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REDISCOVERY AFTER 48 YEARS AND GEOGRAPHIC RANGE EXTENSION OF *ABRONIA ANZUETOI* (CAMPBELL & FROST, 1993) (SQUAMATA: ANGUIDAE) FROM AGUA VOLCANO, GUATEMALA

REDESCUBRIMIENTO DESPUÉS DE 48 AÑOS Y EXTENSIÓN DE RANGO GEOGRÁFICO DE *ABRONIA ANZUETOI* (CAMPBELL & FROST, 1993) (SQUAMATA: ANGUIDAE) EN EL VOLCÁN DE AGUA, GUATEMALA

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Resumen.– *Abronia anzuetoi* es una lagartija endémica al volcán de Agua en Sacatepéquez, Guatemala. La especie era conocida previamente por únicamente seis ejemplares todos correspondientes a la serie tipo. El último espécimen conocido de la especie fue colectado en 1974. Nosotros reportamos el redescubrimiento de la especie luego de colectar cinco nuevos ejemplares, 48 años después de su último avistamiento. Los ejemplares fueron colectados en dos localidades ubicadas en la falda oeste del volcán de Agua, a inmediaciones de Alotenango, Sacatepéquez, Guatemala. Nuestro reporte representa una extensión de rango de 7.5 km NO de la localidad conocida más cercana para la especie. El bosque en estas nuevas localidades está altamente amenazado por deforestación y fragmentación por lo que se discuten medidas prioritarias de conservación.

Palabras claves.– endemismo, especies amenazadas, bosque mixto, lagartijas, reptiles.

Abstract.– *Abronia anzuetoi* is a lizard endemic to Agua Volcano in Sacatepéquez, Guatemala. The species was previously known from only six specimens corresponding to the type series. The last known specimen of the species was collected in 1974. Herein we report the rediscovery of the species after collecting five new specimens, 48 years after its last sighting. The specimens were collected at two localities on the western slope of Agua Volcano in Alotenango, Sacatepéquez, Guatemala. Our report represents a range extension of 7.5 km NW from the nearest known locality for the species. The forest at these new localities is highly threatened by deforestation and fragmentation so we discuss priority conservation measures.

Key words.– endemism, lizards, mixed forest, reptiles, threatened species.

Species of *Abronia* are known to occur from southern Tamaulipas and Guerrero, Mexico, to Costa Rica, with Guatemala as a spot of diversification for this group (Ariano-Sánchez & Meléndez, 2009; Gutiérrez-Rodríguez et al., 2021). Amongst these, *A. anzuetoi* is an endemic arboreal alligator lizard of Agua volcano, Sacatepéquez, Guatemala, with an elevational range of 1,219 – 2,286 meters, and is considered one of the largest species of *Abronia* (Campbell & Frost, 1993). *Abronia anzuetoi* was previously known from only six specimens (UMMZ 129013, AMNH 102177, AMNH 109053, AMNH 109054, UTA R-4604, and UTA R-4482) corresponding to the type series for the species (Campbell & Frost, 1993). All specimens were collected in a cypress-oak forest at the southern slope of Agua volcano, Sacatepéquez, Guatemala, and is listed as Vulnerable by the IUCN Red List of Threatened Species (Ariano-Sánchez et al., 2020). To the best of our knowledge, the last known specimen for the species was a skeleton collected in 1974 (UTA R-4604).

We have found five specimens (four captured alive and one obtained killed by a local villager) of *A. anzuetoi* between April and August 2022 (Fig. 1). These specimens were collected under Research license # DVCB 2-2021 and Collection permit # B1027 issued by Consejo Nacional de Áreas Protegidas (CONAP). The findings occurred at two different localities near Alotenango at

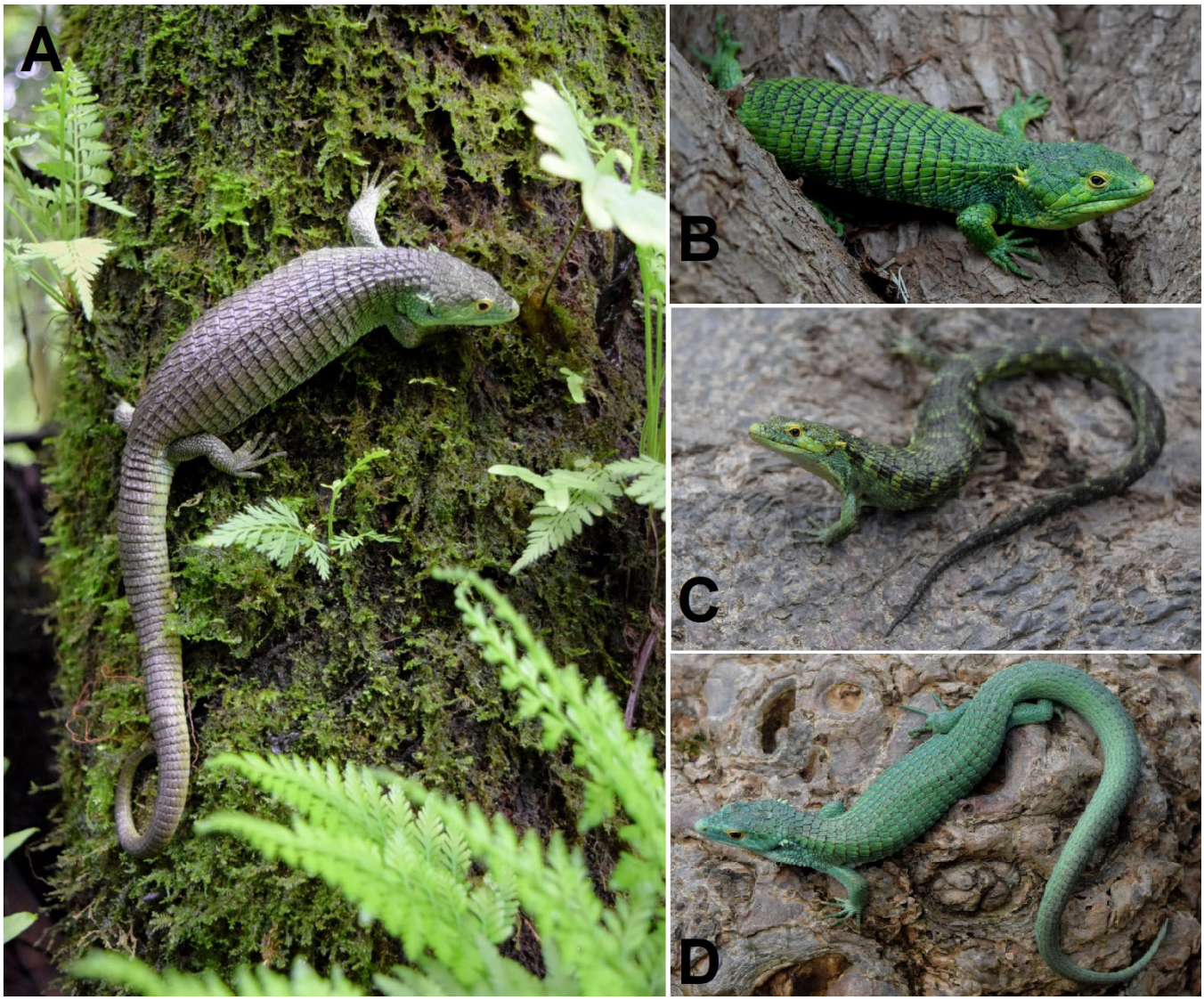

Figura 1. *Abronia anzuetoi* colectadas en la falda oeste del volcán de Agua, Sacatepéquez, Guatemala. A. Hembra adulta, longitud hocico-cloaca (LHC) = 138 mm, longitud total (LT) = 326 mm, colectada el 5 abril 2022 a 1750 m s.n.m.; B. Macho adulto, LHC = 143 mm, LT = 355 mm, colectada el 17 junio 2022 a 1750 m s.n.m.; C. Hembra juvenil, LHC = 83 mm, LT = 215 mm, el 12 julio 2022 a 2030 m s.n.m.; D. Macho juvenil, LHC = 90 mm, LT = 238 mm, colectada el 4 agosto 2022 a 1750 m s.n.m.

Figure 1. *Abronia anzuetoi* collected at the western slope of Agua Volcano, Sacatepéquez, Guatemala. A. Adult female, SVL = 138 mm, TL = 326 mm, collected on 5 April 2022 at 1750 m elevation; B. Adult male, SVL = 143 mm, TL = 355 mm, collected on 17 June 2022 at 1750 m elevation; C. Juvenile female, SVL = 83 mm, TL = 215 mm, collected on 12 July 2022 at 2030 m elevation; D. Juvenile male, SVL = 90 mm, TL = 238 mm, collected on 4 August 2022 at 1750 m elevation.

the western slope of Agua volcano (14° 28' N, 90° 47' W, 1,750 m elevation, and 14° 27' N, 90° 46' W, 2030 m a.s.l.) within a cypress-oak forest under logging pressure. Taxonomic identity was confirmed using lepidosis diagnostic characteristics following Campbell & Frost (1993). The individuals found showed between 5 and 6 spine-like supra-auricular scales, the third inferior temporal without contact with the first medial temporal, two primary temporal scales in contact with the postoculars, and the last subocular is separated from the first inferior temporal. These characteristics are diagnostic of *A. anzuetoi*. Morphometric measures of snout-vent length (SVL) and total length (TL) were done with a caliper and measuring tape to the nearest millimeter (mm). Consequently, we describe herein the rediscovery of the species after 48 years of its last report. Specimens showed color variation ranging from emerald green (Figs. 1B & 1D) to grayish green with bands (Figs. 1A & 1C).

Our collection localities represent a 7.5 km NW range extension for the species from the nearest known locality (UMMZ 129013, Campbell & Frost, 1993). This genus of reptiles is markedly vulnerable to extraction from the wild for the pet market (Auliya et al., 2016; Moreno-Lara et al., 2022), so we decided to provide location data rounded to degrees and minutes. Exact data location can be obtained upon request for research purposes writing to authors. For further behavior and breeding cycle research, adult specimens were kept in captivity at a conservation institution (Los Bichos de Diana).

One of the specimens (Fig. 1A) was a gravid female which gave birth to two lizards on 7 April 2022 (average SVL = 50 mm). This low number can be explained as these two newborns probably were the last of the clutch as *Abronia* lizards usually space their births within a week or so. Additionally, the adult male from our sample (Fig. 1 B) represents the largest known specimen for the species (SVL = 143 mm).

The cypress-oak forest at the two new localities on the western slope of Agua volcano is severely fragmented consisting mainly of small patches surrounded by a matrix of deforested land and crops. The main factors leading the land use change in this area are the logging of forest for firewood and maize crops. Conservation actions within the area should be focus on preserving the forest remnants at these new localities and developing a captive breeding program for the species to ensure future population reinforcements at areas where the forest is still present.

The rediscovery of *A. anzuetoi* in small forest remnants gives hope that these species may be some kind resilient to fragmentation and habitat destruction. Species of *Abronia* seem to be somewhat resilient to habitat fragmentation as populations of *A. campbelli, A. frosti* and *A. taeniata* has been reported at highly human-modified landscapes (Ariano-Sánchez & Torres-Almazán 2010, Ariano-Sánchez et al., 2011, Clause et al., 2018). This resilience to avoid extinction of *A. anzuetoi* can be increased if: (1) the forest remnants at Agua volcano are urgently preserved, especially those at the western and southern slopes; (2) the connectivity within the remaining forest patches is increased; (3) the lizards are not systematically killed by villagers or smuggled for illegal trade thus making public awareness programs in the area a must, (4) habitat restoration within the area should be promoted, and (5) securing a captive breeding colony for the species in order to implement population reinforcements within future protected habitats.

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