%** of the **planet's land surface**[1]

47 of the world's 258
marine ecoregions[b]

↳ more than in any other region[5]

It is home to a large part of the species of the animal kingdom, just over one-fifth of the Earth's forest cover, and almost one-third of the world's freshwater resources.[6] The oceans are home to approximately 70% of the world's marine species and some of the most important marine biodiversity hotspots on the planet.[7]

Ecosystems at risk

Human activity is putting at risk LAC's ecosystems and the services they provide. Habitat conversion, overexploitation of natural resources, pollution from agriculture, industry, mining, transportation, and tourism, and the introduction of invasive

a The Convention on Biological Diversity defines biodiversity (or biological diversity) as "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems."[3]

b Ecoregions are relatively large regions that contain a distinctive set of natural species and functional relationships among them.

species are contributing to the degradation and fragmentation of ecosystems.[1c]

Less than half of LAC's land area remains in a natural or semi-natural state.

Less than half of LAC's land area remains in a natural or semi-natural state (meaning a low human presence and low intensive use), mainly due to the expansion of the agricultural-livestock frontier.[1] In the case of forests, this results in high rates of deforestation. While in the early 2000s, LAC had a total forest area of 979 million hectares—roughly the combined area of Bolivia and Brazil—in the last 20 years it experienced a net loss of 5% (47 million hectares), the equivalent of 1.2 times the surface of Paraguay.[1]

Deforestation affects biodiversity, the regulation of water cycles, water evaporation and infiltration, and the capacity to capture and store carbon dioxide (CO2). In addition, it generates emissions through the release of carbon accumulated in biomass and soils. Although the region contributes only 11% of global CO_2 emissions,[1] it is the largest source of emissions due to deforestation (47%).[10]

At the same time, economic activity and the high concentration of populations along the coast in LAC threaten the health of its coastal and marine ecosystems. The percentage of coastal populations in the region is higher than in any other region of the world.[10] Sectors like tourism, fishing, and transportation—despite their contribution to economic activity—exert pressures on coastal and marine systems that can lead to habitat destruction and degradation of mangrove forests, coastal wetlands, and coral reefs, as well as the introduction of invasive species. Up to 40% of mangrove species are threatened with extinction along the Atlantic and Pacific coasts of Central America. In addition, 66% of coral reefs are damaged and researchers foresee the loss of another 20% in the next 20 years.[10] Uncontrolled commercial fishing has significantly reduced the populations of important marine species.[10] One in four species of cartilaginous fish (sharks, rays, chimeras) are threatened with extinction due to overfishing and habitat loss.[11]

c In addition to these four direct channels, there is also the impact of climate change caused by human activity.[8]

In turn, the globalization of trade, travel, and transportation is accelerating the number, type, and speed at which invasive alien species moving around the world. Invasive alien species are one of the main drivers of environmental degradation and species extinctions worldwide and are generally considered the leading cause of biodiversity loss in island ecosystems.[12]

In addition to the introduction of exotic species and the destruction and fragmentation of their habitats, illegal hunting and trafficking and climate change contribute to species extinction. According to data from the International Union for Conservation of Nature (IUCN), in 2022, 42,108 species of animals (40%), plants (59%), and fungi (1%) were identified as at risk of extinction (critically endangered, endangered, or vulnerable), representing 28% of the total species evaluated by the IUCN.[13]

Degradation and fragmentation of ecosystems affect the quality and variety of the ecosystem services they provide.

The diminished quantity and quality of ecosystem services due to the degradation and fragmentation of ecosystems limits the region's ability to sustainably grow and support human life.[1] This poses tangible costs, affecting productivity, health, and resilience to climate change.[10] In Colombia and Peru, for example, these costs represent approximately 3% of GDP.[14]

Protected Natural Areas: one of the main conservation policies

Natural protected areas represent one of the main policies implemented globally for the in situ conservation of ecosystems[15] and to address both biodiversity loss and climate change with the urgency that is required.[16]

Protected areas are geographic, terrestrial, and marine areas with a clear geographic delimitation, whose main objective is the conservation of nature and ecosystem services.[17]

Some protected areas have strict conservation zones due to the fragility of their ecosystems and/or the vulnerability of populations, which significantly restrict economic activity and human settlements, although some may allow visitors for recreational purposes. Other areas have multiple uses, allowing for the development of productive activities but with restrictions on the type and intensity of those activities.

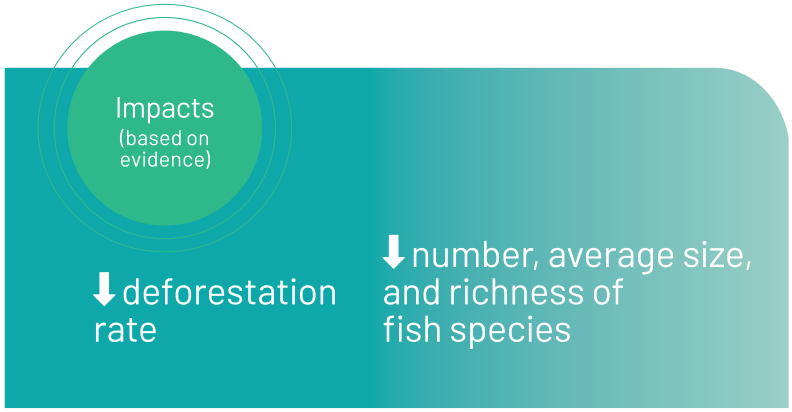
In the past 20 years, the implementation of protected areas in Latin America has significantly increased, making it the most protected region in the world:

9,154 areas covering:

- **22%** of the region's land territories
- **22%** of the region's marine territories[1]

Protected area coverage exceeds the total area of Brazil or the combined continental territories of Argentina, Mexico, Peru, Colombia, Bolivia, and Paraguay. Not only is Latin America the world's most protected region, but it also has the highest number of mixed-use protected areas in the world.[18] Seven out of ten protected land areas are for multiple uses, while the rest are for strict conservation. Protected marine areas are also divided in roughly equal proportions between different uses.[1]

Protected areas can be an effective tool for the conservation of ecosystems and biodiversity. Recent studies in LAC[d] find that the establishment of natural protected areas in forested areas reduces the amount of deforested and degraded hectares.[20e] While some studies have found the impact to be modest,[22] others conclude that protected areas decrease the rate of deforestation between 50% and 72% compared to unprotected areas.[23] Similarly, evidence shows that the number, average size of organisms, and richness of fish species increase inside and outside the boundaries of marine protected areas compared to unprotected areas.[24]



The effectiveness of protected area management largely depends on the management capacity of the responsible agencies and their coordination with local communities.

The effectiveness of protected area management[f] and, therefore, its potential impact[g] largely depends on the management capacity of the responsible agencies. Like other developing regions, the lack of human and financial resources[19] in LAC hinders the management of these protected areas.[h] The budgetary allocations received by government agencies, plus international funding, only cover 54% of basic financial needs and 34% of what would be needed for "optimal" financial

d There is ample evidence on the effectiveness of protected areas. However, almost all of these studies have methodological problems that overestimate their impact. Recent studies use statistical techniques to correct these problems.[19]

e Rigorous evidence has predominantly focused on the effectiveness of protected areas in preventing deforestation.[21]

f Of the 51 countries and territories that make up the region, 21 have evaluated the effectiveness of the national system of protected areas they manage, using a documented and systematic method. One of the greatest challenges for the region is to continue evaluating management effectiveness in a systematic way.[25]

g In the case of forested areas, the impact of protected areas can be modest if they are located in areas that do not have deforestation pressures, either because they are far from significant human settlements or road networks, or because their terrain is very steep.[26]

h In extreme cases, which are not uncommon, protected areas are "paper parks"[27] meaning that they exist only on paper as designated as protected areas and lack proper management or enforcement of regulations on the ground.

management[28] of protected areas. Therefore, the development of financing mechanisms to ease the burden on government budgets and contribute to greater financial autonomy is crucial. One example is a trust funded by conservation fees for tourists, taxes, and fines for non-compliance with regulations.[10]

The most common problems are inadequate supervision and enforcement of legal protections, gaps and inconsistencies in regulations (e.g., definitions of boundaries and property rights), and poor coordination with local communities and other government agencies.[19] Coordination with local communities may be limited if they only perceive the costs that protected areas represent as a result of the restrictions on the activities that they can develop in these areas.[i] However, protected areas can generate significant local economic benefits by boosting ecotourism, attracting external investment in roads and other infrastructure, and safeguarding natural resources that provide essential ecosystem services.[29] Overall, studies in LAC show that protected areas reduce poverty levels among local populations.[j31]

Communities can become key partners in ecosystem protection through the development of sustainable economic activities that help reduce the negative impacts of land use change or overexploitation of marine resources. One way to increase the engagement of local communities in the management and protection of natural resources is by giving them the right to exclusively exploit the resources of a given territory (or certain resources within it) following sustainable practices.1 Some of these experiences include exclusive artisanal fishing zones, community-managed tourism management concessions, and water use concessions.[32]

To ensure the technical and financial sustainability of a protected natural area, political will[19] and local alliances are crucial. This includes not only protecting the conservation area (core) but also achieving sustainable and inclusive management of the surrounding areas (buffer zones). It is equally important to establish governance mechanisms that promote effective participation and ownership of shared goals to ensure that the benefits of conservation translate into tangible and equitable socioeconomic benefits for the local population.

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i Communities depend on local landscapes for hunting, biomass collection for fuel and fodder, logging, agroforestry and shifting agriculture, and they use local water bodies for fishing and other extractive activities.[19]

j Studies conducted in Peru and Mexico did not show strong positive results.[30]

CAF's Green Vision

CAF has set the goal of becoming the green bank of Latin America and the Caribbean to contribute to the region's equitable, environmentally responsible, and low-carbon development.

To achieve this, it has adopted a cross-cutting approach to all its actions that ensures all funded projects contribute to the sustainable management of the environment, natural resources, and ecosystems, while also increasing the resilience of populations and infrastructure against climate threats.

In addition, CAF aims to prevent or effectively manage any negative environmental impacts resulting from its projects by applying a formal system of environmental and social safeguards. Likewise, to meet the region's demand for financial resources for climate adaptation and mitigation actions, as well as environmental preservation initiatives, CAF mobilizes funds from major global green funds toward the region.

To integrate biodiversity into its work approach and financial operations, CAF has outlined a strategy for 2026: BIOCAF.[4] The objective is to provide countries with alternatives for timely management to prevent biodiversity loss, so they can confront its underlying causes and address biodiversity and climate change issues jointly and synergistically. BIOCAF proposes strategic actions in five key areas: Productive landscapes, the competitiveness of micro, small, and medium-sized enterprises (MSME), the blue economy, sustainable cities, and financing positive biodiversity for the benefit of human wellbeing in the region, consistent with the Post-2020 Global Biodiversity Framework[k] recently approved at COP-15.

CAF has set itself the goal to become the green bank of Latin America and the Caribbean to contribute to equitable, environmentally responsible, and low-carbon development.

k The new post-2020 global biodiversity framework proposes actions with an integrated approach to climate action, placing special emphasis on nature-based solutions.

CAF's actions

In recent years, CAF has mobilized US$68.9 million with the Global Environment Facility (GEF) and provided technical assistance for US$1.5 million to strengthen the management of:

67 protected areas strengthened in their management

- **336,000 km²** of terrestrial areas
- **1.38 million km²** of marine areas
- in Bolivia, Colombia, Costa Rica, Ecuador and Panama

Additionally, between 2014 and 2018, CAF financed the creation of 15 new conservation areas in Peru.

Bolivia

In Bolivia, with the support of the GEF, CAF is working with the Ministry of Environment and Water to improve the management and strengthen the financial sustainability of the Plurinational System of Protected Areas and Strategic Ecosystems, in particular, the protected areas of the Bolivian Amazon.

This effort will improve approximately 62,000 km² corresponding to seven protected areas, three Ramsar sites,[l] and the indigenous territories of the Central Indigenous Organization of Indigenous Peoples of the Pando Amazon (CIPOAP) and their buffer zones. The recovery of degraded areas would imply a 24% reduction in Bolivia's annual CO_2 emissions.[33] It is estimated that nearly 5,900 people will benefit directly with an average 12% increase in their income.[34]

The project includes updating national regulations for protected areas, developing management plans for each area to ensure

l Ramsar sites are representative, rare or unique wetlands, or wetlands that are important for conserving biological diversity on the Ramsar Convention's List of Wetlands of International Importance.

coordination among different stakeholders and alignment with other planning documents, and designing standardized tools to measure management effectiveness. Standardized protocols for monitoring endangered or threatened flora and fauna populations will also be developed and personnel working in the protected areas will be trained in these tasks. In addition, community organizations within the protected areas and adjacent zones will be trained to introduce or strengthen sustainable practices(agroforestry, cattle ranching, sustainable coffee and cacao production, sustainable mining, and fire management, among others).

The current funding base along with the needs and gaps of each protected area will be evaluated. Based on this, some areas will be prioritized to design and implement tourism development plans. Along with a review of entrance fees and an increase in resource use fees, sustainable tourism development will reduce the current financing gap by 10%.

Ecuador

In Ecuador, CAF supported the Ministry of Environment, Water and Ecological Transition (MAATE) in strengthening the Sustainable Environmental Investment Fund (FIAS), which implements strategies and instruments to finance the country's National System of Protected Areas. It also supported "Amazonía sin Fuego" [Program for a Fire-Free Amazon], which developed methodologies and technical forest fire management plans for 22 of Ecuador's national protected areas where the risk of forest fires is high.

CAF is also working with the MAATE, the Galapagos National Park Directorate (GNPD), the Jocotoco Foundation, and the GEF to strengthen the monitoring and control capacities of the Galapagos Marine Reserve (GMR). The objective is to prevent illegal fishing by industrial boats that violate international treaties and endanger the populations of marine species that leave the reserve. This project is part of GMR's marine protection system, developed based on an analysis of the current state of the vessels (oceanic and coastal) used for patrolling and the surveillance system for detecting unauthorized vessels.[11]

In addition to the GMR, Ecuador has 15 marine-coastal protected areas covering 30,500 km^2 and representing 3.7% of the country's continental coastline. CAF collaborated with the evaluation of the conservation and management status of these areas and the development of a proposal to create a national subsystem of marine and coastal areas.

To ease pressures on protected areas and create a sustainable and inclusive buffer zone management, several studies suggest that protected areas should be integrated into a landscape management approach that takes into account interactions with existing productive systems.[10] In this regard, CAF promotes integrated interventions at the level of strategic ecosystems. In the case of the Galapagos, it is working with the support of the GCF within the GMR and the terrestrial protected area (Galapagos National Park) to encourage the agriculture, fishing, and tourism sectors to contribute to the reduction of greenhouse gas emissions and increase their resilience to climate change.[m]

The specialized literature also recommends linking the design and management processes of marine protected areas to Marine Spatial Planning (MSP) tools. MSP is a way of managing human activities in the oceans to achieve a balance between use and conservation.

CMAR

Eastern Tropical Pacific Marine Corridor

CAF is supporting the strengthening of the Eastern Tropical Pacific Marine Corridor (CMAR), which includes Cocos Island (Costa Rica), Coiba Island (Panama), Malpelo Island (Colombia), and Pinta Island in the Galapagos Archipelago, together with the CMAR Technical Secretariat and the environment ministries of the four countries.

As part of the GEF project in the Galapagos, invasive species from Floreana Island, part of the Galapagos National Park, will be eradicated.[n] Once the eradication procedures are tested, they can be scaled up to the three remaining inhabited islands of the Galapagos archipelago and potentially to other islands in the region.[11]

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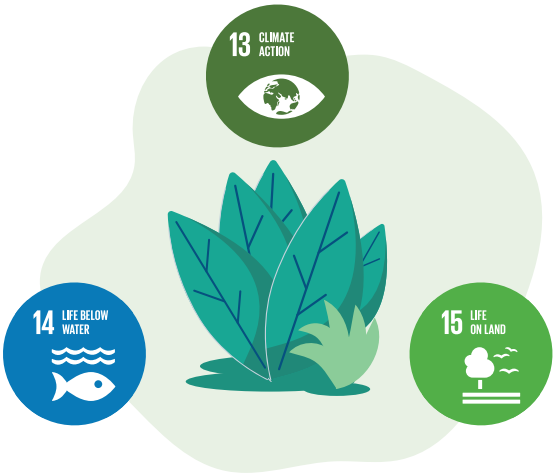
m About 3% of the land area of Galapagos is not protected. Agricultural activity is carried out in a portion of this 3%. Tourism takes place mainly in the protected terrestrial and marine areas and to a lesser extent in that 3%. Fishing activity is carried out in areas of the GMR that have zoning of uses.

n In the past, the Green Climate Fund has provided support for the eradication of invasive species in Galapagos.[11]

Costa Rica

In Costa Rica, CAF is assisting in the prevention of invasive alien species in Cocos Island National Park and the Coco Marine Conservation Area. A comprehensive prevention system and a cost-effective and sustainable eradication plan will be designed in conjunction with the Ministry of Environment and Energy and the National System of Conservation Areas, Fundación Jocotoco, and the GEF.

These actions are framed within the achievement of the Sustainable Development Goals (SDGs) established in the United Nations Agenda 2030. Mainly, it promotes:



PROTECTED NATURAL AREAS:
CAF'S ACTION

	Project	Project type	Project amount	Number of improved areas	Improved land area (in km2)	Improved marine area (in km2)
1	Strengthening of the Sustainable Environmental Investment Fund (FIAS)	Technical assistance	USD 50,000			
2	Amazonía sin Fuego [Program for a Fire-Free Amazon]	Technical assistance	USD 400,000	51	261,928	2,521
3	Design and dissemination of a subsystem of marine and coastal protected areas of the National System of Protected Areas of Ecuador	Technical assistance	USD 47,500			
4	Strengthening of the Eastern Tropical Pacific Marine Corridor (CMAR)	Technical assistance	USD 400,000	5	12,088	1.37 millon
5	Safeguarding the integrity of the Cocos Island National Park	GEF	USD 1 million	1	23	2,000
6	Effective conservation of protected areas in Galapagos	GEF	USD 15 million	1	7,890	138,000
7	Strengthening Bolivia's Plurinational System of Protected Areas and Strategic Ecosystems in the Bolivian Amazon	GEF	USD 48 million	11	62,000	138,000

In summary

The degradation and fragmentation of ecosystems as a result of human activity affect the quality, quantity, and variety of ecosystem services. Moreover, this jeopardizes the present and future ability of humans to live and prosper in a favorable environment.

One of the primary global strategies for preserving ecosystems in situ is the creation of natural protected areas. In LAC, their use has increased significantly over the last 20 years and, given the international commitments countries have assumed, it is to be expected that their coverage will continue to increase. Numerous studies indicate that these areas have a positive impact on the conservation of ecosystems and biodiversity, as well as on the development of local communities.

Although the creation and strengthening of protected areas have proven effective in conserving ecosystems and biodiversity, they also present challenges.

CAF, committed to being the leading green bank in Latin America and the Caribbean, is aware of these obstacles and is mobilizing resources to support the region's natural protected areas.

The ultimate goal of this support is to promote environmentally responsible and inclusive economic development that meets the needs of the present without compromising future generations.

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