GEF-8 REQUEST FOR MSP (1-STEP) APPROVAL

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General Project Information

Project Information

Project Title:

Jaguar Corridors in the Face of Rapid Environmental Change: A dynamic monitoring and assessment system for prioritizing conservation investments

Region: Latin America and the Caribbean	GEF Project ID: 11914
Country(ies): Regional Bolivia Brazil Paraguay	Type of Project: MSP
GEF Agency(ies): WWF-US	GEF Agency Project ID: G0041
Project Executing Entity(s): Fundación Vida Silvestre	Project Executing Type: CSO
GEF Focal Area (s): Biodiversity	Submission Date: 3/11/2025
Type of Trust Fund: GET	Project Duration (Months): 24
GEF Project Grant: (a) 1,693,119.00	GEF Project Non-Grant: (b) 0.00
Agency Fee(s) Grant: (c) 152,381.00	Agency Fee(s) Non-Grant (d) 0.00
Total GEF Financing: (a+b+c+d) 1,845,500.00	Total Co-financing 1,152,382.00
PPG Amount: (e) 50,000.00	PPG Agency Fee(s): (f) 4,500.00
PPG total amount: (e+f) 54,500.00	Total GEF Resources: (a+b+c+d+e+f) 1,900,000.00

Project Tags

CBIT: No NGI: No SGP: No Innovation: Yes Competitive Window: No

Project Sector (CCM Only):

Taxonomy:

Focal Areas, Biodiversity, Protected Areas and Landscapes, Terrestrial Protected Areas, Species, Threatened Species, Wildlife for Sustainable Development, Tropical Dry Forests, Biomes, Wetlands, Forest, Drylands, Climate Change, Climate Change Mitigation, Agriculture, Forestry, and Other Land Use, Land Degradation, Land Degradation Neutrality, Land Cover and Land cover change, Land Productivity, Carbon stocks above or below ground, Sustainable Land Management, Ecosystem Approach, Integrated and Cross-sectoral approach, Restoration and Rehabilitation of Degraded Lands, Influencing models, Demonstrate innovative approache, Stakeholders, Type of Engagement, Participation, Information Dissemination, Partnership, Strategic Communications, Communications, Community Based Organization, Civil Society, Non-Governmental Organization, Academia,

Gender Equality, Gender Mainstreaming, Sex-disaggregated indicators, Gender results areas, Participation and leadership, Integrated Programs, Food Systems, Land Use and Restoration, Integrated Landscapes, Landscape Restoration, Capacity, Knowledge and Research, Adaptive management, Learning, Knowledge Generation, Training, Workshop

Rio Markers

Climate Change Mitigation	Climate Change Adaptation	Biodiversity	Land Degradation
Principal Objective 2	No Contribution 0	Significant Objective 1	Significant Objective 1

Project Summary

Provide a brief summary description of the project, including: (i) what is the problem and issues to be addressed? (ii) what are the project objectives, and if the project is intended to be transformative, how will this be achieved? iii), how will this be achieved (approach to deliver on objectives), and (iv) what are the GEBs and/or adaptation benefits, and other key expected results. The purpose of the summary is to provide a short, coherent summary for readers. The explanation and justification of the project should be in section B "project description".(max. 250 words, approximately 1/2 page)

The Gran Chaco is a global deforestation hotspot[1][1] which has fragmented ecosystems and reduced connectivity between natural habitats[2][2]. The jaguar has disappeared in approximately 40% of its original distribution in the Argentine Chaco (Altrichter and Boaglio, 2004; Altrichter, 2006), and the remaining populations are fragmented and declining[3][3].

The Pantanal is the largest wetland in the world sustaining the highest concentrations of wildlife in the Neotropical zone. Jaguars occupy approximately 42% of the biome. There is a potential division of the population into northern and southern populations due to high deforestation rates in the southern region (Ferraz et al., 2013). Also, fires have negatively impacted jaguar conservation over the last 16 years, reducing populations, home range areas, and protected areas within home ranges.[4][4]

The Gran Chaco is interlinked with the Pantanal[5][5]. Unsustainable economic practices and development activities in the highlands of the Upper Paraguay River Basin, including Chaco, Cerrado, and Chiquitano Dry Forest, are jeopardizing the Pantanal's ecological health and its ability to provide critical ecosystem services. Compounding this threat is the region's hydrological imbalance: evapotranspiration rates in the Pantanal exceed local rainfall, rendering the wetland reliant on water inflows from upstream highland areas to sustain its ecological functions[6][6].

Conserving biodiversity over time in a dynamic landscape such as the Pantanal-Chaco requires innovative solutions that improve decision-makers' situational awareness and provides them with rigorous and actionable information to guide where to invest scarce resources to conserve this global biodiversity hotspot and carbon sink. The project will develop a dynamic monitoring and assessment system for the Pantanal-Chaco region to enable prioritization of conservation investments, strengthen ecological connectivity and restoration and to improve the effective management of biodiversity (including protected areas).

The project has three interrelated outcomes:

1) The first strategy will establish scientific partnerships that will enable the collection of data on jaguar presence, land cover and use, and carbon stocks, and the validation of a monitoring and assessment system across at least 127 million hectares of the PACHA project region.

2) The second will develop a dynamic, cloud-based, automated monitoring and assessment system and identify and prioritise a number of ecosystem hectares in the PACHA project region for restoration, protection and mitigation priorities to assist stakeholders, including donors, key government institutions, conservation organisations, etc., in decision making.

3) Thirdly, decision-makers and key stakeholders will have the knowledge and tools to use the monitoring and assessment system in national, sub-national and local management tools for planning, implementation, monitoring and evaluation of policies, plans, projects, with gender and intercultural approaches.

This project will directly benefit 236 people (108 women, 128 men) from governments, NGOs, Indigenous groups, and the private sector through capacity-building in conservation technology. Aligned with GEF core indicators, it lays the groundwork for achieving global targets in the future e.g., by prioritizing areas for restoration (core indicator 3), protection (core indicator 1) and barrier mitigation. It also estimates potential CO_2e reductions associated with these potential actions (restoration and barrier mitigation) if made by decision-makers. Training stakeholders and embedding data into policies ensures innovations scale across the GEF Integrated programs portfolio, such as Global Wildlife Programme (GWP) and the Critical Biomes Initiative, maximizing long-term impacts.

Also, the project will contribute to the goals of:

1) The United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol by prioritizing areas for forest and wetland restoration and protection; 2) The Convention on Biological Diversity through support for biodiversity protection, sustainable resource use, and equitable participation in conservation efforts; 3) The Convention on International Trade in Endangered Species (CITES) by safeguarding jaguar populations and reducing habitat fragmentation; and 4) The Ramsar Convention on Wetlands by validating land-use data and advancing conservation efforts in the Pantanal.

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[1] Baumann, Matthias, et al. 'Frontier Metrics for a Process-Based Understanding of Deforestation Dynamics.' Environmental Research Letters, vol. 17, no. 9, 2022, p. 095010.

[2] Moreno, D., Szenkman, P., Chiarella, A. A., Navaridas, R., Almeida, J., Iannuzzi, P., De Salvo, C. P., y Jacquet, B. (2024). *La deforestación en el Gran Chaco argentino: avances y desafíos*. https://doi.org/10.18235/0013016

[3] Altrichter M, Boaglio G, Perovic P. The decline of jaguars Panthera onca in the Argentine Chaco. *Oryx*. 2006;40(3):302-309.

[4] De Barros, A.E., Morato, R.G., Fleming, C.H. *et al.* Wildfires disproportionately affected jaguars in the Pantanal. *Commun Biol* **5**, 1028 (2022). https://doi.org/10.1038/s42003-022-03937-1

[5] Vidal, C., Souza-Alonso, P., Currey, B., & Mc, D. B. (2024). Spatiotemporal analysis of wildfires and their relationship with climate and land use in the Gran Chaco and Pantanal ecoregions. Science of the Total Environment. https://agritrop.cirad.fr/610851/1/C_Vidal_et_al_Sci_Tot_2024.pdf

[6] Bedoya Serrati, V. (2018). Exploring ecosystem services. Internship Report. WWF-Brazil; Wageningen University and Research.

Project Description Overview

Project Objective

To develop a dynamic monitoring and assessment system for the Pacha project region to enable prioritization of conservation investments, strengthen ecological connectivity and restoration and to contribute to the improvement of the effective management of biodiversity (including protected areas)

Project Components

Component 1: Collaborative Data Collection

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
557,147.00	414,858.00

Outcome:

Outcome 1.1: Strengthened scientific and technical partnerships enable coordinated and participative data collection on jaguar presence, land cover and uses and secondary data of carbon stocks.

Output:

Output 1.1.1: Collaborative protocols and sampling for data collection, with gender and intercultural approaches

Output 1.1.2: Field data collected on jaguar presence in corridors, land cover and use, and secondary data of carbon stock to tackle environmental change, ensuring gender and intercultural approaches during process

Component 2: A cloud-based dynamic monitoring and assessment system

Component Type	Trust Fund
Investment	GET
GEF Project Financing ($)	Co-financing ($)
559,846.00	380,286.00

Outcome:

Outcome 2.1: Identified priority areas to develop conservation, restoration, and barrier mitigation, using the dynamic monitoring and assessment system.

Output:

Output 2.1.1: Dynamic model developed and validated with updated data to develop spatial analysis for decisions making.

Output 2.1.2. Spatial analysis tool (Web portal) for decision-making with gender and intercultural approaches

Component 3: Capacity building and landscape governance for scale-up.

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
276,198.00	149,810.00

Outcome:

Outcome 3.1: Improved capacity of multisectoral decision makers and key stakeholders to use the new dynamic monitoring and assessment system for landscape management, with gender and intercultural approaches.

Output:

Output 3.1.1: Key decision makers will be engaged and trained in the use of the cloud-based dynamic monitoring and assessment system for landscape management.

Output 3.1.2: Actionable recommendations, for institutional and financial incentives and governance mechanisms to integrate the monitoring and assessment system into the policies and investment, are formulated and disseminated.

Component 4: Knowledge management and Communications

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
65,383.00	46,095.00

Outcome:

Outcome 4.1. Increased knowledge dissemination and use of the web portal to scale-up decision making

Output:

Output 4.1.1. Gender-responsive knowledge products generated and disseminated, with gender approach.

M&E

Component Type	Trust Fund
	GET
GEF Project Financing ($)	Co-financing ($)
80,625.00	57,619.00

Outcome:

Effective decision making and adaptive project management

Output:

Monitoring and evaluation system used for adaptive management.

Component Balances

Project Components	GEF Project Financing ($)	Co-financing ($)
Component 1: Collaborative Data Collection	557,147.00	414,858.00
Component 2: A cloud-based dynamic monitoring and assessment system	559,846.00	380,286.00
Component 3: Capacity building and landscape governance for scale-up.	276,198.00	149,810.00
Component 4: Knowledge management and Communications	65,383.00	46,095.00
M&E	80,625.00	57,619.00
Subtotal	**1,539,199.00**	**1,048,668.00**
Project Management Cost	153,920.00	103,714.00
Total Project Cost ($)	**1,693,119.00**	**1,152,382.00**

Please provide justification

Although its territory forms part of the PACHA landscape, Argentina will not receive funding under this innovation medium-size project. Field validation of data will not happen in Argentina, nor will workshops or other consultations with government. There will not be "on the ground" activities in Argentina. Although the project will not finance any activities in Argentina, the tool that will monitor connectivity changes will include the Chaco region of that country. Satellite data and other secondary sources of information will be used to develop this tool.

PROJECT OUTLINE

A. PROJECT RATIONALE

Briefly describe the current situation: the global environmental problems and/or climate vulnerabilities that the project will address, the key elements of the system, and underlying drivers of environmental change in the project context, such as population growth, economic development, climate change, sociocultural and political factors, including conflicts, or technological changes. Describe the objective of the project, and the justification for it. (Approximately 3-5 pages) see guidance here

Gran A.1. Background:

The Global Environment Facility (GEF) was designed as a pioneering mechanism to drive the creation of scalable solutions that generate significant global environmental benefits. In the GEF-8 Programming Directions, the Innovation Window was approved as a Global Program with the goal of providing information, analyses, knowledge, and tools that improve the quality, design, implementation, effectiveness and impact of ongoing and future GEF programming.

The current project 'Jaguar Corridors in the Face of Rapid Environmental Change: A Dynamic Monitoring and Assessment System for Prioritizing Conservation Investments' submitted for this inaugural GEF-8 Innovation Window will develop a dynamic monitoring and evaluation system for the Pantanal-Chaco region to prioritize conservation investments, strengthen ecological connectivity and restoration, and improve the effective management of biodiversity (including PAs). The tools developed under this project and lessons derived from their application will be replicable, and the project was selected based on its potential to enhance the implementation, effectiveness, and impact of ongoing and future GEF projects, and thereby to strengthen GEF programming.

A.2. Project location:

The Pantanal and Chaco (PACHA) spanning Bolivia, Paraguay, Brazil, (and Argentina though out of the geographical scope of this project) is home to thousands of different plant and animal species, recognized by Ramsar (15 sites) and UNESCO (Chaco Biosphere Reserve). The Gran Chaco consists of two distinct ecoregions: the Humid Chaco and the Dry Chaco. It is interlinked with the Pantanal, one of the largest tropical wetlands globally, where more than 84 % of the territory is recognized for its high ecological integrity[1][7]. These biomes provides a wide range of vital ecosystem services, such as carbon storage[2][8], wintering ground for migratory species[3][9], habitat for threatened species, flood control capabilities[4][10], water and food security and fishing[5][11], that benefit people and wildlife both globally and in the region.

The Gran Chaco[6][12]

The Gran Chaco region spans approximately 110 million hectares across four countries: Argentina (though out of the scope of this project) (60%), Paraguay (28%), and Bolivia (11%) and Brazil (1%)[7][13], including provinces in Argentina, and departments in Paraguay and Bolivia. These include Formosa, Chaco, Corrientes, Salta and Santiago del Estero in Argentina; Presidente Hayes, Alto Paraguay, Boquerón, San Pedro, Concepción, Amambay, Caaguazú, Cordillera, Paraguarí and Ñeembucú in Paraguay; Santa Cruz, Tarija and Chuquisaca in Bolivia.

The biome is currently under-represented by protected areas, which provide poor representation of terrestrial vertebrates[8][14]. In 2009, protected areas covered only 9.1% of the Gran Chaco (3.9% in Argentina, 3.6% in Bolivia, and 1.4% in Paraguay)[9][15], and the isolation of these protected areas remains a serious challenge[10][16].

According to geospatial analyses and regional studies, indigenous lands in the Pantanal-Chaco cover between 3% and 10% of the territory – with higher percentages in Bolivia and lower percentages in areas of agricultural expansion such as the Paraguayan Chaco (IUCN, 2020; RAISG, 2022) – playing a key role in conservation. Also, the region is affected by increasing pressure from agriculture and livestock, which now affects 29% (46 million hectares over 158 million) of the total area.[11][17]

The Gran Chaco region is home to approximately 4.1 million inhabitants, with approximately 3.6 million in the Argentine Chaco (86% of the total), 325,000 in the Paraguayan Chaco (8%), and 190,000 in the Bolivian Chaco (5%) (INDEC, 2022; INE Bolivia, 2020; DGEEC Paraguay, 2023). The region is inhabited by more than twenty-five indigenous groups, criollo settlers, colonists of diverse nationalities, Mennonites and among others [12].

The Pantanal:

The Pantanal spans an area of 17.9 million of hectares in the department of Santa Cruz in eastern Bolivia; two states in central-western Brazil, Mato Grosso and Mato Grosso do Sul; and Alto Paraguay department in Paraguay. Approximately 78% of this area lies in Brazil, 18% in Bolivia, and 4% in Paraguay.

The Pantanal receives most of its water from the Upper Paraguay River's tributaries in Brazil. It functions as a natural flood control system, absorbing excess water during rainy periods and enabling processes like evapotranspiration and groundwater recharge. The region's topography showcases a striking interplay between low-lying wetlands and elevated plateaus, fostering ecosystems shaped by both seasonal floods and prolonged inundation cycles.

The Pantanal also provides critical habitat for numerous threatened species, including the jaguar (*Panthera onca*), giant otter (*Pteronura brasiliensis*), marsh deer (*Blastocerus dichotomus*), pampas deer (*Ozotoceros*

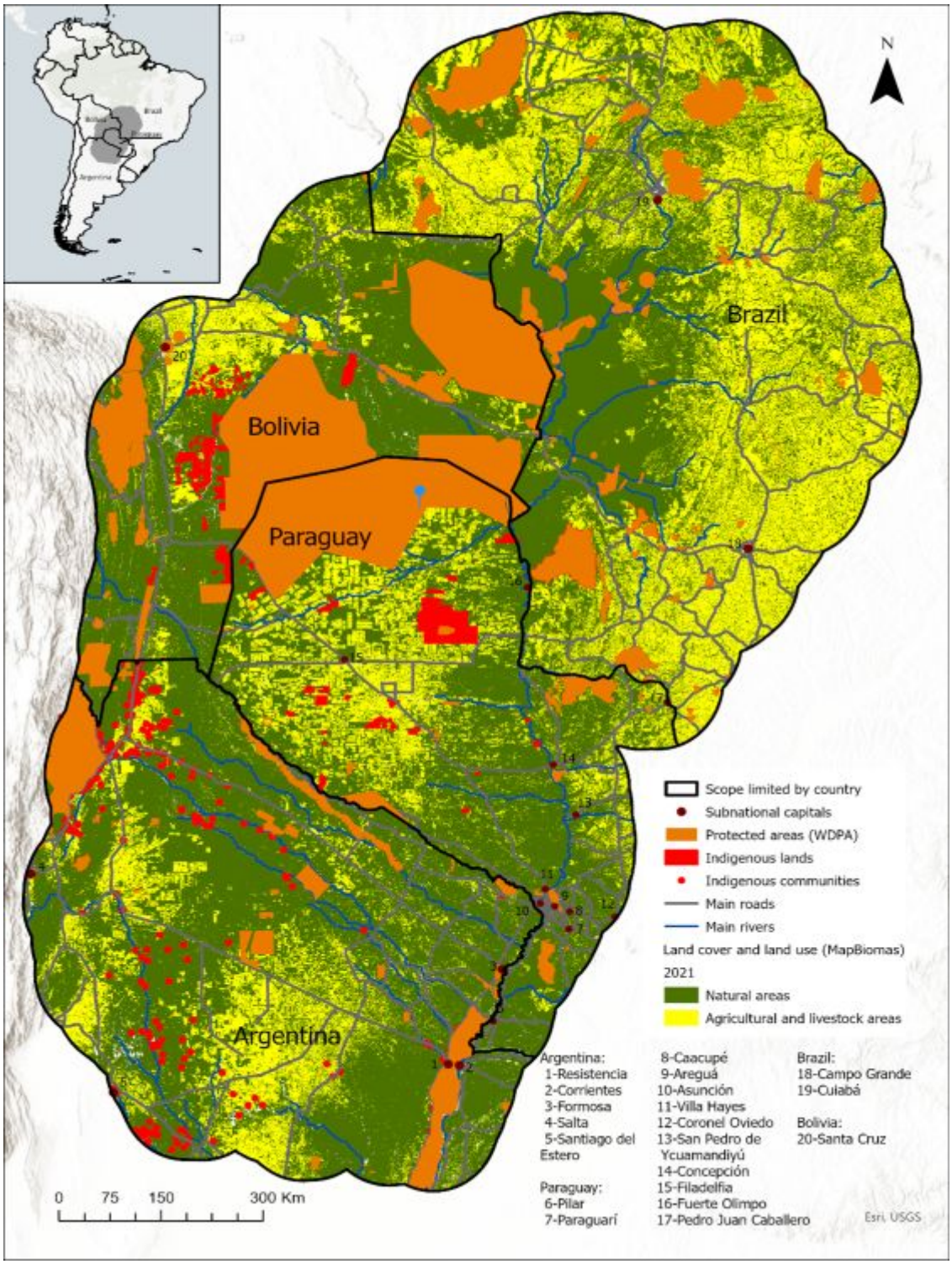
bezoarticus); (Mourão et al., 2000; Tomas et al., 2010, 2015), and hyacinth macaw *(Anodorhynchus hyacinthinus*) (Guedes et al., 2008).

The Pantanal is a complex and dynamic landscape. It presents different layers of property regimes, and the distribution and availability of natural resources vary with the seasons. Most of the Pantanal is held in private lands comprising 93% of the land in the Brazilian side. It has a protected areas network, covering only 5.71%. The main land use in the Pantanal is the natural one, which includes forests, shrublands savannas and natural management areas occupying circa 80% of the total territory (WWF-Brazil, Universidade Católica Dom Bosco, & Fundação Tuiuiu, 2017). The remaining territory is occupied by anthropic uses (11%) and water (8%).

According to WWF-Brazil and WWF Freshwater Practice (2017), the Pantanal is home to 1.2 million people and there are more than 8 million beneficiaries of the ecosystem services it provides. The local population in the Pantanal includes a mix of indigenous groups and foreign settlers who maintain strong ties to the area and rely on sustainable livelihoods like fishing, adapted to the local ecosystem (Chiaravalloti, 2019, 2017a, 2017b)[13][18]

In Map N°1, the area of the PACHA project landscapes is represented and includes the description of countries, indigenous lands, indigenous communities, land cover and land use and agriculture and livestock areas.

Map N°1: Map of the PACHA project region



A.3. Environmental problem

-

The main environmental problems in the Gran Chaco landscape are deforestation, fragmentation and loss of biodiversity, which are interrelated and are further exacerbated by climate change and its impact on the environment and livelihoods. The Pantanal is losing water and experiencing more severe droughts because of climate change, resulting in the loss of biodiversity, as well as the loss of ecosystem services, intrinsically linked to the flood pulse. The region also experiences deforestation in the headwaters of river basins. The pressures or drivers that directly or indirectly cause these environmental problems are explained below.

According to the IUCN Red List, the jaguar (*Panthera onca*) is classified as Near Threatened (NT). It is a forest species and due to habitat loss and ecosystem degradation, the jaguar's historical range has contracted by approximately 55% over the past century[14][19]. Approximately 38.4% of the jaguar's total geographical range currently lies within protected areas. Jaguar populations are decreasing and the total number ranges from 64,000 individuals (De la Torre et al. 2018) to 173,000 individuals (Jedrzejewski et al. 2018).

In this complex of problems, the project focuses on the pace and scale of changes in PACHA project that make it difficult for donors and decision makers, including the GEF as a donor and the recipient countries, to keep their management plans and projects relevant over time to know where to act strategically to maximize the value of habitat protection and restoration. Each new year of wildfires and land use changes alter the spatial pattern of habitat and connectivity for regional species and ecosystems. To conserve biodiversity over time in such a dynamic area, such as PACHA project, requires innovative solutions that improve the situational awareness of decision makers and provide them with rigorous and actionable information to guide where they invest scarce resources to help conserve this global biodiversity hotspot and carbon sink.

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In response to this problem, the project aims to develop a dynamic monitoring and assessment system for the Pantanal-Chaco region to prioritise conservation investments, strengthen ecological connectivity and restoration, and improve the effective management of biodiversity (including PAs).

A.4. Barriers

In the absence of the project, the Pantanal-Chaco region faces the following barriers such as:

Barrier 1: Environmental data collection (such as jaguar connectivity, land use and carbon stock) and investment decision-making are often separated and fragmented across multiple government agencies, NGOs, and international organizations. This results in a lack of institutional ownership over monitoring systems, limiting their adoption and long-term sustainability.

The current conditions are:

a) Currently, monitoring data on jaguar corridors, land use and carbon stock are collected by different institutions such as NGOs, universities and government agencies, depending on the country, and are linked to planning but disconnected from implementation, monitoring and evaluation, possibly, mainly due to the lack

of financial incentives to move from planning to action. In some countries the data is generated by NGOs, in others it is government institutions that provide the information.

b) Lack of mandates and incentives to use data for monitoring and assessment tools. For example, ministries of conservation, planning and finance do not systematically integrate automated monitoring data into the design and evaluation of national or regional strategies and investments. Current monitoring systems are not designed to keep pace with the rapid and dynamic changes.

c) Decision-making is often sectoral, with environment ministries, land use planning agencies and finance departments working independently rather than in a coordinated manner. In addition, national, sub-national and local levels generate data that are integrated into the national level, policies, plans and investments. This is even more noticeable in transnational countries, where the coordination between the different countries is weak.

For the above reasons, national, regional and local governments may not prioritise the adoption of a cloud-based monitoring and assessment system, leading to reduced effectiveness in investment decision-making. Therefore, the project will provide government agencies and key decision makers with: 1) the establishment of scientific partnerships and data sharing that will enable the collection and analysis of data on jaguar presence, land cover and use, and carbon stock allowing to develop a dynamic monitoring and assessment system for 127 M hectares in PACHA project region, 2) a customised web portal that aligns monitoring and assessment system results with institutional and capacity building incentives.

Barrier 2: Limited institutional and financial incentives to use an automated monitoring and assessment system for carbon stock and jaguar connectivity. The current conditions are: 1) Most conservation funding in the Pantanal-Chaco region for monitoring and assessment systems comes from short-term grants, which means there is no long-term mechanism to sustain monitoring efforts. 2) Currently, government institutions, NGOs, the private sector, or indigenous organisations or communities do not receive financial rewards for adopting better monitoring systems. 3) Donors, governments and financial institutions do not promote the use of a monitoring system for jaguar connectivity and carbon stock throughout their five-year programming or long-term planning as a continuous process to help them prioritise strategic areas during design, monitor implementation and evaluate.

As a result, organisations and institutions are not strongly motivated to use the system in their long-term decision-making, leading to under-use of near-real-time data for prioritising investment or funding allocations, monitoring changes to adjust strategies, and evaluating the effectiveness of investments. The project will engage current GEF projects in the PACHA project region to explore potential different incentives, promoting the idea that funding for conservation and restoration is linked to the adoption of the monitoring system and planning processes.

Barrier 3: Low technical capacity among key stakeholders to use Earth-observing satellites and automated cloud-based workflows to continuously monitor the changing environment and track where the best remaining wildlife habitat intersects with forests that sequester the most carbon. Many government institutions at the subnational and national level, NGO and indigenous organizations, and other key

stakeholders lack the technical resources to develop an automated monitoring system, analyze and interpret complex monitoring data and lack the capacities to integrate spatial and ecological data into their planning, implementation and monitoring. Without capacities and user-friendly tools, key decision- makers may struggle to use the monitoring system, leading to low use and poor decision-making. The project will: 1) Work with stakeholders to develop a user-friendly platform that incorporates their feedback from a variety of decision makers and interests coming from IPLC, national, subnational and local governments, private sector, etc. 2) Develop context-specific training workshops, guides, tutorials, manuals and practical case studies to ensure adoption and practical usability and 3) Train key decision-makers and technical government, NGOs, and IPLC institutions to use the monitoring system to develop case studies analysis that lead to the initial integration of the monitoring system into national, subnational and local planning, implementation or monitoring.

Barrier 4: Ineffective governance mechanisms hinder participatory decision-making, preventing diverse stakeholders (e.g., communities, governments, and the private sector) from equitably accessing, adapting, and applying existing capacities, tools, and resources to advance shared priorities across the landscape.

A key element of this monitoring and assessment system is the integrated approach, i.e. a systems approach that brings together different sectors, levels of government and jurisdictions to facilitate conservation and development interests working together to pursue common goals. A value chain approach doesn't have a system intervention where we see the linkages between water, climate, livelihoods, economy, land use, carbon and biodiversity. The project will not approach the full complexity of the variables explained above, as it will only include jaguar connectivity corridors, land use and carbon storage in the analysis. However, these variables can be complemented with additional information and analysis, by the users, to prioritise areas for restoration and sustainable practices that support people's livelihoods.

The success of any regional monitoring system hinges on stakeholders' interest and commitment to using it for collective action. However, given the two-year duration of this GEF-8 innovation project, strengthening new governance mechanisms or establishing new ones is beyond its scope. Instead, the project will focus on demonstrating the value of the monitoring system as a shared evidence base to catalyze future governance processes. During implementation, the project will strategically leverage and complement existing governance platforms, such as:

- MapBiomas (engaging academia, government, and NGOs);
- Jaguar Management Committees (active in Argentina, Brazil, Bolivia, and Paraguay);
- Other national and subnational governance structures.

By integrating the tool into these mechanisms, the project will enable stakeholders to align its use with their conservation, climate, and livelihood objectives. While governance strengthening remains a medium- to long-term outcome, this innovation phase prioritizes tool development, validation, and adaptability testing across diverse needs. The project will thus contribute to enhancing targeted governance mechanisms by providing actionable data and fostering collaboration, laying the groundwork for scaled impact beyond the pilot period.

A.5. Future narratives:

Uncertain future possibilities are summarized in four narratives. The main drivers are climate change, world population growth and policy incoherence.

World population growth: Globally, developing nations are shifting toward diets richer in animal protein, coupled with a surge in food imports which is intensifying demands on agricultural systems, especially for livestock and agriculture in Gran Chaco. This pressure is driving the degradation of wetlands and deforestation of forests, resulting in the erosion of their critical ecological roles and ecosystem services, impacting the habitat and connectivity of jaguars.

Impact of Climate Change: Climate change extends beyond the rise in global average temperatures; it encompasses the intensification of extreme weather events, such as droughts, significant disruption to rainfall patterns, hydrological cycles, and a heightened frequency of wildfires. For Pantanal wetland ecosystems, these changes may range from moderate shifts in precipitation volume and timing to rising temperatures that directly jeopardize the survival and diversity of keystone species, such as the jaguar, by degrading their habitats and ecological balance.

Coherence of government policies: Environmental and social policies are subordinated to economic ones, seeking to maximize growth and competitiveness. This approach neglects to factor in the true environmental costs within economic assessments, resulting in undervalued ecological impacts. Measures to alleviate social exclusion and poverty are insufficient. Large public investments are needed to try to reduce the loss of some of the most critical environmental services of forest and wetlands.

Narrative 1: World population growth increase, low impact of climate change and strong coherence in government policies

World population growth is intensifying demands on agricultural systems. This pressure is driving the degradation of wetlands and deforestation of forests, resulting in the erosion of their critical ecological roles and ecosystem services, impacting the habitat and connectivity of jaguars in PACHA.

Droughts and wildfires will not increase because of low impact of climate change that results in rainfall patterns concentrated in shorter timeframes rather than catastrophic destabilization, allowing ecosystems to gradually recover, providing habitat restoration for jaguars and supporting IPLC resilience.

Strong coherence in government policies is a foundation for effective conservation investments based on strategic land-use planning, improvement in protected area management and local capacity-building programs in managing jaguar corridors while improving their livelihoods.

The development of the dynamic monitoring and assessment system ensures that conservation investments are informed by updated data on jaguar connectivity habitat recovery, land-use and carbon stocks, enabling conditions for future adaptive management strategies such as wildlife-friendly certification schemes for agriculture, community-managed compensation funds for livestock losses and or innovative restoration technologies for prioritized areas, leading to hectares of jaguar corridors restored, human-jaguar conflicts reduced with IPLCs and sustainable livelihoods strengthened.

Narrative 2: Decline in world population growth, severe climate change and weak coherence in government policies.

While global population growth declines, regional disparities persist. Rural areas in the PACHA project region face aging populations and youth migration to cities, reducing labor availability for sustainable land management.

A situation of severe climate change leads to more frequent droughts and wildfires, and habitat degradation and fragmentation in the PACHA project region causing jaguars to increasingly move into human-dominated areas as prey populations decline, leading to rising human-wildlife conflicts. Rural communities, already facing economic hardships due to severe climate change effects, receive little to no institutional support for conflict mitigation.

With weak coherence in government policies to prioritize the balance between sustainable development and conservation and the enforcement of land-use regulations, the provision of ecosystem services is at risk for IPLC livelihoods and agriculture activities, further endangering jaguar populations.

Despite weak coherence in government policies, the project's partnerships with NGOs, universities and local stakeholders can use the monitoring and assessment system to drive localised conservation, restoration and barrier mitigation in critical corridors. These actions create opportunities for sustainable livelihoods and long-term conservation in rural areas, ensuring that jaguar populations can thrive in the face of severe climate stress.

Narrative 3: Decline in world population growth, low impact of climate change, and strong coherence in government policies.

While global population growth slows, economies in the Pantanal-Chaco region drive economic recovery through technological innovation and heightened agro-industrial intensification. This shift counteracts labor shortages stemming from an aging population and rural-to-urban migration. Despite low direct climate change impacts, human-driven land-use changes remain the primary threat to jaguar connectivity.

Strong coherence in government policies in the Chaco Pantanal supports sustainable economic growth by enforcing land-use policies that balance development with conservation. Public budgets generated by economic recovery are invested in payments for ecosystem services (PES) and agroforestry incentives, encouraging farmers and businesses to adopt wildlife-friendly practices and reducing human-jaguar conflicts.

The monitoring and assessment system will enhance these efforts by identifying restoration priorities, guiding investments for the management of critical jaguar habitats with sustainable practices and strengthening transboundary collaboration. As a result, jaguar populations benefit from improved connectivity, while local communities secure sustainable livelihoods through conservation-compatible agro-industry practices.

Narrative 4: Severe climate change, world population growth increase and weak coherence in government policies.

Severe climate change exacerbates the situation, causing prey populations to decline due to droughts, wildfires, and ecosystem degradation. As jaguars compete for dwindling resources, conflicts with communities escalate, particularly as they prey on livestock. Weak coherence in government policies further limits financial and technical support for conflict mitigation, leaving IPLCs vulnerable and reducing the enforcement of environmental regulations, which worsens habitat destruction.

A global population surge drives unprecedented demand for land and natural resources, triggering rapid encroachment into critical habitats. Jaguars, confined to diminishing territories, turn to livestock as prey more frequently, heightening tensions with Indigenous Peoples and Local Communities (IPLCs)

In this context, the dynamic monitoring and assessment system provides a critical tool to track habitat fragmentation guiding limited resources to prioritize the most critical areas for protection, habitat restoration and barrier mitigation under climate stress, allowing IPLCs and local stakeholders to implement preventive measures to reduce conflicts and strengthening local capacity. Despite weak coherence in government policies, combining data-driven solutions with localized actions, the Pantanal and Chaco regions can mitigate

partially biodiversity loss, reduce human-wildlife conflicts, and foster resilient ecosystems and communities, even under severe climate impacts.

A.6. Project approach

The project is relevant to any of the future scenarios presented, as it uses earth-observing satellites and automated cloud-based workflows to continuously monitor the changing environment and track where the best remaining jaguar wildlife habitat intersects with forests that sequester the most carbon, and addresses the main barriers identified to solving the problem through three interrelated strategies, explained below. The jaguar was selected for its threefold scientific role: 1) as an umbrella species protecting biodiversity and ecological connectivity (Thornton et al., 2015); 2) ensuring critical ecosystem services like carbon storage and water cycle regulation (Estes et al., 2011); and 3) enhancing climate resilience through biological corridors that preserve carbon-rich forests and aid species adaptation (De la Torre et al., 2018; Gatti, 2025). This approach highlights the urgency of ecological corridors and sustainable land-use strategies to safeguard both jaguars and regional ecological balance.

The first outcome will be achieved by strengthening scientific and technical partnerships to enable coordinated and participative data collection on jaguar presence, land cover and uses, and secondary data of carbon stocks. This includes two outputs: 1) Collaborative protocols and sampling for data collection with universities, institutions and NGOs, with a gender and intercultural approaches, and 2) Field data collected on jaguar presence on corridors, land cover and use, and secondary data of carbon stock to track environmental change, with gender and intercultural approaches.

The second outcome is to identify priority areas to develop conservation, restoration, and mitigation of identified barriers. This monitoring and assessment system will be achieved through the development of dynamic models for an interactive, cloud-based, automated, dynamic monitoring and assessment system for up-to-date data tracking and decision support across multiple countries. TerrAdapt will develop a dynamic landcover model, dynamic forest disturbance model, dynamic jaguar habitat model and expanded dynamic forest structure model. The monitoring and assessment system will be accessible to the stakeholders via a web portal[15][20] that allows users to visualise the changes and assess impacts to their areas of interest and make spatial queries over a user-defined area and time of interest.

The third outcome is the improvement of capacity of decision makers and key stakeholders to use the new dynamic model for regional management, with gender and intercultural approaches. To achieve this outcome the project will develop two outputs: 1) Key decision makers will be engaged and trained in the use of the cloud-based dynamic monitoring and assessment system in order to strengthen their capacities in regional management. This will be done through training of trainers for each country, guides, tutorials, manuals and practical use of the web portal using real cases identified during the design, such as prioritisation

areas for national or subnational conservation policies/plans, strategies, planning processes and development plans or/and conservation plans, forest management plans, PA management plans, jaguar monitoring protocols, etc., with gender and intercultural approaches. The project will also work with current GEF projects in the region to use the monitoring and assessment system in the project design, implementation and monitoring, ensuring that conservation investments are evidence-based and aligned with annual ecological data. 2) Recommendations disseminated for the use of the web portal with feedback from key stakeholders.

Finally, a fourth outcome to increase knowledge and dissemination of portal web use to scale-up, achieving the knowledge management generation and dissemination.

Based on the number of hectares prioritized for restoration, the project will estimate the potential reduction in CO_2e emissions, quantified in tonnes. The four outcomes will generate direct benefits to 236 people (at least 45% women), including government officials, private sector representatives, IPLC organizations, NPAs, NGOs, and others, as appropriate, by strengthening their capacity to engage with high-tech conservation tools and improve people's quality of life.

What makes this project innovative is the development of a dynamic monitoring and assessment system, which leverages cutting-edge technologies in machine learning, cloud computing and remote sensing to continuously track environmental change and assess impacts to socio-ecological values on the PACHA project region. . Instead of the past approach of static data that becomes rapidly outdated in such a dynamic region, this system will provide annually updated as well as historical information to managers, enabling proactive, data-driven decision making for where to invest in habitat restoration, habitat protection, and movement barrier mitigation to conserve a functioning and resilient network of forests that support species like jaguar and serve as a significant carbon sink.

The 'static' in mapping connectivity has been to conduct costly, multi-year studies using the most recent available spatial environmental data. This approach yields a single static connectivity model representing the region at the time the environmental data was produced. With each new year, the static model becomes more and more outdated, until eventually it is no longer useful, requiring a costly new multi-year study.

What the project is proposing is to move beyond static models to make them dynamic. Dynamic in this case means automated modeling workflows linked to continuously updated data sources and run on a schedule. The project will be programmatically automating all the steps needed to train and project a jaguar connectivity model, including generating all of the input environmental datasets. The project is doing this in the Google Cloud, using Google Earth Engine and other Google services. Each year, the system acquires the latest remote sensing data available in the Google Earth Engine data catalogue (a cloud-based repository that is continuously updated with Landsat imagery and other data), runs the workflows to update land cover, forest structure, and other input datasets, and then updates the jaguar connectivity model. The system can be run retrospectively on historical data as well, creating an annual time series of jaguar connectivity from the mid 1980's to present, updated automatically each year. In this way, it is a dynamic monitoring system that constantly tracks the dynamic landscape, keeping managers apprised of the current status and recent trends in connectivity and enabling assessment of the drivers of change and the effectiveness of management plans.

Moving beyond the status quo of static models to dynamic monitoring systems provides timely and continuous insights that allow managers to keep their plans up-to-date with the changing environment, and the automations make it more cost-effective than performing a series of manual studies at regular intervals.

As a result, the project will prioritise a number of hectares of critical ecosystems, including areas across multiple countries, fostering regional collaboration, using data-driven spatial prioritisation to create a replicable and scalable blueprint for large-scale restoration efforts with other GEF projects in PACHA landscape and other landscapes such as the Amazon Sustainable Landscape and Ecosystem restoration Integrated Program.

Elsewhere, the tools and lessons may be adapted to support efforts to monitor landscape in and between protected areas and key wildlife habitats, and then help identify key places for protection or restoration. The tool may also increase protected areas (PA) effectiveness where deployed by a) providing information to better manage the PA planning and decision making, and can be measured by metrics that quantify habitat value, connectivity, and aboveground forest carbon biomass, all from remote sensing and b) contribute with updated information to programmes of management-orientated survey and research work.

A.7. Baseline

The project baseline includes the institutional framework, and the most relevant programmes, initiatives, projects and investments that the project will complement and with which the project will coordinate to ensure synergies towards the achievement of the proposed objective. The project baseline is described below by component:

Component 1:

To ensure interoperability and sustainability, the project will actively coordinate with existing national environmental monitoring systems in Bolivia, Paraguay, and Brazil, among others. This includes aligning data collection with platforms like Bolivia's SMB, and comparable systems in Paraguay and Brazil to avoid duplication and strengthen official data repositories. Various NGOs, sub-national governments, and protected area administrations in Bolivia have already planned field data collection efforts. The project will coordinate with these organizations to complement activities and prevent overlapping data collection in the same locations. For instance, SERNANP in Bolivia has planned efforts for wildlife monitoring in NPAs in the PACHA project region. The project will collaborate with these institutions to enhance synergies, optimize resources, and avoid duplication or inefficiencies.

Component 2:

WWF's program in the PACHA region serves as a critical baseline for this project, establishing a unified vision for jaguar connectivity through ecological corridor mapping and modeling. In collaboration with the Center for Large Landscape Conservation, the initiative integrated expert insights on jaguar biology and local ecology to:

- Map core habitats requiring connectivity,
- Identify variables influencing jaguar behavior movement, and
- Quantify relationships between these variables and movement resistance.

Leveraging empirical data, the resulting connectivity models identified optimal ecological corridors to design a resilient network of core areas. This science-based approach underpinned the development of the Monitoring and Assessment System, ensuring adaptive conservation strategies for long-term jaguar connectivity in PACHA.

MapBiomas is a key land-use monitoring and assessment system for the Chaco and Pantanal biomes. This collaborative initiative brings together specialists from Argentina, Bolivia, Brazil, and Paraguay, focusing on land use, remote sensing, geographic information systems, and programming. It produces high-quality, cost-effective data using advanced remote sensing and machine learning techniques.

The MapBiomas network generates detailed maps and annual land-use change analyses to support policy-making and empower civil society advocacy. The project will leverage MapBiomas' established governance structures for each region to validate and enhance the monitoring and assessment system, ensuring alignment with existing frameworks and fostering multi-stakeholder participation. Additionally, the project will create synergies with MapBiomas, utilizing its broader dataset to enrich analyses and provide stakeholders with more comprehensive insights.

The project's incremental value lies in addressing critical gaps in the baseline MapBiomas initiative, which provides broad land-use data but lacks granularity for jaguar-specific ecological needs (e.g., habitat connectivity modeling, corridor dynamics). While MapBiomas maps serve as foundational inputs, the GEF-funded project will refine this baseline by developing a dynamic, predictive corridor model (Output 2.1.1). This model integrates high-resolution data tailored to jaguar conservation absent in MapBiomas. Crucially, the project and MapBiomas will engage in a two-way feedback loop: the dynamic model will enhance MapBiomas' accuracy for key habitat classes, while MapBiomas' data will validate the project's outputs.

Component 3:

The capacity-building component will not follow a traditional training course format. Instead, it will be designed around case studies and the practical application of the monitoring and assessment system in planning, implementation, and real-time monitoring of activities. To ensure relevance and impact, the project will collaborate with managers of ongoing GEF-8 projects, as well as government staff from monitoring units within the Ministries of Environment, Planning, and Agriculture, along with subnational and local government representatives, as appropriate.

Some strategic projects[16][21] under the GEF-8 programming for the Chaco and Pantanal region have been identified as key for integrating the monitoring and assessment system and receiving training through this initiative. The selection criteria focused on projects that include restoration actions or sustainable practices where jaguar monitoring data would add value. At the commencement of project implementation, an updated project list will be prepared using newly available data from the GEF portal, and initial coordination mechanisms will be established. Given the project's two-year duration, these projects present the strongest opportunities for synergy:

1. Bolivia Chaco (10393) – Focuses on biodiversity monitoring and restoration.
2. Pantanal-Upper Paraguay (10554) – Highlights jaguars as a key species for wetland management and water resource governance.

3. Brazil GEF-8 (11124)-Has potential to integrate jaguar monitoring into the Brazil National Policy for native vegetation recovery-PLANAVEG.

Table 1: GEF project baseline

Project	Relevant actions	Potential synergies with jaguar monitoring project to explore during the capacity building (Component 3)
10393 - Bolivia Chaco (GEF-7) – FAO Strengthening the integral and sustainable management of biodiversity and forests by indigenous peoples and local communities in fragile ecosystems of the dry forests of the Bolivia Chaco	● Restoration of 1,200 ha of degraded agricultural land. ● Sustainable management of 60,000 ha to improve biodiversity. ● Terrestrial Protected Areas under improved management effectiveness in 250,000.00 ha.	● The presence of jaguars could serve as a key indicator of ecosystem restoration success. ● It can inform land-use strategies to maintain biological corridors. ● Jaguar data could be integrated into the monitoring of silvopastoral and agroforestry systems. ● Tracking jaguar populations provides, enabling the identification of key areas for targeted restoration or stricter safeguards in NPA
10554 - Pantanal-Upper Paraguay (GEF-7) - IADB, UNEP Transboundary cooperation for the conservation, sustainable development and integrated management of the Pantanal - Upper Paraguay River Basin	● Sustainable land and water management in critical sites within the Pantanal. ● Strategic plans for water and sanitation management in municipalities. ● Sustainable financial strategy	● Jaguars are a key bioindicator of the Pantanal's conservation status. ● Jaguar data could guide priority site selection for wetland restoration and water management. ● Jaguar presence could help attract financing and incentives for habitat conservation.
11124-Brazil -GEF8 Union for Restoration - Enabling large-scale restoration through national policy in Brazil (GEF-PROVEG)	● Restore 600,000 hectares of native forests and promote sustainable management of 1.2 million hectares. ● Cross-Sector Collaboration to unlock financial flows for ecosystem restoration.	● Jaguars are a key bioindicator of the Pantanal's conservation status. ● Jaguar presence could help attract financing and incentives for habitat conservation.

A.8. Stakeholders:

Project stakeholders include government institutions, academia, NGOs, local communities, indigenous populations, and the private sector involved in environmental management and biodiversity conservation. For more details about the Project Stakeholders and the Stakeholder Engagement Plan during the Project implementation, see Annex 1. Table 2 presents a summary of key project stakeholders and their role during project implementation. However, it is an initial mapping carried out during the preparation phase, but it will be updated at the beginning of the project to include other key stakeholders.

Table 2: Stakeholder roles, responsibilities and interests

Type of stakeholder	Roles and responsibilities	Interest in the project

Fundación Vida Silvestre (Argentina)	Fundación Vida Silvestre works in the Gran Chaco to protect, restore, and manage ecological corridors between protected areas while mitigating threats to biodiversity. It also strengthens wildlife reserve networks and promotes the Argentine Network of Private Nature Reserves, engaging landowners in conservation.	As the executing agency for the project, FVS will do project administration, project management and reporting. The monitoring and assessment system is a key tool for effective resource management and land-use planning, supporting Forest Law implementation (Component 2 & 3).
TerrAdapt	Develops cloud-based tools for dynamic monitoring, spatial decision support, and ecological connectivity modeling. Works with governments, Indigenous peoples, and conservation NGOs to monitor, project, and prioritize conservation actions.	TerrAdapt will provide technical expertise, integrating Earth observation systems into a cloud computing monitoring and assessment system. TerrAdapt is also interested in validating these models through stakeholder feedback and future potential up-scaling (Component 3). - -
MapBiomas Network[17] 22	Provides high-resolution annual satellite data on land cover change, deforestation, and degradation trends.	MapBiomas seeks to refine predictive models to support regional conservation planning. It will contribute local contacts and technical expertise, facilitating synergies across Components 1, 2, and 3. Members of MapBiomas' national and regional governance structures—comprising government and scientific institutions—will help validate the models.
Bolivia		
Ministry of Development Planning	The Ministry of Development Planning has as its main function the implementation of the SPIE (Comprehensive State Planning System), which enables the development of long-term, medium-term, and short-term planning. This system integrates sectoral and territorial planning across all public entities and at all levels of the Plurinational State. The Ministry of Development Planning of Bolivia plays a critical role in the "Jaguar Corridors" project by guiding national development strategies and investment planning to ensure the integration of ecological connectivity and restoration priorities into national and subnational development plans, promote multi-sectoral coordination to harmonize infrastructure, agriculture, and conservation investments, facilitate access to public and international financing for sustainable development initiatives in the Chaco-Pantanal region and to align the project's objectives with Bolivia's commitments under climate change, biodiversity, and sustainable development frameworks.	The Ministry of Development Planning was formally informed, and an online meeting was held to explain the project during the design phase. However, clarifying roles, expectations, and alignment with the Secretariat's priorities will be a key step during the initial phase of project implementation. A participatory process will be implemented to achieve outcome 2 (such as activity 2.1.1.1. Design and validate the dynamic model led by experts from TerrAdapt and 2.1.2.1. Develop and validate a web portal/dashboard as well as training materials, with user-friendly interfaces to make decisions) and outcome 3 (such as activity 3.1.1.1. Identify key stakeholders with different data needs and decision-making roles, with gender and intercultural approaches, 3.1.1.2. Organize the workshops based on the stakeholders identified and tailored to different levels of technical knowledge and 3.1.1.3. Workshops with key decision makers on the web portal and its potential use in national, subnational and local instruments)
Bolivian Ministry of Environment and Water (MMAyA)- Directorate General for Biodiversity and Protected Areas	The MPD fulfils its mandate through the formulation of planning, territorial and inter-sectoral policies, mainly in the economic and social sphere; it formulates development plans, methodological instruments and budgetary programming. It manages and channels external financing and allocates resources for public investment.	It is interested in coordinating the various activities of the different stakeholders involved in jaguar conservation, in being kept informed of implementation of activities. They are interested in scaling-up the tool for the whole country. Therefore, DGBAP want to be involved in the dynamic model validation process, providing feedback from different technical experts. For component 3, DGBAP is interested that the information from the dynamic monitoring and assessment system can be integrated into the Forest Information and Monitoring and assessment system (SIMB) that monitors forest

		behavior, deforestation, hot spots, burn scars, forest fires, and afforestation and reforestation of the forest.
Bolivia National Protected Areas Service (SERNANP)	Operation of the National System of Protected Areas, (SNAP) ensures the integrated management of protected areas of national interest, in order to conserve biodiversity, within its area of competence. Its responsibility is to link the SNAP with territorial units at different levels, transboundary biological corridors and the international context.	SERNANP is looking for this project to synergize with the integrated monitoring and assessment system in areas that suffered from recent fires (AMNI San Matias and Otuquis Natinal Park), which includes fauna monitoring. The data collected in the field (component 1) will be useful for SERNANP, so it should be coordinated and informed when the project designs the sampling. *SERNANP can share the monitoring information, but it has to be analyzed legally with the Agency of Electronic Government and Information and Communication Technologies (AGETIC), because there are impediments to sharing wildlife data in a monitoring and assessment system not owned by the government.* SERNNAP has information on jaguars by NPA that could be useful for the monitoring system, but it is working within the framework of the Integrated Monitoring System for Protected Areas - SMIAP. SERNANP proposes that WWF be part of the group that is working on SMIAP so the complementarity between SMIAP and the GEF-8 dynamic monitoring and assessment system can be evaluated.
Autonomous Departmental Government of Santa Cruz-Bolivia	The Departmental Secretariat of Sustainable Development and Environment in Santa Cruz promotes the preservation, conservation, and sustainable use of natural resources while ensuring environmental quality. It focuses on equitable growth, climate change mitigation and adaptation, and improving the quality of life for residents. The Directorate of Natural Resources (DIRENA) is in charge of the conservation and protection of native flora and fauna species, as well as genetic resources and micro-organisms, declared as departmental natural heritage. They have a key role in leading the Jaguar Conservation Action Plan 2020-2025 and actions linked to priority areas of intervention: 1) Research, Conservation and Management and 2) raising Fund Management.	It is interested in a tool that helps the coordination of efforts between different organizations working on the ground to align interventions to prioritize areas to protect jaguar. It will provide input on the development of activities such as the training to use of the monitoring and assessment system for decision-making (component 3), the design of the web portal to ensure the subnational relevance and impact (component 2). -
Bolivian Society of Environmental Law (SBDA)	Its main objective is to promote the protection and conservation of the natural environment in Bolivia. To achieve this, SBDA focuses on several key areas: environmental education and awareness raising, management of protected areas, environmental governance and land use planning. It works with communities and governance, combined with nature-based solutions and sustainable community development processes and risk management.	Participate in the design of the protocol, participate in the prioritisation of actors for capacity building, help to communicate so that it does not remain on the platform and more actors can use it, more capacity building It is important that areas of the jaguar conflict and the involvement of the livestock sector are considered in the sampling, as it is strong in Bolivia. The information in the system should help the conflicts. It is interested in participating in web design, so that their needs and those of other actors are reflected in the way the information is presented. Also, it is interested in learning from the sampling process and protocols that are developed with stakeholder input. Would be interested in working as a consultant or co-executor depending on the co-executor. -
Paraguay		
Ministry of Environment and	The General Directorate for the Protection and Conservation of Biodiversity is responsible for 1) the creation, administration, management, supervision	There is interest in how the monitoring and assessment system can contribute to the management policy for multiple uses, such as

Sustainable Development of Paraguay Directorate General for the Protection and Conservation of Biodiversity	and control of public protected areas, whether forested or not; 2) the establishment of strategies for the conservation and sustainable use of biodiversity, including the regulation of hunting, breeding, trade and commercialization of wildlife; 3) the implementation of the National System of Protected Wildlife Areas, involving the public and private sectors.	agriculture and livestock, and to the alignment of GEF-8 projects that are starting implementation to avoid duplication. In addition, the project should provide information to strengthen the corridors and the process of interpreting conflict concepts. Their role is to keep informed on the progress of the project's three components and to coordinate with other government agencies. In component 3 they will be trained to use the information provided to improve jaguar protection laws and strengthen action plans for control, enforcement and monitoring. Their work will involve coordinating with sub-national and local governments, as well as natural protected areas, to use the information and explain the ecosystem benefits that the jaguar's presence brings to people's livelihoods.
Ministry of Agriculture and Livestock (MAG)	The Ministry of Agriculture and Livestock (MAG) oversees the country's agricultural, livestock, and forestry sectors, designing policies for sustainable rural development, food security, and agro-industrial competitiveness. The MAG of Paraguay is a strategic partner for the "Jaguar Corridors" project due to its role in promoting sustainable land use, agroecological practices, and supporting rural livelihoods. It is important to promote sustainable agricultural practices in areas overlapping with jaguar corridors, reducing pressure on natural habitats, encourage land-use planning that balances production and conservation in the Chaco landscape, support incentives and technical assistance for farmers and ranchers to implement biodiversity-friendly practices and coordinate with conservation initiatives to prevent agricultural expansion into critical jaguar habitats.	The MAG has not yet been formally consulted during the project design phase. However, clarifying roles, expectations, and alignment with its priorities will be a key priority during the initial phase of project implementation. A participatory process will be implemented to achieve outcome 2 (such as activity 2.1.1.1. Design and validate the dynamic model led by experts from TerrAdapt and 2.1.2.1. Develop and validate a web portal/dashboard as well as training materials, with user-friendly interfaces to make decisions) and outcome 3 (such as activity 3.1.1.1. Identify key stakeholders with different data needs and decision-making roles, with gender and intercultural approaches, 3.1.1.2. Organize the workshops based on the stakeholders identified and tailored to different levels of technical knowledge and 3.1.1.3. Workshops with key decision makers on the web portal and its potential use in national, subnational and local instruments)
Ministry of Public Works and Communications (MOPC in Spanish)	The Ministry of Public Works and Communications (MOPC) of Paraguay plays a strategic role in the "Jaguar Corridors" project due to its responsibilities in infrastructure planning and implementation, as well as land-use planning and water management. Since roads, canals, and other infrastructure can fragment critical habitats, collaboration with MOPC can ensure the environmental sustainability of investments and strengthen the implementation of conservation strategies aligned with national development goals.	The MOPC has not yet been formally consulted during the project design phase. However, clarifying roles, expectations, and alignment with its priorities will be a key priority during the initial phase of project implementation. A participatory process will be implemented to achieve outcome 2 (such as activity 2.1.1.1. Design and validate the dynamic model led by experts from TerrAdapt and 2.1.2.1. Develop and validate a web portal/dashboard as well as training materials, with user-friendly interfaces to make decisions) and outcome 3 (such as activity 3.1.1.1. Identify key stakeholders with different data needs and decision-making roles, with gender and intercultural approaches, 3.1.1.2. Organize the workshops based on the stakeholders identified and tailored to different levels of technical knowledge and 3.1.1.3. Workshops with key decision makers on the web portal and its potential use in national, subnational and local instruments)
National University of Asuncion (Paraguay)	They play a role in conserving the biodiversity of the areas and increasing scientific knowledge about jaguars. Also, they work in capacity building and online education for key stakeholders. UNA is a leading institution at national level, achieving international prestige through academic, scientific and technological excellence in the different areas of knowledge, promoting sustainable development with an integrated, synergic and	The University will have a role in collecting data on jaguar observations, taking advantage of its information on areas identified for photo-trapping. Its strength is to use participatory monitoring with the educational community in rural schools that are boarding schools for young people, cattle ranchers facing jaguar conflict and national parks. It is also interested in providing inputs to validate the model (component 2) and for the design of the

	transparent management system, committed to the welfare of society.	web portal to make it useful for ranchers, farmers, as well as to be the one to train the users of the web portal, offering its education platform so that the project can design Massive Open Online Courses (MOOCs) that would serve to scale up the use of the web portal. Finally, it can help identify key actors to be trained as well as coordinate for the creation of success stories told by the actors themselves.
Brazil		
Ministry of Regional Development- Ministério do Desenvolvimento Regional (MDR)	The Ministry of Regional Development (MDR) of Brazil plays a strategic role in projects such as "Jaguar Corridors" due to its mandate related to land-use planning, sustainable development, infrastructure, climate change, water management, and support for vulnerable populations—all of which are relevant for monitoring, ecological connectivity, and restoration in landscapes such as the Pantanal.	The MDR has not yet been formally consulted during the project design phase. However, clarifying roles, expectations, and alignment with its priorities will be a key priority during the initial phase of project implementation. A participatory process will be implemented to achieve outcome 2 (such as activity 2.1.1.1. Design and validate the dynamic model led by experts from TerrAdapt and 2.1.2.1. Develop and validate a web portal/dashboard as well as training materials, with user-friendly interfaces to make decisions) and outcome 3 (such as activity 3.1.1.1. Identify key stakeholders with different data needs and decision-making roles, with gender and intercultural approaches, 3.1.1.2. Organize the workshops based on the stakeholders identified and tailored to different levels of technical knowledge and 3.1.1.3. Workshops with key decision makers on the web portal and its potential use in national, subnational and local instruments)
National Center for Research and Conservation of Carnivorous Mammals (CENAP in Portuguese) under Chico Mendes Institute for Biodiversity Conservation (ICMBio)-	The Ministry of the Environment (MMA) set up the National Program for the Conservation of Endangered Species - Pro-Species, with the aim of adopting prevention, conservation, management to minimize the threats and risk of species extinction, such as the jaguar. The Action Plans (PAN) are management instruments, built in a participatory manner with representatives of civil society, governmental and non-governmental organizations, researchers and managers, to be used to organize actions for the conservation. Its responsibilities are: 1) Conduct scientific research on carnivore ecology, genetics, and population dynamics, 2) Develop conservation strategies for threatened species, 3) Mitigate human-wildlife conflicts through sustainable practices and community engagement. 4) Manage and monitor protected areas to enhance carnivore habitat effectiveness. 5) Promote environmental education and outreach to foster coexistence with carnivores and 5) Advise policymakers and support international agreements for species protection.	CENAP has not yet been formally consulted during the project design phase. However, clarifying roles, expectations, and alignment with its priorities will be a key priority during the initial phase of project implementation. A participatory process will be implemented to achieve outcome 2 (such as activity 2.1.1.1. Design and validate the dynamic model led by experts from TerrAdapt and 2.1.2.1. Develop and validate a web portal/dashboard as well as training materials, with user-friendly interfaces to make decisions) and outcome 3 (such as activity 3.1.1.1. Identify key stakeholders with different data needs and decision-making roles, with gender and intercultural approaches, 3.1.1.2. Organize the workshops based on the stakeholders identified and tailored to different levels of technical knowledge and 3.1.1.3. Workshops with key decision makers on the web portal and its potential use in national, subnational and local instruments)
Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA in Portuguese) under the Ministry of Environment	IBAMA Brazil's core responsibilities as the federal environmental agency are: Federal Environmental Licensing: Evaluating and issuing environmental licenses for high-impact activities or those affecting multiple states/biomes, such as: Large infrastructure projects (hydroelectric plants, interstate highways), oil and gas exploration, mining in strategic areas, enforcement and combating wildlife trafficking: Inspecting and penalizing illegal trade of wild animals, authorizing and supervising forest management, responding to forest fires, enforcing compliance with international environmental targets, promoting awareness and sustainable practices through campaigns and programs.	The IBAMA has not yet been formally consulted during the project design phase. However, clarifying roles, expectations, and alignment with its priorities will be a key priority during the initial phase of project implementation. A participatory process will be implemented to achieve outcome 2 (such as activitiy 2.1.1.1. Design and validate the dynamic model led by experts from TerrAdapt and 2.1.2.1. Develop and validate a web portal/dashboard as well as training materials, with user-friendly interfaces to make decisions) and outcome 3 (such as activity 3.1.1.1. Identify key stakeholders with different data needs and decision-making roles, with gender and intercultural approaches, 3.1.1.2. Organize the workshops based on the stakeholders identified and tailored to different levels of technical knowledge and 3.1.1.3. Workshops with key decision makers on the web portal and its

		potential use in national, subnational and local instruments)
The State Secretariat of Administration of Mato Grosso do Sul (SAD)	The State Secretariat of Administration of Mato Grosso do Sul (SAD) is an organ of the Brazilian state government responsible for designing, coordinating and executing policies related to the administrative and human resources management of the state's executive branch. Its key functions include Collaboration with the Escola de Governo Foundation (Escolagov) to develop training and performance evaluation programs for civil servants and coordination with municipalities, foundations and other state secretariats to align administrative processes and public policies.	The SAD has not yet been formally consulted during the project design phase. However, clarifying roles, expectations, and alignment with its priorities will be a key priority during the initial phase of project implementation. A participatory process will be implemented to achieve outcome 2 (such as activity 2.1.1.1. Design and validate the dynamic model led by experts from TerrAdapt and 2.1.2.1. Develop and validate a web portal/dashboard as well as training materials, with user-friendly interfaces to make decisions) and outcome 3 (such as activity 3.1.1.1. Identify key stakeholders with different data needs and decision-making roles, with gender and intercultural approaches, 3.1.1.2. Organize the workshops based on the stakeholders identified and tailored to different levels of technical knowledge and 3.1.1.3. Workshops with key decision makers on the web portal and its potential use in national, subnational and local instruments)
Aliança 5P	An initiative by a group of investors, owners of 12 farms in the southern Pantanal, which aims to form one of the largest private wildlife corridors on the planet. They own at least 320,000 contiguous hectares.	Aliança 5P will play a critical role in collecting jaguar observation data (Component 1). Leveraging its expertise in managing private biological corridors, the alliance will refine TerrAdapt's connectivity and habitat models to ensure accuracy in key Pantanal regions (Component 2). This adjustment will enhance the ecological relevance of the models, directly supporting conservation efforts in high-priority areas. The protocols and sampling methodology developed will be instrumental for Aliança 5P. While their current jaguar monitoring efforts focus on tourism, the project will strengthen the scientific foundation of their processes, enabling the integration of robust ecological data into management strategies. Aliança 5P will also contribute to the technical review of the web portal. It anticipates alignment between its monitoring system and government programs, such as payment for environmental services (PES) and restoration initiatives, as well as private-sector schemes like carbon and biodiversity credits. The existing Pantanal working group includes key stakeholders who can participate in training workshops.
Brazilian Agricultural Research Corporation (EMBRAPA)	It is a public research organisation. It plays a key role in the conservation and sustainable use of the Pantanal wetlands. It conducts extensive research on biodiversity conservation, sustainable land use practices and the impact of human activities, such as cattle ranching, on the ecosystem. The organisation is involved in initiatives that balance conservation with economic activities, focusing on sustainable cattle ranching and ecosystem monitoring, such as the Sustainable Ranch Label.	EMBRAPA is particularly interested in expanding the project's focus to areas outside Protected Areas (PAs) for field data collection. Their participation in designing the sampling methodology is crucial to ensure unbiased data collection, as well as to incorporate complementary data from non-corridor zones. Additionally, EMBRAPA emphasizes the inclusion of data from CENAP (National Center for Carnivore Mammal Research and Conservation) as a primary data source for the project. This collaboration will involve co-financing from EMBRAPA. As a scientific and technical partner, EMBRAPA requests active participation in the model's

		validation phase to ensure its accuracy and relevance. Finally, data on the Chaco region and its ecological relationship with the Pantanal is significant to EMBRAPA.

(1) https://brasil.mapbiomas.org/en/equipe/
https://chaco.mapbiomas.org/team/

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[1] Vidal, C., Souza-Alonso, P., Currey, B., & Mc, D. B. (2024). Spatiotemporal analysis of wildfires and their relationship with climate and land use in the Gran Chaco and Pantanal ecoregions. Science of the Total Environment. https://agritrop.cirad.fr/610851/1/C_Vidal_et_al_Sci_Tot_2024.pdf

[2] Ecoregion-wide, multi-sensor biomass mapping highlights a major underestimation of dry forests carbon stocks Potzschner F., Baumann M., Gasparri N.I., Conti G., Loto D., Piquer-Rodriguez M., Kuemmerle T. (2022), *Remote Sensing of Environment*, 269, art. no. 112849.

[3] Alho, Cleber & Sabino, José. (2012). Seasonal Pantanal flood pulse: Implications for biodiversity conservation - A review. Oecologia Australis. 16. 958-978. 10.4257/oeco.2012.1604.17.

[4] Alho, Cleber & Sabino, José. (2012). Seasonal Pantanal flood pulse: Implications for biodiversity conservation - A review. Oecologia Australis. 16. 958-978. 10.4257/oeco.2012.1604.17.

[5] Bedoya, V. (2018, August). Exploring ecosystem services provided by the Pantanal wetland, South America: A preliminary review of methods to improve the knowledge on the benefits provided by the wetland (Internship report).

[6] It is defined by several types of semi-xerophytic deciduous forests, as well as riparian forests and some humid savannahs (WWF)

[7] Deforestation Front-Key Facts-WWF.

[8] PA represent 9% of the total distribution of endemic species and 30% of the distributions of threatened and DD endemic species.

[9] Nori, J., Torres, R., Lescano, J.N., Cordier, J.M., Periago, M.E., and Baldo, D. 2016. Protected areas and spatial conservation priorities for endemic vertebrates of the Gran Chaco, one of the most threatened ecoregions of the world. Diversity and Distributions 22(12): 1212-1219.

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[13] Chiaravalloti, R. M. (2017a). Overfishing or over-reacting? Management of fisheries in the Pantanal wetland, Brazil. Conservation and Society, 15(1), 111–122.

Chiaravalloti, R. M. (2017b). Systematic conservation planning in floodplain fisheries: To what extent are fishers' needs captured in prioritisation models? Fisheries Management and Ecology, 24(5), 392–402.

Chiaravalloti, R. M. (2019). The displacement of insufficiently 'traditional' communities: Local fisheries in the Pantanal. Conservation and Society AOP, 17, 1–11. Retrieved from http://www.conservationandsociety.org

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[15] This web portal is not a scenario planning tool. Users won't be able to define an area, set that area to have a certain impact and then return the models to see how the scenario plans out. This is outside the scope of the monitoring and assessment system.

[16] The project analysis was conducted using information available on the GEF portal. However, data for certain projects, such as GEF 11158, remains currently unavailable.

[17] (1) https://brasil.mapbiomas.org/en/equipe/

https://chaco.mapbiomas.org/team/

B. PROJECT DESCRIPTION

Project description

This section asks for a theory of change as part of a joined-up description of the project as a whole. The project description is expected to cover the key elements of good project design in an integrated way. It is also expected to meet the GEF's policy requirements on gender, stakeholders, private sector, and knowledge management and learning (see section D). This section should be a narrative that reads like a joined-up story and not independent elements that answer the guiding questions contained in the PIF guidance document. (Approximately 3-5 pages) see guidance here

- **B1. Theory of Change:**

The Theory of Change is aligned with the Innovation Window GEF-8. The Theory of Change responds to the barriers identified in the previous section and adapts to different scenarios of future narratives described above, such as: 1) Data collection and investment decision-making are fragmented and separated, 2) limited institutional and financial incentives to use a monitoring and assessment system for jaguar connectivity and carbon storage for restoration, 3) low technical capacity among stakeholders to use the dynamic monitoring and assessment system and 4) lack of governance mechanisms to ensure an effective impact.

IF the availability and quality of data on jaguar corridors, land use change, carbon stock, and habitat connectivity are improved, allowing for continuous tracking of conservation progress and impact
THEN Jaguar monitoring data will enhance land-use planning by informing the protection of biological corridors and ensuring connectivity between conservation areas.

IF the cloud-based monitoring and assessment system is developed and validated through partnerships and advanced spatial modeling, ensuring its accessibility and use for decision-making at different levels
IF the dynamic monitoring and assessment system is linked to already established governance mechanisms, ensuring multi-stakeholder collaboration
THEN Priority areas will be identified for future restoration, conservation, and mitigation barriers using annual data from the automated monitoring and assessment system.

IF capacities are strengthened among decision-makers, national, subnational and local actors to aim to integrate the automated monitoring and assessment system into national and subnational

cross-sectoral, conservation and sustainable management policies, land-use planning and investment strategies.
IF institutional incentives and financing mechanisms are identified and disseminated in recommendations to scale up restoration by integrating the monitoring and assessment system into public and private investment strategies
IF GEF project stakeholders in PACHA project region are engaged to use the web portal (to be developed by the project) in the design, implementation, and evaluation of conservation and restoration activities in the PACHA project region .
THEN Key stakeholders and decision-makers will have the necessary capacities, tools, and incentives to plan, implement, and monitor effective restoration and conservation investments, aligning with national and regional biodiversity strategies.

IF local and regional knowledge management are generated, facilitating the exchange of best practices, lessons learned, and the dissemination of data among stakeholders to improve decision-making and project implementation.
THEN: Lessons learned, best practices, and challenges from the automated monitoring and assessment system's implementation will inform future GEF integrated programs, allowing for continuous improvement and upscaling of restoration strategies.

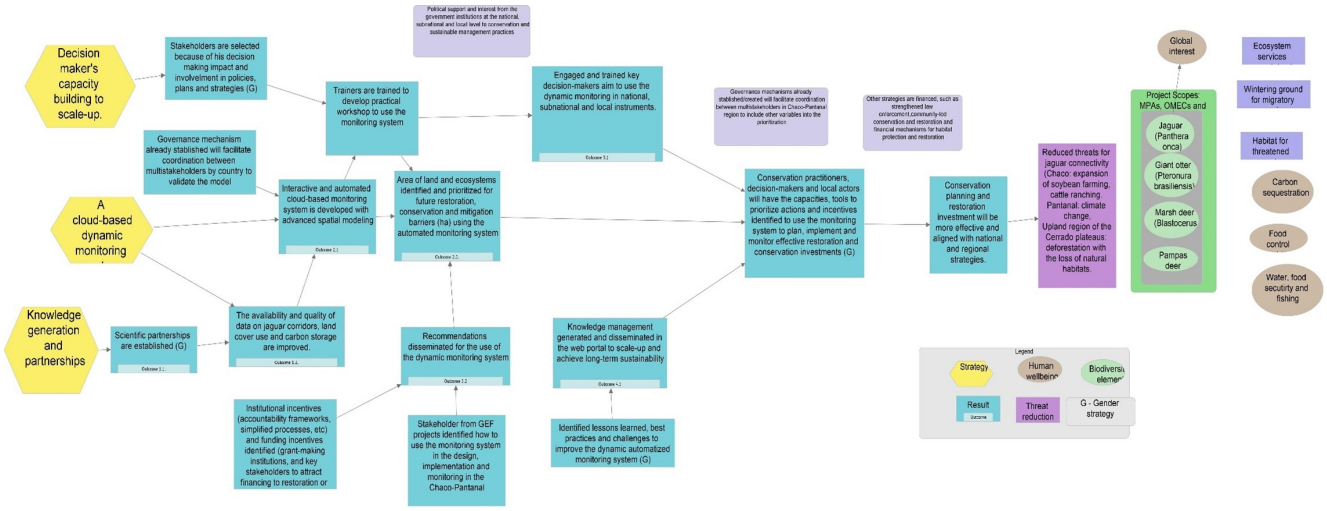
FINAL IMPACT:

By enhancing capacities, identifying incentives and disseminating knowledge generated to use the dynamic monitoring and assessment system, this project will help land use planning and restoration investment to be more effective and aligned to national and regional policies and strategies across the target geographies.

ASSUMPTIONS:

- Political support and interest from the government institutions at the national, subnational and local level.
- Other strategies are financed, such as strengthened law enforcement, community-led conservation and restoration and financial mechanisms for habitat protection and restoration
- Governance mechanisms already established/created will facilitate coordination between Multi- stakeholders in Chaco-Pantanal region to include other variables into the prioritization
- GEF Secretariat is engaged to use the monitoring and assessment system to guide the design, implementation, and evaluation of conservation and restoration activities in the PACHA project region and its Integrated Programs.

Graph N°1. Theory of Change GEF-8-Innovation Window



B.2. Project description

The 'Jaguar Corridors in the Face of Rapid Environmental Change: A Dynamic Monitoring and Assessment System for Prioritising Conservation Investments' is a GEF-8 Innovation Window project that aims to develop a dynamic monitoring and assessment system for the Pantanal-Chaco region to prioritise conservation investments, strengthen ecological connectivity and restoration, and improve the effective management of biodiversity (including protected areas). The project will last for 2 years and has 4 main components. Some organisations in each country of the PACHA project region are proposed as indicative co-executing partners of the project. The final selection of these implementing partners will depend on the selection and due diligence process to be carried out by the executing agency (Fundación Vida Silvestre). In addition, gender and stakeholder engagement have been mainstreamed into the project activities. The individual components are described below:

Component 1: Collaborative Data Collection.

The first strategy will be achieved through scientific and technical partnerships are established, enabling the collection of data on jaguar presence, land cover and use, and carbon stock. This outcome will be achieved through two outputs: Output 1.1.1: Collaborative protocols and sampling for data collection, with a gender and intercultural approaches and Output 1.1.2: Field data collected on jaguar presence on corridors, land cover and use, and secondary data of carbon stock to track environmental change, with an intercultural approach.

Outcome 1.1: Strengthened scientific and technical partnerships enable coordinated and participative data collection on jaguar presence, land cover and uses and secondary data of carbon stocks.

FVS will act as the regional coordinator as the executing agency (EA) for the project. In each country, FVS will contract NGOs and universities, such as the Sociedad Boliviana de Derecho Ambiental (Bolivia), the National University of Asuncion (Paraguay) and Alianza 5P (Brazil), to collect data that will be used to develop the dynamic monitoring and assessment system for the 127 million hectares of the PACHA project region.

Output 1.1.1: Collaborative protocols and sampling for data collection, with a gender and intercultural approaches

The scientific partnerships will be developed through contracts or MoUs in each country with two main objectives: 1) field data and secondary information collection and 2) feedback on the dynamic models. Efforts will be made to involve researchers working in these organisations and to involve women, young people and indigenous people from IPLC in the data collection. If after sampling, the project finances data collection in the field in Indigenous Peoples territories, FVS, in consultation with the GEF Agency, will need to develop a protocol to assure the Free, Prior, and Informed Consent of Indigenous Peoples to collect data in these lands.

Activities:

1.1.1.1 Develop protocols and sampling designs for field data and secondary information collection, ensuring interoperability with global databases, led by TerrAdapt.

TerrAdapt will develop protocols and sampling design, which will set the minimum requirements for how and where the data should be collected. For example, jaguar presence via camera traps and indirect signs (prints, predation events, among others), land cover and use via direct observation and secondary information (MapBiomas), and carbon stock via secondary information, in coordination with the GIS Specialist and the Biodiversity and Conservation Expert.

The Safeguards and Gender and the GIS Specialists will support TerrAdapt to ensure that protocols incorporate gender and intercultural approaches, such as the participation of women and IPLC in the collection process and FPIC process.

1.1.1.2. Workshops to align objectives, agree on protocols for data collection and formalize roles.

In Year 1, in each country, the Project Manager will coordinate with the Biodiversity and Conservation Expert, the GIS Specialist and WWF Country Coordinators[1][23] to conduct project virtual kick-off meetings involving co-executing institutions and other Key stakeholders, such as government partners, MapBiomas, GEF projects.

The Project Manager will lead an in-person workshop with all partners to establish clear roles and responsibilities for the governments, implementing agency, the executing agency and the co-executing partners. The governance mechanisms for the validation of the models developed under Component 2 will be formalised during these meetings. The protocols and models developed by TerrAdapt will be presented. As the contracts with the co-executing partners will include the protocols and sampling design, this workshop will allow the co-executing organisations to provide feedback on these documents.

1.1.1.3. Establish and sign contract/MOUs ensuring commitment to collaborative field data collection and co-development and validation of dynamic monitoring and assessment system.

The Project Manager will work with co-executing institutions in each country to lead the fieldwork. The Project Manager will sign contracts/MOUs with:

- Bolivia: Sociedad Boliviana de Derecho Ambiental
- Paraguay: National University of Asunción
- Brazil: Associação Aliança 5P

The contracts/MoUs will include a section on the use and sharing of information provided by each partner, to ensure that it can be included in 1.2.2. Also, if the data collection is in the field in Indigenous Peoples territories, the Safeguard and gender Specialist will coordinate with the GEF Agency and with co-executors to ensure they follow the protocol to assure the Free, Prior, and Informed Consent of Indigenous Peoples to collect data.

Output 1.1.2: Field data collected on jaguar presence on corridors, land cover and use, and secondary data of carbon stock to track environmental change, ensuring gender and intercultural approaches during process.

The project will seek to: 1) validate the jaguar habitat and connectivity models via jaguar observations (e.g., camera surveys for jaguar and other species), 2) validate land cover and use via on the ground information, and 3) provide secondary data on carbon stock, following the agreements in activity 1.1.3.

Activities:

1.1.2.1. Conduct field data collection on jaguar presence and land cover and use, as well as secondary information on land cover and use, and carbon, ensuring gender and intercultural approaches.

The Project Manager will coordinate with the co-executing organisations responsible for data collection as agreed. The GIS Specialist will coordinate technically with the Sociedad Boliviana de Derecho Ambiental, the National University of Asuncion, CeIBA, Geosimple, Fundacion Biodiversidad, and Alianza 5P and others to: 1) collect jaguar observations (e.g. camera surveys for jaguar and other species), 2) register land cover and use, and/or 3) inform on secondary data of carbon stock. The identified information gaps that will not be covered should be explained in detail and communicated to TerrAdapt so that they can explain the limitations of the models as part of the methodology.

Each co-executing partner will develop a field data collection plan that will be approved by the Project Manager and monitored by the Monitoring Specialist to ensure that the information is available in time for TerrAdapt to develop the dynamic model. The Gender and safeguards Specialist will oversee the protocols are being implemented by co-executors, applying the gender and intercultural tools.

The Communication Specialist, in coordination with the Project Manager, will have online meetings with the co-executing partners in the field to get communication material that will help develop the storytelling of the activity about the involvement of young people and women.

1.1.2.2. Develop an integrated database to store and share updated data.

The GIS Specialist and Terradapt will co-lead the creation of a centralised digital cloud to store the field data collected, ensuring real-time access and equitable use by contributors and future use of the information. The information will be categorised as:

- Ecological data (presence of jaguars, land cover and use in the field)

- Geospatial layers (corridors, political boundaries, rivers, protected areas, among others).

- Socio-economic data (Indigenous territories, rural sites, towns, human density).

- Secondary information (carbon stock, land cover and use.

The Project Manager, with the support of a GIS Specialist, will ensure the local partners collecting the data in the field and via secondary information follow the protocols, respect the ownership of the Indigenous communities and manage sensitive data, such as the location of jaguars, where appropriate. The Project Manager will coordinate with the national entities responsible for monitoring systems to facilitate the interoperability of project data with their official platforms and to respect protocols for data flow and each country's access policies.

Component 2: A cloud-based dynamic monitoring and assessment system developed.

The second component is to develop a dynamic cloud-based automated monitoring and assessment system and prioritise a number of hectares for restoration and conservation actions with relevant stakeholders, with an intercultural and gender approach. This dynamic monitoring and assessment system will be achieved through the development of models for an interactive, cloud-based, automated, dynamic monitoring and assessment system for up-to-date data tracking and decision support across multiple countries, led by TerraAdapt. The data will be used to identify priority areas where restoration will strengthen jaguar connectivity and maximize carbon storage.

Outcome 2.1: Identified priority areas to develop conservation, restoration, and barrier mitigation using the dynamic monitoring and assessment system.

It establishes a dynamic, data-driven system to identify priority conservation, restoration, and barrier mitigation zones across the Pantanal-Chaco region. It integrates nine adaptive geospatial models—tracking land cover, forest disturbances, infrastructure, jaguar habitat, and connectivity validated through stakeholder collaboration and machine learning. A cloud-based infrastructure (hosted on Google Cloud) ensures secure, automated data storage and processing, while a gender- and culturally inclusive web portal enables stakeholders to visualize trends, assess carbon potential, and prioritize actions via user-friendly spatial queries. The system emphasizes long-term sustainability, training local decision-makers and deploying four trainers per country to ensure independent use of tools.

Output 2.1.1: Dynamic model developed and validated with updated data to develop spatial analysis for decisions making.

The dynamic models will be developed with feedback from the co-executors and key stakeholders. The Project Manager will facilitate the sustainability and use of the dynamic models so the implementation does not depend on TerrAdapt expert facilitation, but rather on the ability of decision-makers to use and access the model independently. The Project Manager, with support from the GIS Specialist, will seek the integration of local inputs to ensure the long-term usability and impact of the models.

Activities:
2.1.1.1. Design and validate the dynamic model led by experts from TerrAdapt.

TerrAdapt will use the field data and secondary information collected at different stages to validate progressively the dynamic models, through in-person (1) and online workshops, with support of co-executing partners to develop a model which includes:

1. Dynamic land cover models: Develop and validate a dynamic land cover model for the region, tracking ~20 land cover classes over time from 1984-present, automatically updated each year. This will correct issues with the MapBiomas land cover model and facilitate a seamless, consistent and easily updated view of land cover change across the entire study area.
2. Dynamic forest disturbance models: Develop and validate a dynamic forest disturbance model for the region, tracking ~3-5 forest disturbance classes over time from 1984-present, automatically updated each year. This will enable an understanding of not just how much forest change is occurring over time, but also an understanding of what mechanisms are driving forest loss.
3. Revise the dynamic infrastructure models: Infer historical distribution of roads and other infrastructure using remote sensing time series analysis. The existing dynamic infrastructure data starts with 2024 data and updates it annually. Here, the project will develop and apply a method to infer the historical occurrence of roads as they are detected from annual satellite images using machine learning methods. This historical understanding of changes in infrastructure will enable more accurate modeling of historical patterns of jaguar connectivity.
4. Extend the dynamic forest structure models: Extend the previous dynamic forest structure layers by adding new models of aboveground forest carbon biomass, leaf area index, and canopy height. These new models will be trained on NASA GEDI mission data using machine learning methods. These new models will improve forest structure monitoring from 1984 to the present, automatically updated each year.
5. Dynamic jaguar habitat models: Develop and validate a dynamic jaguar habitat model using available jaguar observations and species distribution modeling methods. From the habitat model, the project will map core areas based on methods that identify local concentrations of high quality and low resistance habitat.
6. Revise dynamic jaguar resistance and connectivity models: Revise the previous dynamic jaguar resistance layers using the new land cover and forest disturbance layers described above. This will greatly improve their accuracy and the ability to maintain the monitoring system over time.
7. Dynamic centrality metrics: Incorporate the calculation of centrality metrics into the dynamic workflow, providing centrality metrics for each core and corridor in the network. These metrics can be used to identify the most critical parts of the network.
8. Dynamic barrier mitigation priorities for jaguar: Use movement barrier detection methods to identify the most critical barriers that, if mitigated, would greatly facilitate jaguar connectivity in critical locations within the study area.
9. Dynamic habitat protection and restoration priorities for jaguar and ecosystem networks: Facilitate a process to identify and then develop dynamic habitat

restoration/protection priorities maps for jaguar cores and corridors based on habitat, resistance, centrality and other factors.

Once the models are developed and validated progressively, TerrAdapt will develop a process to present the dynamic model to key technical stakeholders and decision-makers and receive feedback in different stages. It is important to focus on how useful the information gathered by partners was in developing the dynamic model and provide feedback on how to make it more accurate.

2.1.1.2. Set up a cloud server to store and process data annually.

TerrAdapt will be responsible for the data structure and access, processing the data annually to ensure the cloud server is set up and running automatically. This storage is supported by Google:

- Secure data storage for annual and real-time data uploads.

- Access for field teams and partners.

- Ability to process large spatial datasets and run machine learning models as required.

Output 2.1.2. Spatial analysis tool (Web portal) for decision-making with gender and intercultural approaches

This output delivers a user-centric web portal designed to empower stakeholders across four PACHA countries to visualize, analyze, and prioritize conservation actions through an inclusive, data-driven lens. The portal integrates dynamic spatial models (from Output 2.1) and addresses gender, cultural, and technical diversity among users.

Activities:

2.1.2.1. Develop and validate a web portal/dashboard as well as training materials, with user-friendly interfaces to make decisions.

TerrAdapt will be responsible for developing the web portal that will allow users to identify and visualise their areas of interest, and make spatial queries about changes over a user-defined area and time of interest, including gender and intercultural approaches. This will be developed through an in-person workshop (same as the validation process 2.1.1.) and online workshops.

The development of a web portal to ensure user friendly access. The GIS Specialist, the Project Manager, the Biodiversity and Conservation Expert, and TerrAdapt will:

- Define key functionalities and user needs to identify and visualise priority areas for restoration, conservation and jaguar barriers, and facilitate spatial queries to analyse land cover and use changes over time in user selected areas, taking into account intercultural aspects.

The functionalities will aim to consider the needs of users such as government institutions at different national, regional and local levels (Ministries of Environment, Forestry, Land Use Planning and Infrastructure), NGOs., IPLCs, private sector, and researchers & GIS specialists from universities and public science and technology institutions.

It is important that the web portal provides data answers to key questions such as where the highest priority areas for conservation/restoration are and how many hectares, how is land cover changing over time in specific locations, what is the carbon storage potential of a selected area and how to measure it, how are jaguar corridors expanding/shrinking due to human activities, where are the potential conservation/restoration places of greatest benefit to jaguar connectivity and forest carbon biomass storage, etc.

Beginning year 1, TerrAdapt will develop a web portal prototype that will be nurtured by the dynamic model (output 2.1). To identify user needs, online meetings with different stakeholders and decision-makers by user category will be held, with flexibility for differences between countries.

- Based on previous web portal experiences, TerrAdapt will design and develop the web portal using web development tools, the right technology and interface design. TerrAdapt will develop a web portal to visualise all project data and make spatial queries on changes over a user-defined area and time of interest.
- Test and validate to ensure functionality. This activity will include prototyping and testing according to user needs to identify and receive feedback, considering at least one of each user group and country. Develop data validation and accuracy checks and ensure cloud and data security.
- Develop training materials to explain the use of the web portal monitoring and assessment system to users and potential trainers. For this, TerrAdapt will provide methods documentation and metadata for all datasets, and develop guides, tutorials, and manuals to assist users in English and Spanish.

2.1.2.2.- TerrAdapt will train at least 4 trainers in the four PACHA countries in the use of the tool.

The Project Manager and the GIS Specialist will coordinate with TerrAdapt to train at least four trainers, who will then lead workshops to teach key stakeholders how to use the web-based monitoring and assessment system. These trainers will co-facilitate the workshops

under activity 3.1.2. Potential trainers may include universities, NGOs, or individual consultants, depending on the country. The Gender and Safeguards Specialist will contribute in the ToR to encourage women participation in the candidates.

Component 3: Capacity building and regional governance for scale-up.

The third component will strengthen the capacity of a selected number of decision-makers and key technical experts from various institutions from sub-national and local governments, NGOs, universities and IPLC organisations to use the system to potentially identify spatial priorities for restoration and conservation, and develop institutional actions (work plans) based on the dynamic data and spatial priorities.

A heightened focus on policy coherence will be integrated into this component, extending beyond national Ministries of Environment to engage key cross-sectoral institutions. Participating governmental bodies now include:

- 1. Bolivia: Ministry of Development Planning (Ministerio de Planificación del Desarrollo).
- 2. Brazil: National Center for Research and Conservation of Carnivorous Mammals (CENAP/ICMBio), Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA), State Secretariat of Administration of Mato Grosso do Sul (SAD).
- 3. Paraguay: Ministry of Agriculture and Livestock (MAG) and Ministry of Public Works and Communications (MOPC).

This multi-sectoral approach ensures alignment of environmental, economic, and administrative priorities across governance levels.

Also, the project will explore, early in implementation, collaboration with ongoing GEF projects in the use of the dynamic monitoring and assessment system in the design, implementation and monitoring of the Chaco-Pantanal, and to test the feasibility of linking GEF investments to the annual monitoring system and spatial priorities for restoration and conservation.

Outcome 3.1: Improved capacity of multisectoral decision-makers and key stakeholders to use the new dynamic monitoring system for landscape management, with gender and intercultural approaches.

In year 2, key multisectoral decision-makers will be selected and trained in the use of the cloud-based dynamic monitoring system to strengthen their capacities in developing spatial priorities for restoration and using the system to incorporate into institutional actions based on the dynamic data. During the selection process, gender criteria will be taken into account to foster equal opportunities. This will be done through practical use of the portal web using real cases identified during the workshop design and feedback collected under Activity 2.1.3.

Output 3.1.1: Key decision makers will be engaged and trained in the use of the cloud-based dynamic monitoring system for landscape management, with gender and intercultural approaches.

The Biodiversity and Conservation Expert, the Policy Specialist and the Safeguards and Gender Specialist will facilitate the engagement and participation of multisectoral key decision-makers in the training workshops. The Communications Specialist will document the training process, from the selection of stakeholders to the design, development and evaluation of workshops to gather information to develop their storytelling. A gender-sensitive approach will be integrated into the documentation of the training process to advance gender equality and women's empowerment.

3.1.1.1. Identify key stakeholders with different data needs and decision-making roles, with gender and intercultural approaches.

The Biodiversity and Conservation Expert will lead the stakeholder identification process in collaboration with the Project Manager, the GIS Specialist, the Policy Specialist and the Safeguards and Gender Specialist. This process will ensure the inclusion of stakeholders with different data needs and decision-making roles and will include a gender and intercultural approach.

The co-executors will be consulted to strengthen the identification process. This collaborative approach will help ensure that the identified stakeholders are representative of the different sectors, technical capacities and interests relevant to the project.

This identification process will also preliminarily map the financial and planning instruments (e.g., national restoration budgets, green credit lines, carbon project requirements) that each stakeholder manages, to be explored in subsequent workshops as potential vehicles for monitoring system adoption.

3.1.1.2. Organize the workshops based on the stakeholders identified and tailored to different levels of technical knowledge.

The Project Manager will be responsible for organising a series of targeted workshops with the support of the Biodiversity and Conservation Expert, the GIS specialist. These workshops will utilize the web portal developed and the training materials developed under Activity 2.1.2.1, adapted by the Communications Specialist.

The Project Manager will engage consultants to develop the methodology and facilitate the workshops, considering case studies involving different actors and role-playing to simulate different interests. A trainer in capacity building with GIS websites and information technologies will be hired in each country, ensuring that the workshops are aligned with the needs and technical capacities of the identified stakeholders and the objectives. The trainers will be previously trained by TerrAdapt.

Workshops will be designed with technical advice from TerrAdapt, in coordination with and co-executing partners to ensure local and regional relevance. The Steering Committee will provide guidance on the workshop structure, objectives and deliverables to ensure alignment with the overall project objective which is the prioritization of conservation investments.

3.1.1.3. Workshops with key decision makers on the web portal and its potential use in national, subnational and local instruments.

The web portal will be presented, considering data needs and decision-making roles. The trainers will use a facilitation approach to guide discussions using visualisations.

Participants will work through detailed case studies of prioritised areas to identify how the dynamic model can be integrated into their national, subnational and local instruments. and develop simulation exercises where they can practice decision-making in different scenario-based environments.

The Monitoring Specialist and the trainers will collect feedback from the participants about how useful the web portal is, case studies analysed during the training and the application of the information in their national, subnational and local instruments.

The second part of each workshop will be a participatory incentive co-design session, where decision-makers will identify what would motivate them to use the system routinely in their planning and investment processes. Based on the financial instruments each institution manages (e.g., restoration plans, green credit lines, competitive funds), the project team will explore viable options such as: using the system to prioritize areas in the national restoration plan, linking it to carbon project requirements, or incorporating it as a criterion in new public or donor funding calls. All proposals will be documented for subsequent validation.

Output 3.1.2: Actionable recommendations, for institutional and financial incentives and governance mechanisms to integrate the monitoring and assessment system into the policies and investment, are formulated and disseminated.

This output focuses on translating insights from the dynamic monitoring system (Output 2.1.1) and web portal (Output 2.1.2) into actionable, stakeholder-specific recommendations. Led by the Project Manager, these guidelines empower decision-makers to prioritize conservation, restoration, and barrier mitigation actions while fostering accountability and cross-sector collaboration. The recommendations will include: 1) Policy Integration Recommendations and 2) Operational Recommendations. Also, about the process, it will identify how the tool inform the policies, plans, projects, etc and Next steps post-dissemination, for example, pilots in key areas, evidence-based advocacy, mobilization of international funds and annual updates of the system, seeking to institutionalize its use in the Pantanal-Chaco region.

3.1.2.1. Virtual meetings to use the dynamic model, with gender and intercultural approaches, including GEF-7 and GEF-8 projects identified in the project region.

Building on the ideas generated during the participatory workshops (Activity 3.1.1.3), the project will conduct targeted virtual meetings in Year 2 with high-level institutional representatives (e.g., ministry heads, directors of funding agencies, private sector executives, and donors).
These sessions have a dual objective:
1. Validate Financial Incentives: Assess the legal, financial, and political feasibility of the incentives proposed by technical staff (e.g., linking the system to carbon projects, green credit lines, or public funding calls) to secure high-level endorsement.
2. Define Institutional Integration Pathways: Co-develop concrete actions to embed the monitoring system into existing national and sub-national instruments. This includes identifying entry points into conservation policies, forest management plans, protected area management plans, jaguar monitoring protocols, and development planning processes, ensuring gender and intercultural approaches are incorporated.

By connecting financial feasibility with policy integration, these meetings will produce a roadmap for institutionalizing the system, ensuring recommendations are both technically sound and politically viable for long-term adoption.

3.1.2.2. Develop and disseminate recommendations, as a result of the workshops.

Drawing on the incentives proposed by technical staff trained (Activity 3.1.1.3) and validated by high-level representatives (Activity 3.1.2.1), the project will develop a set of targeted recommendations for distinct user groups (e.g., governments, NGOs, IPLCs, private sector, donors).

Recommendations are customized for distinct user groups (e.g., governments, NGOs, IPLCs, private sector) based on their roles, technical capacities, and regional priorities. It will leverage outputs from the dynamic models (e.g., priority area maps, carbon storage potential, jaguar corridor trends) to identify context-specific interventions. It will incorporate input from stakeholders gathered during web portal validation (Activity 2.1.2.1) and training workshops (Activity 3.1.2) to ensure relevance and practicality.

The Project Manager will develop a report with recommendations on how to use the dynamic model and priority areas for action, ensuring that gender and intercultural considerations are embedded in all recommendations. The Communication Specialist will design materials to showcase the importance of the Pacha project region and jaguar conservation in different forums such as international, national and regional.

Component 4: Knowledge management and Communications.
Outcome 4.1. Increased Knowledge dissemination and use of the web portal to scale-up conservation, restoration and barrier mitigation decision making.
Output 4.1.1. Gender-responsive knowledge products generated and disseminated, with gender approach.

The different key outputs generated by the project during its implementation will be disseminated in GEF meetings and other online meetings at the national, subnational and local level. The Communication Specialist will be in charge of this output in coordination with the Project Manager.

4.1.1.1. Develop storytelling about the use of the monitoring and assessment system and web portal, identifying lessons learned, best practices and challenges.

The Communications Specialist, in coordination with the Project Manager, the Biodiversity and Conservation Expert and the Safeguards and Gender Specialist, will identify target audiences, collect stories, best practices and lessons learned. The Communications Specialist and team will be trained in gender-sensitive communication techniques. The purpose is gender equality and women's empowerment are included in the story-telling communications products and are widely disseminated with different stakeholders.

The Communication Specialist will develop stories highlighting gender-specific impacts, such as women’s roles in decision-making, challenges faced, and empowerment strategies, conducting interviews with women participants to inform narratives and to create accessible materials to ensure inclusivity.

4.1.1.2. Participate in GEF's Workshop to exchange practical use of the monitoring and evaluation system with other GEF projects such as ASL.

The Global Wildlife Program and GEF's Amazon Sustainable Landscapes Program hold an important annual meeting to share lessons learned and experiences. During implementation start up, the project team will discuss with the World Bank the potential to have the Project Manager, and some key stakeholders travel to share the importance of the monitoring and assessment system and to disseminate the stories and the incentive recommendation report.

-

Monitoring and Evaluation
Effective decision making and adaptive project management
Monitoring and evaluation system used for adaptive management.

The Monitoring Specialist will develop a monitoring plan for the results framework indicators to be reported to the GEF. In coordination with the Project Manager, he/she will be responsible for the inclusion of the GEF project in the monitoring and assessment system and the preparation of the report. In coordination with the Project Manager, he/she will follow up on the stakeholder engagement plan, social and environmental safeguards, and gender and grievance redress mechanism. S/he will also be responsible for the final evaluation of the project.

Design and implement the monitoring system for reporting.

The Monitoring Specialist will develop online workshops for co-executing partners on how to use the dynamic monitoring and assessment system and report on outputs and activities. In coordination with the Biodiversity and Conservation Expert and the Safeguards and Gender Specialist, the Monitoring Specialist will ensure that gender and intercultural considerations are integrated into monitoring. S/he will also develop the annual reports to GEF.

Follow-up on the Stakeholder Engagement Plan, social and environmental safeguards, gender and grievance mechanisms.

In coordination with WWF-GEF, the Safeguards and Gender Specialist will ensure that the project's grievance mechanism is implemented. The Monitoring Specialist will monitor the level of participation, inclusiveness and feedback mechanisms in the implementation of activities. In coordination with the Biodiversity and Conservation Expert and the Safeguards and Gender specialist, the Monitoring Specialist will track the gender action plan indicators.

Conduct final evaluation of the project. (WWF-GEF)

The Financial Manager will ensure compliance with GEF, WWF and national financial regulations. The Monitoring Specialist will engage an external consultant to conduct the final evaluation of the project.

[1] Scope of technical supervision support from WWF offices (as part of implementing agency function, not drawing on project budget): 1) Maintain strong relationships with key partners and stakeholders, 2) Support and facilitate effective communication between Execution Partners and FVS and between FVS and WWF GEF (US) and 3) Provide supervision over technical aspects of the field work of the Project, as needed

Institutional Arrangement and Coordination with Ongoing Initiatives and Project.

Please describe the Institutional Arrangements for the execution of this project, including financial management and procurement. If possible, please summarize the flow of funds (diagram), accountabilities for project management and financial reporting (organogram), including audit, and staffing plans. (max. 500 words, approximately 1 page)

Institutional Arrangement and Coordination with Ongoing Initiatives and Project.

The Executing Agency of the project is Fundación Vida Silvestre (FVS)[1] is a non-profit, non-governmental organization with more than 48 years of experience, dedicated to environmental conservation. FVS is based in Argentina but will be supporting this project in a regional coordination and project management capacity, not with activities in Argentina. FVS's mission is to propose and implement solutions to preserve nature, promote the sustainable use of natural resources, and encourage responsible behavior in the context of climate change.

Fundación Vida Silvestre will be responsible for the technical, financial and fiduciary execution and administration of the Project, as well as all procurement activities. It will implement the project through a Project Management Unit (PMU) within its organisational structure and will allocate the necessary human and technical resources for implementation. The project will use existing Fundación Vida Silvestre systems for integrated planning, procurement, financial management, reporting and monitoring, while ensuring compatibility with WWF-GEF standards, procedures and control systems and align with GEF procurement rules and innovation criteria. WWF country offices will facilitate coordination between FVS and the governments, as part of their support to the GEF implementing Agency[2][24].

FVS will also coordinate its activities within the project implementation process with the following entities:

1. Non governmental organisations for component 1, such as:

   - Bolivia: Sociedad Boliviana de Derecho Ambiental
   - Paraguay: National University of Asunción
   - Brazil: Alianza 5P.

2. Non-governmental organisations for component 2, such as TerrAdapt. FVS will contract TerraAdapt to co-execute the component 2, the cloud-based monitoring and assessment system, specifying timelines, intellectual property (IP) rights, etc.

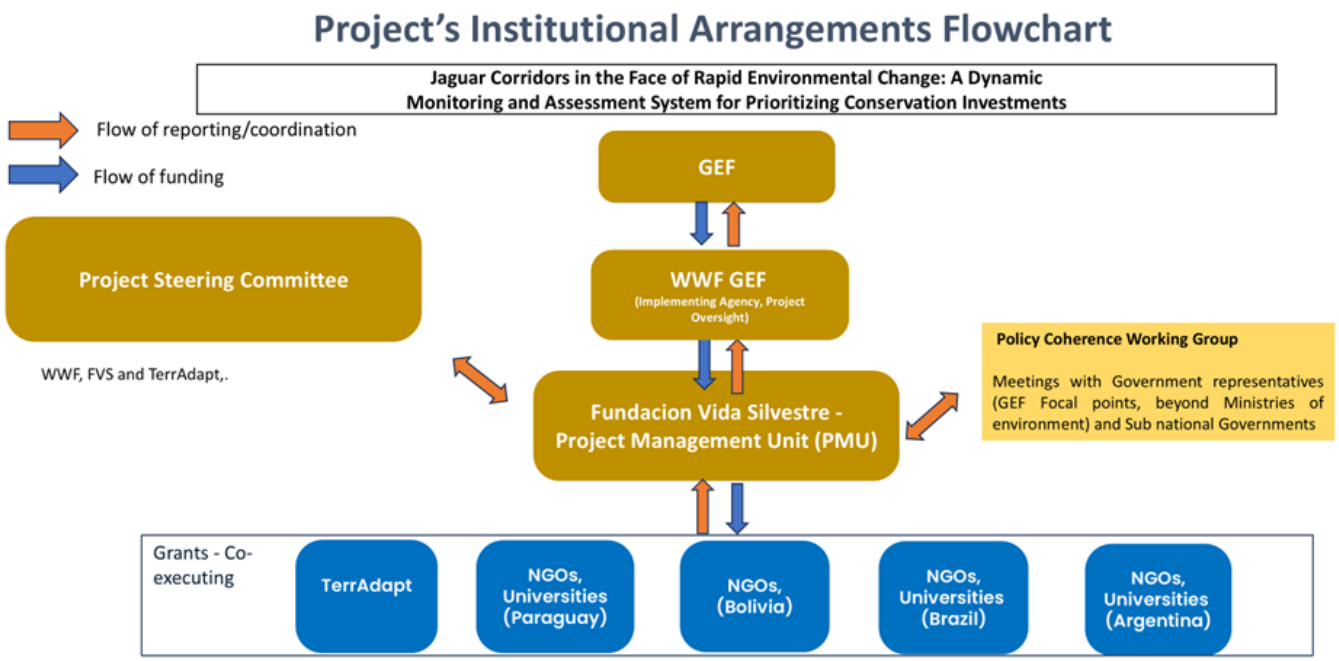
Each of these entities could act as a co-executor of the project and, in that case, would receive resources from the GEF, if they are selected and pass FVS due diligence processes. Each of these co-executors will designate focal points to facilitate dialogue with the PMU and will sign a Cooperation Agreement with FVS to establish specific arrangements and responsibilities within the project implementation.

The project establishes a two-tier governance structure to ensure effective oversight, strategic alignment, and policy relevance. At the operational level, the Project Steering Committee (PSC) serves as the highest technical and operational oversight body, chaired by the Executing Agency (Fundación Vida Silvestre). It is composed of senior representatives from key implementing partners, including the Executing Agency (FVS), the technical partner TerrAdapt, the WWF-GEF Agency (as an observer/advisory member), and WWF Country Offices in Bolivia, Brazil, and Paraguay. The PSC is responsible for reviewing and endorsing annual work plans and budgets, monitoring progress against the results framework, facilitating coordination among partners, and providing recommendations to the Policy Advisory Council (PAC). The PAC, in turn, is a high-level, multi-country body co-chaired by FVS and government representatives from each participating country (Bolivia, Brazil and Paraguay). It provides strategic policy guidance, ensures the project's monitoring system aligns with national and regional policy cycles, and champions the institutionalization of project outputs post-implementation. The PAC convenes at three critical stages—inception, mid-term review, and project closure—to validate approaches, review system usability, and endorse handover strategies.

To secure policy relevance and foster adoption by national authorities, the project implements a structured policy coherence approach under Component 3. This involves identifying and engaging stakeholders across key sectors—such as agriculture, energy, environment, and planning—in each participating country. The Project Management Unit (PMU) will lead this cross-sectoral engagement, ensuring the dynamic monitoring and assessment system enhances coherence in policymaking and supports integrated decision-making. Early in implementation, the project will also explore collaboration with ongoing GEF projects in the region to test the feasibility of linking GEF investments to the monitoring system and spatial priorities for restoration and conservation. This multi-sectoral and multi-level engagement ensures alignment between environmental, economic, and administrative priorities, facilitating the uptake of project tools within existing government frameworks and programs.

The PMU will be part of the personnel of FVS and will be responsible for the operational planning, implementation and day-to-day management and monitoring of the project. The project manager will also prepare technical and administrative reports, follow up on consultant activities and outputs, and oversee grant management. The PMU team has been assigned specific responsibilities and tasks to ensure dedicated oversight and the effective achievement of project deliverables and strategic objectives. Key positions are: 1) Biodiversity and conservation Expert (50%), 2) Safeguards and Gender Specialist (30%), 3) Policy and governance Specialist (30%), 4) GIS Specialist (50%) and 5) Communication Specialist (50%), and the Monitoring Specialist (75%).

There is no self execution for this project. The GEF Agency will supervise implementation of the project, ensuring that the project's objective and results are achieved. The Agency will liaise between the EA and the GEF Secretariat, facilitating reporting and ensuring compliance with GEF and WWF policies and standards. The Agency's responsibilities will include: approval of work plans and budgets; oversight of the transfer and appropriate use of GEF funds; coordination of the final evaluation; review of project audits; and certification of operational and financial completion, inter alia.



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https://worldwildlifefund-my.sharepoint.com/personal/brianna_weck_wwfus_org/Documents/Downloads/CER%20Revised%20v2.docx - _ftnref1[1] FVS is headquarted in Argentina and has the scientific knowledge and experience needed to effectively coordinate a project such as this one that emphasizes regional connectivity. FVS has been involved in developing dynamic modelling in the landscape in collaboration with TerrAdapt since 2023. While the project will not carry out any analysis, monitoring or other intervention in Argentina, it will leverage expertise developed in the course of this collaboration and in the project design process. Finally, it is hoped that expertise and lessons learned by FVS through the implementation of the project will be leveraged in the future in Argentina to faciliate the prioritization of conservation investments, strengthen ecological connectivity and restoration and to contribute to the improvement of the effective management of biodiversity (including protected areas).

[2] Maintain strong relationships with key partners and stakeholders, support and facilitate effective communication between Execution Partners and FVS and between FVS and WWF GEF (US) and provide supervision over technical aspects of the field work of the Project as needed

Will the GEF Agency play an execution role on this project?

If so, please describe that role here and the justification.

WWF will **not** play an execution role on this project.

Also, please add a short explanation to describe cooperation with ongoing initiatives and projects, including potential for co-location and/or sharing of expertise/staffing (max. 500 words, approximately 1 page)

Component 1:

Various NGOs, sub-national governments, and protected area administrations in Argentina and Bolivia have already planned field data collection efforts. The project will coordinate with these organizations to complement activities and prevent overlapping data collection in the same locations. For instance, Argentina's National Parks Administration and CeIBA have allocated resources for wildlife monitoring, including camera traps, while SERNANP in Bolivia has planned similar efforts for NPAs in the Chaco-Pantanal landscape. The project will collaborate with these institutions to enhance synergies, optimize resources, and avoid duplication or inefficiencies.

Component 2:

WWF's program in the PACHA region serves as a critical baseline for this project, establishing a unified vision for jaguar connectivity through ecological corridor mapping and modeling. In collaboration with the Center for Large Landscape Conservation, the initiative integrated expert insights on jaguar biology and local ecology to:

- Map core habitats requiring connectivity,
- Identify landscape variables influencing jaguar movement, and
- Quantify relationships between these variables and movement resistance.

Leveraging empirical data, the resulting connectivity models identified optimal ecological corridors to design a resilient network of core areas. This science-based approach underpinned the development of the Monitoring and Assessment System, ensuring adaptive conservation strategies for long-term jaguar connectivity in PACHA.

MapBiomas is a key land-use monitoring and assessment system for the Chaco and Pantanal landscapes. This collaborative initiative brings together specialists from Argentina, Bolivia, Brazil, and Paraguay, focusing on land use, remote sensing, geographic information systems, and programming. It produces high-quality, cost-effective data using advanced remote sensing and machine learning techniques.

The MapBiomas network generates detailed maps and annual land-use change analyses to support policy-making and empower civil society advocacy. The project will leverage MapBiomas' established governance structures for each landscape to validate and enhance the monitoring and assessment system, ensuring alignment with existing frameworks and fostering multi-stakeholder participation. Additionally, the project will create synergies with MapBiomas, utilizing its broader dataset to enrich analyses and provide stakeholders with more comprehensive insights.

Component 3:

The capacity-building component will not follow a traditional training course format. Instead, it will be designed around case studies and the practical application of the monitoring and assessment system in planning, implementation, and real-time monitoring of activities. To ensure relevance and impact, the project will collaborate with managers of ongoing GEF-8 projects, as well as government staff from

monitoring units within the Ministries of Environment, Planning, and Agriculture, along with subnational and local government representatives.

Some strategic projects[1][25] under the GEF-8 programming for the Chaco and Pantanal region have been identified as key for integrating the monitoring and assessment system and receiving training through this initiative. The selection criteria focused on projects that include restoration actions or sustainable practices where jaguar monitoring data would add value. At the commencement of project implementation, an updated project list will be prepared using newly available data from the GEF portal, and initial coordination mechanisms will be established. Given the project's two-year duration, these projects present the strongest opportunities for synergy:

1. Bolivia Chaco (10393) – Focuses on biodiversity monitoring and landscape restoration.
2. Pantanal-Upper Paraguay (10554) – Highlights jaguars as a key species for wetland management and water resource governance.
3. Brazil GEF-8 (11124)-Has potential to integrate jaguar monitoring into the Brazil National Policy for native vegetation recovery-PLANAVEG.

[1] The project analysis was conducted using information available on the GEF portal. However, data for certain projects, such as GEF 11158, remains currently unavailable.

Core Indicators

Indicator 11 People benefiting from GEF-financed investments

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female		108		
Male		128		
Total	**0**	**236**	0	**0**

Explain the methodological approach and underlying logic to justify target levels for Core and Sub-Indicators (max. 250 words, approximately 1/2 page)

Given that the project is part of the GEF-8 Innovation Window, the short two-year duration and $1.6M budget limit large-scale restoration or protection efforts. The project does not have direct indicators measuring protected areas under improved management, land and ecosystems under restoration, landscapes under improved practices, greenhouse gas emissions mitigated and shared water ecosystems under new or improved cooperative management but it provides data, analysis, knowledge and decision-support tools that will enable stakeholders to integrate conservation and restoration actions into national and subnational planning processes and future GEF projects. The results framework describes a set of indicators that measure the steps required to achieve impacts aligned with the core indicators, including: 1) Area of land prioritized for future restoration (ha) contributing to the core indicator 3 and the Global Biodiversity Target 2 and 2) Carbon storage potential in aboveground biomass enabled by the project.

The monitoring and assessment system and web portal will generate data and priority areas that inform conservation policies, restoration initiatives, and sustainable land-use planning, aligning with GEF Core Indicators 1, 3, 4, 6 and 7.

Indicator 11: People directly benefiting from the project include men and women, who participate in workshop to agree protocols, data collections and formalize roles; virtual workshops to design and validate dynamic models; in person meetings to validate web portal and training materials; training from TerrAdapt to trainers; workshops to use the web portal; and virtual meetings with representatives of GEF-8 projects. Based on the GEF Guidelines for estimating direct beneficiaries, the current calculation is 108 women and 128 men, for a total of 236 beneficiaries.

Key Risks

	Rating	Explanation of risk and mitigation measures
CONTEXT		
Climate	Moderate	Disasters, such as floods, fires, and droughts in the Chaco and Pantanal, may delay field activities or damage equipment, including camera traps. To mitigate these risks, contingency plans will be developed, incorporating risk management in the protocols, adaptive strategies for data collection, and flexible timelines.
Environmental and Social	Low	Field data collection (Component 1) may impact Indigenous Peoples and Local Communities (IPLC) if not conducted sensitively, particularly regarding the location of jaguars or the ownership of traditional knowledge related to the species. To mitigate these risks, clear and agreed-upon protocols will be developed with each co-executing partner, outlining specific procedures for the collection, management, and protection of sensitive data. If the project's field data collection takes place in indigenous peoples' territories, a protocol must be developed after sampling to ensure the free, prior and informed consent of indigenous peoples to data collection in these territories. WWF and GEF guidelines and procedures on the FPIC process will be followed.
Political and Governance	Low	Political instability at national and subnational levels may hinder collaboration, data sharing, and government officials' participation in training workshops for

		the monitoring and assessment system. To mitigate the risk of losing trained personnel, the project will engage both decision-makers and technical officials to ensure continuity. To strengthen cross-border coordination, the project will promote collaboration among the competent national institutions and, where relevant, build on existing technical initiatives (such as MapBiomas) to complement national monitoring systems, ensuring that any use of external platforms is conducted under government guidance and with data validation by the competent authorities. To address this, the project will leverage the MAPBIOMAS governance mechanism and strengthen partnerships with NGOs and universities to support field data collection, reducing reliance on government institutions.
INNOVATION		
Institutional and Policy		N/A
Technological	Low	The dynamic monitoring model (Component 2) may face challenges due to interoperability issues, insufficient field data, or limited technical expertise. To mitigate these risks, the project will engage the MAPBIOMAS Network and other stakeholders on the field for model validation and implement a progressive feedback mechanism at different stages of the modeling process. The cloud server setup (Component 2) could be vulnerable to cybersecurity threats or data breaches. To address this, the project will leverage TerrAdapt's experience in developing dynamic landscape monitoring models and utilize Google as a reputable cloud service provider to ensure data security and reliability. Decision-makers (Component 3) may resist adopting the monitoring and assessment system due to complexity or lack of incentives. Design user-friendly interfaces and demonstrate system benefits through storytelling and real case studies. Engage GEF-8 projects to facilitate funding to restoration, conservation and barrier mitigation.
Financial and Business Model		N/A
EXECUTION		
Capacity	Low	Training (Component 2/3) may be ineffective if local stakeholders lack technical infrastructure or skills. We will work to tailor workshops to different skill levels and provide follow-up support and create localized training materials.
Fiduciary	Low	WWF US GEF Agency has not worked with Fundación Vida Silvestre as an executing entity in the past. Due diligence has been completed and the gaps identified can be addressed. Therefore, for this project the Fiduciary risk has been assessed as Low.
Stakeholder	Low	Delays in MoU signings; data interoperability challenges. It will be address using a proactive partner engagement; use open-source platforms Funding

		gaps to use the system to take action can create resistance to use the dynamic monitoring and assessment system. A mitigation measure will be to link incentives to existing conservation funding.
Other		N/A
Overall Risk Rating	Low	The overall risk rating is low, based on the mainly low rated risks in the above categories.

C. ALIGNMENT WITH GEF-8 PROGRAMMING STRATEGIES AND COUNTRY/REGIONAL PRIORITIES

Explain how the proposed interventions are aligned with GEF- 8 programming strategies and country and regional priorities, including how these country strategies and plans relate to the multilateral environmental agreements.

For projects aiming to generate biodiversity benefits (regardless of what the source of the resources is - i.e., BD, CC or LD), please identify which of the 23 targets of the Kunming-Montreal Global Biodiversity Framework the project contributes to and explain how.

Confirm if any country policies that might contradict with intended outcomes of the project have been identified, and how the project will address this. (max. 500 words, approximately 1 page)

- *The project is aligned primarily to the* Biodiversity focal area (Objective 1, focusing on the improvement, conservation, sustainable use, and restoration of natural ecosystems), with additional, secondary alignments to climate change mitigation (Objective 1.4, calling for the promotion of Nature-based Solutions with high mitigation potential), and Land Degradation (Objective 2, which calls for reversing land degradation through landscape restoration). The project contributes to tracking jaguars (an umbrella *species)* with a view to safeguarding biodiversity hotspots and ecological corridors; identifies priority conservation areas (e.g., fragmented habitats) to enhance protected area management and restore forests and avoid loss and degradation; identifies areas with high emissions mitigation potentials; and contributes to reducing human-wildlife conflict, supporting coexistence and species survival.

  The monitoring and assessment system will not only strengthen local management in the Pantanal-Chaco region but also has the potential to enhance the GEF's strategic programming by scaling its application across other Integrated programs. For the Ecosystem Restoration Integrated Program, it could contribute through spatial analysis tools to prioritize restoration zones (e.g., fragmented corridors), maximizing biodiversity recovery and carbon sequestration. For the Food Systems Integrated Program, it could guide sustainable agricultural practices (e.g., agroforestry) and support the prevention of habitat conversion, aligning with regenerative production goals. Within the Greening Transportation Infrastructure Development Program, it could help to identify ecological corridors and sensitive habitats (e.g., jaguar ranges) helping to reroute infrastructure, minimizing fragmentation and quantifying carbon losses linked to deforestation. Finally, for the Wildlife Conservation for Development Program, it could track jaguar populations and their movement corridors to support the mitigation of human-wildlife conflicts, identify priority conservation areas, and aim to integrate data into national biodiversity strategies. In this way, the system will act as a bridge between local interventions and the GEF's global objectives, harmonizing conservation, development, and climate resilience.

The project directly contributes to five Kunming-Montreal Global Biodiversity Framework (KMGBF) targets:

- Target 1: Plan and manage all areas to reduce biodiversity loss: Use spatial planning to analyze and allocate human activities across an area. • Target 2: Restore 30% of all degraded ecosystems: the information system will contribute with strategic information to decision-makers to restore degraded terrestrial, inland water, coastal, and marine ecosystems and balance natural and human needs.
-
- Target 3 “Conserve 30% of Land, Waters and Seas”: The information of the monitoring and assessment system aims to enhance PA and other conservation areas to improve the effective management for jaguars and carbon stocks.
- Target 12-“Enhance Green Spaces and Urban Planning for Human Well-Being and Biodiversity”: Strengthens ecological corridors for jaguars and other species.
- Target 20 “Strengthen Capacity-Building, Technology Transfer, and Scientific and Technical Cooperation for Biodiversity”: Web portal and the dynamic model democratizes data for Chaco and Pantanal landscapes’ decision-making.
- Target 21 “Ensure that knowledge is available and accessible to guide biodiversity action”: Intercultural and gender approaches ensure women and indigenous participation in data collection and strengthening capacities and access to data to support their actions to conserve biodiversity.

The project is aligned with various national and sub-national laws and plans for the PACHA project region. These include: Pantanal: ● The Pantanal Pact (officially Pacto pelo Pantanal)-2019, a subnational coalition of governments, NGOs, ranchers, and communities in Brazil’s Mato Grosso and Mato Grosso do Sul states, has the goal of reduce wildfires through community brigades and tech, certify sustainable cattle ranching, restore degraded areas (including headwaters). It has shown significant progress with 60% drop in wildfires (2020–2023) in participating municipalities and certified Pantanal Beef Program. ● Pantanal Pact’s 2024–2030 Action Plan aims to integrate headwaters restoration and fire management into a unified strategy to address interconnected ecological challenges, community led governance and cross-border coordination with Bolivia and Paraguay. ● Pantanal Headwaters Pact (Pacto em Defesa das Cabeceiras do Pantanal)-2012 with the objective of restoring degraded springs and riparian forests, promoting sustainable farming/ranching practices and preventing sediment runoff that chokes Pantanal rivers. It has reforested more than 3,000 hectares of critical headwaters (2012–2023) and engaged 300+ farmers in soil conservation techniques. The information of dynamic monitoring system may help to use jaguar movement data to guide where to prioritize reforestation. ● Decree No. 11.367, 2023, establishes the Permanent Interministerial Commission for the Prevention and Control of Deforestation, re-establishes the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon - PPCDAm, and provides for the Action Plans for the Prevention and Control of Deforestation in the Cerrado, the Atlantic Forest, the Caatinga, the Pampa and the Pantanal. ● Action Plans for the Prevention and Control of Deforestation in the Pantanal are multi-level strategies (federal, state, and local) designed to address the drivers of deforestation and promote sustainable land use. These plans combine regulatory enforcement, technological innovation, community engagement, and cross-border collaboration. Gran Chaco: ● Bolivia: 1) Article 9 of the Mother Earth Law (Law 071, 2010) establishes social responsibility as a legal obligation for communities, governments and businesses to work together. It lays the foundation for participatory environmental governance. 2) Supreme Decree No. 4489 on the protection of wild fauna to ensure its welfare, conservation and preservation, respecting its right to live free in its own aerial, aquatic or terrestrial environment, and to reproduce in its natural environment. An active role of the government and society is promoted, assuming measures and actions within their competences and obligations. 3) Supreme Decree No.2912 and Supreme Decree No. 2914 state that the Ministry of Environment and Water (MMAyA) through the General Directorate of Forestry Management and Development (DGGDF) will be responsible for directing, supervising and coordinating technical, operational and administrative activities, as well as executing and monitoring the National Afforestation and Reforestation Program (PNFR) and the Program for Monitoring and Control of Deforestation and Forest Degradation. 4) Action Plan for Jaguar conservation (SERNANP). ● Paraguay: 1) Law N°

96/92 (On Wildlife) prohibiting the hunting and possession of the jaguar (Jaguareté), considered an Endangered Species, 2) Decree N° 9114/2013 which approves the National Action Plan for the Conservation of the Jaguar, focused on the Paraguayan Chaco, 3) Ley N.º 5302/2014:Declares the jaguar (Panthera onca) as a wild species in danger of extinction and establishes measures for its conservation and 4) Law No. 3719/09 on the Framework Cooperation Agreement between the Republic of Paraguay, the Republic of Argentina and the Republic of Bolivia on the Subregional Action Program for the Sustainable Development of the Gran Chaco Americano, which promotes trinational cooperation in the sustainable management and restoration of the natural resources of the Gran Chaco.

D. POLICY REQUIREMENTS

Gender Equality and Women's Empowerment:

We confirm that gender dimensions relevant to the project have been addressed during Project Preparation as per GEF Policy and are clearly articulated in the Project Description (Section B).

Yes

1) Does the project expect to include any gender-responsive-measures to address gender gaps or promote gender equality and women's empowerment?

Yes

If the project expects to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment, please indicate in which results area(s) the project is expected to contribute to gender equality:

Closing gender gaps in access to and control over natural resources;

Improving women's participation and decision-making; and/or

Yes

Generating socio-economic benefits or services for women.

2) Does the project's results framework or logical framework include gender-sensitive indicators?

Yes

Stakeholder Engagement

We confirm that key stakeholders were consulted during Project Preparation as required per GEF policy, their relevant roles to project outcomes has been clearly articulated in the Project Description (Section B) and that a Stakeholder Engagement Plan has been developed before CEO endorsement.

Yes

Select what role civil society will play in the project:

Consulted only; Yes

Member of Advisory Body; Contractor;

Co-financier; Yes

Member of project steering committee or equivalent decision-making body; Yes

Executor or co-executor; Yes

Other (Please explain)

Private Sector

Will there be private sector engagement in the project?

Yes

And if so, has its role been described and justified in the section B project description?

Yes

Environmental and Social Safeguard (ESS) Risks

We confirm that we have provided information regarding Environmental and Social risks associated with the proposed project or program, including risk screenings/ assessments and, if applicable, management plans or other measures to address identified risks and impacts (this information should be presented in Annex E).

Yes

Please provide overall Project/Program Risk Classification

Overall Project/Program Risk Classification

PIF	CEO Endorsement/Approval	MTR	TE
	Low		

E. OTHER REQUIREMENTS

Knowledge management

We confirm that an approach to Knowledge Management and Learning has been clearly described during Project Preparation in the Project Description and that these activities have been budgeted.

Yes

Benefits

Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate and these benefits translate in supporting the achievement of global environmental benefits (GEF Trust Fund) or adaptation benefits (LDCF, SCCF). This section identifies the direct beneficiaries from the project.

The project will deliver key socio-economic benefits, including strengthened technical capacities within government institutions (environment and land-use ministries) through the dynamic monitoring system, enabling data-driven decisions to meet international commitments. Additionally, integrating prioritization maps—such as jaguar corridors and restoration zones—into national development and land-use plans can help to mitigate socio-environmental conflicts by aligning conservation with sustainable growth.

ANNEX A: FINANCING TABLES

GEF Financing Table

Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

GEF Agency	Trust Fund	Country/ Regional / Global	Focal Area	Programming of Funds	Grant / Non-Grant	GEF Project Grant($)	Agency Fee($)	Total GEF Financing ($)
WWF-US	GET	Regional	Biodiversity	Innovations Window	Grant	1,693,119.00	152,381.00	1,845,500.00
Total GEF Resources ($)						**1,693,119.00**	**152,381.00**	**1,845,500.00**

Project Preparation Grant (PPG)

Is Project Preparation Grant requested?

true

PPG Amount ($)

50000

PPG Agency Fee ($)

4500

GEF Agency	Trust Fund	Country/ Regional / Global	Focal Area	Programming of Funds	PPG($)	Agency Fee($)	Total PPG Funding($)
WWF-US	GET	Regional	Biodiversity	Innovations Window	50,000.00	4,500.00	54,500.00
Total PPG Amount ($)					**50,000.00**	**4,500.00**	**54,500.00**

Please provide justification

Sources of Funds for Country Star Allocation

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Sources of Funds	Total($)
Total GEF Resources ($)					**0.00**

Focal Area Elements

Programming Directions	Trust Fund	GEF Project Financing($)	Co-financing($)
BD-1-1	GET	846,560.00	576,191.00
BD-1-2	GET	846,559.00	576,191.00
Total Project Cost ($)		**1,693,119.00**	**1,152,382.00**

Confirmed Co-financing for the project, by name and type

Please include evidence for each co-financing source for this project in the tab of the portal

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
Civil Society Organization	WWF International	Grant	Investment mobilized	524,382.00
Civil Society Organization	Fundacion Vida Silvestre, Argentina	Grant	Investment mobilized	400,000.00
GEF Agency	WWF US	In-kind	Recurrent expenditures	228,000.00
Total Co-financing ($)				**1,152,382.00**

Please describe the investment mobilized portion of the co-financing

Not Applicable

ANNEX B: ENDORSEMENTS

GEF Agency(ies) Certification

GEF Agency Type	Date	Project Contact Person	Phone	Email
GEF Agency Coordinator	3/11/2025	Renae Stenhouse	2024954703	renae.stenhouse@wwfus.org
Project Coordinator	3/11/2025	Robbie Bovino		robbie.bovino@wwfus.org

Record of Endorsement of GEF Operational Focal Point (s) on Behalf of the Government(s):

Name of GEF OFP	Position	Ministry	Date (Month, day, year)

Mrs. Lilian Elizabeth Portillo	Director of the Strategic Planning Direction (MADES)	Ministry of Environment and Sustainable Development, Paraguay	9/30/2025
Jorge Ernesto Avila			9/8/2025
LIVIA FARIAS FERREIRA DE OLIVEIRA	General Coordinator for Sustainable Finance	MINISTÉRIO DA FAZENDA	9/3/2025

ANNEX C: PROJECT RESULTS FRAMEWORK

Please indicate the page number in the Project Document where the project results and M&E frameworks can be found. Please also paste below the Project Results Framework from the Agency document.

Indicator / unit	Definition (note if cumulative)	Method/ source	Responsible	Disaggregation	Baseline	YR1	YR2	Notes/ Assumptions
Objective: To develop a dynamic monitoring and assessment system in the PACHA project region, using advanced technologies to prioritise conservation investments, creating enabling conditions to strengthen ecological connectivity and restoration, and generate innovative tools and lessons learned that contribute to the improvement of the effectiveness of PA, impact of GEF programming and other stakeholders.								

Area of land prioritized for future restoration (ha) Contribute to GEF Core indicator 3: Area of land restored (hectares) Global Biodiversity Target 2	This indicator captures the total area of land identified and prioritized for future restoration in terms of jaguar connectivity and forest carbon biomass. Restoration is defined as the process of repairing and/or assisting the recovery of land that has been degraded, damaged, destroyed, or modified to an extent that the land cannot fulfil its ecological functions and/or fully deliver environmental services. Prioritized future restoration may include (i) restoration that reduces the causes of decline and improves basic functions; and (ii) ecological restoration that enhances native habitats, sustains ecosystem resilience, and conserves biodiversity. The definitions and classification of forests and woodlands relies on FAO's 2020 Global Forest Resources Assessment, Terms and Definitions.	GIS mapping, satellite imagery, remote sensing analysis, expert validation, and field assessments. Gender will be monitored but not necessarily against a set target. However, the indicator will track the inclusion of gender-responsive restoration initiatives. Use NASA GEDI mission data to estimate the potential aboveground forest carbon biomass in these areas.	M&E Officer (PMU): Responsible for tracking and reporting on the indicator, ensuring that estimates are based on sound methodologies and assumptions	By country: Bolivia, Brazil and Paraguay. By protection status (e.g., NPAs, community-managed areas)	0 ha (No areas identified before the system is piloted)	N.A	TBD M ha as a result of the implementation (Priority areas identified, validated, and reported)	The project duration is too short for full-scale restoration, so the indicator captures preparedness for future interventions. Assumes the system will cover at least [estimated range] ha by Year 2. The indicator does not track actual restoration but prioritization for future efforts. Accuracy depends on data availability and local validation.

Carbon storage potential in abovegroun d biomass enabled by the project	This indicator estimates the carbon storage potential in aboveground forest biomass within prioritized restoration areas (e.g., jaguar corridors, degraded ecosystems). It focuses on quantifying carbon stocks	Carbon storage potential is estimated by: Mapping high-priority restoration areas (ha) using GIS/remote sensing. Applying region- and ecosystem-specific carbon stock values (tons of carbon/ha) for abovegroun d biomass, sourced from peer-reviewed studies and national inventories (e.g., Pantanal wetlands, Chaco dry forests). Aggregating total estimated carbon storage potential across prioritized areas. Estimation Process: Identify and map priority restoration areas (e.g., degraded jaguar corridors, high-carbon	M&E Officer (PMU): Responsibl e for tracking and reporting on the indicator, ensuring that estimates are based on sound methodol ogies and assumptio ns	By ecosystem type (wetlands, dry forests, savannas) and land tenure (NPAs, community-managed areas).	0 tCO2e: (No previous spatially explicit estimates of carbon storage potential in newly prioritized restoration areas).	NA	TBD tCO2e To be determined during project based on mapped areas and validated carbon stock values	Carbon stock values per ecosystem are derived from peer-reviewed studies and national inventorie s. Actual GHG reductions will be realized in the future once restoratio n efforts are fully implement ed. The project provides the necessary tools and data to project these reductions in the long term. The involveme nt of key stakeholde rs (governme nts, NGOs, IPLCs) will enhance the accuracy and adoption of the data and models generated, ensuring that GHG reductions are integrated into

		ecosystems). Assign carbon stock values (tC/ha) to each ecosystem type (e.g., wetlands: X tC/ha, dry forests: Y tC/ha). Calculate total potential carbon storage Total Carbon Storage (tC)=∑(Area of Priority Site (ha)×Carbon Stock Value (tC/ha))						national and regional conservation and restoration strategies and development plans. Models for calculating carbon sequestration and emissions reductions are based on existing scientific literature for similar ecosystems and will be adapted based on real-time data collected during the project.

GEF Core indicator 11: People benefiting from GEF-financed investments	This indicator captures the number of individual people who receive targeted support or assistance from GEF-financed projects. Targeted support: This includes individuals who can be identified as receiving direct support or assistance, can be counted on individually and are aware they are receiving support in some sort and/or use the specific resources. This implies a high degree of attribution to the project. High intensity of support. This means receiving a high level of support/effort provided per person, assessed on a continuum with broad levels from Low to Medium and High, where only high intensity of support qualifies as direct beneficiary. Cumulative	Direct Beneficiaries (High-Intensity Support & Attribution) Receive direct technical support, training, or assistance through project activities. Actively use the monitoring and assessment system developed by the project. Are engaged in decision-making, restoration planning, or policy implementation as a result of the project. Indirect Beneficiaries (Lower-Intensity Support or Broader Impact, Not Counted in Core Indicator 11) Local communities benefiting from improved ecosystem services (e.g., water security*, carbon sequestration). Conservation	M&E Officer (PMU): Responsible for tracking and reporting on the indicator, ensuring that estimates are based on sound methodologies and assumptions	By sex (male, female)	Target Support:0 High intensity of support:0	Total 150 80 Men 70 Women (at least 45% women)	Total 236 people (108 women, 128 men at least 45% women)	High-intensity support means structured engagement, not one-time events or passive beneficiaries. Cumulative tracking ensures that each unique individual is counted only once. Disaggregation helps measure inclusion (e.g., gender, IPLC participation, policymakers). Disaggregation helps measure inclusion (e.g., gender, IPLC participation, policymakers). Direct beneficiaries should be counted only once if several activities of the same project support the same person in different ways. Disaggregation by

		organizations that use project data for broader planning, but are not actively engaged. Future initiatives leveraging project outcomes, but without direct project involvement.						male and female should be grounded on actual data to the extent possible, rather than estimated. Disaggregation by male and female should be grounded on actual data to the extent possible, rather than estimated.

Component 1: Collaborative Data Collection.								
Outcome 1.1: Strengthened scientific and technical partnerships enable coordinated and participative data collection on jaguar presence, land cover and uses and secondary data of carbon stocks.								
(a) Number of key actors (co-executors) adopting and implementing participatory data collection protocols. (Unit: number of co-executors - NGOs, universities, private sector, and research centers).	The indicator measures the number of co-executing organizations (NGOs, universities, private sector, and research centers) that have integrated participatory data collection protocols into their monitoring activities. Participatory protocols require active involvement from field-based stakeholders such as indigenous communities, rural schools, farmers, and livestock producers, depending on the sampling location. Where applicable, protocols must incorporate Free, Prior, and Informed Consent (FPIC) processes to ensure ethical engagement with IPLCs.	Institutional reports, agreements and meetings	M&E Officer (PMU), Co-executors in each country	Type of actor (NGO, university, private sector, research center).	0	4	N.A	One co-executor per country will adopt the protocol by Year 1.
(b) Percentage of data collection activities with meaningful participation of local actors (Indigenous Peoples' lands and territories,	Tracks the proportion of field data collection events where Indigenous communities, farmers, ranchers, or rural schools actively and meaningfully participate (e.g., data collection, interpretation, validation).	Method/Source: Fieldwork reports, participatory observation records, semi-structured interviews, and participant lists (with	M&E Officer (PMU), Field teams	Type of local actor (Indigenous Peoples' lands and territories, farmer, rancher), gender, geographic location. By gender	0%	50%	N.A	Training on inclusive protocols will be provided to boost women's participation

farmers, ranchers), disaggregated by gender and stakeholder type	Gender-specific sub-indicator: Percentage of women participants among local actors engaged in data collection activities, per country. Gender-specific sub-indicator: Percentage of women participants among local actors engaged in data collection activities, per country.	gender and stakeholder type recorded). Formula: Total activities with local participation ÷ Total data collection activities × 100. (Number of women participants ÷ Total local participants) × 100.						
Component 2: A cloud-based dynamic monitoring and assessment system								
Outcome 2.1: Identified priority areas to develop conservation, restoration, and barrier mitigation, using the dynamic monitoring and assessment system.								
Total area (ha) within the PACHA project region that is analyzed using remote sensing, geospatial modeling, and field data to identify priority zones for conservation, restoration, and barrier mitigation.	This indicator measures the hectares identified as priority areas through geospatial modeling, remote sensing analysis, and participatory models' validation processes. The process integrates technical criteria specific to conservation, restoration, and barrier mitigation, ensuring a gender-responsive and intercultural approach. <u>Conservation Priority Areas</u>: Areas with high ecological value, intact habitats, and critical ecosystem functions, requiring protection to	Geospatial analysis using TerrAdapt's dynamic modeling, remote sensing data (Sentinel-2, MODIS, LiDAR), GIS mapping, participatory assessments, and field validation.	M&E Officer (PMU) in coordination with TerrAdapt	By ecosystem type (wetlands, dry forests, savannas), priority area (Pantanal, Chaco, transboundary regions), conservation status (protected, degraded, under restoration), and socio-cultural considerations (Indigenous Peoples' lands and territories, gender-disaggregated participation in assessments).	0 ha (A previous static analysis was developed by PACHA)	TBD	TBD	Assumes TerrAdapt's ability to process large-scale datasets, availability of satellite imagery, and partnerships for field validation, including local and Indigenous participation.

	maintain biodiversity and connectivity. Identified through habitat suitability modeling, remote sensing of intact ecosystems, and ecosystem service mapping. Restoration Priority Areas: Degraded areas where ecosystem recovery is feasible through reforestation, wetland rehabilitation, or agroforestry. Identified through vegetation loss analysis, soil degradation mapping, carbon sequestration potential, and participatory land-use planning. Barrier Mitigation Areas: Zones where ecological connectivity is disrupted by infrastructure (e.g., roads) and where mitigation actions (e.g., wildlife corridors, connectivity restoration) are needed. Identified through connectivity modeling, roadkill data, and participatory mapping of human-wildlife conflict zones.							
Dynamic model developed and validated with	A spatially explicit, cloud-based model that integrates remote sensing, field data, and stakeholder	Technical validation reports, stakeholder feedback, and system	M&E Officer (PMU) Technical partners (e.g.,	By validation criteria (technical accuracy, user acceptance,	0 (no model)	Draft model developed	1 fully validated, operational model	Assumes timely access to MapBiomas datasets and

updated data to develop spatial analysis for decision-making	inputs to prioritize conservation/restoration areas. Cumulative (development progresses across YR1–YR2; validation completed in YR2).	performance logs. Technical validation with Mapbiomas to review the model's accuracy. Surveys with governments, NGOs, and others on usability. Documentation of model performance (e.g., processing speed, data integration).	TerrAdapt, MapBiomas)	performance) By stakeholder group (government, NGO, Indigenous, etc.)				stakeholder participation.
Component 3: Capacity building and landscape governance for scale up.								
Outcome 3.1: Improved capacity of multisectoral decision makers and key stakeholders to use the new dynamic monitoring system for landscape management, with gender and intercultural approaches.								

Number of national, subnational, and local management instruments, including GEF project frameworks, that demonstrate initial integration of project-generated data and the web portal monitoring and assessment system	This indicator measures the number of national, subnational, and local management instruments that demonstrate initial integration of project-generated data and the web portal monitoring and assessment system for planning, implementation, monitoring, and evaluation. The goal is to strengthen evidence-based decision-making by ensuring that key stakeholders actively use the system to support conservation and sustainable management. Relevant management instruments may include: Conservation policies and plans (e.g., national biodiversity strategies, ecosystem action plans) Biodiversity and climate strategies (e.g., climate adaptation and mitigation frameworks, NDCs, LDN plans) Spatial planning and development plans (e.g., land-use plans, sustainable development strategies) Conservation and forest management plans (e.g.,	Data collection approach: Document review (policy documents, management plans, reports) Stakeholder interviews and surveys Workshop records and evaluations Monitoring and assessment system outputs Sources: Project reports Government and NGO policy documents Meeting and workshop records Feedback from stakeholders using the web portal	M&E Officer (PMU)	By level (e.g., national, regional, local) By stakeholder (e.g., IPLCs, government agencies, NGOs, private sector) By sex (participation, e.g., % of national, subnational, and local management instruments, including GEF project frameworks	Current number of conservation actions, policies, or management plans informed by or integrating monitoring data before project implementation Number of instruments that demonstrate initial integration of project-generated data and the web portal monitoring and assessment system, with active participation of women	YR1: 0 Projects, policy, plans influenced. YR1: 0	YR2: 2 Projects, policy, plans identified that have potential to use the monitoring and assessment system and data. YR2: More than 30% of women participation in at least two instruments that integrates data from the monitoring and assessment system.	Relevant stakeholders (government, NGOs, communities) actively engage with project data and knowledge. Monitoring and assessment systems are functional and accessible to stakeholders for integration into planning.

	sustainable forest management, community forestry programs) Protected area (PA) management plans (e.g., co-management frameworks, restoration plans) Jaguar monitoring protocols and other species conservation frameworks Other relevant planning and policy instruments aligned with conservation and sustainable land-use goals The indicator specifically tracks the extent to which relevant government agencies, IPLCs, and other stakeholders integrate data from the monitoring and assessment system into their decision-making processes. This includes: Policy adoption and revisions informed by project-generated data Planning processes incorporating dynamic spatial data from the web portal Monitoring and evaluation frameworks enhanced with real-time conservation insights.							

Outcome 4.1. Increased knowledge dissemination and use of the web portal to scale-up decision making								
Number of gender-responsive knowledge products generated, published, and disseminated through inclusive knowledge-sharing events (disaggregated by focus, and target audience)	This indicator tracks the creation, publication, and dissemination of knowledge products and participation in knowledge-sharing events to ensure accessibility and uptake of lessons learned. Knowledge products may include: Recommendation reports (e.g., policy briefs, technical documents, case studies) Storytelling outputs (e.g., videos, success stories, interviews) Participation in knowledge-sharing events (e.g., webinars, workshops, conferences) The indicator reflects progress in knowledge generation, accessibility, and stakeholder engagement through the web portal. Gender: Number of products with sex-disaggregated data or gender-focused recommendations	Web portal records, dissemination lists, event reports, participant surveys	M&E Officer (PMU)	By type of product (articles, videos, reports, etc.), topic, language, audience. By Gender focus (e.g., % of products addressing gender equality). By language accessibility (e.g., materials translated for marginalized groups).	Non % of knowledge products integrating gender analysis	- 0%	3 50%	Assumes that products are generated and published according to the knowledge management plan and user demand
Monitoring and evaluation								
Effective decision making and adaptive project management								

Indicator: Percentage of monitoring plan effectively implemented and utilized supporting communication, accountability and adaptive management.	Effectively implemented and utilized the following reports, events and tools: PPR: Project Progress Report QFR: Quarterly Financial Report TT: Tracking Tool RW: Reflection workshop which reviews M&E data and informs revision of project strategy PCF: Project Closeout Report TE: Terminal evaluation report Non cumulative	Y1: 2PPR, 4 QFR, 1 TT, RW Y2: 1PPR,1 PCR, 4 QFR, 1 TT, 1 RF, 1TE	M&E Officer (PMU)		Non	100%	100%	

ANNEX D: STATUS OF UTILIZATION OF PROJECT PREPARATION GRANT (PPG)

Provide detailed funding amount of the PPG activities financing status in the table below:

Project Preparation Activities Implemented	GETF/LDCF/SCCF Amount ($)		
	Budgeted Amount	Amount Spent To date	Amount Committed
Lead consultant for project development and design, incl. stakeholder consultations w/ government and others	29,700.00	29,700.00	0.00
Safeguards and Gender analyses and action plan(s)	20,300.00	20,300.00	
Total	**50,000.00**	**50,000.00**	**0.00**

ANNEX E: PROJECT MAP AND COORDINATES

Please provide geo-referenced information and map where the project interventions will take place

Location Name	Latitude	Longitude	GeoName ID
The PACHA region spans parts of Bolivia, Brazil, Paraguay, and Argentina, encompassing two distinct but interconnected ecosystems: the Pantanal, the world's largest tropical wetland, and the Gran Chaco, a vast dry forest and savanna biome. The surface area of the landscape is 1,590,407 km2.	-20.0022886	-59.4786046	

Location Description:

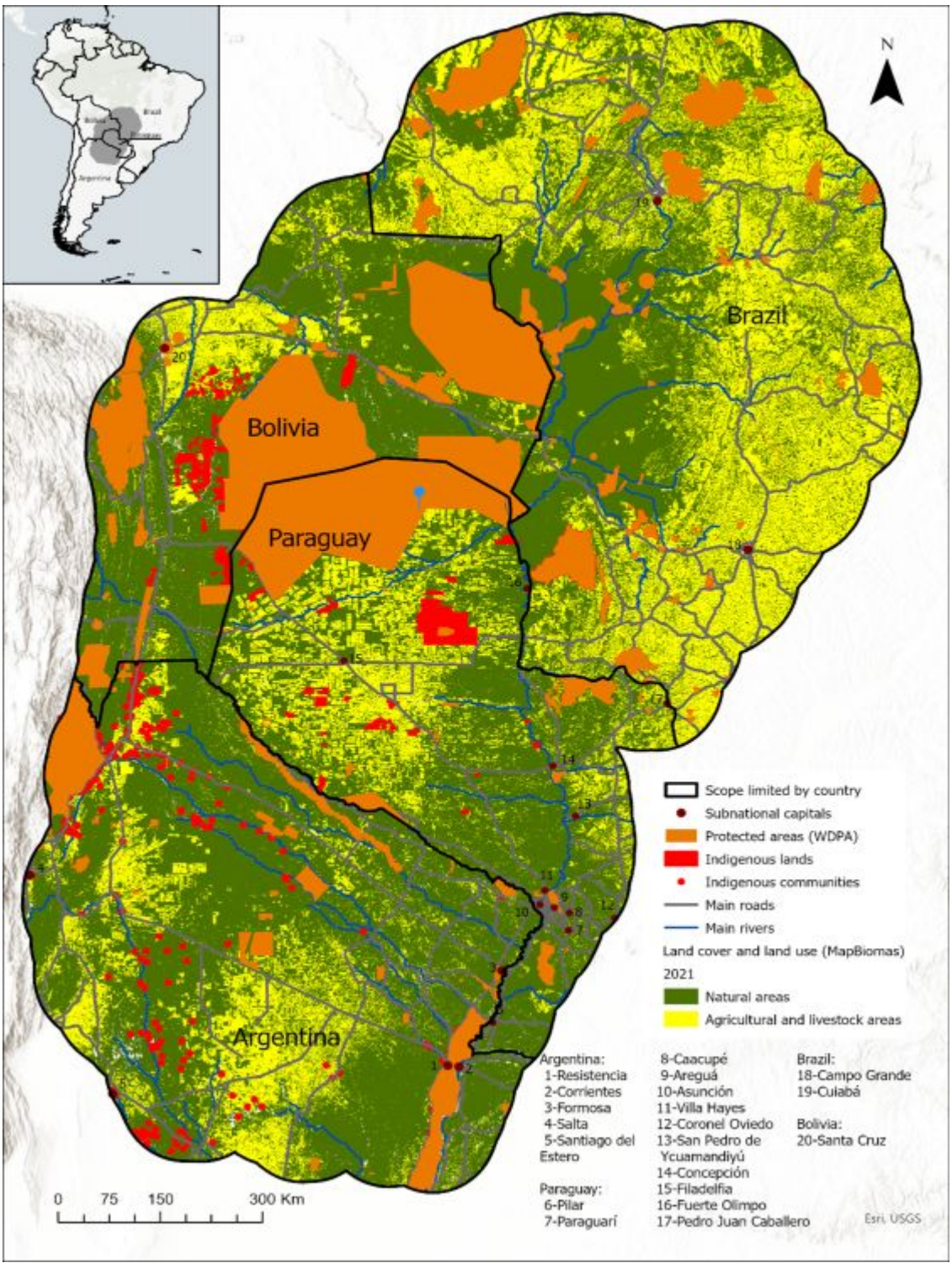
The Gran Chaco is spanning Bolivia, Paraguay, Brazil, and Argentina, covering significant areas in the Santa Cruz, Tarija and Chuquisaca departments in Bolivia. In Paraguay covers the departments of Presidente Hayes, Boquerón, and Alto Paraguay.

The Pantanal spans in the department of Santa Cruz in eastern Bolivia and in two states in central-western Brazil: Mato Grosso and Mato Grosso do Sul and Alto Paraguay department in Paraguay

Activity Description:

Components 1, 2, 3 and 4.

Please provide any further geo-referenced information and map where project interventions are taking place as appropriate.



ANNEX F: ENVIRONMENTAL AND SOCIAL SAFEGUARDS SCREEN AND RATING

Attach agency safeguard screening/assessment report(s), including ratings of risk types and overall project/program risk classification as well as any management plans or measures to address identified risks and impacts.

Title

Stakeholder Engagement Plan Jaguar 02

Gender Action Plan Jaguar Innovation 02

Categorization Memo - Jaguar Corridors

ANNEX G: BUDGET TABLE

Please explain any aspects of the budget as needed here

Appendix A: Indicative Project Budget Template

Expenditure Category	Detailed Description	Component (USDeq.)							Total (USD eq.)	Responsible Entity (Executing Entity receiving funds from the GEF Agency)
		Component 1	Component 2	Component 3	Component 4	Sub-Total	M & E	PMC		
Goods	Camera traps	$3,750				$3,750			$3,750	Fundación Vida Silvestre
Goods	Security boxes for camera traps	$1,500				$1,500			$1,500	Fundación Vida Silvestre
Total Goods		**$5,250**				**$5,250**			**$5,250**	
Sub-grants	**TerrAdapt** (Subgrant to US-based partner, TerrAdapt, that will develop the dynamic model (Component 1)	$73,333	$426,667			$500,000			$500,000	Fundación Vida Silvestre
Sub-grants	**Socio BO** (Sub-grants to local partners that will implement actions on the ground in Bolivia, Brazil, and Paraguay, including camer traps surveys and stakeholder engagement.)	$130,000				$130,000			$130,000	Fundación Vida Silvestre
Sub-grants	**Socio PY** (Sub-grants to local partners that will implement actions on the ground in Bolivia, Brazil,	$130,000				$130,000			$130,000	Fundación Vida Silvestre

	and Paraguay, including camer traps surveys and stakeholder engagement.)									
Sub-grants	**Socio BRA** (Sub-grants to local partners that will implement actions on the ground in Bolivia, Brazil, and Paraguay, including camer traps surveys and stakeholder engagement.)	$130,000				$130,000			$130,000	Fundación Vida Silvestre
Total Sub-grants		**$ 463,333**	**$ 426,667**			**$890,000**			**$890,000**	
Contractual Services – Individual	Consultancy for design and develop training workshops			$ 140,000		$ 140,000				Fundación Vida Silvestre
Contractual Services – Individual	Communication consultancy for dissemination			$ 12,340		$ 12,340				Fundación Vida Silvestre
Contractual Services – Individual	Commnication consultancy for story telling				$ 28,793	$ 28,793			$ 28,793	Fundación Vida Silvestre
Contractual Services – Individual	Final Evaluation						$25,000		$ 25,000	Fundación Vida Silvestre
Total Contractual Services – Individual				**$ 152,340**	**$ 28,793**	**$181,133**	**$25,000**		**$206,133**	
Salary and benefits / Staff costs	Biodiversity and conservation Expert	$5,040	$15,120	$25,200	$5,040	$ 50,400			$ 50,400	Fundación Vida Silvestre
Salary and benefits / Staff costs	Safeguards and Gender Specialist	$4,867	$2,434	$14,601	$2,434	$24,336			$24,336	Fundación Vida Silvestre
Salary and benefits / Staff costs	Policy and governance Specialist	$2,434	$9,734	$9,734	$2,434	$ 24,336			$ 24,336	Fundación Vida Silvestre
Salary and benefits / Staff costs	GIS Specialist	$ 16,224	$ 20,280	$ 4,056		$ 40,560			$ 40,560	Fundación Vida Silvestre
Salary and benefits / Staff costs	Communication Specialist	$ 4,056	$ 12,168	$ 16,224	$ 8,112	$ 40,560			$ 40,560	Fundación Vida Silvestre
Salary and benefits / Staff costs	EA Targeted Assistance	$ 5,143	$ 5,143	$ 5,143	$ 2,570	$ 18,000			$ 18,000	Fundación Vida Silvestre
Salary and benefits / Staff costs	Monitoring Specialist						$39,600		$ 39,600	Fundación Vida Silvestre

Salary and benefits / Staff costs	Project Manager							$57,500	$ 57,500	Fundación Vida Silvestre
Salary and benefits / Staff costs	Financial Manager							$38,060	$ 38,060	Fundación Vida Silvestre
Total Salary and benefits / Staff costs		**$37,764**	**$64,879**	**$74,958**	**$20,590**	**$198,192**	**$39,600**	**$ 95,560**	**$333,352**	
Trainings, Workshops, Meetings	Workshops to agree on protocols for data collection and responsibilities	$43,500				$43,500			$43,500	Fundación Vida Silvestre
Trainings, Workshops, Meetings	Workshop for desing and validation		$21,750			$21,750			$21,750	Fundación Vida Silvestre
Trainings, Workshops, Meetings	Workshop for portal web		$ 21,750			$ 21,750			$ 21,750	Fundación Vida Silvestre
Trainings, Workshops, Meetings	Workshop for Training the trainers		$15,000			$ 15,000			$ 15,000	Fundación Vida Silvestre
Total Trainings, Workshops, Meetings		**$43,500**	**$ 58,500**			**$102,000**			**$102,000**	
Co-executors in each country to in person workshop		$5,300				$ 5,300			$ 5,300	Fundación Vida Silvestre
Travel to design and validation workshop			$ 4,900			$ 4,900			$ 4,900	Fundación Vida Silvestre
Travel to web portal feedback workshop			$4,900			$4,900			$4,900	Fundación Vida Silvestre
Travel to workshops with stakeholders				$ 48,900		$ 48,900			$ 48,900	Fundación Vida Silvestre
Travel to disseminate recommendations					$16,000	$16,000			$16,000	Fundación Vida Silvestre
Travel to monitoring							$16,025		$16,025	Fundación Vida Silvestre
Total Travel		**$ 5,300**	**$ 9,800**	**$48,900**	**$16,000**	**$ 80,000**	**$16,025**		**$96,025**	
Office Supplies	Computers							$5,000	$5,000	Fundación Vida Silvestre
Total Office Supplies								$5,000	$5,000	
Other Operating Costs	Cloud Storage	$2,000				$2,000			$2,000	Fundación Vida Silvestre
Other Operating Costs	Annual audit							$10,000	$10,000	Fundación Vida Silvestre
Other Operating Costs	Office operating cost							$43,360	$ 43,360	Fundación Vida Silvestre

Total Other Operating Costs		**$2,000**				**$2,000**		**$53,360**	**$55,360**	
Grand Total		**$557,147**	**$559,846**	**$276,198**	**$65,383**		**$80,625**	**$153,920**	**$1,693,120**	

Budget Notes and Assumptions

Argentina will not receive any funding from the project. Field validation of data will not happen in Argentina, nor will workshops or other consultations with government. There will not be “on the ground” activities in Argentina. Although the project will not finance any activities in Argentina, the tool that will monitor connectivity changes will include the Chaco region of that country. Satellite data and other secondary sources of information will be used to develop this tool.