CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA

Seventy-eighth meeting of the Standing Committee
Geneva (Switzerland), 3-8 February 2025

Illegal trade and enforcement

Jaguars (*Panthera* onca)

REPORT OF THE SECRETARIAT

1. This document has been prepared by the Secretariat.

2. At its 19th meeting (CoP19; Panama City, 2022), the Conference of the Parties adopted Decisions 19.110 to 19.114 on *Jaguars* (Panthera onca), as follows:

Directed to Parties, especially those that are range States of the jaguar, and relevant stakeholders

19.110 *Parties, especially those that are range States of the jaguar, and relevant stakeholders are encouraged to:*

a) urgently adopt comprehensive legislation and enforcement controls aimed at eliminating the poaching of jaguars and illegal trade in their parts and derivatives, including online sales of specimens;

b) include the jaguar as a priority species to be targeted as part of enforcement operations, measures and controls deployed to respond to and address wildlife crime;

c) *ensure that any illegal domestic and international trade in jaguar specimens detected are included in annual illegal trade reports in accordance with Resolution Conf. 11.17 (Rev. CoP19) on* National reports*; CoP19);*

d) promote the design and implementation of conservation corridors between range countries of the jaguar, strengthening cooperation mechanisms on a local, national and regional level in order to promote good conservation practices; channel investments to the conservation of the species; reduce the threats to the connectivity of its habitats; and strengthen the capacities of the main players involved, including by mobilizing Global Environment Facility (GEF) funding for this purpose;

e) support the development of the proposal for establishing a long-term system for monitoring illegal killing of jaguars, associated illegal trade in their parts and derivatives and other key aspects related to jaguar conservation;

f) raise awareness about the importance of the jaguar and its protection status, its role in the ecosystem and the threats it faces, including illegal trade;

g) participate in the meeting of jaguar range States referred to in paragraph c) of Decision 19.111, and other events as appropriate, in order to share experiences and knowledge about the priority issues identified to combat illegal trade in jaguars;

h) *recognize the jaguar as the flagship species of its range countries so that the protection and conservation of the species and its habitat becomes a joint priority due to its ecological significance; and*

i) *provide information to the Secretariat on the measures and activities they undertook to implement the actions directed to them under this Decision.*

Directed to the Secretariat, in cooperation with the Secretariat of the Convention on Migratory Species and the Coordination Committee for the 2030 Jaguar Conservation Roadmap for the Americas led by the United Nations Development Programme

19.111 *The Secretariat shall, subject to the availability of external funding, cooperate with the Secretariat of the Convention on Migratory Species and the Coordination Committee for the 2030 Jaguar Conservation Roadmap for the Americas led by the United Nations Development Programme with a view to:*

a) *integrate and align conservation efforts, demand reduction strategies, behaviour change and livelihood alternatives to prevent illegal killing of jaguars and associated illegal trade in jaguar parts and derivatives;*

b) *develop a proposal for establishing a long-term system for monitoring illegal killing of jaguars, associated illegal trade in their parts and derivatives and other key aspects related to jaguar conservation, including engagement of local communities and indigenous peoples in the monitoring and gender-based approaches as appropriate;*

c) *convene a meeting of jaguar range States to:*

i) *identify opportunities for cross-border collaboration and regional cooperation, joint actions, and resource mobilisation aimed at reducing habitat loss, habitat fragmentation and human-animal conflict, and preventing the illegal killing of and illegal trade in jaguars;*

ii) *review options for an intergovernmental platform aimed to support jaguar conservation and combating the poaching and illegal trade in jaguars through a continental action plan;*

iii) *review the Secretariat's proposal for establishing a long-term system for monitoring poaching and other key aspects related to jaguar conservation, referred to under paragraph b) of the present Decision; and*

iv) *promote the reporting of any illegal domestic and international trade in jaguar specimens in CITES annual illegal trade reports in accordance with Resolution Conf. 11.17 (Rev. CoP19) on* National reports.

19.112 *The Secretariat shall:*

a) *support Parties in their implementation of Decision 19.110;*

b) *issue a Notification to the Parties requesting the information specified in Decision 19.110; and*

c) *report on the implementation of the Decisions 19.110 and 19.111 to the Standing Committee and the Conference of the Parties with recommendations as appropriate.*

Directed to the Standing Committee

19.113 *The Standing Committee shall establish an intersessional working group on jaguars* (Panthera onca)*, with the following terms of reference:*

a) *based on the Secretariat's analysis in document SC74 Doc. 75, to assess whether a specific draft resolution on jaguars would be appropriate, also taking into consideration the conclusions of the meeting of jaguar range States mentioned in Decision 19.111, paragraph c), where applicable;*

b) to make recommendations to range States, and transit and destination countries, as appropriate: and

c) to report its conclusions and recommendations at the next meeting of the Standing Committee.

19.114 *The Standing Committee shall review the implementation of Decision 19.111, as well as the report and recommendations of the Secretariat under Decision 19.112 and the results of the intersessional working group, and make recommendations to range States, transit and destination countries, as appropriate and to the Secretariat for inclusion in the Secretariat's report to the Conference of the Parties under Decision 19.112.*

Implementation of Decisions 19.111 and 19.112 directed to the Secretariat

3. The Secretariat reported on progress made in the implementation of Decisions 19.110 to 19.114 to the Standing Committee at its 77th meeting (SC77; Geneva, November 2023) in document SC77 Doc.43. Based on the Secretariat's report and discussions at the meeting, the Standing Committee (see summary record SC77 SR):

a) noted the main results and conclusions of the meeting of jaguar range States;

b) requested the Secretariat to prepare terms of reference for the creation of a modular system for monitoring illegal killing of jaguars, illegal trade in their parts and derivatives and other aspects related to conservation, for consideration by the 33rd meeting of the Animals Committee and the 78th meeting of the Standing Committee;

c) requested the CITES Secretariat to prepare terms of reference for the creation of an intergovernmental platform as specified in paragraph 21 of document SC77 Doc. 43, including the option of a joint CITES-CMS jaguar initiative. The terms of reference should be presented to the next meeting of the Standing Committee (SC78);

d) in line with activity B10 of the CMS-CITES Joint Work Programme 2021-2025 (Annex 2, SC73 Doc. 13), which establishes that the Secretariats of both Conventions should "collaborate on the conservation of the jaguar, taking into account existing mandates and ongoing efforts and initiatives in the region", recommended that both Secretariats jointly develop, in close consultation with jaguar range States and inviting contributions from the Convention on Biological Diversity and other relevant organizations, a joint working programme establishing specific priorities for jaguar conservation throughout the region, activities to promote coexistence, and necessary actions for preventing and combating illegal killing and illegal trade of jaguars, their parts and derivatives for consideration by the 33rd meeting of the Animals Committee and the 78th meeting of the Standing Committee.

e) *recommended that both Secretariats, subject to the availability of external funding, jointly organize a second meeting of jaguar range States to discuss the implementation of the joint working programme for jaguar conservation with the support of relevant partner organizations;*

f) established, within the Standing Committee working group on jaguars, a working subgroup on financial opportunities for the jaguar that should consider the possibility of creating a regional common fund for jaguar conservation; and

g) requested the CITES Secretariat to follow up on the agreements related to paragraph 11 on the seven joint working areas and the players involved and paragraphs 25 to 27 on criteria/prioritization of landscapes through a Notification to the Parties requiring regular updates to the jaguar questionnaire.

4. Based on the deliberation and outcomes of the meeting of jaguar range States held in Cuiabá, Brazil, from 18 to 22 September 2023 and in consultation with the Secretariat of the Convention on Migratory Species (CMS), the Secretariat drafted the terms of reference for the tasks in subparagraphs b) and c) above. In doing so, the Secretariat took note of the comments provided by the Standing Committee in the discussion on this item at SC77 and the insights provided by Parties, partners, and relevant stakeholders.

5. In its report to the 33rd meeting of the Animals Committee (AC33; Geneva, July 2024), the Secretariat reported on progress with the implementation of the CoP19 Decisions on jaguars and presented the draft terms of reference as requested by the Standing Committee. The Animals Committee noted the Secretariat's progress in the implementation of SC77 recommendations on jaguars and invited the Secretariat to consider

the comments made in plenary as it finalizes the draft terms of reference in the Annex to document AC33 Doc. 37, noting that most range States expressed support for the terms of reference as contained in the Annex and emphasizing the need for consultation to avoid duplication of work (see AC33 SR).

6. The terms of reference for the tasks to be carried out can be found in Annex 1 to the present document and contains four elements: a) a situational analysis; b) terms of reference for the creation of a modular monitoring system; c) terms of reference for an intergovernmental platform; d) a proposal of a draft CITES-CMS joint programme of work.

7. The Secretariat invites the Standing Committee to note that, after giving careful consideration of the many ongoing activities in jaguar conservation at the international, regional and national levels, it was decided to include in the terms of reference the preparation of a situational analysis. This would allow to have an overview of the current implementation of jaguar conservation projects and programmes and identify the range States, partners and stakeholders involved in such projects and programmes. The Secretariat believes that this analysis will make available baseline information that could assist in the establishment of the intergovernmental platform by identifying all who are working on jaguar conservation and the resources available so far for such work. This analysis will also be helpful when developing and finalizing a range-wide jaguar initiative. It will take into account the activities of the range States, the Jaguar 2030 Conservation Roadmap for the Americas, and the conventions and intergovernmental and non-governmental organizations supporting many other initiatives in this field. This will also help identify which partners can carry out specific activities depending on respective mandates.

8. The CITES and the CMS Secretariats agreed that the elements a), b) and c) were to be led by the CITES Secretariat, and element d), i.e. the proposal of a draft CITES-CMS joint programme of work would be led by the CMS Secretariat. At the time of preparing the present document, the first draft of the situational analysis is available, noting that further refinement and consultation with range States and other stakeholders have yet to take place to ensure an inclusive process. The draft situational analysis is contained in Annex 2 to the present document.

9. The draft situational analysis in its preliminary findings notes that, based on available information, the main threats to jaguars are habitat loss, human-jaguar conflict, poaching, prey depletion, mining, climate change and weak law enforcement. This is supported by the Jaguar 2030 Conservation Roadmap of the Americas which states that in general "loss and degradation of valuable habitat is the number one threat to the jaguars", and that "another major threat to jaguars is direct killing driven by human-induced mortality due to actual or suspected attacks on livestock, along with fear of attacks on people". During the discussions at AC33 (see summary record AC33 SR), a range State Party drew attention to the reality on the ground that "illegal trade in jaguars is a consequence of the killing of jaguars and not necessarily the cause for the killing of jaguars".

10. Seizures reported by Parties in their CITES Annual Illegal Trade Reports for the years 2016-2022 confirm that there is illegal trade, although the number of incidents and the volumes recorded in these reports remain consistently low. It is therefore essential to base actions on evidence-based considerations to ensure that CITES's role is accurately positioned within the broader landscape of jaguar conservation, especially where multiple stakeholders are involved. The CITES Secretariat will continue to work on the situational analysis to present a robust document to CoP20.

11. The Secretariat has not completed the drafts of elements b) and c). With regard to element d), the CMS Secretariat prepared a draft "Programme of Work for a range-wide Jaguar initiative" and shared it with the CITES Secretariat on 9 January 2025; it is contained in Annex 3 to the present document. The proposal of a draft CITES-CMS joint programme of work called for by the Standing Committee is envisaged under Objective 1 of this range-wide jaguar initiative. The Standing Committee will therefore not be able to consider a draft CITES-CMS joint programme of work on jaguars at the present meeting. The Secretariat believes that this is sensible given the need to first consider the situational analysis and other results of the study as well as carry out the second range State jaguar meeting, subject to the availability of extra-budgetary resources, to be able to agree on additional activities on jaguar conservation to be included in the current CITES-CMS joint programme work.

12. With regard to the SC77's recommendation to follow up on the agreements related to paragraph 11 on the seven joint working areas and the players involved, and paragraphs 25 to 27 on criteria/prioritization of landscapes (see paragraph 3 g) above], the Secretariat has participated in the regular online meetings of the Jaguar 2030 Conservation Roadmap convening all the main international players and will take part in a forthcoming in-person meeting of this initiative. The further work on the seven areas is expected to be integrated in the future work on jaguars of the range States and the Secretariat.

13. The Secretariat notes also that, in response to Decision 19.111 which, *inter alia*, requests the Secretariat to incorporate demand reduction strategies to prevent illegal killing of jaguars and associated illegal trade in jaguar parts and derivatives and Decision 19.55 on demand reduction pilot projects (see document SC78 Doc. 29), the Secretariat will undertake a pilot project in the Plurinational State of Bolivia that aims to reduce the demand for jaguars through a 5-step approach in accordance with the *CITES Guidance on demand reduction*. The Secretariat would like to thank the Plurinational State of Bolivia for its cooperation on the pilot project and the Netherlands for its financial support.

Implementation of Decision 19.114 directed to the Standing Committee

14. The Standing Committee's intersessional working group on jaguars has proposed to prepare a specific resolution on jaguars (see document SC78 Doc. 44.1). The Secretariat considers that such a resolution would not only be well-placed to host the various recommendations developed by the working group and included in the document, but also provide an overarching guidance and direction on jaguar conservation in the long term. Such a resolution could also give recognition to broader initiatives that are adopted outside of CITES. In this regard, the Secretariat notes the recommendation in document SC78 Doc. 42 not to pursue, at this time, the development of a resolution on illegal trade in big cats, nor to consider revising Resolution Conf. 12.5 (Rev. CoP19) on *Conservation of and trade in tigers and other Appendix-I Asian big cat species* to extend its scope to all big cat species.

Discussion: The role and mandates of CITES in jaguar conservation

15. There is growing attention to jaguar conservation in recent years due to the multifaceted threats faced by the species. As indicated in the draft situational analysis, there are a wide number of stakeholders including national governments, particularly range States, United Nations organizations, international treaties, international and national non-governmental conservation organizations, regional organizations, donors, private sectors and local communities. There is a common agreement on the urgent need for well-coordinated action to build or strengthen participatory and inclusive initiatives, coalitions and platforms among all actors. Mobilizing political will and collective actions is also essential to advance jaguar conservation.

16. As an international legally binding treaty with all 18 jaguar range States among its Parties, CITES is expected to play a convening role, mindful of its mandate, to bring all range States together to strengthen regulation of legal international trade in CITES-listed species and to combat the illegal wildlife trade. Collective efforts will be most effective when each stakeholder operates within its defined mandate while contributing to a shared vision outlined by jaguar range States that "are and should be the best protectors of their own wild fauna and flora" according to the preamble of the Convention. To this end, the seven areas of work identified during the jaguar range States meeting (Cuiabá, Brazil, September 2023) clearly describe the roles of each stakeholder. These roles should be recognized and applied in future initiatives (see paragraph 11 of document SC77 Doc. 43).

17. Presently, multiple initiatives and programmes of work are being developed or implemented at both international and regional levels to address jaguar conservation, including the following:

- the Jaguar 2030 Conservation Roadmap for the Americas;
- the CMS Jaguar Initiative;
- the Joint CITES-CMS Jaguar Initiative as envisaged by the CMS Secretariat;
- the Intergovernmental Platform and its envisaged programme of work with five thematic areas;
- a potential continental action plan envisaged in Decision 19.111;
- the Regional Conservation Strategy for the Jaguar in South America; and
- the draft "Programme of Work for a range-wide Jaguar initiative" recently developed by the CMS Secretariat.

18. Many such initiatives may have implications on the work of the CITES Secretariat to some extent. With its limited resources, it is critically important for the Secretariat to avoid duplication of efforts and multiple overlapping programmes of work or initiatives covering the same taxon. Ideally, as it seems to be what the range States are requesting, there should be one global initiative or plan that sets out objectives and actions on jaguar conservation and to which all players may contribute within their respective mandates.

Next steps

19. Following further consultations with the CMS Secretariat and to avoid duplications, the Secretariat is inclined to consider that the draft "Programme of work for a range-wide Jaguar initiative" developed by the CMS Secretariat could potentially serve as a building block for the development of the intergovernmental platform. The proposed objectives in the draft programme of work of this initiative could be further refined to fully cover the five thematic areas in the terms of reference for the intergovernmental platform. At the same time, the Secretariat notes that the development of such a range-wide initiative was not mandated by the Conference of the Parties to CITES. The Secretariat therefore invites Parties, particularly jaguar range States, to consider whether this approach could be pursued as a comprehensive range-wide initiative or action plan. This could be further elaborated and enhanced after CoP20, including through a second range State meeting, if extrabudgetary resources become available, incorporating elements such as indicators and milestones. Since such an overarching initiative is likely to contain objectives and activities that go beyond the mandate of CITES, it should be developed and adopted by the range States under a wider process, with the CITES Secretariat and other partners playing a convening role. Once established, such an initiative or action plan could subsequently be recognized in any proposed resolution on jaguars.

20. As mentioned above, given the Secretariat's workload and lack of extrabudgetary resources, only the first draft of the situational analysis has been produced to date and the second meeting of the jaguar range States as recommended by the Committee at SC77 has not yet been organized. The Secretariat will finalize the work tasked by CoP19 and SC77 and continue to seek funding for the second range State meeting.

21. In accordance with Decisions 19.112 and 19.114, the Secretariat will report to CoP20 on implementation of the Decisions on jaguars and make recommendations as appropriate, incorporating the recommendations of the Standing Committee in its report as directed by Decision 19.114.

Recommendations

22. The Standing Committee is invited to:

    a) take note of this report on the implementation of Decisions 19.111 to 19.114 and the recommendations of SC77;

    b) advise if the draft "Programme of Work for a range-wide Jaguar initiative" contained in Annex 3 to the present document could serve as a building block for the development of an Intergovernmental Platform foreseen by the CoP19 Decisions;

    c) invite the Secretariat to seek feedback from jaguar range State Parties and other partners on the draft situational analysis, as well as the draft proposal on the modular monitoring system when it becomes available; and

    d) request the Secretariat to incorporate the recommendations of the Standing Committee in its report to be prepared and submitted for the consideration of the 20th meeting of the Conference of the Parties (CoP20).

DRAFT TERMS OF REFERENCE

IMPLEMENTATION OF CITES STANDING COMMITTEE'S RECOMMENDATIONS ON JAGUARS AS ADOPTED AT ITS 77TH MEETING (SC77; GENEVA, NOVEMBER 2023) PURSUANT TO DECISION 19.111

Duties and Responsibilities

1. Undertake a situational analysis that includes:

    a) mapping of main players that generate or report information relating to jaguar conservation, threats, illegal trade in their parts and derivatives and other aspects related to conservation;

    b) data quality (quality of data currently being collected by various players);

    c) technological requirements to guarantee the interoperability and sustainability of a proposed solution for a monitoring system;

    d) agreed definition of variables or indicators;

    e) existing and proposed initiatives, their linkages and complementarities, to promote integration, leverage cooperation and avoid duplication of efforts/information; and

    f) consultation with range States, other actors identified, as well as secretariats of CITES, the Convention on Migratory Species (CMS) and the Convention on Biological Diversity (CBD) relating to variables, indicators and strategic information available based on their respective mandates, as appropriate.

2. Prepare terms of reference for the creation of a modular system for monitoring illegal killing of jaguars, illegal trade in their parts and derivatives and other aspects related to conservation [see summary record SC77 SR, para. 43 b)], taking the following into consideration:

    a) the results of the situational analysis.

    b) promoting and supporting reporting to the CITES Illegal Trade Database as an integral part of the envisaged system. This includes ensuring that any system established aligns with the current *CITES Annual Illegal Trade Report* template and guidelines, to facilitate data recording in a standardized manner that can easily be submitted and processed for inclusion in the database.

    c) data in the CITES Illegal Trade Database is available to Parties for analyses regarding wildlife crime as it affects them, through the CITES Illegal Trade Database data dissemination platform.

    d) the system should be able to produce a periodic report on the status of the jaguar in range States for submission to each meeting of the Conference of the Parties (see document SC77 doc. 43, para. 16).

3. Prepare terms of reference for the creation of an intergovernmental platform as specified in paragraph 21 of document SC77 Doc. 43, including the option of a joint CITES-CMS jaguar initiative. The terms of reference should include:

    a) an intergovernmental cooperation mechanism, its governance and a budget, as well as a glossary and an inventory of existing national platforms [see document SC77 Doc. 43, para. 21)];

    b) the platform should include a working programme with five thematic areas:

        i) habitat/conservation;

        ii) promotion of coexistence;

        iii) prevention (this may include strategies to reduce the demand of illegal jaguar products, livelihood

alternatives, cooperation mechanisms, education, etc.);

iv) enforcement (i.e., combating illegal killing of jaguars and illegal trade in their parts and derivatives); and

v) funding mechanisms as specified in paragraph 22 of document SC77 doc. 43.

4. Develop a proposal of a draft CITES-CMS joint working programme that includes the following:

a) specific priorities for jaguar conservation throughout the region,

b) activities to promote coexistence, and

c) necessary actions for preventing and combating illegal killing and illegal trade of jaguars, their parts and derivatives.

Ultimate result of service

There are four key outputs to be produced under this consultancy:

a) Situational analysis

b) Terms of reference for a system for monitoring illegal killing of jaguars, illegal trade in their parts and derivatives and other aspects related to conservation.

c) Terms of reference for a proposal for an intergovernmental platform that will allow the transboundary cooperation of range States for Jaguar with the support of conservation organizations, including the option of a joint CITES-CMS jaguar initiative.

d) A draft CITES-CMS Joint Programme of Work for the conservation of jaguar across its range.

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Situational analysis of Jaguars (*Panthera onca*).

(Draft of January 2025)

Background

Jaguars (*Panthera onca*) are the largest felids in the Americas, with a wide distribution from the southwestern United States to northern Argentina. Jaguars are listed in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES, www.cites.org) and the IUCN Red List of Threatened Species classified jaguars as Near Threatened, due to a suspected 20-25% decline over the past three generations (21 years) in area of occupancy, extent of occurrence, and habitat quality, along with actual or potential levels of exploitation (Quigley et al. 2017). However, this does not necessarily reflect the situation in individual Range States and most of them have assigned a more conservative national conservation status to jaguars, considering them either Extinct, Vulnerable, Endangered or Critically Endangered (Arias 2021; Kretser et al. 2022; Payán et al. 2023).

The figure of the jaguar, as the main representative of “the feline” in America, has played a leading role in all the areas of ethnic expression throughout the continent (Gómez Garcia-Reyes & Payán Garrido 2017). The jaguar stands as a superior icon of "power" since the Paleolithic era, permeating all cultural stages, and it was apparently only eradicated from the Amerindian collective with the onset of the Iberian conquest that demonized it (Castaño-Uribe 2013).

Jaguars were historically hunted for their skins, which were highly valued in the fashion industry. The listing of jaguars under CITES Appendix I in 1975 helped curbed this trade. Jaguars are also protected by law in all countries, but some countries have legal loopholes and all lack a strict enforcement of the laws in place. Jaguar killing is common, even in strictly protected areas, but detailed records are lacking. Additionally, in recent years the illegal trade in jaguars has remained a concern with thriving domestic markets for jaguar body parts and reports indicating international trafficking. Domestic demand for jaguar body parts is significant, with uses ranging from traditional medicine to decorative items, but there is less robust evidence about the uses of jaguar body parts outside of Range States. There is also evidence of openly-available online illegal jaguar commerce in several countries and that online trade in jaguar parts occurs. Teeth and skins were the first and second most prolifically traded parts online respectively. Jaguar teeth are used as jewellery and amulets, skins for traditional costumes and decorative items, and fat for medicinal purposes (Arias 2021; Elwin et al. 2023; Payán et al. 2023; Polisar et al. 2023b).

The reports submitted by CITES Parties on illegal trade in jaguars between 2016 and 2020 were analysed. A total of 88 reports were received and the results showed that the highest number of reports were from United States of America (n=22) and other countries with significant contributions include France and French Guiana (n=11). There were also reports from Brazil and Belize (n=6), Argentina and Spain (n=5), Germany (n=4), South Africa and Czech Republic (n=3), Netherlands, Costa Rica and Switzerland (n=2), and New Zealand, Sweden, Canada, Poland, Peru and Italy (n=1). The dates of seizure indicate that the highest number of reports occurred in 2019, with a gradual increase in reports from 2016 (n=4), 2017 (n=13), and 2018 (n=19) to 2019 (n=21), followed by a gradual decrease in 2020 (n=15), 2021 (n=9), and 2022 (n=7). It also showed that the most frequent category was tooth (n=35), followed by skin (n=11). Others specimens include body (n=6), claw, skull, leather product (small) and live (n=5), fur products (large) (n=4), garment, trophy and skin piece (n=3), and meat, fur product (small) and carving - bone (n=1). The distribution of reports showed that 19 countries reported the illegal trade of jaguars, from those 53 reports (60.23%) were from range states and 35 (39.77%) were from no range states, which indicate a major proportion of domestic trade than international trafficking.

Furthermore 30 of the 35 reports (85.71%) from no range states were from Europe. The results indicate that illegal trafficking is still ongoing, but has been decreasing in recent years, and geographic variability in reporting of cases shows that most of the cases reported are from United States of America and Europe. However, these results could be biased by differences in monitoring levels, detection capacity, or prevalence of trafficking in each region. The data also reflects the diversity of ways in which jaguars and their derivatives have been subject to illegal trafficking, with teeth and skins being the most frequently confiscated specimens as reported in previous studies (Arias 2021; Kretser et al. 2022; UNODC 2024).

The jaguar has experienced a significant reduction of more than 50% in its global distribution and the long-term outlook for its conservation is uncertain. The main threats are habitat loss, human-jaguar conflict, poaching, prey depletion, mining, climate change and weak law enforcement. Major threats vary by country, but deforestation made for agriculture and cattle ranching has the greatest negative impact. Additionally, habitat loss generates a synergy that exacerbates conflicts with livestock, because jaguars and livestock end up sharing the same space and livestock depredation becomes inhabitable. The human-jaguar conflict, driven by fear of their presence and/or livestock predation, often leads to retaliatory killings to reduce the perceived threat. These retaliatory killings significantly contribute to illegal trafficking, as jaguar body parts become available for cultural and traditional uses, driving domestic demand. Additionally, occasional access to international trafficking markets, where higher prices are offered, could provide an additional financial incentive for further poaching. Poaching can be opportunistic or targeted, but opportunistic poaching associated with domestic uses, markets, livelihoods, and conflict appears to account for the majority of killed and traded jaguars. Killing jaguars may be illegal in every country in the jaguar's range, but rural inhabitants, farmers and cattle-ranchers whose lands are inhabited by jaguars usually have a negative view towards them. These attitudes derive from competition for resources, territories and an inherited fear to these large wild cats, even though there are no reports of jaguars systematically attacking and killing humans for consumption (Hoogesteijn et al. 2016; Gómez Garcia-Reyes & Payán Garrido 2017; Valderrama Vásquez et al. 2017; Arias 2021; Jędrzejewski et al. 2023a; Jędrzejewski et al. 2023b; Morato et al. 2023; Thompson et al. 2023; Polisar et al. In prep).

Human-wildlife conflict poses serious challenges to governments and organisations trying to align wildlife conservation with sustainable development, among other pressures. Furthermore, where conservation "successes" has resulted in the growth of wildlife population, or species have recovered and expanded their ranges, human-wildlife conflicts often follow. There are proven strategies to reduce jaguar attacks on livestock, but each case has unique needs and ecological variables, which makes it difficult to be scale up amongst cattle ranchers. Furthermore, weak law enforcement is widespread. Institutions and authorities tasked with countering wildlife trafficking are understaffed, poorly trained, and ill-equipped. High personal turnover further hinders the retention of capacity and institutional memory. There are also challenges for the implementation and evaluations, particularly in remote regions, because of the lack of standardised information to report and dependable channels for citizens to report issues and communicate needs to authorities. There is often poor cattle management and care, coupled with deficiencies in the readiness of both government and cattlemen associations to address these issues. Additionally, there is a lack of awareness about available tools and inadequate organization to effectively promote and utilize these resources for a broader impact. The efficient response from institutions to citizens is crucial to reverse the inherent bad reputation of jaguars and to develop trust and engage communities in the conservation efforts. The killing of jaguars that eventually enter international trade are preventable at a local level, within each country. National legal frameworks and their local implementation play an important role in deterring opportunistic killings and accidental takes (Valderrama Vásquez et al. 2017; Arias 2021; Zimmermann et al. 2021; IUCN 2023; Payán et al. 2023; Polisar et al. 2023a; Valderrama-Vasquez et al. 2024; Polisar et al. In prep).

There is renewed concern due to increasing demand for jaguar body parts, especially from small and fragmented jaguar populations that are highly vulnerable to poaching and illegal trade, that has led to various conservation actions at national and international levels. In the first High-Level Conference on Illegal Wildlife Trade in the Americas in 2019, the jaguar was declared an emblematic species of the Americas and as a symbol of the fight against illegal wildlife trade. The Conventions also produced relevant resolutions or decisions like CITES Decision 19.11 to contribute to the implementation of the Global Biodiversity Framework, the recommendations of the CITES Standing Committee at SC77, CMS Res 14.14 and CMS Decision 14.178 on the CMS Jaguar Initiative establishment, amongst others. CITES also established the Big Cat Task Force and various other regional alliances and initiatives were established, such as the Jaguar 2030 Conservation Roadmap and the Regional Conservation Strategy for the jaguar in South America. However, some Range States have laws permitting the legal killing of jaguars for hunting, subsistence use, or conflict. It is

recommended that these countries modify existing laws to adopt jaguar-specific protection measures, establish and update administrative and criminal penalties, and strengthen legal protections (Arias 2021; CITES 2022b, a; Kretser et al. 2022; CITES 2023; CMS 2024a, b; Declaración de Lima sobre el Comercio Ilegal de Vida Silvestre. 2019).

Conservation priorities are habitat preservation (halt deforestation), mitigate the human-jaguar conflict to reduce the killing of jaguars for retaliation and trade, maintenance of prey availability, increase the number of protected areas, protect ecological connectivity and improve law enforcement. Effective conservation requires robust monitoring systems, international cooperation, and strong enforcement of wildlife laws. Monitoring species distribution over time and understanding factors and mechanisms that determine it is crucial for effective conservation planning. There is a need for stronger international collaboration in monitoring jaguar populations and conservation efforts and a new approach for estimating species distribution for IUCN Red List assessments (Jędrzejewski et al. 2023a; Jędrzejewski et al. 2023b; Thompson et al. 2023).

1.1. Mapping of main players

The report of the meeting of the jaguar Range States held in Cuiabá, Brazil, from 18 to 22 September 2023, provides an identification of the main players and their roles in jaguar conservation, addressing threats, illegal trade, and other related aspects. Range States at the meeting considered that the following seven areas of work that could be considered in the continental action plan, as well as relevant actors potentially willing to provide support to jaguar range States for the implementation of the most relevant activities:

a) Fulfilment of international commitments to CITES, the CMS and the CBD
[Actors potentially willing to provide support, to be defined later: United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), United Nations Office on Drugs and Crime (UNODC), Food and Agriculture Organization of the United Nations (FAO), Amazon Cooperation Treaty Organization (ACTO), World Wide Fund for Nature (WWF), Wildlife Conservation Society (WCS), Humane Society International (HSI), Defenders of Wildlife, Panthera, local non-governmental organizations, etc.].

b) Cross-border conservation activities
(Actors potentially willing to provide support, to be defined later: WWF, WCS, HSI, Defenders of Wildlife, Panthera, local non-governmental organizations, academia, research institutes, etc.).

c) Combating illegal cross-border trade
[Actors potentially willing to provide support, to be defined later: UNODC, ACTO, Network for Observance and Application of Wildlife Regulations in Central America and the Dominican Republic (ROAVIS/CAWEN), WWF, WCS, HSI, Defenders of Wildlife; Panthera, local non-governmental organizations, etc.].

d) Information sharing – communication network
(Actors potentially willing to provide support, to be defined later: FAO, ACTO, RED JAGUAR, SIG JAGUAR, WWF, WCS, Panthera, etc.).

e) Raising of joint funds for regional and cross-border activities:
(Actors potentially willing to provide support, to be defined later: UNDP, UNEP, UNODC, FAO, etc.).

f) Awareness-raising and education (this item should include consideration of the demand reduction component in local markets, transit countries and consumer countries).
(Actors potentially willing to provide support, to be defined later: UNDP, ACTO, WWF, WCS, HSI, Defenders of Wildlife, Panthera, local non-governmental organizations, UNESCO – suggested by Costa Rica –, etc.).

g) Legislation
(Actors potentially willing to provide support, to be defined later: FAO, UNEP, UNODC, WWF, WCS, HSI, Defenders of Wildlife, Panthera, etc.).

The Jaguar 2030 Conservation Roadmap for the Americas and the Regional Conservation Strategy for the Jaguar in South America also provided some additional players, as follows:

1. Jaguar Range States. Their roles include:

- Coordinating activities with the different players in their territories.
- Designing and implementing national and regional conservation action plans.
- Reporting illegal trade.
- Participating in cross-border collaboration.
- Promoting conservation corridors.
- Adopting comprehensive laws and enforcement controls to eliminate poaching and illegal trade.

2. International Conventions and Organizations. Their roles include:
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): Providing legal frameworks and decisions to combat illegal trade in jaguar parts, coordinating efforts, issuing notifications, and preparing reports.
- Convention on the Conservation of Migratory Species of Wild Animals (CMS): Developing resolutions and decisions to protect jaguar habitats and migration routes, collaborating on conservation initiatives and promoting regional and international cooperation.
- Convention on Biological Diversity (CBD): Developing international agreements and guidelines for biodiversity conservation.
- International Union for Conservation of Nature (IUCN): Providing scientific expertise and conservation planning guidelines.

3. United Nations Agencies. Their roles include:
- United Nations Development Programme (UNDP): Leading the 2030 Jaguar Conservation Roadmap for the Americas and supporting funding mechanisms.
- United Nations Environment Programme (UNEP): Promoting environmental policies and practices that support jaguar conservation and raise global awareness.
- Other agencies: Providing technical support, monitoring illegal activities and standardizing legislative terms.

4. Non-Governmental Organizations (NGOs). Their roles include:
- Amazon Conservation Team (ACT): Working with indigenous communities to protect jaguar habitats and promote sustainable practices.
- Defenders of Wildlife: Advocating for wildlife conservation policies, support habitat protection, and engage in public education campaigns.
- International Fund for Animal Welfare (IFAW): Supporting anti-poaching efforts, raise awareness, and advocate for wildlife protection policies.
- Global Environment Facility (GEF): Providing funding for environmental projects, including jaguar conservation initiatives.
- Panthera: Focusing on big cat conservation, conducting research, and designing and implementing strategies to protect jaguars and their habitats.
- Rainforest Alliance: Promoting sustainable land-use practices, supporting community-based conservation, and protecting jaguar habitats.
- TRAFFIC: Monitoring and combating illegal wildlife trade, including jaguar parts and derivatives.
- Wildlife Conservation Society (WCS): Conducting scientific research, implement conservation programs, and engage local communities in jaguar conservation.
- World Wildlife Fund (WWF): Implementing conservation projects, raise public awareness, and advocate for stronger legal protections for jaguars.
- Other NGOs: Supporting conservation activities, combating illegal trade, raising awareness, engaging in on-the-ground conservation efforts and community involvement and advocating for stronger legal protections.

5. Regional Organizations. Their roles include:
- Supporting subregional conservation efforts and collaboration.

6. Academia and Research Institutes. Their roles include:
- Conducting scientific research on jaguar populations, ecology, behaviour, habitat and threats, amongst others.
- Providing data and insights to support conservation strategies and monitor population trends.

7. Law Enforcement Agencies. Their roles include:
- Implementing enforcement actions to combat illegal trade.

8. Local Communities and Indigenous Groups. Their roles include:
- Participating in conservation efforts.
- Providing traditional knowledge.

- Engaging in sustainable practices to protect jaguars and their habitats.

The most important need is for coordinated efforts among these players to ensure the effective conservation of jaguars. The CITES Animals Committee, during the thirty-third meeting of the Animals Committee, was also invited to take note of the Secretariat's progress in the implementation of SC77 recommendations on jaguars and provide comments and feedback. Additionally, the information generated or reported relating to jaguar conservation and threats, illegal trade in their parts and derivatives and other aspects related to conservation come from different sources. These include all the different players listed, such as the environmental authorities, the judicial system, the police, the armed forces, Interpol, United Nations Office on Drugs and Crime (UNODC) and the academia (researchers from universities, governmental and non-governmental organizations and research institutes, amongst others). The level of involvement and the type of information provided by the different players varies greatly depending on the country, but in all cases the Range States are those responsible for coordinating the different players in their territories and compiling, filtering and reporting the information. However, there is no Range State that has an information management system to monitor the illegal killing of jaguars or the use of their parts, or a similar system (Arias 2021; CITES 2023; SAJCAT 2023; CITES 2024; Jaguar 2030 Conservation Roadmap for the Americas. 2020).

1.2. Data quality

There are significant challenges in obtaining accurate data on jaguar conservation efforts, illegal trade and other related aspects. The quality of data being collected for monitoring jaguar populations and their threats varies significantly depending on the methods and technologies used. These are some key aspects:

1. Inconsistent data: Many organizations and communities use camera traps to monitor jaguar populations. These devices capture images and videos of jaguars in their natural habitats, providing valuable data on their presence, behaviour, and population density. However, the quality of this data can be inconsistent due to varying camera trap placements and settings.
2. Data Sharing Platforms: These initiatives aim to compile and standardize data from various sources to improve the accuracy and comparability of jaguar population estimates. However, it is not always possible when the data has been already collected with different methodologies and methods.

Overall, while there are challenges in ensuring consistent data quality, the use of advanced technologies and community involvement are helping to improve the monitoring of jaguar populations and their threats. Regarding the jaguar illegal trade, the information collected is considered unreliable for several reasons, as follows:

1. Inconsistencies Across Sources. Different sources have different information, providing varying and sometimes conflicting data. This inconsistency makes it difficult to form a clear and accurate picture of the situation.
2. Underreporting and Limited Data. Depending on the country, there are limitations on the information provided due different monitoring and control efforts or due to decentralization in enforcement and lack of a centralized data collection system.
3. Biases in Data. The data is subject to detection bias, where the likelihood of detecting and reporting illegal activities varies across regions and enforcement agencies. And there is also reporting bias because countries with more robust enforcement and reporting systems may appear to have higher levels of illegal trade simply because they are better at detecting and reporting it.
4. Duplicated, Fragmented and Incomplete Information. The information available is often fragmented and incomplete. Different sources also may report the same incidents multiple times or provide aggregated data without specific details, making it challenging to assess the true scale and trends of the illegal activities.
5. Lack of Enforcement Data. There is a lack of detailed information on law enforcement actions following seizures, such as prosecutions and sentences. This gap makes it difficult to understand the effectiveness of enforcement efforts and the actual impact on illegal activities.
6. Geographical and Temporal Gaps. Some regions, particularly remote or conflict-prone areas, may have little to no data on illegal activities due to limited access and enforcement presence. Additionally, the data may be outdated or not collected consistently over time, leading to gaps in understanding trends and changes in illegal activities.
7. Reliance on Opportunistic Seizures. Much of the data comes from opportunistic seizures rather than systematic monitoring. This means that the data may not accurately represent the overall scale of the illegal activities, as it only captures incidents that were detected by chance.

The combination of these factors results in data that is unreliable and insufficient for accurately assessing the conservation status and the scale, trends, and impacts of the illegal trade in jaguars. Improved data collection, standardization, and reporting systems, along with stronger enforcement capabilities, are essential to address these issues effectively (Arias 2021).

All reports submitted by CITES Parties on illegal trade in jaguars between 2016 and 2020 were analysed. The database contains 88 reports with 39 fields. The analysis of the dataset reveals a mixed level of availability, completeness, and consistency in the recorded values. A total of 15 fields (38.46%) relating to Reference number, Date of seizure, Species, Description of specimen and Alleged country of destination were complete with no empty records, showing 100% availability and high consistency in their records. The remaining 24 fields have 1254 empty records (59.38%) and the fields with the highest proportion of empty information are Estimated value in country (96.59%), Country(ies) of transit (92.05%) and Reason for seizure (82.82%). Additionally, certain inconsistencies, such as misspelling, lack of standardization in textual variables and outliers in numerical fields, affect the integrity of the data. Overall, although the set contains valuable information for analysis, it requires cleaning up and standardization to improve its quality and to ensure reliable interpretation.

1.3. Technological requirements for a monitoring system.

In order to develop a monitoring system that guarantees the interoperability and sustainability of the tool, it is necessary that the system allows any kind of digitalized information to be collected in the system, from excel sheets or digitalized ledgers to properly developed apps that systematically and automatically report directly into the final tool. It will be also required that the tool allows to be used in Windows and IOS to reduce limitations on the use from different locations and sources. It would be also useful if the tool was allowed to collect the information offline or upload the information massively from files to facilitate reporting.

All players should have access to the tool, but the processes and procedures are specific to each player in the system and they could vary greatly and since the handling of information is in many cases confidential, it is necessary that there be types and levels of access depending on the type of user assigned to each player. It is necessary to generate an integrated system that standardizes the management of information and allows having a joint database that is verifiable and involves all players to facilitate the correct interaction between the different players. The report needs to be stored in a secure server to avoid leakages of information and guarantees the safety of the system.

1.4. Variables and indicators.

At the moment, there is no Range State that has an information management system to monitor the illegal killing of jaguars or the use of their parts, or a similar system, in order to standardize the information reported and to be able to analyse it. However, all Range States in their answers to the questionnaire sent by CITES Secretariat based on the main themes of CITES Decisions 19.110 and 19.111 and the actions directed to Parties, agreed with the development of a standardized reporting template in which to enter data on illegal trade in jaguars/jaguar parts based on MIKE (Monitoring the Illegal Killings of Elephants) or other relevant methodology to standardize reporting. It was also stated that the following criteria should be defined: What is the final objective of this template? How would the data flow be like? Who will host the information? How would information governance issues be defined? Could it be consumed by other initiatives and for national reporting and analysis? Also to define the maintenance, frequency of inputs and reporting, among others (Colombia). There could be also logistical and economical limitations for the implementation (Mexico), the template should be adapted on each country to comply with local legislation (Paraguay) and allowed to report poaching and not only illegal trade (Mexico and Panama). It will be very important to receive proper training to use the methodology proposed (Peru), and that the inability to divulge information related to ongoing criminal investigations often results in a “lag” that must be accounted for or, at minimum, acknowledged when conducting analysis of enforcement/ investigative data (USA).

In order to standardize the information reported and to be able to analyse it, is necessary to establish a set of variables and indicators, which should be aligned with the information required for the CITES Annual Illegal Trade Report that is listed in the following table:

No.	Information	Description

1	Reference number	All seizure records must be accompanied by a reference number, which could be from the national reference number system, a specific case number, or a unique number created for reporting to CITES. This number must be consistent for future reference.
2	Date of seizure	The date of the incident as recorded in the official report on the seizure. The day, month, and year of seizure are to be entered.
3	Species	Enter the scientific name of the species or subspecies. Abbreviations and common names should only be used if no other information is available.
4	Description of specimen	Seized specimens should be described as precisely as possible using trade term codes. If the correct term is unclear, describe the specimens directly.
5	Number of specimens	Enter the number of specimens. The quantity should always be recorded as the number of specimens and never in non-standard units.
6	Total Weight / Volume	Enter the numerical value for the total weight or volume of the specimens seized.
7	Weight / Volume Unit	Enter the appropriate unit of measurement for the description of the specimens that have been seized using the units provided in the guidelines.
8	Location of incident	The location where the seizure took place should be indicated, such as the name of a port of entry, airport, city/town, or specific border crossing.
9	Detecting agency	The agency that discovered the offense should be indicated. Options include police, customs, or wildlife agency.
10	Method of detection	Information on the method of detection, such as scanning images, risk assessment, random check, sniffer dog, third-party information, physical inspection, or online monitoring of illegal wildlife trade.
11	Reason for seizure	The legal reason for the seizure, such as no CITES permit, mis-declared, illegal crossing, or other specified reasons.
12	Mode of transport	The mode of transport used at the time of the seizure, such as air, mail, maritime, rail, or road.
13	Method of concealment	A concise description of the way the specimen was concealed.
14	Alleged country of origin	The name of the alleged country of origin using two-letter ISO codes.
15	Country(ies) of transit	All known countries of transit should be indicated using two-letter ISO codes.
16	Alleged country of destination	The final country of destination using two-letter ISO codes.
17	Estimated value in country	The estimated value in the country of seizure, if possible. Provide the value in a globally recognized currency, such as USD or EUR.
18	Nationality of offenders	The nationality of each offender against whom administrative measures, criminal prosecutions, or other court actions associated with the seizure have been initiated or imposed.
19	Law under which charges were brought	The law under which the charges were brought, if applicable.
20	Sanction	The sanction(s) imposed, such as imprisonment, fine, confiscation, etc.
21	Disposal of confiscated specimens	Information on the disposal of seized specimens, such as returned to the country of export, public zoos or botanical gardens, designated rescue centres, approved private facilities, euthanasia/destruction, storage/safekeeping, sale/transformation, educational purposes, or other specified methods.
22	Additional information	Any additional information relevant to understanding and preventing illegal trade in wildlife.

CITES Annual Illegal Trade Report only focuses on international trade and it is necessary to complement the variables and indicators to account also for domestic trade. The only other platform documented, but that is not functional, to report illegal trade is the Colombian PIFFS (Spanish acronym for Information system for the consolidation, analysis and monitoring of data relating to illegal trafficking of wild fauna and non-timber flora). The regulatory framework in force in Colombia regarding illegal trafficking of wild fauna and non-timber flora is robust and provides sufficient administrative and criminal tools for its control. However, the current panorama regarding the available information is quite poor. The consolidation of information has not been carried out systematically, nor with an established periodicity. Most entities present basic and, in many cases, incorrect

management of information, mainly in MS-Excel sheets. The following table lists the information required to make a complete report:

No.	INFORMATION	DESCRIPTION
1	REPORT INFORMATION	
1.1	N°	Event ID
1.2	Date DD/MM/AAAA	Event Date
1.3	Time HH:MM	Event Time
2	SITE OF OCCURRENCE OF THE EVENT	
2.1	Estate	Estate/Province
2.2	City	City
2.3	Borough	Borough/Locality
2.4	GPS Location	Latitude/Longitude
3	PROCEDURE INFORMATION	
3.1	Type of procedure	Confiscation/Seizure
3.2	Another	Which
3.3	Type of enforcement	Opportunistic/investigation
3.4	Another	Which
3.5	Institution reporting	Police/environmental authority
3.6	Source	Informant, online, informant
4	SPECIMEN INFORMATION	
4.1	Common name	Common name
4.2	Scientific name	Scientific name
4.3	Order	Order
4.4	Family	Family
4.5	Description	Dead or live animal/part/subproduct
4.6	Quantity	Number of specimens
4.7	Evidence	Images, Videos, specimen
5	SPECIMEN DETAILS	
5.1	Estate	Estate/Province
5.2	City	City
5.3	Borough	Borough/Locality
5.4	GPS Location	Latitude/Longitude
6	SPECIMEN DETAILS	
6.1	Condition	State of the specimen
6.2	Sex	Male/female/undetermined
6.3	Age	Infant/Juvenile/Adult
6.4	Processed	Manufactured or not
7	SPECIMEN DESTINATION	
7.1	Type of destination	Release, Captivity, Collection, Euthanasia, Disposal
7.2	Name of Institution	Institution that receives the specimen
7.3	Date DD/MM/AAAA	Event Date
7.4	Time HH:MM	Event Time
7.5	Type of institution	Captive facility, Rehabilitation centre, Zoo, Collection, Disposal
7.6	Estate	Estate/Province
7.7	City	City
7.8	Borough	Borough/Locality
7.9	GPS Location	Latitude/Longitude

Finally, in order to establish definitive variables and indicators, it is necessary to establish the scope of the information that will be shared. There are also variables and indicators to be defined for jaguar conservation efforts and other related aspects, such as habitat/conservation, promotion of coexistence, prevention, enforcement and funding mechanisms.

1.5. Cooperation initiatives.

Currently, there are three cooperation initiatives, The Jaguar 2030 Conservation Roadmap for the Americas, the Regional Conservation Strategy for the Jaguar in South America and the CMS Jaguar Initiative that aim to ensure the long-term survival of jaguars and their habitats through comprehensive and collaborative conservation efforts.

The Jaguar 2030 Conservation Roadmap for the Americas is a comprehensive plan aimed to conserve jaguar populations and their habitats across their range and the primary goal is to strengthen the Jaguar Corridor by securing 30 priority conservation landscapes for jaguars by the year 2030. This initiative is a collaborative effort involving international conservation organizations and Range States, focusing in protecting jaguars and their habitats through coordinated efforts, using existing conventions and treaties (CITES, CMS, CBD), strengthening and implementing national strategies and contributing to transboundary conservation efforts, implementing measures to reduce jaguar-human conflicts and promote scaling up sustainable development models, and enhancing the financial sustainability of conservation systems and actions (Jaguar 2030 Conservation Roadmap for the Americas. 2020).

The Regional Conservation Strategy for the jaguar in South America has a vision of a network of healthy jaguar populations coexisting with humans across their native South American habitats and a goal that by 2035 priority landscapes will have stable jaguar populations and functional connectivity among them based on effective coexistence. It provides region-specific strategies for jaguar conservation, addressing local threats and promoting sustainable practices. It establishes nine objectives with activities by objectives and results, actors responsible of implementation, indicators for the outcome that should have been achieved and time line for the expected date for finishing or the approximate period for implementation. The nine objectives aim to: 1. Fill knowledge gaps in jaguar ecology and social science aspects associated with jaguar conservation; 2. Understand and reduce human-caused mortalities of jaguars; 3. Evaluate spatial and numerical trends in jaguar populations and the efficacy of conservation interventions; 4. Ensure adequate prey species abundance for jaguars and humans; 5. Minimize loss, degradation, and fragmentation of jaguar habitat; 6. Improve regulation and law enforcement regarding jaguars, prey, and habitat protection; 7. Promote decision-making and political will towards jaguar conservation; 8. Unite forces for jaguar conservation through regional and national cooperation; 9. Make jaguars universally recognized as a positive symbol through awareness and education initiatives (SAJCAT 2023).

The CMS Jaguar Initiative aims to foster coordination and cooperation among Jaguar Range States to conserve the species and its habitat. It focuses on maintaining the integrity and connectivity of jaguar populations, addressing threats such as habitat loss, poaching, and illegal trade. The initiative promotes regional efforts, strengthens legal frameworks, enhances knowledge and monitoring, and supports community engagement and sustainable practices. It also seeks to create strategic alliances, secure funding, and improve education and awareness about jaguar conservation, ultimately aiming to establish a Joint CITES-CMS Jaguar Initiative for greater international collaboration (CMS 2024a).

These initiatives are interconnected, complementary and share common goals such as habitat protection, legal enforcement, community engagement, research, education, and international cooperation. They align their strategies to ensure a cohesive approach to jaguar conservation, pooling resources, securing funding, and leveraging financing opportunities. By facilitating the exchange of information, best practices, and successful conservation strategies, they provide a comprehensive and integrated approach to ensuring the long-term survival of jaguars. While the Jaguar 2030 Roadmap and the Regional Conservation Strategy focus on specific regions, the CMS Jaguar Initiative provides a broader framework for international cooperation, enhancing the overall impact of conservation efforts. These linkages and complementarities ensure that the efforts to conserve jaguars are coordinated, effective, and sustainable. The linkages and complementarities are listed in the following table:

Linkages and complementarities	Jaguar 2030 Conservation Roadmap	Regional Conservation Strategy	CMS Jaguar Initiative
Habitat Protection	Secure and manage 30 priority conservation landscapes; establish wildlife corridors by 2030.	Minimize habitat loss and degradation; incorporate priority landscapes into land use plans.	Maintain integrity and connectivity of jaguar populations; create biological corridors.
Legislation and Enforcement	Strengthen laws to combat illegal trade in	Improve regulation and law enforcement	Enhance legal frameworks and

	jaguar parts and derivatives.	regarding jaguars, prey, and habitat protection.	enforcement mechanisms to address poaching and illegal trade.
Community Engagement	Involve local communities in conservation efforts; promote alternative livelihoods like eco-tourism.	Engage local communities; promote sustainable land-use practices to reduce human-jaguar conflicts.	Promote coexistence through behaviour change and adoption of jaguar-friendly practices.
Research and Monitoring	Conduct scientific research; implement monitoring programs to track populations and threats.	Evaluate spatial and numerical trends; establish long-term monitoring sites.	Improve knowledge of movement patterns; support monitoring of populations and threats.
Education and Awareness	Raise awareness through educational campaigns.	Launch education and awareness projects; promote cultural significance of jaguars.	Enhance education and awareness about jaguar conservation.
International Cooperation	Foster collaboration among range countries and international organizations.	Unite forces through regional and national networks.	Coordinate regional efforts; promote cooperation among Range States.
Resource Mobilization	Pool resources; secure funding; leverage financing opportunities.		Secure funding; create a Jaguar fund.
Knowledge Sharing	Facilitate exchange of information, best practices, and successful strategies.		Create spaces for experience exchange; standardize data collection and analysis.
Holistic Approach	Address habitat protection, legal enforcement, community engagement, research, education, and cooperation.		Coordinate regional efforts to avoid duplication and leverage synergies.
Regional and Global Impact	Focus on specific regions with a broader framework for international cooperation.	Focus on South America with regional networks.	Provide a broader framework for international cooperation.

There are also other initiatives reported from jaguar Range States to the questionnaire sent by CITES Secretariat based on the main themes of CITES Decisions 19.110 and 19.111 and the actions directed to Parties. From those initiatives only Brazil and Argentina reported to have a binational cooperation to combat illegal trafficking. The initiatives are listed in the following table:

Country	Initiative	Scope	Status and links
Argentina	Plan Nacional de Conservación del Monumento Natural Yaguareté	Promote and support research and monitoring of the species. Generate an international strategy with Bolivia, Paraguay and Brazil for the conservation of the jaguar in its southernmost distribution.	Active https://sib.gob.ar/novedades/monumento-natural-yaguarete-la-poblacion-de-la-region-selva-paranaense-se-mantienen-estable
Argentina & Brazil	Estrategia Binacional para la Conservación y	The project considers the training of inspection agents to identify feline parts and products as a crucial action to combat illegal trafficking.	Active

	Combate al Tráfico Ilícito del Jaguar		
Belize	None	N/A	N/A
Bolivia	Alianza Jaguar	Independent researchers, Museums, the Academy, and different NGOs in Bolivia have consolidated a cooperation agreement to fight against trafficking of jaguars and their parts. Each one, from their competencies and work areas, would contribute and share their experiences.	Active https://bolivia.wcs.org/es-es/Recursos-Informativos/Sala-de-noticias/articleType/ArticleView/articleId/21579/Alianza-para-la-conservacion-del-jaguar-suma-esfuerzos-para-proteger-y-combatir-el-trafico-ilegal.aspx
Colombia	Línea Jaguar	Telephone line to report different types of events related to felids sightings and risk associated to their presence.	Active +573133463676 Whatsapp +573102213891 soytransparente@minambiente.gov.co
Colombia	Portal de información sobre fauna y flora silvestre no maderable (PIFFS)	Information system for the consolidation, analysis and monitoring of data relating to illegal trafficking of wild fauna and non-timber flora.	Non-functional prototype
Costa Rica	Unidad de Atención de Conflictos con Felinos (UACFel)	Public-private alliance to address the feline-livestock conflict at the national level. Phone application to record predation data and keep a systematized record.	Active https://app.uacfel.org/
Ecuador	None	N/A	N/A
Guatemala	None	N/A	N/A
Honduras	None	N/A	N/A
Mexico	Sistema Institucional de Información de PROFEPA (SIIP)	Records of all specimens, parts or derivatives that were confiscated and registered in each estate	Active http://www.profepa.gob.mx/
Nicaragua	None	N/A	N/A
Panama	None	N/A	N/A
Paraguay	None	N/A	N/A
Peru	None	N/A	N/A
Suriname	None	N/A	N/A
United States of America	Law Enforcement Management Information System (LEMIS)	USFWS OLE (U.S. Fish and Wildlife Service, Office of Law Enforcement) document criminal wildlife investigations and related activities (not specific for jaguars)	Active

1.6. Indicators and strategic information.

All the Action Plans or National Programs for the Jaguar in the Range States include the monitoring of jaguar populations, however they don´t specify the specific variables, indicators or strategic information that will be collected. Only Argentina reported three different monitoring initiatives for the country and a trinational strategy to articulate the monitoring with Bolivia and Paraguay. USA and Mexico have a specific system to record jaguar sightings. Colombia and Costa Rica have their own systems to record the information related to biodiversity, although the systems are not specific for jaguars, they include the specie. It is important to define the specific variables, indicators and strategic information that will be collected range wide to assess if the initiatives are already collecting the information required or if they could be included in their systems. In addition, the Range States that still don't have those systems, it will be important to include the information required and for the monitoring system proposed to be developed.

The following table lists the different initiatives reported related to variables, indicators and strategic information from jaguar Range States to the questionnaire sent by CITES Secretariat based on the main themes of CITES Decisions 19.110 and 19.111 and the actions directed to Parties.

Country	Initiative	Indicators	Links
Argentina	Plan de Emergencia para la conservación del yaguareté en el Gran Chaco Argentino 2017	Corredores ecológicos para el Chaco Argentino. Monitoring System with methodological details, periodicity, indicators, intensity and frequency of monitoring	https://visorgranchaco.org/wp-content/uploads/2015/08/Corredores_Chaco_Argentina.pdf
Argentina	Plan de acción para la conservación de la población de Yaguareté (*Panthera onca*) del Corredor verde de Misiones 2011	Program III: Monitoring and research: Monitor the jaguar population in coordination with researchers and Brazilian institutes. Continue biannual sampling with camera traps	https://sib.gob.ar/archivos/Plan_yaguarete_paranaense.pdf
Argentina	Plan Estratégico para la conservación del yaguareté en las Yungas Argentinas 2024	Analysis of the Key Ecological Attributes of the Jaguar in relation to the current state of the situation and the future and their prioritization in this Plan.	https://sib.gob.ar/archivos/PLAN_YAGUARETE_YUNGAS_2024.pdf
Argentina, Bolivia y Paraguay	Foro de cooperación trinacional por el Gran Chaco Americano	Build a trinational device to move towards articulated international cooperation in the Gran Chaco Americano region	https://argentina.un.org/es/238983-concluy%C3%B3-exitosamente-el-foro-de-cooperaci%C3%B3n-trinacional-por-el-gran-chaco-americano-con
Belize	None	N/A	N/A
Colombia	SIB Colombia (Colombian Biodiversity Information System)	National network of open data on biodiversity. Biological Records, Observed Species, Endemic Species and Endangered Species:	https://biodiversidad.co/
Costa Rica	SINAC (National System of Conservation Areas	Biological Corridors Tool to measure the effectiveness of management	https://enbcr.go.cr/sites/default/files/mg2_sinac_2018_herramienta_para_medir_la_efectividad_de_gestion_de_corredores_biologicos.pdf
Ecuador	None	N/A	N/A
Guatemala	None	N/A	N/A
Honduras	None	N/A	N/A
Mexico	None	N/A	N/A
Nicaragua	None	N/A	N/A
Panama	None	N/A	N/A
Peru	None	N/A	N/A
Suriname	National Jaguar Monitoring Strategy	National population data database	In Development
United States of America	Jaguar Observations Database	Observations relevant to the conservation of the jaguar in northern Mexico and the United States of America	https://jaguardata.info/

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DRAFT

Programme of Work for a range-wide Jaguar initiative

Version 14.12.2024

LogFrame

Vision

A network of healthy Jaguar populations coexisting with humans across native Jaguar habitat throughout the species' historic range.

Goal

Strengthen Jaguar conservation throughout the species' historic range by connecting and securing large, mid-sized, and small Jaguar populations, contributing to their expansion, recovering lost populations where possible, maintaining natural prey, reducing Jaguar-human conflict in human-dominated landscapes, combatting illegal killing and trade, increasing the security and ecological integrity of core protected landscapes, transboundary populations and connecting habitats with the full participation of Indigenous People and Local Communities, Women and Youth, thus contributing to the achievement of globally significant goals on biodiversity, climate, health and sustainable development.

Objectives

Objective 1. Cooperation, coordination, and strategic planning

To strengthen the cooperation and coordination between Jaguar Range States and the global conservation community (Conventions, IGOs, and international and local NGOs) for the conservation of the Jaguar through the development of a Programme of Work for the joint CITES-CMS Jaguar Initiative and other relevant inter-governmental agreements and actions, and its implementation through national or landscape-level action plans.

Objective 2. Sustainable Funding

To establish sustainable and lasting financing mechanisms to fund jaguar conservation programmes including the preservation of associated ecosystems and securing sustainable livelihoods.

Objective 3. Policy and Legislation

To ascertain appropriate global, trans-boundary, and national policies and legal frameworks for the conservation and protection of Jaguars, their prey and habitats, while also generating incentives for enhanced political commitment and local community support.

Objective 4. Habitat conservation and restoration, and land use planning

To conserve and, where needed and possible, restore Jaguar habitats and corridors, and promote land-use practices and infrastructure development compatible with Jaguar and wildlife conservation.

Objective 5. Prey base and Jaguar restoration

To prepare and initiate the reinforcement or reintroduction of Jaguar staple prey and Jaguars in key/priority areas within the historic range, with emphasis of promoting connectivity between remnant Jaguar populations.

Objective 6. Conflicts and coexistence

To understand and mitigate human-Jaguar conflicts and to promote coexistence through socio-economic benefits, improved livelihood to local communities and providing incentives for living with Jaguars.

Objective 7. Illegal killing and trade of Jaguars

To understand and prevent all illegal killing of Jaguars and suppress all forms of illegal domestic or international trade in Jaguar parts and derivatives.

Objective 8. Capacity and Awareness

To develop and strengthen human resources and capacity of Jaguar Range States to protect, conserve, and monitor Jaguars, their prey populations, and habitats (including improved management of protected areas), and increase local, national and global awareness for the conservation of Jaguars, their prey and habitats, in collaboration with partners and local communities.

Objective 9. Knowledge and information

To continuously increase the knowledge base on the conservation status, threats to, and effective conservation of Jaguars, their prey, and habitats, and share new information with all Jaguar Range States authorities, the conservation partners, and the local and international public.

Objective 10. Monitoring

To develop and operationalize at range-wide and landscape level protocols to survey Jaguar and prey populations, and monitor key aspects related to Jaguar conservation including illegal killing of Jaguars and associated illegal trade and the effectiveness of measures implemented, and to share the data by means of a centralised depository.

Jaguar Programme of Work – Logical Framework (DRAFT 1)

LogFrame element: Vision – Goal – THEME – **Objective 1.** – Result 1.1 [*Indicator*] – Activity 1.1.1.

Note: This DRAFT 1 follows the layout and the structure of the Programme of Work for the Joint CITES-CMS African Carnivore Initiative (ACI) and incorporates Jaguar-specific elements from the following documents:

- CITES Decision 19.11
- CITES SC77 Doc.43
- CMS Res 14.14
- CMS Decision 14.178
- Jaguar 2030 Roadmap (2023)
- Regional Conservation Strategy for the Jaguar in South America (Cat News Special Issue 16, 2023)

LogFrame Element	*Source*
Objective 1. **Cooperation, coordination, and strategic planning** To strengthen the cooperation and coordination between Jaguar Range States and the global conservation community (Conventions, IGOs, and international and local NGOs) for the conservation of the Jaguar through the development of a Programme of Work for the joint CITES-CMS Jaguar Initiative and other relevant inter-governmental agreements and actions, and its implementation through national or landscape-level action plans.	ACI O1; CITES SC77.43 11a, b; CMS Res14.14 6a, d, j; CITES Decision 19.110d , 19.111a, c; JRM 2030
Result 1.1. The POW for the Joint CITES-CMS Jaguar Initiative for the period 2025-2031 is developed under consideration of existing initiatives and programmes for the conservation of the Jaguar, approved and regularly updated. *Indicators: (1) The Jaguar POW is developed and (2) endorsed by the Jaguar Range States and approved by the CITES and CMS Standing Committees, (2) regular Range State meetings are held to review the POW and its implementation, (3) Jaguar Initiative POW is updated based on Jaguar Initiative Range States' feedback, and input of relevant bodies of the Conventions (e.g. CITES Big Cat Task Force) and other partners of the Jaguar Initiative.*	ACI R1.1; CMS Res14.14 6a, 7, 8; CITES Decision 19.110d ; CITES SC77.43 11a ; JRM2030
Activity 1.1.1. Develop a POW and submit it to the Conventions on behalf of the Jaguar Range States, and other partners of the Jaguar Initiative for review and approval.	
Activity 1.1.2. The Secretariats of the Conventions organise regular meetings of the Range States to evaluate the implementation of the POW and assess and improve the Initiative's functionality.	CMS Res 14.14 8
Activity 1.1.3. Regularly review and adapt as needed the POW in consultation with Jaguar Range States and other partners of the Jaguar Initiative, and report changes to the relevant CITES and CMS bodies.	
Result 1.2. Governance structures for the implementation of the POW and the promotion of a broad international partnership	CMS Res 14.14 9

and synergistic cooperation between Jaguar Range States and other relevant institutions and stakeholders engaged in the conservation of Jaguars are established and maintained. *Indicators: (1) Governance structures for operationalizing the Jaguar Initiative POW are established, (2) partnerships and cooperation with other international conventions, scientific institutions, conservation organizations and interested stakeholders are established, and (3) organizational structures are regularly reviewed and updated as needed.*	
Activity 1.2.1. Establish a Steering Committee and Secretariat (Coordination Office) for the implementation of this POW[1].	JRM2030 1.1
Activity 1.2.2. Designate a Jaguar focal point in each Range State government.	
Activity 1.2.3. Integrate the Convention on Biological Diversity (CBD) and other relevant UN institutions (e.g., the United Nations Environmental Programme, UNEP) into the Jaguar Initiative.	
Activity 1.2.4. Establish and maintain collaboration with IUCN and relevant NGOs based in Range States and elsewhere and encourage them to participate in the implementation of the POW and to contribute to achieving the POW Results.	
Result 1.3. The POW is implemented at range-wide, national, and landscape level through the development and implementation of Conservation Strategies, National Biodiversity Strategies and Action Plans (NBSAPs) or Jaguar-specific National Action Plans (NAPs), and landscape-level action plans (e.g. for transboundary Jaguar Conservation Units[2]) and other guidelines and protocols for the conservation of the Jaguar. *Indicators: (1) Guiding documents such as the Regional Conservation Strategies, NBSAPs, NAPs or transboundary action plans are developed, implemented, monitored (see also Result 10.3) and regularly revised, and (2) guidelines and protocols to harmonize procedures are developed and shared.*	CMS Res14.14 5a, 6a, d, g; JRM2030 1.3, 2.1, 3.1
Activity 1.3.1. Review and update existing Conservation Strategies, NBSAPs and NAPs for Jaguars and harmonize them with the POW.	
Activity 1.3.2. Review existing Strategies and Action Plans, identify need for harmonization and synchronization and share a respective report with the Range States and all other partners.	
Activity 1.3.3. Develop, where necessary, new Regional Strategies or National Action Plans for Jaguars for the implementation of the POW or NBSAPs.	
Activity 1.3.4. Develop an implementation plan for transboundary conservation areas based on the Jaguar 2030 Roadmap to inform National Action Plans.	CMS Res14.14 6e
Objective 2. **Sustainable Funding** To establish sustainable and lasting financing mechanisms to fund jaguar conservation programmes including the preservation of associated ecosystems and securing sustainable livelihoods.[3]	CITES SC77.43 11e ; CITES Dec. 19.110d ; CMS Res14.14 5c, 6b ; JRM2030 #4

[1] Possibly combine with JRM2030 Coordination Committee
[2] See Jaguar 2030 Roadmap Chapter 4: Transboundary profiles
[3] Contributing to GBF Targets 18 and 19

Result 2.1. Financial needs for the implementation of the POW are evaluated. *Indicators: (1) Estimation of costs for range-wide implementation of POW available.*	
Activity 2.2.2. Review existing and initiated financial mechanisms and funding efforts for range-wide Jaguar conservation.	
Activity 2.1.2. Estimate the financial needs for the implementation of the POW and prepare diversified financial sustainability plans.	JRM2030 4.3
Activity 2.1.3. Evaluate potential sources for the generation of shared funds (e.g. GEF funding, business-based incentives) for the implementation of the POW.	JRM2030 4.2, CITES Dec. 19.110d
Result 2.2. Possibilities for the management of shared funds (e.g. creation of a Jaguar Fund) are evaluated and a suitable structure is established. *Indicators: (1) Structure for the management of shared funds established.*	CMS Res14.14 6b
Activity 2.2.1. Review existing funding mechanisms and sustainable financing efforts (e.g. through the Jaguar 2030 Sustainable Finance Sub-Committee) to generate and administer funding for Jaguar conservation, to inform the discussion under Activity 2.2.2.	
Activity 2.2.2. Discuss possible financial structures for the management of shared funds for the implementation of the Jaguar POW (e.g. Jaguar Fund) between the Range States, the Conventions, other partners, and with potential donors.	CMS Res14.14 6b
Activity 2.2.3. Establish the relevant structures as agreed.	
Result 2.3. Sustainable funding for the implementation of the Jaguar POW and priority activities is secured. *Indicators: Sustainable funding for (1) administering the Jaguar Initiative including regular Range State Meetings, (2) the commission of overarching projects, and (3) the implementation of priority projects through public calls is secured.*	ACI R1.2; JRM 2030 #4
Activity 2.3.1. Secure funding for the coordination and management of the Jaguar Initiative, including regular Range State Meetings as defined under Result 2.1, e.g. through the organization of a conference with participation from Range States, the banking sector, the private sector and civil society.	
Activity 2.3.2. Secure funding for projects contained in the Jaguar Initiative POW commissioned directly through the Jaguar Initiative governance structures, e.g. through the organization of a conference with participation from Range States, the banking sector, the private sector and civil society.	
Activity 2.3.3. Develop partnerships and adequate tendering procedures to implement projects / actions under the Jaguar Initiative through public calls.	
Objective 3. **Policy and Legislation** To ascertain appropriate global, trans-boundary, and national policies and legal frameworks for the conservation and protection of Jaguars, their prey and habitats, while also generating incentives for enhanced political commitment and local community support.	ACI O9; CMS Res14.14 6g ; CITES SC77.43 11g; RCS-SA O6, O7; CITES Res. 8.4 (Rev. CoP15); CITES Dec. 19.110a; JRM2030 2.2, 2.3, 2.4, 3.5

Result 3.1. Effective policies and legislations for the conservation of the Jaguar, their prey, and their habitats in the Jaguar Range States, are promoted (e.g. through NBSAPs).[4] *Indicators: (1) A review report on policies and legislation is shared, (2) national/subnational policy is adapted, (3) and national legislation is adapted accordingly where needed, and (4) range-wide policy is harmonized at a Jaguar Ranges States Meeting.*	RCS-SA O6; CITES Dec. 19.110a ; JRM2030 2.3, 2.4, 4.2
Activity 3.1.1. Compile and assess, in a review report to the Jaguar Range States and relevant bodies of the Conventions, the effectiveness of relevant existing policies and legislation, and identify appropriate policy reform targets and major barriers that need to be removed for the effective conservation of the Jaguar and the management of their prey species, and conservation of their habitats.[5]	
Activity 3.1.2. Review and adapt national policy according to the recommendations produced in Activity 3.1.1.	
Activity 3.1.3. Review and adapt national legislation based on national policy (Activity 3.1.2, see also Result 3.2).	
Activity 3.1.4. Discuss and harmonize range-wide policy at the regular Jaguar Range State Meetings.	
Result 3.2. Key areas for the conservation of the Jaguar and the connectivity of Jaguar Conservation Units are identified and legally protected (see also Objective 4).[6] *Indicators: (1) A gap analysis of protected areas for Jaguars[7], (2) a baseline assessment of Jaguar Corridor functionality has been performed and (3) new protected areas or Other Effective Area-based Conservation Measures OECMs have been gazetted in key areas, where needed.*	RCS-SA R5.2; JRM2030 1.1, 1.2, 2.2, 3.1, 3.7, 3.8
Activity 3.2.1. Perform gap analysis of protected areas (including the management of already gazetted PAs) or OECMs for Jaguars throughout the range at national and transboundary level, and a baseline assessment of Jaguar Corridor functionality (see also Objective 10), considering existing area-based concepts, such as Jaguar Conservation Units and the Jaguar Corridor (see also Result 4.1, 4.2).	
Activity 3.2.2. Utilising the shared gap analysis to promote the creation of new protected areas or OECMs and improvement of protected area management where needed (see also Activity 4.1.3).	
Objective 4. **Habitat conservation and restoration, and land use planning** To conserve and, where needed and possible, restore Jaguar habitats and corridors, and promote land-use practices and infrastructure development compatible with Jaguar and wildlife conservation.[8]	JRM2030 2.2, 2.3, 2.4, 2.5, 3.1, 3.2; 3.7, 3.8; CMS Res14.14 4, 6c, e; CITES Dec. 19.110d; RCS-SA O5; ACI O2

[4] Consider the outcomes of the CITES Intersessional Working Group on Jaguars, which will recommend proposing a resolution on Jaguars to COP20

[5] See also Kretser, H. E., Nuñez-Salas, M., Polisar, J., & Maffei, L. (2022). A Range-Wide Analysis of Legal Instruments Applicable to Jaguar Conservation. Journal of International Wildlife Law & Policy, 25(1), 1–61. https://doi.org/10.1080/13880292.2022.2077406

[6] Contributing to GBF Target 3.

[7] Note that the participants in the 1st Range State Meeting identified a set of 40+ priority landscapes with an emphasis on transboundary populations.

[8] Contributing to GBF Targets 2, 3 and 10

Result 4.1. Important (transboundary) conservation areas for the Jaguar and its prey species are identified, conserved and, where needed and possible, restored. *Indicators: (1) Report on identifying important conservation areas, their potential and conservation measures is available, and (2) habitat restoration programmes are implemented, and (3) demographically vital jaguar populations are achieved and protection is enforced within protected areas.*	CMS Res14.14 4; RCS-SA R5.3; JRM 2030 1.2, JRM2030 3.7, 3.8
Activity 4.1.1. Identify important (transboundary) conservation areas and habitats for Jaguar and its prey, taking into consideration the Jaguar 2030 Roadmap, assess their (future) conservation potential, and define respective conservation measures (see also Result 3.2).	
Activity 4.1.2. Develop restoration projects for important conservation areas and habitats for the Jaguar and its prey species (prioritised according to their conservation potential and implementing the conservation measures identified under Activity 4.1.1).	
Activity 4.1.3. Develop and implement management plans for new and, where needed, existing protected areas and OECMs (e.g. Indigenous lands) and related buffer zones (see also Result 3.2, 4.2).	
Result 4.2. Connectivity between Jaguar Conservation Units is enhanced, especially by promoting transboundary protected areas and ecological corridors. *Indicators: (1) Report on populations and connectivity is available, and (2) connectivity projects are implemented, and (3) sufficient exchange of individuals between neighbouring Jaguar populations is demonstrated.*	CMS Res14.14 4; CITES Dec. 19.110d; RCS-SA R5.5 ; JRM 2030 1.2
Activity 4.2.1. Identify important (transboundary) populations of the Jaguar, taking into consideration the Jaguar 2030 Roadmap, and assess population connectivity (see also Result 3.2).	
Activity 4.2.2. Secure the maintenance and integrity of existing transboundary protected areas (see Activity 4.1.3).	
Activity 4.2.3. Establish identified priority transboundary protected areas (see also Result 3.2, 4.1).	
Activity 4.2.4. Develop projects aiming to improve ecological corridors, where needed and possible, in order to mitigate habitat fragmentation and to enhance connectivity between Jaguar Conservation Units.	
Result 4.3. Best practice land-use guidelines (incl. sustainable development models) for the conservation of the Jaguar and its prey species within and outside protected areas and OECMs are developed and promoted. *Indicators: (1) Report on the impact of existing land-use practices is available, (2) best practice land-use guidelines are available, and (3) are implemented.*	CMS Res 14.14 6d, 6e; RCS-SA R5.4; JRM2030 2.2, #3, 3.1, 3.2, 3.8
Activity 4.3.1. Review existing land-use practices and guidelines (e.g. “Jaguar friendly” practices) at local, national and regional level with regard to their impact on the conservation of Jaguar, prey and their habitats.	
Activity 4.3.2. Develop best practices land-use guidelines with regard to habitat maintenance/restoration and coexistence between local communities and wildlife to facilitate the conservation of the Jaguar and its prey, and discuss them at a Jaguar Range State Meeting.	

Activity 4.3.3. Support the implementation of best practices land-use guidelines at range-wide, national and landscape level.	
Result 4.4. Best practice guidelines for the mitigation of the negative impact of existing and planned linear infrastructures (e.g. roads, railways, fences, pipelines, etc.) within the Jaguar Conservation Units and the Corridor are developed and applied. *Indicators: (1) Review on the impact of linear infrastructures is available and shared, (2) best practice guidelines on impact mitigation are available and shared, (3) impact of critical existing linear infrastructures is reduced, and (4) guidelines are applied in the planning and realization of future linear infrastructures.*	CMS Res 14.14 6d, 6e; RCS-SA R5.5; JRM2030 1.2, #3, 3.2
Activity 4.4.1. Review the negative impact of linear infrastructures.	
Activity 4.4.2. Develop best practice guidelines based on the review (Activity 4.4.1) and on experience from elsewhere.	
Activity 4.4.3. Develop, in cooperation with the responsible national/subnational institutions, projects to mitigate the negative impact of existing linear infrastructures within the Jaguar Conservation Units and the Corridor.	
Activity 4.4.4. Promote the application of the best practice guidelines in the planning and realization of new linear infrastructures among responsible national/subnational institutions.	
Objective 5. **Prey base and Jaguar restoration** To prepare and initiate the reinforcement or reintroduction of Jaguar staple prey and Jaguars in key/priority areas within the historic range, with emphasis of promoting connectivity between remnant Jaguar populations.	CMS Res14.14; JRM2030 3.3, 3.7, 4.3; ACI O3, O4
Result 5.1. Prey base for the Jaguar is restored where needed, and sustainably managed across the Jaguar's range (see also Result 4.1, 4.2).[9] *Indicators: (1) Overview report on the prey situation for the Jaguar is available, (2) strategies and action plans for priority areas are developed and implement, and (3) best-practice guidelines for prey management are available, applied and their effect is monitored.*	RCS-SA O4; JRM 3.3, 3.7, 4.3;
Activity 5.1.1. Assess the conservation status of Jaguar wild prey species incl. the impact of uncontrolled / illegal taking across the Jaguar Conservation Units and the Jaguar Corridor, and identify landscapes where prey enhancement is critical to the survival / recovery of the Jaguar.	
Activity 5.1.2. Develop and implement strategies and respective action plans for the wild prey recovery / restoration in priority landscapes where improved prey conservation is a prerequisite for the conservation / restoration of the Jaguar.	
Activity 5.1.3. Develop and apply best practice guidelines for the sustainable management of wild prey, including community-led management and governance of wild meat, and to prevent unsustainable and / or illegal use, and implement them in Jaguar Conservation Units and Jaguar Corridors (see also Result 4.1, 4.2 and Activity 5.1.1).	
Result 5.2. Potential sites for the recovery / reintroduction of the Jaguar across its range have been identified, general guidance for their recovery / reintroduction are available, and potential source populations have been identified, and translocations are initiated.	JRM2030 3.7

[9] Contributing to GBF Targets 4 and 5.

Indicators: (1) Areas for restoration of Jaguar populations are identified and mapped, (2) guidelines for the reinforcement and reintroduction of the Jaguar are available, and (3) in-situ and ex-situ source populations of Jaguars are identified and properly managed.	
Activity 5.2.1. Identify and map areas where habitat, prey base and potential conflict level would (in the future) allow the restoration of Jaguar populations within its historic range (see also Result 4.1, 4.2).[10]	
Activity 5.2.2. Develop, on behalf of the Range States, general guidelines and protocols for the reinforcement and reintroduction of the Jaguar.	
Activity 5.2.3. Identify suitable in-situ source populations of Jaguars and define rules for taking animals for translocations.	
Activity 5.2.4. Establish rescue centers for Jaguars in each Range State.	
Activity 5.2.5. Establish and maintain, in cooperation with the zoo community, a (genetically) healthy ex-situ source population for Jaguars.	
Activity 5.2.6. Initiate, in suitable priority areas, the reintroduction or reinforcement of Jaguars.	
Objective 6. **Conflicts and coexistence** To understand and mitigate human-Jaguar conflicts and to promote coexistence through socio-economic benefits, improved livelihood to local communities, and providing incentives for living with Jaguars.[11]	CMS Res14.14 6d, f; CITES Dec. 19.111c ; JRM2030 3.3, 3.4; RCS-SA R2.1; ACI O5
Result 6.1. Coexistence of local communities with the Jaguar is promoted and improved. *Indicators: (1) Review report on existing best practice experience for minimizing conflicts is available and shared, (2) best practice guidelines for conflict minimization are developed and applied, (3) priority areas with high human-carnivore conflict levels are identified, and (4) conflict mitigation and livelihood / incentives projects are implemented and decrease of conflict-based mortality of Jaguars is demonstrated.*	JRM2030 3.2, 3.3, 3.4, 3.6, CITES Dec. 19.111a, c ; CMS Res 14.14 6d, f; RCS-SA R2.1
Activity 6.1.1. Compile and review existing best practice experience for minimizing conflicts of local communities with the Jaguar.	
Activity 6.1.2. Develop, as necessary, based on Activity 6.1.1, additional best practice guidelines for enhancing the coexistence of local communities with the Jaguar and its prey (incl. e.g. livestock husbandry practices, sustainable livelihood ventures, community-based ecotourism, awareness raising to decrease fear and behaviour change approaches) and discuss and promote them at a Jaguar Range State Meeting.	
Activity 6.1.3. Identify landscapes where human-Jaguar conflicts are a threat to the species, and where there is a need and / or opportunity for action.	
Activity 6.1.4. Implement the best practice guidelines for local communities in the priority areas identified under Activity 6.1.3 and monitor their effect.	

[10] See e.g. NASA Act Green project.
[11] Contributing to GBF Target 4.

Activity 6.1.5. Develop, in cooperation with local communities, projects improving their livelihood and coexistence with Jaguars, e.g. co-management of Jaguar landscapes.	
Activity 6.1.6. Develop projects to generate socio-economic benefits for local communities living with the Jaguar.	
Objective 7. **Illegal killing and trade of Jaguars** To understand and prevent all illegal killing of Jaguars and suppress all forms of illegal domestic or international trade in Jaguar parts and derivatives.[12]	CITES SC77.43 11c; CITES Dec. 19.110 ; CMS Res 14.14 6d, g ; ACI O7; RCS-SA O2; JRM2030 2.3, 3.5;
Result 7.1. Recommendations to mitigate illegal trade and illegal killing are developed in consultation with the CITES Big Cat Task Force and relevant institutions, and conclusions shared with the Jaguar Range States. *Indicators: (1) Recommendations have been submitted and (2) are implemented, and (3) information is shared with relevant bodies.*	
Activity 7.1.1. Formulate recommendations to mitigate illegal offtake and trafficking based on the outcomes of the study on The Illegal Trade in Jaguars, commissioned by CITES[13], considering the findings and recommendations of other relevant bodies (e.g. CITES Big Cat Task Force[14], CITES AC), and submit them to the Jaguar Range States and the relevant CITES and CMS bodies.	
Activity 7.1.2. Integrate the recommendations into all conservation strategies and action plans relevant for the Jaguar, and into national policies and legislation (see also Result 1.3 and 3.1).	
Activity 7.1.3. Share information and conclusions on the illegal trade in Jaguars between the Jaguar Range States and the CITES Big Cat Task Force and other relevant bodies and stakeholders (see also Result 10.2 and 10.4).	
Result 7.2. Jaguar Range States are empowered to detect illegal and unreported killing and trade in Jaguars, and to combat illegal killing and trafficking of the species. *Indicators: (1) Forensic-type techniques are promoted and experts trained, (2) capacity has been strengthened, (3) detection and enforcement rates have improved in relation to Jaguar abundance, and (4) cases of jaguar killing and trade are monitored and reported (see also Result 10.4).*	JRM2030 2.3, 3.5; CMS Res 14.14. 6g; CITES Dec. 19.110b
Activity 7.2.1. Develop and promote, in consultation with relevant experts, the use of appropriate forensic-type techniques to identify and trace specimens of Jaguars in trade.	
Activity 7.2.2. Strengthen capacity to enable effective law enforcement and prosecution (e.g. by establishing quick response teams, training provided by INTERPOL, and improving inter-agency cooperation) in Jaguar Range States, transit countries and destination countries.	
Activity 7.2.3. Include the Jaguar as a priority species to be targeted as part of enforcement operations, measures and controls	CITES Dec. 19.110b

[12] Contributing to GBF Target 4.
[13] See CITES SC74 Doc. 75, Annex 2
[14] See Outcome Document CITES Big Cats Task Force meeting 24-28 April 2023

deployed to respond to and address wildlife crime.	
Result 7.3. A strategy for the reduction in demand for illegally traded Jaguar products has been developed and implemented. *Indicators: (1) Demand reduction strategy is developed, (2) campaigns targeting potential consumers are implemented, and (3) levels of trade and use is monitored and reported.*	CITES SC77.43 11f, JRM2030 1.3, 3.5
Activity 7.3.1. Develop a strategy for the reduction in demand for illegally traded Jaguar products, targeting domestic and international consumers, taking into consideration CITES Resolution Conf. 17.4 on Demand Reduction Strategies to combat illegal trade in CITES-listed species, and discuss it at a Jaguar Range States Meeting.	
Activity 7.3.2. Implement campaigns at local, national and international levels.	
Objective 8. **Capacity and Awareness** To develop and strengthen human resources and capacity of Jaguar Range States to protect, conserve, and monitor Jaguars, their prey populations, and habitats (including improved management of protected areas), and increase local, national and global awareness for the conservation of Jaguars, their prey and habitats, in collaboration with partners and local communities.	CMS 14.14 6g, h; ACI O10; JRM2023 1.6, 2.2, 3.4, 3.8, 4.1; CITES SC77.43 11f
Result 8.1. Capacity (human resources and technical means) of Jaguar Range States to protect and monitor Jaguar populations and sustainably manage and monitor the prey populations is strengthened. *Indicators: (1) Review on capacities, gaps, and opportunities is available, and (2) training opportunities and technical means are available.*	CMS Res14.14 6g; CITES Dec. 19.110d ; JRM2030 1.5, 3.8
Activity 8.1.1. Review and evaluate capacities and training opportunities, identify gaps in and the needs for national and regional training in the Jaguar Range States for the conservation and monitoring of Jaguar populations, and wildlife management in general.	
Activity 8.1.2. Support capacity-building and transfer of skills relevant for conservation, sustainable management and monitoring of the Jaguar, especially to the local wildlife and enforcement authorities (incl. management of protected areas) in and between the Jaguar Range States.	
Activity 8.1.3. Provide the necessary infrastructure and equipment to trained personnel for the implementation of their tasks.	
Result 8.2. Landscape-level, national and global awareness for the conservation of the Jaguar across its range is increased, and Jaguar and wildlife conservation is integrated into educational curricula at national and subnational levels. *Indicators: (1) Review report on existing educational tools and opportunities is available, (2) appropriate further awareness campaigns and educational tools are developed and implemented, (3) public awareness is integrated into curricula in all Range States are designed and implemented, and (4) levels of information are assessed in all Range States.*	CMS Res 14.14h; CITES Dec. 19.110f, h; RCS-SA O9, R9.1; JRM2030 1.6, 4.1
Activity 8.2.1. Review available propagation materials and educational tools on conservation of the Jaguar, and identify opportunities at national and subnational levels for further integration into educational curricula in schools, universities and professional training colleges and other public outreach efforts.	
Activity 8.2.2. Design and implement outreach and (public) awareness campaigns (e.g. “All4Jaguars”) targeting people and	RCS-SA R9.1; JRM2030 1.6, 3.4

communities living with Jaguars, and other relevant stakeholders in all Jaguar Conservation Units and the Jaguar Corridor and designated recovery areas.	
Activity 8.2.3. Recognize the Jaguar as the flagship species and a positive symbol in all Range States to improve awareness of the need of protection and conservation of the species and its habitat.	CITES Dec. 19.110h; RCS-SA O9
Objective 9. **Knowledge and information** To continuously increase the knowledge base on the conservation status, threats to, and effective conservation of Jaguars, their prey, and habitats, and share new information with all Jaguar Range States authorities, the conservation partners, and the local and international public.	CMS Res14.14 6i, j; ACI O11; RCS-SA O1; CITES SC77.43 11d
Result 9.1. A web portal for the Jaguar Initiative to host and share all relevant information related to Jaguar conservation is developed and operational ("Jaguar Hub"; see also Result 10.4). *Indicator: (1) The "Jaguar Hub" is operational.*	CMS Res 14.14 6c
Activity 9.1.1. Develop a web portal for the dissemination of all relevant information and documents for the conservation of the Jaguar.	
Activity 9.1.2. Synchronize and harmonize data and information shared in the "Jaguar Hub" with existing national and other repositories (see also Result 10.4).	
Result 9.2. All relevant information on Jaguars (reports and publications) is shared with all Ranges States, relevant bodies of the Conventions (e.g. CITES Big Cat Task Force) and other partners. *Indicator: (1) Range States, relevant bodies of the Conventions and other partners are informed on all relevant findings in the frame of the Jaguar Initiative.*	CMS Res. 14.14 6j, CITES SC77.43 11d, CITES Dec. 19.110c
Activity 9.2.1. Use all appropriate available mechanisms, e.g. "Jaguar Hub" (Result 9.1), "Jaguar Database" (Result 10.4), Jaguar Initiative Range States Meetings (Activity 1.1.2), and CITES Annual Illegal Trade Reports for the sharing of information between Range States, relevant bodies of the Conventions, and other stakeholders for species conservation.	
Result 9.3. Knowledge gaps in Jaguar ecology and human-dimension aspects (social science questions) associated with Jaguar conservation are identified and addressed. *Indicator: (1) Knowledge gaps and open questions are identified, and (2) research projects to address them are launched.*	RCS-SA O1, CMS Res.14.14 i;
Activity 9.3.1. Identify knowledge gaps and open questions relevant to the conservation of the Jaguar across its historic range.	
Activity 9.3.2. Support the implementation of projects in cooperation with and by integration of national/local academia to address the identified knowledge gaps under Activity 9.3.1.	

Objective 10. **Monitoring** To develop and operationalize at range-wide and landscape level protocols to survey Jaguar and prey populations, and monitor key aspects related to Jaguar conservation[15] including illegal killing of Jaguars and associated illegal trade[16] and the effectiveness of measures implemented, and to share the data by means of a centralised depository.	CMS Res14.14 5d, 6c, g, i, j; CITES Dec. 19.110e, 19.111b; CITES SC77, Doc 43; RCS-SA O3; JRM2030 1.2, 1.4, 2.2; ACI R11.1, R11.2
Result 10.1. Standards for surveying the populations (demography, genetics, health) of Jaguar and its most important prey species are established in Jaguar Conservation Units and the Jaguar Corridor. *Indicators: (1) Survey guidelines for populations of Jaguar and its most important prey species are available, (2) capacity for monitoring is developed, (3) monitoring of demography (abundance and trend) is performed in the key areas and according to the guidelines, (4) genetic monitoring and (5) health screening at individual and population level is established in all Range States, and (6) monitoring results are shared (see Result 10.4).*	
Activity 10.1.1. Develop guidelines for the survey and monitoring methods for the Jaguar (demography, genetics, health) and its most important prey species, and submit them to the Jaguar Range States and all other partners.	
Activity 10.1.2. Identify appropriate institutions for performing *in situ* monitoring, genetic analysis, and health screening and build appropriate partnerships within and between Range States.	
Activity 10.1.3. Build, where necessary (Activity 10.1.2), the capacity to implement the survey guidelines across the historic range of the Jaguar according to the spatial implementation scheme (Activity 10.1.4).	
Activity 10.1.4. Develop and apply a spatial implementation scheme for the survey guidelines (Activity 10.1.1), prioritising identified priority/key areas for the Jaguar (see also Result 4.1), transboundary conservation areas and areas with a lack of data.	
Result 10.2. Develop and apply schemes for the monitoring of the most important direct threats to Jaguars incl. e.g. conflict levels, illegal killing and trade, and important pathogens (see also Objective 8). *Indicators: Protocols for the monitoring of (1) conflict levels, (2) illegal killing and trade, and (3) pathogens are developed and applied.*	
Activity 10.2.1. Develop and implement a protocol for the monitoring of human-Jaguar conflicts.	
Activity 10.2.2. Develop and implement a protocol for the monitoring of illegal killing and trade in Jaguar parts and their derivatives (see also Result 7.2).	
Activity 10.2.3. Develop and implement, in cooperation with veterinarian institutions, a necropsy protocol for Jaguars incl. screening of most important pathogens (see also Result 10.1).	

[15] See also recommendations on "Data to Support the Monitoring Framework of the Kunming-Montreal Global Biodiversity Framework" through a monitoring framework, based primarily on data collated at the national level.

[16] CITES SC77, Doc. 43 recommends a "modular system for monitoring illegal killing of jaguars, illegal trade in their parts and derivatives and other aspects related to conservation", which implies standardization and harmonization of monitoring and data sharing, e.g. through a common database (see Result 10.3).

Activity 10.2.4. Develop and implement other protocols as needed.	
Result 10.3. The impact and effectiveness of conservation projects within the frame of the CITES-CMS Jaguar Initiative is evaluated. *Indicators: (1) Conservation impact protocols are developed, and (2) applied and shared.*	
Activity 10.3.1. Develop a template for a standardized impact monitoring protocols (Monitoring & Evaluation Framework) for *in situ* projects.	
Activity 10.3.2. Ensure that each conservation project applies and shares a conservation impact protocol.	
Result 10.4. Develop and establish a long-term system for the collection and sharing of data from the monitoring of Jaguar populations and data on mortalities (e.g. road mortality, illegal killing) from all partners across the Jaguar range ("Jaguar Database"). *Indicators: (1) The Jaguar Database is established and operational, (2) Terms of Use are agreed with all Range States and other partners, and (3) the management and maintenance of the Jaguar Database is secured.*	CITES Dec. 19.110e, 19.111b; JRM2030 1.4
Activity 10.4.1. Support the development and establishment of the Jaguar Database.	
Activity 10.4.2. Develop, in cooperation with all Range States and other partners, Terms of Use for the Jaguar Database.	
Activity 10.4.3. Secure the management and maintenance of the Jaguar Database (see also Objective 2).	

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Programme of Work for a range-wide Jaguar initiative

Version 14.12.2024

Appendices

Appendix I – Overview National Action Plans (NAP) and other strategic documents

Appendix II – Jaguar Conservation Units and the Jaguar Corridor

Appendix III – Compilation of threats, drivers and shortcomings for Jaguar conservation

Appendix IV – IUCN Red List and Green Status of Species assessments

Appendix I – Overview National Action Plans (NAPs) and other strategic documents

National or Regional (transboundary) Action Plans, developed in a participatory approach considering national legislation and including all important sectors and national/local stakeholders and communities concerned, are an important tool for the implementation of over-arching, range wide conservation Results and principles. Several Range States already have developed such plans, which should considered being updated, other Range States are invited to develop NAPs.

National Action Plans:

Country	Year	Title	Elements
Bolivia	2020	Plan de Acción para la Conservación del Jaguar (Panthera onca) 2020-2025	7 *Objetivos estratégicos*; 4 *Lineas estrategicas de acción* with 109 *acciones*
Brazil	2013	Plano de Ação Nacional para Conservação da Onça-Pintada	4 *Objetivo traçado*, 6 *linhas temáticas* with a total of 33 *problemas*, 47 *metas*, 174 *ações* and an estimated cost of 12,670,000 R$
Ecuador	2022	Plan de Acción para la Conservación del Jaguar en el Ecuador 2022-2031	14 *Objetivos*, 5 *Lineas de acción*, 39 *Actividades*
Honduras	2011	Plan Nacional para la Conservación del Jaguar (Panthera onca), Honduras	7 *Objetivos específicos*, 7 *Lineas de acción*, 52 *Acciones*
Mexico	2009	Programa de acción para la conservación de la especie: Jaguar (Panthera onca)	17 *Componentes,* 67 *Actividades*
Paraguay	2016	Plan de Manejo de la Panthera onca Paraguay 2017-2027	5 *Líneas de Acción*, 16 *Objetivos específicos*, 53 Actividades
Peru	2021	Plan Nacional de Conservación del Jaguar (Panthera onca) en el Perú, período 2022-2031	4 Objetivos específicos, 8 *Lineas de Acción*, 21 *Actividades*
U.S.A.	2018	Jaguar Recovery Plan	3 Recovery Units, 8 Recovery Objectives, 32 Recovery Actions

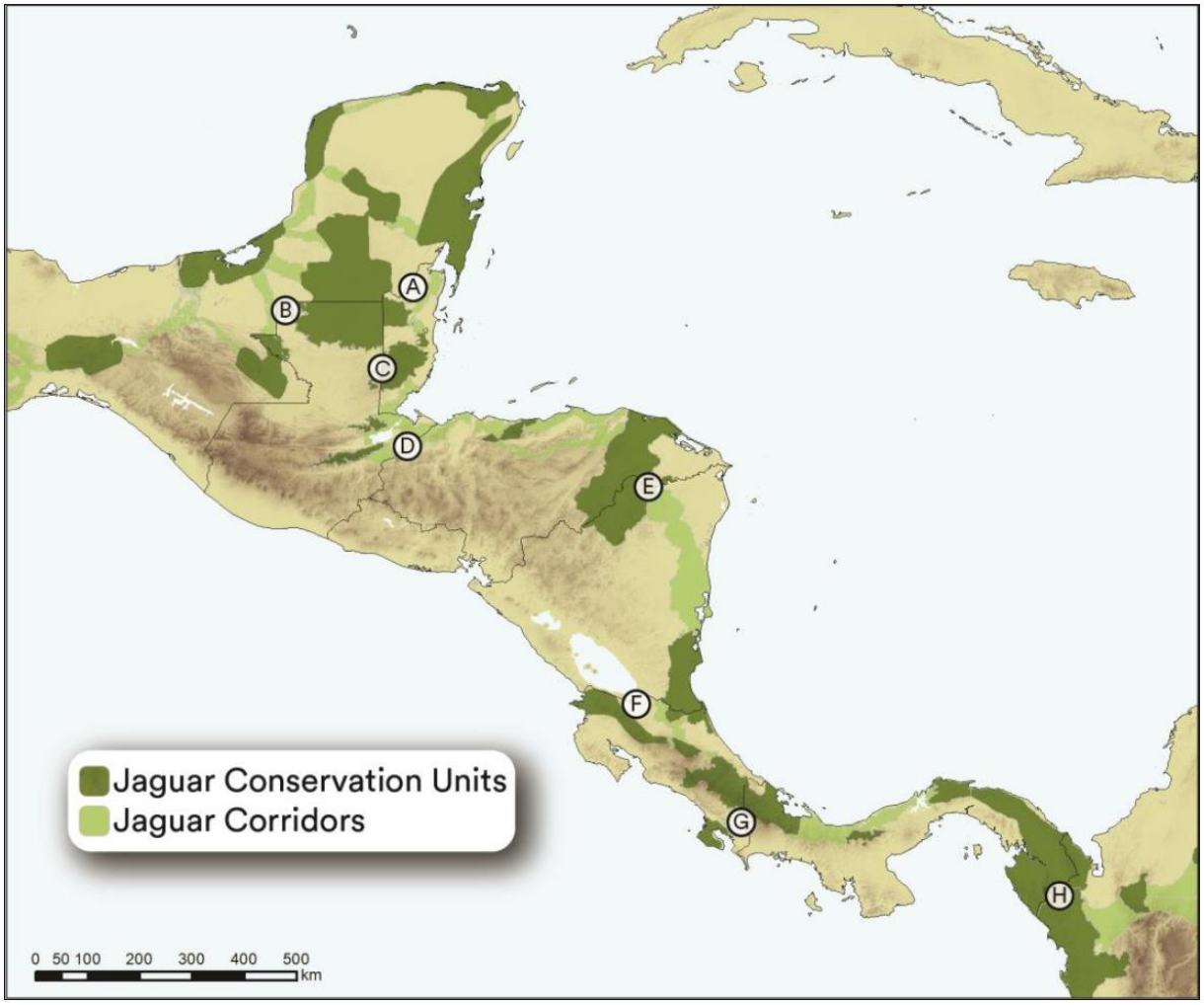
Range-wide or Regional Plans:

Region	Year	Title	Publisher	Elements
Rangewide	2019	Estrategia de conservación Jaguar 2020-2030	WWF	5 *Objetivos*
Rangewide	2022	Jaguar 2030 Conservation Roadmap for the Americas	Jaguar 2030 Coordination Committee*	4 Pathways, 92 Steps
South America	2023	Regional Conservation Strategy for the Jaguar in South America	IUCN SSC Cat Specialist Group	9 Objectives, 30 Results, 100 Activities
Gran Chaco	2011	El Futuro del Jaguar en el Gran Chaco	SERNAP, PNANMI Kaa Iya & WCS	12 *Amenazas encontradas* and *41 Acciones* over three countries
Misiones	2011	Plan de Acción para la conservación de la población de Yaguareté (Panthera onca) del corredor verde de Misiones	Subcomisión Selva Paranaense	7 *Programas*, 38 *Acciones*

*Jaguar 2030 Coordination Committee. 2022. Jaguar 2030: Conservation Roadmap for the Americas. UNDP, UNEP, UNODC, Panthera, WCS, WWF & Endorsing Jaguar Range Countries: 91 pp. Available from: https://internationaljaguarday.org/

Appendix II – Jaguar Conservation Units and the Jaguar Corridor

The Jaguar 2030 Roadmap uses the concept of „Jaguar Conservation Units" (JCUs) and the „Jaguar Corridor", terms also used in this POW. JCUs are „areas with stable prey community that contain a population of at least 50 breeding jaguars", and „areas with fewer than 50 breeding jaguars but with sufficient habitat and prey base such that jaguar populations could increase under favourable conditions". The Jaguar Corridor includes „least-cost path corridors connecting the JCUs". Together, JCUs and the Corridor, will ascertain the viability of populations. The maps from the Jaguar 2030 Roadmap depict the Transboundary Priority Areas for Mesoamerica and South America. More detailed maps (e.g. by country) can be found in the Jaguar 2030 Roadmap.



A – Selva Maya (Mexico-Guatemala-Belize)
B – Montes Azules – Sierra del Lacandón
C – Maya Mountains, Belize-Guatemala
D – Guatemala-Honduras
E – Honduras-Nicaragua
F – The Cerro Silva-Indio Maiz-Tortuguero
G – Talamanca Cordillera Central
H – Darien, Panama-Colombia border

A – Darien, Panama Colombia border

B – Colombia-Venezuela border

C – The Southwestern Colombia-Ecuador border

D & E – The northern Amazon, Colombia-Peru-Brazil

F & G – Eastern Venezuela

H, I, K & M – The northern Guyana shield

J, L & N – Guyana-Suriname-French Guiana borders

O – Ecuador-Colombia-Peru

P – Peru-Brazil

Q – Greater Madidi-Tambopata Landscape – Yungas – Amboro National Park

R – Noel Kempff

S – Chaco and Yungas

T – Bolivia-Paraguay-Brazil border

U – Paraguay-Brazil border

V – Paraguay-Argentina border

W – Paraguay-Brazil-Argentina border

Appendix III – Threats to the Jaguar as identified in other over-arching strategic plans (see Appendix I)

The problem analysis, hence the identification of threats, underlaying causes and drivers, and constraints to the conservation of a species is an important exercise to define the Objectives of a Conservation Strategy or Action Plan (see IUCN SSC Guidelines for Species Conservation Planning). Such exercise was not possible for drafting this Programme of Work, but some documents refer to the threats, e.g. CMS Resolution 14.14, Article 1 indicates that the jaguar is threatened by "loss and growing fragmentation of its range and habitat, and increased poaching and trafficking in parts". Two range-wide strategic documents have been consulted for the definition of the Objectives, the Jaguar 2030 Conservation Roadmap for the Americas and the Regional Conservation Strategy for the Jaguar in South America.

The Jaguar 2030 Roadmap presents a short narrative about general threats range-wide including their drivers, plus the main threats per country in the country profiles. Overall, habitat loss and fragmentation were identified as the main threat, which is driven by expanding agriculture and cattle ranching as well as by large-scale infrastructure development. Direct killing is the second most important threat. This is driven by actual or suspected livestock depredation, and by fear of attacks on people. Additionally, sport and trophy hunting still exist and appear to be increasing due to demand for jaguar parts for trade. Jaguars are also threatened by vehicle-jaguar collisions. See compilation in Table 1.

The Regional Conservation Strategy presents threats (but also weaknesses, strengths and opportunities) ranked according to their importance. Habitat loss and direct killing were top ranking. However, the analysis differentiated threats according to their drivers, so that e.g. direct killing simultaneously received the highest possible rating and the lowest possible rating depending on the underlying cause / driver. For direct killing, the highest-ranking drivers were retaliatory killing (livestock, dogs) and trade/trafficking. Meanwhile, direct killing driven by fear / preventative / casual received the second-highest ranking, whilst direct killing for sustenance / trophy received the lowest ranking and was basically not considered a threat. The highest-ranking drivers for habitat loss were infrastructure (hydro, transport, urbanisation), mining, agriculture (palm, soy, …) and ranching. Habitat loss driven by fire, unsustainable logging and urban development were ranked lower. Prey base depletion was also identified as a threat, where sustenance and commercial hunting were ranked as higher drivers than the same causes as above (habitat loss and direct killing), and invasive and feral species. Climate change, and civil unrest received the second-lowest ranking.

Table 1. Threats compiled from the Jaguar 2030 Roadmap (Range-wide and per country) and from the Regional Conservation Strategy for South America (South America) per region and Range State.

Threat	Range-wide	South America	AR	BO	BR	BZ	CO	CR	EC	GF	GT	GY	HN	MX	NI	PA	PE	PY	SR	VE
Habitat	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x		x	x
Killing	x	x	x	x		x	x	x		x				x	x	x		x	x	x
Vehicle	x																			
Prey		x	x*			x		x			x		x		x	x	x			
Climate		x																		
Unrest		x																		

*Indiscriminate hunting, even in protected areas

The Regional Conservation Strategy for South America also identified Weaknesses (sometimes synonymised with Constraints or Shortcomings). These Weaknesses are summarised in Table 2.

Table 2. Weaknesses identified by the Regional Conservation Strategy for South America. Four independent working groups identified the weaknesses. Consequently, they can have a ranking between 4 (identified as important weakness by all working groups) and 0 (not identified as important weakness by any working group).

Weakness	Ranking	Weakness	Ranking
Poor regulation & law enforcement (presence & prosecution)	4	Political instability / Slow political traction / poor governance / poor will	2
Lack of biological / social science knowledge/information	4	Lack of education and awareness and misconception of general public	2
Suboptimal collaboration between institutions/NGOs	3	Lack of suited PAs and proper management of Pas, and PADDD	2
Limitations to reach decision-makers	3	Inadequate resources / investments – limited funding	1
Corruption	2	Lack of biodiversity mainstreaming into different sectors	1
Poverty/Lack of alternative/sutainable livelihoods and opportunities for people	2	Lack of political will	0
Poor land-use planning	2	Poor communication / lack of multidisciplinary cooperation	0
Inadequate capacity (knowledge, patrol, PA management)	2		

Appendix IV – Summaries of the Red List and the Green Status of Species for the Jaguar *Panthera onca* in the IUCN Red List of Threatened Species™

Tabea Lanz and Elliot Carlton, IUCN/SSC Cat Specialist Group, with thanks to Molly Grace, IUCN Green Status Working Group and Melissa Arias, ZSL

Note: The Red List – estimating the extinction risk – and the new Green Status of Species – evaluating the recovery status – of a species are important assessment to inform the development of large-scale conservation plans. Both assessments are presently in process by a group of Jaguar experts and are expected to be published end of 2025. We summarise here the 2017 Red List Assessment (RLA; Quigley et al. 2017) and a preliminary Green Status of Species assessment (GSS; Carlton 2024).

The IUCN Red List of Threatened Species™, known as the IUCN Red List, has been established in 1964 and is the world's most comprehensive inventory of the global conservation status of plant, fungi and animal species (IUCN 2019). The IUCN Red List assesses the extinction risk of a taxon based on a comprehensive, objective and scientifically rigorous approach (IUCN Standards and Petitions Committee 2024). The goal of the IUCN Red List is to inform and catalyse action for biodiversity conservation and policy change. It aims to convey the urgency and scale of conservation problems to the public and policy makers, and to motivate the global community to reduce species extinctions (IUCN 2019). To evaluate the extinction risk of taxa, the IUCN Red List uses five Criteria to classify them into one of nine Red List Categories (Fig. 1; IUCN 2012).

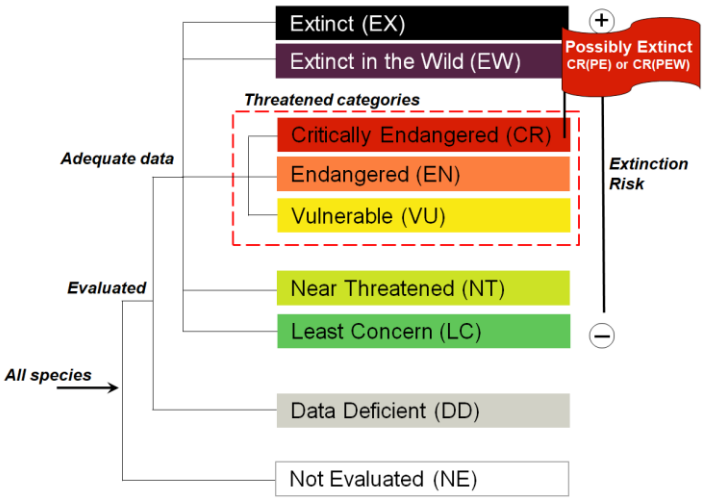


Fig. 1. The nine IUCN Red List Categories. Species which were never evaluated against the IUCN Red List Categories and Criteria are labelled as NE, for species where very limited data is available and where it is not clear if they classify for LC or CR are DD. Species with a low risk of getting extinct in the near future are classified as LC, species that nearly meet the threatened Categories are NT, species with a high risk of getting extinct in the near future are classified as VU, with a very high risk of getting extinct as EN and with an extremely high risk of getting extinct in the near future as CR. When individuals of a species only remain in captivity they are classified as EW, if all individuals have gone and nowhere the species is existing it is EX (IUCN Standards and Petitions Committee 2024).

The IUCN Red List has a strong scientific base. Assessments are done by the world's leading species experts and go through a thorough review process before publication. The IUCN Red List is not just a list of taxa and does not only evaluate the extinction risk of a taxon but also provides important background information and analyses on the status of the taxon in a global or regional perspective such as on its range, population size and trend, habitats and ecology, use and trade, threats and conservation actions (IUCN Standards and Petitions Committee 2024). It establishes a baseline from which to monitor the future status of a taxon. The periodic assessment process for the IUCN Red List is important to identify improvements and aggravations of a taxon's situation. In this regard, the IUCN Red List helps to define the most urgent conservation measures for a taxon and is widely used to inform and influence biodiversity conservation. Ultimately, the IUCN Red List informs policy and provides information to international agreements such as the Convention on Migratory Species (CMS) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES; IUCN Standards and Petitions Committee 2024).

The IUCN Red List assessments of the Jaguar (*Panthera onca*)

The Jaguar (*Panthera onca)* has already been assessed eight times for the IUCN Red List of Threatened Species™. In the first four evaluations, the Jaguar was assessed as Vulnerable (1982, 1986, 1988 and 1990). In 1996 it has been down-listed to Near Threatened (NT) and stayed NT in the 2002 and 2008 assessment. In the last Red List assessment of 2016 (Quigley et al. 2017), the Jaguar has been re-classified as Near Threatened under the Criteria A2cd in spite of a suspected population decline of 20–25% over the past three generations (21 years) based on declines in area of occupancy, extant of occurrence and habitat quality, together with actual or potential levels of exploitation (Fig. 2a, b).

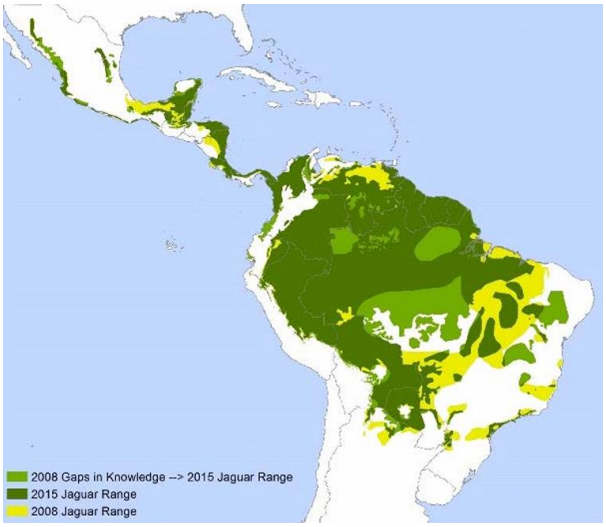


Fig. 2a. Comparison of the range of the Jaguar from 2008 and 2015 and identified gaps in knowledge from 2008 (2,006,502 km2).

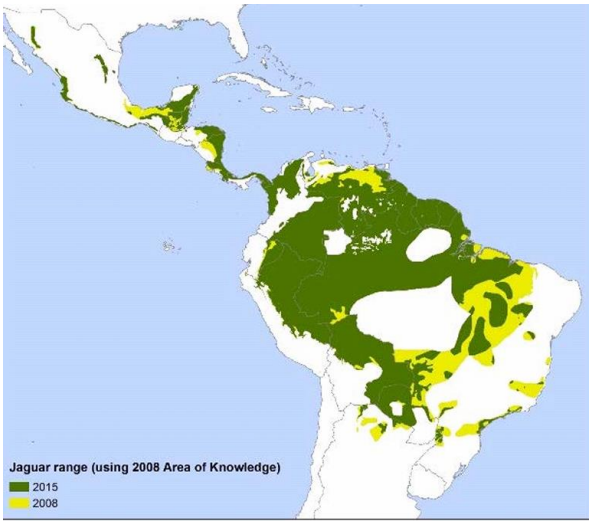


Fig. 2b. After eliminating gaps in knowledge from the 2008 assessment, there is a documented 20% decline in Jaguar range from 2008 to 2015. (Figures taken from Quigley et al. 2017.)

In most of the range countries, declines in the Jaguar population and habitat loss have been documented and connectivity among Jaguar populations has been lost at local and regional scales. The population trend of the Jaguar has been assessed as decreasing and its population assumed to be severely fragmented. However, the Jaguar is difficult to assess, has low densities and the effects of small population and habitat degradation is unclear. Thus, according to the 2017 assessment, the suspected population decline could have been a significant underestimate and the species could likely qualify for VU again in the near future.

Since 2008, threats to the Jaguar have continued to intensify and there have been indications of increasing fragmentation of Jaguar populations, particularly in eastern and south-eastern Brazil, northern Venezuela and the Maya Forest of Mexico and Guatemala. Beside habitat loss and fragmentation, Jaguar-livestock conflict has been assessed to be a serious threat to the survival of the species across its range in 2016. Additionally, even in nominally protected areas, Jaguars were stated to often suffer from human impacts such as illegal hunting. The stronghold of the Jaguar is the Amazon basin. In much of the drier northern part of its range, in Arizona and New Mexico in the United States and the extreme northern Sonora state in Mexico as well as northern Brazil, the pampas scrub grasslands of Argentina and throughout Uruguay, the Jaguar is virtually extinct. Overall, Jaguars were estimated to only remain in around 51% of its historic range.

Jaguar viability was assessed by Sanderson et al. (2002). For populations in 70% of the Jaguars range (Amazon Basin rainforest and adjacent areas in the Pantanal and Gran Chaco, tropical moist lowland forest in Mesoamerica and a small strip of the Choco-Darien of Panama and Colombia to northern Honduras) a high probability for survival was estimated. In 18% of the Jaguar range (areas adjoining the areas with high chance of survival and including large part of the northern Cerrado, most of the llanos in Venezuela and Colombia, the northern part of the Colombian Caribbean coast, highlands of Costa Rica and Panama, southern Mexico and Sierre de Taumalipas and Sierra Madre Oriental) populations were estimated to have a medium probability of long-term survival. In 12% of the range (Atlantic Tropical Forest, Cerrado of Brazil, parts of the Chaco in northern Argentina, the Gran Sabana of northern Brazil, Venezuela and Guyana, parts of coastal dry forest in Venezuela and remaining range in Central America and Mexico), Jaguar subpopulations were estimated to have a low chance of survival and to be of high conservation concern.

Jaguar densities were estimated at 0.75 to 6 adults per 100 km^2 in Mexico. The Jaguar population in the Selva Maya in Yucatan Peninsula (Mexico) was estimated at 2,000 individuals, in the greater Lacadona Ecosystem in southern Mexico, Jaguar population was estimated at 62 to 168 individuals within protected areas. Mexico's national Jaguar census estimated 4,000-5,000 individuals in 2011. In the northern and central areas of Mexico Jaguars were becoming increasingly isolated and disappearing where they were previously detected.

In Central America Jaguar densities ranged from 0.74 to 11.2 per 100 km^2 and was found to be declining across the human-influenced landscape. The Talamanca Mountains of Costa Rica and Panama support a Jaguar population but the probability of long-term persistence was assessed as medium to low. Furthermore, Jaguar populations in protected areas in Guatemala, Honduras and Nicaragua were evaluated to be under great pressure from deforestation and hunting.

In South America Jaguar density in the Brazilian Pantanal reached from 6.6 to 11.7 per 100 km^2. In the Bolivian Amazon 2.8 per 100 km^2, and in the Colombian Amazon 4.5 and 2.5 per 100 km^2. In the Savannas of the Brazilian Cerrado density was 2 individuals per 100 km^2, 3.5 per 100 km^2 in the semiarid scrub of the Caatinga, 2.2 per 100 km^2 in the Atlantic Forest and 2.2–5 Jaguars per 100 km^2 in the Bolivian Gran Chaco. The Atlantic forest subpopulation in Brazil was estimated at 200 +/- 80 adults. Jaguar populations in the Chaco region of northern Argentina and Brazil and the Brazilian Caatinga showed low-density and were assessed to be highly threatened by livestock ranching and related persecution.

Across the Jaguar range, 34 subpopulations were identified by de la Torre et al. (2017). 97% met the criterium for Critically Endangered (25 subpopulations) or Endangered (8 subpopulations). The large Amazonia subpopulation, estimated to hold 89% of the total species population (57,000 out of 64,000), was the only one assessed as Least Concern (Fig. 3).

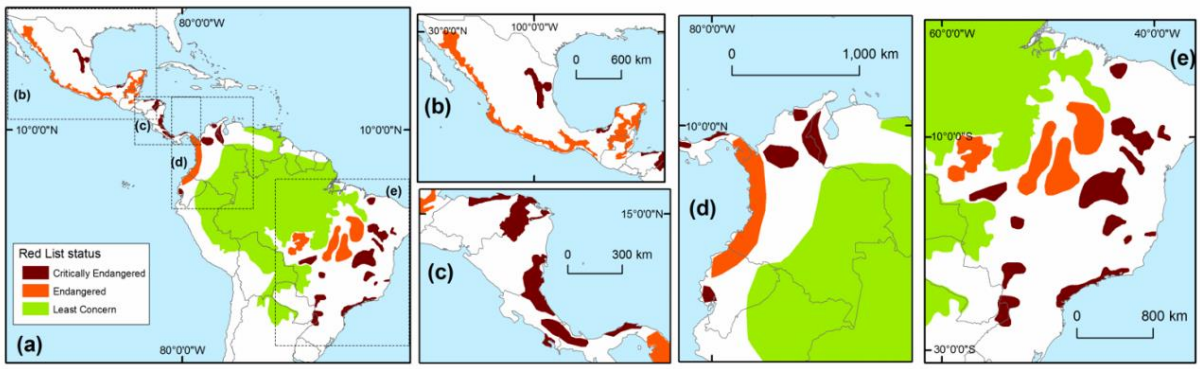


Fig. 3. Red List Categories of Jaguar subpopulations according to de la Torre et al. (2017); (a) throughout the Jaguars range, (b) in Mexico, (c) in Central America, (d) in northern South America and (e) in southern Amazonia (Figure taken from Quigley et al. 2017).

Main threats to Jaguar populations identified in 2016 were habitat loss and fragmentation (e.g. deforestation due to industrial and subsistence agriculture such as for soy, palm oil and cattle ranching), killing for trophies and illegal trade in body parts and pro-active or retaliatory killings associated with livestock depredation and due to competition for wild meat with human hunters. Fragmentation and displacement were stated to lead frequently to a reduction in Jaguar and prey densities in leftover forest patches due to easier access by humans and Jaguars feeding on the replaced livestock, enhancing Jaguar-livestock conflict. Generally, the increasing human population is threatening the Jaguar by leading to more habitat loss and fragmentation and making wildlife easier accessible for hunting. Persecution is another big problem and only few areas within the Jaguar range could be considered to be safe. There is still a demand for Jaguar paws, teeth and other products, especially in local markets. Jaguars are also considered a replacement for tiger bone for traditional medicine purposes by the increasing Asian community in Latin America.

Although the Jaguar is fully protected at the national level across most of its range, is included in CITES Appendix I and specific conservation plans have been developed in several Range States (Appendix I), there is a need for further conservation actions. Jaguars have lost about 49% of their historical geographic range and are considered extinct in El Salvador, Uruguay and the United States. Jaguar population declines and habitat loss were documented for most of its range countries and connectivity among Jaguar populations has been lost at local and regional scales. Connectivity of Jaguar habitat, for example, has almost gone between Honduras and Guatemala, similar gaps have been documented across the Chaco Iguazu and Atlantic Forest, and between Tamaulipas and Veracruz. Additionally, corridors connecting Jaguar subpopulations lie mostly outside of protected areas making them even more vulnerable to human impacts. Many Jaguar populations require improved connectivity between core sites to survive in the long term. Evidence of little genetic differences among Jaguar populations further suggests that maintaining connectivity across the range is important. There is also a need for improved habitat protection, enhanced area and trade management, awareness raising, improvement of legislation at national and sub-national level and improved livestock management and compensation schemes. Better surveillance is needed regarding Jaguar population size and trend as well as the distribution and habitat trends, threats and trends in trade. More research is recommended regarding Jaguar life history and general ecology.

Important conservation actions conducted so far include reduction of Jaguar-livestock conflicts by improving livestock management practices and responding to reports of livestock depredation, further research to understand and address the hunting of Jaguar prey, awareness raising regarding the laws governing the hunting of wildlife and the necessity to adopt sustainable hunting practices, monitoring and safe-guarding Jaguar core populations (Jaguar Conservation Units (JCU); see Appendix II), maintaining of national and regional connectivity between populations by identifying Jaguar corridors

between the JCUs and conserving them, as well as the development of national, regional and local monitoring programmes for Jaguars and their prey.

The IUCN Green Status of Species assessment of the Jaguar (*Panthera onca*)

The IUCN Green Status of Species (GSS) provides a standardised assessment of recovery status, complementing the Red List to provide a more complete picture of a taxon's status and incentivise more ambitious conservation goals (IUCN GSSWG 2024).

The GSS has two main goals: (1) to assess recovery status and (2) to assess conservation impact. To assess current recovery status, the GSS considers viability, spatial representation, and ecological functionality to calculate a Species Recovery Score and Category including the following steps (IUCN GSSWG 2024):

1. Determination of the indigenous range (distribution of taxon in the absence of human impacts, informed by historical and current distribution).
2. Division of the indigenous range into spatial units (subdivisions of the entire indigenous range, e.g., based on genetic or ecological divisions).
3. Assessment of the recovery status at the level of spatial units. Spatial units can be assigned one of four states: Absent (extinct or extirpated from the spatial unit), Present (the taxon is assessed as either threatened or Near Threatened with continuing decline under the regional Red List criteria in the spatial unit; IUCN 2012), Viable (the taxon is assessed as either Least Concern or Near Threatened with no continuing decline under the regional Red List criteria in the spatial unit; IUCN 2012), and Functional (the taxon is Viable and the taxon is fulfilling ecological functions at baseline levels across a majority of the spatial unit).
4. The states are weighted and based on this the Species Recovery Score (SRS) is calculated, and Species Recovery Category defined (ranging from 0% = Extinct in the Wild, to 100% = Fully Recovered or Non-Depleted; Fig. 4).

Under the GSS, a taxon is described as "Fully Recovered" if it is both Viable and Functional at baseline levels across its indigenous range. Within the GSS framework we can also assess the past and expected future impact of conservation by assessing the recovery status under several hypothetical scenarios; (1) counterfactual: hypothetical present status of the taxon if there had been no past conservation actions, (2) future-without-conservation: status in 10 years' time if all conservation actions were halted today, (3) future-with-conservation: expected status in 10 years' time given all planned conservation actions, and (4) long-term aspirational: potential status of the taxon in 100 years' time if all possible conservation actions are implemented. The scores calculated under these scenarios are compared to the current SRS to calculate the four Conservation Impact Metrics: Conservation Legacy (the past impact of conservation), Conservation Dependence (the expected short-term impact of halting conservation), Conservation Gain (the expected short-term impact of planned conservation actions), and Recovery Potential (an aspirational recovery target for the next 100 years; Fig.4). The outputs of the GSS are published alongside the Red List of the corresponding taxa and together these provide important inputs regarding conservation planning and definition of priority conservation actions to enhance the recovery of taxa.

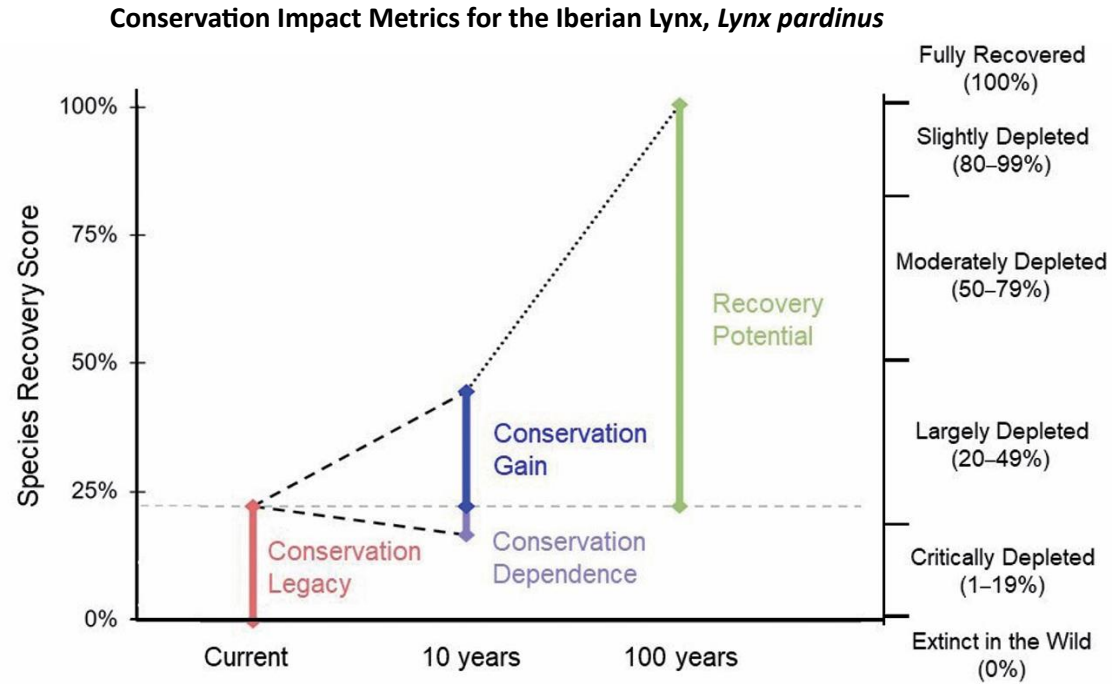


Fig. 4. The four conservation impact metrics as calculated for the Iberian lynx (*Lynx pardinus*). Please note that these are not yet calculated for the jaguar and may take on very different values. The Green Score (left y-axis) and Category (right y-axis) are calculated under four hypothetical scenarios. The difference between these Green Scores and the current SRS (represented by the horizontal grey dashed line) gives the Conservation Legacy (pink), Conservation Gain (blue), Conservation Dependence (purple), and Recovery Potential (green; Salcedo et al. 2023).

A preliminary Green Status of Species assessment for the Jaguar (*Panthera onca*):

A Green Status of Species assessment for the Jaguar has not yet been published. However, a preliminary Green Status of Species assessment of the current recovery status of the Jaguar found the species to be Largely Depleted (Carlton, E. 2024). This preliminary result highlights that whilst the Jaguar is faring well in the Amazon (hence the latest Red List assessment of Near Threatened; Quigley et al. 2017), the species faces regional declines and extirpation across much of its indigenous range. The preliminary GSS assessment (i.e., estimation of the current state in each spatial unit) was conducted as part of master's research on the GSS using the assessment materials made available by the IUCN Species Survival Commission and mainly based on the last Red List assessment of the species (Quigley et al. 2017). It should be noted that the GSS assessment of the species is not final until it has been reviewed and published on the Red List website.

Historically, the Jaguar ranged from southwestern US, through central America, to as far south as central Argentina (Fig. 5; Panthera 2024). For the preliminary assessment, this historical range was delineated into 10 spatial units primarily based on the 8 Jaguar eco-regions of South America identified by Jędrzejewski et al. (2023b) – with two further spatial units based on the biogeographic regions of the Jaguar 2030 Roadmap (Forum for Jaguar Conservation 2018) representing the Jaguar's indigenous range in Central and North America (Fig. 5). The Jaguar was assessed as Functional in one spatial unit (Amazon) and Present in all other spatial units given the threatened status of these subpopulations (de la Torre et al. 2018, Jędrzejewski et al. 2023a, Thompson et al. 2023). This resulted in the recovery status being assessed as Largely Depleted. By highlighting regional threats and extirpations the GSS can emphasise the need for continued and intensified conservation action for the recovery of the species. This is particularly important as regional declines and extirpations of Jaguar also means the loss of critical ecosystem functions. Alongside an updated Red List assessment, species experts will do a GSS assessment for the Jaguar. The completed assessment will provide important infor-

mation on the species' current recovery status. The Conservation Impact Metrics (which are not yet assessed within the preliminary assessment) will also provide information on the past, expected, and potential future impact of conservation on the status of the species.

Fig 5. Rough sketch of preliminary spatial units – adapted from historical range map taken from Panthera website (Panthera 2024), with spatial units primarily based on the Jaguar ecoregions identified by Jędrzejewski et al. (2023b); Pink: North America, Yellow: Central America, Dark Blue: Andes, Dark Green: Los Llanos and Guiana Highlands, Brown: Amazon, Light Blue: Cerrado East, Orange: Caatinga, Light Green: Cerrado West and Pantanal, Red: Atlantic Forest, Purple: Gran Chaco, Patagonia, and Pampas.

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