



**EVALUATING POTENTIAL FOR  
MOUNTAIN LION-HUMAN CONFLICT  
IN BIG BEND NATIONAL PARK**

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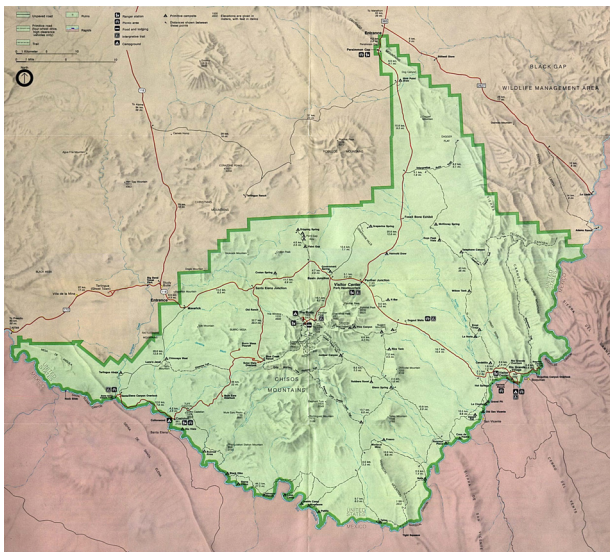
# MOUNTAIN LIONS IN BIG BEND NATIONAL PARK

National Parks offer a wide range of services from protecting our natural resources to providing recreational experiences for people. These wild places offer people unique opportunities to enjoy and experience nature. On occasion, conflict between people and wildlife may occur and conflict between humans and large carnivores are one of the more dangerous scenarios.

Big Bend National Park (BBNP) is home to two large carnivores, mountain lions and black bears. While conflict at the park between people and black bears have been minimal, there have been 21 mountain lion encounters since 2004. Encounters have ranged from mountain lions approaching people in a non-threatening manner to those of more severity, including actual attacks.

## Goal

Our goal is to gather information to better understand mountain lion ecology in Big Bend National Park as it relates to human-use areas, with specific interest in mediating potential conflict.



Map of Big Bend National Park courtesy of the UT Libraries, The University of Texas at Austin.

## Primary Objectives

1. Evaluate mountain lion-human interactions in BBNP using satellite/GPS telemetry;
2. Determine density and other population demographic characteristics of mountain lions in BBNP using camera traps, marked-resight techniques, and DNA;
3. Help establish a long-term, noninvasive monitoring program for mountain lions in BBNP using camera traps;
4. Assess kill rate and composition of mountain lion diets in BBNP relative to human use areas;
5. Estimate availability of prey species relative to mountain lion use areas using camera traps; and
6. Estimate relative abundance of black bears via camera traps.

## Secondary Objectives

1. Gather movement data of mountain lions in west Texas by capturing primarily adult female mountain lions and their offspring, and monitoring with GPS technology;
2. Develop a preliminary model of mountain lion habitat use that can be modified and tested with GPS locations obtained from this study;
3. Collect genetic material from animals captured and from other sources (scat, tissue) in the study area to help develop a statewide DNA collection plan that documents potential dispersal corridors of mountain lions along and across all Texas borders and ecoregions;
4. Identify critical landscape features including natural corridors, barriers to dispersal, and other fragmentation/connectivity metrics; and
5. Continue to gather predator-prey data on mountain lions in the Trans-Pecos including diets, kill rates, predator density, and prey densities to evaluate the impact of mountain lions on prey populations.

## METHODS AND EXPECTED BENEFITS

In order to evaluate the potential for conflict between mountain lions and humans in BBNP, we will use a variety of methods to assess both the spatial and temporal use of the park.

### Mountain Lions

Mountain lions will be captured and fitted with satellite/GPS collars that will provide 12 daily locations via email. We will use these locations to determine their use of the park in terms of areas of highest use at different times of the day. We will compare this information to how humans use the park and look for areas of overlap and potential conflict.

Game cameras will also be used to assess mountain lion use of habitat in the park, as well as prey distribution and abundance. As part of our larger research into their overall ecology, we will also investigate lion kills to determine the rate of predation and prey composition.



Captured mountain lions are fitted with GPS satellite collars that acquire and send locations via email to BRI researchers.



Trail cameras are used to assess the distribution and abundance of mountain lions and other wildlife like this black bear in BBNP.

### Humans

Use of campsites, trails, and other areas will be monitored seasonally to assess how and when people use park resources. Trail monitors will be used at different times of the year to record the variability of human use in different areas.

We will also conduct surveys of park visitors to assess their knowledge and attitudes towards mountain lions and park safety issues.

### Expected Benefits

This study will provide more information about mountain lion ecology in west Texas and specifically, the population in BBNP. By evaluating mountain lion and human use of the park, we will be able to assess the potential for conflicts and develop a plan with recommendations to reduce this potential.

Based on park visitor's attitudes and knowledge about mountain lions we will also develop an education and outreach plan to help reduce the number and severity of unwanted encounters.

Our primary purpose is to assess the potential for conflict and assist in reducing this potential so that mountain lions and people can continue to coexist in the park maximizing both the safety and wildness that the park offers.

## HOW YOU CAN HELP THE MOUNTAIN LION PROGRAM

**T**his project could not be done without the support of the National Park Service. Park personnel and volunteers have been essential to our work on this project and have provided housing and equipment, as well as field and logistical support.

Our study in BBNP is part of our larger work with mountain lions throughout the Trans-Pecos, Texas. Much of that work is on private lands and would not be possible without the support of our landowner partners and private donors. In addition to the 801,161 acres encompassed by BBNP, we also study mountain lions on >500,000 acres that are privately owned in west Texas.

In the years to come, we will continue to investigate the conflict potential between mountain lions and humans at BBNP, as well as investigate mountain lion predation, habitat use, and movements throughout the Trans-Pecos. Your support for the mountain lion project either as a partner landowner or through a tax-deductible contribution will help us achieve our goal of better understanding the ecology of mountain lions in the region.



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