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NEW RECORDS AND SPECIMENS OF THREE MAMMALS (*SPILOGALE GRACILIS*, *BASSARISCUS ASTUTUS*, AND *NEOTAMIAS OBSCURUS MERIDIONALIS*) FOR BAJA CALIFORNIA, MÉXICO

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ABSTRACT.—We report the southernmost records of the spotted skunk (*Spilogale gracilis*) and the ring-tailed cat (*Bassariscus astutus*) for the state of Baja California, México. We also report the first specimens of the California chipmunk (*Neotamias obscurus meridionalis*) for the Central Desert of Baja California.

RESUMEN.—Se reportan los registros más sureños del zorrillo moteado (*Spilogale gracilis*) y del cacomixtle (*Bassariscus astutus*) para el Estado de Baja California; además de la confirmación de la presencia del chichimoco (*Neotamias obscurus meridionalis*) para el Desierto Central Bajacaliforniano.

Western spotted skunk (*Spilogale gracilis*) and ring-tailed cat (*Bassariscus astutus*) are common and widely distributed along the Baja California peninsula (Hall 1981). However, few records of occurrence in Baja California have been documented during the last 4 decades (cf. Huey 1964). This scarcity of records may result from the narrow and scattered availability of habitats for these species (oases and cliffs) and the lack of exploration in areas that are difficult to access. Three subspecies of the California chipmunk (*Neotamias obscurus*) occur in the Baja California peninsula (Callahan 1977). As is the case for the western spotted skunk and the ring-tailed cat, the distributional limits of these 3 chipmunk subspecies are poorly documented (Huey 1964).

In this paper, we report new records of Western spotted skunk and ring-tailed cat in Baja California (Fig. 1). These observations are based on specimens or photographs. We also report the southernmost record of California chipmunk subspecies *N. o. meridionalis* for the Sierra de San Borja (Fig. 1). It is possible that this southern chipmunk population is related to populations occurring in the Sierra de San Francisco, Baja California Sur (Álvarez-Castañeda et al. 2008).

The western spotted skunk is represented by 2 subspecies in the Baja California peninsula (*S. g. martirensis* in the north and *S. g. lucasana*

in the south; Verts et al. 2001). In arid biotopes, this species is found in streams bordered with cliffs and piled rocks (Carey and Kershner 1996); however, its distribution in Baja California has been poorly documented. The first record of *S. gracilis* for Baja California was documented by Elliot (1903) in the Sierra San Pedro Mártir, at an altitude of 2744 m above sea level (m asl). Although Hall (1981) indicated a wide distribution for this species in Baja California, voucher specimens are practically absent in museums, with only one specimen (SDHM-5941) reported by Huey (1964) for a locality in northern Baja California 16 km SE El Alamo.

We provide 2 new records of *S. g. martirensis* for Baja California. The first record is a skull and a tail (Cat. Num. CVUABC-119, Universidad Autónoma de Baja California) found at the mouth of the Río Santo Tomás, 25 km W of the town of Santo Tomás, Municipality of Ensenada (31°34'22.51"N, 116°31'42.61"W), and collected by Gorgonio Ruiz Campos (GRC) on 4 October 2002. The second record is based on 3 digital photographs and videos of a specimen that was detected using a trail camera (Moultrie, www.moultriefeeders.com) in the locality of Arroyo El Zamora, Municipality of Ensenada (30°7'1.48"N, 114°47'8.10"W, 582 m asl), on 29 November 2011 (time 18:10; Fig. 2). Both digital records are available for consultation in the photo collection of the UABC. The Arroyo

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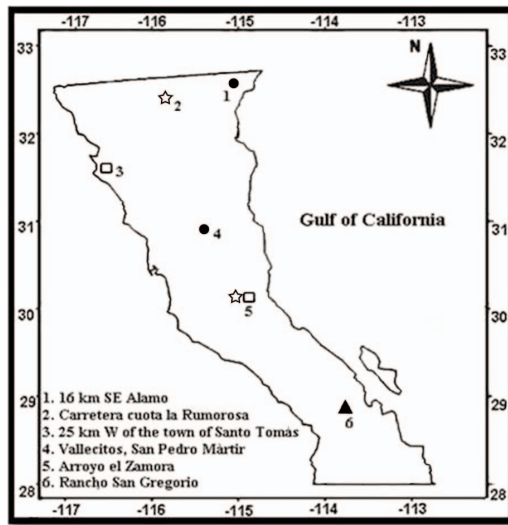


Fig. 1. Historical records (black circles) and recent records (open squares) of the western spotted skunk (*Spilogale gracilis*). Recent records (open stars) of the ring-tailed cat (*Bassariscus astutus*). New record (black triangle) of the Californian chipmunk (*Neotamias obscurus meridionalis*).

El Zamora has a perennial flow and is situated in a steep canyon that has riparian vegetation of willows bordered by primary vegetation of sarcocaulous xeric scrub type, represented by elephant tree (*Bursera microphylla*) and cardon (*Pachycereus pringlei*).

The ring-tailed cat is a species with a wide distribution in Mexico, with 14 subspecies reported, 2 of which have been documented on Mexican islands (*B. a. insulicola* and *B. a. saxicola*; Neuwall and Towell 1988). On the Baja California peninsula, 2 subspecies are known to occur: the southern subspecies (*B. a. palmarius*), which is described from the type locality of Laguna San Ignacio, Baja California Sur; and the northern subspecies (*B. a. octavus*), which inhabits the slopes and higher parts of the Sierra Juárez and Sierra San Pedro Mártir (Hall 1981). Ring-tailed cats inhabit a variety of habitats. In arid biotopes, they prefer rocky and broken terrains, riparian areas with dominance of palms, and rocky areas with pine-oak (*Pinus-Quercus*). The presence of ring-tailed cats in Baja California has been poorly documented due to the species' elusive and secretive habits that make detection difficult.

We added 2 new records of ring-tailed cat for Baja California. The first specimen consists



Fig. 2. *Spilogale gracilis* (photo captured from video).

of roadkill found on the Tecate–Mexicali highway near La Rumorosa town ($32^{\circ}33'16.20''N$, $116^{\circ}2'21.47''W$, 1920 m asl) on 25 August 2006. Because the skull was completely fragmented, only the skin of this specimen was prepared by taxidermy (CVUABC-581). The second record is a specimen photographed with a trail camera (Moultrie, www.moultriefeeders.com) at the locality of Arroyo El Zamora, Ensenada ($30^{\circ}7'1.48''N$, $114^{\circ}47'8.10''W$, 890 m asl), on 18 February 2012 (Fig. 3).

The Californian chipmunk has a discontinuous distribution, having its northernmost limits in the mountains of San Bernardino and San Jacinto, California, where the subspecies *N. o. davasi* has been recorded (Hall 1981). There are 2 subspecies known in the Baja California peninsula: the northern form (*N. o. obscurus*), which inhabits the forests of the San Pedro Mártir and Juárez mountains (Callahan 1977), and the southern form (*N. o. meridionalis*), which is found only in the vicinity of Sierra de San Francisquito (latitude $28^{\circ}N$), in the type locality of San Pablo Rancho (Callahan and Davis 1976).

Neotamias obscurus is commonly found in association with pinyon-juniper (*Pinus-Juniperus*) forests above 1200 m asl (Callahan and Davis 1976). In the mountains of San Bernardino, this species is distributed on the arid east slopes and on the west ends at the edge of pinyon forest. In the Sierra San Pedro Mártir, the northern subspecies, *N. o. obscurus*, is confined to granitic rocky habitats (Larson 1964), especially in transitional biotopes of chaparral-pine forest (Huey 1964). Callahan (1977) reports this species as common in sites with *Pinus jeffreyi*, through an altitudinal gradient of 1370 m to 1525 m asl. The southern



Fig. 3. *Bassariscus astutus* in the locality of Arroyo El Zamora.



Fig. 4. *Neotamias obscurus meridionalis* in the Sierra San Borja.

subspecies, *N. o. meridionalis*, is considered one of the rarest sciurids in the Baja California peninsula. It inhabits palm-cactus associations (Huey 1964). Nelson (1922) referenced the presence of *N. o. meridionalis* in the desert of Vizcaino but did not specify the locality. Callahan (1977) mentioned the occurrence of this subspecies in the Sierra de San Borja; however, that record was not supported with voucher specimens or photographs.

We provide photographic records and field observations for a total of 14 individuals of *N. o. meridionalis* from the locality of Rancho San Gregorio, on the Sierra de San Borja ($28^{\circ}40'8.02''N$, $113^{\circ}39'50.92''W$, 191 m asl; Fig. 4), observed on 25 January and 9 March 2012. The visual records of *N. o. meridionalis*, along with other syntopic sciurids such as *Spermophilus beecheyi* and *Ammospermophilus leucurus*, were made between 9:00 and 11:00. On 10 April 2012, Mr. Fermín Soto, a resident from the Rancho San Gregorio, captured 2 males by use of a slingshot and preserved the head and parts of the skin of both specimens. The specimens were deposited in the mammal collection of the Universidad Autónoma de Baja California (CVUABC-1151 and CVUABC-1152). The skull of one of these specimens was removed and cleaned to obtain cranial measurements (mm): maximum skull length 29.7, face length 11.26, maxillary tooth row length 5.4, nostril length 11.20, zygomatic width 17.81, and interorbital width 8.14.

The color pattern of the specimens from the Rancho San Gregorio (Sierra San Borja) is consistent with the pattern described for the southern subspecies (*N. o. meridionalis*), whose

type locality is Sierra San Francisco (Huey 1964), which is situated almost 300 km south. Cranial measurements of one of the specimens correspond to those of the southern subspecies, *N. o. meridionalis* (Callahan and Davis 1976). Therefore, our specimens of *N. o. meridionalis* from the Sierra San Borja constitute the first records with specimens for Baja California, as well as an extension of the known northernmost distributional range for the subspecies.

The records of mammals provided in this study show the need for further exploration in the mountain areas of the central and southern parts of Baja California (Fig. 1).

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