



Memoirs of the workshop for the planning  
and creation of a strategic framework for

# JAGUAR CONSERVATION IN THE AMERICAS

March 12 - 15, 2018 - Bogotá, Colombia





Memoirs of the workshop for the planning and creation of a strategic framework for  
JAGUAR CONSERVATION IN THE AMERICAS

---

Cali, september 2018

Editor

Diego Fernando Amorocho Llanos

Compilation and style review

Biológica Soluciones

Editorial coordination

Carmen Ana Dereix

Design and layout

Kilka Diseño Gráfico

Quote as:

Memoirs of the workshop for the planning and creation of a strategic framework for JAGUAR  
CONSERVATION IN THE AMERICAS, 2018. Cali, WWF

More information

Diego Fernando Amorocho Llanos

[dfamorocho@wwf.org.co](mailto:dfamorocho@wwf.org.co)

Digital publication with free distribution

In case of using the information presented in this publication, it is requested to clearly quote the source.

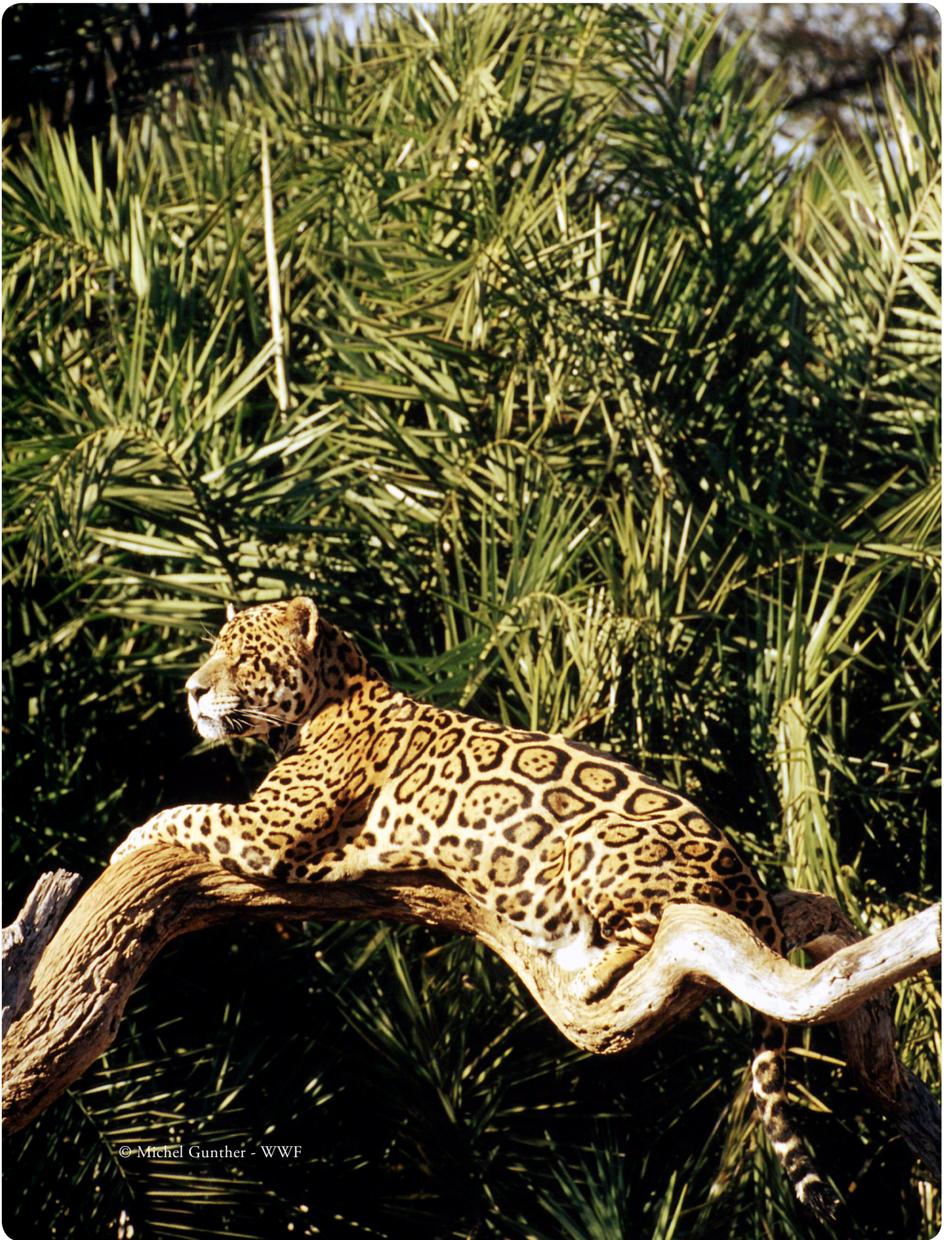
Memoirs of the workshop for the planning  
and creation of a strategic framework for

# JAGUAR CONSERVATION IN THE AMERICAS

Bogotá, Colombia









# Contents

<b>Special thanks</b>	<b>6</b>		
<b>Introduction</b>	<b>7</b>		
<b>1. Attendees</b>	<b>8</b>		
<b>2. What do I like most about the jaguar?</b>	<b>10</b>		
<b>3. Welcome</b>	<b>11</b>		
<b>4. Schedule</b>	<b>12</b>		
<b>5. Keynote speeches</b>	<b>14</b>		
5.1 Doubling Tigers	14		
5.2 State of conservation and threats to the Jaguar	17		
5.2.1 State of conservation of the jaguar in Mexico and Central America	17		
5.2.2 The Jaguar in Perú and Bolivia	19		
5.2.3 State of conservation in Colombia and Ecuador	21		
5.2.4 State of conservation in Paraguay, southern Brazil, and Argentina	24		
		5.2.5 State of the jaguar in northern Brazil and Guyana	26
		5.2.6 State of knowledge in the region on the jaguar	28
		<b>5.2 Corridors, knowledge, and conservation of the jaguar in Panama and Colombia.</b>	<b>32</b>
		<b>5.4 Jaguar conservation program - JCP (WCS)</b>	<b>36</b>
		<b>5.5 High-level forum - New York - Jaguar 2030</b>	<b>39</b>
		<b>6. Progress in the strategic framework for jaguar conservation jaguar</b>	<b>41</b>
		6.1 Workshop objectives	41
		6.2 Pre-workshop tasks	41
		6.3 Viability and threat analysis	42
		6.4 Conceptual model	44
		6.5 Strategies	50
		6.6 Favorable conditions for success	62



# Special thanks

The workshop for the creation of a strategic framework for jaguar conservation in America was made possible thanks to the generous financial support and backing provided by the following people and entities: Gert Pole (WWF Holland), Harko Koster (WWF Holland), Dirk Embert (WWF Germany), Jordi Surkin (WWF Unit for Amazon Cooperation), Valeria Boron (WWF UK), Mike Baltzer (WWF Tigers Alive), Wendy Elliot (WWF International) and the other offices of WWF in Latin America and the Caribbean. A special thanks goes out to the members of the Ad Hoc Committee for their help in the structuring and guidance of the workshop, as well as to the facilitators Oscar Maldonado and Sandra Charity, who were crucial in the organization and thematic conception of the meeting. By the same token, we would like to thank the collaboration and contributions, amongst others, of our colleagues from the Panthera Foundation, WCS, the Omacha Foundation (Colombia), the Wildlife Foundation (Argentina), UNODC (Colom-

bia), the San Diego Zoo (USA), the Ecological Institute University Mayor of San Andrés (Bolivia), ICMBIO/CENAP (Brazil), and finally UAM/ANCJ (Mexico).

We also extend our gratitude to our fellow WWF companions Javier Castiblanco and Diego Omaña from Colombia, Alfonso Llobet from Bolivia, and Mae Tortajada-Suil from the UK, for contributing their expertise to adjust the results chain, the conceptual model, and the theory of change of this strategic framework. Their help and patience have been fundamental in the construction of the roadmap for this initiative.

A special recognition goes out to Biológica Solutions for their logistical support and professionalism so that the workshop achieved its objectives. We also thank the Palmarito Foundation and GHL hotels for their kind discounted rates and service offered throughout the duration of this workshop for the planning and creation of a strategic framework for jaguar conservation in the Americas.



# Introduction

The jaguar (*Panthera onca*) is the largest feline in the Americas and the only representative of the genus *Panthera* (large felines) in the continent. Generally speaking, the numbers of jaguars are diminishing dramatically in their entire range of geographical distribution. The species is being affected principally by illegal hunting, habitat loss, and fragmentation, and it is estimated that only 46% of its original range remains. Currently, the loss of habitats due to logging is pushing the species toward populated areas, resulting in conflicts with humans. Furthermore, the contamination of water due to the use of mercury in legal and illegal mining is decimating the quality of the ecosystems in which the jaguars are currently surviving in the Amazon regions.

Although the jaguar is classified as an “almost threatened” (NT) species according to the Red List of Threatened Species from the IUCN (Caso et al., 2008), recent studies suggest that the populations are continuing to diminish and that some subpopulations could be classified as “in danger” or “in critical danger”. According to this analysis, the majority of the subpopulations are currently at high levels of threat given their small sizes, their isolation, and the lack of effective conservation measures (de la Torre *et al.*, 2017). In countries such as Uruguay and El Salvador, the species has been eradicated. If this trend continues, the jaguar could once again be listed as “vulnerable” in the Red List, or even worse. Considering all the above, it is necessary to re-evaluate the conservation status of the species based on the

design and development of a strategic regional framework which includes and strengthens institutional actions coordinated throughout its entire distribution range.

The objective of this workshop was to plan and design a strategic framework to jointly and coordinately orient the effort of all the committed parties, and to reduce the threats over the next 10 years that will ensure the survival of the jaguar all the way from Mexico until Argentina.

These memoirs of the event carried out in Bogota gather the presentations of regional experts and invited speakers, in addition to the analysis of the current threats and the strategies to face them presented in results chains, which respond to a conceptual model that underpins the strategic framework proposed by the working groups. At the end of the document, the steps to be taken are included, as well as the commitments agreed to for progressing in the construction of the document of the strategic framework. Thanks go to everybody, and especially those who contributed their enthusiasm to defining this roadmap even actually being there, for helping us achieve this common goal: the conservation of the jaguar in the Americas.

WWF, together with the other allied organizations and partners from the entire region, have the historic opportunity to define consensual technical guidelines to revert this trend and ensure the conservation of this ecologically and culturally important feline in the countries of the Americas by 2030.

Diego Amoroch, Ph.D.

Coordinator of the program Species for Latin America  
and the Caribbean– Wildlife practice WWF



# 1. Attendees

**Alfonso Llobet**

WWF Bolivia

**Agustín Paviolo**

Researcher CONICET Argentina

**Ana María Botero**

Researcher Fundación Omacha

**Ana María Talero**

Consultant UNODC

**Ana Vander Hejiden**

Wildlife Practice WWF

**Ángela Núñez**

Independent Researcher

**Carlos Espinosa**

Forestry Specialist WWF Panamá

**Catherine Forero**

Project Coordinator WWF México

**Cristina Casavecchia**

Coordinator Program South America  
FVS

**Diego Amorocho**

Species Coordinator WWF-LAC

**Diego Quintero**

Coordinator UNODC

**Dirk Embert**

Program Off Saw WWF Germany

**Esteban Payán**

Director Panthera Northern South  
America

**Elisa Bravo**

Operations Panthera Colombia

**Enzo Aliaga Rossel**

Researcher Instituto Ecología  
Universidad Mayor de San Andrés  
(UMSA).

**Fernando Trujillo**

Director Fundación Omacha

**Fernando Miñarro**

Director Conservation FVS

**Heliot Zarza**

Researcher UAM / ANCJ

**Hiromi Yagui**

Conservation Specialist WWF Perú

**Javier Castiblanco**

WWF Colombia

**Joaquín Carrizosa**

Coordinator PAN-WWF Colombia

**John Polisar**

Jaguar Conservation WCS

**Jorge Rivas**

Coordinator Forests WWF Ecuador

**José Luis Mena**

Director of Sciences WWF Perú

**Juliana Persaud**

Biodiversity Officer WWF Guyana

**Lila Sainz**

Coordinator CIM - WWF Bolivia

**Luis Germán Naranjo**

Director of Conservation -WWF  
Colombia

**Luisa Fernanda Ortiz**

Communicator WWF Colombia

**Marcelo Oliveira**

Conservation Specialist WWF Brasil

**María José Villanueva**

Director of Conservation WWF  
México

**María Vallejo**

Communications -WWF Ecuador

**María Amalia Porta**

Director of Conservation WWF  
Guatemala/Mesoamérica

**Mary Lou Higgins**

Director WWF Colombia

**Mathias Tobler**

Researcher San Diego Zoo Global

**Michael Baltzer**

Director Tigers Alive WWF

**Nicolás Ordoñez**

Executive Director CORPOAYAPEL

**Óscar Maldonado**

Workshop Facilitator

**Phillip Goltemboth**

Director South America WWF  
Germany

**Ronaldo Morato**

Project Coordinator ICMBIO/ CENAP  
Brasil

**Rosalía Fariña**

Researcher WWF Paraguay

**Sandra Charity**

Planning Consultant WWF

**Saulo Usma**

Fresh Water Specialist WWF  
Colombia

**Thomas Lyster**

Project Coordinator Galavanta Travel

**Valeria Boron**

Regional Manager Brazil-Amazon  
WWF UK

**Viviana Londoño**

Communications WWF Colombia



Attendees to the event held in the city of Bogota



## 2. What do I like most about the jaguar?

Elegant

Symbolic

Beautiful

Respect

Powerful

Resilient

Magical

Strong

Working together

Incredible

Conecting countries  
and cultures

Spots

Wild

Criptyc species

Knows no borders

impresiveness

© Staffan Widstrand - WWF

### 3. Welcome

Luis Germán Naranjo, *WWF Colombia*

Diego Amoroch, *WWF Latin America and the Caribbean*

It is often thought that WWF focuses solely on working with species, but this is only a half truth, given that the interests of the organization encompass multiple scales and the focus on priority species is merely one of the main strategic lines of our global network. In the conservation plans of the American countries, WWF includes work with some focal species, amongst which the jaguar stands out. This is not only because of its ecological role as the maximum terrestrial predator across the continent, but also because it invokes the interest of many organizations. For these reasons, and as part of the Amazonian initiative which at the time was led by WWF, in 2014 a workshop was held in Quito. The objective of this workshop was to work on a strategic framework for the conservation of the jaguar in the Amazon biome, and it was led by the offices of the organizations that have jurisdiction in the Amazon, with other organizations such as WCS and the Panthera Foundation also participating.

The encounter in Quito allowed the gathering and updating of information from many countries and organizations, and resulted in a document that it was hoped would be useful as a foundation for a working agreement between distinct organizations led by WWF. Despite the coming together of participating organizations in that event, we did not make any significant progress. However, one may consider that the organization of the meeting that today brings us together is, in some way, a continuation of the work which was embarked upon in the workshop in Quito.

In the years that have followed this first meeting, some important developments have taken place which have renewed our interest and increased the scope of this work on a con-

tinental scale. Apart from the studies carried out by distinct offices of the WWF network in America, the idea of uniting efforts was recently catalyzed by the manifest interest of Juan Manuel Santos, the current president of Colombia, in replicating the global campaign of Tigers x 2 with the jaguar. The other contributing factor was an informal event within the global forum for conservation framework by WWF, held last November, in which the convenience of developing a global initiative on large felines was discussed.

More recently, and whilst we were preparing the materials for this meeting in Bogotá, the United Nations convened a meeting in New York with the purpose of celebrating the world day for wild fauna. This meeting, in collaboration with Panthera, WCS, Conservation International, and WWF, aimed to develop a collaboration framework between the governments of the countries within whose jurisdictions wild populations of jaguars are present. This was a landmark meeting given that it identified a series of tasks needed to make the collaboration framework a reality, and therefore the workshop that we are commencing today is the first step in that direction.

Today we are all here in Bogotá thanks to the support of the WWF offices in Holland and Germany, and to the collaboration of the Amazon Coordination Unit. We trust that an agreement can be reached between all the people and organizations that are working on the conservation of the jaguar, and that we all have a clear idea of what WWF can contribute from its varying offices, as a part of a network for working together. I welcome you all to the event.



## 4. Schedule

### Monday March 12

Morning/early evening	Arrival of participants to Bogotá	
17.00	Welcoming to the event	Luis Germán Naranjo
17.20	Objectives of the workshop	Sandra Charity
17.30	Personal presentations and ice breakers	Óscar Maldonado
18.15	Workshop mechanisms and methodology	Óscar Maldonado
18.45	Tigers Alive: recounting of experiences	Mike Baltzer
19.30	Welcoming dinner	

### Tuesday March 13

08.30	Welcoming to the session for daily objectives	Óscar Maldonado
08.45	State of conservation and threats for the jaguar (15 minutes for presentation, 10 for questions and comments) <ul style="list-style-type: none"> <li>Mexico and Central America</li> <li>Colombia and Ecuador</li> <li>Peru and Bolivia</li> <li>North Brazil and Guyana</li> </ul>	- MX/CA: Catherine Forero - CO/EC: Luis Germán Naranjo - PE/BO: José Luis Mena - N de BR/GUI: Juliana Persaud
10.30	Coffee break	
10.45	State of conservation and threats for the jaguar (15 minutes for presentation, 10 for questions and comments) <ul style="list-style-type: none"> <li>South Brazil, Paraguay and Argentina</li> </ul>	- ARG/S de BR/PY: Fernando Miñarro
11.15	State of knowledge on jaguars in the region	Valeria Boron
11.45	Results on the viability analyses, and on the regional threats and discussion	TBC
12.30	Lunch	
14.00	Conceptual model (explanation)	Óscar Maldonado
14.30	Conceptual model (exercise)	Groups
16.15	Coffee break	
16.30	Continuation of the exercise	Groups
17.45	Evaluation of the session	TBC
18.00	End of the session	

### Wednesday March 14

08.30	Welcome to the session and daily objectives	Óscar Maldonado
08.45	Report on previous day's work	TBC
09.45	Conservation initiatives for the jaguar (Panthera): <ul style="list-style-type: none"> <li>Corridors and knowledge in Colombia and Panama</li> </ul>	Esteban Payán

10.30	Coffee break	
10.45	Conservation initiatives for the jaguar (WCS): - The jaguar and conservation on the scale of landscape	John Polisar
11.15	Conservation strategies: • Mechanism of the exercise • Where to work and entry points • Results chain (explanation of the mechanism)	Óscar Maldonado and groups
12.30	Lunch	
14.00	Results chain (exercise)	Groups
16.15	Coffee break	
16.30	Continuation of the exercise	Groups
17.45	Evaluation of the session	TBC
18.00	End of the session	

### Thursday March 15

08.30	Welcome to the session and daily objectives	Óscar Maldonado
08.45	Report on previous day's work (exercise) of "peer review"	TBC
09.45	Time for the improvement of strategies	Groups
10.30	Coffee break	
10.45	Plenary session on favorable conditions: • Coordination • Financing • Communication	TBC
11.15	Strategies on favorable conditions (work groups) • Coordination • Financing • Communication	Groups
12.30	Lunch	
14.00	Group reports on plenaries	Groups
15.15	Agreement of intent for the implementation of the interinstitutional strategy: technical, logistical, and financial resources available (current and potential)	TBC
16.15	Coffee break	
16.30	Next steps toward the finalizing, implementing, and positioning of the regional strategy and its role in the definition of inter-ministerial agreements.	Óscar Maldonado and Sandra Charity
17.45	Evaluation of the session and workshop	TBC
18.00	End of session	



## 5. Keynote speeches

### 5.1 Doubling Tigers

Michael Baltzer - WWF Singapore



There are many countries and organizations that have been working towards the conservation of tigers since the 1970s. Trends in tiger populations have shown a significant decrease; in 1900 there were 100,000 and in 2009, just 3,000.

At this moment in time, the extinction of tigers is being discussed as they no longer live in their natural habitat. There are many in captivity, and for this reason they may become extinct. The international community and WWF are concerned about the conservation of this species, and we cannot allow the loss of any type of tiger. Therefore, a transformation in how conservation is achieved is being sought after. The distribution of tigers is very wide; they are found in different environments

and they adapt to different conditions, from Russia at -15°C to India at 50°C.

In 2009, the conservation of tigers was conceived differently, with the aim of doubling numbers by 2022. In 2010, the Global recuperation program of tigers was initiated (2010 – 2022), which seeks to not only save the remaining tigers, but also achieve the aim of doubling the current number of them. This sounds very simple, but it means a structural change in the way in which conservation is conceptualized.

In 2010, as part of the first stage of the Program, the involvement of governments in the conservation of tigers was promoted, and a meeting was held with members of different countries to reach agreements on approaching conservation in a different way, with the lat-



ter being the first achievement of this process. Following this, the agreement of a general working plan was proposed with individual strategies at the country level. However, this did not achieve good results due to primarily political aspects and to the lack of consolidation of the plan. Subsequently, a renewal was made to this plan which required the support of the government as a partner. This began in Indonesia, China, and Russia.

The importance of conserving tigers goes far beyond the species, as by saving tigers one also saves other species and their critical habitats. In this way, the tiger is becoming a pillar for the conservation of forests, and it is a powerful element because of everything that it represents. The same situation occurs with jaguars and the habitats in which they are found.

It is necessary to create a network of conservation between the different entities and actors that undertake conservation in forests, and this should be seen in a collaborative manner: whatever is done in the forest affects the tiger, and vice-versa.

Currently, 13 countries are involved, and Indonesia is the only one where the government has not helped out. In the year 2010, there were 3.000 tigers in these areas, and the objective is to reach 6.000 by 2022. Everything cannot be done at once, and it is necessary to go step by step, to search for alternative sources of funding, and to create a working network between parties that permits the definition of targets and discussion of projects. It is important to have these targets and objectives clear.

The phases of the project are: 1) to detain poaching, as this is the first threat and by detaining it the risk of extinction diminishes; 2) to conserve the areas where the animals are, and to invest in them so that they have safe spaces, as tigers reproduce rapidly provided that they have prey available; and 3) to detain the trafficking of tigers and change the behavior of those who buy and sell them, although this may take some time to achieve. It is nec-

essary to consider this last topic in the case of jaguars, as it is difficult to stop it once it has begun. A big problem in the case of tigers are the farms located in Asia, especially in China and Bangkok: it is estimated that there are 10.000 tigers there. The high level of supply results in lower prices and increases the global demand, and stopping this market is very complicated. There is still no clear answer as to how to achieve this, but it is the final objective. To convince people not to consume parts of the tiger is complicated and a way to achieve this needs to be found.

The steps of the WWF strategy *Tigers Alive* are: 1) to secure habitats, 2) to end exploitation and trafficking, and 3) to convene people concentrating on the conservation of tigers. In the end everything is based on national implementations.

Recent trends show a diminish of tiger populations in Indonesia and an increase in India, China, and Russia, who have committed to conservation. In these countries there have been investments in protection, and there is a strong level of governmental support; the conservation of tigers has grown rather strong, especially in China. Work is undertaken at the level of landscape – no landscape is more important than another, and if in one place conservation were not successful, this does not mean that one should abandon the conservation of tigers. The same should be thought in the case of jaguars.

In the center of Sumatra there is a complex variety of landscapes, and there is a massive threat of deforestation (critical core) that would drastically affect tigers. This is because they are distributed throughout the area, and for this reason the forests must be protected, creating corridors that connect the different landscapes. The question is if the management should be focused on the core area or on the corridors, as the latter are very important. In other areas, it is important to evaluate if the populations can maintain themselves or if hav-



ing a vision of the landscape can permit the planning of strategies.

The first stage of the strategy has been developed on in association with conservation organizations so that the patrolling of tigers is more effective. This patrolling permits the detention of poaching. Therefore, standards have been created, in addition to defining the necessities of the protected area in question. The standards are specific to each place, and they cannot be taken from other areas.

In order to define what standards the tigers need, one must take into account that tigers are dangerous predators that cannot coexist with humans, and that they need excessive protection against poaching. Based on these necessities, the standards are created (Conservation Assured Tiger Standards -CATS). The aim is not to create more protected areas but instead carry out a better management of the already existing ones with these standards, which must be effective in order to achieve it. This may be more important for jaguars than for tigers.

The standards have been effective, and they have already begun to be used on other species such as the rhinoceros and panda. The creation of standards for jaguars is necessary, with the contributions of the entire community to thus achieve safe areas.

Asia is the area with the lowest distribution range of tigers, but considering all tigers as important, the work of people in Asia is the most critical. The areas in which the highest number of tigers exist are precisely those with the highest number of people, and this causes high levels of deforestation and the destruc-

tion of habits. For this reason, a solution must be found to separate tigers and people.

Currently, density indicators of tigers per landscape are being sought (KPI DATA), but this has been difficult as nobody wants to report on it. Despite this, reports are made every year in the areas where they have an impact. It is necessary to create a concrete program of conservation and then worry about financing. In order to be successful, it is necessary to be highly coordinated in working together, as a strategy for jaguars must have clearly defined and committed partners. WWF is evaluating its own role in the strategy, and this is still being defined in collaboration with its partners.

Defining a plan takes time, but this cannot be a source of discouragement; the plan must have objectives and targets that inspire, and it is recommended that the number of jaguars not be the indicator as this may be demotivating. Everything must be integrated in one single plan, organized into phases, and considered in the long term – it must have a highly committed and coordinated team working on it.

#### Comments:

- In addition to incentivizing governmental participation, it is necessary to find an entity that can maintain connections with the governments of all countries involved.
- The conservation of tigers has been very successful because the communities tolerate them, for which reason it is important to work with communities. It is very important to determine how the jaguar is conceived by them.

Photography: Jaguar, cámara trampa





© Staffan Widstrand - WWF

## 5.2 State of conservation and threats to the Jaguar

### 5.2.1 State of conservation of the jaguar in Mexico and Central America

Catherine Forero WWF - Mexico

**Distribution:** the current distribution of the jaguar in the region includes: The Pacific and Atlantic coastal plains of north Mexico; the Yucatán Peninsula; and towards the south, all of Central America, along the Atlantic Watershed until Panama.

Originally, the species was distributed from the south of the United States, New Mexico, and southern Arizona towards Texas, but now it is not found in these areas (except for some records of males in the south of Arizona). The species has lost close to 40% of its original distribution in Mexico, and close to 73% in Mesoamerica.

**Population estimates:** There are no population data for the region, but density estimates have been carried out. In the case of Mexico, density is variable – they are found on the Chiapas coast with densities of 0,05 individuals/100 km<sup>2</sup>, whilst along the Peninsula of Yucatán in the Yum Balam (Quintana Roo) reserve, they are found at densities of 7,4 indi-

viduals/100km<sup>2</sup>. Other areas of high densities in Mexico are the Biosphere Reserve Calakmul (Campeche), the Chamela-Cuixmala corridor (Jalisco), and El Eden (Quintana Roo).

In Mexico, the first jaguar census was done between 2009 and 2011, and 15 sites were used with a standardized methodology. Findings indicated that approximately 4000 individuals were present, with the Yucatán Peninsula being the place with the highest number of jaguars. Currently work is being done on the second national census and results are expected around the middle of the year.

As for the rest of Central America, the studies in Belize, Guatemala, Costa Rica, and Panama show variable densities that range from 0,74 to 11,2 individuals/100 km<sup>2</sup>. In the Selva Maya (Maya forest) estimates suggest somewhere from 7,5 to 8,8 individuals/100 km<sup>2</sup>, whilst in protected areas of Belize calculations indicate from 3.5 to 11.0 individuals/100 km<sup>2</sup>. Populations are also found



in protected areas of Costa Rica, Honduras, Guatemala and Panama, with survival rates from medium to low due to their isolation and the current anthropogenic pressures.

Trends indicate a reduction in jaguar populations in the region from the beginning of the 20<sup>th</sup> Century, with seemingly 77% of the historical distribution range having disappeared in Mesoamerica, which indicates an increase in threats.

More recently (last 5-10 years), increases have been recorded in some monitoring areas, which includes areas in Guatemala. By the same token, preliminary analysis of the second census seems to indicate that the population has increased in Mexico.

Eleven populations have been identified, and according to the categorization of the IUCN, a large part of the subpopulations is in a critical state of threat due to its size and isolation.

**Stress factors:** the loss of habitat and fragmentation are the main causes of losses, as well as the decrease in abundance of prey. Small population sizes, isolation, endogamy, and emerging sicknesses from interaction with dogs are other factors, although they are not well documented.

**Direct threats:** expansion of the agriculture and livestock borders; hunting of jaguars and of the prey on which they feed; human-jaguar conflict due to livestock activities; illegal trafficking for use as pets (not well studied); infrastructure, especially because of running over fauna; mining; deforestation; and forest fires.

**Other driving forces:** urbanization, growth of human settlements near protected areas, increased human populations and the lack of knowledge on the species, valuing and effective regulation for the species' protection. Although it is not well documented, it is believed that climate change is strengthening other affecting factors.

**Conservation initiatives:** many of the actions are related to public policies. For example, in various areas of the region there are hunting bans. In all countries the Red Lists of species exist, and some have developed conservation plans at a national level (Mexico and Honduras). Other initiatives have been the creation and operation of protected areas in which monitoring, habitat conservation, and the reduction of human-jaguar conflict can be observed. Many of these initiatives are led by academia and organizations such as WWF, WCS, Panthera, and other civil organizations, which implement conservation projects. A multilateral initiative exists for all of Central America denominated the "Mesoamerican Biological Corridor", of which the jaguar is representative.

**Challenges and opportunities:** as was seen in New York in March 2018, one opportunity lies in multilateral cooperation, and there is an initiative between Guatemala, Mexico, and Belize for the creation of a tri-national protected area. There is still a lot to be done in the effective application of the law for the conservation of the species, and more work must be done on involving the community in the protection of the species.

#### Comments:

- Work is being done on the report on commerce of jaguar parts, and more information from Central America is needed.
- It is important to highlight how the jaguar can be utilized as a conservation ambassador – the jaguar can be the vehicle for translating the objectives of sustainable development in the territory. For example, given the commitments of Mexico in the CBD, work is already underway on an information system that is oriented toward the channeling of subsidies in the agriculture and livestock sector in areas that the jaguar is not present, which involves including diversity in the planning.
- The mainstreaming of governmental institutions is vital to make conservation more



- grounded, as well as articulated in conjunction with other sectors, thus ensuring it benefits the populations that coexist with the jaguar.
- In the region there are a great variety of ecosystems, which results in variations in densities of jaguars.
- One of the most important areas is Tapón del Darién between Panama and Colombia, where there is a high level of pressure due to livestock and hunting. It is a border area that is very interesting because it provides an important thoroughfare for fauna between Central and South America.



### 5.2.2 The Jaguar in Perú and Bolivia

José Luis Mena - WWF Perú

**Distribution:** This is based on a recount of records of the jaguar and of recent trap cameras. In Bolivia it is based on the gathering of sightings carried out by Fernando Aguirre and the data from GBIF. In Peru, there are few records of GBIF – many are anecdotal, and others are in collaboration with the San Diego Zoo, which correspond to the first published records. A lot of them are in Madre de Dios, others in Cajamarca, as well as in the north of Peru. To understand the state of the jaguar has been a trilateral effort (Ecuador, Peru, Colombia).

**Population estimates:** there are several studies on densities. In Peru there are only estimates for Madre de Dios with 4-5 individuals/100 km<sup>2</sup> (Amazon). The areas with least information are those which are most transformed.

In Bolivia the information was collected in the decade of 2000 within the national parks and protected forests. The most recent studies have been carried out from 2010 and they have shown very low densities in El Chaco (0,3 – 1,82 individuals/100 km<sup>2</sup>) and in Tacana (4 – 6 individuals/100 km<sup>2</sup>).

In terms of trends, in Peru the jaguar populations have disappeared in the dry forests in the north, and a reduction in deforested regions in central areas is assumed. In Bolivia, the populations have diminished in areas close to cities and in areas of large soya crops. But it must be noted that there are several gaps in the information.

**Sources of pressure:** the loss of habitat and connectivity; advancement of the agricultural and livestock frontiers; infrastructure projects (the interoceanic highway to the south of Peru represents a strong source of pressure which affects populations); mining and exploration of hydrocarbons; overexploitation of species which are prey for the jaguar; and conflict with people.

**Direct threats:** mining, deforestation, agriculture, infrastructure in general, elimination of jaguars because of conflicts with people (due to cattle), and hunting for the commercialization of their parts in Bolivia (in Peru there is no evidence of this).

**Main driving forces:** human migration from the Andes to the Amazon has caused an increase in illegal mining of gold, as those who partake in this are migrants, and this causes problems related to fragmentation and forest loss. Another driving force is the infrastructure and the absence of environmental planning that incorporates the topic of wildlife. In the case of Bolivia, the market for jaguar parts toward Asia has increased over the last few years, as has the agricultural industry and construction of roads. There are also significant gaps in terms of legislation, dams, and hydroelectricity.

**Initiatives:** in both countries, work is being done on studies in natural parks and reserves, and the role of sustainable production systems (certified forestry grants) in conservation is being evaluated. It remains to be seen just what effect the production system of Brazilian chestnuts has had on the jaguar populations. Work is being done on the role

of corridors in protected areas. For example, for Colombia in Napo (Putumayo) and for Ecuador, the work of providing a strategy for conflict resolution is underway.

In Bolivia there is a conservation plan for threatened vertebrates in protected areas and workshops have been held for the creation of a plan of action for the Andean bear and jaguar. In Peru, the same cannot be said, given that the jaguar is not on the list of threatened species.

**Challenges and opportunities:** Working on corridors in Brazil, knowing the current state of jaguar populations in various areas, making the most of opportunities for strategic planning in the plans for the jaguar, and combatting agricultural and infrastructural expansion with alternative policies.

#### Comments:

- Trafficking in Bolivia is alarming; 660 jaguar fangs have been seized, in addition to skins and skulls. The demand began in 2014 and is due to the arrival of Chinese citizens to Bolivia, for which reason international actions must be posed. It is surprising that this problem has not been identified in other countries, and it may be because it does not happen or that it is not being followed. There is evidence of this in Panama and Brazil, but it is not being quantified.
- In the development of an action plan in Bolivia, numerous institutions and researchers from the country have participated, and the government has participated actively but has not led this initiative. However, thanks to social pressure, there is hope that this plan will be completed and implemented by the government.
- In Bolivia it is difficult to work with the Ministry, but the authority for forests and lands is working on the implementation of incentives. There is an opportunity to articulate them in the conservation plans for the jaguar.





Photography: Jaguar, cámara trampa

### 5.2.3 State of conservation in Colombia and Ecuador

Luis Germán Naranjo - WWF Colombia

**Distribution:** in the past the jaguar was distributed throughout ecosystems found up until 2000 meters above sea level. It inhabited a great variety of ecosystems and it possibly still inhabits a great number of these.

For Colombia, using historical records and photo-traps as a baseline, it is estimated that the distribution area has reduced to 39% of its original size. Today it is mainly found in the Amazon, Orinoquía, and the biogeographical region of Chocó. In the San Lucas mountain range, there is an important population which is the connection point of various populations within the country. Additionally, there are some isolated groups in the Magdalena Media, the coastal and Orinoquía plains, and in the foothills of the Andes.

In Ecuador, the area of distribution is roughly 119.000 km<sup>2</sup>. They are found in the biogeographical region of Chocó and in the

Ecuadorian Amazon. In other areas where there were records, populations have been lost.

**Populations estimates:** loose data exists for some localities: for the National Park Yasuní in Ecuador and in Colombia there is a growing number of studies using photo traps. However, it is not possible to provide reliable figures based on the existing information.

In Colombia, the remote Amazon and the Orinoquía seem to have considerable populations. For example, el Hato la Aurora and the San Lucas mountain range, amongst others, exhibit healthy populations. Nonetheless, in other more transformed areas, the populations are in decline.

**Sources of pressure:** the loss of habitat is the prevailing factor in the diminishing numbers of jaguars. Other factors causing loss or fragmentation are: mechanized agriculture, extensive livestock farming, mining, illicit

crops (especially in the Andean-Amazonian foothills), and illegal forestry exploitation. One important element is the loss of prey for the jaguar (defaunation); studies exist but lack depth. In the Colombian and Ecuadorian Pacific, the forests appear to be in good health but defaunation has been high.

**Direct threats:** the problem of retaliatory hunting is generated by the conflict between jaguars and ranchers. Although it does not seem serious, it has become more and more frequent and requires attention. Trophy hunting may be another factor, but its impact may be more powerful in the media than in reality (data is still not known for this phenomenon). Lastly, another factor may be trafficking, although it has not been quantified in Colombia.

**Stressors:** In the Orinoquía, one of the most important stressors is the expansion of the agricultural and livestock frontiers, and land speculation is a major cause of habitat loss. In the foothills, affectation from illicit crops stands out, as the changes in the use of land alters the coverages. It is also relevant to add the development of infrastructure and legal and illegal mining as potential factors, specifically given they are growing phenomena.

**Initiatives:** the role of the national parks in Ecuador and Colombia is worth to mention. In Colombia there are 25 parks with jaguar populations that represent 84.000 km<sup>2</sup>. In Ecuador, 21.7% of the jaguar populations are in protected areas.

Jaguar hunting has been prohibited in both countries since the 1970s. Even though control and vigilance are incipient, the legal mechanism does exist. There are very general conservation plans, and in Colombia they do exist but they still require a large amount of work and willingness for their implementation.

**Challenges and opportunities:** the implementation of the peace agreements in Colombia represents both challenges and opportunities. Challenges because they may stimulate

the development of productive activities in areas that were off limits. However, they may also represent opportunities as worthwhile conservation alternatives may appear.

The expansion of the protected areas in both countries allows the strengthening of the jaguar's protection. During the last four years in Colombia, this process has been active and has permitted the strengthening of conservation activities for this species.

Finally, governmental initiatives such as the AAA – the Andes-Amazon-Atlantic connecting corridor – may represent a good opportunity for the conservation of the jaguar. Likewise, the declaration in New York is a manifestation of the political willingness that is developing in the region, and this workshop should build on that.

**Current state of knowledge:** it is worth noting that work by national and international NGOs has increased over the last few years in both countries, which represents a spike in interest toward conservation of the species. Furthermore, the development of community schemes for the monitoring of the jaguar has also been growing in both countries and is an important example of citizen science. Lastly, we must mention the studies being carried out by Panthera Foundation to promote the great jaguar corridor, which runs from Central America to the Amazon, and which maintains the genetic flow of the populations.

#### Comments:

- In Colombia the jaguar demonstrates great plasticity to enter transformed landscapes. More studies are needed on this phenomenon, as in these areas there is a higher availability of prey due to lower levels of human hunting.
- There is an important opportunity within the Colombian, Bolivian, and Peruvian policy framework: compensation for loss of diversity. In Colombia, there is an initiative for articulation of compensation and actions



for the conservation of the jaguar, in which this species – which permits the delimitation of large conservation areas – is able to be accompanied by a contingency plan for the resolution of conflicts in buffer zones.

- Coming from the United Nations - the prevention of crimes. It should be emphasized that in Colombia work must be done with local governments and local environmental authorities for the strengthening of penalties for crimes in protected areas. This is especially relevant in areas where armed groups were the regulators of the management of fauna, and which today suffer the effect of the absence of state. Strengthening must be achieved both in the State's capacity for judicial policing functions to sanction crimes committed, and in community and citizen

participation, both of which are important in the exercising of conservation.

- Due to post-conflict and the absence of armed groups in the territory, deforestation has skyrocketed and human-jaguar conflicts have increased, just as with other species which are prey for the jaguar. This situation of vulnerability in the Amazon populations obliges the strengthening of local governance (examples exist in the Amazon) and the strengthening of territory management capacities.
- It is important to highlight that in Ecuador the Government requested collaboration from the WCS for the elaboration of a plan, beginning with a workshop in 2012 and it ended in 2015.



© Staffan Widstrand - WWF





© Carolyn Chilcote- WWF

#### 5.2.4 State of conservation in Paraguay, southern Brazil, and Argentina

Fernando Miñarro - FVS Argentina

**Distribution:** the southern distribution of the jaguar includes the Atlantic Forest, El Gran Chaco (Argentina and Paraguay), and the Yungas jungle (Argentina). In the Atlantic Forest, the species only occupies 4% of the ecoregion and the metapopulation is distributed in 13 isolated fragments. In El Chaco, the condition is critical both for Paraguay and Argentina. In Argentina, populations are only found in the semi-arid El Chaco, in the regions of El Chaco and La Formosa, where population studies have been conducted. In the Yungas jungle, the jaguar is present over 30.000 km<sup>2</sup>, which is an area that connects to other populations.

**Population estimates:** in the Atlantic Forest (Alto Paraná), there is an estimated 202 individuals and there are 50 individuals in just two fragments, with a density of 0.2-1.7 individuals/100 km<sup>2</sup>. In Paraguay the density is estimated at 0.7 individuals/100 km<sup>2</sup> at a

range of 700 km<sup>2</sup>. In Argentina, it is estimated that there are no more than 20 individuals and they are considered to be in a state of extinction – they have conducted studies with camera traps and had no records of individuals. In the Yungas, approximately 150 individuals are estimated with a continual distribution.

**Population trends:** in the Atlantic Forest there have been positive trends over the last few years. In the 1990s there were an estimated 400 individuals, in 2005 it dropped dramatically to 43, after which growth occurred in 2014 (68 individuals) and 2016 (89 individuals) – this is the most studied region. In the Yungas (Argentina) the population number is stable. In El Chaco there are also studies, but a reduction is being observed in the distribution and population level.

**Pressures:** loss of habitat and fragmentation – only 16% remain in the Atlantic Forest and



15% in El Chaco. There is also a reduction in prey (defaunation), and populations of small size are isolated, for which reason their vulnerability is higher when faced with the threats.

**Threats:** hunting, conflicts with livestock activities, the advancing of the livestock and farming frontiers, non-sustainable forestry and livestock and farming practices, urbanization and infrastructure (road kill).

**Stress factors:** because of the increase in the demand for food in the Chaco-pampeana region, there has been a considerable expansion in the livestock and farming sector. The increase in forestry plantations has caused changes in the use of land and loss of habitat for the jaguar and its prey. Other factors include: the increase in urban areas, especially in the Atlantic Forest; inadequate application of public policies; the weakening of public institutions in funding and human resources; the low allocation of funds to fauna.

**Initiatives:** in the Atlantic Forest there is work underway in the Iguazú Park to bring the communities closer to the jaguar. In Argentina there are conservation action plans for forests, landscape studies, communication campaigns and a network of volunteers for conflict investigation and resolution, all of which is extending to the Chaqueña region. In El Chaco, there is a conservation action plan, and at this moment work is being done on the mechanism of payment for environmental services (PES) for the connecting of habitats and the involving society in conservation. In Paraguay there is a conservation action plan for the jaguar and they are working with the Panthera Foundation on issues of conflict resolution in a plan for reintroduction.

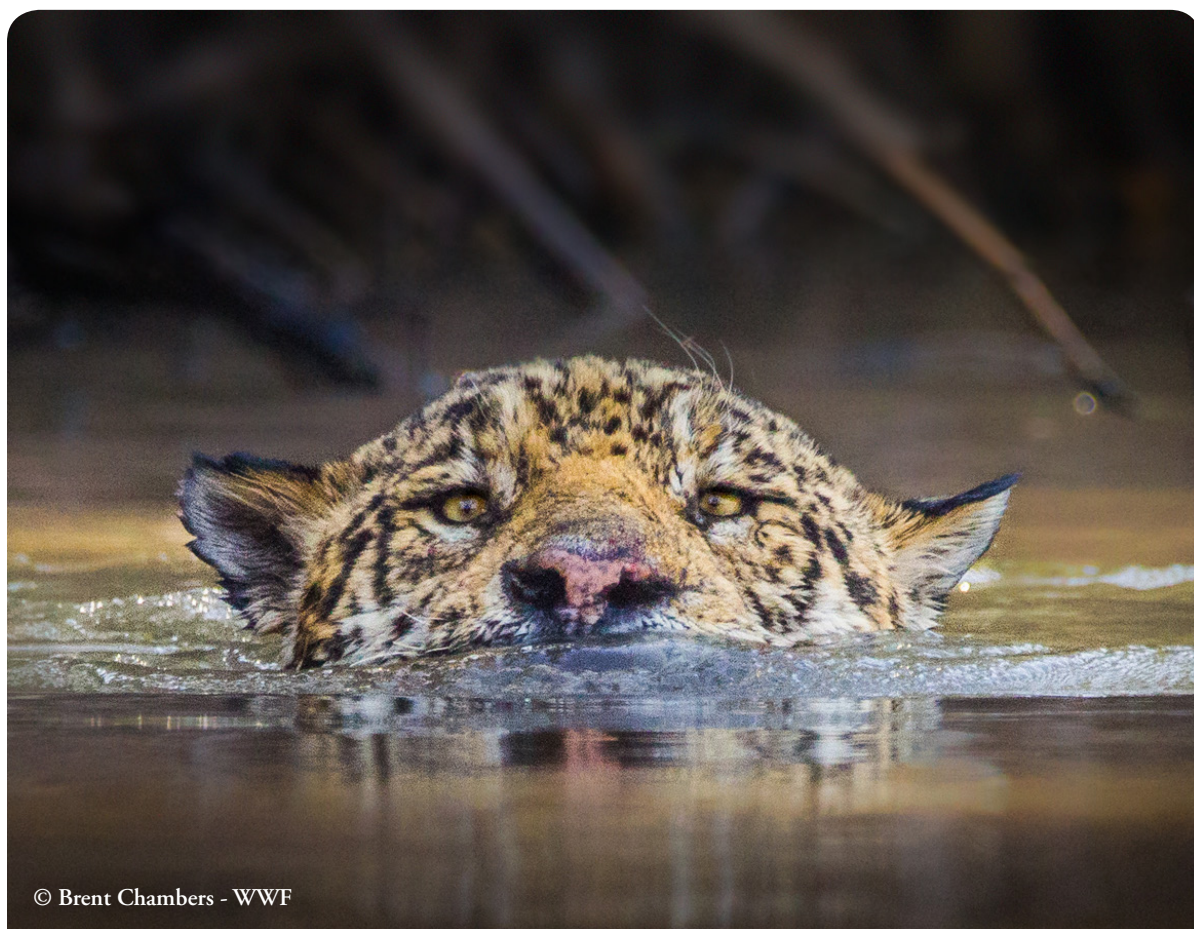
**Challenges and opportunities:** urgent work is needed in the three regions, and the vision of wildlife must be integrated in territorial ordinance plans. There is a greater public interest in the conservation of the species.

**Gaps:** it is necessary to know how the jaguar moves in fragmented landscapes and to

evaluate recovery possibilities to alter population trends.

#### **Comments:**

- Relating to the campaign to bring people closer to the jaguar, it is worth noting that there has been a tri-national program ongoing for 17 years in the Atlantic Forest, in which the jaguar has been prioritized. Through the program it has been possible to measure how the perception in the community toward the jaguar has changed: it went from being a problem to being a source of pride for the population, and the species has become their symbol of pride. Rural schools are used as access channels to the communities, and a contact line will be opened for the denouncing of illegal activities against the jaguar, as well as an online platform (citizen observatory) to maintain communication about the species. Additionally, work is being carried out on environmental education in different lines (press, schools, others).
- The populations in the region are small and isolated, and some are declining. They are in a critical state and it is necessary to work to detain the threats, improve connectivity, and try to connect these subpopulations with the larger ones. Translocation and reinsertion techniques must also be evaluated for individuals in small populations given that there are already genetic problems.
- The majority of the places where jaguars are very highly concentrated don't have monitoring and surveillance beyond the protected areas. But the jaguar has the ability to adapt to non-protected areas and it is important to evaluate this possibility. Additionally, people often speak about conflict, but importantly not of the value of the jaguar. This is not only in terms of its value for tourism but also in terms of the maintenance of ecological processes and of the effects of economic activities that affect the jaguar populations (soya crops, meat production).



© Brent Chambers - WWF

### 5.2.5 State of the jaguar in northern Brazil and Guyana

Juliana Persaud - WWF Guyana

**Distribution:** French, English, and Dutch Guyana are involved in jaguar conservation. They are countries with little deforestation which makes them important areas of jaguar presence. The southern part is the most important in terms of presence, but the jaguar is distributed from the north, and they are even found in the coastal area. In Brazil there are large populations distributed widely.

**Population estimates:** little is known about population change over time. In Guyana (south), healthy populations are present, but with possible trends of reduction due to mining and livestock pressures. In Surinam, populations are healthy. In Brazil there is little information on populations, but climate change models show that in the Brazilian Am-

azon adequate conditions for survival of the jaguar into the future exist.

**Pressures and threats:** loss and fragmentation of habitat associated to small- and large-scale gold mining (South Guyana), as this mining is characterized by use of mercury which potentially impacts the health of the species. Additionally, the large-scale expansion of agriculture and the pressure exerted by the Government to attract foreign investors to exploit areas of the plains threaten the wetlands and plains, especially in Brazil. Hunting and illegal trafficking of jaguar parts are other stress factors, especially in Surinam – they are parts of an industry run by Chinese investors. Death by retaliation is common in Guyana and Brazil, which is closely linked to cattle



farming. The reduction in prey because of overhunting is known and has been identified primarily in Guyana. This is closely linked to the lack of mining regulation and their geographical expansion.

**Indirect threats:** in terms of the market, there is local demand for jaguar pelts or meat, and for souvenirs, especially in places with Chinese markets. There is a transnational market which also involves Surinam and Brazil. Another threat is related to the absence of a strong monitoring system and the application of the law in these countries. Even though various regulations exist which prohibit hunting, they are not effective. In Brazil the protected areas are key places which depend on political will. Added to this is the lack of resources and of planning in land use.

**Initiatives:** in Guyana, Panthera Foundation is a good partner and works hand-in-hand with the Ministry of Natural Resources. The Commission for the Maintenance of Wild Life (WMC) is developing a plan for resolving human-jaguar conflicts and a database is being developed for conflicts. Furthermore, work is being done to establish regulations to control the trafficking of this species.

In Surinam a national conservation plan for the jaguar as well as a plan for the control of hunting and illegal trafficking are also ad-

vancing. There is also a jaguar corridor project in the south of Surinam.

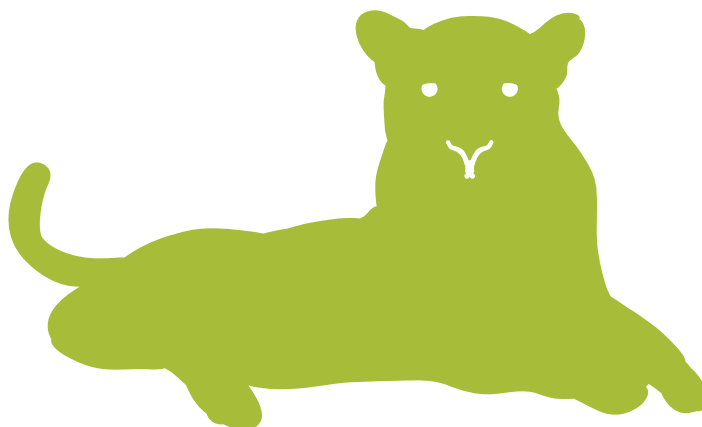
In Brazil there is a jaguar alliance, created in 2014, with 14 countries participating. WWF soon intends to monitor the jaguar populations in the protected areas.

**Challenges and opportunities:** to increase the jaguar populations with the support of the government and other partners. Furthermore, there exists the necessity to create a network with Guyana and Brazil and to make use of technology to monitor individuals.

**Gaps:** the impact of gold mining on the jaguar population and the understanding of commerce and illegal trafficking.

#### **Comments:**

- National agencies have made the jaguar one of the most protected species; they are monitored with collars and lots of information has been generated.
- There is an interesting pattern in these countries in terms of trafficking and the way in which the Chinese use different parts of the jaguar. Consumption is more local but an impact is already felt on a bigger scale.
- In Surinam there is a structured network of commerce that can grow. More information is needed to comprehend what is happening and how this trend changes or increases.





### 5.2.6 State of knowledge of the jaguar in the region

Valeria Boron - WWF UK and Esteban Payan – Panthera Foundation

**Distribution:** over time the jaguar's distribution has changed – it has decreased some 20% from 2002 until 2015, and in 51% of its historical range. Previously it was found in 20 countries and today just 18. More than 60% of the jaguar's distribution range is outside of protected areas.

The presence of the jaguar is seen as favorable due to aspects such as forest coverage and legal protection, whereas in areas of high human population they are disfavored.

As was previously mentioned, between 2002 and 2015 there was a 20% decrease in the species and there has been an increase in fragmentation in Brazil, the north of Venezuela and the Selva Maya.

The Amazonian subpopulation (de la Torre et al. 2017)<sup>1</sup> covers 79% of the distribution range of the species (including Pantanal as well). Outside of this area, the distribution range has diminished by 82%. The other 33 subpopulations are currently classified as “in danger” or “in critical danger”.

**Population size:** 20-25% of the population has been lost over the last 21 years. The estimated number of jaguars is 173.000 individuals, of which 45% are in protected areas.

**Pressures:** loss and fragmentation of habitats, isolation of jaguar populations, and diminishing of prey.

**Direct threats:** expansion of the agriculture and cattle farming frontiers, human-jaguar conflict, jaguar deaths because of traffick-

<sup>1</sup> De la Torre, J., González-Maya, J., Zarza, H., Ceballos, G., & Medellín, R. (2018). The jaguar's spots are darker than they appear: Assessing the global conservation status of the jaguar *Panthera onca*. *Oryx*, 52(2), 300-315. doi:10.1017/S0030605316001046.



ing, unsustainable hunting of prey, deforestation, infrastructure, unsustainable extraction of wood, mining, and climate change.

**Driving forces:** short-term decision making, governmental policies, agricultural credits and subsidies, the increase in the population and consumption of the species, limited knowledge on sustainable practices, weak institutions, cultural/traditional aspects, lack of territorial planning, and the demand of jaguar parts from China. Other aspects are: violence, corruption, and economic inequality.

**Initiatives:** the jaguar corridor that is being led by Panthera Foundation is the most extensive in the world – it includes 16 countries, amongst which are: Belize, Honduras, Nicaragua, Panama, Costa Rica, Colombia, Brazil, and Guyana. They are working on the consolidation of the strategy for safe corridors, sustainable infrastructure, and conservation initiatives. The jaguar initiative of WCS is more focused on protecting populations and landscapes which are fundamental for the jaguar.

**Challenges and opportunities:** to show the benefits of conservation of important habitats for the jaguar in climate and diversity, carbon credits, landscape restoration, synergy with Inheritance Colombia, technology,

corporate commitments and financial flows, business responsibility, opportunity for governance in indigenous territories, political commitments, cultural changes, focusing on solutions and mechanisms on a grand scale.

**Knowledge and gaps:** demographics, minimum sizes for viable populations, how to make a corridor viable so that it is used by the jaguar, the use of the jaguar in renewed habitats, studies on population genetics, impact of roads and climate change, requirements of habitats in agricultural and modified landscapes.

#### Comments:

- The question about what to do with the animals that are in conflict areas is raised – if they are relocated, what should be done with these animals?
- The reintroduction process in Brazil was successful, but it is a very costly process and it requires agreement with the local population so that they accept the animal in the area. In areas such as Argentina it is important to keep this in mind, because the species' populations are highly diminished.
- The following table summarizes the information presented thus far:



Area	Current distribution	Population estimate (Density)
Mexico and Central America	From the north of Mexico (Pacific and Atlantic coastal plains) to the south of Mexico, throughout all of Central America, throughout the Atlantic watershed until Panama.	Chiapas: 0,05 individuals/100 km <sup>2</sup> . Yucatán Peninsula: 7,4 individuals/100 km <sup>2</sup> . Guatemala, Costa Rica and Panama: 0,74 to 11,2 individuals/100 km <sup>2</sup> . Selva Maya: 7.5 to 8.8 individuals/100 km <sup>2</sup> . Belize: 3.5 to 11.0 individuals/100 km <sup>2</sup> .
Peru and Bolivia	Peru: Madre de Dios, others in Cajamarca and in northern Peru.	Perú: 4 to 5 individuals/100 km <sup>2</sup> (Amazon).  Bolivia: El Chaco 0,3 to 1,82 individuals/100 km <sup>2</sup> , in Tacana 4 to 6 individuals/100 km <sup>2</sup> .
Colombia and Ecuador	Colombia: Amazonia, Orinoquía and the biogeographical region of Chocó, the San Lucas mountain range, relictual patches in the Magdalena Medio, coastal plain of the Caribbean, and in the Andean foothills toward Orinoquía. Ecuador: the biogeographical region of Chocó and the Ecuadorian Amazon.	Not reported
Paraguay, southern Brazil, and Argentina	The Atlantic Forest, el Gran Chaco (Argentina and Paraguay) and the Yungas Jungle (Argentina).	The Atlantic Forest (Alto Paraná): 0,2 to 1,7 individuals/100 km <sup>2</sup> . Paraguay: 0,7 individuals/ 100 km <sup>2</sup> . Argentina: no more than 20 individuals are estimated. The Yungas: 150 individuals are estimated.
Brazil and Guyana	Guyana: the southern portion is the most important for jaguar presence, but it is also found in the north, and there are even jaguars in the coastal area. Brazil: Amazonia.	Healthy populations. No reports on density.





Area	Stress factors	Threats	Driving forces
Mexico and Central America	Habitat loss Fragmentation Reduction in number of prey Small population sizes Isolation Endogamy Emerging illnesses	Expansion of agriculture and farming frontiers Hunting of jaguar and their prey Human-jaguar conflict Illegal trafficking as pets Infrastructure Mining Deforestation Forest fires	Urbanization. Growth of human settlements near protected areas. Climate change Increase in human populations Lack of knowledge on the species Lack of valuation Lack of effective regulation for the protection of the species
Peru and Bolivia	Loss of habitat and connectivity Advancement of agriculture and farming frontiers Infrastructure projects Mining and exploration of hydrocarbons Overexploitation of species which are prey for the jaguar Human-jaguar conflict	Mining Deforestation Agriculture Infrastructure Elimination of jaguars because of conflict with humans Hunting for the commercialization of their parts	Migration from the Andes to the Amazon. Increase in illegal gold mining, infrastructure, and the absence of environmental planning that incorporates the topic of wildlife. Market for jaguar parts towards Asia. Increase in the agroindustry. Roads Gaps in regulations. Dams and hydroelectric plants.
Colombia and Ecuador	Habitat loss Mechanized agriculture Extensive cattle farming Mining Illicit crops Illegal overlogging Loss of prey for the jaguar (defaunation)	Retaliation hunting Trophy hunting Illegal trafficking	Expansion of the agricultural and cattle farming frontier. Land speculation. Illegal crops. Changes in land usage. Infrastructure development. Legal and illegal mining.
Paraguay, southern Brazil, and Argentina	Habitat loss and fragmentation. Reduction in prey (defaunation) Small and isolated populations.	Hunting Conflict with cattle farming activities. Advancement of the agricultural and farming frontier. Unsustainable agricultural, farming, and forestry practices. Urbanization Infrastructure	Increase in the demand for food. Strong agricultural and farming expansion. Increase in forest plantations. Increase in urban areas. Inadequate application of public policies. Weakness of public institutions in terms of human resources and economics.
Brazil and Guyana	Loss and fragmentation of habitat attributed to gold mining. Large-scale agricultural expansion. Hunting. Illegal parts trafficking. Death by retaliation. Reduction of prey due to overhunting. Lack of regulation of miners. Demographic expansion.		Local demand for skins or meat and jaguar souvenirs. Lack of a strong system for monitoring and the application of the law. Lack of resources and planning for land use.



Photography © Jaguar, cámara trampa

### 5.3 Corridors, knowledge, and conservation of the jaguar in Panama and Colombia.

Esteban Payán – [Panthera Foundation](#)

What we currently conceive as the jaguar corridor is the product of a meeting in the year 1999, in which the Units for Jaguar Conservation (JCU) were identified, JCUs have at least 50 viable adults. After this, modelling of the corridors between the JCUs was carried out and values/costs were assigned different categories, amongst which are: land coverage, tree and coverage percentage, elevation, human density, and distance to roads and settlements. The corridors were identified in the most permeable and least expensive areas.

This was based on expert knowledge that has been broadening. By the same token, field validation has been done which aims to verify this model (Colombia and Panama). For this field validation, grids were developed in

the corridors that generally are protected areas (6km x 6km). Then, a measured effort is made by means of interviews (with hunters and people from the countryside) to calculate the probability of occupancy within the grid, and to know what must be done and where. In this way the corridor is adjusted to reality. This is a task against time given that the transformation rates are very high.

In Colombia there are several corridors of which the best is currently the Darién, whereas the one in the San Lucas mountain range is the most deteriorated, currently being affected by illegal mining and deforestation for palm oil harvesting. In the model a corridor between San Lucas and the Sierra Nevada de Santa Marta was identified, but it is very long



and widely populated which makes its implementation difficult and invalidates the Sierra Nevada as a connection with Perijá.

The results of this 10-year study indicate that in Colombia massive efforts must be made in the northern corridor to begin in the south of Cesar and the north of the state of Santander (San Lucas and Catatumbo). This area is heavily inhabited which makes it a significant challenge.

On a regional level, and based on field validations, the current situation of the jaguar corridor represents a large block in the Amazonia. The model in Surinam and Guyana has been refined, and in Venezuela it was modified based on meetings held with experts. Validation has been completed in Central America. In Bolivia the jaguar population is being redesigned based on fieldwork, flyovers, and experts' knowledge.

### Implementation of the corridor

To achieve implementation the following is needed: exposure to, education on, and appreciation of the jaguar; scientific research (e.g. presence, density, demographics); territorial planning; securing of protected areas with buffer zones and standing forests in non-protected areas.

**Valuation:** shifts in human perception of the jaguar have been seen – previously they were considered demigods and humans were considered their prey, which is evidenced in conflict. For colonists, the jaguar was perceived as a pest that had to be eradicated as a form of protection. Currently, in some areas it continues to be depredated, but it also represents one last resource to be saved as it represents biodiversity.

**Studies:** in the Panthera Foundation work has been done on topics analogous to that done on other felines. Research is being carried out on landscapes of coexistence, demographic data, collar tracking, studies on litters, among others. At this moment in time there is a new

project running with National Geographic that involves the tracking with collars of three pumas and two jaguars. This is being done to achieve objectives on demographics, to establish causes of death and dispersion, as well as to obtain other basic data that is needed.

The total number of jaguars in the world was modelled and the result obtained was 173.000 individuals: in Panama 869 and in Colombia 16.000. This coincides with historical data that showed populations in both countries ranged between 25.000 and 30.000 individuals, of which approximately half have been lost.

Taking this into account, the corridor must be seen in its actual context, with the speed and scale of transformation. For this reason, corridors and focal conservation units were chosen to define the very least that must be aimed for in terms of conservation and keeping in mind the limited resources. The Amazonia is seen as the heart of the jaguar corridor, connected to Central America, and extending toward the south (Corridor 2.0).

To make this a reality, current threats such as predation, mining, and cattle farming are taken into account. Groups such as Greco are involved in the resolution of conflicts and the training for management of environmental authorities. Furthermore, there is a project called Ranchos model (30 in Colombia) which has had high success in implementing strategies for the coexistence of the jaguar with agricultural and livestock activities, and it has demonstrated that with little involvement, major impacts can be achieved.

Cattle farming is always seen as the worst threat, but there are other bigger ones such as soya crops. In the Colombian Orinoquía, there is extensive cattle farming and it is the area of highest jaguar densities. On the contrary, in areas of migration to agriculture there is low jaguar density. However, this applies to the savannah and not to forests like the Ama-

zonias, where deforestation occurs in order to develop cattle farming.

In the savannahs, a strategy focused on human-jaguar coexistence is being implemented. For example, the use of creole cattle that defends itself against the jaguar, which has shown promising results. In Panama this experiment is being initiated. This type of action is the closest thing to the resolution of conflict.

In terms of improvements in agricultural practices, a declaration of a natural park is being sought out in the San Lucas mountain range, as the jaguar and other species depend on this. Furthermore, work is being done with people in the surrounding area, as it is not desirable that they migrate to the cities or sell their lands to mining companies (work is being done with them on the production of certified coffee). Also, work has been done with palm oil in conditions which are not damaging to the environment (area limits, manual cultivating, etc.). Middle ground must be found where fauna can coexist with human activities.

However, mining is a problem of governmental policies – there are health problems and other collateral effects that require the interaction of various entities. The construction of roads, for example, permits the entrance of other important activities. To mitigate these problems, there are recommendations which range from the construction of bridges to even small solutions to influence the design and layout of what is to come.

There is also a need to protect standing forests, for this reason work is being done on a project (jaguar connection: [conexionjaguar.org](http://conexionjaguar.org)) with the emission of carbon credits and a bonus of threatened biodiversity, which ensures that the forest is maintained or regenerated.

The management of commerce for jaguar parts must be treated differently in each country. In several countries there are records of Chinese providing jaguar parts. This is an issue of mafias that should not necessarily be worked on in the open, and which depends

on each government, and in each country this phenomenon is unique.

Sustainable hunting of prey varies according to type, intensity, and affection of the jaguar populations.

Tourism can also be seen as an opportunity. An example of this is Pantanal (Brazil), which offers the experience of jaguar watching. However, we must remember that these new conservation opportunities are difficult and that the changes in people's attitudes are slow.

**Tool box (management protocols):** manuals exist for the mitigation of agriculture, the use of bush meat, the mitigation of roads, the resolution of conflicts, and others. Some of these are finished whilst others are still being worked on; these manuals are needed and must be developed. Work is beginning to be done on the restoration plan of riparian forests in the savannahs with plant species that the jaguar prey feed on.

#### Questions:

- What is the proportion of workers in protected areas in the corridor, and what is being proposed for the corridor?

The corridors are modelled on protected areas and we focus on them - 10% of the money and 30% of the time is spent on protected areas.

- Do any technical reports exist that can be shared?

Yes, there is an article for each one of the ranchos models, as in all of these 100% of the problems were resolved by simple actions. However, the evaluation of the process is still underway.

- There is an estimate of 173.000 individuals – what does this mean in terms of population health?

The really important thing is the trend; this is data that over time does not say much, but it is a key tool for the Red Lists.

- What does the corridor aim to guarantee?



In the middle of the 90s we obtained information on the genetic flow. This has been the same despite being in a wide range and that densities are low. We thought about how many animals we have to protect so that the species survives long term, and modelling was done on 600 individuals. But to achieve that density areas that helped maintain populations were needed. Now, we continue without having enough protected areas, for which reason we need to unite what already exists and it is not necessarily protected areas but the corridors which fight off extinction.

- How can we make palm plantations friendlier? What is the recommendation for palm oil farmers and how can we recuperate the hydrological characteristics of the areas that benefit the jaguar?

In a study on modelling of palm crops, they determined that the crops should be planted in degraded habitats – that is for example in pastures, as they generate canopies. For recuperation, the distance to bodies of water should be considered, and to permit the natural regeneration associated to other activities like the use of buffalo and non-mechanized crops.

Here there are several institutions which can add value to joint action. A united voice is more useful when dealing with governmental entities in relation to the great challenges such as the agricultural and cattle farming expansion, and the planning of infrastructure. Additionally, topics such as illegal mining and its effects must be considered.



© Juan Pratginestos - WWF





© Zig Koch - WWF

## 5.4 Jaguar conservation program - JCP (WCS)

John Polisar - WCS

The status of wildlife populations can change very rapidly. An example of this is at the beginning of the 19<sup>th</sup> century there were 30 million bison in the United States and 75 years later there were only 300.

The Jaguar Conservation Units (JCU) are key areas with a sufficient prey base and large enough jaguar population to assure the persistence for 100 years.

There has been a reduction of 40-60% in the range of the jaguar, but if one considers that the majority of the historic range was once JCUs, the proportion lost has likely been greater.

WCS focuses on a set of globally important, strategically located JCUs using conservation tools and capacity building to have a significant contribution to jaguar conservation range wide.

Examples of WCS sites include La Selva Maya (Mexico, Belize, and Guatemala), la Moskitia of Honduras and Nicaragua, the Gran Yasuní in Ecuador, the Gran Madidi-Tambopata of Bolivia and Perú, and the Chaco of Paraguay, in which a variety of direct and indirect interventions contribute to jaguar conservation.

In Bolivia, a wide variety of conservation interventions at the landscape level have been effective at protecting the jaguar population, but the demand for jaguar parts has emerged as a new threat that requires new approaches and learning from the experience Asia has had with tigers.

In 2014, WCS, together with other institutions established the Jaguar Alliance for the central Amazon, to create synergies to confront the threats in the largest JCU in the world. The principle goals are applied investigation,



communication and improved coordination of conservation interventions.

In Ecuador the national jaguar plan was developed in an interactive multi-institutional process and includes components of investigation, connectivity, wildlife conservation, education.

WCS Ecuador has been using an educational tool we call “Jaguars Forever” in which school teachers are trained in how to deliver the curriculum and when they share that with their students they play a multiplicative role in disseminating the information.

While working on community wildlife conservation, advances are also made in additional themes such as reducing the level of human-jaguar conflicts.

In Quito (2016) we executed, with World Wildlife Fund and Panthera a workshop titled “Planning conservation of the jaguar in the Amazon”, in which we reviewed new threats to jaguars, with an emphasis on the Amazon, in the context of a collaborative focus for long-term conservation at the grand scale, also considering the necessity of a special focus on illegal traffic in jaguar parts.

WCS has a goal of reducing improving the health of cattle and reducing jaguar-livestock conflicts, especially on the borders of protected areas such as buffer zones and productive landscapes, areas where we work to improve cattle management.

We work across the complete spectrum of scales, from small farms to large ranches, seeking simple solutions to reduce the possibility that jaguars learn to consume livestock.

In Paraguay, which is the sixth largest exporter of beef in the world, ranching is national priority and we work closely with ranchers.

We have tested specific methods to reduce attacks, evaluating their effectivity in terms of reduced losses of calves and cost-effectiveness in terms of the investment required in comparison to the economic losses averted.

We identify the pastures where the greatest losses to jaguars are occurring, evaluate those losses, install the attack reducing measures, maintain records of the losses with the techniques installed, and make an analysis

of how much the ranchers can save by using those techniques.

Jaguars are monitored with camera traps before installing the techniques, and after, the latter to confirm that, if losses have been reduced, that was accomplished with the jaguar still nearby; the reduction in losses was not due to the jaguar being killed or moving away. The program also works in jaguar focused environmental education in the schools for ranch kids, and in Mennonite agricultural cooperatives, so the people view jaguars in a slightly broader and more tolerant way.

It's good to consider ways that these practices are adopted at larger scales, with uptake by farms and ranches with the goal of range-wide impact.

It's also good to achieve a balance between areas managed as pasture, and forest. A recommendation is that ranches preserve 50% of a property as a forest refuge for jaguars and as a source of natural prey.

In some ranches there are possibilities to develop ecotourism in which the jaguar can bring additional value to the ranch.

In Central America the most intense deforestation is related to cattle, and in some cases that illegal ranching in protected areas is associated with narcotrafficking and the laundering of money in pastures and livestock.

Between 2000-2015, there was a reduction of forest cover in large areas, with the most serious cases (20-25%) being in the trinational Selva Maya, and the binational forests of La Moskitia.

Taking into account the proportion of area lost in the five largest forests of Mesoamerica between 2000-2015 and considering a conservation density of jaguars at 1 per 100km<sup>2</sup>, more than 340 jaguars were lost, just due to deforestation. Considering a density of 1.5 jaguars per 100km<sup>2</sup>, 511 jaguars were lost to deforestation.

In Mesoamerica (Honduras and Nicaragua) one of the principle threats is the weak

government presence. WCS is working to maintain a bi-national forested corridor, important for maintaining biological connectivity, working with indigenous territories that have community land title, who are motivated to preserve the natural forest cover. In these areas, and others, WCS has been conducting long-term monitoring to measure the impact of conservation interventions on the population trends of jaguars.

In the Maya Biosphere Reserve in Guatemala a diverse set of tools and interventions contribute to the conservation of jaguars: fire prevention, patrols and protected area law enforcement to reduce deforestation and improve the management of cattle to reduce deforestation and conflicts between people and jaguars.

The area has tourism which is an incentive to preserve jaguars, and also sustainable carefully managed extraction of timber and non-timber forest resources. Investigations in Guatemala, Peru, French Guiana, and Bolivia show that when certified timber extraction is well managed and observing all the ecological requisites, it is an activity compatible with jaguars, and is a good instrument to preserve the forest in the larger sense, home for the jaguars.

The declaration of the Petén (Guatemala) affirmed the importance for national governments and indigenous groups to advance conservation actions, prioritizing protected areas and territories and judicial processes for environmental crimes and offenses against environmental defenders.

In 2017 WCS completed an analysis of trends in jaguar populations between 2002 and 2016 comparing 11 sites where WCS has been conducting conservation actions (direct and indirect interventions that benefit jaguars) with 13 sites where WCS has not been working. The rate of population increase in the 14 years was 7.8% in the WCS sites, and 2.8% in the others, testimony to the impact of the interventions.

#### Comments:

- There are places where it seems consumption of the green sea turtle has increased the population of jaguars and reduced the turtle populations. The jaguars have concentrated on the coast to access the resource of nesting jaguars, this does not necessarily represent a greater number of jaguars.
- A method used in areas of Africa consists of guarding cattle inside a fence of organic material, which reduces attacks by lions. While this exact method has not been used for jaguars, the methods used to protect cattle from jaguars includes electric fences,
- There was a proposal to create time and spaces to share experiences in the management of the conflict between jaguars and cattle.
- While conservation interventions resulted in the increase in jaguar populations in some area, the increase in trade in jaguar parts potentially can reverse those advances and requires special attention.



© Mary Chambers - WWF



## 5.5 High-level forum - New York - Jaguar 2030

María José Villanueva - WWF Mexico

Elevating the profile of the jaguar so that it is a governmental priority has been the task of a number of organizations. A high-level event was coordinated, in which 13 of the 18 countries that have jaguars in their territories participated, with a high level of commitment. Various organizations from different countries attended.

The objective: to find leaders who promote the conservation of the jaguar at high political levels to promote the resilience of the species, focused on the local development and mitigation of climate change, all within the framework of sustainable development challenges.

1. Specific objectives:
2. To agree upon a regional program for the securing of jaguar landscapes and their corridors.
3. To initiate discussions to achieve greater collaboration.

To share experiences on work that has been done.

The governments presented progress reports on jaguar conservation of a very high quality and commitment. This is the beginning of a plan for building of more specific activities.

The following from the Jaguar 2030 New York event stand out: 1) the countries' recognition of the jaguar as a symbol for boosting sustainable development objectives and the fulfillment of international commitments, as well as their role in the protection of forests for mitigation; 2) the collaboration between countries as a fundamental component for conservation of the species; and 3) the need to share scientific information. Furthermore,

it is recognized that in order to achieve a long-term vision, the strengthening of protected area management and the deterring of habitat loss are imperative – speed of response is key in dealing with emerging threats. Finally, the role of communities in jaguar conservation is acknowledged, and it has been identified that the more empowered they become, the more conflict is reduced.

### **Suggested next steps:**

- To carry out high-level meetings in strategic fora, collaboration spaces, and to maintain the topic in the political agenda.
- To form a committee of the countries that have jaguars.
- To develop a 2030 action plan to implement the aspirations of this declaration.

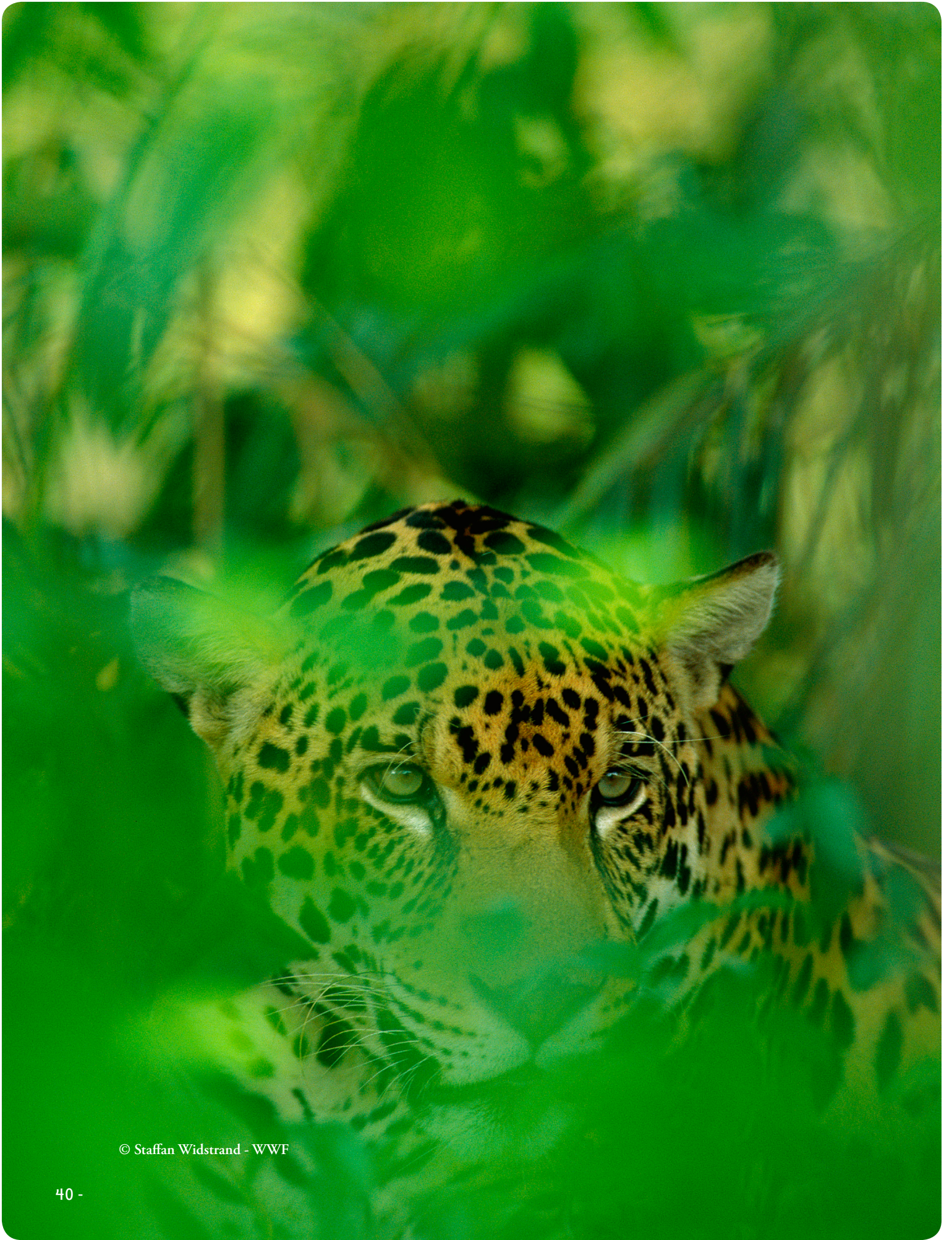
To share experiences within and between countries which would serve as a platform with groups that work on large cats.

### **Comments:**

- For the jaguar 2030 action plan, the achieving of a common agreement between the institutions is one step, as is their participation in this event and the presenting of a developed framework.
- It is important to contemplate how and in which moment to incorporate governments in the process, so that they take ownership.
- Using what is developed in the workshop and following it as input for the 2030 agenda.
- To contemplate the possibility of including those governments not present.







© Staffan Widstrand - WWF



## 6. Progress in the strategic framework for jaguar conservation

### 6.1 Workshop objectives

#### Overall:

To make progress in the construction of a strategic framework for jaguar conservation in America over the next 10 years.

#### Specific:

1. To identify and develop the baselines for a regional strategic framework aimed at conservation of jaguar populations in America, and that complements, adds to, and amplifies the efforts of other organizations that are working on jaguar conservation in the entire distribution area.
2. To define a conceptual model, results chains, and change theory that touch the bases for the construction of a strategic framework for jaguar conservation in America.
3. To identify potential collaborators at the regional and local levels, which would allow achieving governmental agreements with countries, mainly with those within the jaguar distribution area, with a landscape management focus based on the use of other successful experiences in feline conservation and a PPMS methodological focus.

### 6.2 Pre-workshop tasks

The focus was on conference calls and pre-workshop tasks:



#### Call 1 - February 26

- Objective: To present the process and inputs needed for the workshop.
- EThe WWF group Mexico made the first version and scope of the strategy.



#### Call 2 - Marzo 5

- Objective: Conceptualization according to the PPMS methodology.
- Discussion about the inputs in Mexico: reach, vision, and objects of conservation.



#### Call 3 - March 8

- Objective: Definition of agreements in terms of reach, vision, and objects of conservation.
- Work was carried out on the preliminary proposal of viability and threat analysis.



#### Workshop 12 - 15 March

- Objective: To progress in the construction of a strategic framework for jaguar conservation in America over the next 10 to 20 years.

### 6.3 Viability and threat analysis

This is an exercise that was done prior to the workshop and which took into account the definition of *objects of conservation*, including aspects of biodiversity that want to be conserved according to the plan's objective. In this case, the object of conservation is the jaguar, however, at a level such as the continental one, the jaguar is not uniform as it subdivided into regions, each of which is considered an object of conservation.

#### **Sub-regions (Based on the article by De la Torre et al. 2017):**

1. Mexico, Belize, and Guatemala (Meso-america), including Selva Maya and the Maya mountains<sup>2</sup>.
2. Central America, from Honduras until Panamá.
3. Northern South America (E. Panama, W. Venezuela, N. Colombia, Chocó and Orinoquía, W. Ecuador).
4. Amazonia (Guyana and the Brazilian amazon zones, Colombia, Venezuela, the Peruvian Amazonia, Ecuador and Bolivia).
5. Chaco, Pantanal and Cerrado.
6. The Atlantic Forest (E. Paraguay, N. Argentina southeastern Brazil, including Las Yungas).
7. Caatinga.
8. \*There is overlap between 5 and 6 in the Argentinian El Chaco.

#### **Viability analysis:**

Viability is the state of health of the conservation object and it allows us to understand in what state they are currently found. The analysis is not about seeing if the object is viable or no, and nor does it aim to discard

objects ("Every jaguar counts"), but instead it aims to define what is a priority object, where is the priority to develop it, and what type of intervention is needed.

Viability is the result of the threats, but the analysis is carried out independently of the threats – what needs to be known is how is the object in terms of intrinsic conditions.

#### **Preliminary results of viability analysis:**

For each one of the conservation objects (sub-regions), necessary conditions for the existence of the jaguar were considered: the abundance of prey, the quality of the adequate habitat (vegetation and connectivity), the size and density of the populations.

The rating of key ecological attributes was done based on: 1) the necessary conditions for the population to exist, 2) the landscape context and how the object of conservation is faring within the area, and 3) the size of the conservation object with respect to the extension of vegetation coverage (density and size of the population).

The preliminary results that were obtained from the analyses in the preparation stage of the program with the workgroups are:

Target, KEAs	Status
Region 1: México, Guatemala and Belize	Fair
Region 2: Central America	Fair
Region 3: Northern South America	Fair
Region 4: Amazon	Good
Region 5: Chaco, Pantanal and Cerrado	Good
Region 6: Atlantic forest	Poor
Region 7: Caatinga	Fair
Overall rating	Fair

<sup>2</sup> The exception is made, for the benefit of the workshop, that Mexico and north Central America were presented together, but they shouldn't be considered a single geographical unit, because the cultural and social conditions, together with environmental problems, are very different for southeastern Mexico – Guatemala – Belize, and the north and center of Mexico. Also, we should remember that the jaguar populations in southeastern Mexico are more abundant than in the north and center of the country, for which reason a different status of conservation and viability should be attached to each one of the subpopulations in the short and long term.



These results can be improved based on new data and discussion with experts. Thresholds need to be defined, as an analysis for each sub-region may be required, meaning something more refined and exact is necessary.

### Threats

Human activities or events caused/worsened by human beings, that directly degrade one or more of the conservation objects, and which may lead to their loss or extinction.

The threats cause undesirable modifications in the abundance, distribution, composition, and condition of the conservation

objects, and in the richness, quality, and extension of the habitats. Some threats include: poaching, overfishing, road building, increase in fires, and agriculture.

### Rating of threats:

1. Three variables were used:
2. Reach: how widespread is the threat in the conservation object.
3. Severity: the level of damage caused in the conservation object.

Irreversibility: how easy is it to reverse the effect of the threat.

### Preliminary results of the threat analysis:

Threats / targets	Region 1: México, Guatemala and Belize	Region 2: Central America	Region 3: Northern South America	Region 4: Amazon	Region 5: Chaco, Pantanal and Cerrado	Region 6: Atlantic forest	Region 7: Caatinga	Summary Threat rating
increased frequency and severity of fires								Not specified
Disease	Low	Low	NS	Low		Low	Low	Low
Logging	Medium	Medium	NS	Medium	High	Low	Medium	Medium
Agricultural expansion	Medium	Medium	NS	High	High	Medium	Medium	High
Cattle-ranching expansion	Medium	Medium	NS	High	High	Medium	Medium	High
Human-jaguar conflict	Medium	Medium	NS	Very high	Low	High	High	High
Trade-driven hunting	Low	Low	NS	Very high		Low	Low	High
infrastructure building	Medium	Low	NS	High	Medium	High	High	High
Mining	Low	Low	NS	High	Low	Low	High	High
Hunting of prey	High	Low	NS	High	High	High	High	High
	High	Medium	NS	Very High	High	High	High	Very high

NS: not specified

In general terms, the jaguar is highly threatened in all areas, although the rating is very dependent on the lack of information. In spite of knowing that there are growing threats, it is necessary to carefully revise these ratings.

In this revision it is important to define and standardize the scale for comparison between regions. For example, it may be that hunting is the most important threat in one

region, but the effect it has on the population can vary from place to place. At the time of group discussions, consensus on the scale must already be reached.

One must also consider that this is a regional approach and that when doing the group review, it is also important to evaluate at the level of sub-regions, where the specificities of each area can be evidenced.

## 6.4 Conceptual model

1. A conceptual model shows the relationships of cause-effect between the threats and the main causal factors, additionally it graphically describes the context that affects conservation objects. The following are identified:

2. Factors: negative conditions caused by other situations.
3. Threats: activities that cause degradation.

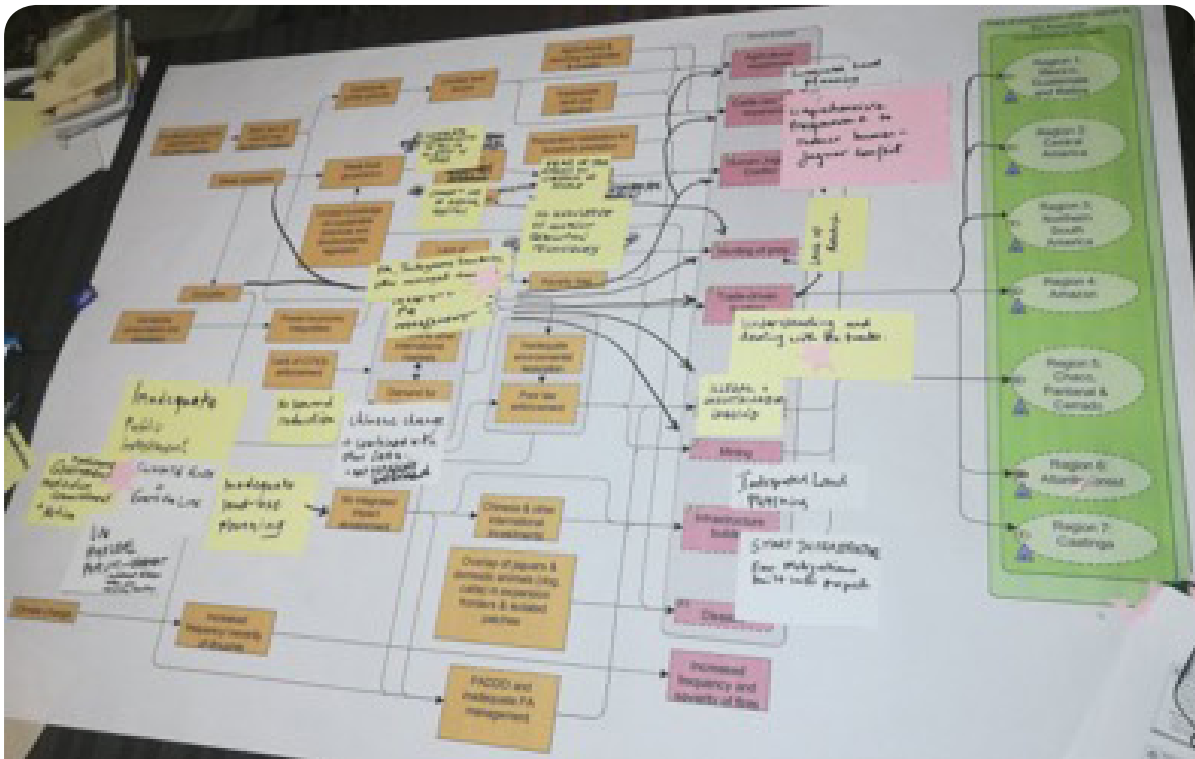
Opportunities: positive conditions that can contribute to problem solving.

- In groups, the conceptual model that was created prior to the workshop was reviewed, taking the following into account:
- That important factors have not been omitted.
- Verifying of unnecessary or unimportant factors.
- That the order of cause-effect is correct.
- That the links between factors are established.

The groups identified opportunities (associated to a factor or to the entire model) and threats, and three strategies were defined which are considered to be critical in the implementation to reduce them.







## Definition of strategies

### Group 1

In PADDD (Protected Area Downsizing, Downgrading and Degazettement), it was considered important to concentrate on not just the protected areas but also the indigenous territories, areas which can be managed, and others that provide services.

As for the inadequate conservation item, reference is made to an information gap on how to coexist with the jaguar. Furthermore, little research exists on the affectations of trafficking, the human-jaguar conflict, and the hunting of prey.

**Opportunities:** planning integrated with the expansion of the agricultural frontier and infrastructure (intelligent development and mitigation projects); collaboration of climate funds; commitment to dialogue about the jaguar; and the elaboration of an action plan defined in the United Nations forum.

**Strategies:** 1) to motivate governments to take actions with respect to jaguar conservation; 2) to reduce human-jaguar conflict and to understand more about trafficking; and 3) to tackle the challenges in the protected areas and in areas run by indigenous peoples.



## Group 2

Within the threats, the group included cultural or trophy hunting and illnesses (important only in small populations). Additionally, the group identified threats related to land planning and management, such as the enlargement of the agricultural frontier, logging, and mining. It is important to note that corruption was considered to be a connector that triggers actions or situations in the different factors.

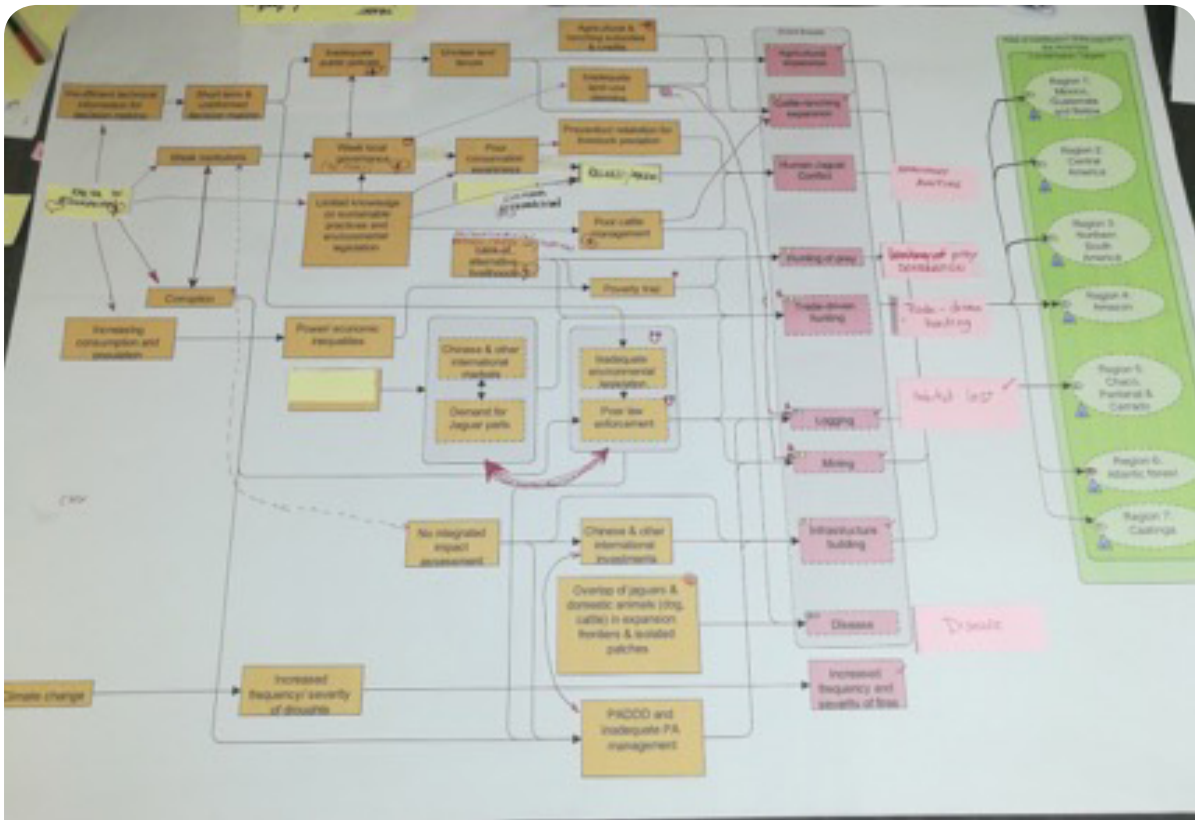
**Opportunities:** 1) collaboration and working together with academia; 2) finding shared funds; 3) making different working partnerships oriented at conservation of the jaguar and its habitat; 4) empowering people who are in contact with natural resources, which provides impact feasibility of public policies; 5) achieving changes in education and culture; 6)

including the jaguar in the design of compensations so that there is greater access to funds and ability to make the jaguar more visually friendly; 7) human migration from rural to urban areas to help the environment recover, and in this way helping the jaguar's prey and habitats; 8) certification mechanisms such as FSC, including the jaguar in incentives for the certification of meat production, amongst others; 9) including the jaguar in PSA and REDD may be favorable and generate impact.

**Strategies:** 1) planning within a framework of landscape regulation; 2) empowering resource holders with being a part of conservation-governance; 3) reducing human-jaguar conflict, 4) communication and conscience; 5) legal efforts; 6) creation of economical mechanisms for jaguar conservation.

This group also proposed that the region of Yungas be included in region 5 or 6.





### Group 3

The group considers the lack of education an elemental threat that influences other aspects. Culture and tradition are seen as being an opportunity.

#### Strategies:

1. Interconnected resilient landscapes.
  - Impact on public policies for territorial planning.
  - Climatically intelligent territorial regulation.
2. Territorial governance.
  - Education for jaguar-friendly life alternatives.

- Alternatives for non-wood-based products.
  - Better agriculture and cattle farming practices.
3. Production systems based on traditional knowledge.
    - Zero trafficking.
    - Public awareness.
    - Training/strengthening of abilities for controlling and monitoring.
- Impact on international policies for reducing demand for jaguar parts.



#### Group 4

Among the threats there are two factors which are enablers, and which permeate the entire framework: corruption and the increase in consumption in the population. The group believes that they should be maintained as elements which increase pressure, create bad planning, and result in short-term decision making.

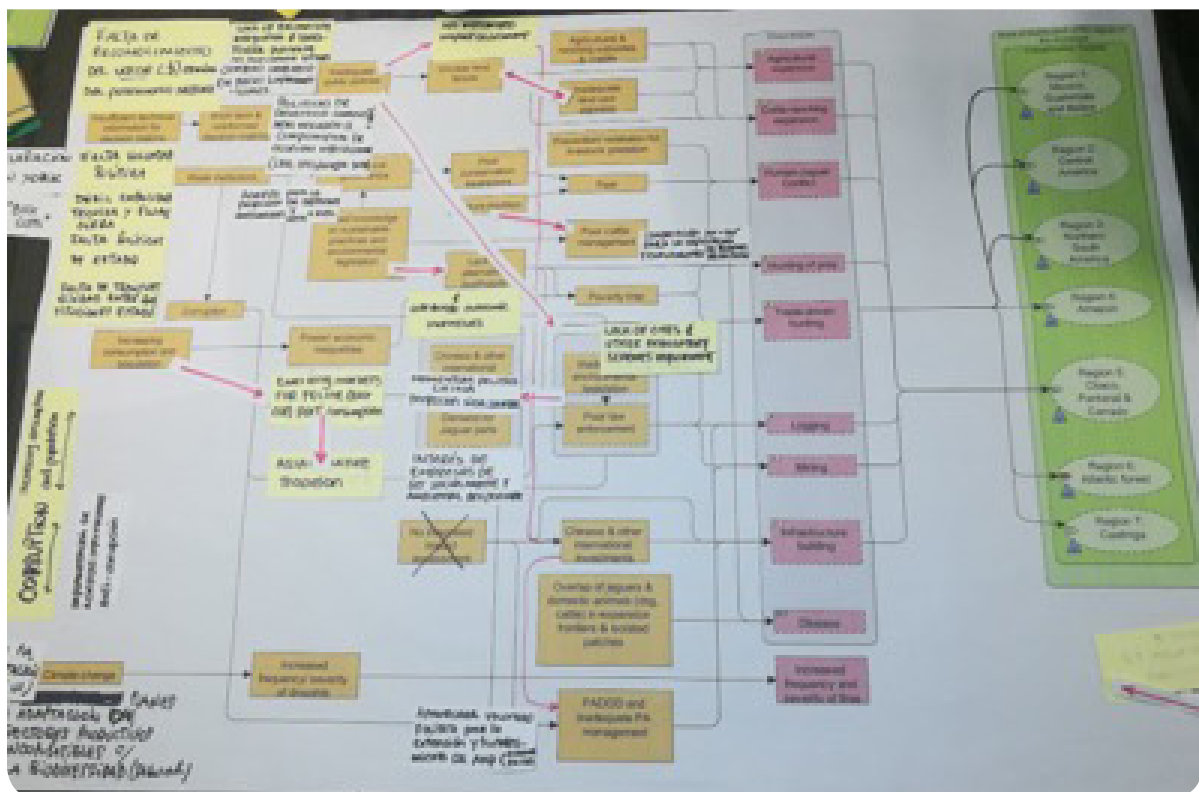
The belief is that entities are weak because of a lack of political interest and a low financial capacity. The lack of state policies and mainstreaming of them in the sectors also contributes to this.

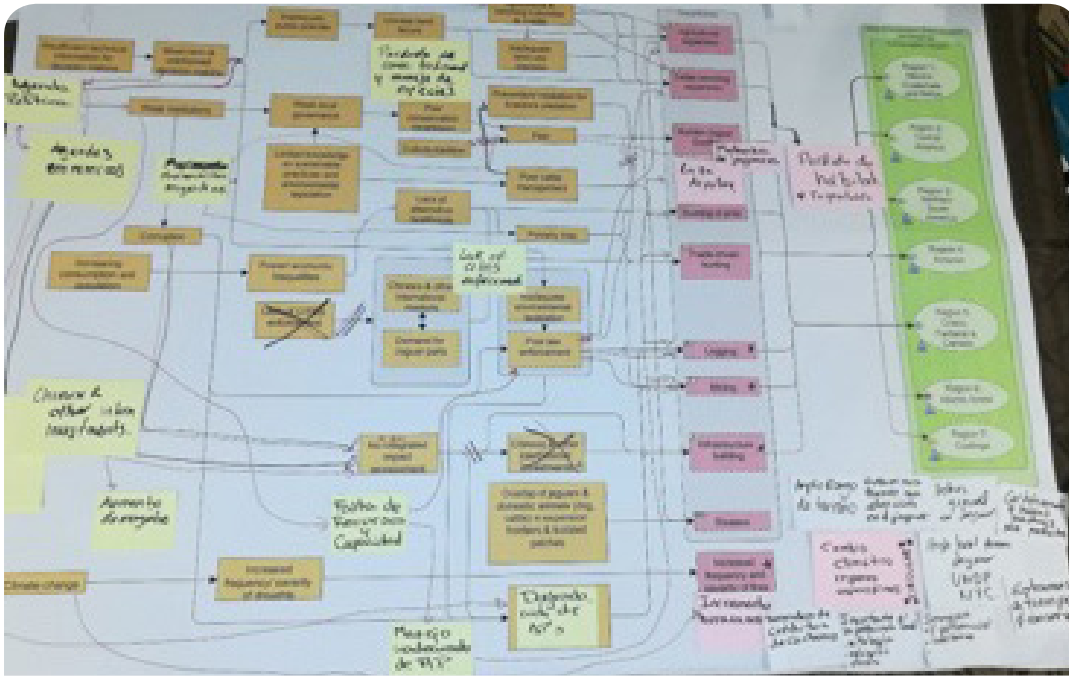
The group also believes that an element which is missing from the entire conceptual framework is the valuation of the jaguar in economic terms. This leads to the jaguar suffering from a lack of relevance and positioning when speaking to non-environmental sectors.

Furthermore, the group added bad planning and a lack of public policies, for which reason planning and good territorial management is an important addition. The need for

providing adequate economic incentives was also included. In terms of illegal trafficking, the group identified emerging markets for the jaguar as a substitute for tiger parts.

**Strategies:** 1) communication strategy to elevate the jaguar's profile as a symbol of America on a national scale; 2) including safeguards linked to biodiversity (jaguar) in international agreements of development and investment in infrastructure; 3) activating financial mechanisms (Green climate fund) that acknowledge the jaguar as an element that helps and mitigates climate change and which provides key environmental services; 4) integrating values/criterion/standards in the roundtables on sustainable cattle farming and good practices to reduce cattle-jaguar conflicts, 5) integrating and implementing the New York declaration through the creation of a regional plan with objectives, indicators, responsible parties, and funding; 6) facing ignorance on climate change and the effects that it has on the jaguar.





### Grupo 5

As threats, the group included the political and economic agendas of the countries as they are heavily related and vary from government to government. This is decisive for the progress of conservation, given that development of activities such as mining – which can impact the jaguar – depend on these agendas. Human migration toward the country's interiors was also considered, as this enabled agricultural expansion and illegal mining. Finally, fear was considered to be a threat, which is related to the lack of education.

Culture and tradition are seen as being an opportunity even though they may end up increasing hunting. Additionally, the group proposes to divide industrial agriculture from small farmers, as they are two different chains. The same applies to legal and illegal mining on a large and small scale. In terms of climate change, the increase in hurricanes in the south of Mexico and Central America was included.

**Opportunities:** the jaguar is already on the agendas of many governments and they have placed it as a priority species, so work is not beginning from zero. There are many NGOs that are working on the jaguar, and collaboration is needed between these.

The certification of products is increasing, especially in Europe, and these certifications (wood, sustainable products, etc.) may promote jaguar conversation due to their high sales potential. Carbon credit markets are also growing, and this is an opportunity for including the jaguar.

### Strategies:

1. International agreements on public policies for jaguar conservation.
  - The jaguar as a lynchpin for several issues such as climate change and biodiversity.
  - Associating it to other international agreements.
2. Regional initiative for knowledge management.
  - Creation and information availability for decision making.
3. Regional communication strategy.
  - Making the jaguar visible as an integrative element for American communities.
  - Accessing funds and mobilizing resources.
  - Maintaining and supporting other strategies.



## 6.5 Strategies

The objective of the exercise consisted in identifying which strategies were of most interest to work on. Each one of the five groups that reviewed the draft of the conceptual model identified some potential strategies, which were presented and discussed in the plenary session.

1. Based on this combination, five strategies were prioritized:
  - Interconnected resilient landscapes
  - Impact on public policy for territorial planning.
  - Climatically intelligent territorial codes.
  - Territorial governance.
2. Indigenous territories as conservation partners.
  - Education for jaguar-friendly life alternatives<sup>3</sup>.
  - Alternatives in non-wood-based products.
  - Management of livestock practices.
  - Production systems based on traditional knowledge.
  - Discussion work with cattle farmers focused on sustainability.
3. Product certification value-adds to stimulate conservation.
  - Zero trafficking<sup>4</sup>
  - Zero trafficking (this point is considered to be a particular problem; it may not be a general problem now, but it could end up being a large one later on).
  - Urban consciousness

- Training/strengthening of control and surveillance.
  - Impact on international policy.
4. Creation of information in areas where none exists – the creation of a baseline.
    - Moving forward with the agenda<sup>5</sup>
    - Progress on the New York meeting.
  5. Value added in this workshop.
    - Valuation and financial mechanisms<sup>6</sup>
    - Impact on financial sectors.
    - Criteria for credits and loans related to the jaguar's habitats.
    - Tax benefits.
    - Socioeconomic impacts of the jaguar on communities (benefits vs. losses).
    - Economic opportunities for ecotourism and the jaguar.

### Results chains

The results chain is a graphic tool, represented as a flow chart, which shows the sequence of results that are needed to have an impact on the object, changing some factors and reducing direct threats. It is useful:

- To help establish a theory for change. It is about implementing actions aimed at achieving positive change, thus the question is – how are we going to achieve the desired changes?
- To define and redefine assumptions in the strategies.
- In implementation, it is a valuable tool to verify effectiveness of strategies, and to have more accurate and transparent actions.

3 During the development of the results chain, this heading was changed to “Catalyzing the implementation of good practices and jaguar-friendly economic alternatives”.

4 During the development of the results chain, this heading was hotly contested, but consensus was not reached for this strategy. After the workshop ended, the strategy planning team proposed the title “Zero hunting”.

5 During the development of the results chain, this title was modified to “Building political will and promoting multi-governmental and cross-border cooperation for jaguar conservation”.

6 During the development of the results chain, this title was changed to “Valuation of the role of the jaguar in conservation”.

The aim is to have a positive impact on the conservation objective through a progression of positive changes which link the strate-

gic framework with intermediate results and threats. This will help improve the viability of the conservation state of the object.

Results chain	Conceptual model
Shows the desired future condition	Shows the current situation
Shows results needed to achieve change	Illuminates the stage without the strategy necessarily occurring
Represents the “Theory of change”	Helps identify inputs for the strategy

### Theory of change

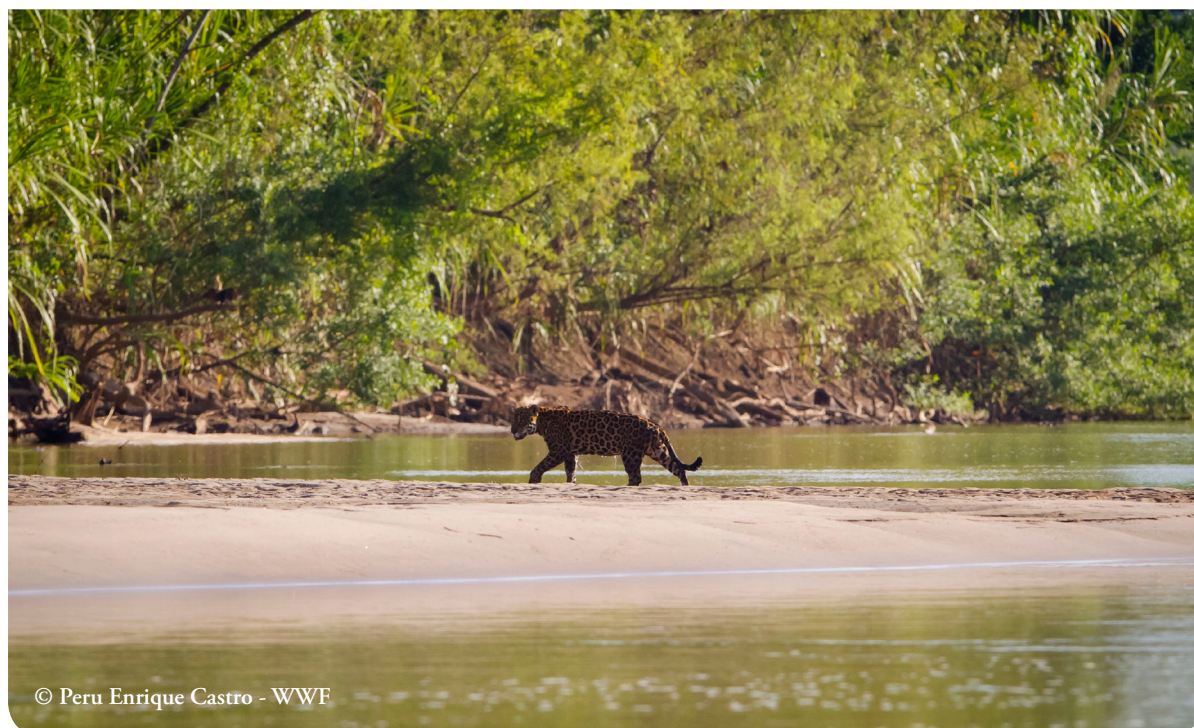
This is a principal hypothesis that justifies the strategy and reflects the assumption of how the project or strategy is going to reach its final impact. It recounts the logical sequence of results that are needed to reach its final impact.

The elements that make up the results chain are: 1) it must be a sequence, 2) show necessary conditions and 3) be focused on a

final result. The objective is to have a focus on impacts through results that are reached by means of products, stemming from activities and inputs to implement them.

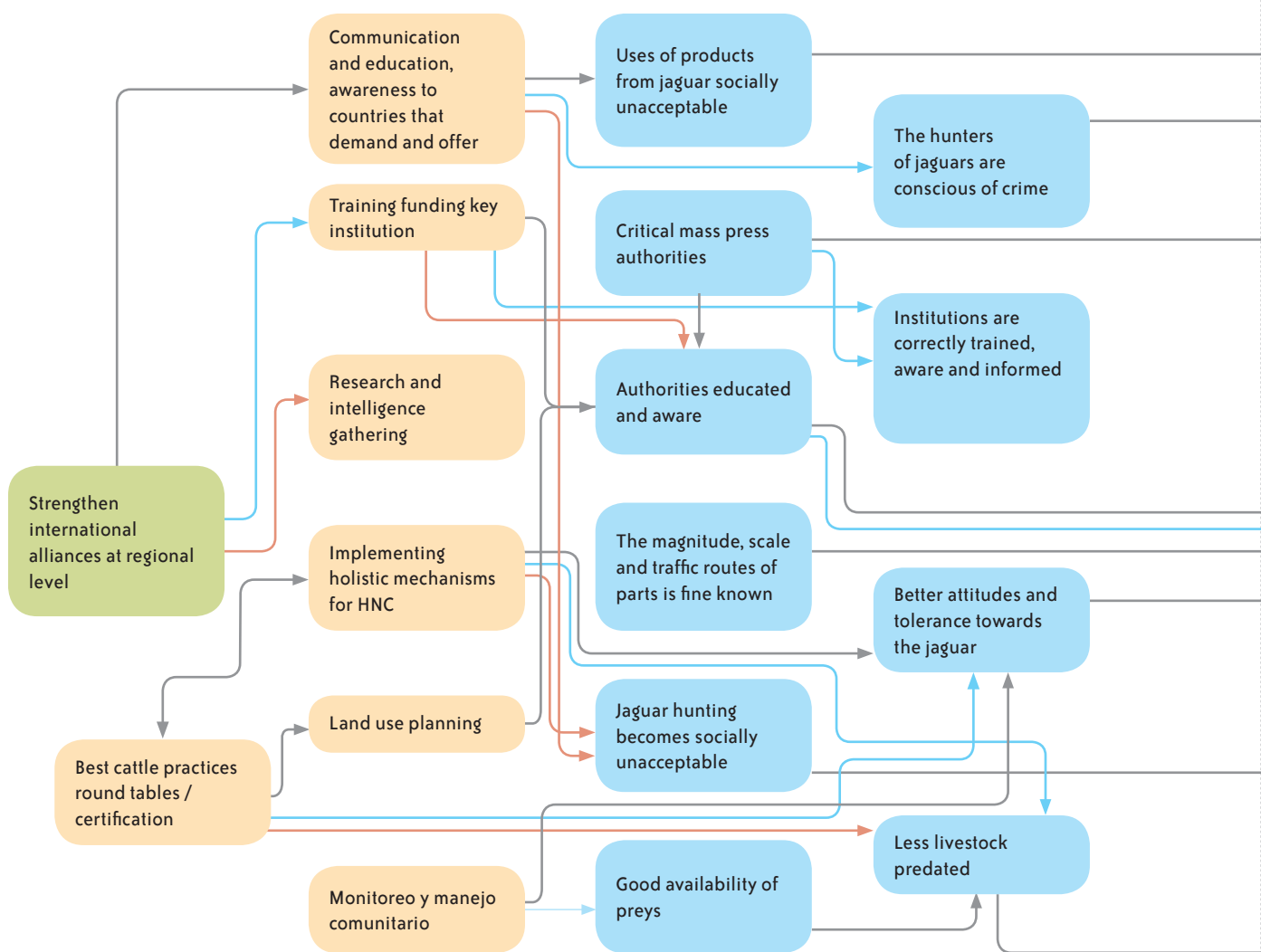
### Discussion:

1. General logic of results chain.
2. Main changes after peer review.
3. Theory of change.



© Peru Enrique Castro - WWF





### Group 1 – Zero hunting

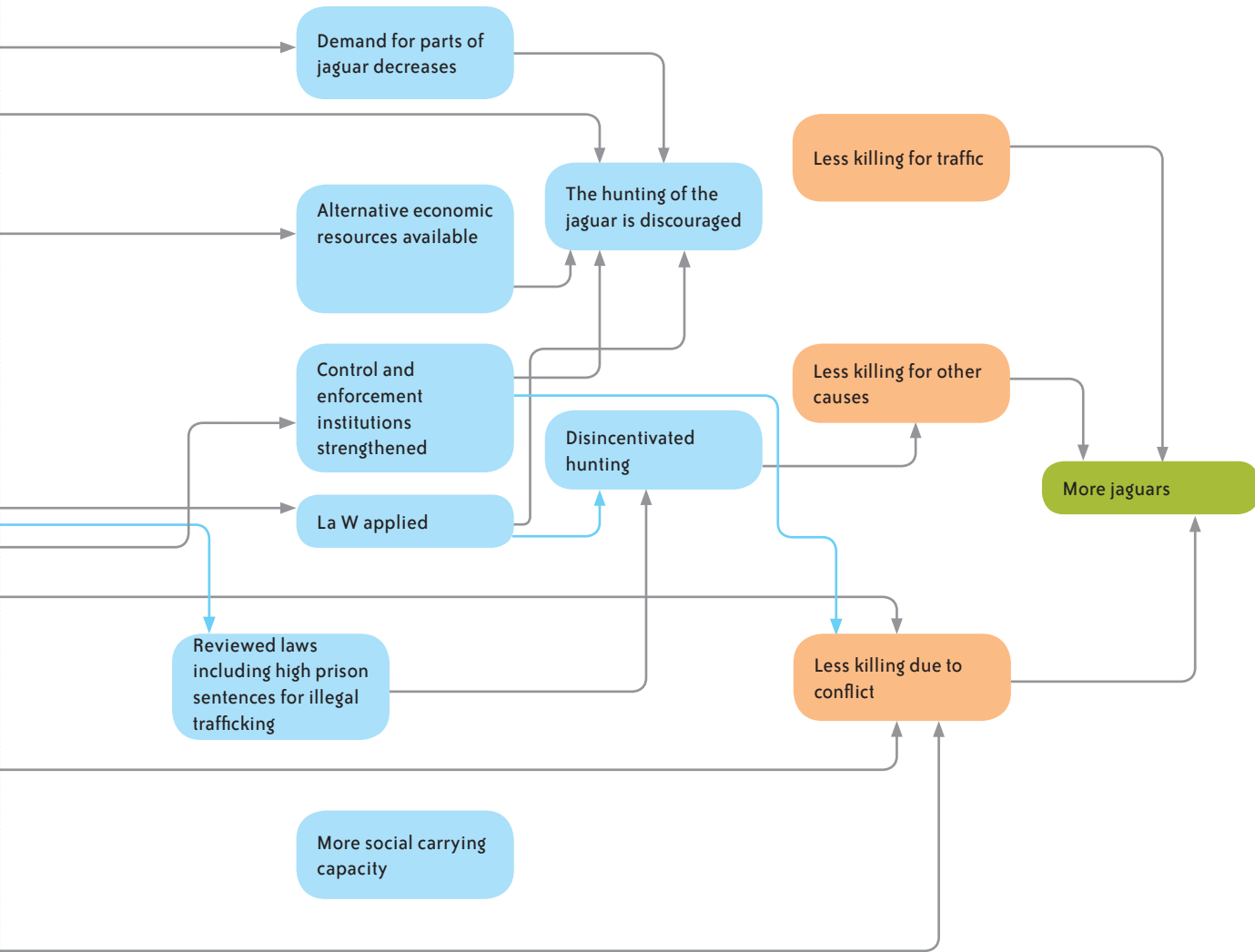
Purpose: to reduce jaguar deaths by general hunting (trafficking, trophy, traditional) and by conflict with livestock.

#### Strategies:

- To strengthen international interinstitutional partnerships, such as CITES, Traffic, IUCN, and other NGOs.
- Communication, education, and raising of awareness in the countries that demand and those that supply jaguar parts to generate a critical mass and achieve governmental im-

pact. The aim is to reduce demand, especially in Asian countries, by making the use of jaguar parts socially unacceptable.

- To work with hunters, training them in different areas to create alternative economies and to diminish trafficking.
- To train and economically strengthen the controlling authorities in the countries to create stronger sentencing for traffickers, and thus reducing crimes against the jaguar and improving regulations.



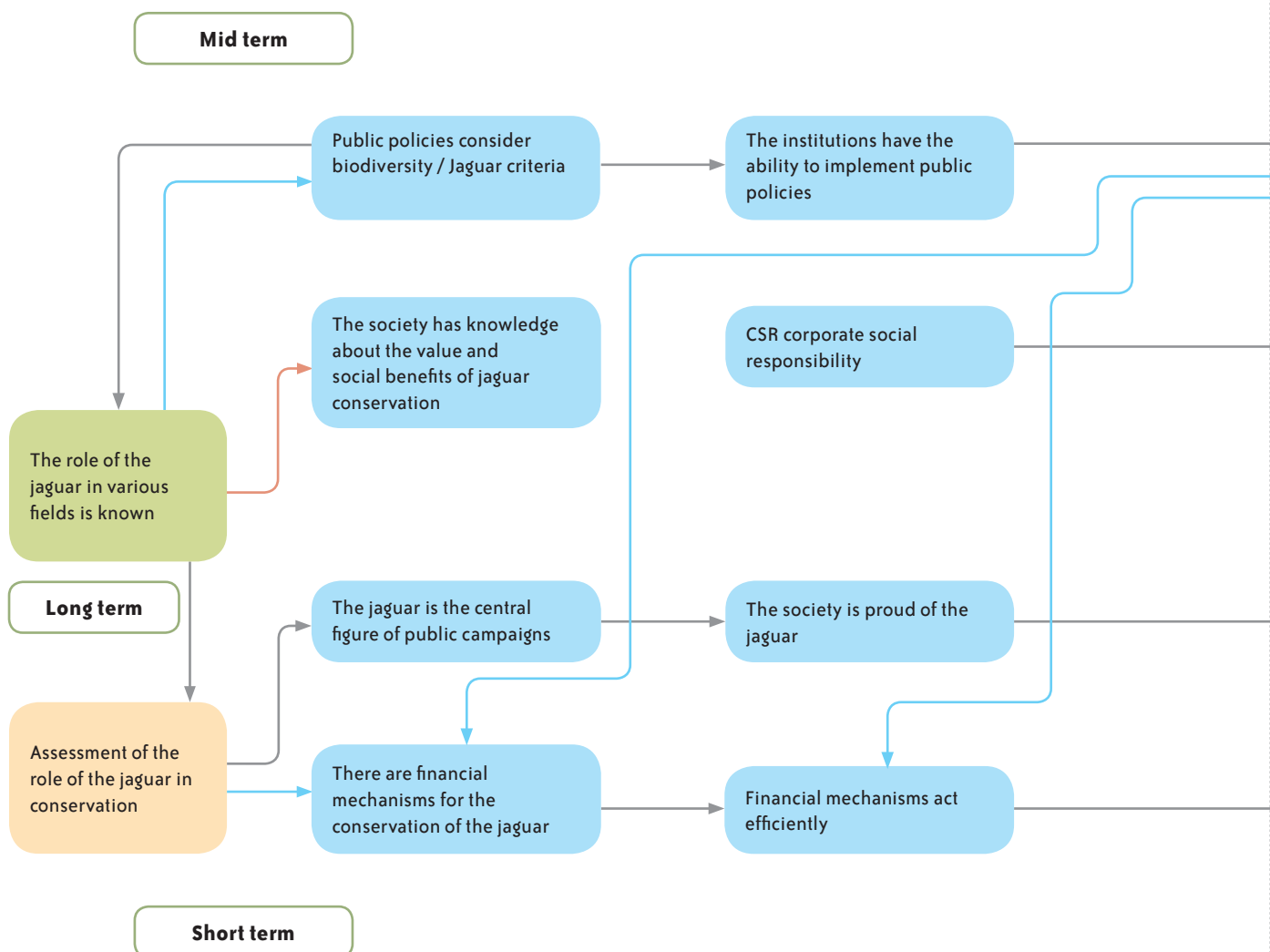
- It is necessary to work with research and intelligence to identify the magnitude of the problem, the trafficking routes, and those involved.
- As for conflicts, it is necessary to implement mechanisms holistically. The WWF already has a methodology for this.
- Better planning of ground usage.
- Work is needed on monitoring, improving local community tolerance of jaguars, and improving prey availability.

#### Changes:

To be clearer in work with local communities to generate legal alternatives and to include Interpol to influence the improvement of regulations.

#### Theory of change:

If we strengthen the institutions and run campaigns creating a critical mass of citizens, consumers, and sensitized decision makers, then we will achieve the identification of trafficking routes. If we reduce conflicts and implement distinct systems, we will reduce the killing of jaguars.



### **Group 2 - Strategy 5 – Valuation of the role of the jaguar in conservation**

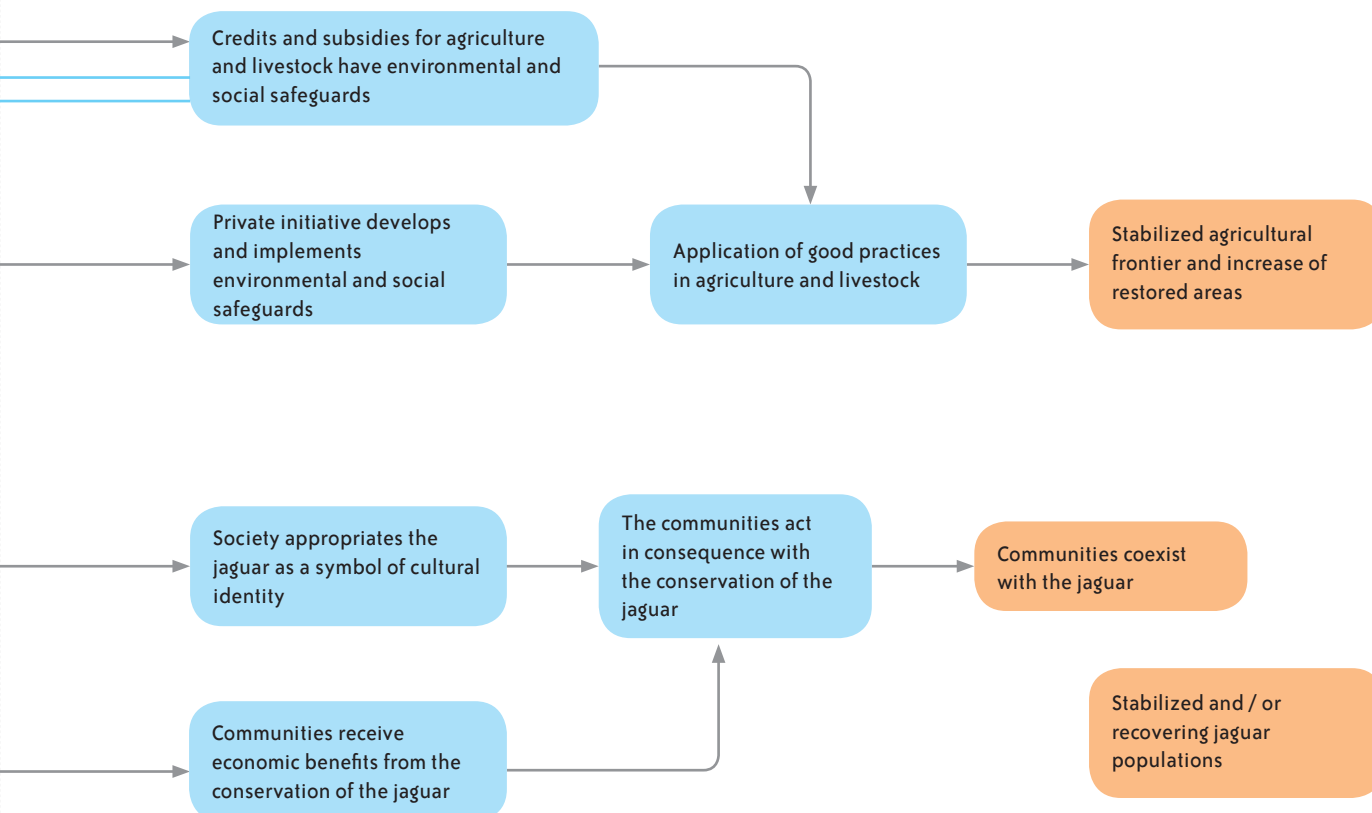
The aims are to stabilize the populations and recover them in the sites affected by means of the stabilization of the agricultural frontier and the recuperation of areas that have been affected, to reduce livestock-jaguar conflict, and to increase peaceful human-jaguar coexistence. To this end, the following is needed:

- To make the most of the financial mechanisms that exist (PSA) and to develop new ones which allow the easing of pressure on the jaguar, and to achieve immediate benefits for the communities. This is related to

the need for making information on the value of the jaguar available.

- Communication is necessary to present the jaguar as a conservation ally; all of this is from the role the jaguar fulfills in maintaining a healthy ecosystem.
- To reach levels of awareness in the community so that they are proud of the jaguar, and to empower people in seeing the jaguar as being a symbol of cultural identity. All this is aimed at improving attitudes toward the species and human-jaguar coexistence.
- Long-term awareness. Short term, knowledge must help to improve public policies



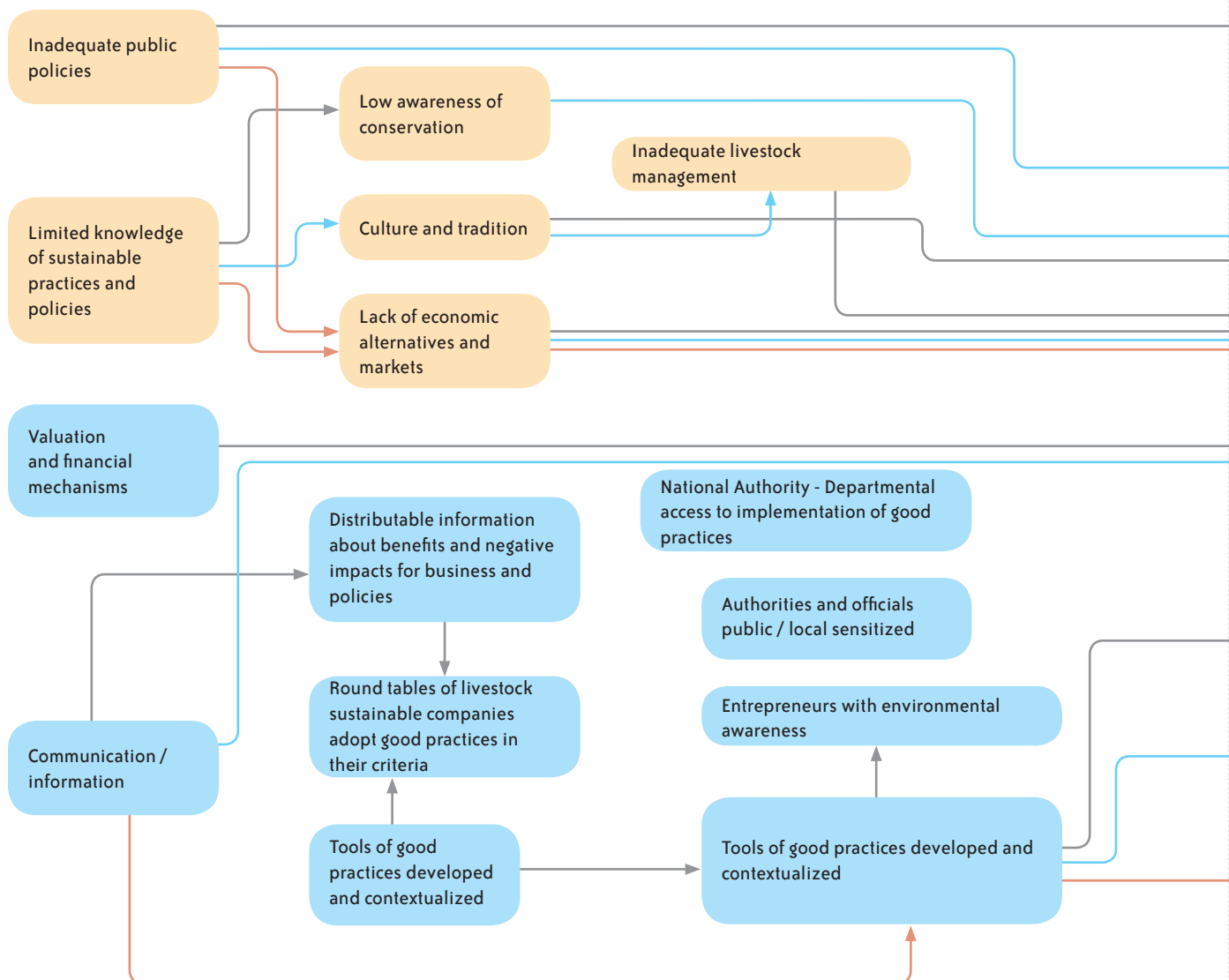


that incorporate the topics of diversity and sustainability. Furthermore, strengthening institutions for the implementation of public policies, improving existing financial systems, and generating others where sectors can contribute with more resources.

- Through the incorporation of conservation within national policies, it is hoped that the credit systems incorporate environmental and social safeguards which allow the incorporation of new agricultural and livestock farming practices as well as other productive sectors to reduce pressures.

#### Theory of change:

If we create financial mechanisms that allow communities to obtain short-term benefits from jaguar conservation, whilst complementing them with strategies for the society to adopt the species as a symbol of cultural identity, in turn creating a political framework that allows the extension of this principle in other productive sectors, then we will achieve the aims of conservation for this species.



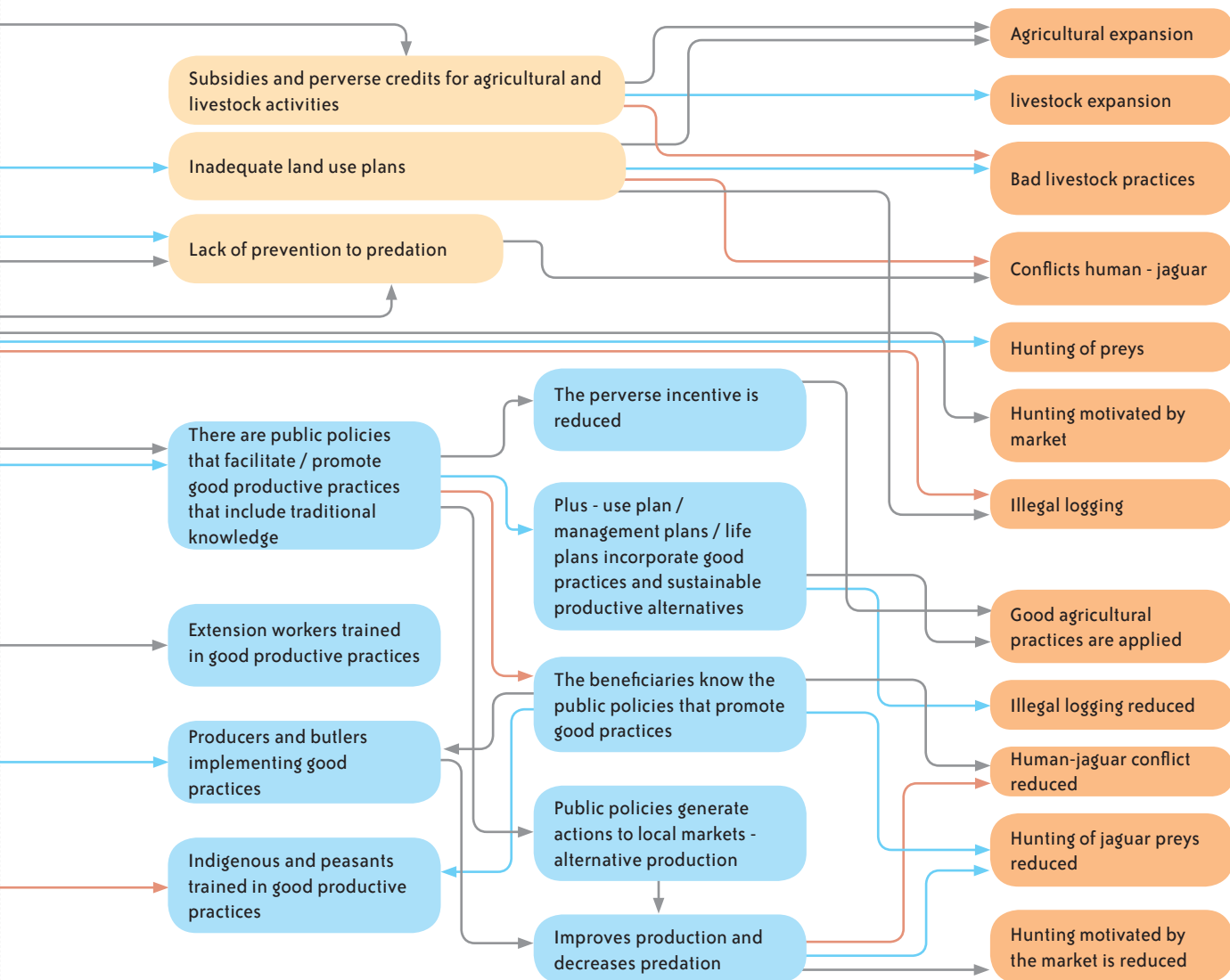
**Group number 3 - Strategy 2 – Catalyzing the implementation of good practices and jaguar-friendly economic alternatives.**

Work was done on the topic of inadequate public policies that have an effect on activities and subsidies that generate perverse incentives in the topic of ground use, and the little knowledge on sustainable practices. “Catalyzing the implementation of good practices and jaguar-friendly economic alternatives” focused on:

- The provision of robust information to be shared with authorities on different levels and producers. Small and large producers

are separated to facilitate the formulation of activities.

- Generating tool kits that can be incorporated into training programs for extensionists, as well as the large and medium-sized producers.
- With the information provided to authorities, it is hoped that they will generate policies to promote good agricultural and livestock practices and non-traditional economic alternatives.
- As program extension cannot be done in all jaguar distribution areas, the sites of direct incidence of WWF and partner organiza-



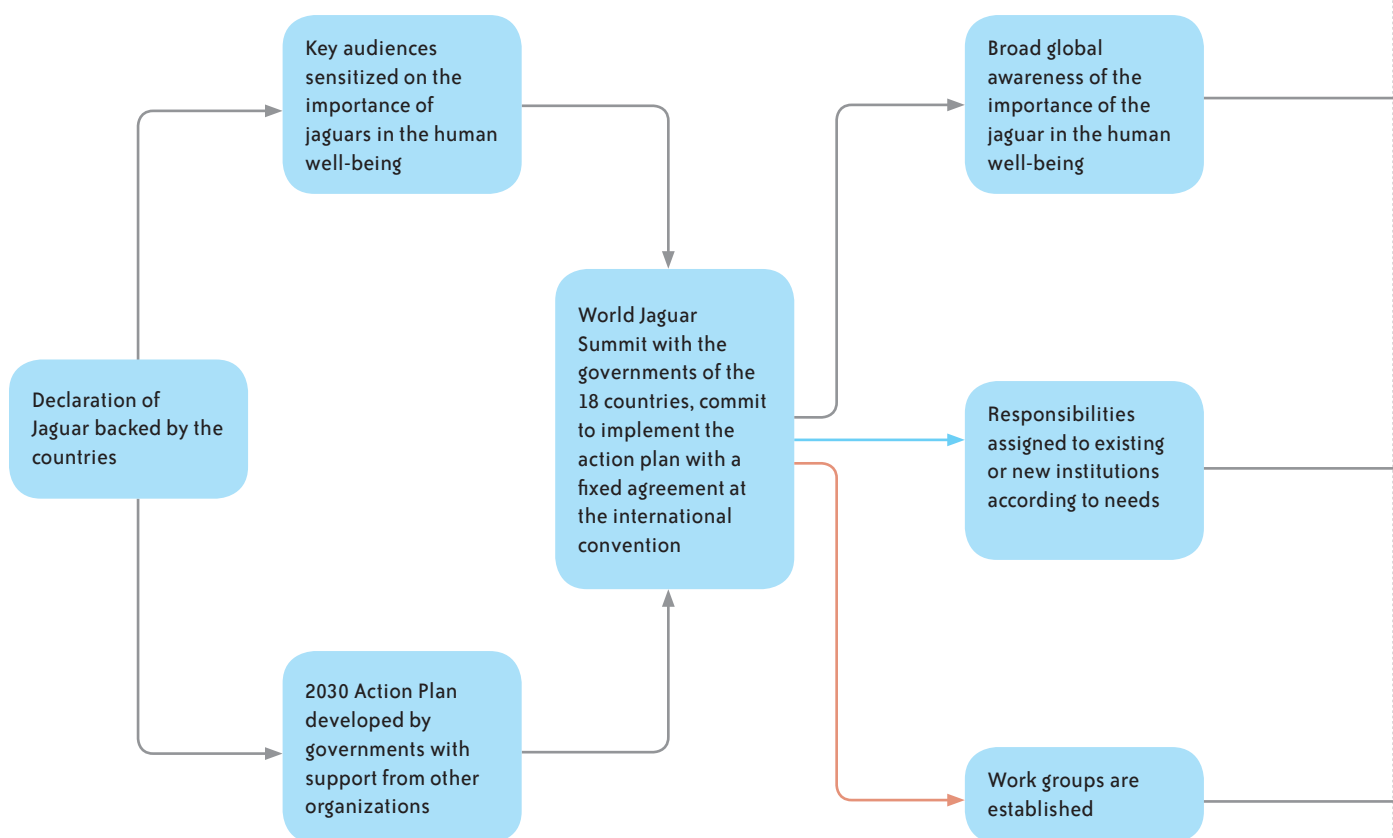
tions together with civil society must be identified.

- Changes go together with complementary strategies, such as financial mechanisms, to influence the creation of certifications and incentives for conservation.
- Each link is supported by a communication and information strategy to generate the desired changes.
- Although it seems obvious, this does not demonstrate the real-life difficulty in the field. This must be contextualized in countries and regions.

#### Theory of change:

If we can count on and show conclusive technical and scientific information and tools that improve performance for the producers, working from the results of land use and productive policies, and based on the implementation of policies and good productive practices, then we can catalyze a scaling in the proclamation of sustainable policies and the application of good practices in key corridors and buffer areas protected for jaguar conservation. This must be accompanied by the two previously mentioned strategies (communications and valuation of financial mechanisms).





**Group No 4 - Strategy 4 – Building political will and promoting cross-border and intergovernmental cooperation for jaguar conservation**

The aim is to achieve an inter-ministerial agreement and to achieve a commitment between the countries that leads to the development of an action plan, which must be improved by governments in America with the active participation of civil society. This must originate from awareness mechanisms from the high levels of government of the 18 countries in which the jaguar is present.

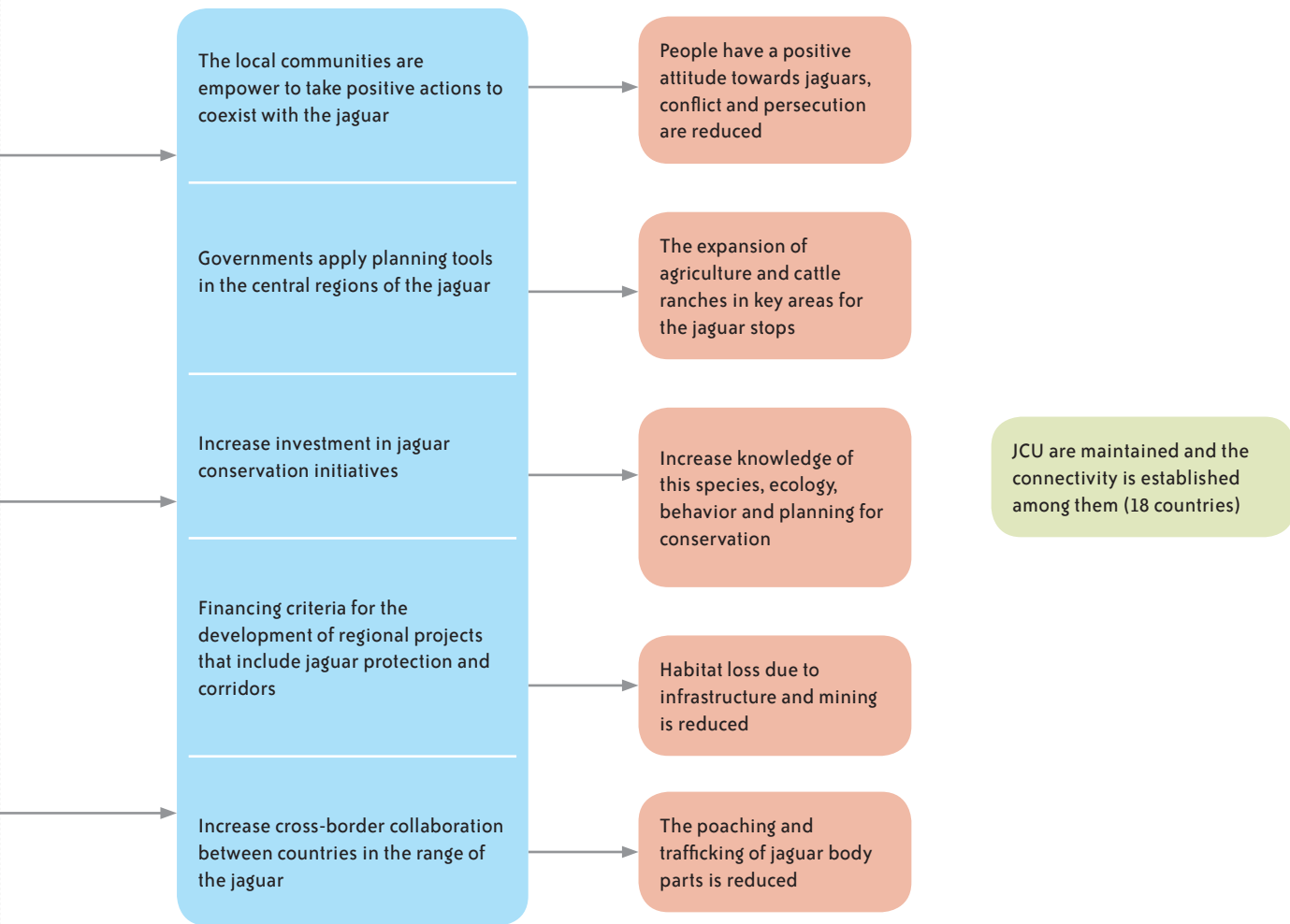
The result may be an agreement that is implemented in the entire distribution area at a governmental level, with the add-on that this

intergovernmental document can be included in some of the already existing conventions, to which end the most open one would need to be identified as well as which may lead to significant contributions to jaguar conservation.

Based on this, the following results emerge:

- The awareness that people demonstrate upon integrating the jaguar as an important element in their daily lives.
- The responsibility of instructions that are strengthened to constitute and promote the agreement.
- The working groups to achieve the proposed transnational action plan.

The results may be: 1) influence in local communities that results in positive actions for human-jaguar coexistence; 2) governments empowered by the responsibility to

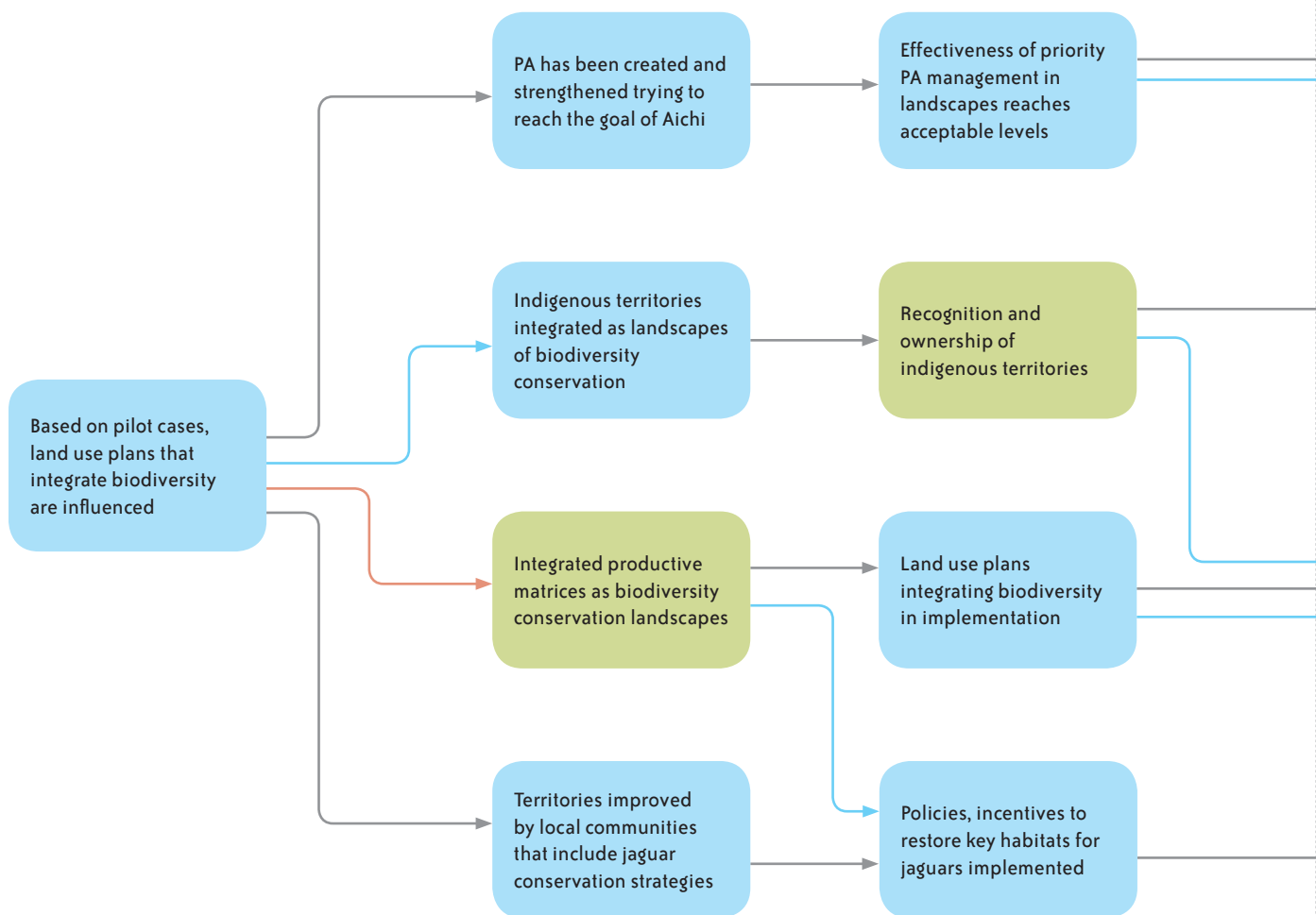


execute planning tools within the distribution area; 3) more investment directed at obtaining information to apply in jaguar conservation; 4) criteria for the development of regional projects that include the protection of the species; and 5) the increasing of strategic alliances for sharing information between countries on what is being done and what could be done with the jaguar.

**Result:** the changes in people's attitudes will be seen in the reduction in conflicts related to agriculture and livestock expansion; the improvement of practices used until now; the increase in knowledge on the species; the reduction in negative impacts related to infrastructure work; and the reduction of hunting and illegal trafficking of jaguar parts.

#### Theory of change:

Through the establishment of a binding inter-governmental agreement with delimited time commitments and clear indicators, we are going to create enabling conditions that include; awareness of general society, the empowering of communities upon seeing themselves recognized by governments as important actors of comprehensive planning, the increase in conservation investment, the development of regional criteria for the development and increase in cross-border collaboration (to avoid trafficking and for the management of protected areas, beyond just sharing information). Through all this, the long-term conservation of the jaguar can be ensured throughout its entire geographical distribution range.



### **Group No 5 – Strategy 1- Resilient interconnected landscapes**

#### **Definitions:**

- Landscapes: core areas (protected, indigenous territories) in a grid of agriculture and forestry plantations.
- Resilient: those landscapes that house viable jaguar populations. In the case they are not viable, the ecosystem must be recovered to sustain populations.

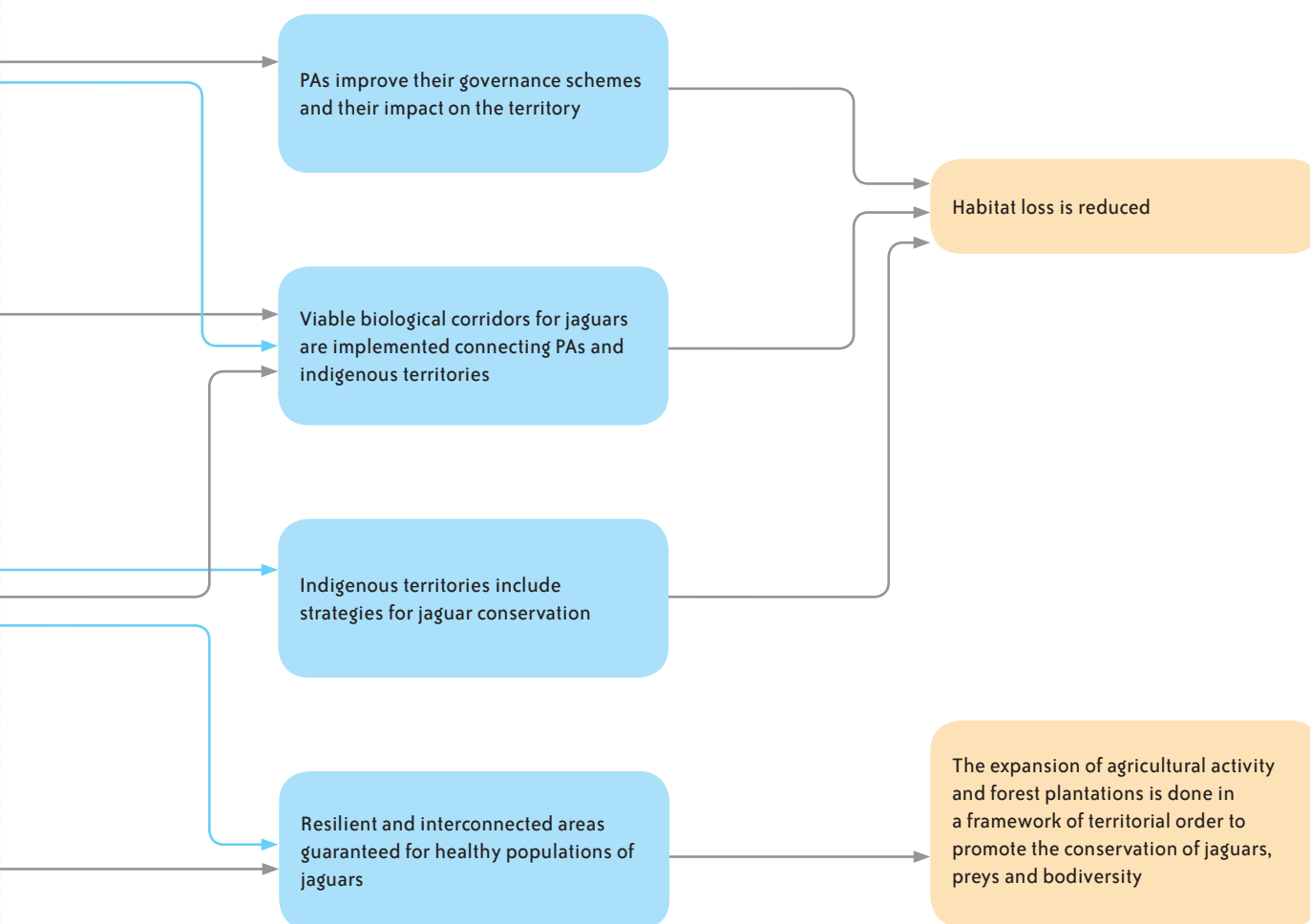
The following were identified as key: 1) local misgoverning, 2) lack of public policies with good base information for decision making, 3) inadequate territorial codes, 4) weak

control and auditing, and 5) protected areas in decline that can be recategorized.

The following premise arises: “Based on the pilot cases, public policies of development integrate biodiversity as a territorial planning element”. Because of this, work lines are defined in protected areas, indigenous territories, productive matrices, and community-managed territories.

- With created protected areas and strengthened management, the effectiveness improves, and better governance is promoted which helps reduce the jaguar’s habitat loss.
- With indigenous territories it is key to make progress in recognition and certification





of indigenous communities as it has been demonstrated that they are great conservation allies. This results in the construction of life plans that include jaguar conservation strategies.

- In the line of work of territories managed by communities, the territories may be more degraded for which reason the importance of policies and incentives for habitat recovery is key.
- In terms of productive integrated matrices for biodiversity, the territorial planning codes are key as they result in resilient areas which are interconnected to support jaguar populations.

- Reorienting the course of the agricultural and cattle farming expansion and allowing jaguar mobility, by means of interconnected landscapes.

#### **Theory of change:**

If we improve public policies by strengthening protected areas, indigenous territories, and integrating productive matrices to conservation landscapes, we will promote resilient and interconnected landscapes and thus we will orient productive activities and development which may reduce loss of the jaguar.



© Lynn M. Stone - WWF

## 6.6 Favorable conditions for success

### Aspects related to coordination

- The objective of the workshop is to construct bases for an agreement between institutions.
- It is a joint effort which must have shared coordination looking toward a coalition of close partners.
- Centralized coordination core: WWF and Panthera Foundation.
- Core team: WCS, Panthera Foundation, WWF, UNAM, Omacha Foundation, San Diego Zoo, ICMBIO, Institute of Biology of the subtropical National University of Missions, office of the United Nations –UNDP, U. San Andrés (Institute of ecology), Conservation International\*, ACAA, Yaguara\*, UNODC<sup>7</sup>.
- To include the entities as coauthors of the draft document that is going to be written.
- WWF is responsible for the creation of the first draft discussed in the workshop.
- As soon as the draft is ready in Spanish and English, decisions will be made on who is on the coordination team.
- It is important to make clear that this is a joint strategy, in which all the institutions that participated are coauthors and should provide input for the refining and participation of the final version.
- The document does not intend to be a detailed action plan – it is a short document with a deadline proposed for the end of April.
- In WWF a group of three people was established to follow progress.

<sup>7</sup> Those who were not present must be informed of the progress made in the workshop and contact made regarding their interest in participating.

## Definition of the next steps, tasks, time frames, and responsible parties<sup>8</sup>:

### 1. **Conceptualization**

- The vision is approved: “A continental working network of landscapes that ensures the presence and recuperation of the jaguar, its habitat, and the ecosystem services they provide, whilst contributing to the sustainable development of human communities living alongside them”.
- The scope is approved “distribution area of the jaguar”, including the countries in which the jaguar is found (18 countries).
- The objects of conservation (sub-regions) are defined, though they still need refining and defining: José Luis Mena, Valeria Borón. The JCU's are an important input for this.
- The viability analyses need validation, and those responsible will be the same ones who will work on objects of conservation.
- Calibration is needed for the criteria so that the threat analysis is measured in the same way: some aspects may be overestimated.
- This threat analysis must be done, and we propose that it be done by conservation objects to work together with Mathías Tobler and the other people working on conservation objects; in Paraguay, Daniela Rode is the contact for consulting.
- Other threats such as trafficking require work with other countries, because it is a regional threat.

Finished conceptualization

Date: April 6

**Revision of model:** Javier Castiblanco and Alfonso Llobet.

**Strategies:** send everything to Miradi, afterwards to carry out fine-tuning (Alfonso Llobet, Javier Castiblanco and Sandra Charity).

**Revision of theories of change:** Alfonso Llobet, Javier Castiblanco and Sandra Charity  
Date: April 13.

**Draft:** Sandra Charity sends document to Diego Amorocho.

Date: April 30.

### 2. **Revision of strategy draft**

- Mechanisms for consulting by strategy are proposed; one group and one document per strategy (María José Villanueva: Jaguar 2030; Valeria Borón: Zero hunting; Cristina Casavecchia: Resilient landscapes; Carlos Espinosa: Valuation; Lila Sainz/John Polisar: Catalyzing good practices). Each strategy will be reviewed by groups, and if someone else wants to review the rest they can do it and send it to the leader of each strategy.
- **Date:** Diego Amorocho will send the leaders each strategy on the 2<sup>nd</sup> of May, the leaders will organize their groups to have comments sent to Diego Amorocho and Sandra Charity by the 16<sup>th</sup> of May.
- **Final internal version to be shared with partners:** May 30
- Sandra Charity will share this version with the institutions identified in the list of authors; that is, the attendees of this workshop. Before sharing it with governments, there must be internal agreements to decide the appropriateness and mechanism for doing so. It must be presented as a framework so that the discussion about it is on how to get it delivered to the governments.
- To create a protocol for defining how to act with other organisms, for example, the governments.
- The proposal as a regional strategic framework, about which conversations with national governments will take place.
- How do we articulate the efforts that have been made with already-created governmental plans?
- It is important to highlight that this is a collective effort, even though the call for the initiative was made by WWF.



- How do we get this strategy to be adopted by different institutions, not only as coauthors but as a part of their agenda?
- This is a strategic framework about strategies, each institution can organize their agendas, and each partner can contribute to the strategic framework. A goal can be set so that everyone commits to contributing to the fulfilment of it.
- The strategy must reflect the common problems encountered in the entire region and key areas that have been identified, especially those that are binational.
- There are countries in the process of creating their own plans; this strategy can provide input for those plans, invigorate those strategies underway, and those that are being developed.

Other comments:

- The invitation to continue reflecting internally about what this document wants to achieve
- To evaluate the possibility of “skimming” the strategy with a common goal so that each one can contribute to its fulfillment – we invite people to be realistic.
- The document can be multipurpose.
- The strategy must be shared by all, that the efforts are focused on the conservation of the jaguar and trying to position the species which is of great importance, for its conservation.
- 

### 3. **Communications**

- To communicate the workshop’s conclusions.
- What should happen before and after May 30 (governments, institutions, sectors)?
- Within each circle: an announcement of the main conclusions and results of the internal discussion, through internal media of each institution, and another for media with the aim of making all efforts externally visible.
- All efforts need to be shown; for example, the meeting in New York and this workshop.
- It is important to emit a message so that the government eventually includes it: when non-governmental organizations come together as one single voice, they resonate more in other spheres.
- If they want to include jaguars in the agenda, this takes time and work must begin to be done.
- The gathering of funds has not been considered: first it is necessary that the core team that will take on this strategy is functioning correctly, and for this, funds are needed for communication.
- It is important to inform (formal and informal presentations) internally in each one of the offices to identify aspects that are already within funding topics in these entities.
- The second part of the plan is to position this strategy in Colombia.
- To explore options among companies according to their conservation interests. The private sector needs to be considered for funding.
- The power of the strategy is to be able to impact on the entire range of the jaguar; the hope is that everyone’s effort will be seen reflected in the implementation.
- Management capacity to act on international stages and types of financing that make a real impact on the jaguar.
- The inclusion of the jaguar in WWF’s Big Cats.











© David Lawson WWF-UK

