

The Five Great Forests of Mesoamerica. Impacts of a regional initiative for climate, biodiversity, and people.



From the Maya Forest to the Darién stretch the most important forests of Mesoamerica, covering nearly 127,000 km²—an area almost twice the size of Panama, more than twice that of Costa Rica, and five times that of El Salvador and Belize.



[Watch the video!](#)

These territories maintain the region's ecological connectivity and sustain biodiversity and climate at a continental scale. These forests are home to some of Mesoamerica's most emblematic species, such as the jaguar, the tapir, and the scarlet macaw, whose presence reflects the health of ecosystems. These landscapes also play a fundamental role in water regulation, feeding rivers, wetlands, and communities that depend directly on these systems for their livelihoods.

However, this continuity faces increasing pressures. Over the past two decades, the best-preserved areas within these five great forests have declined by nearly 37%, reflecting how human influence is advancing from the edges toward the interior of these landscapes.

In some areas, the situation is even more critical. La Moskitia has lost nearly 60% of its least disturbed areas, highlighting the speed at which processes such as cattle ranching expansion, uncontrolled burning, and the opening of new agricultural frontiers are advancing.

In response to this scenario, since 2021, the Wildlife Conservation Society (WCS), together with local partners, community organizations, government institutions, and technical allies—with support from the European Union—has implemented the *Five Great Forests of Mesoamerica project: a regional initiative for climate, biodiversity, and people*.

Below are some of the main results of this initiative: people restoring forests and producing plants in community nurseries, patrolling thousands of kilometers to identify threats, and contributing—through everyday actions—to conservation.



Tapir (*Tapirus bairdii*), also known as danto, in La Moskitia, Honduras. Recorded by the WCS Honduras biological monitoring team.



Some results from the *Great Forests of Mesoamerica project: a regional initiative for climate, biodiversity, and people*, funded by the European Union.

Human Footprint: transformation and fragmentation of the Great Forests

The regional Human Footprint analysis, coordinated by the Wildlife Conservation Society (WCS) in collaboration with technical partners, helps us understand how these landscapes are transforming and how extensive the areas remain where forest cover persists with minimal human intervention. This approach measures the intensity of human influence—such as agricultural expansion, cattle ranching, fire use, and infrastructure—and highlights changes that affect ecological connectivity and system functioning.



Cattle ranching is the main driver of deforestation in the Great Forests of Mesoamerica. Photos by WCS Mesoamerica.

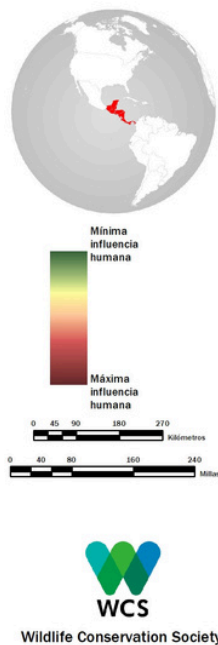
At a regional scale, the data show a clear trend: between 2000 and 2020, these areas declined significantly. This process progresses from the edges inward, fragmenting systems that historically functioned as continuous landscapes and altering their capacity to sustain biodiversity and ecological processes.

The intensity of these transformations varies across regions. Honduran Moskitia shows the fastest change: in two decades, these areas declined by nearly 60%, from approximately 52,000 km² to just over 21,000 km², with marked fragmentation.

In the Maya Forest, particularly in Guatemala, the reduction was close to 33%, equivalent to more than 1.8 million hectares, driven by cattle expansion, fires, and land-use change.

Belize, within the same system, shows a similar trend, accompanied by a recent increase in fires and forest cover loss.

Mapa Base Cinco Bosques



Map by WCS Mesoamérica.

Meanwhile, Panama's Darién and La Amistad still maintain significant areas with lower human intervention. In Darién, the reduction is estimated at around 19%, while in La Amistad it has been close to 9%, though with signs of fragmentation along the edges.

Overall, these results show that although these forests still conserve key areas for biodiversity and climate, their integrity is gradually being transformed, reducing connectivity between landscapes and affecting their capacity to sustain species and ecological functions.

Restoring forests and strengthening livelihoods

In this context of transformation, field actions focused on restoring forest cover and strengthening local capacities for its management. In practice, this work was linked to productive systems, local knowledge, and economic opportunities that allowed communities to improve their livelihoods without expanding the agricultural frontier.

In Guatemala's Maya Forest, interventions focused on areas affected by cattle ranching, fires, and agricultural expansion. Work included controlling invasive grasses and planting native species such as mahogany, cedar, ramón, allspice, and cantemó. More than 3,000 hectares were incorporated into restoration processes in coordination with the National Council of Protected Areas (CONAP) and community organizations such as ACOFOP.



Left: Firebreak in an area under restoration. Right: Community-managed nursery where plants such as cedar and ramón are grown. Photos by WCS Guatemala.

This work was complemented by productive systems such as xate palm management, an ornamental species with commercial value, as well as beekeeping initiatives. Through beekeeping schools, local families strengthened their skills in hive management and honey production, generating income compatible with conservation.

“We see that it improves people’s quality of life in the community...,” shared Felisa Navas, member of AFICC.

In Belize, the strategy combined assisted natural regeneration with targeted interventions in more degraded areas. More than 13,000 hectares improved their condition through threat reduction, enabling the gradual recovery of vegetation and associated species. This work took place within the Maya Forest Corridor and includes initiatives led by the Community Baboon Sanctuary (CBS), a community-based model built on voluntary conservation agreements.

In Honduran Moskitia, the approach has been different. Restoration is integrated with cacao agroforestry systems in Miskito Indigenous communities, in coordination with the Forest Conservation Institute (ICF) and local organizations such as Bakinasta. Nurseries established in Wampusirpi and Brus Laguna have helped diversify production and maintain tree cover on farms.

In La Amistad, Costa Rica, more than 29,000 trees were incorporated into plots, along with the production of over 70,000 seedlings. Some of these processes are led by ACOMUITA, which promotes seed management, cacao, and traditional productive systems.

At the regional level, community nurseries—at least eight across the region—have become spaces for learning, organization, and generating local opportunities.



Óscar Salinas, cacao producer from Pimienta community, Moskitia, Honduras. Photo by Claudia Novelo Alpuche.

Protecting the territory: monitoring, control, and presence

In contexts where threats continue to increase, maintaining a constant presence has been key. Community patrols, monitoring with technological tools, and control actions help detect changes, prevent risks, and generate information on the state of the forest and its biodiversity.

In total, more than 500 patrols were carried out, covering nearly 30,000 kilometers across the region.

In Honduran Moskitia, community teams monitored remote areas using tools such as SMART to record incidents and document landscape changes.

Belize focused its efforts on fire management, with more than 370 patrols and the use of drones for early fire detection.

In Guatemala, actions included patrols, monitoring, fire control, and maintenance of firebreaks in critical areas.

In Costa Rica, community brigades—with support from CRWF—used tools such as SMART and EarthRanger for monitoring, biodiversity recording, and coordination with authorities.

In Panama, work in the Guna Yala Comarca focused on strengthening Indigenous governance and presence in critical areas. Control posts were established in strategic locations such as Cerro Banega and the route to El Llano Cartí, improving surveillance and response capacity.



Community brigade using SMART, supported by CRWF. Photo by CRWF.

Science and decision-making: information to guide development

Field actions were also supported by technical studies developed with the Bioversity–CIAT Alliance, identifying viable productive alternatives based on local conditions.

In Guatemala, Belize, and Honduras, these analyses helped prioritize forest-related value chains such as honey, cacao, and other forest products. In Honduran Moskitia, studies showed that crops like beans and rice are mainly for subsistence, with limited commercialization potential.

These findings highlighted the need to first strengthen food security and sustainability of production systems as a foundation for future market opportunities.

The studies and their recommendations [are available](#) for consultation and provide inputs to strengthen decision-making in the field.

A regional effort for climate, biodiversity, and people

The results reflect the diversity of actions driving conservation in the Great Forests of Mesoamerica.

These processes were built through daily practice, through collaboration among communities, local organizations, institutions—including environmental authorities—and technical partners, as well as through strengthening governance mechanisms for forest management and landscape connectivity.



Left: Representatives of community and Indigenous organizations met in Guatemala to share experiences and results.
Right: Training session for community brigades in La Amistad, Costa Rica. Photo by CRWF.

Over the years, work in the region has shown that conservation depends on everyday decisions, on-the-ground presence, and shared efforts. These processes have also laid the foundation for new initiatives and offer lessons that can be replicated, strengthening local capacities for the future.

As Norberto Allen González from Honduras notes:

“Our goal, our mission, is that one day La Moskitia will develop as it should.”

An aspiration that reflects the shared commitment of the communities that inhabit these forests and work to protect them.



To learn more, explore the success stories by region: [Maya Forest \(Guatemala\)](#) | [Maya Forest \(Belize\)](#) | [Moskitia \(Honduras\)](#) | [La Amistad \(Costa Rica\)](#) | [Darién \(Panama\)](#)



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