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New records of the Golden Spectacled Tegu, *Gymnophthalmus speciosus* (Hallowell, 1861), in Veracruz, Mexico

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The Golden Spectacled Tegu (*Gymnophthalmus speciosus*) is a small lizard characterised by four toes on the forelimbs, a body covered with large cycloid and imbricate scales arranged in 13–15 rows around the centre of the body, the absence of movable eyelids, and with ontogenetic variation in tail colouration (deep orange in juveniles, dark orange in subadults, and brown in adults; Lee, 1996; Hernández-Ruz, 2006; García-Roa and Sunyer, 2012). Adult males range from 34.9–44.0 mm in snout–vent length (SVL), and adult females from 35.7–47.8 mm. Adult males have 1–6 femoral pores (Hernández-Ruz, 2006; Recoder et al., 2018; Henao-Osorio et al., 2021). The species comprises a complex of morphologically indistinguishable but genetically diverse lineages (Hernández-Ruz, 2006; Recoder et al., 2018). It mainly inhabits lowland forests, xerophytic and semi-desert areas, savannas, and open areas in cloud forests (Bernal-Carlo, 1991; Hernández-Ruz, 2006). It is commonly found under fallen logs and in leaf litter, where it occasionally surfaces (Ferrer and González, 2007). This lizard also has been recorded under decomposing plants (approximately 30 cm deep) (Meza-Joya and Ramos-Pallares, 2015).

The Golden Spectacled Tegu ranges from southern Mexico at the Isthmus of Tehuantepec to Venezuela and Chacachacare Island of Trinidad and Tobago, at elevations ranging from sea level to 1220 m (Fig. 1; McCoy, 1990; Savage, 2002; Hernández-Ruz, 2006; Köhler, 2008; Infante-Rivero, 2009; García-Roa and Sunyer, 2012). It is the only gymnophthalmid lizard in Mexico (Balderas-Valdivia and González-Hernández, 2024), where it has only been reported in the states of Oaxaca and Chiapas (Álvarez del Toro and Smith, 1956; Casas-Andreu et al., 2004; Johnson et al., 2015; Mata-Silva et al., 2015; Aguilar-López et al., 2021). We here provide a new state record for *G. speciosus* in Veracruz, Mexico.

The International Union for Conservation of Nature classifies *G. speciosus* as a species of Least Concern because it maintains stable populations throughout its range in Central and South America (Hernández-Ruz et al., 2006; Lamar et al., 2017). In Mexico, *G. speciosus* is listed as a species afforded Special Protection according to NOM-059 (SEMARNAT, 2010). However, there is limited information on its habitat requirements, natural history, and population trends (CONABIO, 2024), and its current conservation status is therefore in question.

During June and July 2024, we encountered two *G. speciosus* during fieldwork in Alvarado Municipality, Veracruz, Mexico (19.0676°N, 96.0767°W; WGS84; Fig. 1). This area is characterised by coastal dune vegetation and remnants of low deciduous forest (Fig. 2A). The latter is characterised by a suite of trees (*Nectandra salicifolia*, *Erythrina americana*, *Coccoloba barbadensis*, *Casearia corymbosa*; Silva et al., 2023). The first individual (Fig. 2B) was captured on 24 June 2024 at 12:45 h, photographed, and released at the same site. On 13 July 2024 at 11:00 h a second, dead individual was collected while vegetation was being cleared. This lizard likely died from heat exposure (no external injuries) and was deposited at the Herpetological Collection of the Instituto de Investigaciones Biológicas, Universidad Veracruzana (CHIIB-01574) in Xalapa, Veracruz, Mexico (Fig. 2C). This specimen was a juvenile with SVL 29.8 mm and tail length 38.2 mm.

These new records are approximately 300 km in a straight-line distance north of the nearest Oaxaca record (University of Illinois Museum of Natural History Amphibian and Reptile Collection specimen no. UIMNH 3763 from 2 km SW Santa María Jalapa de Marqués, Oaxaca; Flores-Villela, 2024) and 460 km in a straight-line distance west of the nearest Chiapas record

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(California Academy of Science Herpetology Collection specimen no. CAS 165185; Flores-Villela, 2024). They are the northernmost records for the species and a new reptile record for Veracruz. Our findings bring the total number of lizard and reptile species in Veracruz to 89 and 242, respectively, confirming its position as the third most reptile-rich state in Mexico (Torres-Hernández et al., 2021; Grünwald et al., 2021; Tepos-Ramírez et al., 2021; García-Vázquez et al., 2022; Bello-Sánchez et al., 2023; Ramírez-Bautista et al., 2023).

In addition to our own records of *G. speciosus*, we located seven other Veracruz records on iNaturalist (Table 1). These records document the presence of *G. speciosus* in areas with human settlements according to the Land Use and Vegetation Vector Data Set Series VII (INEGI, 2021), areas originally characterised by dry forest vegetation, mangroves and secondary vegetation of coastal dunes (Table 1).

In Veracruz, particularly in the coastal areas of Alvarado, Veracruz, and Boca del Río Municipalities, changes in land use for agricultural purposes, as well

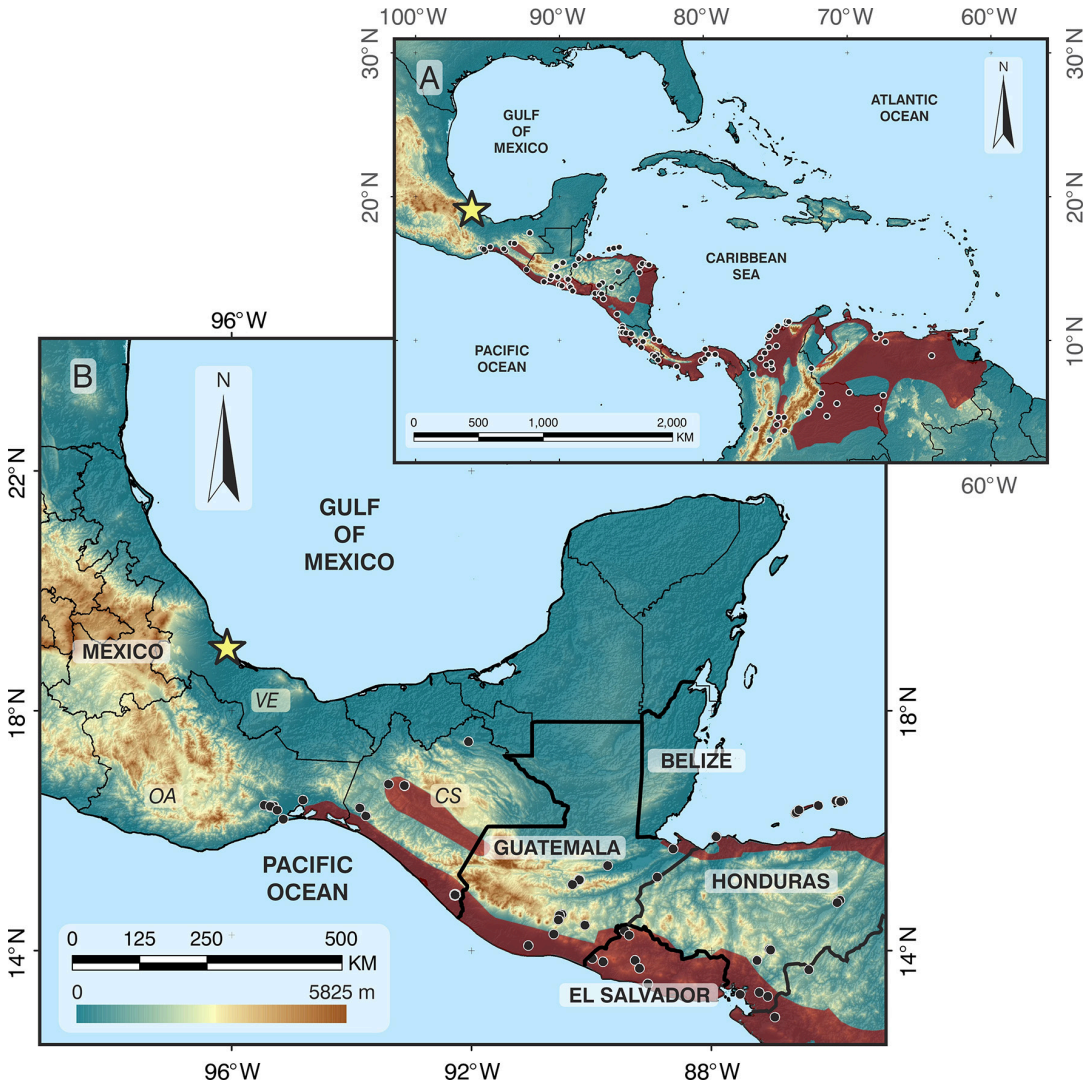

Figure 1. Range of *Gymnophthalmus speciosus* (red shading). (A) Total range in the Neotropics based on IUCN records. (B) Range around the Isthmus of Tehuantepec, including southwestern Mexico. The yellow star is the location of the new records in Veracruz State. Black circles are historical records. Relevant abbreviations for Mexican states include CS (Chiapas), OA (Oaxaca), and VE (Veracruz).

as urban and tourist development, are causing habitat fragmentation and loss of vegetation (Silva et al., 2023), which could reduce the amount of suitable habitat for the Golden Spectacled Tegu. In these municipalities, the coastal dune vegetation and other types of flooded vegetation, such as grasslands, broadleaf marshes (*popales*, characterised by *Thalia geniculata*, *Sagittaria lancifolia*, and *Pontederia sagittata*), and cattail marshes (*tulares*, dense stands of *Typha domingensis* associated with *Cyperus articulatus*), have recently been recognised for their broad ecological benefit (Moreno-Casasola et al., 2024). Included is also the habitat of Mexican endemic species considered conservation priorities, such as the glass lizard *Ophisaurus ceroni* (Casas-Andreu et al., 1996) and the coralsnake *Micrurus diastema* (Reyes-Velasco et al., 2020; Bello et al., 2021).

Some of the historical records of *G. speciosus* indicate its presence in Mexico within protected natural areas, such as the La Sepultura Biosphere Reserve in Chiapas (specimens in the Colección Zoológica Regional Herpetológica de la Secretaría de Medio Ambiente e Historia Natural). In Veracruz, its presence is likely in two protected natural areas given their proximity to the sites of our records: the Ramsar Site of the Alvarado Lagunar System (267,010 ha) and the Arroyo Moreno Protected Natural Area (308 ha).

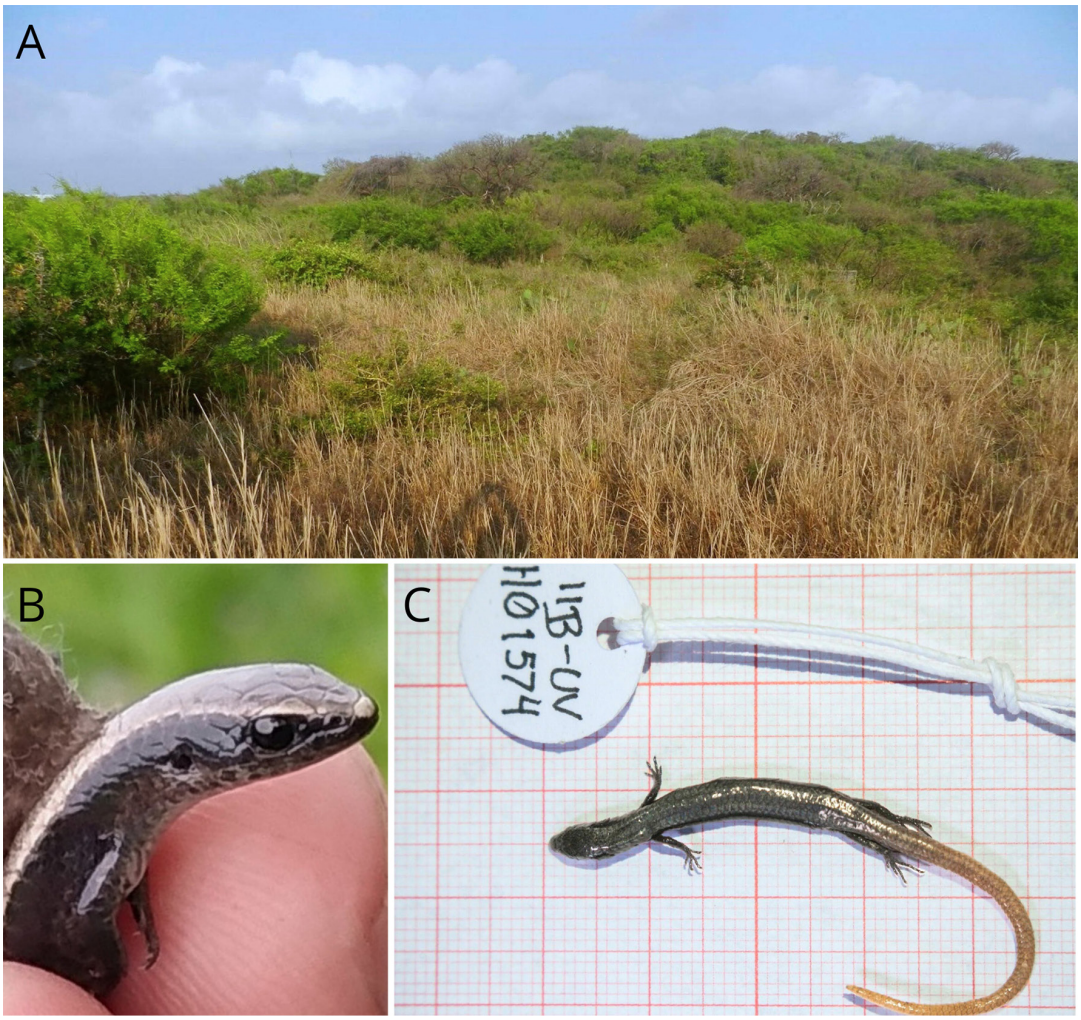

Figure 2. (A) Habitat of the Golden Spectacled Tegu, *Gymnophthalmus speciosus* in Alvarado Municipality, Veracruz, Mexico. (B) An individual captured and photographed at the locality depicted in (A). (C) A juvenile found dead in Alvarado and vouchered as CHIIB-01574. Photos by Saúl Hernández-Carmona (A), Orlando Vivanco-Montané (B), and Ahmed Bello-Sánchez (C).

Table 1. Records of Golden Spectacled Tegu (*Gymnophthalmus speciosus*) for Veracruz, including vouchers and iNaturalist observations. The land use designation is based on INEGI (2021).

Municipality	Latitude (°N)	Longitude (°W)	Vegetation	Land Use	Observation
Alvarado	19.0676	96.0767	Secondary shrub in coastal dunes	Human settlements	This study
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Alvarado	18.7116	95.5988	Coastal dune vegetation	Human settlements	92520332
Boca del Río	19.1122	96.1163	Mangroves	Mangroves	147955740
Boca del Río	19.0968	96.1089	Mangroves	Human settlements	204078546
Manlio Fabio Altamirano	19.1328	96.2953	Dry forest	Human settlements	68764964
Puente Nacional	19.3400	96.4861	Dry forest	Human settlements	31764242
Veracruz	19.1511	96.2311	Dry forest	Human settlements	233022559
Veracruz	19.1631	96.2086	Dry forest	Human settlements	205547886

In addition, its potential distribution can be assumed in other protected areas, such as the Interdunario Lagunar System in the city of Veracruz and the Dunas de San Isidro and the Tembladeras-Laguna Olmeca area, which together cover an approximate protected area of 2710 km^2. While these areas are relevant for the protection of *G. speciosus* in Veracruz, more information is needed to determine the species' habitat requirements and natural history. While our records expand the range of *G. speciosus* in Mexico, they also suggest a disjunct distribution of the species in southwestern Mexico, pending further research.

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