

Nota Científica
(Short Communication)

***CROTALUS AQUILUS* KLAUBER, 1952 (SQUAMATA: VIPERIDAE),
A NEW STATE RECORD FOR ZACATECAS, MEXICO**

Recibido: 21/03/2014; aceptado: 03/10/2014

Carbajal-Márquez, R. A., González-Saucedo, Z. Y. & Arenas-Monroy, J. C. 2015. *Crotalus aquilus* Klauber, 1952 (Squamata: Viperidae), un nuevo registro estatal para Zacatecas, México. *Acta Zoológica Mexicana* (n. s.), 31(1): 131-133.

RESUMEN. Se registra la presencia de *Crotalus aquilus* en el bosque de encino, en la Sierra El Laurel, municipios de Huanusco, Jalpa y Nochistlán de Mejía, Zacatecas. Estos ejemplares representan los primeros registros para Zacatecas y amplían la distribución de *C. aquilus* a través de la Sierra El Laurel hacia la parte de Zacatecas.

Small-bodied montane rattlesnakes of the *Crotalus triseriatus* group inhabit primarily pine-oak forest of southern United States, and mainland México. This group contains 9 species *C. aquilus*, *C. armstrongi*, *C. campbelli*, *C. lepidus*, *C. morulus*, *C. pusillus*, *C. ravus*, *C. tlaloci* and *C. triseriatus* (Bryson *et al.* 2010; Bryson *et al.* 2014). Of these, the Queretaran Dusky Rattlesnake (*Crotalus aquilus*) that was originally described as *C. triseriatus aquilus* by Klauber (1952), is endemic to México and inhabits rock outcroppings in pine-oak forests, open mesquite-grasslands, sub-tropical scrub forests, and a variety of field crops. *Crotalus aquilus* occurs in the southern edge of the Mexican Plateau, and northern half of the Trans-Mexican Volcanic Belt in the states of Aguascalientes, Estado de México, Guanajuato, Hidalgo, Jalisco, Michoacán, Querétaro, San Luis Potosí, and Veracruz; from 1800 up to 2627 m above sea level (Vázquez-Díaz & Quintero-Díaz 2005; Meik *et al.* 2007). Although, it has been speculated by Armstrong and Murphy (1979), Campbell & Lamar (2004) and Alvarado-Díaz & Suazo-Ortuño (2006) that *C. aquilus* could be found even higher, up to 3100 m asl.

The herpetofauna of Zacatecas remains poorly sampled and in the past four years, a number of new records of amphibians and reptiles have been documented (Ahumada-Carrillo *et al.* 2011; Ahumada-Carrillo & Vázquez-Huizar, 2012; Carbajal-Márquez *et al.* 2012; García-Balderas & Quintero-Díaz, 2012). To our knowledge, the herpetofauna of Zacatecas consists of 121 species: 24 amphibians and 97 reptiles (Ahumada-Carrillo pers. comm.). In this sense, several species of amphibians

and reptiles from adjacent states are expected to inhabit Zacatecas and await formal discovery. Here we present data on five specimens of *C. aquilus*, which confirm the presence of the species for the state. All specimens were photographed and then released, photo-vouchers were deposited in La Sierra University Digital Photo Collection (LSUDPC) and verified by the collection manager L. L. Grismer. All coordinates have the same reference datum WGS84, and elevation appears in meters above sea level (m asl).

During a field trip on 19 April 2007, RACM and ZYGS captured a subadult male of *Crotalus aquilus* in Sierra El Laurel, municipality of Huanusco, Zacatecas, ca. 4.5 km SW of Presa los Alamitos, Calvillo, Aguascalientes (21°42'56.49" N, 102°45'4.88" W; 2616 m asl). The specimen was found inactive beneath a rock in an oak forest (photographic vouchers LSUDPC 8016-17). Subsequently RACM captured four additional specimens of *C. aquilus* on 01 October 2013, two neonates from the municipality of Jalpa, Zacatecas (21°36'1.68" N, 102°51'47.34" W; 2574 m asl), and two females (Fig. 1), from the municipality of Nochistlán de Mejía



Figure 1. Female of *Crotalus aquilus* (LSUDPC 8196), from Sierra El Laurel, municipality of Nochistlán de Mejía, Zacatecas.

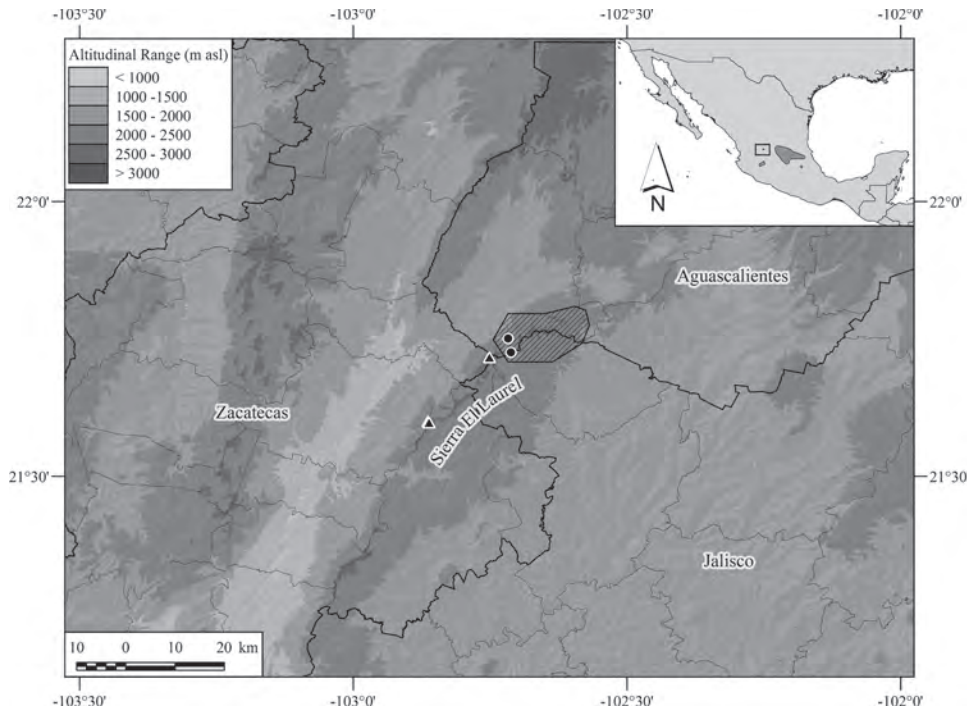


Figure 2. Distribution of *Crotalus aquilus* in Sierra El Laurel of Aguascalientes, Jalisco, and Zacatecas states. The triangles represent new records of *C. aquilus*, and circles nearest known localities. Bold lines represent state boundaries, and thinner lines municipality divisions. The hatched area represents the IUCN Red List of Threatened Species distribution of *C. aquilus* (Mendoza-Quijano & Quintero-Díaz 2007).

(21°35'52.15" N, 102°51'41.54" W; 2572 m asl); these four specimens were found basking among rock piles in oak savannah habitat (photographic vouchers LSUDPC 8194-97).

Collectively these records slightly extend the distribution of *Crotalus aquilus* in the Sierra El Laurel to its Zacatecas state counterpart (Fig. 2), ca. 21.8 km (straight-line) SW of Ciénega de Quijas, between Aguascalientes and Jalisco state border (McCranie & Wilson 2001; Vázquez-Díaz & Quintero-Díaz 2005). The oak forest communities present in all three localities are nearly identical to their counterparts in Aguascalientes and Jalisco where numerous records of *C. aquilus* exist, thus the occurrence of this species in Zacatecas is not surprising given both the nearby records and the continuity of habitat, but not confirmed until the present work.

The viperid fauna of Zacatecas state now comprises eight species, all in the genus *Crotalus*: *C. aquilus*, *C. atrox*, *C. basiliscus*, *C. lepidus*, *C. molossus*, *C. polystictus*, *C. scutulatus*, and *C. willardi*. Only two of these species are sympatric with *C. aquilus* in Sierra El Laurel (*C. molossus*, and *C. polystictus*), but only *C. aquilus* appears to be restricted to the Sierra El Laurel, in the southwestern edge of Zacatecas state.

ACKNOWLEDGEMENTS. We thank Bradford Hollingsworth for comments on a previous draft of this note. We thank Eric A. Rivas-Mercado and Marco A. Domínguez-de la Riva for field assistance.

LITERATURE CITED

- Ahumada-Carrillo, I. T. & Huizar-Vázquez, O. 2012. Geographic distribution: *Drymarchon melanurus*. *Herpetological Review*, 43:448.
- Ahumada-Carrillo, I. T., Huizar-Vázquez, O., Vázquez-Díaz, J. & García-Vázquez, U. O. 2011. Noteworthy records of amphibians and reptiles from Zacatecas, México. *Herpetological Review*, 42: 397-398.
- Alvarado-Díaz, J. & Suazo-Ortuño, I. 2006. *Reptiles venenosos de Michoacán*. Universidad Michoacana de San Nicolás de Hidalgo. Morelia. 118 p.
- Armstrong, B. L. & Murphy, J. B. 1979. *The natural history of Mexican rattlesnakes*. University of Kansas. Lawrence. 89 pp.
- Bryson, R. W. Jr., Murphy, R. W., Lathrop, A. & Lazcano-Villarreal, D. 2011. Evolutionary drivers of phylogeographical diversity in the highlands of Mexico: a case study of the *Crotalus triseriatus* species group of montane rattlesnakes. *Journal of Biogeography*, 38: 697-710.
- Bryson, R. W. Jr., Linkem, C. W., Dorcas, M. E., Lathrop, A., Jones, J. M., Alvarado-Díaz, J., Grünwald, C. I. & R. W. Murphy. 2014. Multilocus species delimitation in the *Crotalus triseriatus* species group (Serpentes: Viperidae: Crotalinae), with the description of two new species. *Zootaxa*, 3826: 475-496.
- Campbell, J. A. & Lamar, W. W. 2004. *The venomous reptiles of*

- the western hemisphere*. Cornell University Press. Volume II. 962 pp.
- Carbajal-Márquez, R. A., Arenas-Monroy, J. C., González-Saucedo, Z. Y., Jones, J. M. & Gallegos-Roman, L.** 2012. Geographic distribution: *Conopsis lineata*. *Herpetological Review*, 43: 105.
- García-Balderas, C. M. & Quintero-Díaz, G. E.** 2012. Geographic distribution: *Geophis dugesii*. *Herpetological Review*, 43: 621.
- Klauber, L. M.** 1952. Taxonomic studies on rattlesnakes of Mainland Mexico. *Bulletins of the Zoological Society of San Diego*, (26): 1-143.
- McCranie, J. R. & Wilson, L. D.** 2001. The herpetofauna of the Mexican state of Aguascalientes. *Courier Forschungsinstitut Senckenberg*, 230: 1-57.
- Meik, J. M., Mociño-Deloya, E. & Setser, K.** 2007. New distribution records for the Querétaro Dusky Rattlesnake *Crotalus aquilus* (Viperidae), with comments on morphology and habitat use. *Western North American Naturalist*, 67: 601-604.
- Mendoza-Quijano, F. & Quintero Díaz, G. E.** 2007. *Crotalus aquilus*, IUCN Red List of Threatened Species, version 2013.1, IUCN Global Species Programme Red List Unit, UK. www.iucnredlist.org; last access: 29.07.2013.
- Vázquez-Díaz, J. & Quintero Díaz, G. E.** 2005. *Anfibios y reptiles de Aguascalientes*. 2da Ed. CONABIO. CIEMA. Internacional de Relojes S.A. de C.V. México. 318 p.

RUBÉN ALONSO CARBAJAL-MÁRQUEZ^{1*}, ZAIRA YANETH GONZÁLEZ-SAUCEDO² & JOSÉ CARLOS ARENAS-MONROY³

¹Centro de Investigaciones Biológicas del Noroeste, Instituto Politécnico Nacional 195, Colonia Playa Palo de Santa Rita Sur, 23096. La Paz, Baja California Sur, México. <redman031@hotmail.com>*

²Universidad Autónoma de Querétaro, Facultad de Ciencias, Av. de la Ciencias S/N, Col. Juriquilla, 76230, Querétaro, Querétaro, México.

³Laboratorio de Herpetología, Museo de Zoología, Departamento de Biología Evolutiva, Facultad de Ciencias, Universidad Nacional Autónoma de México, 04510. Distrito Federal, México.