



# Borderlands Jaguar Detection Project

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## Borderlands Jaguar Detection Project Annual Report for 2007

The major goals of this project are to gather solid scientific data on the current status and distribution of jaguars in southern Arizona and provide accurate information to the state and federal agencies and the Jaguar Conservation Team so that informed and effective conservation actions can be implemented. The successes of this project over the past year have greatly added to the current scientific understanding of jaguar distribution in southern Arizona, and guided management strategies for the species.

With the help of the Jaguar Conservation Team, the Arizona Game and Fish Department, the Bureau of Land Management, US Fish and Wildlife Service and US Border Patrol, we have dramatically increased the current scientific knowledge of jaguars in the arid environments at the northern extent of their range in southern Arizona. Our results have changed the way the jaguar is defined in the United States, from “an occasional visitors from Mexico” to established residents of Arizona. These data provide a terrific contribution to the conservation biology of the northern most jaguars, in the United States. Our findings have touched many diverse groups and our graphic presentations have fascinated many with the importance of preserving the majestic jaguar in the American Southwest. Most importantly we have continually presented our findings to the Jaguar Conservation Team and have worked directly with policy makers from local, state and federal governmental agencies towards formulating and implementing effective conservation strategies.

Our **accomplishments** over the past year include:

- Maintained continuous monitoring for jaguars in the remote mountain ranges of the Borderlands using non-invasive survey techniques.
- Expanded the scope and scale of monitoring and research efforts.
- Established 15 new camera sites and scat/track transects to monitor previously unsurveyed areas, including new mountain ranges and lowland habitats.
- Documented jaguars in four mountain ranges in southeastern Arizona.
- Documented year-round occupancy of jaguars in Arizona over extended periods, indicating established residency within the United States.
- Calculated first home range estimate for jaguars in the United States and northern portion of the specie’s range.
- Authored first comprehensive scientific paper on jaguars at northern portion of their range in the United States. McCain, E. B. and J. L. Childs 2008. Evidence of resident jaguars (*Panthera onca*) in the southwestern United States and the implications for conservation. *Journal of Mammalogy*, 89(1):1–10.
- Presented progress reports at each quarterly Arizona/New Mexico Jaguar Conservation Team Meeting to update the agencies, landowners, and conservation groups involved with land and wildlife management and policy making.
- Presented project results to international scientific community at The Wildlife Society National Meeting in Tucson, Arizona – Sept. 2007.
- Presented project results to and engaged partnerships with the Malpai Borderlands Group in Douglas Arizona. Oct. 2007.
- Presented project to Coronado National Forest biologists – Audubon Research Ranch Sonoita, Arizona.

- Maintained graphic interactive presentations, lectures, workshops and a graphic website to provide information on the project's exciting findings and stress the importance of proactive jaguar conservation. These presentations have been very well received by diverse audiences.
- Authored book about monitoring jaguar cameras for 5 years; stories from the field and fun educational natural history of the jaguar and the 23 other wildlife species photographed on the cameras. Childs, J. L. and A. M. Childs [In press] *Ambushed on the Jaguar Trail: hidden cameras along the Mexican Border*. Rio Nuevo Publishing, Tucson, AZ.
- Established a solar powered satellite internet connection at remote field station, completing our fully functional field research station with a modern office.
- Authored popular literature article for the *WildCat News: A report on the jaguar in southeastern Arizona*. May 2007, Volume 3, Issue 1. pg 1-9. <http://www.easterncougarnet.org/issue3-1.html>

Some of our **successes** over the past year have included:

- To date the project has documented 89 jaguar locations inside the state of Arizona (65 photographs and 24 sets of tracks).
- First documentation of jaguars in a new mountain range in southeastern Arizona.
- Documented jaguar habitat use nearly 80 km north of international border.
- Documented jaguars during every month of the year, indicating year-round jaguar occupancy within the United States.
- Determined jaguar daily activity patterns in the United States to be almost strictly nocturnal.
- Documented jaguars using habitats in mountainous areas to lowland desert valley floors at elevations ranging from 877m to 1577m.
- Determined long term occupancy of jaguars with the United States – one individual from 1996-2006 (See graphic), another from 2001-2004.
- Identified one individual jaguar on our cameras that we had originally photographed in 1996 – making him at least 12 years old at present date (See graphic).
- Obtained 81 total locations for this individual.
- Calculated minimum home range estimate of 1359 km<sup>2</sup> for a 12 year old resident jaguar inside the United States (n=81) (the largest known home range for the species).

Educational and public outreach activities:

- Audubon Magazine -feature article Sept. 2007 - <http://audubonmagazine.org/features0709/borderlands.html>
- High Country News - Cover article Oct. 2007 [http://www.hcn.org/servlets/hcn.Article?article\\_id=17275](http://www.hcn.org/servlets/hcn.Article?article_id=17275)
- Smithsonian Magazine -feature article Nov. 2007 <http://www.smithsonianmag.com/science-nature/prowl-200711.html>
- History Channel – Monster Quest Series – Big Cats in the Back Yard
- International Wildlife Museum – 2007 Speaker Series
- Arizona Game and Fish Department – Education and Outreach Branch – Teachers Retreat March 2007
- Eastern New Mexico University – Mammalogy Class Trip Fall 2007 – presentation and field instruction
- Hosted writer Will Rizzo, author of the Smithsonian Magazine article in December, 2005 issue, for one week of field work and interviews for future article.
- U.S.D.A. Aphis Wildlife Services Personnel Training Program – 3 day workshop – White Mountain Indian Reservation. Jaguar Sign and Depredation Workshop.
- Local TV news interview - KGUN Channel 9 - Evening News-Len Johnson - Tucson, AZ
- Discovery Channel – Video Interview <http://dsc.discovery.com/beyond/?bctab=discovery%20news>  
<http://www.youtube.com/watch?v=Jv69gy7d8xg>
- Coauthored opinions article about potential border fence impacts on wildlife in bilingual/ binational publication. Aguilar, R.F. and E. B. McCain 2006. *La Vida en La Linea, Life on the Line*. Sonarida. Instituto de Educacion Sonora-Arizona, Hermosillo, Sonora, Mexico. P.p. 51-57.
- Conservation Unlimited – Humboldt State University Wildlife Society Chapter – Arcata, CA
- Humboldt State University –Mammalogy Class lecture - Arcata, CA
- Nogales Boy Scout Troop - Nogales, AZ
- Coronado Elementary School – Nogales, AZ
- Arizona Game and Fish Department – Region 5 Meeting – Jaguar workshop with region's wardens and wildlife managers –Tucson, AZ

- International Wildlife Museum – Lecture and tracking workshop - Tucson, AZ

Other Presentations:

- Arizona Sonora Desert Museum – Board of Directors - Tucson, AZ
- Colorado College - Mammalogy Class – Nogales, AZ
- Redwood Sciences Laboratory - U.S. National Forest Service - Ecology Seminar - Arcata, CA
- Jaguar Conservation Team January 2007 Meeting – Douglas, AZ
- Jaguar Conservation Team April 2007 Meeting – Douglas, AZ
- Jaguar Conservation Team October 2007 Meeting - Tucson, AZ
- Southern AZ. Chapter National Audubon Society, featured speaker - April Meeting – Tucson, AZ
- Arizona Wildlife Federation - Annual Meeting Luncheon - Mesa, AZ
- Carnivore Conference 2006: Habitats, Challenges and Opportunities. Mountain Lion Seminar - Defenders of Wildlife St. Petersburg, FL. Nov. 13, 2006.
- Carnivore Conference 2006: Habitats, Challenges and Opportunities. Jaguar Seminar - Defenders of Wildlife St. Petersburg, FL. Nov. 15, 2006.

Other accomplishments:

- Arizona Game and Fish Director invited project biologist Emil McCain to serve as an active member of Scientific Advisory Group of the Arizona/New Mexico Jaguar Conservation Team.
- Improved camera sites to reduce vandalism – increased security (better locks), improved camouflage and signs on cameras (bilingual disclaimer explaining that cameras are for biological research only and not Border Security or law enforcement).

The key to successful conservation of the jaguar in the Borderlands Region at the northern extreme of the species range lies on the collaborative conservation efforts of the Arizona-New Mexico Jaguar Conservation Team. The agency signatories from local, state and federal levels are working together to insure a future for the jaguar in the southwestern United States and northwestern Mexico. Recent collaboration with the Department of Homeland Security, through the Jaguar Conservation Team, is leading an effort towards maintaining cross-border connectivity. Our project and the information we have generated is being carefully considered as the Homelands Security efforts try to secure our southern border while maintaining biological connectivity between the jaguars we have documented in southern Arizona and New Mexico and the rest on the population in northern Mexico. Our data, because it is the only information of its kind, is proving very useful in identifying key conservation areas for maintaining cross-border connectivity. Our strong collaborative working relationship with the various agencies of the Jaguar Conservation Team has enabled us to work directly with the decision makers within the agencies to guide successful conservation efforts in a politically difficult situation.

**Partners that were involved in this project or assisted in funding or supporting it include:**

Arizona Game and Fish Department  
 United States Fish and Wildlife Service  
 Bureau of Land Management  
 University of Arizona  
 Switzer Environmental Foundation  
 Reid Park Zoo  
 Milwaukee Zoo  
 Phoenix Zoo  
 Bear Valley Cooperative  
 Fort Huachuca Military Base  
 S.P.E.C.I.E.S.  
 Borderland Carnivore Studies  
 Integral Ecology Research Center  
 Tucson AZZAK Chapter  
 Seabyrd Technologies  
 Disney Wildlife Conservation Fund

New Mexico Department of Game and Fish  
 United States Forest Service  
 Wildlife Conservation Society  
 Humboldt State University  
 Arizona Sonora Desert Museum  
 Woodland Park Zoo  
 Bergen County Zoo  
 ZZ Cattle Corporation  
 Malpai Borderlands Group  
 Safari Club International  
 Buenos Aires Wildlife Refuge  
 Redwood Sciences Laboratory  
 MGW Biological Surveys  
 The Colorado College  
 Ruby Mines  
 US Border Patrol

