

## Research note

# Presence of the ocelot (*Leopardus pardalis*) in northern Jalisco, Mexico

## Presencia del ocelote (*Leopardus pardalis*) en el norte de Jalisco, México

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**Abstract.** High-elevation records of ocelot in the municipality of Bolaños, Jalisco are presented. These records were obtained via camera trapping, and bridge a distributional gap between populations in Nayarit and Aguascalientes states.

Key words: geographic distribution, camera traps, Felidae, Bolaños.

**Resumen.** Se presentan registros del ocelote a gran altitud para el municipio de Bolaños, Jalisco. Los registros se obtuvieron vía trampas cámara y conectan las poblaciones de los estados de Nayarit y Aguascalientes.

Palabras clave: distribución geográfica, trampas cámara, Felidae, Bolaños.

The ocelot (*Leopardus pardalis*) is a small sized cat, which weighs up to 16 kg, and can reach 137 cm in total length with a height at shoulders of 50 cm (Murray and Gardner, 1997; Aranda, 2005). This cat is strongly protected by international wildlife and trade laws (Caso et al., 2008), and in Mexico is listed as an extinction-threatened species (Nom-059-Semarnat-2010). The historical distribution of ocelots in Mexico encompasses lowlands of both the Atlantic and Pacific versants from Sonora, Nuevo León and Tamaulipas southwards to the Yucatán Peninsula and Chiapas (Leopold, 1959; Hall, 1981; Aranda, 2005). However, few records support these rather generalized distribution maps, and only a dozen published records confirm the presence of this wild cat in states of western Mexico, most of them recent (e.g. De Villa-Meza et al., 2002; Chávez-León, 2005; Moreno-Arzate et al., 2011). With the increasing trend and use of camera trap surveying, new and unexpected records of ocelots across central Mexico have been documented, including high-elevation sightings within pine-oak forests. These include Iglesias et al. (2009) for Guanajuato ~2 000 m above sea level (masl), Bárcenas and Medellín (2010) for Aguascalientes 2 600-2 800 m asl, Martínez-

Calderas et al. (2011) for San Luis Potosí ~2 400 m asl, and Moreno-Arzate (2011) for Jalisco ~2 000 m asl. Here, we present the first records of high-elevation ocelots in Sierra Los Huicholes, northern Jalisco.

Geographic coordinates are shown with reference datum WGS84. Photographs were verified by Francisco Botello and deposited at IBUNAM-CFB (Instituto de Biología, Universidad Nacional Autónoma de México, Colección de Foto Colectas Biológicas).

Between January 2011 and March 2012 we conducted a camera trap survey for inventorying mammals and other fauna in northern Jalisco. Thirteen camera traps (Trophy Cam™ Bushnell) were placed between 1 500 to 2 750 m asl in Bolaños, Huejuquilla El Alto, and Mezquitic municipalities. We accumulated a total of 1 490 nights/camera from this survey, and recovered 4 monochromatic photographs of ocelot from 3 different nights. On 9 January 2012, at 00:59 h we obtained 1 photograph (IBUNAM-CFB 9401) of a single ocelot near a stream on the vicinity of El Nalgazo, ca. km 22.5 of Bolaños-Huejuquilla El Alto road (21°53'26.20" N, 103°50'38.60" W; 2 097 m asl), in pine-oak forest. On 12 January 2012, between 22:36 and 23:31 h, 2 photographs (IBUNAM-CFB 9399-9400) of ocelots were obtained, and on 7 February 2012, at 03:29 h 1 additional photograph (IBUNAM-CFB 9402) was taken in the same location (Fig. 1). This camera was located 0.15

**Figure 1.** Monochromatic photograph of an ocelot (IBUNAM-CFB 9402), recorded in Sierra Los Huicholes, Bolaños, Jalisco.

km SE km 16 of Bolaños-Huejuquilla road (21°52'2.40" N, 103°49'40.60" W; 1 597 masl), near a small stream in tropical deciduous forest. Because each photograph was taken in a different angle we couldn't determine the number of specimens photographed or their sex.

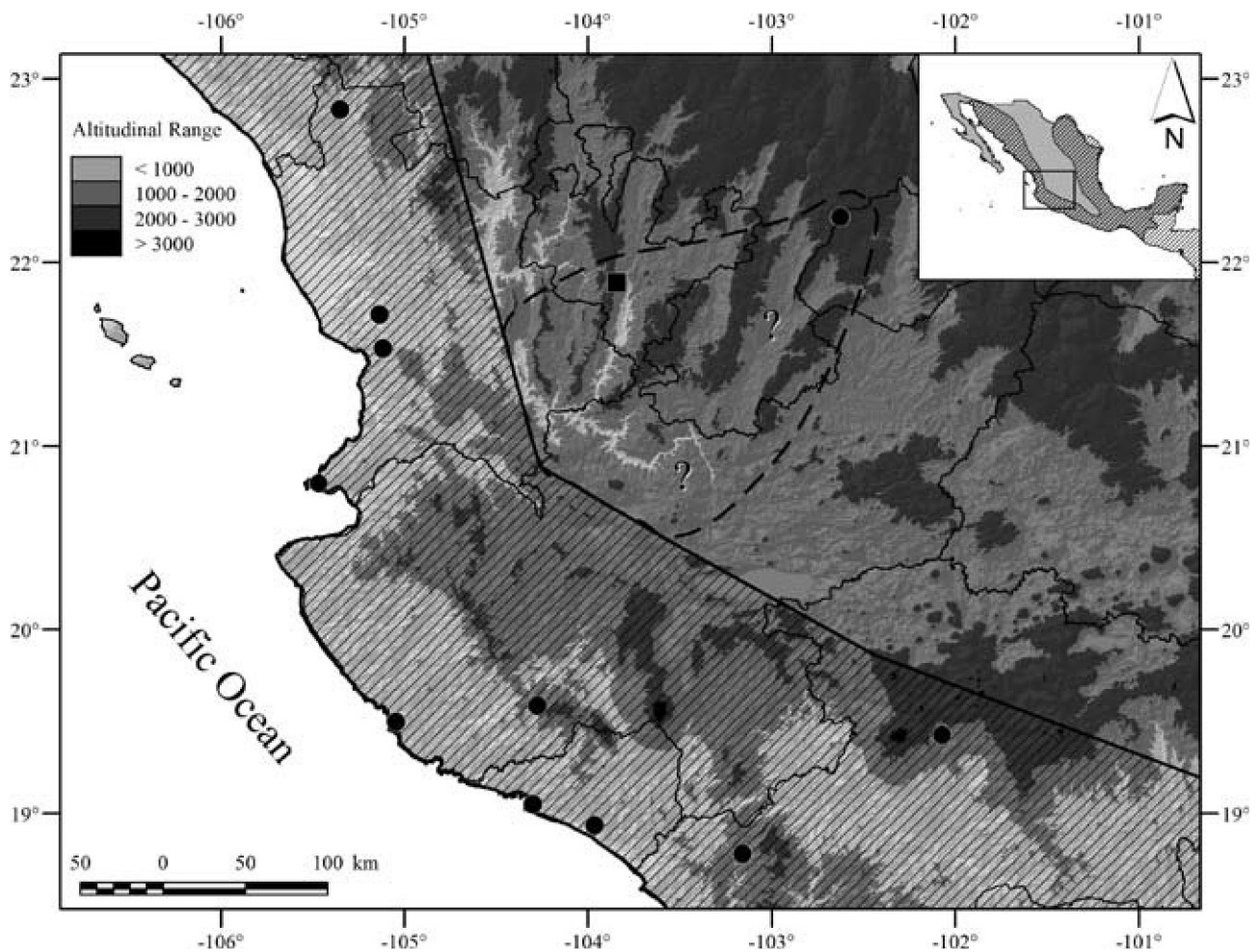
These new records for northern Jalisco bridge a 270 km gap between Nayarit and Aguascalientes (Fig. 2), ca. 138 km ENE from Mecatán, Nayarit (Hall, 1981) and ca. 132 km SSW from Monte Grande, Aguascalientes (Bárcenas and Medellín, 2010). Despite anecdotal observations of ocelots in central Jalisco as far as north of Guadalajara in Río Grande de Santiago canyon (Godínez, pers. comm.), there remains no solid evidence of its presence in the state beyond the Pacific versant lowlands and highlands. Recently, González-Saucedo and López-González (2011) gave insight on a series of low-cost corridors connecting several sierras in central Mexico, across which cougars (*Puma concolor*) disperse. Additional surveys with camera traps along Sierra Los Huicholes, Río Grande de Santiago

and Juchipila canyons, as well as adjacent Sierra Morones and Sierra de Nochistlán (Sierra del Laurel), Zacatecas could aid with filling the gaps in this region and detect if other felids such as ocelots are using the same paths as dispersal routes across western-central Mexico.

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#### Literature cited

- Aranda, M. 2005. *Leopardus pardalis* (Linnaeus, 1758). In Los mamíferos silvestres de México, G. Ceballos and G. Oliva (eds.). Conabio/UNAM/Fondo de Cultura Económica, México, D. F. p. 359-361.
- Bárcenas, H. and R. A. Medellín. 2010. Ocelot (*Leopardus pardalis*) in Aguascalientes, Mexico. The Southwestern Naturalist 55:447-449.
- Caso, A., C. López-Gonzalez, E. Payan, E. Eizirik, T. de Oliveira, R. Leite-Pitman, M. Kelly and C. Valderrama. 2008.



**Figure 2.** Map of western-central Mexico with previous records of ocelots (solid circles) and new records for northern Jalisco (solid square). The question marks indicate possible presence and corridors for ocelots. Continuous black lines delineate state boundaries, and hatched area represents current distribution of ocelot (Patterson et al., 2007).

*Leopardus pardalis*, IUCN Red List of Threatened Species, version 2012.1, IUCN Global Species Programme Red List Unit, UK. [www.iucnredlist.org](http://www.iucnredlist.org); last access: 24.IX.2012.

Chávez-León, G. 2005. A recent record of *Leopardus pardalis* (Linnaeus, 1758) from Michoacán, México. *Revista Mexicana de Mastozoología* 9:123-127.

De Villa-Meza, A., E. Martínez-Meyer and C. A. López-González. 2002. Ocelot (*Leopardus pardalis*) food habits in a tropical deciduous forest of Jalisco, México. *American Midland Naturalist* 148:146-154.

González-Saucedo, Z. Y. and C. López-González. 2011. Functional connectivity for pumas (*Puma concolor*) in central Mexico. In *Proceedings of the 10th Mountain Lion Workshop, cougars: conservation, connectivity and population management*, J. Williams, H. Robinson and L. Sweaner (eds.). Western Association of Fish and Wildlife

Agencies, Bozeman. p. 146-168.

Hall, E. R. 1981. *The mammals of North America*. Second edition, John Wiley & Sons, New York. 1181 p.

Iglesias, J., V. Sánchez-Cordero, G. Magaña-Cota, R. Bolaños, M. Aranda, R. Hernández and F. J. Botello. 2009. Noteworthy records of margay, *Leopardus wiedii* and ocelot, *Leopardus pardalis* in the state of Guanajuato, México. *Mammalia* 78:347-349.

Leopold, A. S. 1959. *Wildlife of Mexico: the game birds and mammals*. University California Press, Berkeley. 568 p.

Martínez-Calderas, J. M., O. C. Rosas-Rosas, J. F. Martínez-Montoya, L. A. Tarango-Arámbula, F. Clemente-Sánchez, M. M. Crosby-Galván and M. D. Sánchez-Hermosillo. 2011. Distribución del ocelote (*Leopardus pardalis*) en San Luis Potosí, México. *Revista Mexicana de Biodiversidad* 82:997-1004.

- Moreno-Arzate, E., L. Íñiguez-Dávalos and C. A. López-González. 2011. High elevation records of ocelots (*Leopardus pardalis*) in Jalisco, México. *Mammalia* 75:387-388.
- Murray, J. L. and G. L. Gardner. 1997. *Leopardus pardalis*. *Mammalian Species* 548:1-10.
- Patterson, B. D., G. Ceballos, W. Sechrest, M. F. Tognelli, T. Brooks, L. Luna, P. Ortega, I. Salazar and B. E. Young. 2007. Digital distribution maps of the mammals of the western hemisphere, version 3.0, NatureServe, USA. [www.natureserve.org/getData/mammalMaps.jsp](http://www.natureserve.org/getData/mammalMaps.jsp); last access: 24.IX.2012.
- Semarnat, 2010. Norma Oficial Mexicana NOM-059-SEMARNAT-2010, Protección ambiental - Especies nativas de México de flora y fauna silvestres - Categorías de riesgo y especificaciones para su inclusión, exclusión o cambio - Lista de especies en riesgo. Diario Oficial de la Federación. 30 de diciembre de 2010, Segunda Sección, México.