



## Questions and Answers: Final Recovery Plan for the Jaguar

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The U.S. Fish and Wildlife Service and the binational Jaguar Recovery Team have completed the final [recovery plan](#) for the jaguar, America's largest wild cat. The plan sets goals for improving the species' status through its entire 19-country range and provides a framework for achieving recovery. The recovery plan focuses on the cat's population in northwestern Mexico and the southwestern United States and recommends site-specific conservation actions that contribute to jaguar recovery across its range.

**Q: What does the jaguar recovery plan tell us?**

**A:** Reversing the decline of the jaguar is possible, but it will require the long-term, coordinated efforts of agencies and conservation organizations in 19 countries, from the United States south to Argentina. The final recovery plan sets goals for improving the species' status across its range and provides a framework for aligning stakeholder efforts to achieve recovery. Critical to the recovery of the jaguar is conservation of key jaguar habitat (including core areas and connective corridors) and populations. Due to past habitat loss, it is unlikely jaguars will be fully self-sustaining throughout their entire historical range.

**Q: What are the primary threats to the jaguar?**

**A:** Loss of habitat, killing of individuals and depletion of prey throughout its range are the primary reasons for decreasing populations of jaguars. The recovery plan identifies conservation activities in every country and region for addressing each of these threats. It establishes goals for minimizing threats and for establishing viable populations throughout the jaguar's expansive range.

**Q: What is a recovery plan?**

**A:** Recovery plans are not regulatory but provide a framework for recovery of a species so protection under the ESA is no longer necessary. This recovery plan includes scientific information about the species and provides recovery criteria, conservation actions necessary for its recovery and delisting from the ESA and estimates of the time and cost to carry out the measures needed to achieve the plan's goal.

**Q: What are the strategies for conserving and recovering the jaguar in the final recovery plan?**

**A:** The recovery plan describes two large jaguar recovery units: the Pan-American Recovery Unit (PARU) where jaguars occupy habitat from eastern Mexico to northern Argentina, and the Northwestern Recovery Unit (NRU) extending from Colima State in western Mexico to the U.S. Southwest. The plan

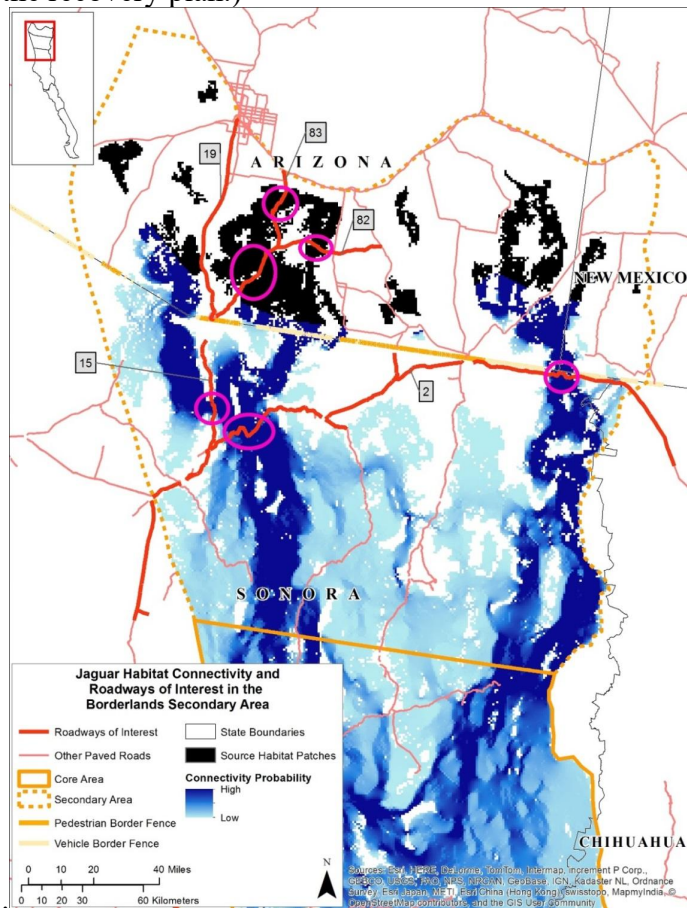
recognizes that countries within the PARU will be the principal contributors to jaguar recovery. As it has in the past, the Service will continue to [promote jaguar recovery](#) throughout the range of the jaguar.

The final recovery plan focuses on the NRU because this is where the Service has the most jurisdiction and has an established working relationship with Mexico. The NRU includes the jaguars that occupy the U.S. Southwest borderlands region. Since 1996, seven individual male jaguars have been documented in the United States (southern Arizona and southwestern New Mexico). These jaguars are believed to be expanding their range from the nearest core area and breeding population, which is approximately 130 miles south of the U.S.-Mexico border in Sonora. Recovery criteria in the Borderlands Secondary Area address mapping and implementing plans to ensure permeability of at least two transborder linkages to provide connectivity.

The binational recovery team has not prescribed jaguar reintroductions in the United States but focuses on efforts to sustain habitat, eliminate poaching, maintain at least two borderland [dispersal corridors](#) (see Figure 4 in the final recovery plan), and improve human social acceptance of the jaguar to accommodate jaguars that disperse into the United States.

**Q: What are the borderland dispersal corridors referred to in the recovery plan and how critical are they to the recovery of jaguars in the United States?**

**A:** Dispersal corridors are rugged, remote areas that presently male jaguars, presumably from the Sonora Core breeding area in Mexico, use to access secondary area habitat, a portion of which is in southern Arizona and New Mexico. These areas have been identified from habitat characteristics, historical records, recent sightings and photo monitoring in the United States and Mexico. (See [Jaguar Habitat Connectivity and Identification of Potential Road Mitigation Locations](#) in the NRU for the Jaguar report, as well as Figure 4 of the recovery plan.)



Continued jaguar access to habitat through transborder linkages is the sole mechanism identified in the recovery plan for continued jaguar occupation in the U.S. portion of the species' range. Maintaining this habitat connectivity is one of the recovery criteria for the Northwestern Recovery Unit. Research documents the importance of animal populations at the extremities of their ranges for the expansion and contraction of species' ranges and, ultimately, the long-term recovery of species.

These jaguar dispersal corridors are rugged and remote areas. Border interventions and operations in these areas, at present, are most practically addressed through surveillance and remote detection (electronics, towers, etc.). The U.S.-Mexico border is currently permeable to jaguar movement at these dispersal corridors. Continued work with the U.S. Customs and Border Protection (CBP) will remain important to allowing ongoing opportunities for cross-border movement of jaguars.

**Q: How important is the recovery of jaguars in the United States to their overall recovery across their range?**

**A:** The U.S. range of the jaguar represents the very northernmost edge of its 19-country range that extends all the way to South America. The U.S. range represents just one-tenth of 1 percent of its historic range.

Given that the jaguar is an international species with the vast majority of its range outside of the United States, primary actions to recover the jaguar will occur in other countries. Because more than 95 percent of the jaguar's habitat in the Northwestern Recovery Unit (NRU) is in Mexico, Mexico will be the primary contributor to the jaguar's recovery in the NRU. In the Pan-American Recovery Unit (PARU), countries within the jaguar's range will be the principal contributors to jaguar recovery.

The Service's limited resources are better applied to planning and on-the-ground implementation of conservation actions within the United States boundaries and in partnership with Mexico. Therefore, the Service and the Jaguar Recovery Team have established objective and measurable criteria for recovery and site-specific actions that, if implemented, will conserve viable jaguar populations in the northwestern portion of its range (e.g., the NRU). Priority is given to this unit because this is where the Service has the most jurisdiction, and we have an established working relationship with Mexico on issues of mutual concern.

**Q: Was Customs and Border Patrol included in the developing of this plan?**

**A:** Yes. U.S. Border Patrol (Tucson Sector) is represented on the Implementation Subgroup of the Jaguar Recovery Team. Other U.S. border area groups on the subgroup include ranchers, Malpais Borderlands Group, Altar Valley Conservation Alliance (ranching group), and state and federal land and wildlife managers.

**Q: What are the actions and partnerships the Service is taking to support recovery of the jaguar in its primary range in 19 Central and South American countries?**

**A:** In recent years, the Service's International Affairs Program has been at the forefront of supporting the conservation of jaguars throughout their range in Mexico, Central America and South America. During the past four years alone, we have supported 23 jaguar-related projects in 10 countries with more than \$1 million in conservation funding. When jaguar habitat is conserved, many other species directly benefit.

In addition to providing incentives to protect habitat, many of the projects we support, seek to alleviate fears about jaguars in human communities through education. They also frequently provide

landowners with concrete strategies and methods that reduce conflict in such a way that humans and jaguars can co-exist. As a result, landowners are better able to protect their livelihoods and economic interests while helping protect jaguars. They achieve these goals by discouraging jaguars from coming into contact with their livestock, by reforesting areas of their land, and by helping maintain the species' natural prey populations. Based on project reporting to date, most landowners who employ jaguar-friendly ranching techniques see a dramatic reduction in attacks and subsequent livestock mortality. A project in Paraguay has reduced cattle mortality from jaguar attacks by 80-100 percent at 12 sites that cover an area more than 770 square miles. Another project in the Maya Biosphere of Guatemala has reduced cattle mortality from jaguar attacks by approximately 70 percent at 283 properties, covering about 11,603 hectares of land now under improved management.

**Q: What are the requirements for a full recovery of the jaguar?**

**A:** The approach in this Recovery Plan is as follows:

- Two recovery units are included, the Northwestern Recovery Unit (NRU) and the larger Pan-American Recovery Unit (PARU). The NRU extends from south-central Arizona and extreme southwestern New Mexico, United States, south to Colima, Mexico. The PARU encompasses 18 countries from Mexico to Argentina. These units are further divided into core, secondary, and peripheral areas.
- The status of and threats to jaguars in the PARU are summarized and general actions and criteria for addressing these threats and evaluating rangewide recovery are recommended.
- Detailed criteria and actions necessary to recover jaguar populations in the NRU are provided.

**The Service will consider removing the jaguar from the ESA list due to recovery when all of the following conditions are met:**

**A. PARU**

- i. The status of the jaguar changes to Least Concern (LC) and is maintained under the IUCN Red List criteria (as defined by the World Conservation Union, <http://www.iucnredlist.org>) for at least 20 more years after first qualifying for LC, which would mean threats have been reduced so the jaguar population is no longer at risk of a  $\geq 30$  percent decline because its area of occupancy, extent of occurrence, and/or habitat quality, as well as actual or potential levels of exploitation, have been stable for at least 40 years.

**B. NRU**

- i. Maintain approximately 60 percent occupancy (proportion of cells) in each of the Core Areas over 40 years (inclusive of the 20 years required to downlist).
- ii. Over 40 years, genetic distance (e.g.,  $F_{ST}$  or  $G_{ST}$ ) between the Sonora and Jalisco Core Areas does not significantly increase, and inbreeding coefficients ( $F_{IS}$  or  $G_{IS}$ ) within each of the Sonora and Jalisco Core Areas do not significantly increase.
- iii. During a period of 40 years, the average of at least 30 percent of the adult population within the Sonora and Jalisco Core Areas are female (based on data gathered through surveying, monitoring, genetic analysis, etc.).

- iv. Agency policies and regulations (including transportation siting and design), land-use regulations, and landowner agreements in Mexico are sufficient to ensure the network of  $\geq 100\text{-km}^2$  blocks (the minimum area capable of supporting at least three breeding females) of high-quality habitat and habitat connections between blocks within each Core Area (Sonora and Jalisco) will support genetically and demographically viable jaguar populations for the foreseeable future.
- v. Agency policies and regulations (including transportation), land-use regulations, and landowner agreements in Mexico are sufficient to ensure landscape permeability will be maintained for jaguars within the Sinaloa Secondary Area.
- vi. Agency policies and regulations (including transportation), land-use regulations, and landowner agreements in the United States and Mexico are sufficient to ensure landscape permeability, including at least two trans-border linkages, will be maintained for jaguars throughout the Borderlands Secondary Area.
- vii. The threat of direct human killing of jaguars is decreased or maintained at sustainable levels as measured by acceptable evidence or an index.
- viii. Effective federal, state, tribal, and/or local laws are in place in the NRU that ensure killing of jaguars is prohibited or regulated so viable populations of the species can be maintained.