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David García-Solórzano

Alianza Mexicana para la Conservación de la Vida Silvestre

Edgardo López-González

Alianza Mexicana para la Conservación de la Vida Silvestre

Carlos González-Rebeles Islas

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CONSERVATION STATUS OF THE MASKED BOBWHITE IN SONORA, MEXICO

David García-Solórzano¹

Alianza Mexicana para la Conservación de la Vida Silvestre. Hermosillo, Sonora, 83139, México.

Edgardo López-González

Alianza Mexicana para la Conservación de la Vida Silvestre. Hermosillo, Sonora, 83139, México.

Carlos González-Rebeles Islas

Facultad de Medicina Veterinaria y Zootecnia, Universidad Nacional Autónoma de México. Ciudad Universitaria, Ciudad de México 04510, México.

ABSTRACT

The historical distribution of the endangered masked bobwhite (*Colinus virginianus ridgwayi*) ranged from southern Arizona, United States, to Central Sonora, Mexico. Research in Sonora the past 30 years focused on the largest known populations, near the town of Benjamin Hill on the El Carrizo ranch. Research and perceptions by local residents pointed to a decline in masked bobwhite over the past decade. We evaluated existence of the subspecies during 2013-15 by searching transects and interviewing local residents. Our evaluation yielded no validated observations of masked bobwhite, and subsequently we call for further coordinated population monitoring and the development of technology to identify vocalizations by the subspecies.

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Key words: conservation status, endangered species, *Colinus virginianus ridgwayi*, masked bobwhite, México, Sonora

INTRODUCTION

Of 21 bobwhite subspecies currently recognized (Roskov et al. 2016), the masked bobwhite (*Colinus virginianus ridgwayi*) is the only subspecies included at the Convention on International Trade in Endangered Species of Flora and Fauna in the Appendix I category (CITES 2008). The masked bobwhite has been classified since 1994 by Mexican law (Norma Oficial Mexicana NOM-ECOL-059) as endangered (*en peligro de extinción*) (Diario Oficial de la Federación 2002), and it is a priority species in the Endangered Species Conservation Program of the Natural Protected Areas Commission (CONABIO 2011). Masked bobwhite distribution has shrunk from historic areas in the Altar Valley in southern Arizona, United States, and Central Sonora, Mexico, near Opodepe, Carbó, Trincheras, Magdalena and Benjamín Hill, (Garza-Salazar et al. 1992, Del Coro y Ceballos 2000), to a single wild population in Central Sonora. Population estimates for Central Sonora include 1,000 individuals during 1968-1972 (Tomlinson 1972), 1,000–2,000 early in the 21st Century (Hernández et al. 2006), and zero detected in 2010 (Gómez-Limón 2010, Convention on International Trade in Endangered Species of Wild Fauna and Flora. 2011). Because of the extremely low

population estimates, Recovery Actions 3.11 and 3.12 of the U.S. Fish and Wildlife Service Masked Bobwhite Recovery Plan emphasized the need to determine if populations occur outside of the current survey areas in Central Sonora (U.S. Fish and Wildlife Service Buenos Aires National Wildlife Refuge 2014).

STUDY AREA

The study area included three ranches near the town of Benjamín Hill, in the state of Sonora, Mexico. The ranches were El Carrizo (40,500 Ha; Universal Transverse Mercator, UTM: 477865.00 m E, 3323932.00 m N, 722 meters above sea level), San Dario (UTM: 476757.00 m E, 3326795.00 m N, 727 meters above sea level) and El Seri (UTM: 475882.00 m E, 3316974.00 m N, 743 meters above sea level) (Figure 1). Rancho Hunting, a part of El Seri, included facilities to accommodate hunters that visited the ranch. The study was authorized by the landowners, Mr. Gustavo and Mr. Alejandro Camou, and conducted in coordination with the Alianza Mexicana para la Conservación de la Vida Silvestre (AMECVIS).

METHODS

We studied masked bobwhite using transects to detect birds during July–September, 2013, and March–May,

¹Email: cientifico@amecvis.org



Fig. 1. Map of the region of Mexico where study area is located. The study area included 3 ranches near the town of Benjamín Hill, in the state of Sonora, Mexico.

2014, followed by interviews of local residents, and subsequently, further searching in 2015 to determine potential existence of the species.

We surveyed in areas where masked bobwhite had historically occurred (e.g., the source of bobwhites translocated to Buenos Aires National Wildlife Refuge in 1999; Hernandez et al. 2006), as well areas where vegetation had been managed for wildlife (Martín-Rivera et al. 2001). We added another search location on the San Dario ranch based on information from Alejandro Quijada Sabori (reported in Results section), a ranch worker with 50 years of local experience. We created a reference point (UTM: 476999.00 m E, 3326611.00 m N. 721 meters above sea level) and searched within a 5-km radius.

Observers traversed transects, each 1.5 to 2.5 km long, searching an area about 2-3 m wide, listening for vocalizations and searching for sign and individuals. Observers were instructed to walk and stop for ten minutes at the beginning and end of each transect. Transects were randomly selected, with the exception of a path that followed the bed of streams. According to residents of the ranch they had detections anecdotal and historical (for several years) in sites located in this area. We sampled during diurnal periods when breeding masked bobwhite typically vocalize, 0600-0900 hours and 1800-2000 hours. We recorded vocalizations and submitted these data to the Macaulay Library Cornell Lab of Ornithology. Four observer groups, 2-4 individuals each, traversed an average of five transects per day and about 20 transects per week. Observers were ecology students from the Universidad Estatal de Sonora that we trained to identify the masked bobwhite based on photos, field sign, vocalizations, etc.

RESULTS

Total transect length was 225 km. Observers had a preliminary finding of masked bobwhite eggshell fragments, but did not retain a sample for definitive laboratory identification. Observers had a preliminary finding of a masked bobwhite vocalization, but upon further review, we rejected this identification. Thus, our observations along transects produced no evidence of the existence of masked bobwhite.

Follow-up anecdotal reports by local residents included: 1) visual observation in June 2014 of a single male masked bobwhite in a covey of Gambel's quail (*Callipepla gambelii*) adjacent to San Daria ranch by Ing. Marco Antonio López Figueroa; 2) a second-hand auditory observation in August 2015 of a female masked bobwhite on San Dario ranch by Mr. Alejandro Quijada Sabori. This was the basis for our search beyond the transect study, and subsequently we recorded a possible vocalization by a masked bobwhite on September 20, 2015, 0913 hours (UTM: 477294.00 m E, 3324346.00 m N. 717 meters above sea level). However, an enhanced version of the sound recording (Cornell Macaulay Library) was perceived to be a vocalization by a yellow-breasted chat (*Icteria virens*) by specialists of the Buenos Aires Natural Wildlife Refuge Masked Bobwhite Recovery Team.

DISCUSSION

Our finding of few, if any, masked bobwhite agreed with recent research and the perception of local residents that the subspecies population had declined since 2000. Our inability to validate a recording of what was

perceived to be vocalization by masked bobwhite points to the need for development of a sonogram for the subspecies. We recommend continued searching on the El Carrizo ranch, and the development of coordinated research.

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