Mountains Connect Brief

Meeting of Mountain Platforms of **the Alps, East Africa and the Andes**

Connecting Biodiversity conservation and Climate Change Adaptation

ADAPTATION AT ALTITUDE

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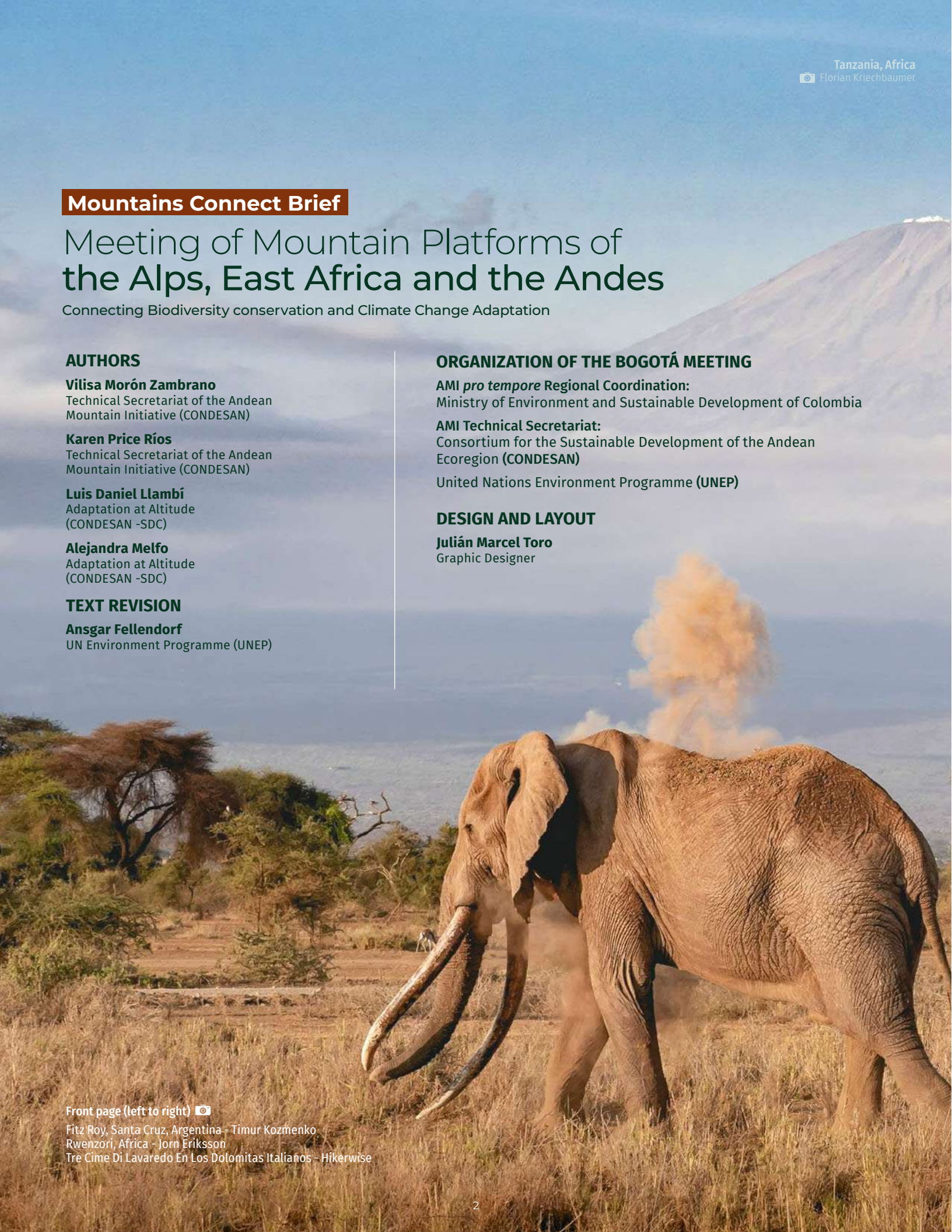
MOUNTAINS CONNECT

CONDESAN
Consorcio para el Desarrollo Sostenible de la Ecorregión Andina

Iniciativa Andina de Montañas



Tanzania, Africa
Florian Kriechbaumer

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Connecting Biodiversity conservation and Climate Change Adaptation

AUTHORS

Vilisa Morón Zambrano
Technical Secretariat of the Andean Mountain Initiative (CONDESAN)

Karen Price Ríos
Technical Secretariat of the Andean Mountain Initiative (CONDESAN)

Luis Daniel Llambí
Adaptation at Altitude (CONDESAN -SDC)

Alejandra Melfo
Adaptation at Altitude (CONDESAN -SDC)

TEXT REVISION

Ansgar Fellendorf
UN Environment Programme (UNEP)

ORGANIZATION OF THE BOGOTÁ MEETING

AMI *pro tempore* Regional Coordination:
Ministry of Environment and Sustainable Development of Colombia

AMI Technical Secretariat:
Consortium for the Sustainable Development of the Andean Ecoregion **(CONDESAN)**

United Nations Environment Programme **(UNEP)**

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Julián Marcel Toro
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Tanzania, Africa
Florian Kriechbaumer

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Bogotá, Colombia
Juan Segmentado

Mountains Connect Brief

From July 2 to 4, 2024, in Bogotá, Colombia, the Andean Mountain Initiative (AMI) promoted a series of workshops, together with representatives of the East African Community (EAC), the Alpine Convention, Mountain Partnership Secretariat, the United Nations Environment Programme (UNEP) and the Humboldt Institute. **The objective was to strengthen and promote interregional exchange on key issues for sustainable management in the mountains, in view of the COP16 of the Convention on Biological Diversity (CBD) in 2024 in Cali, Colombia and the COP 30 of the United Nations Framework Convention on Climate Change (UNFCCC) in 2025 in Belem do Pará, Brazil**. COP 16 was an opportunity to begin to give relevance to the role of the mountains in tackling biodiversity loss and climate change, addressing their close interdependence. Both events hosted in South America will be a right time for Andean countries to pursue a joint advocacy path with the other mountain platforms. The event COP 30 coincides with the tenth anniversary of the Paris Agreement and will focus on setting new targets. It is a strategic opportunity to advance advocacy efforts and highlight mountain ecosystems within decision-making spaces.

The Bogotá meeting gives continuity to the interregional exchanges that since 2022 have been promoted by the mountain platforms and conventions, within the framework of the Adaptation at Altitude program, like Mountains Connect workshop in Vienna, Austria and the celebration of the International Year of the Mountains 2022. The Mountains Connect Brief "Experience Exchange between the Andes, Alps and Carpathians: Exploring mountain governance paths for climate resilient development" (Price-Rios et al. 2024)", summarizes an important part of this cooperation efforts.

In this second Mountains Connect Brief, we present the most outstanding aspects of the meeting in terms of the context, participants, the discussion generated on the close relationship between the preservation of biodiversity and the impacts of climate change on mountain ecosystems. We summarize the ideas and proposals that emerged from this workspace, directed at the construction of a joint road map in the positioning of the mountains, from the COP16 on Biodiversity of Cali 2024 to the COP30 on Climate Change of Belém do Pará 2025.

Introduction

The route of **interregional exchange**

Mountains, considered true guardians of biodiversity and vital for climate resilience, require sustainable management that not only preserves their natural wealth, but also guarantees the well-being of the populations that depend on them. Cooperation between mountain regions is essential to address the global challenges affecting these unique ecosystems, especially climate change and biodiversity loss (Adler et al., 2022).

With the support of CONDESAN and UNEP in the framework of the Adaptation at Altitude Program promoted by the Swiss Agency for Development and Cooperation, the AMI has participated in and generated spaces for exchange between various mountain platforms. In July 2024, representatives of the member countries of the AMI met in Bogotá, Colombia, with delegates from the Alpine Convention and the East African Community, and with representatives of global organizations such as UNEP and the Mountain Partnership Secretariat.

This meeting offered participants the opportunity to learn from the experiences of each of the mountain regions, addressing governance requirements to achieve sustainable and effective management in mountain areas for climate resilience. The lessons learned from each region were the inputs that allowed the participants to outline a joint path aimed at positioning the mountains in spaces of global decision.

Some key recent and upcoming events with participation of mountain platforms

2022

- **Interregional Mountains Connect Workshop, Vienna, Austria. Organized by UNEP**
- **Sixth Meeting of Mountain Partnership, Aspen, USA.**
- **AMI Meeting. Huaraz, Peru. With participation of UNEP**
- **UNFCCC COP27. Sharm-El-Sheik, Egypt.**

2023

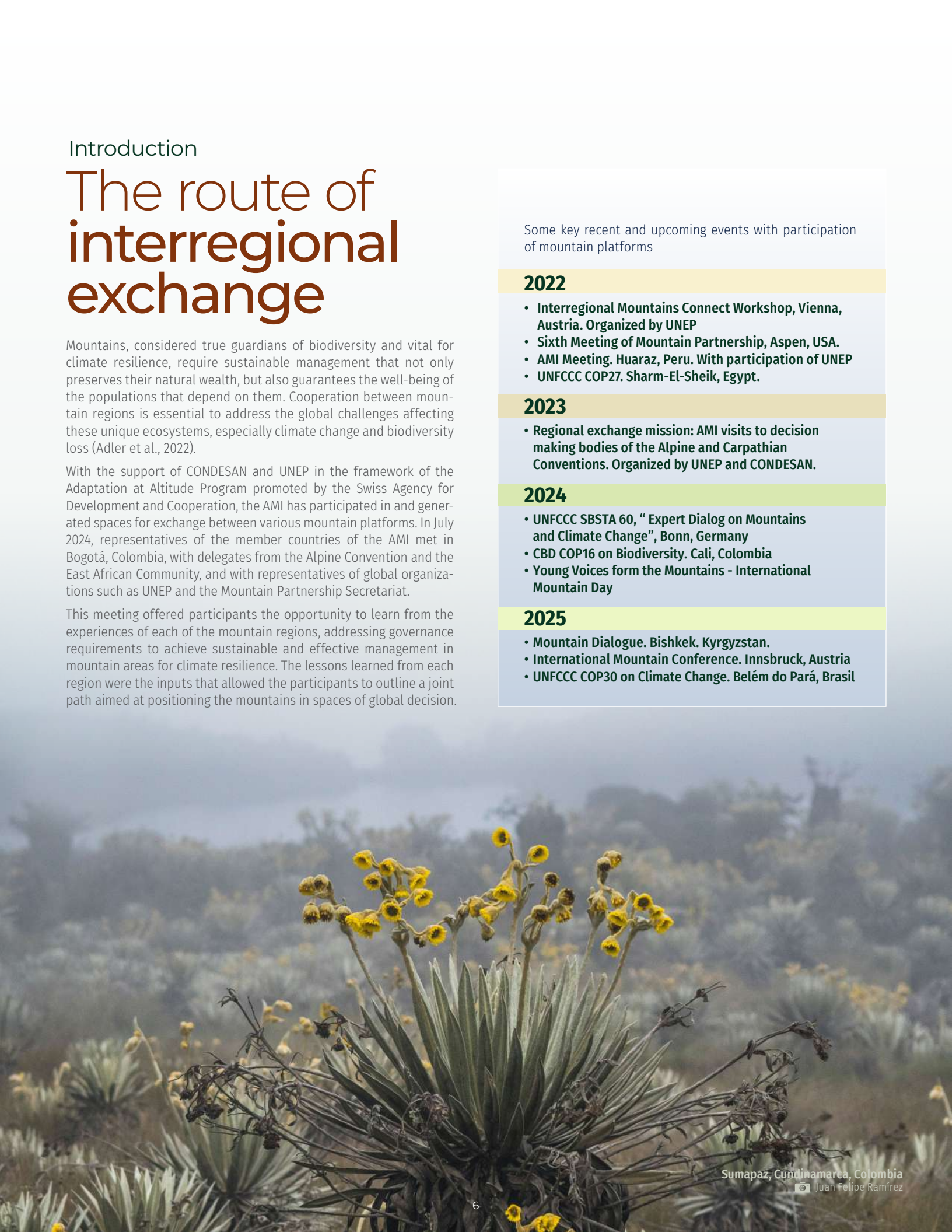
- **Regional exchange mission: AMI visits to decision making bodies of the Alpine and Carpathian Conventions. Organized by UNEP and CONDESAN.**

2024

- **UNFCCC SBSTA 60, " Expert Dialog on Mountains and Climate Change", Bonn, Germany**
- **CBD COP16 on Biodiversity. Cali, Colombia**
- **Young Voices form the Mountains - International Mountain Day**

2025

- **Mountain Dialogue. Bishkek. Kyrgyzstan.**
- **International Mountain Conference. Innsbruck, Austria**
- **UNFCCC COP30 on Climate Change. Belém do Pará, Brasil**



Sumapaz, Cundinamarca, Colombia
Juan Felipe Ramírez

Bogotá, Colombia
Rawdepth

The **Bogotá** Meeting

The Andean Mountain Initiative welcomes other platforms and institutions from around the world

AMI Annual Meeting

The Ordinary Annual Meeting of the AMI member countries was held from July 2 to 4, 2024, in Bogotá, Colombia. Representatives of the member countries addressed different aspects such as governance, financial sustainability, knowledge management, cross-cutting approaches, and reviewed the main advances developed in the last management period.

A relevant aspect of the meeting was the approval of the Declaration for the Andean Mountain Ecosystems, which promotes priority actions with which countries seek to strengthen the protection and sustainable use of Andean ecosystems. The Declaration is the result of years of exchange and joint work between the seven member countries of the IAM and promotes a regional vision of Andean mountain ecosystems as privileged territories for the conservation of biodiversity as a basis for adaptation to climate change.

This year, the meeting was marked by the continuation of efforts to strengthen interregional cooperation, a process that began in 2022. The Initiative has managed to connect with the mountain platforms of Europe such as the Alpine Convention and the Carpathian Convention. For this new meeting, the AMI, together with CONDESAN and UNEP (as members of the Adaptation at Altitude program), organized a series of workspaces designed to strengthen and promote effective regional exchange on multiple themes. Two mountain platforms joined these workspaces in Bogotá: the Alpine Convention and the East African Community, through its Sectoral Council on Environment and Natural Resources. UNEP and the Mountain Partnership Secretariat also participated in their capacity as observers of the AMI, and the Alexander von Humboldt Institute of Colombia attended as a guest.

Agenda

July 2

A.M. **Ordinary Meeting of the Council of Member States of the IAM.**

P.M. **Collaborative workshops:** Governance of regional platforms around the relevance of mountains and their diversity for sustainable development in a changing world.

July 3

A.M. P.M. **Field trip: Guatavita, Complejo Páramo de Chingaza, Cordillera Oriental de Colombia (GEF Páramos Project).**

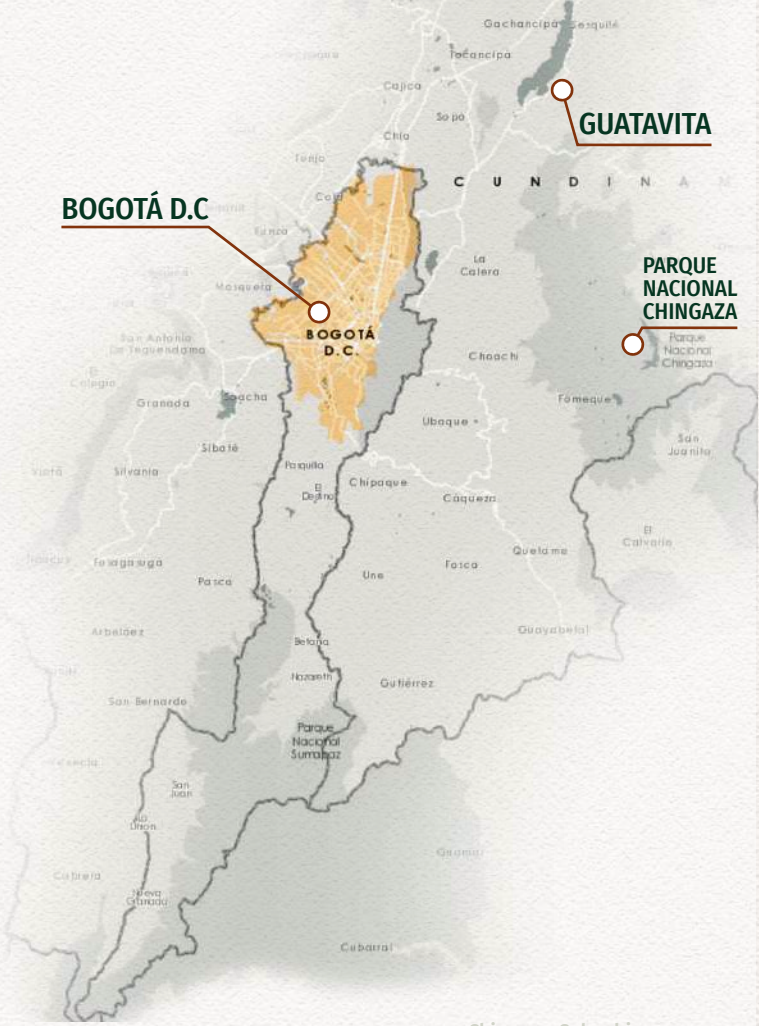
July 4

A.M. **Workshop:** Mountains: their diversity and relevance for sustainable development in a changing world.

P.M. **Workshop:** Regional and Global Positioning of Mountains.

Sumapaz, Cundinamarca, Colombia
Andrea Beltran

Exploring **biodiversity challenges** in the territory



During the meeting, a field visit was made to an emblematic area of the Colombian páramo near Bogotá (on the Andean Eastern Range), to provide a view of the dynamics of the interaction of this Andean megalopolis, with more than 8 million inhabitants, and the high mountain environment from which key ecosystem services such as the provision of drinking water come. It was a journey that illustrated socio-ecological, urban-regional and organizational processes.

Guatavita, Colombia
Juan Felipe Ramírez

Laguna Guatavita, Bogotá: Tour of recognition of the pressures on ecosystems, socioeconomic context, to address the problem of the páramos as suppliers of drinking water to the largest urban population in the country.

Guatavita, Colombia
Condesan

Association of Women Entrepreneurs of Guatavita (AMEG): an example of an initiative at the community level for the integral management of the páramos, which promotes sustainable production based on the management of ecosystems through articulated work between the community, academia and the local authority.

Chingaza, Colombia
Juan Felipe Ramírez

Chingaza páramo complex, Marcos reservoir and Monquentiva. Tour of the characteristic ecosystems of the páramos, about the passive restoration experiences through the exclusion of grazing, which has allowed the recovery of the wetlands of this area.

Adding experiences

Mountain platforms connect

In June 2023, AMI representatives visited the only two Mountain Conventions, the Alpine Convention and the Carpathian Convention, exchanging visions and experiences on mountain governance (Price-Rios et al. 2024). The Annual Meeting of the AMI in Bogotá gave continuity to the exchange, receiving representatives of the Alpine Convention and the East African Community.

Alpine Convention

First international treaty that covers an entire mountain range, crossing the national borders of Germany, Austria, Slovenia, France, Italy, Liechtenstein, Monaco and Switzerland with more than 30 years of continuous work. Its objective is to protect and sustainably develop the Alps and their unique natural and cultural heritage.

https://www.alpconv.org

Carpathian Convention

Multinational environmental agreement established in 2003 by seven countries (Czech Republic, Hungary, Poland, Romania, Serbia, Slovakia and Ukraine) to protect the natural and cultural heritage of the area, and at the same time promote sustainable development in the Carpathians.

http://www.carpathianconvention.org

Andean Mountain Initiative

Platform formed by the seven countries of the Andes: Argentina, Bolivia, Colombia, Chile, Ecuador, Perú and Venezuela. It seeks to strengthen regional dialogue with the purpose of promoting and undertaking joint actions aimed at the conservation and sustainable development of the Andean mountains.

https://iam-andes.org

East African Community

Community of eight African countries: DR Congo, Burundi, Kenya, Rwanda, Somalia, South Sudan, Tanzania and Uganda. Maintains a Sectoral Council on Environment and Natural Resources, and created the East African Mountain Stakeholder Platform for specific mountain issues.

https://www.eac.int/environment

Alpine Convention

https://www.alpconv.org

1952
Creation of the International Commission for the Protection of the Alps (CIPRA), which launched the call for an Alpine-wide treaty to protect the Alps.

1989
The first Alpine Conference takes place.

1995
The Alpine Convention enters into force.

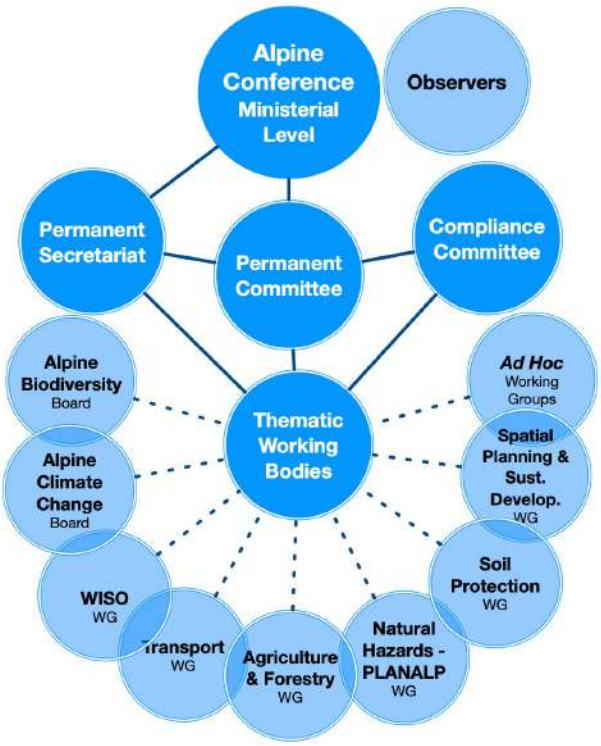
2002
Eight Thematic Protocols enter into force

2003
Establishment of a Permanent Secretariat in Innsbruck (Austria) and Bolzano (Italy)

Member countries

Austria, France, Germany, Italy

Liechtenstein, Monaco, Slovenia, Switzerland, European Union



Objective

"To promote a comprehensive policy for the preservation and protection of the Alps by applying the principles of prevention, payment by the polluter and cooperation through the prudent and sustained use of resources, in particular in the following areas: population and culture, spatial planning, prevention of air pollution, soil conservation, nature protection and landscape conservation, mountain farming, mountain forests, tourism and recreation, transport, energy and waste management".

Pieniny Mountains, Poland
Ministry of Foreign Affairs

Carpathian Convention

http://www.carpathianconvention.org/

2001

An intergovernmental consultation process among the Carpathian countries with the aim of drafting an international convention on the Carpathian Mountains.

2003

Framework Convention on the Protection and Sustainable Development of the Carpathians was adopted.

2004

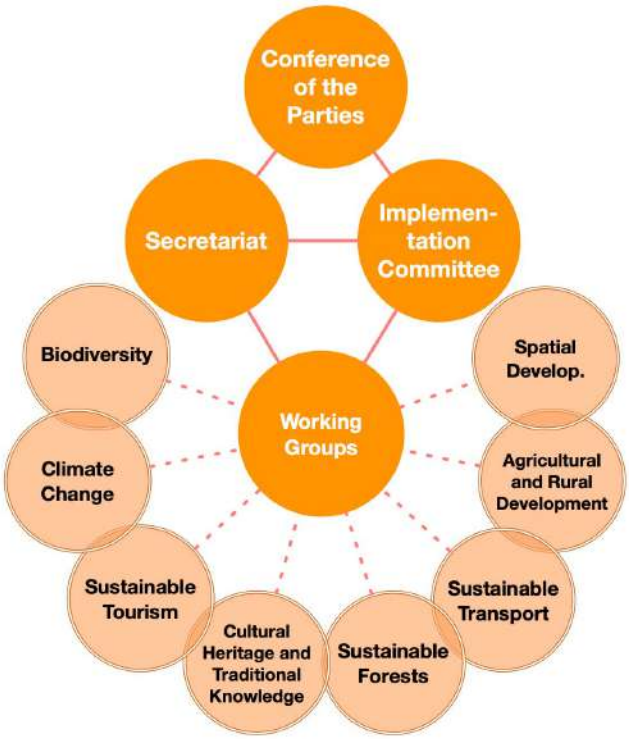
The Secretariat of the Carpathian Convention (SCC), hosted by the United Nations Environment Programme (UNEP), was opened.

Member countries

Czechia, Hungary, Poland, Romania, Serbia, Slovakia, Ukraine

Objective

"To pursue comprehensive policy and cooperation in order to guarantee protection and sustainable development of the Carpathians. The improvement of the quality of live, the strengthening of local economies and communities, and the conservation of natural values and cultural heritage should go hand in hand in the Carpathian area".



Cordillera Huayhuash, Perú
Kesterhu/iStockphoto

Andean Mountain Initiative

http://iam-andes.org

2007
Tucuman Statement. Agreement to create a regional platform in the Andes.

2017
Coordination mechanism was adopted by the countries.

2018
Council of Members Countries was created.

2020-2023
Formulation of the Action Plan.

2022-2026
Adoption of the Roadmap, Operational Thematic Work Tables.

Member countries

Argentina, Bolivia, Chile, Colombia, Ecuador, Perú, Venezuela

Objective

"To encourage cooperation and agreements between the countries in order to facilitate decisions aimed at the sustainable development of mountain areas and their populations, promoting adequate management, handling, conservation and governance of mountain ecosystems and the development of policies, strategies, plans and programs focused on the development of the mountain populations of the member countries, and on facing climate change."

Kilimanjaro, Africa
Sergey Pesterev-unsplash

East African Community

https://www.eac.int/environment

2011

EAC Climate Change Policy and Strategy.

2022

EAMSP platform terms of reference validated and signed at the second regional dialogue meeting in Kigali, Rwanda.

2023

Action Plan for the EAMSP discussed at the first constitutional meeting for its completion and approval.

2024

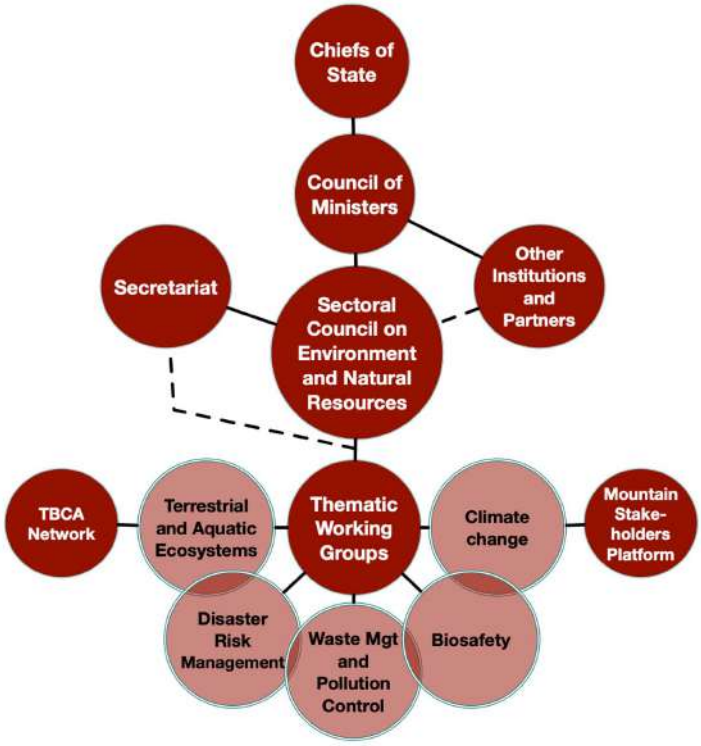
Review and modification of the EAC Climate Change Policy and Strategy, with the support of Adaptation at Altitude and UNEP.

Member countries

Democratic Republic of Congo
Burundi
Kenya
Rwanda
Somalia
South Sudan
Tanzania
Uganda

Objective

To develop policies and programs conducive to expanding and deepening cooperation between the Associated States in the political, economic, social and cultural fields, research and technology, defense, security, legal and legal issues, for their mutual benefit.



East Africa and the Alps visit the Andes

Kenya Mount, Africa
Leon Pauleikhoff-unsplash

In the mountains of East Africa, the Andes, the Himalayas and the Caucasus, the Adaptation at Altitude program, promoted by the Swiss Agency for Development and Cooperation (SDC), has been facilitating a series of interregional exchanges between the different partners led by UNEP. This has enabled representatives of the Andes, Alps, Carpathians, South Caucasus, East Africa and the Hindu Kush-Himalaya to expand opportunities for cooperation and collaborative action, mutually inspired by the diversity of processes and experiences of each region.

The visit of IAM representatives to the Alpine Convention and the Carpathian Convention in 2023 is an example of these actions. The **Mountains Connect Brief: Exchange of Experiences between the Andes, Alps and Carpathians**, summarizes the experiences and outcomes of this exchange and presents a comparative synthesis of the constitution, objectives and organizational structure of the three mountain platforms connected during that mission.

In the new opportunity offered by the Bogotá meeting, the platforms were joined by the East African Community (EAC). Although it is not a governance platform in mountains specifically, but rather a broad governance framework for political, social and economic cooperation between member countries, the EAC has established a regulatory and operational framework for the conservation and sustainable use of mountain ecosystems, with the support of the Adaptation at Altitude program.

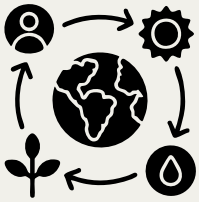
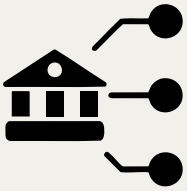
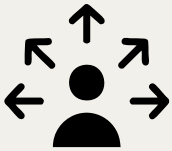
The EAC maintains a Sectoral Council for Environment and Natural Resources that has sought to establish management instruments and common standards among member countries in order to facilitate cross-border cooperation and the implementation of joint projects. In the context of mountains, it has consolidated the East African Community Mountains Stakeholder Platform (EAMSP) in 2022. The platform is an institutionalized mechanism within the EAC, with the purpose of bringing together experts and professionals from the East African Community region to develop issues related to adaptation to climate change in the mountains.

Three **mountain ranges**, three **socio-environmental** realities

	East Africa	Alps	Andes
Highest peaks	Kilimanjaro 5895 m Mount Kenya 5199 m Margherita Peak 5109 m	Mont Blanc 4810 m Matterhorn 4478 m Monte Rosa 4634 m	Aconcagua 6962 m Ojos del Salado 6893 m Huascarán 6793 m
Geological origin	Mostly volcanic, tectonic activity of the Great Rift Valley.	Collision of the Eurasian and African plates.	Subduction of the Nazca plate under the South American plate.
Climate	Tropical high mountain Wide latitude and altitudinal variation	Alpine of temperate zones Long and cold winters, short and cool summers. Oceanic in low areas, continental in high areas.	Tropical high mountain, sub-tropical, Mediterranean, temperate and subpolar. Wide latitude and altitudinal variation.
Ecosystems	Cloud forests, bamboo forests, African mountain forest, Afro-alpine vegetation, high mountain deserts, glacial lakes, high mountain wetlands	Mountain forest, subalpine floor, alpine, nival, coniferous forests, alpine meadows, bare rocks, glaciers	Mountainous forests, cloud forests, páramos, punas, Mediterranean ecosystems, steppes, temperate mountains, high Andean lagoons, glaciers, queñuales, bofedales and wetlands.
Emblematic fauna	Elephants, buffaloes, antelopes, colobus monkeys, mountain gorillas, Ethiopian wolf, okapi, lions, leopards, striped hyena	Groundhog, mountain goat, vulterus, golden eagle, brown bear	Andean condor, vicuña, llama, alpaca, puma, spectacled bear
Countries	Burundi, Democratic Republic of the Congo, Kenya, Rwanda, Somalia, South Sudan, Tanzania, Uganda	Austria, France, Germany, Italy, Liechtenstein, Monaco, Slovenia, Switzerland	Argentina, Bolivia, Chile, Colombia, Ecuador, Perú, Venezuela
Economic activities (in order of importance)	Subsistence and commercial agriculture (coffee, tea, flowers), livestock (beef, goat), nature tourism, mineral extraction, use of forest resources.	Tourism, agriculture, livestock, dairy production, crafts, heavy industry and manufacturing, investment in scientific research.	Traditional and intensive agriculture (potatoes, corn, quinoa), livestock (cow, sheep and camelids), mineral extraction (tin, gold, silver, copper), tourism.
Quality of life	Low, with high rates of poverty and inequality, limited access to basic services, vulnerability to droughts, famines and conflicts. Rapid population growth that puts pressure on resources.	High, with well-developed infrastructure (transport, communications, public services), access to good health and education systems, low crime rates compared to urban areas.	Low compared to the country's average, with high rates of poverty and inequality, migration to urban centers, limited access to basic services, vulnerability to natural disasters. Cultural wealth, ancestral traditions.

(*) With information from webpages of each platform, presentations at the workshop and general internet search.

Common **challenges**

 **Ecosystemic services**	Food provision for the local population and large cities, water regulation, erosion control, regional climate regulation, biodiversity conservation, landscapes, recreation and ecotourism, genetic resources, energy generation, culture and spirituality, sense of identity.
 **Pressures on ecosystems**	Climate change impacts (glacier and snow retreat, more frequent and intense extreme weather events), pollution, urbanization, land degradation, fragmentation of habitats. Both in the Andes and the Rift Mountains in Africa, deforestation, illegal mining, unsustainable livestock and agricultural expansion are the main pressures on the territory. In the Alps, mass tourism is impacting alpine ecosystems.
 **Governance challenges at different scales**	In the three mountain regions, the scarce inter-institutional articulation represents the main challenge. In the Alps, transnationality is a challenge for good governance, together with the development versus conservation dilemma, while in the Andes and Rift Mountains, social and socio-environmental conflicts at the local level and low community participation weaken effective governance.
 **Opportunities to explore for sustainable management in the territory**	Regional cooperation, biodiversity conservation, climate change adaptation measures, long-term monitoring of ecosystems, sustainable rural development, sustainable community tourism, integrated management of water resources, promotion of renewable energies and exchange and promotion of circular economy models.

Biodiversity and Climate Change

An indissoluble bond in the mountains

The diversity of species on our planet, a direct product of more than 4.5 billion years of evolution, is being threatened by human action, especially by changes in land use that impact natural habitats. It is estimated that currently more than one million species are in danger of extinction in the short term (a few decades), representing up to 25% of the plant and animal species studied (IPBES, 2019). This loss of biodiversity cannot be dissociated from human-induced climate change, the other major problem of our time. The interdependence of these two processes is well known, however, the approach is still independent, and the connection between both themes is incipient in the implementation of projects, the development of public policies and international cooperation negotiations. Particularly in the case of the three Rio Conventions, climate change, biodiversity and desertification, it has been recognized that considering their interaction and complementarity facilitates the fulfillment of common goals (IPCC 2022).

While climate change increases the risks of biodiversity loss, in turn biodiversity plays a fundamental role in greenhouse gas flows, and is decisive for the design and implementation of measures for adaptation to climate change. As climate change progresses, the distribution, functionality and interaction between organisms and ecosystems is being progressively altered, which translates into less resilience and availability of ecosystem services (IPCC 2022).

Among the main ecosystem services impacted by the loss of biodiversity and climate change are (Palomo, 2017):

The combined effects of biodiversity loss and climate change are particularly strongly expressed in the mountains (Spehn et al. 2010; Cavieres et al. 2025). The pronounced altitudinal gradients give rise to a scenario that resembles islands, separated by lowlands with climatic conditions that many species cannot cross. This isolation is partly responsible for the great diversity of species in mountain areas, making, for example, the Tropical Andes a unique biodiversity hotspot in the world. At the same time, mountain ecosystems are characterized by great variability of daytime and seasonal temperature, creating a natural stress for species that can be exacerbated by climate change. The global increase in temperatures and changes in rainfall patterns particularly affect biodiversity in the mountains, generating sharper changes, which accelerate the extinction of species by differentiated responses, in fundamental processes such as phenology and pollination. On the other hand, the migration of species to higher altitude areas, in response to average warming, represents a potential threat due to the decrease in the available area in the highest areas and the restrictions imposed by topography and soil development. This generates greater competitive pressure for endemic species of the high mountains, and changes in water and carbon dynamics in key ecosystems such as the high Andean wetlands. Human activities, such as agriculture, grazing, mining, and urbanization, exacerbate these impacts, altering the composition and structure of mountain ecosystems and creating opportunities for exotic species to proliferate. However, the interaction of these impacts of climate change and land use on biodiversity varies in intensity and direction from one region to another, due to differences in changes in precipitation, the biogeography of species and the history of land use (Spehn et al. 2010; Cavieres et al. 2025).

Food supply, by modifying the conditions for plant species that are part of the diet of the human population or those that feed livestock.

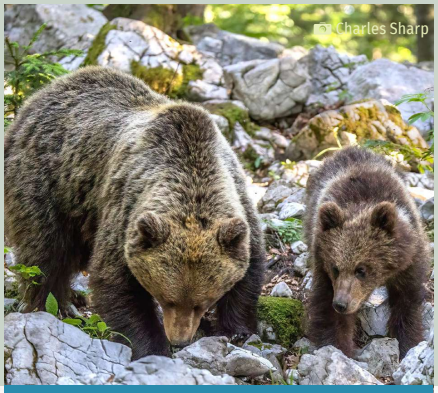
Water regulation for high mountain and downstream populations.

Prevention of natural disasters, mainly associated with the retreat of glaciers and sediment instability.

Cultural identity, by losing the references or symbols identified by local communities as gods or protectors.

Recreation and value chains associated with their landscape, sports and spiritual values.

Impacts on the different mountain ranges



Alps

In European mountains, the decrease in snow cover and alterations in water availability outweigh the importance of the temperature increase itself. An upward migration of plant and animal species is observed, altering the composition and ecological interactions. Mountain plant species of late succession, those with restricted populations and those confined to summits or plains, are the most vulnerable, while ruderal species (weeds) and those of wide distribution thrive. However, the change in agricultural use and the increase in nitrogen deposition are equally important factors to take into account when collecting information and modeling scenarios, due to the negative effect on the survival of species (Convention on the Conservation of European Wildlife and Natural Habitats, 2010).

East Africa

Of volcanic origin, the mountains of East Africa are rich in biodiversity and inhabited by various human communities. Five of the African biodiversity hotspots are in this region, which is home to a quarter of the world's mammal species. Particularly, the African fauna is a pole of attraction that makes it vulnerable to mass tourism. The wide variety of ecosystems includes a large number of shared cross-border ecosystems, critical for migratory species regionally, or hotspots for the illegal wildlife trade. The value of the region's enormous biological capital is not always recognized, while unsustainable agriculture, mining, poverty and population growth exert considerable pressure on mountain ecosystems.

Armed conflicts, weak governance, lack of coherent policies and scarcity of research and investment make it difficult to implement sustainable strategies. The EAC has identified several priority areas for action, but difficulties persist in integrating biodiversity into various economic sectors (EAC Regional Biodiversity Strategy and Action Plan (2021-2031)).

Andes

The studies of the GLORIA-Andes Network have revealed significant changes in extreme temperatures and a heterogeneity in the vegetation cover. The composition of the Andean vegetation has undergone remarkable changes, including the appearance of invasive species that alter the dominance of plant communities. While in most of the monitored peaks increases in species richness are observed, changes in vegetation cover are heterogeneous, with reductions especially in the moors and higher summits. In addition, there is a general trend towards the increase of species with wide thermal niches, to the detriment of endemic species, particularly in the páramos (Cuesta et al., 2023).

Added to this are the pressures of human activities such as grazing, mining and agriculture, which negatively impact the water balance and increase the risk of erosion (Cavieres et al., 2025). Despite monitoring efforts, the relationship between changes in vegetation and the effects of climate change is not entirely clear, suggesting the need for long-term studies to fully understand the dynamics of these mountain ecosystems (Cuesta et al., 2023).

Actions in mountain ecosystems

To improve the understanding of the impacts of climate change on biodiversity and generate more precise future scenarios, mountain ecosystems first require long-term monitoring and in collaboration with other regions internationally (ICIMOD, 2009). The Global Observation Research Initiative in Alpine Environments (GLORIA) is an example of an international effort to monitor climate change and biodiversity, which uses common protocols to allow comparative monitoring of changes in mountain ecosystems around the planet. In the Andes, the GLORIA Network has been continuously monitoring 17 sites and 70 summits for 14 years, covering more than 6,800 km from Venezuela to Tierra del Fuego. Although these data have provided important data on the vegetation of the summits and their dynamics (as mentioned in the previous section), a recent study (Carilla et al. 2023) have detected an important bias in long-term monitoring, with emphasis on biophysical variables compared to social ones. This has led to proposing initiatives such as the Network of Andean Socioecological Observatories (ROSA), which proposes concrete actions to guide the monitor towards a more integrated model, which incorporates social, economic and land use data in the analysis and can inform strategic planning and decision-making.

In 2004, the 7th COP on Biological Diversity adopted a Work Program on Biodiversity in Mountains, which recognized the fragility of mountains in the face of human disturbances, particularly land use change and climate change, highlighting the consequences of the accelerated retreat of glaciers, desertification processes, as well as altitudinal changes in the distribution of species. Although this program proposed to generate changes in 2010, after its adoption challenges were identified in its implementation, such as access to information, capacity development, the absence of adequate funds for the implementation of the proposed actions and the lack of integration with other thematic areas that did not allow the program to prosper.

Future predictions of this program vary widely, but suggest a significant loss of species, especially in the lower southern regions, and a displacement of species-rich areas to mountainous and northern areas. The topographic richness of the mountains can offer refuges, partially mitigating the effects of climate change. Strategies are proposed to protect biodiversity, including the improvement of protected areas, the creation of ecological corridors, the promotion of permeable landscapes, the reduction of anthropogenic tensions, the protection of key elements of the ecosystem, restoration, the identification of shelters and the relocation of species. Collaboration between scientists, professionals and the public is crucial for effective adaptation, relying on databases such as GBIF and GMBA to improve predictive models and decision-making (Convention on the Conservation of European Wildlife and Natural Habitats, 2010).

As evidenced at the meeting of the Andean Mountain Initiative, and reflected in the 40 cases of adaptation solutions compiled in the book "Adaptation Solutions: Climate Resilience in the Andes" (Salas-Bourgoin 2024), biodiversity is not only vulnerable to climate change, but is also a key piece for adaptation. Climate change mitigation and adaptation strategies must incorporate biodiversity in a comprehensive way. Andean case studies show that nature-based solutions, which strengthen the water regulation capacity of ecosystems (the most common theme among cases), local governance and social capital, are highly effective (see the next section for more cases).

These solutions are not only replicable, flexible, viable and sustainable, but also generate multiple co-benefits (Salas-Bourgoin, 2024). Among these co-benefits, the increase in community knowledge on climate change, the improvement of food security, the strengthening of resilience and the restoration of ecosystems. In addition, many of these initiatives rescue and apply ancestral techniques, demonstrating the validity of traditional knowledge in adapting to climate change. However, challenges persist. The lack of robust monitoring to adapt the actions, the limited consideration of land management and the need to address disaster risk management are critical areas of improvement identified in the case studies, which also serve as a starting point for lines of research that in different scales and scenarios allow the best management and incorporation of biodiversity with a holistic approach based on solutions already implemented. Salas-Bourgoin, 2024).

Matterhorn, Swiss Alps
Ashok Bogani

Public policies and land management: case studies in mountains

Páramo, Colombia.
Miguel Vanegas

Parque Nacional Huascarán, Perú
Twiga269

Rwenzori Mountains, 2004
Jorn Eriksson

Case 1
Colombian páramos

In 2018, Colombia issued Law 1930, with provisions for the integral management of the páramos in Colombia. Among them: definition of parameters for the protection of water sources; establishment of guidelines for the conversion and substitution of high-impact activities (mining, fisheries, forestry and agriculture); options for timely financing models compatible with local dynamics; improvement in the supervising systems; and promotion of instances of society-government coordination for the protection of the páramos and their environmental services.

Case 2
Peruvian mountain ecosystems

Since 2019, the National Institute of Glaciers and Mountain Ecosystems of Peru (INAIGEM) promotes the formulation of a **National Policy of Glaciers and Mountain Ecosystems** to respond to the problem represented by the decrease in ecosystem services provided by glaciers and mountain ecosystems to the population. Actions are proposed to reduce the impacts of glacial retreat, increase resilience to the effects of climate change, recover degraded areas and strengthen governance. Currently, the policy is still under construction through a participatory process. If approved, it will have a direct impact on 27% of the Peruvian population - rural inhabitants, and will indirectly affect 39.4% of the Peruvian population in areas that benefit from the ecosystem services of the mountains.

Case 3
East Africa

In the **Rwenzori Mountains**, sustainable beekeeping has been implemented as an alternative to unsustainable agricultural practices and deforestation. This approach empowers women, diversifies incomes and promotes the conservation of ecosystems. On the other hand, in the highlands of southern Tanzania, sustainable tourism is being developed to improve local livelihoods, protect biodiversity and reduce dependence on unsustainable practices such as poaching. Both cases share several key elements: a focus on the diversification of livelihoods, the empowerment of local communities, the promotion of sustainable practices and the integration of environmental conservation with economic development (UNEP and GRID-Arendal., 2022).

A **joint** path

Strategies for strengthening regional and interregional collaboration

Priority action

Four themes were prioritized during the workshops, directed at the implementation of an interregional cooperation agenda:

1. Strengthening collaboration between mountain platforms at a global level ensures learning and capacity building in sustainable management, the identification of advocacy and financing opportunities and facing common challenges
2. Prioritize adaptation to climate change and its links with biodiversity conservation through Nature-based Solutions. This includes advocating for the integration of NbS within international spaces for dialogue and negotiation, and the implementation of tangible NbS projects in mountain territories.
3. Ensure the full and effective participation of women in the planning and management spaces related to the mountains.
4. Mobilize financial resources through the exploration of new sources of financing and strengthening alliances with the private sector for the implementation of programs or projects in mountain areas.

To address these priority thematic areas, actions were defined in three lines of work: **mountain visibility, knowledge management and financing strategies**.

Visibility of the Mountains

Actions
- Recognize the specificities, value and transformation processes that affect mountains, both for decision-making and for socialization.
- Design and implement face-to-face joint and articulated work spaces, as well as online exchange spaces.
- Impact at different levels through education.

Actors
- Government institutions, academic institutions, civil society.

Knowledge management

Actions
- Identify gaps in knowledge and availability of scientific information about the interrelationship of climate change and biological diversity in the mountains.
- Develop research agendas that contribute to strengthening the understanding of the interrelationship of climate change and biological diversity in the mountains, involving academia, the State and civil society.
- Promote spaces for the exchange of experiences in research and management that strengthen knowledge of the interrelationship of climate change and biological diversity in different mountain regions of the world.

Actors
- Universities, research centers, decision makers, students, local communities, private sector.

Financing

Actions
- Design a financing strategy that identifies various sources aimed at increasing the capacity to finance long-term initiatives, ensuring the sustainability of conservation, restoration and development programs in the mountains.
- Develop a cost-benefit analysis of mountain ecosystem services in the context of the effects of climate change.
- Formulate and develop projects at the regional level that address local and national needs, and that consider global agreements

Actors
- Mountain platforms, States, civil society, non-governmental organizations, International Cooperation, UNEP, Mountain Parnertship, Adaptation Fund, GEF and GCF focal points, among others.

Udzungwa, Tanzania
Marc Veraart

Proposals for a **joint road map**

The working groups during the Bogotá meeting defined a joint framework to shape a strategic actions for 2024 and 2025, which encourages the strengthening of collective action on the world stage and develops a unified message for greater visibility of the mountain regions and impact. In a meeting with the Minister of the Environment of Colombia, Susana Mohamed, a key idea was addressed: mountain regions constitute a privileged scenario to highlight the deep connection between biodiversity and climate change. This led to identify the need to propose a Joint Action Route that leads from the COP16 of Cali in 2024, dedicated to Biodiversity, to the COP 30 of Belém do Pará in 2025, on Climate Change. To this end, a series of concrete proposals were developed.

At the Andes level

Proposal 1: Promote regional cooperation of Biosphere Reserves and Mountain Natural and Cultural Heritage Sites in the Andes.

Activities

- Collect information about the current situation of cultural and natural heritage sites and mountain biosphere reserves, identifying common opportunities and challenges.
- Create/reactivate an Andean network on sites of cultural and natural heritage, and mountain biosphere reserves.
- Organize exchange events at the regional level that make visible the sites of cultural and natural heritage, and mountain biosphere reserves and contribute to their enhancement.

Proposal 2: Prepare a synthesis paper on the impact of climate change on the biodiversity of the Andean mountains and the role of biodiversity in adapting to climate change oriented to decision-making and resource mobilization.

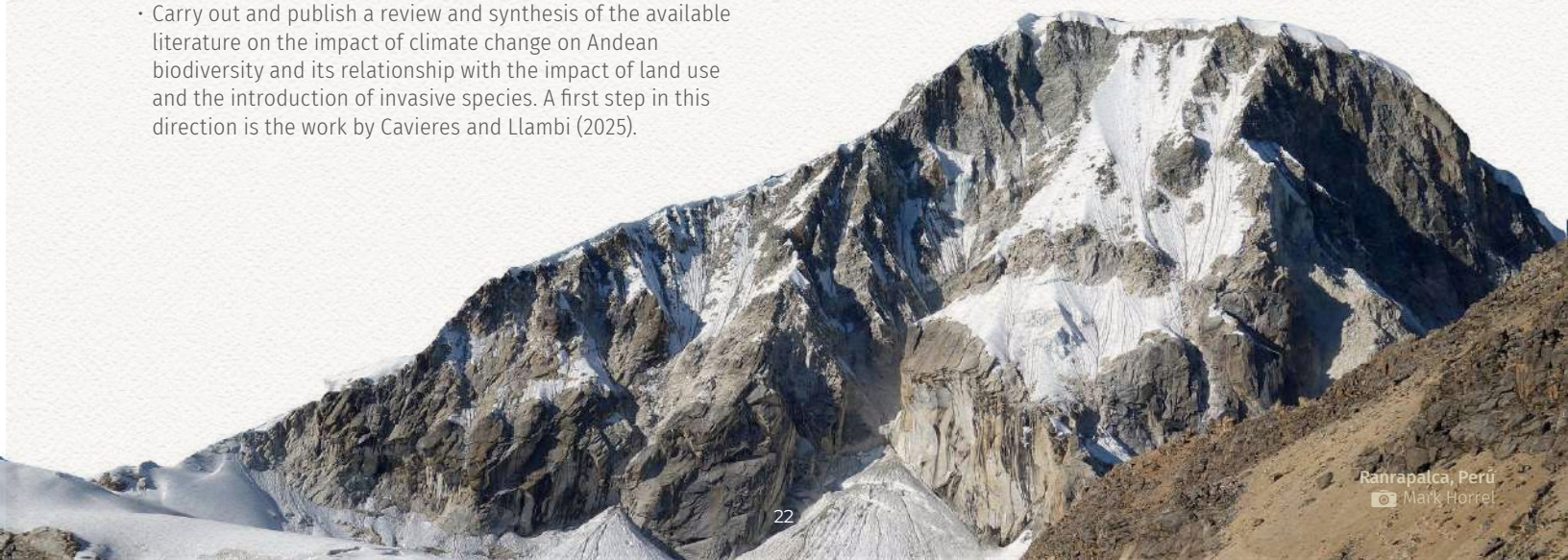
Activities

- Carry out and publish a review and synthesis of the available literature on the impact of climate change on Andean biodiversity and its relationship with the impact of land use and the introduction of invasive species. A first step in this direction is the work by Cavieres and Llambi (2025).
- Consolidate existing data, support long-term monitoring processes and carry out new research to assess the vulnerability of the different Andean regions.
- Generate dissemination products that facilitate access to information for decision makers and the general public (e.g. policy brief).

Proposal 3: Strengthen the integration of mountains in the design or implementation of National Biodiversity Strategies and Action Plans, as well as National Adaptation Plans, and support processes of design and/or execution and/or monitoring of specific policies related to mountain and glacier ecosystems.

Activities

- Identify national policy processes explicitly linked to the mountains and support their formulation through access to scientific evidence.
- Conduct an analysis of the national planning documents related to biological diversity and climate change of each Andean country, identifying the gaps and opportunities to improve the integration of the mountains.
- Develop practical guides and technical tools to strengthen action in mountain ecosystems in national planning documents related to biological diversity and climate change, including indicators, goals and specific actions.
- Organize workshops and training courses for government officials, technicians and decision makers at the national and regional levels, strengthening their capacities to integrate mountains into planning.
- Strengthen mountain expert networks to provide technical support to countries in the implementation of national planning documents related to biological diversity and climate change.



Ranrapalca, Perú
Mark Horrel

At the interregional level

Proposal 1: Develop a synthesis of knowledge on biodiversity and climate change in mountain ecosystems, developing a joint policy report based on scientific information.

Activities:

- Collection and analysis of updated scientific data: Gather information from scientific research, case studies on the impacts of climate change on biodiversity in the mountains.
- Collaboration between interregional and transdisciplinary experts: Consult and connect scientists and researchers of the natural and social sciences; and policy makers of different mountain regions (Andes, Alps, Carpathians, East Africa, Himalayas, etc.).
- Establish an impact assessment framework that holistically addresses the intertwined challenges of biodiversity loss and climate change, incorporating the lessons learned from each mountain region and considering the needs of the populations.
- Create a communication project, during the International Year of Glacier Preservation 2025, aimed at raising awareness about the relevance of glaciers for their inhabitants and for other mountain ecosystems.

Proposal 2: United for the International Year of the Preservation of Glaciers (2025). Position glaciers and the mountain cryosphere as key indicators of climate change and mobilize resources for their protection.

Activities:

- Organize and promote events to celebrate the International Year of Glacier Preservation aimed at different audiences and at various scales (national, regional, global)
- Identify synergies with the Five-Year Action Program for Mountain Regions 2023-2027 promoted by Kyrgyzstan.

Proposal 3: Strengthen links and science-policy dialogue between regional mountain platforms and long-term monitoring networks, regarding the impacts of climate change and ecosystem-based adaptation to focus on the formulation, implementation and monitoring of policies, strategies and plans for mountains, based on best practices and available evidence.

Activities:

- Promote spaces for dialogue between authorities, experts, and research networks, to identify research priorities and knowledge needs for policy formulation.
- Promote spaces for dialogue between authorities and experts, and networks of network researchers, in order to identify research priorities and knowledge needs for policy formulation.
- Guide production of technical documents that facilitate the design, implementation and monitoring of policies, specific strategies and plans for the mountains.

Proposal 4: Identify funding opportunities to address the interactions between biodiversity and climate change in the mountains, within global, national and private sector financing mechanisms, as well as opportunities to develop joint projects.

Activities:

- Explore different sources and financing options, identifying the requirements.
- Establish strategic alliances for the joint development of proposals for their application to competitive funds.
- Design project concepts that integrate for adaptation to climate change and biodiversity in the mountains.

Rwenzori Mountains, Africa
Jorn Erikson

Lesser violetear
Andrej Chudy

First **Steps**

From COP16 on Biodiversity to COP30 on Climate Change

The upcoming Conferences of the Parties of the United Nations in Latin America, COP16 in Cali and COP30 in Belém do Pará, offer an opportunity for regional cooperation around the close link between biodiversity and climate change. As we have highlighted, the preservation of biodiversity and climate change adaptation and mitigation actions are deeply connected and feed back to each other. It is necessary to promote global political support for a joint work programme that considers this interconnection, and in turn, aligns the Biodiversity COP with the Climate Change COP.

Mountains are an ideal case study to make visible the link between biodiversity and climate change. This was recognized by the mountain platforms gathered in Bogotá. On the one hand, the mountains are clearly delimited ecosystems, highly vulnerable to climate change at a global level, and at the same time they are home to great biodiversity, providing valuable ecosystem services to millions of people beyond their borders.

It is this aspect, the ability of the mountains to influence areas far from them, that has contributed to positioning them at the center of the global geopolitical agenda. The largest rivers on the planet, such as the Amazon for example, originate in the mountains, so the global water security agenda is directly related to the protection of mountainous regions. Mountains are a strategic scenario to address the integration of biodiversity and climate change. With this approach, the Bogotá meeting proposed a joint roadmap to connect COP16 and COP30, from the perspective of the mountains. Since then, a series of advances have been made for the implementation of this road map.

COP16
CALI · COLOMBIA
Paz con la Naturaleza

COP30
BRASIL
AMAZÔNIA
BELÉM 2025

The COP 16 in Cali - Colombia

The AMI was commissioned to organize a side event at COP16 in order to discuss possible regional and interregional collaboration actions. On October 29, 2024, the AMI led the event *Global governance of the mountains: importance of creating synergy between biodiversity conservation and adaptation to climate change*, a space that convened representatives of various mountain platforms around the world. Representatives of the Alpine Convention, the Ministry of the Environment of the Czech Republic (for the Carpathian Convention), the Ministry of Environment and Sustainable Development of Colombia (for the *pro tempore* Regional Coordination of the AMI), the Government of Kyrgyzstan, the CBD, FAO Colombia, UNEP, the International Center for Mountain Development (ICIMOD) and Mountain Partnership participated in the event. The event was an opportunity to identify synergies and define actions. Two key actions were raised for the immediate future:

- **Study the possibility of reactivating the Work Program on the biological diversity of the mountains of the CBD.**
- **Develop, jointly with all platforms, a synthesis of knowledge on the links between biodiversity and climate change in mountain ecosystems.**

COP16 was also the scenario of the presentation to the public of the **Declaration of the Andean Mountain Ecosystems**, approved during the Bogotá Meeting. The event was attended by representatives of the Ministry of Environment and Sustainable Development of Colombia, the Regional Coordination and the Technical Secretariat of the AMI, and a panel of experts, in charge of presenting perspectives of national policies and technical-scientific challenges for the implementation of regulations and policies for sustainable mountain management.

Synthesis of Knowledge

Since then, the AMI together with the Alpine Convention, the Carpathian Convention, ICIMOD, UNEP, Zoï Network, CONDESAN and other actors, has been working on a synthesis document on the conservation of biodiversity and adaptation to climate change in different regions of the world, the research carried out and the knowledge that has been generated. In addition to presenting an overview of the current situation in the different regions regarding these two aspects, the document will include a series of calls to action aimed at making the mountains visible and positioning them on the global agenda, starting from their importance as scenarios that show the links between biodiversity and climate change and the importance of considering them in global forums and discussion spaces.

El Chaltén, Argentina
Vincent Delsuc

Scarlet flycatcher, Cali, Colombia
Danilo Arenas

Mountains Connect Brief

Meeting of Mountain Platforms of **the Alps, East Africa and the Andes**

Connecting Biodiversity conservation and Climate Change Adaptation

Links

Alpine Convention: **https://www.alpconv.org**
Carpathian Convention: **http://www.carpathianconvention.org**
Andean Mountain Initiative: **https://iam-andes.org**
East African Community: **https://www.eac.int**
UN Environment Programme: **https://www.unep.org**
Consortium for the Sustainable Development of the Andean Ecoregion: **https://condesan.org**
Adaptation at Altitude: **https://adaptationataltitude.org**
Adaptation at Altitude – Andes: **https://adaptacion-alturas.condesan.org**
Mountains Connect: **https://mountains-connect.org**
Alexander von Humboldt Institute (IAvH): **https://www.humboldt.org.co**
Ministry of Environment and Sustainable Development of Colombia: **https://www.minambiente.gov.co**

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