



First Record of the Mediterranean Gecko (*Hemidactylus turcicus*) from Hudspeth County, Texas, USA, with an Updated Statewide Distribution Map for the Species

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The Mediterranean Gecko, *Hemidactylus turcicus* (Linnaeus 1758) (Fig. 1), is a small nocturnal gekkonid native to southern Europe, northern Africa, and far-western Asia (McCoy 1970; Powell et al. 2016). Numerous populations of *H. turcicus* have become established in countries outside of the species’ native range including Mexico (Valdez-Villavicencio et al. 2021), the United States (Meshaka et al. 2022), Cuba (Powell et al. 2011), and Panama (Auth 1994). *Hemidactylus turcicus* was first reported from Texas, USA, in 1933 (Flower 1933). However, this report was largely unsubstantiated given that it failed to reference any vouchered specimens or provide exact localities of occurrence. The first reliable observation (i.e., citing specimens accessioned in a reputable collection) of *H. turcicus* in Texas occurred in 1954 involving a population from the port city of Brownsville, the southernmost city in the state (Conant 1955). Since then, *H. turcicus* has spread dramatically, with records from 64 out of 254 counties (~25%) by 2000 (Dixon 2000), 123 counties (~48%) by 2013 (Jadin and Coleman 2007; Dixon 2013), and 179 counties (~71%) by 2021 (Bassett et al. 2021). We suspect that the apparent rate of spread suggested by these figures is not necessarily reflective of a true rate of dispersal and establishment. Instead, many populations only recently documented in the scientific literature may have existed for decades and have simply remained unreported.

The most recent statewide distribution map for *H. turcicus* in Texas was provided by Bassett et al. (2021). However, 13 county records have been published since then (i.e., Bassett et al. 2022; Pandelis et al. 2022), indicating the need for an updated statewide distribution map. We herein provide an updated statewide distribution map for *H. turcicus* in Texas in addition to the first report of the species from Hudspeth County, Texas.

On 3 August 2022, L.G. Bassett searched the Sierra Blanca Public Park located at 259 North Williams Avenue, Sierra Blanca, Hudspeth County, Texas 79851. The search was conducted shortly after sunset from 2015 h to 2031 h using a flashlight. Habitat at the park consisted of numerous rock walls, concrete pathways, grassy fields, a restroom with cinderblock walls, trees, tennis and basketball courts, and a playground. A single juvenile was encountered, but evaded capture, at 2020 h on an exterior cinderblock wall of the bathroom (31.1783 N, 105.3575 W) at a height of approximately 1.5 m. A single juvenile (UTA R-66127) was captured at 2023 h on a rock wall adjacent to a basketball court (31.1785 N, 105.3569 W) at a height of approximately 0.3 m. An adult was encountered, but evaded capture, at



Figure 1. A Mediterranean Gecko, *Hemidactylus turcicus* (Linnaeus 1758), from Val Verde County, Texas, USA. Photograph taken on 14 July 2019 by Lawrence G. Bassett.

2029 h on a rock wall adjacent to a tennis court (31.1788 N, 105.3572 W) at a height of approximately 0.2 m. A single adult (UTA R-66128) was captured at 2030 h on a rock wall surrounding an electrical box (31.1788 N, 105.3569 W) at a height of approximately 0.3 m. Finally, two juveniles (UTA R-66129 and UTA R-66130) were captured at 2031 h on a rock wall adjacent to a basketball court (31.1785 N, 105.3571 W). All captured individuals were preserved in 10% formalin, later stored in 70% ethanol, and deposited at the Amphibian and Reptile Diversity Research Center at the University of Texas at Arlington (UTA). All identifications were verified by Gregory G. Pandelis and all reported coordinates are based on the World Geodetic System 1984 (WGS 84). Morphometrics and body mass of specimens are provided in Table 1.

In total, six individuals were encountered (four of which were captured) over the course of only 16 minutes (22.5 detections/hour). The apparent abundance of *H. turcicus* at this location, and the detection of both adults and juveniles, suggests that a population is well established. This record fills a gap in the west Texas distribution of *H. turcicus*, with records already existing for neighboring El Paso County (Dixon 2000) and Culberson County (Bassett et al. 2021). Interstate 10 intersects the town of Sierra Blanca and, more broadly, Hudspeth County. *Hemidactylus turcicus* was likely introduced to Sierra Blanca from stowaway individuals on automobiles navigating the Interstate 10 corridor that were stopped in town for fuel or business. This explanation is supported by various records from throughout the state, including along the Interstate 10 corridor, wherein geckos were captured at isolated highway rest stops (e.g., Farr 2014; Davis and LaDuc 2019; Bassett et al. 2021).

Including the record presented herein, *H. turcicus* has been documented from 193 of the 254 (~76%) counties in Texas. Previous summaries (i.e., Dixon 2013; Bassett et al. 2021) failed to include the Delta County record published by Jadin and Coleman (2007), a discrepancy discovered by Pandelis et al. (2022). This record is included in the current distribution map (Fig. 2). Notable gaps remain in the state-wide distribution of *H. turcicus* (Fig. 2), suggesting that undetected populations may currently exist in various counties or

Table 1. Body mass and morphometric data for Mediterranean Geckos (*Hemidactylus turcicus*) collected in Hudspeth County, Texas, USA, on 3 August 2022.

Specimen	Body mass (g)	Snout-vent length (mm)	Tail length (mm)
UTA R-66127	0.41	27	27
UTA R-66128	2.92	52.5	57
UTA R-66129	0.48	27.5	27
UTA R-66130	0.57	28	29

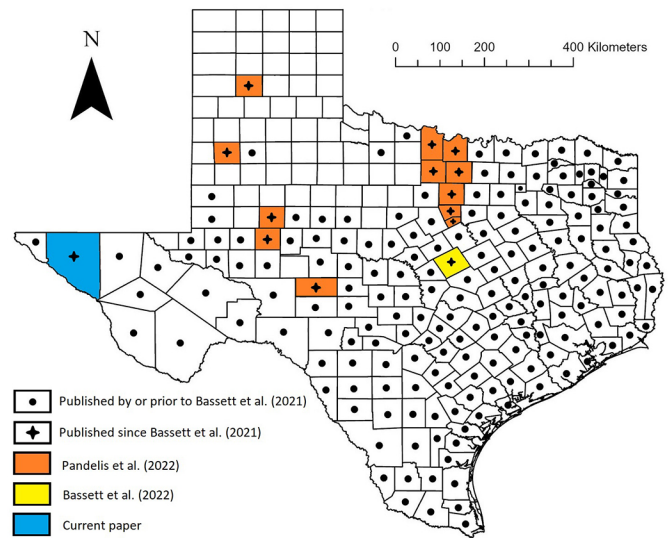


Figure 2. County delineated map of Texas, USA, showing counties in which Mediterranean Geckos (*Hemidactylus turcicus*) have been detected. *Hemidactylus turcicus* has been documented from 193 of 254 (~76%) counties in Texas (~76%).

that jump dispersal of individuals to currently undocumented counties has yet to successfully occur. In the summers of 2020 and 2021, we conducted nocturnal searches for *H. turcicus* in urban habitats in Bailey, Irion, Loving, and Yoakum counties. These searches failed to yield any detections despite known populations in neighboring or proximal counties (Bassett et al. 2021). The collection of *H. turcicus* specimens from Randall County (Pandelis et al. 2022) suggests that populations can become established even in the northern extent of the Texas Panhandle. Additional surveys throughout the northwestern portion of Texas should be conducted to monitor the spread of *H. turcicus*.

Despite the broad distribution of *H. turcicus* in Texas, its influence on Texas ecosystems and native species remains largely enigmatic. Selcer (1986) demonstrated that populations can achieve densities of 544–2,210 lizards per ha in Hidalgo County, Texas. Saenz (1996) found that Orthoptera, Lepidoptera, and Isopoda were volumetrically the most important prey items for an *H. turcicus* population in Nacogdoches, Texas. Given the high density and insectivorous habits of these *H. turcicus* populations in Texas, it is possible that *H. turcicus* may have a detectable influence on arthropod populations where it becomes established. The feeding niche of *H. turcicus* can be defined as nocturnal and insectivorous, with feeding occurring on vertical structures (scansorial) and under terrestrial cover (cryptozoic). Some nocturnal, scansorial, and insectivorous natives that may be negatively impacted due to diminished arthropod prey include spiders (Araneae), mantises (Mantidae), and assassin bugs (Reduviidae). An assortment of nocturnal, cryptozoic, and insectivorous natives such as colubrid snakes, scorpions,

ons (Scorpiones), and mice (e.g., Cricetidae) may likewise be impacted by a diminished abundance of arthropod prey. In Texas, *H. turcicus* is now documented from 34 of the 35 counties known to have native eublepharid geckos (Dixon 2013) and could represent a competitor with those taxa as well. For example, both *H. turcicus* and the native eublepharid *Coleonyx brevis* are scansorial and nocturnal squamates that consume a wide variety of arthropods (Punzo 1974; Saenz 1996; Boyd et al. 2010). Although *C. brevis* is restricted to natural habitats and *H. turcicus* is considered synanthropic, we have seen these two species in syntopy on highway rock cuts in west Texas (specifically, 30.8886°N, 101.7528°W; WGS 84; 9 June 2022), suggesting that competition is possible. We encourage future studies that examine the relationship between *H. turcicus* abundance and the abundance of various arthropod groups. Such an investigation would represent an initial step toward elucidating the manner in which *H. turcicus* may disadvantage native predators that occupy a similar trophic niche.

Acknowledgments

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