Section 6 (Texas Traditional) Report Review

Form emailed to FWS S6 coordinator (mm/dd/yyyy): 5/11/2011

TPWD signature date on report: 12/8/2009

Project Title:
Ocelot survey in the Sierra of Picachos, Nuevo Leon, Mexico

Final or Interim Report? Final

Grant #: TX-E-97-R

Reviewer Station: Corpus Christi ESFO

Lead station concurs with the following comments: Yes

Interim Report (check one):

- ☐ Acceptable (no comments)
- ☐ Needs revision prior to final report (see comments below)
- ☐ Incomplete (see comments below)

Final Report (check one):

- ☒ Acceptable (no comments)
- ☐ Needs revision (see comments below)
- ☐ Incomplete (see comments below)

Comments:

FINAL REPORT

As Required by

THE ENDANGERED SPECIES PROGRAM

TEXAS

Grant No. TX E-97-R

Endangered and Threatened Species Conservation

Ocelot Survey in the Sierra of Picachos, Nuevo Leon, Mexico

Prepared by:

Dr. Mike Tewes, Arturo Caso, Sasha Carvajal

TEXAS PARKS & WILDLIFE

Carter Smith
Executive Director

Clayton Wolf
Director, Wildlife

8 December 2009

FINAL REPORT

STATE: ____Texas_____ **GRANT NUMBER:** ___TX E-97-R___

GRANT TITLE: Ocelot Survey in the Sierra of Picachos, Nuevo Leon, Mexico

REPORTING PERIOD: ____6 Sep 07 to 1 Nov 09_

OBJECTIVE(S):

To assess the presence or absence of ocelots with hair traps and remote-sensing cameras in the Sierra Picachos, Nuevo Leon, Mexico.

Segment Objectives:

Task 1. April– May 2008 (1.5 month) Equipment acquisition, and identify the most desirable areas (ranches) to survey on each study site by using GIS and field trips.

Task 2. May – August 2008 (3 months) Field survey, setting cameras, on Site 1. Visits to this area to check cameras, batteries, photos, and status will be done every 15 days. Therefore, a total of 6 field trips will be conducted during this stage.

Task 3. September – November 2008 (3 months) Field survey and set cameras on Site 2. Visits to this area to check cameras, batteries, photos, and status will be done every 15 days. Therefore, a total of 6 field trips will be conducted during this stage.

Task 4. December 2008 – February 2009 (3 months) Field survey and set cameras on Site 3. Visits to this area to check cameras, batteries, photos, and status will be done every 15 days. Therefore, a total of 6 field trips will be conducted during this stage.

Task 5. March – April 2009 (1.5 months) Analysis of the data obtained (including genetic analysis of hair), mapping of the priority areas (by number of positive photos) within the Sierra Picachos and presentations to landowners about project results and management suggestions for landowner application.

Significant Deviations:

None.

Summary Of Progress:

Please see Attachment A (pdf file).

Location: Nuevo Leon, Mexico.

Cost: ___Costs were not available at time of this report, they will be available upon completion of the Final Report and conclusion of the project.__

Prepared by: _Craig Farquhar_____ **Date:** _8 Dec 2009

Approved by: _____ **Date:**_____8 Dec 2009_____

C. Craig Farquhar

Ocelot Survey in the Sierra Picachos, Nuevo Leon, Mexico

Principal Investigator
Dr. Michael E. Tewes

Field Coordinator
Mrs. Sasha Carvajal-Villarreal

Field Advisor
Mr. Arturo Caso

Final Report

October 31, 2009

Title: Ocelot Survey in the Sierra Picachos, Nuevo Leon, Mexico

Abstract: Northernmost distribution of the endangered ocelot (*Leopardus pardalis*) occurs in south Texas, however because of habitat destruction, this ocelot population is considered to be isolated from the one that exist in northeast Mexico. Therefore, it is important to identify the nearest ocelot viable populations in northeast Mexico, so future habitat restoration and ocelot translocation programs can be planned. The Sierra Picachos of Nuevo Leon State has been considered an important area to connect wildlife populations from northeast Mexico into Texas; therefore we initiated a field project using remote-sensing cameras to assess the presence or absence of the ocelot in the Sierra Picachos. After 2,802 camera/nights, we did not find any ocelots present in the area, but we obtained photos of cougars (*Puma concolor*) and bobcat (*Lynx rufus*); black bear (*Ursus americanus*) was the most abundant species in the area. As a second stage of the project, we surveyed one site in the Sierra of Tamaulipas, and using the same methodology, we obtained photographs of the ocelot, jaguar, and cougar after 517 camera/nights.

Introduction: The ocelot (*Leopardus pardalis*) is listed as endangered under the authority of the U.S. Endangered Species Act (USFWS 1990). It is distributed from southern Texas through Central and South America into northern Argentina (Caso 1994; Tewes and Everett 1986). The USFWS has established that the current ocelot population in the U.S. has fewer than 100 individuals (USFWS 1990), at the same time, northeast Mexico has a larger population that is believed to be over 2000 ocelots. However, this ocelot population is considered to be isolated from the one in Texas because of habitat destruction (USFWS 1990). Low numbers and the isolation of the ocelot population in Texas have caused low genetic diversity, and thus it is more vulnerable to problems such as disease and stochastic factors (Crow and Kimura 1970). Therefore, it is important to identify the nearest viable ocelot populations in northeast Mexico, so that future habitat restoration and a USA-Mexico ocelot translocation program can be planned.

It is important to mention that few field ocelot surveys have been done in northeast Mexico. All of these previous surveys have focused on the Tamaulipan coastal area, and a few other inland areas. Much of the areas close to the border, particularly between Texas and the Mexican states of Nuevo Leon and Tamaulipas, have not been considered.

Even though ocelot presence is difficult to detect because of their strict use of dense habitat at night, landowners have informed that ocelots are present in the area. The USFWS Ocelot Recovery Plan for the ocelot established that an important factor for ocelot conservation in Texas is the agreement and joint efforts between Mexico and the U.S. and also that field ocelot surveys in northeast Mexico should be a priority (USFWS 1990). Therefore, we believe that this project contributes to this goal.

Objective: To assess the presence or absence of ocelots with remote-sensing cameras and hair traps in the Sierra Picachos, Nuevo Leon, Mexico.

Location: Sierra Picachos (26° 07’ 52.01” N ; 99° 53’ 28.15” W) covers 140,500 *ha* and is a Nuevo Leon State protected area. It is also located 75 *km* from the border with Texas accessed using Federal Highway 54 (Fig. 1). Mexican Conservation Federal Agency CONABIO (Commission Nacional para el Conocimiento y uso de la Biodiversidad) considers Sierra Picachos as a terrestrial priority region. In addition, Santa Anna NWF has established Sierra Picachos as an important area to survey (Arriaga et al., 2000). Ocelot cover is considered to be brush that is 75% to 100% of the horizontal canopy cover (Haines et al., 2005).

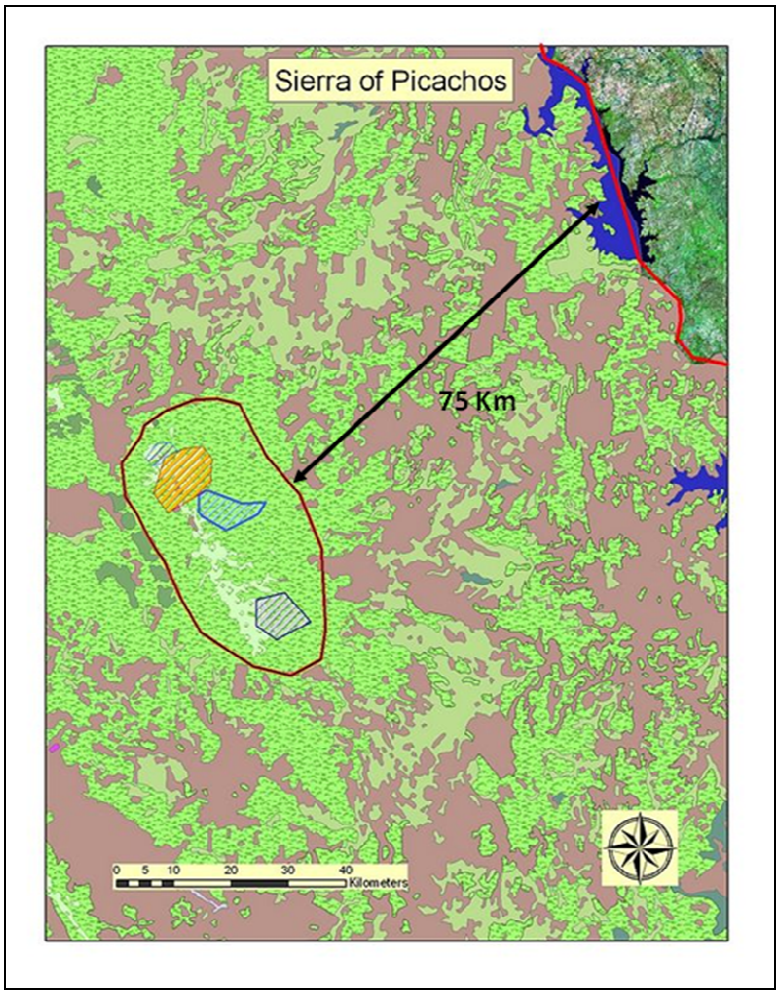


Fig 1. Sierra de Picachos map

Methods: The ArcGIS 9 computer program was used to identify potential areas with suitable ocelot habitat (> 75% canopy cover) and we contacted the landowners to obtain access to these areas. We evaluated 4 Sites with 17 Wildview Extreme 4 remote-sensing digital cameras (photo). These cameras were set in areas with suitable ocelot habitat and along canyons, trails and corridors. Areas with oak and pine forests, or where the habitat was too open were avoided. Cameras were set at least 300 m apart and a square rug pad with extruding nails (for hair collection) was attached to a nearby tree and sprayed with an attractant. Cameras were aimed toward the scent pad (Weaver et al. 2003). Each camera recorded the date and time of each photo event and when the cameras were recovered, and a laptop computer was used to download and identify the species photographed by each camera. Cameras were set to take two consecutive photos when tripped, and an independent event was counted after at least 30 min had passed between photos. The attractant used on the scent pads was Obsession Cologne, however after the first two site surveys we discontinued its use because it seemed to attract bears to the camera sets.

Results of the Sierra Picachos: We surveyed a total of 4 sites within the Sierra Picachos (Fig. 2):

Site 1.- Picachos de Los Abuelos Ranch

Site 2.- San Juan Ranch

Site 3.- Los Cañones Ranch

Site 4.- La Mesa Ranch

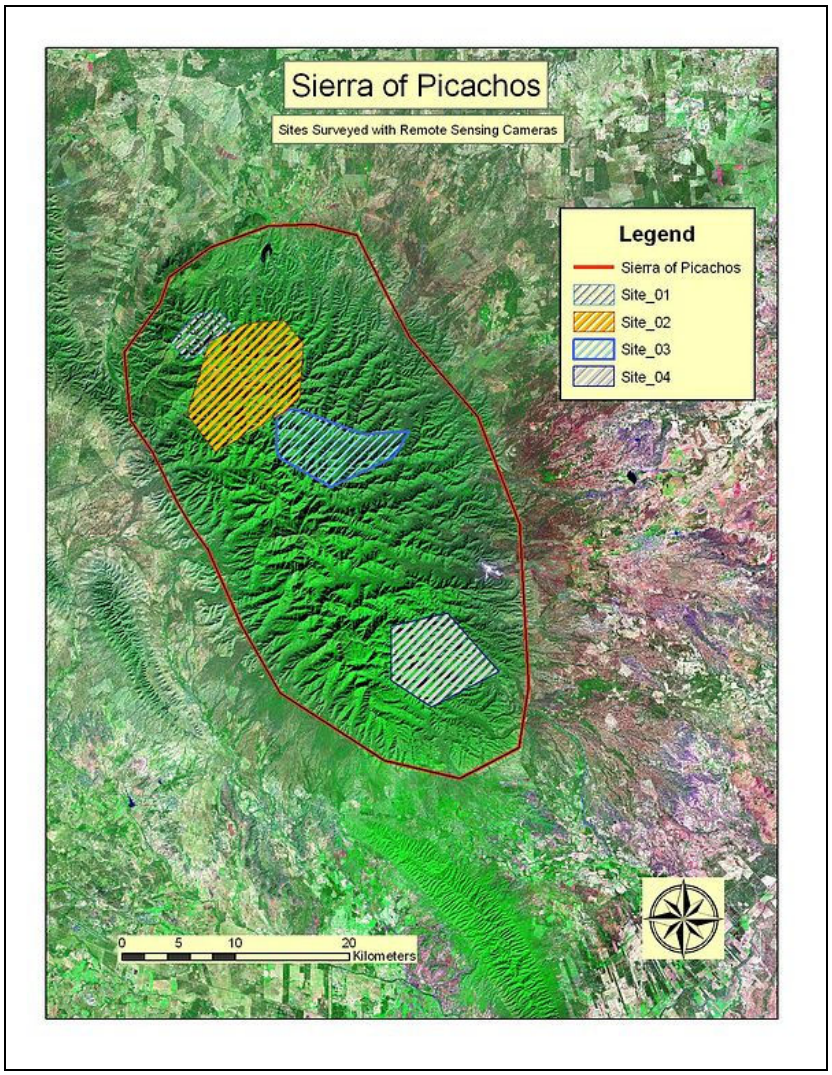


Fig 2. Surveyed Sites in Sierra Picachos

After a total of 2,802 camera/nights, we photographed 15 animal species and identified two species of felines: the bobcat (*Lynx rufus*) and puma (*Puma concolor*) but not ocelots (Fig. 3). Even though the areas surveyed at each site were not homogenous, we ran a relative abundance index to show differences in number of species and their abundance between sites. We found that the black bear (*Ursus americanus*) was the most common animal in all the sites surveyed (Fig. 4, 5).

Los Picachos de los Abuelos Ranch (camera/nights = 496)

SPECIES	No. Photos	Events	Abundance Index	% of Abundance
Ursus americanus	45	25	50.4	49.1
Odocoileus virginianus	40	19	38.3	37.3
Peromyscus sp.	2	2	4.1	3.9
Silvilagus sp.	1	1	2.1	1.9
Cathartes aura	4	4	8.1	7.8

San Juan Ranch (cameras/nights = 525)

Species	No. Photos	Events	Abundance Index	% of Abundance
U.americanus	35	18	34.3	69.2
O. virginianus	7	4	7.62	15.4
Urocyon cinereargenteus	2	1	1.9	3.8
Procyon lotor	1	1	1.9	3.8
Bassariscus astutus	1	1	1.9	3.8
Conepatus leuconotus	1	1	1.9	3.8

Los Cañones Ranch (cameras/nights = 812)

Species	No. Photos	Events	Abundance Index	% of Abundance
U. americanus	84	42	51.7	37.5
O. virginianus	71	30	36.9	26.8
U. cinereargenteus	51	24	29.6	21.4
Puma concolor	2	2	2.5	1.8
Lynx rufus	2	1	1.2	0.9
Silvilagus sp	5	3	3.7	2.7
Leptotila verreauxi	10	8	9.8	7.1
Sciurus alleni	2	2	2.5	1.8

La Mesa Ranch (cameras/nights = 969)

Sepcies	No. Photos	Events	Abundance Index	%of Abundance
U. americanus	28	12	12.4	41.4
O. virginiaunus	10	5	5.2	17.2
B. atutus	1	1	1.1	3.4
L. verreauxi	6	2	2.1	6.9
Melleagris gallopavo	2	1	1.1	3.4
Cyanocorax yncas	2	1	1.1	3.4
C. leuconotus	2	1	1.1	3.4
S. alleni	8	6	6.2	20.7

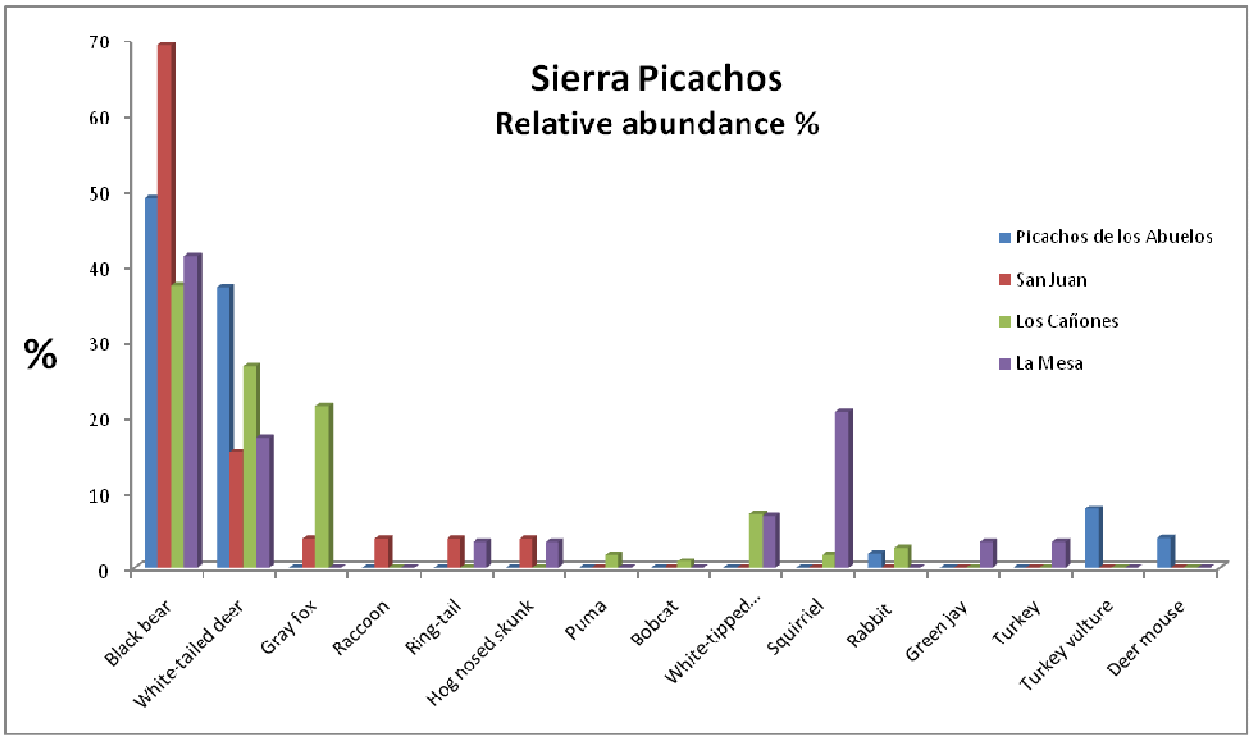


Fig 3. Percentage of abundance of wildlife species photographed by site in Sierra Picachos

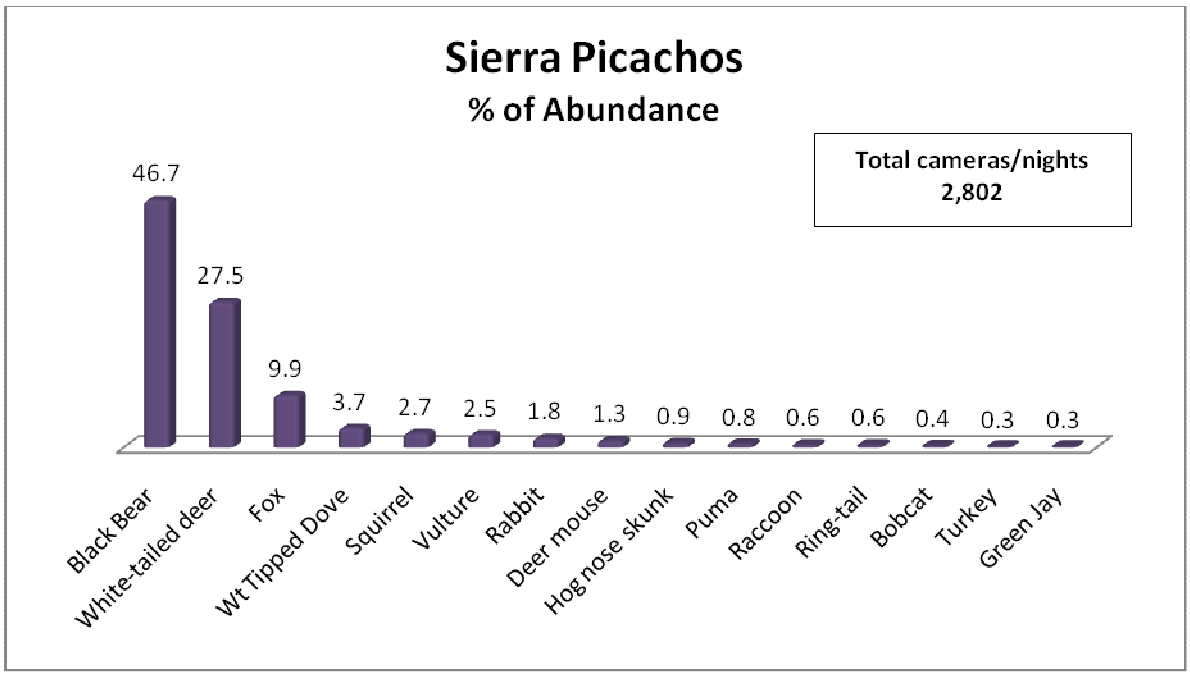
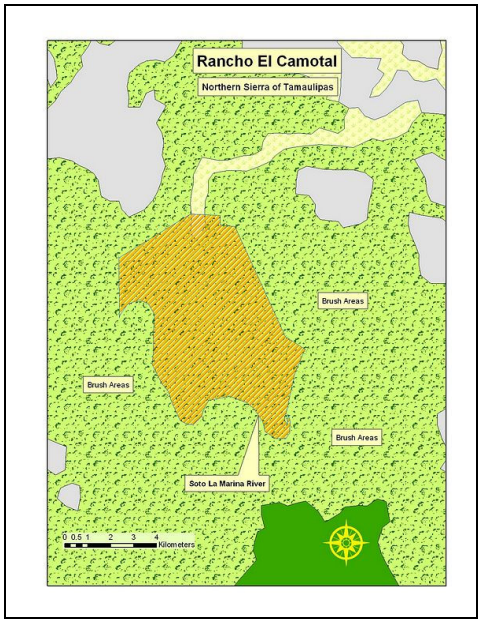


Fig 4. Percentage of species' abundance in the Sierra Picachos

Results of the Sierra of Tamaulipas: To better serve ocelot conservation and assuming that ocelots may not be present in the Sierra Picachos, we obtained permission to survey one site (Camotal Ranch) (Fig. 6) within the Sierra of Tamaulipas (24° 00' 58"N; 98° 35' 05"), to assess future source areas for ocelot translocations to Texas (Fig. 5). On this site, we used 18 cameras with the same methodology that was used in the Sierra Picachos. We surveyed a total of 517 camera/nights and three species of felines were photographed; puma (3 events), jaguar (*Panthera onca*) (2 events), and ocelot (16 events) (Fig. 6).



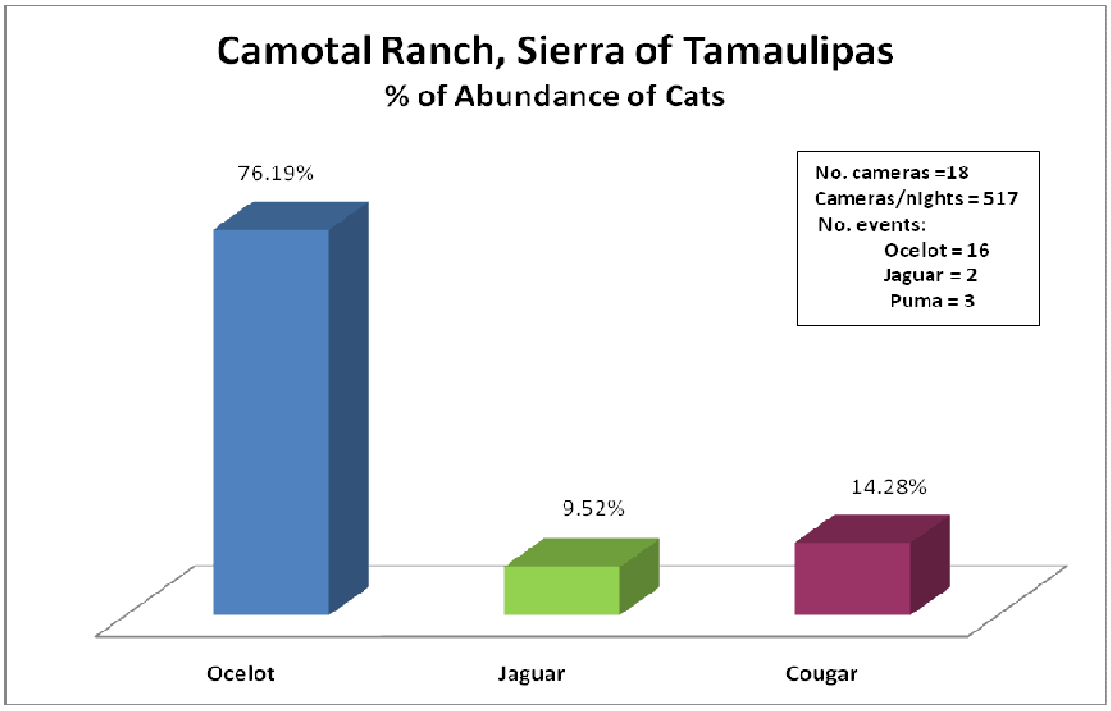


Fig 6. Percentage of abundance of cat species in Camotal Ranch, Sierra of Tamaulipas

Discussion: With our results to date, we cannot be certain that ocelots are not present in the Sierra Picachos, but if there is a population present, it likely consists of a small number of individuals. Camera results showed a small number of medium-size carnivores, with the gray fox being the most abundant. This may be related to a low number of small mammals and birds (prey). If future research is going to be conducted in the Sierra Picachos it will be important to include a small mammal survey to measure the availability of prey.

One of the main problems in surveying the area was the constant presence of black bears. Bears were initially attracted by the ocelot attractant (Obsession cologne) that was used, so we discontinued its use. Also, the natural curiosity of bears made them investigate the cameras and most of the time the bears "played" with them and caused various malfunctions to the camera set. A few cameras (n = 5) were completely destroyed by bears, so it is recommended that anyone attempting to use cameras in the area should use commercial bear proof cases for the cameras.

Human presence in the Sierra Picachos was low, and most cattle operations were in the lower areas of the eastern part of the Sierra. In areas with high cattle density, the habitat was more open because cattle browsed the forest when grass was not available. Even though the area is considered a Reserve for the State of Nuevo Leon, law enforcement is almost non-existent and clearing of brush occurs in some of the private ranches. Clearing occurs mostly because some landowners have purchased white-tailed deer (*Odocoileus virginianus texanus*) from

northern areas for their hunting operations and they are trying to develop suitable habitat for this subspecies.

Before starting this project we were informed by local landowners of the presence of "spotted cats" with long tails. We can speculate that these sightings were either sub-adult pumas or bobcats. However, our results show a low presence of these two feline species in the area that may be related to illegal hunting by the ranchers. We were shown two photographs of cougars that were recently killed in San Juan Ranch.

Finally, it is important to mention that when we asked for an extension for this project to other areas (Sierra de Tamaulipas) outside of Sierra Picachos, we used the same techniques that we used in the Sierra Picachos and found the presence of different feline species including, ocelots, pumas and jaguars; thus our methodology has been successfully tested in other areas with a higher presence of feline species.

Acknowledgments: We would like to express our gratitude to Texas Parks and Wildlife Department and especially to Craig Farquhar for the support and help to develop this project. We want to extend our gratitude to the landowners that gave us access to their properties in northeast Mexico: Mr. Andres Marcelo Sada, Mr. Juan Garza, Mr. Cesar Guiterrez, Mr. Juan Regino, and Mr. Adrian Sada.

Literature Cited:

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Appendices: Various photos taken during the survey in Sierra Picachos and Sierra of Tamaulipas.

Sierra Picachos:

Puma:

Bobcat:

Black bear:


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Hog-nosed skunk:

Ring tail:

Sierra of Tamaulipas:

Ocelot:


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Puma:


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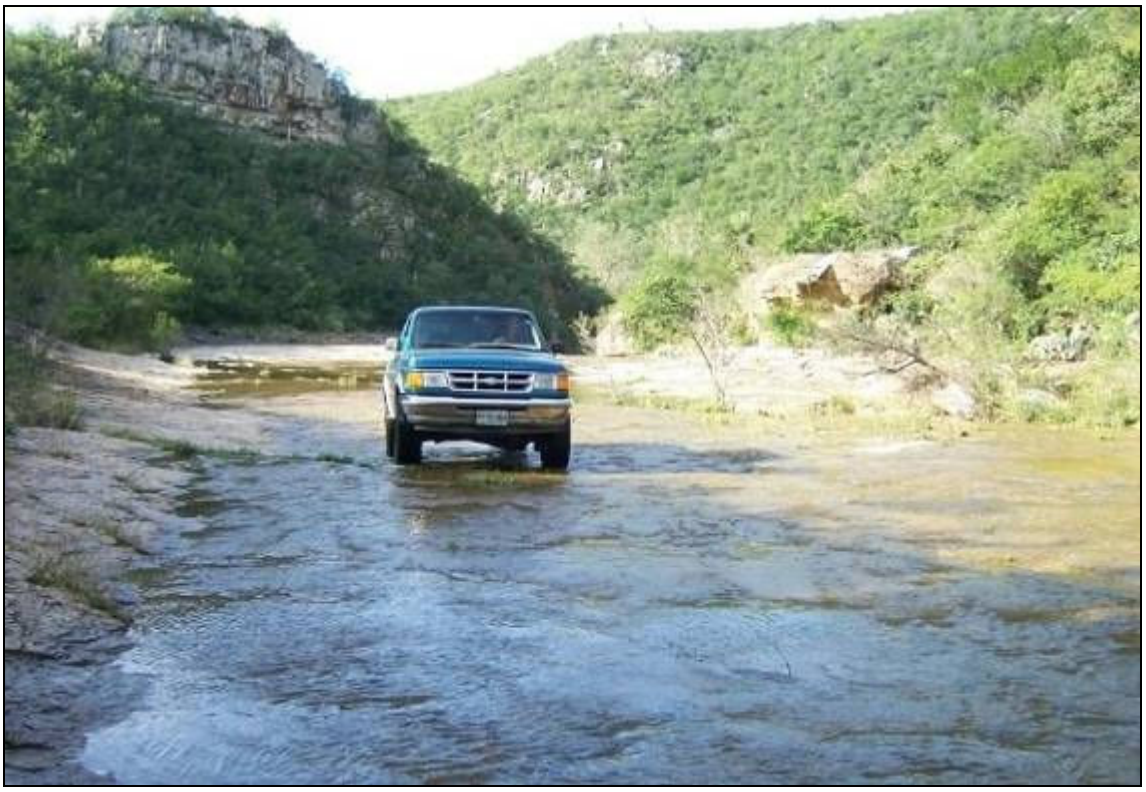
Jaguar:

Field work



Rancho Picachos de Los Abuelos

Rancho San Juan

Rancho Los Cañones

Rancho La Mesa