



Above: A male Mexican Emerald Spiny Lizard (*Sceloporus formosus*) from El Pasclar (elev. 2,300 m) in the state Guerrero. **Below:** A Black-bellied Gartersnake (*Thamnophis melanogaster*) from Lagunas de Zempoala in the state of Morelos, Mexico.

During the mid-1800's, Auguste Ghiesbreght collected numerous zoological specimens in Mexico, of which many are deposited in the Paris Natural History Museum. In the following article, the authors provide information on the identities of many of these specimens, as well as the distribution and relevant taxonomic issues for several of the species. 📷 © J. Peter Heimes



Identity, origin, and distribution of Auguste Ghiesbreght's Mexican amphibians and reptiles

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ABSTRACT: We examine and revise the distribution and identities of the herpetofaunal species collected in Mexico by Auguste Ghiesbreght between 1841 and 1853, and discuss the areas he explored during this period. The specimens, deposited in the Paris Natural History Museum (MNHN), were obtained in the mountainous Huatusco–Xalapa–Cerro Cofre de Perote region of central Veracruz (1841–1845); near Tlacolula in the coastal plain of northern Veracruz (1841, *Pituophis catenifer*); along the periphery of Mexico City (1853); and possibly in the Sierra Madre del Sur in the vicinity of Chilpancingo in central Guerrero (1853, *Sceloporus formosus*). We review the geographic distribution of these species and include their vertical limits, especially those of *Laemanctus serratus* (maximum elevations in Mexico), *S. formosus*, and *Thamnophis melanogaster*. The type material of seven taxa collected by Ghiesbreght contains one specimen of *Leptophis mexicanus* Duméril, Bibron and Duméril 1854, perhaps the lectotype. We clarify the provenance of the original series of *Conophis lineatus* (Duméril, Bibron and Duméril 1854), and restrict the type locality of *Coryphodon oaxaca* Jan 1863 (*Coluber constrictor* Linnaeus 1758) to Mata de Indio, Municipio de Totutla, in central Veracruz.

Key Words: Central Highlands, elevations, endemism, Guerrero, “Oaxaca”, taxonomy, type specimens, Veracruz

RESUMEN: Se examina y revisa la distribución e identidad de las especies herpetológicas mexicanas recolectadas por Auguste Ghiesbreght entre 1841 y 1853, así como las áreas recorridas por el explorador durante este período. Los especímenes, depositados en el Museo de Historia Natural de Paris (MNHN), fueron hallados entre Huatusco, Xalapa y la zona del Cerro Cofre de Perote en la región montañosa de Veracruz central (1841 a 1845); en los alrededores de Tlacolula en la franja costera del norte de Veracruz (1841, *Pituophis catenifer*); en las afueras de la Ciudad de México (1853); y posiblemente en la Sierra Madre del Sur cerca de Chilpancingo en Guerrero central (1853, *Sceloporus formosus*). Repasamos la distribución de estas especies e incluimos sus límites verticales, especialmente los de *Laemanctus serratus* (elevación máxima en México), *S. formosus* y *Thamnophis melanogaster*. Los especímenes tipo de siete taxones incluyen uno de *Leptophis mexicanus* Duméril, Bibron and Duméril 1854, quizás el lectotipo. Se esclarece la procedencia del material original de *Conophis lineatus* (Duméril, Bibron and Duméril 1854) y restringimos la localidad tipo de *Coryphodon oaxaca* Jan 1863 (*Coluber constrictor* Linnaeus 1758) a Mata de Indio, Municipio de Totutla, Veracruz central.

Palabras Claves: Altiplano Central, elevaciones, endemismo, especímenes tipo, Guerrero, “Oaxaca”, taxonomía, Veracruz

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INTRODUCTION

Boniface Augustin Lucien, known as Auguste Ghiesbreght (1812–1893), first came to Mexico from 1838 to 1840 as a member of a Belgian mission, accompanied by Jean Linden and Nicolas Funck. In total he spent more than 50 years in Mexico, and until the mid-1850s collected a large number of natural history specimens. Numerous plants, gastropods, amphibians, reptiles, and bird species were described based on Ghiesbreght's material, and he “was perhaps the botanist with the greatest knowledge of the flora of northern Mesoamerica during the first half of the nineteenth century” (Ossenbach, 2007: 186). Nonetheless, large periods of his life in Mexico, until his death at San Cristóbal de las Casas (Chiapas) in March of 1893, remain undocumented (Roviroso, 1889; Silvestre, 2014) and we are unaware of an existing portrait or photograph of this remarkable individual.

To earn a living, the “plant hunter” shipped botanical material, especially cacti and orchids, which later were sold by professional horticulturists in the Benelux countries. Passionate European collectors such as the banker Benjamin Delessert and the equally wealthy Hugh Cuming also purchased dry specimens, including snail shells. In time, most of these private collections were incorporated into public institutions, such as the former British Museum and the Geneva Botanical Garden. The bulk of Ghiesbreght's material, however, is deposited in the Paris Natural History Museum, which during the winter of 1840–41 commissioned the well-prepared Belgian before his departure overseas to procure scientific materials.

The exact origin of many specimens received from Ghiesbreght, including type series, often was vague and in many cases became controversial or speculative. For example, McVaugh (1972) found that numerous plants labeled “Oaxaca” actually hailed from localities in other Mexican states, and after examining all of the available evidence Schätti et al. (*In Press*) concluded that Ghiesbreght did not collect any botanical or zoological material from the state of Oaxaca.

In this study we address a series of highly interesting specimens of amphibians and reptiles (“un certain nombre de Reptiles fort intéressants”; Duméril et al., 1854a: 238) acquired from “M. Ghiesbreght” between 1842 and 1854, which constitute nearly all of the specimens that remain of his herpetological legacy. Recently, Schätti et al. (*In Press*) reported on two shipments from “Oaxaca” (1842, 1845), but no serious efforts have been made to clarify the actual origins of the “Mexique” shipments (1844, 1854), including certain type material. In an attempt to elucidate these matters, we investigated the travels of Ghiesbreght during the corresponding years, and compare our results to the verified distributional ranges of the properly identified species.

PRESENTATION AND REFERENCES

The information we present in this study primarily involves Ghiesbreght's itineraries and collections within a well-defined area of central Mexico, located between latitudes ca. 17°N along the Pacific in the vicinity of Acapulco and ca. 21°N near Tlacolula on the coastal plain of northern Veracruz (Fig. 1). We used reliable distributional data, including vertical ranges, for all the identified species. For the sake of brevity, but also for completeness, we provide additional information at the end of this paper to help the reader understand certain complex issues or controversies (Notes 1–14). These remarks include distributional information (e.g., elevations), obscure and dubious literature records, specific extralimital data, as well as explanations relating to institutions or collection, such as “in-house” details and taxonomic intricacies. After carefully analyzing these topics, we compiled an extensive bibliography; herein, however, we only provide the significant references. Where necessary, we consulted the original sources for the regional distribution of species in the Central and Southern Highlands and adjacent areas. We investigated the entire geographic range of the Mexican Black-bellied Gartersnake (*Thamnophis melanogaster*) from the northern

portion of the Sierra Madre Occidental to the Transverse Volcanic Belt. In the case of this species and the Mexican Emerald Spiny Lizard (*Sceloporus formosus*), we incorporate reliable data for preserved specimens in institutional collections accessible at <www.idigbio.org/portal>.

To avoid confusion, throughout the text we distinguish references to the original description of taxa by omitting a comma between the author name(s) and the year of publication, and use the comma in standard literature citations.

MATERIAL AND TERMINOLOGY

Fifty-one specimens of amphibians and reptiles from unspecified localities in “Mexico,” or erroneously from the state of “Oaxaca” (see Introduction), were obtained by Auguste Ghiesbreght and arrived in four shipments; the specimens were recorded in the Catalogue of Acquisitions n° 41 of the Lower Vertebrate section of the Muséum National d’Histoire Naturelle (MNHN) between August of 1842 and April of 1854 (p. 47: 1842; p. 71: 1844; p. 91: 1845, 1854). At least 22 valid species, viz., two anurans, three salamanders, eight lizards, and nine snakes were included in these shipments.

While searching for the Ghiesbreght material in the MNHN collections, we encountered 26 specimens (Table 1: nine amphibians, nine lizards, and eight snakes; Schätti et al., *In Press*), including the type material of *Leptophis mexicanus* and *Pituophis mexicanus*, which cannot be unambiguously identified (see Types and Taxonomy). Four species of *Sceloporus* from the 1854 shipment might be present among the MNHN-RA 2520–22 and/or 2525–26 series, which lack collecting data, as well as any reference to Ghiesbreght (Ivan Ineich, *in litt.*, December 2016). We could not locate a specimen of *Sceloporus torquatus* (MNHN-RA 6045) and 20 specimens lacked verified accession numbers, including eight *Ambystoma mexicanum*, one unknown bufonid (*Bufo* sp.), one unknown teiid (*Aspidoscelis* sp.), two *Barisia imbricata*, one *Ctenosaura acanthura*, one *Sceloporus* sp. *incertae sedis* (1844 shipment), and six unidentified conspecific natricids (*Thamnophis* sp.). Some missing vouchers might be misplaced, but others probably have been lost or were destroyed. [Note 1]

Aquiloerycea cephalica auct. is a species complex (Parra-Olea et al., 2010; Frost, 2017). We adhere to Zaldivar-Riverón et al. (2005) or Bryson and Riddle (2012) in treating the *Barisia imbricata-ciliaris* complex (including *B. i. ciliaris* Smith 1942c) as conspecific, and refer to the nominotypical subspecies auct. (south of latitude ca. 21°N, Table 2, see Note 2) as *B. imbricata*, excluding *B. [i.] jonesi* Guillette and Smith 1982 from the Sierra de Coalcomán in southwestern Michoacán. The species boundaries within the *Sceloporus grammicus* group are obscure (e.g., Auth et al., 2000; Lara-Góngora, 2004; Hammerson et al., 2007). The systematics of certain Mexican representatives of the milksnake genus *Lampropeltis* Fitzinger 1843 is far from clear, and the allocation of a “*Coronella* spec. nov.” recorded in 1842 (p. 47, entry n° 3) as *L. cf. polyzona* is explained elsewhere (Schätti and Stutz, 2016: nota 20; Schätti et al., *In Press*; see, e.g., Woolrich-Piña et al., 2017). We indicate the complete authorship (including the year, see Presentation and References) of the species-group names, except for *Barisia imbricata* (see above), in Table 1, Notes 2 and 9 (*Sceloporus formosus* and *Thamnophis melanogaster*), or under Types and Taxonomy (synonyms and names of nomenclatural relevance). We compiled the distributional data and the pertinent references used to elaborate the ranges and locality records (in Fig. 2) or elevations (in text) in Table 2 (also, see Appendix 1, and Notes 2 and 8–10). [Note 2]

The Plateau denotes the Mexican Highlands, a region of vast elevated plains separated by mountain ridges and situated between the coastal cordilleras from the southern border of the United States southward to the Oaxaca Valley. The Central Plateau, or Central Highlands, encompasses the area from the Lower Río Grande de Santiago in Nayarit (Aguamilpa area) eastward through the southern portions of Zacatecas and San Luis Potosí, and southward roughly along latitude 19°N, i.e., the section of the Transverse Volcanic Belt that extends from the Colima volcanoes to the Pico de Orizaba range beyond the southern confines of the Sierra Madre Oriental. For the purposes of this study, the Lower Huasteca is the region with elevations up to approximately 1,500 m within the Río Moctezuma (Pánuco) drainage in northern Hidalgo, northeastern Querétaro, and southeastern San Luis Potosí. In the context of vertical distribution, we regard “moderate” as elevations between 1,000 and 1,500 m, “high” as elevations from 1,500 to 3,500 m, and “alpine” as elevations above 3,500 m. “Gulf” stands for the Gulf of Mexico, and “Isthmus” for the Isthmus of Tehuantepec. We obtained all of our geodetic positions from <www.geonames.org> and indicate them in sexagesimal format. In certain cases, we verified the elevational data by using 1:50,000 topographical maps issued by the Instituto Nacional de Estadística, Geografía e Informática (INEGI).

Table 1. MNHN amphibians and reptiles collected by Auguste Ghiesbreght between 1841 and 1853 (recorded as 1842–1854) in Mexico (“Mexico”) including “Oaxaca” (taxon preceded by an asterisk). The scientific name and accession number and accession number (status or verbatim entry in Catalogue of Acquisitions n° 41, if appropriate), is followed by the year of registration, and remarks.			
	Identity	Date	Early Citation(s) Pertaining to Ghiesbreght Specimens and Comments
Anura, Caudata	<i>Ambystoma mexicanum</i> (Shaw and Nodder 1798): MNHN-RA 4774–75	1854	Brocchi (1883: 106): <i>Ambystoma</i> [sic] <i>mexicanum</i> (coll. “Ghussbreght”)
	<i>Aquiloerycea cephalica</i> (Cope 1865): MNHN-RA 6396 (♀ holotype of <i>Spelerpes sulcatum</i> Brocchi 1883)	1854	Brocchi (1883: 112, plate 20.2): “Mexico par M. Ghuisbreght” Dunn (1926: fig. 60, map): “Oaxaca,” see Note 14
	“ <i>Bufo americanus</i> ” (catalogue name): ?	1854	Unidentified toad (<i>Bufo</i> sp.)
	* <i>Pseudoeurycea gadovii</i> (Dunn 1926): MNHN-RA 4749 (5 ex.)	1842	Duméril et al. (1854c: 93, plate 104): <i>Bolitoglossa Mexicana</i> [sic] <i>Nob.</i> (“province d’Oaxaca au Mexique, par M. Ghuisbreght”), see Plate 2
	* <i>Smilisca baudinii</i> (Duméril and Bibron 1841): MNHN-RA 4799	1842	Brocchi (1881: 30): <i>Hyla Baudini</i> [sic]
	<i>Barisia imbricata</i> (Wiegmann 1828): ? (2 ex., one per shipment)	1844	Duméril and Duméril (1851: 143): “ <i>G. [errhonotus]</i> [...] <i>Lichenigerus</i> [sic] <i>Wagler</i> ”
	“ <i>Cnemidophorus sex-lineatus</i> ” (catalogue name): ?	1854	1854 shipment: <i>Gerrhonotus imbricatus</i> (Cat. entry n° 6)
	<i>Ctenosaura acanthura</i> (Shaw 1802): ?	1844	<i>Aspidoscelis</i> sp. other than <i>A. sexlineata</i> (Linnaeus 1766), see Note 13 Duméril and Duméril (1851: 64): “ <i>C. [yclura]</i> [...] <i>Acanthura</i> [sic] <i>Gray</i> ”
	* <i>Laemantus serratus</i> Cope 1864: MNHN-RA 2094	1845	Duméril and Duméril (1851: 55): <i>L. [æmanctus]</i> [...] <i>Longipes</i> [sic] <i>Wiegmann</i> 1834
	<i>Sceloporus formosus</i> Wiegmann 1834: ?	1854	see Note 1
Sauria	(*) <i>Sceloporus grammicus</i> Wiegmann 1828: MNHN-RA 3152 (6 ex.) and ? (2 ex.)	1842	Duméril and Duméril (1851: 77): “ <i>Tr. [opidolepis]</i> [...] <i>Microlepidotus</i> [sic] <i>Dum. Bib.</i> ”
	<i>Sceloporus torquatus</i> Wiegmann 1828: MNHN-RA 6045	1854	1854 shipment (Cat. entry n° 4), see Note 1 Specimen unlocated
	* <i>Sceloporus variabilis</i> Wiegmann 1834: MNHN-RA 3056 (2 ex.)	1842	Duméril and Duméril (1851: 77): “ <i>Tr. [opidolepis]</i> [...] <i>Variabilis</i> ” [sic]
	<i>Sceloporus</i> sp. <i>incertae sedis</i> : ? (2 ex.)	1844	“ <i>Tropidolepis undulatus</i> ” (Bosc and Daudin in Sonnini and Latreille 1801), see Material and Terminology incl. Notes 1 (1854 shipment) and 13
	* <i>Coluber constrictor</i> (Linnaeus 1758): MNHN-RA 7378 (♂ holotype)	1842	Duméril et al. (1854a: 183): <i>Coryphodon Constrictor</i> [sic] <i>Nobis</i> (“Oaxaca”); Jan (1863: 63): <i>C. [oryphodon] oaxaca</i> (“Messico”); see Types and Taxonomy, Conclusions
	* <i>Conopsis lineatus</i> (Duméril, Bibron and Duméril 1854b): MNHN-RA 3740 (syntype)	1845	Duméril et al. (1854b: 936, plate 73): <i>Tomodon lineatum Nobis</i> (“Mexico”); Jan and Sordelli (1866: plate 6.3, “Musée de Paris”); see Types and Taxonomy, Note 4, and Plate 1
	* <i>Lampropeltis</i> cf. <i>polyzona</i> Cope 1860: MNHN-RA 0419	1842	Duméril et al. (1854a: 621): <i>Coronella dolita</i> “Holbrook” (Linn. 1766) [nomen suppr.]
	* <i>Leptophis mexicanus</i> Duméril, Bibron and Duméril 1854a: MNHN-RA 3453 or 3455 (♀ lectotype or paralectotype)	1845	Duméril et al. (1854a: 536): <i>Leptophis mexicanus Nobis</i> (“Mexico”) see Types and Taxonomy, Note 5
	* <i>Pituophis catenifer</i> (Blainville 1835): ? MNHN-RA 3188 (♂ syntype of <i>P. mexicanus</i> Duméril, Bibron and Duméril 1854a)	1842	Duméril et al. (1854a: 236, plate 62): <i>Pituophis mexicanus Nobis</i> (“Mexico [...] Ghuisbreght”), see Types and Taxonomy incl. Notes 6–7, Conclusions
	* <i>Sibon dimidiatus</i> (Günther 1872): MNHN-RA 7297	1842	Duméril et al. (1854a: 464, 468): <i>Petalognathus nebulatus</i> (Linnaeus 1758) “Variété D”
Serpentes	<i>Tantilla deppii</i> (Bocourt 1883): MNHN-RA 0054 (♂ lectotype)	1854	Bocourt (1883: 584, plate 36.11): <i>Homalocranion Deppii</i> [sic] Lectotype designation as <i>H. “deppeii”</i> [sic] (Wilson and Meyer, 1981)
	<i>Thamnophis melanogaster</i> (Peters 1864): MNHN-RA 7321 (paralectotype of <i>Tropidonotus mesomelanus</i> Jan 1863)	1854	Lectotype of <i>Tropidonotus mesomelanus</i> Jan see Note 3
	* “ <i>Tropidonotus saurita</i> ” (catalogue name): ? (6 ex. incl. skull)	1842	Duméril et al. (1854a: 585): <i>Tropidonotus saurita</i> (Linnaeus 1758) Unidentified gartersnake species (<i>Thamnophis</i> Fitzinger 1843)



Fig. 1. Localities and geomorphological features indicated in the text (also, see Fig. 2). The solid symbols denote places visited by Auguste Ghiesbreght (including potential localities in Guerrero). The gray area specifies the region in central Veracruz, the southern portion of the Sierra Madre Oriental, and the Pico de Orizaba range explored by the collector until 1844 or 1845. Map courtesy of Andrea Stutz.

Hereafter, we use “AG” for Auguste Ghiesbreght, and “Cat.” refers to the Catalogues of Acquisitions n° 41 (see above) and 42 (*Conophis lineatus*, see Types and Taxonomy including Note 4) in the former Herpetology and Ichthyology Department of the Paris Museum, which covers the period from 1839 to 1864. In addition to MNHN, other institutional acronyms are as follows: CAS (California Academy of Sciences, San Francisco); ENCB (Escuela Nacional de Ciencias Biológicas, Instituto Politécnico Nacional, Mexico City); IBUNAM (Instituto de Biología, Universidad Autónoma de México [UNAM, Colección Nacional de Anfibios y Reptiles CNAR], Mexico City); LVT (Las Vegas Tissue Collection); MCZ (Museum of Comparative Zoology, Harvard University, Cambridge); MZFC (Museo de Zoología, Facultad de Ciencias, UNAM, Mexico City); NMW (Naturhistorisches Museum, Wien); RMNH (Nationaal Natuurhistorisch Museum, Leiden, former Rijks Museum voor Natuurlijke Historie); UCM (Museum of Natural History, University of Colorado, Boulder); UIMNH (University of Illinois Museum of Natural History, integrated into Illinois Natural History Survey [INHS] collections, Champaign); USNM (National Museum of Natural History [Smithsonian Institution] or United States National Museum, Washington); and UTEP (The University of Texas at El Paso Biodiversity Collections).

RESULTS

Types and Taxonomy

We located at least six out of the seven name-bearing types described from the material collected by AG and deposited in the MNHN collection (Table 1, see *Pituophis mexicanus*). Four recognized snake species are as follows: *Coryphodon* [*Coluber constrictor* Linnaeus] *oaxaca* Jan 1863 (♂ holotype), *Leptophis mexicanus* Duméril, Bibron and Duméril 1854 (♀, see below), *Homalocranium* [*Tantilla*] *deppii* Bocourt 1883 (♂ lectotype), and *Tomodon* [*Conophis*] *lineatum* Duméril, Bibron and Duméril 1854 (syntype). *Spelerpes sulcatum* Brocchi 1883 (♀ holotype) is a junior synonym of the plethodontid salamander *Aquiloeuerycea cephalica* (Cope 1865). *Tropidonotus mesomelanus* Jan 1863 (paralectotype) actually is a subjective senior synonym of the gartersnake *Thamnophis melanogaster* (Peters 1864). [Note 3]

The holotype (MNHN-RA 7378) of *Coryphodon oxaca* Jan, originally reported from the homonymic Mexican state (Table 1), was collected in 1841 or early 1842 and recorded as “*Psammophis* ?” (Cat. 41, entry n° 7, 1842), the only taxon within the shipment that agrees with the general aspects of the Nearctic racer genus *Coluber* Linnaeus 1758 (type species *C. constrictor*). Contemporaneous examples for the use of *Psammophis* auct. for *Coluber* L. are Holbrook's (1842) account of *P. flagelliformis* (Daudin 1803) or *P. flavigularis* Hallowell 1852 (*Coluber* [*Masticophis* auct.] *flagellum* Shaw 1802). Smith and Taylor (1950: 337) accepted the type locality of “*Coluber oxaca*” in the state of Oaxaca (“no definite locality”), as indicated by Duméril et al. (1854a), because of “a reasonable possibility [that] the type [...] may have been secured” there (op. cit.: 314; see Table 1, Distribution, Discussion, and Conclusions).

Based on Smith and Taylor's (1945) assumption of the existence of a single original specimen (the “Type”), Wellman (1963) designated MNHN-RA 3738 as the holotype of *Conophis lineatus* (Duméril, Bibron and Duméril). This species was described from at least two vouchers (precise number unknown), of which Wallach et al. (2014) assigned lectotype status on MNHN-RA 3738. Their provenance (coll. “A. Ghiesbreght & F. Schlumberger”) relies on Bocourt (1876, 1886), who supposedly had three specimens from these collectors at hand. The single “Schlumberger” specimen (MNHN-RA 3738 or 3739), however, was incorporated into the collection in March of 1859 (Cat. 42, p. 92, entry n° 8), five years after the species was described (see Plate 1). Wellman's (1963) taxonomic act was implemented without having seen the specimen(s) or crediting the Paris curator (Jean Guibé), who provided the data, but his designation might be incorrect. Consequently, we refer to MNHN-RA 3740 (coll. AG) as a syntype of *Tomodon lineatum* Dum., B. and D. (Table 1). [Note 4]

Smith and Taylor (1950) restricted the type locality of *Tomodon lineatum* Duméril, Bibron and Duméril (“du Mexique”) to the city of Veracruz, a decision that perhaps should be revisited in view of the probable origin of AG's “Oaxaca” syntype (MNHN-RA 3740, Cat. 41, entry n° 3, 1845), i.e., from the same general area in upland central Veracruz as nearly all of the herpetofaunal specimens gathered by this collector until 1845 (Fig. 1, see Discussion, Conclusions, and Note 8).

Leptophis mexicanus Duméril, Bibron and Duméril was described upon MNHN-RA 3453 and 3455 from “Mexique.” Both specimens lack further collecting data and were received through the museum's “[a]dministration.” AG's “*Dendrophis* ?” in the 1845 shipment, originally recorded from “Oaxaca” (Cat. 41, entry n° 2), undoubtedly is one of the former syntypes. Smith and Taylor (1950: 350, as *Thalerophis m. mexicanus*) restricted the type locality of *L. mexicanus* Dum., B. and D. to Potrero Viejo (Amatlán de los Reyes Municipality, Fig. 1) in Veracruz, and Mertens (1973) selected MNHN-RA 3455 as the lectotype. His ventral and subcaudal counts for this female (167 and 146, respectively) and the paralectotype (MNHN-RA 3453, ♀: 169, 163) obviously differ from the data reported in Duméril et al. (1854a: 537), i.e., 157–169 and 138–154, respectively. [Note 5]

The description of *Pituophis mexicanus* Duméril, Bibron and Duméril is based on various specimens (precise number unknown) from unspecified localities and received from several unnamed travelers (“envoyée du Mexique par plusieurs voyageurs”) including “Ghuisbreght” (Duméril et al., 1854a). His syntype arrived at the Paris collection in 1842 as “*Lycodon* ?” (Cat. 41, entry n° 4), and Schätti et al. (*In Press*) associated the specimen with MNHN-RA 3188, but only circumstantial evidence links this “Anasime méxicain” (Duméril et al., 1854a) to AG. [Note 6]

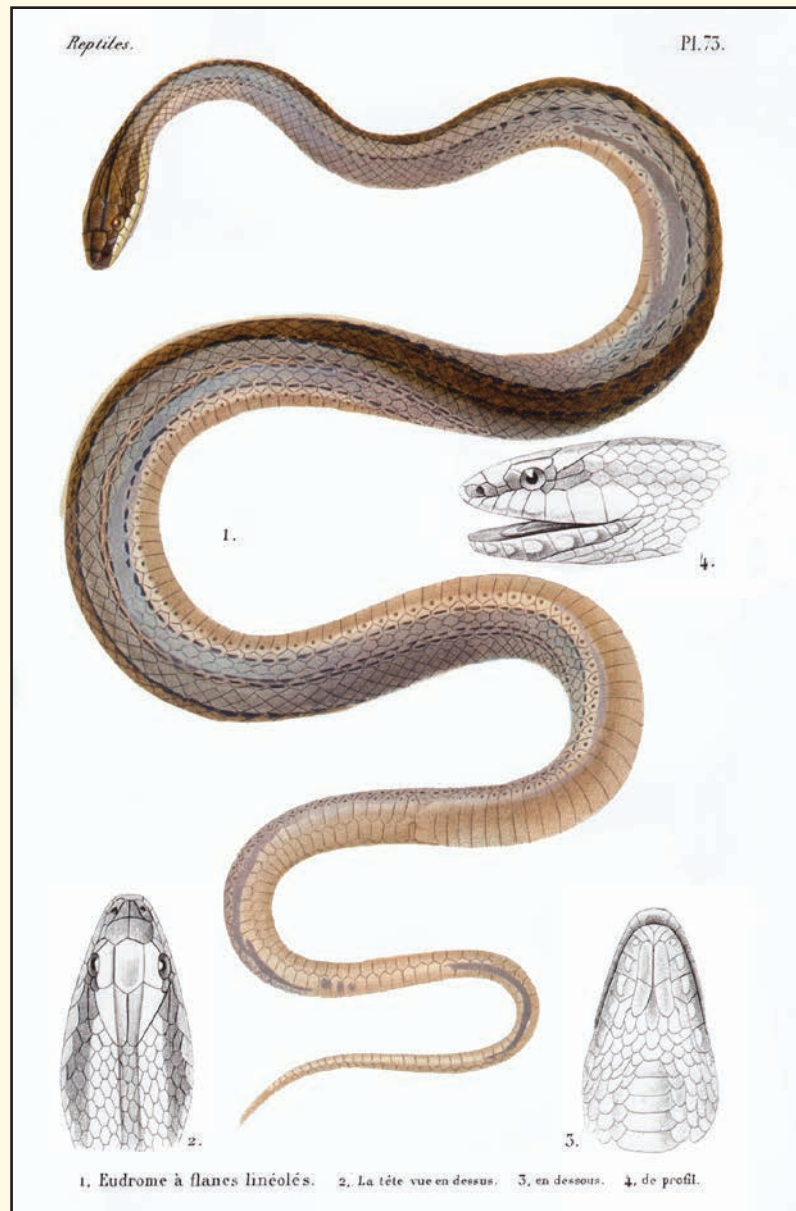


Plate 1. *Conophis lineatus* (Duméril, Bibron and Duméril 1854). An illustration of *Tomodon lineatum* (♂) accompanying the original description (Duméril et al., 1854c: plate 73), which perhaps shows Auguste Ghiesbreght's specimen (MNHN-RA 3740). Bocourt's (1886: plate 38.5) reproduction of a *Conophis lineatus* might rely on a different syntype. A "*T.[omodon] lineatus*" [sic] ("Mexique. – Musée de Paris") in Jan and Sordelli (1866: plate 6.3) with eight instead of seven supralabials probably depicts MNHN-RA 3738 or 3739, which was received from Henri D. Schlumberger in 1859.

Pituophis mexicanus Duméril, Bibron and Duméril 1854 is a junior synonym of *Coluber sayi* Schlegel 1837 (Boulenger, 1894; Stull, 1940), i.e., the Nearctic *C. [Pituophis] catenifer* Blainville 1835 (e.g., Bryson et al., 2011; Wallach et al., 2014; see Note 6). *R.[hinechis] mexicanus* Duméril 1853 is a nomen nudum, and *P. mexicanus* Dum., B. and D. has not been used as a valid name after 1899, and thus qualifies for a nomen oblitum. Smith and Taylor (1950) restricted the type locality of this taxon to Sabinas Hidalgo (26°30'12"N, 100°10'54"W) in northern Nuevo León.

The type series of *Pituophis mexicanus* (see above, including Note 6), for example, shows 229–239 ventrals, 9 supralabials (5th in contact with orbit), and usually 4, sometimes ("parfois") 2, and once 3 prefrontals (Duméril et al., 1854a: 237). This condition (right plate divided) is found in MNHN-RA 3188, which measures slightly over 2 m in total length (snout–vent length = 1,780 mm, tail length = 221 mm), and probably is the largest syntype mentioned

(“Un sujet qui a 2^m,064 de long”) and the only one housed in the Paris Museum today. This male specimen, however, contains a greater number of ventrals (241 plus 2 preentrals) than indicated in the original description of this taxon. [Note 7]

DISTRIBUTION

Based on their geographic and elevational ranges, 19 verified species of amphibians (three salamanders, one hylid frog) and reptiles (seven lizards, eight snakes; Table 2) attributed to AG can be classified as follows: *Conophis lineatus* (vertical range disputed); *Leptophis mexicanus* (maximum elevation ca. 1,600 m, McCranie, 2011); *Sceloporus variabilis* (ca. 2,500 m); *Sibon dimidiatus* (ca. 1,600 m; op. cit.); and the tropical lowland *Smilisca baudinii*. All of these are wide-ranging species found from near sea level (nsl) to moderate or higher elevations (if data sources not specified, see Table 2). [Note 8]

Coluber constrictor is distributed throughout the southern Nearctic Region into Mesoamerica. This species has been recorded at an elevation close to 2,000 m (Sierra del Carmen, Coahuila) on the Northern Mexican Plateau, and it occurs along the western Gulf lowlands (nsl to at least 1,000 m) through Chiapas (few records) to Guatemala (Petén). *Lampropeltis* cf. *polyzona* possibly shows a similar southern distributional limit, and might be a largely Mexican or northwestern Mesoamerican taxon. The southwestern Nearctic *Pituophis catenifer*, found at elevations that approach 2,900 m (Wallach et al., 2014), ranges into Mexico all along the border with the United States (Baja California, the northern Pacific coast, the Northern Plateau southward to Nayarit [*vide* Heimes, 2016], and the western Gulf area). Populations in the vicinity of the city of Veracruz (nsl) are considered introduced (Pérez-Higareda, 1981). The southernmost reported collecting sites for native populations are in northern Veracruz (Bryson et al., 2011: fig. 2), likely as far south as ca. latitude 21°17'N (Soriano-Arista, 2007: table 1, “*P. melanoleucus sayi*”; see Conclusions and Note 6).

The Mesoamerican *Laemanctus serratus* (nsl to ca. 1,100 m, see Note 8) shows a disjunct distribution. The Gulf population (southern Tamaulipas to central Veracruz, including Lower Huasteca) is separated from those in the Grijalva drainage (Central Depression of Chiapas) to the border with Guatemala, on the Yucatan Peninsula, including extreme northern Belize (Corozal District), and in Honduras (Wilson and Johnson, 2010).

Three amphibian and seven reptile species (coll. AG) are Mexican endemics. Among these, *Ctenosaura acanthura* is the only one that inhabits low elevations. This species is known to occur from sea level to approximately 1,000 m (Johnson et al., 2010; see Note 8) in the western Gulf region, along the Grijalva drainage to the border region and into Guatemala, and through the Isthmus to the Pacific coast (Tehuantepec Plain). *Sceloporus formosus* (elev. ca. 1,100–2,900 m; max. elev. 3,450 m *vide* Flores-Villela et al., 2010) is recorded from the Xalapa area (Veracruz; re-restricted type locality, Smith and Pérez-Higareda, 1992; formerly Acultzingo, Smith and Taylor, 1950) and the vicinity of Tepeyahualco (Puebla, MZFC 7817; www.idigbio.org) along the southernmost portion of the Sierra Madre Oriental. This pine-oak forest inhabitant also occurs in western Oaxaca (possibly approaching extreme southern Puebla) southeastward to the Cerro Piedra Larga area (Townsend-Peterson et al., 2004), which is located beyond the confines of the Mexican Highlands. The distribution of this species extends to the Pacific versant of the Sierra Madre del Sur, and supposedly includes allopatric populations (see Note 2) in central Guerrero. [Note 9]

Sceloporus grammicus (elev. ca. 1,600–4,100 m, see Note 8) occurs on the Central and Southern Plateau and the Sierra Madre del Sur, whereas *S. torquatus* (elev. ca. 1,500–3,000 m *vide* Hall, 1973; max. elev. 3,200 m *vide* Flores-Villela et al., 2010) has not been reported south of the Transverse Volcanic Belt (Fig. 2).

Thamnophis melanogaster is known to occur on the northern edge of the Sierra Madre Occidental in Sonora along the northwestern Chihuahua border, on the northern part of the Sierra Tarahumara (elev. ca. 1,000–2,250 m), and is found in disjunct populations on the Plateau from the Durango–Chihuahua border to near the limits of the Central Highlands roughly west of Tlaxcala, at elevations up to about 3,000 m (Fig. 2A). [Note 10]

The Imbricate Alligator Lizard, *Barisia imbricata* (Fig. 2B), usually occurs at elevations from 2,100 m to, approximately 4,000 m, but occasionally is found in habitats below 1,500 m (see Material and Terminology, Note 2). The distribution of this species extends from north of Volcán de Tequila in northwestern Jalisco (*B. i. imbricata sensu* Bryson and Riddle, 2012; including Cerro La Magdalena area *vide* Guillet and Smith, 1982: 31, fig. 4) along the Transverse Volcanic Belt and to northern Hidalgo, into adjacent Veracruz (Sierra Madre Oriental), and through the Southern Highlands eastward to the Zempoaltepec range that separates the Oaxaca Valley from the Isthmus.

Table 2. Distribution of 19 properly identified species of Mexican amphibians and reptiles (coll. AG 1841–1853) deposited in the MNHN, including four lizards (preceded by an asterisk) not documented by specimens (see Material and Terminology, Discussion, and Notes 2 and 9–10). Figures referenced in this paper are in **bold**.

Taxon	Distribution and Comments
<i>Ambystoma mexicanum</i>	Lake Chalco (Mexico City–México border, disappeared), Xochimilco canals (Mexico City, on brink of extinction, Contreras et al., 2009): Fig. 2B
<i>Aquiloerycea cephalica</i>	E state of México, México City, border area in Morelos and Tlaxcala, northern Puebla, adjacent Veracruz, Hidalgo (excl. W), N Querétaro, S Tamaulipas (Dixon et al., 1972; Vega-López and Alvarez, 1992; Parra-Olea et al., 1999, 2010; Uribe-Peña et al., 1999, 2010; Gillingwater and Patrikeev, 2004; Gutiérrez-Mayén and Salazar-Arenas, 2006; Farr et al., 2009; Dixon and Lemos-Espinal, 2010; Ramírez-Bautista et al., 2009, 2010, 2014; Fernández-Badillo and Goyenechea-Mayer-G., 2010; Huitzil-Mendoza and Goyenechea-Mayer-G., 2011; Badillo-Saldaña et al., 2015; Lemos-Espinal and Dixon, 2016; Woolrich-Piña et al., 2017: table 19): Fig. 2A (see Note 2)
* <i>Barisia imbricata</i>	Colima, W Jalisco and N Michoacán through S Querétaro to N Hidalgo and montane central Veracruz, southeast to México–Guerrero–Morelos border triangle and Puebla (except SW) to Mt. Zempoaltepec (Tihen, 1949; Guillet and Smith, 1982; Auth et al., 2000; Castro-Franco and Zagal, 2003; Navarro-López et al., 2003; Zaldivar-Riverón et al., 2005; Reyes-Velasco et al., 2009; Bryson and Riddle, 2012): Fig. 2B (see Note 2)
<i>Coluber constrictor</i>	S Nearctic, Atlantic NW Mesoamerica (S Canada to Guatemala); Coahuila and Durango southeast along Gulf to Chiapas (absent from Oaxaca or Yucatan Peninsula in Mexico) and through Belize into Guatemala (Wilson, 1966, 1978)
<i>Conopsis lineatus</i>	Mesoamerica (S Mexico to Costa Rica); S Tamaulipas to Yucatan Peninsula, Chiapas, Central Isthmus, and possibly Tehuantepec Plain (Wallach et al., 2014; Jalisco, Querétaro or Hidalgo records in error; W Isthmus <i>vide</i> Mata-Silva et al., 2015: table 4)
* <i>Ctenosaura acanthura</i>	S Tamaulipas along Gulf (Veracruz, inland to SE San Luis Potosí, NE Hidalgo, extreme SE Puebla) through Chiapas (Central Depression) into Guatemalan border area (Stephen, 2011), Central Isthmus and Tehuantepec Plain (Mata-Silva et al., 2015: table 4)
<i>Laemanctus serratus</i>	Atlantic Mesoamerica (absent from most of Belize and Guatemala; south to Honduras, Solís et al., 2014); S Tamaulipas to central Veracruz (incl. Lower Huasteca or adjacent Puebla), Chiapas (Central Depression) incl. Guatemalan borderland, Yucatan Peninsula (McCranie and Köhler, 2004)
<i>Lampropeltis cf. polyzona</i>	Distribution unclear due to disputed species concepts, taxon may occur in Guatemala, and possibly in contiguous Mesoamerica
<i>Leptophis mexicanus</i>	Mesoamerica (E and S Mexico to Costa Rica); Nuevo León, S Tamaulipas and along Gulf (incl. Lower Huasteca, Puebla) to Yucatan Peninsula, Isthmus, Chiapas (Camarillo-R., 1995; Dixon and Lemos-Espinal, 2010; Lemos-Espinal and Dixon, 2013; Nevárez-de los Reyes et al., 2017)
<i>Pituophis catenifer</i>	SW Nearctic (incl. SW Canada, W United States); Baja California, south to Sinaloa and Zacatecas, N Veracruz (Bryson et al., 2011: fig. 2; see text)
<i>Pseudoeurycea gadovii</i>	La Malinche, Pico de Orizaba range, and Mount Cofre de Perote area (Solano-Zavaleta et al., 2009; Parra-Olea et al., 2010)
* <i>Sceloporus formosus</i>	Montane central Veracruz and adjacent Puebla; Oaxaca Highlands to Mt. Zempoaltepec area and Pacific versant of Sierra Madre del Sur incl. east-central Guerrero (Smith, 1939, 1984; Davis and Dixon, 1961; Flores-Villela et al., 1991; Canseco-Márquez and Gutiérrez-Mayén, 2005, 2010; Auth et al., 2000; Pérez-Ramos and Saldaña-de la Riva, 2008; Ramírez-Bautista and Pavón, 2009; García-Mares, 2013): Fig. 2A (see Note 9)
<i>Sceloporus grammicus</i>	Jalisco to Hidalgo and Veracruz, through Morelos to central Oaxaca and along Sierra Madre del Sur into Guerrero: Fig. 2B (see Note 2)
* <i>Sceloporus torquatus</i>	W Jalisco to E Durango, S Nuevo León and SW Tamaulipas, south to N Morelos and Puebla, N central Veracruz west of Toxtlacuaya (Smith, 1936; Olson, 1990; Vega-López and Alvarez, 1992; Ramírez-Baut. et al., 2010; Lemos-Espinal and Dixon, 2013; Magno-Benítez et al., 2016): Fig. 2A
<i>Sceloporus variabilis</i>	Mesoamerica (S Texas to NW Costa Rica); along Gulf through Isthmus, absent from Yucatan Peninsula (Mather and Sites, 1985)
<i>Sibon dimidiatus</i>	S Mexico and Central America; N Veracruz along Gulf (absent from Tabasco and Yucatan Peninsula in Mexico) and Chiapas (Kofron, 1990)
<i>Smilisca baudinii</i>	Mexico (incl. extreme S Texas) to Panama; Pacific coast and along Gulf to Yucatan Peninsula (Duellman, 2001: incl. fig. 287)
<i>Tanilla deppii</i>	Guerrero (Río El Salitre), México (Chalma), N Morelos, W Oaxaca Highlands (Camarillo-Rangel, 1983; Wilson and Mata-Silva, 2014): Fig. 2B
<i>Thamnophis melanogaster</i>	Upper Río Bavispe (NE Sonora) to N Sierra Tarahumara (W Chihuahua) and NW Durango to E state of México: Fig. 2A (see Note 10)

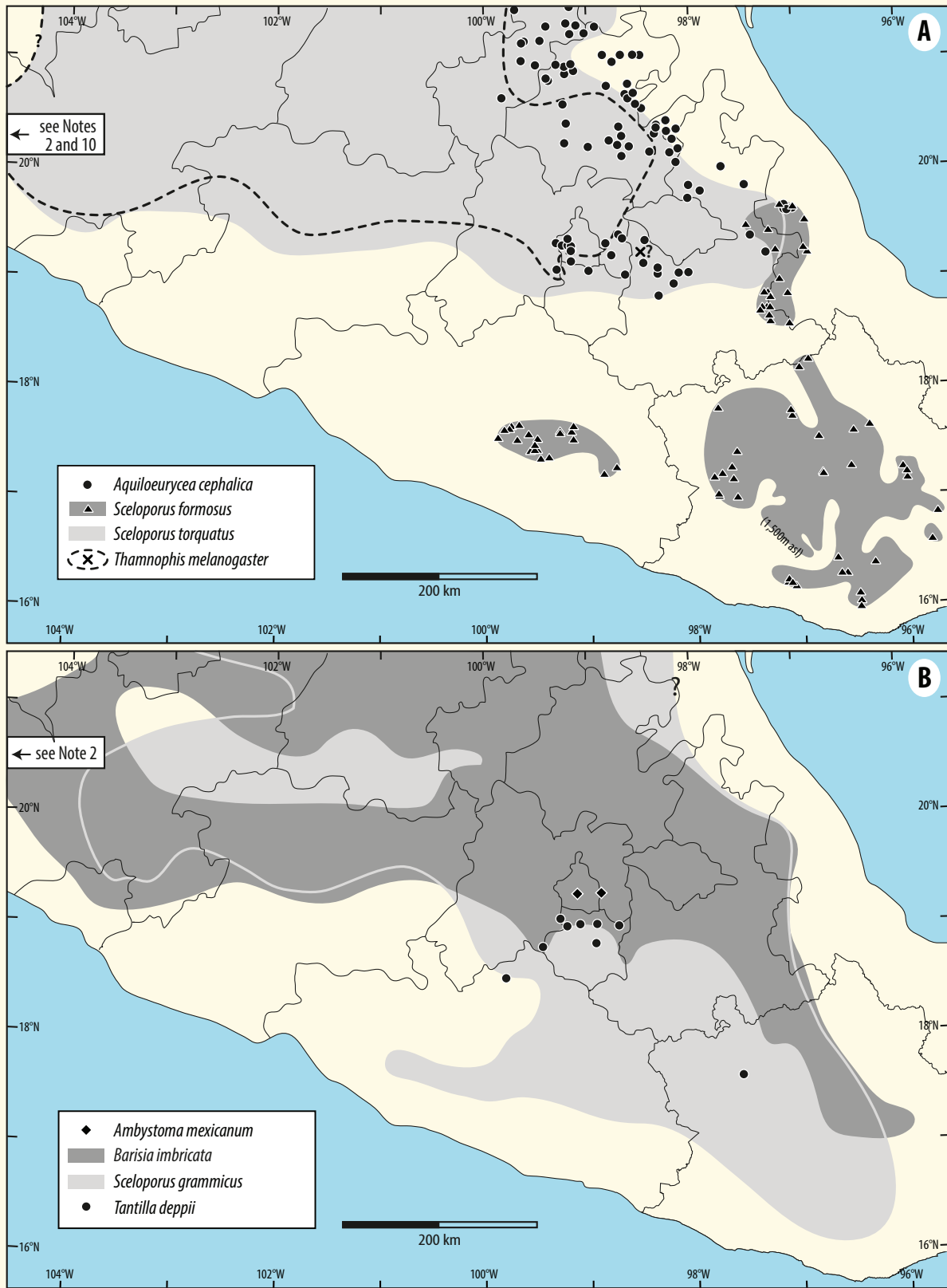


Fig. 2. The approximate distributions of the Central and Southern Mexican Highlands amphibians and reptiles in Auguste Ghiesbreght's 1854 shipment. See text and Fig. 1 for geographic details, and Table 2, Material and Terminology, and Notes 2 and 9–10 for additional explanations and the pertinent references. Maps courtesy of Andrea Stutz.

The aquatic and neotenic *Ambystoma mexicanum* is native to the capital area of Mexico at an elevation of ca. 2,250 m (Fig. 2B, Table 2). *Aquiloerycea cephalica* (Fig. 2A, elev. ca. 700–3,200 m; max. elev. 3,960 m *vide* Flores-Villela et al., 2010) occurs from Mexico City to Cerro Cofre de Perote, and in the southern portion of the Sierra Madre Oriental (see Note 2). *Pseudoeurycea gadovii* ranges from Tlaxcala to the highlands of central Veracruz and extends into the alpine zone (elev. ca. 2,250–4,250 m; max. elev. 5,000 m *vide* Flores-Villela et al., 2010). The poorly known *Tantilla deppii* (Fig. 2B, ca. 1,500–2,500 m) has been recorded only from a limited area in Morelos and individual collecting sites in adjacent northern Guerrero, in the state of México, and in western Oaxaca.

DISCUSSION

In mid-May of 1841, after the conclusion of the Belgian mission to Mexico from 1838 to 1840, AG returned to this country and set up residence at El Mirador, Carl Christian Sartorius's estate in central Veracruz near Huatusco. Except for an expedition in late 1843, during which he traveled westward across the Sierra Madre del Sur (see below), his fieldwork until 1845 focused on the lowlands of the Tlacolula area (1841–1842), the interior Gulf uplands, and the southern Sierra Madre Oriental from Veracruz through northern Hidalgo and northeastern Puebla (especially the extreme northern portion) southward to the Pico de Orizaba range. No natural history specimens (coll. AG 1841–1854) are documented from the Gulf coastal plain east of a line connecting Pueblo Viejo with San José Tenejapa (Fig. 1; Schätti et al., *In Press*). [Note 11]

Evidence for the 1843 Pacific-bound expedition is based on a brief notice published in a Brussels newspaper indicating only the quoted lines from AG to his family. *L'Observateur* (1 May 1844: 2) reported that the collector contracted a dangerous malady (“une maladie dangereuse”) during this exhaustive rainy season expedition that reached beyond the “big cordillera” (“la grande Cordillère [sic] et au-delà”; see Silvestre 2014: 147–148, note 819). Unfortunately, the original document dispatched from Mexico City on 20 January 1844 apparently was not archived. Indeed, plants from “Iguala” or from between Acapulco and the Mexican capital (“entre Acapulco et Mexico”), although catalogued with erroneous collecting data, suggest that the naturalist was active in Guerrero toward the end of 1843 (Schätti et al., *In Press*).

From around 1845 until the summer of 1855, before relocating to Teapa in Tabasco, AG apparently resided in Mexico City (Roviroso, 1889). His exploration of the northernmost portion of the Sierra Madre del Sur (around 1846) penetrated westward through Michoacán to the city of Colima near the Pacific coast, possibly crossing southern Jalisco, and the passionate mountaineer surely ascended one or several peaks of the Colima Volcanic Complex (Schätti et al., *In Press*: nota 9). Additional fieldwork in Michoacán's oak forests is documented for the end of the decade (1849, 1850) at an elevation near 2,500 m along the Pacific versant of the cordillera (“forêts de chênes qui couvrent le versant occidental de la Cordillère [sic] de Michoacan, vers 2,300 à 2,600^m”; Du Buysson, 1878: 409). In 1852 and 1853, AG temporarily stayed with fellow countrymen in Michoacán and collected plants around such places as Apatzingán, Arúmbaro, Ciudad Hidalgo (“Tajimaroa”), or Morelia. In 1853, Jean Linden's provider of living Mexican plants (AG) apparently also traveled through areas farther to the southwest in the Sierra Madre del Sur, north of Acapulco (“en 1853, le collecteur de l'Etablissement Linden, M. Ghiesbreght [...] au nord d'Acapulco”; *op. cit.*: 203). [Note 12]

The 1842 herpetological series from “Oaxaca” consists of the ubiquitous lowland treefrog *Smilisca baudinii*, the central Mexican high elevation salamander *Pseudoeurycea gadovii* (extends into alpine zone), two spiny lizard species from the Plateau (*Sceloporus grammicus*) and Mesoamerica (*S. variabilis*), and four verified wide-ranging snakes, i.e., *Coluber constrictor*, *Lampropeltis cf. polyzona*, *Pituophis catenifer*, and *Sibon dimidiatus* (Table 1). AG's syntype of *Pituophis mexicanus* (*P. catenifer*) possibly originated from near the southern distributional limit of this species, which coincides with his northernmost activity range in the environs of Tlacolula at elevations below 200 m (Fig. 1, see Distribution). All of the other species, as well as four of the five reptile taxa (except for a potential culinary item, see Note 13) in the 1844 (“Mexique”: *Barisia imbricata*, *Ctenosaura acanthura*) and 1845 shipments (“Oaxaca”: *Laemanctus serratus*, *Conophis lineatus*, *Leptophis mexicanus*) are found along the outskirts of AG's place of residence at El Mirador (Appendix 1). Neither the snake nor the lizards in these two shipments occur in Guerrero, a state he probably visited in 1843 (see above), and *C. acanthura* and *L. serratus* are absent from the Central Highlands. [Note 13]

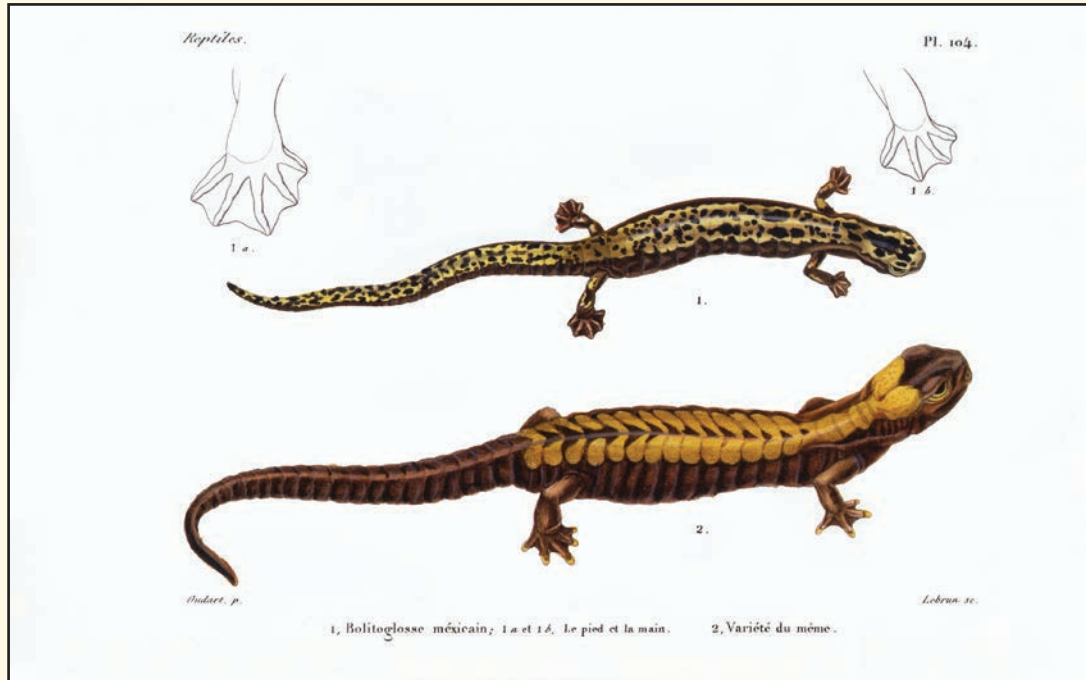


Plate 2. *Pseudoeurycea gadovii* (Dunn 1926). *Bolitoglossa mexicana* var. [“variété?”] (lower specimen) reproduced in Duméril et al. (1854c: plate 104) after an individual from “Oaxaca” collected by Auguste Ghiesbreght (MNHN-RA 4749 series, five specimens). Actually, his False Brook Salamanders originated from the Puebla–Veracruz border area, and probably were collected while ascending Pico de Orizaba with Frederik Michael Liebmann in early September of 1841.

We conclude that at least three (*Laemanctus serratus*, *Pituophis catenifer*, *Pseudoeurycea gadovii*) of the 10 identified herpetological species from “Oaxaca” (excluding *Lampropeltis* cf. *polyzona* and *Thamnophis* sp., see Table 1) are in error and, ironically, that *Coluber constrictor oaxaca*, sensu Wilson (1978), also is not documented from that state. Furthermore, the origin of the entire 1842 and 1845 series (27 specimens, Table 1) is incorrect. Except for a few dry plants received in exchange or as a gift from Frederik Michael Liebmann in early 1843 at Hacienda El Mirador, hundreds of natural history records (coll. AG 1841–1845) purportedly from Oaxaca and including many types of plants, birds (inaccurately attributed to AG), or amphibians and reptiles (e.g., *Bolitoglossa mexicana*, *Coryphodon oaxaca*; according to Cat. 41 also *Leptophis mexicanus*, *Pituophis mexicanus*, and *Tomodon lineatum*, see Table 1) actually came from regions explored by AG up until 1845, especially from the Gulf draining uplands to the central Veracruz–Puebla border (Schätti et al., *In Press*: fig. 2, nota 21).

The 1854 shipment contains six additional species, i.e., *Sceloporus torquatus* and *Thamnophis melanogaster* from the Plateau or the northern part of the Sierra Madre Occidental, respectively, southward to the Transverse Volcanic Belt, the Central Highlands endemics *Ambystoma mexicanum* (only the area of the capital) and *Aquiloerycea cephalica* (see Note 2), *Tantilla deppii* found at higher elevations between the central section of the México–Guerrero state line and inland western Oaxaca, and *Sceloporus formosus* from the southern Sierra Madre Oriental over the Southern Plateau (Oaxaca) into Guerrero (Fig. 2). [Note 14]

Four unlocated lizard species from the 1854 series, i.e., *Barisia imbricata* (first recorded by AG in 1844) and all three *Sceloporus* spp., including *S. formosus* (see below), occur in the same general area of Veracruz as 11 of the 13 taxonomically verified amphibians and reptiles among AG’s 1842–1845 shipments (excluding “*Bufo americanus*,” “*Cnemidophorus sex-lineatus*,” and “*Tropidolepis undulatus*,” see Appendix 1, Fig. 1, and Note 13). Nonetheless, *B. imbricata*, *S. grammicus* (first recorded in 1842), and *S. torquatus* are widespread species (see below, Fig. 2, and Table 2 for references).

AG's last (1854) shipment is devoid of lowland species, of which none indicates zoological collecting beyond Morelos or contiguous territory in the state of México. The distribution of *Thamnophis melanogaster* extends southward to northwestern Morelos and this species was abundant around Lake Xochimilco (Mexico City, see Notes 3 and 10), the abode of an endemic axolotl (Fig 2, Table 2). *Aquiloerycea cephalica* inhabits the metropolitan area and its environs. *Barisia imbricata*, *Sceloporus grammicus*, and *S. torquatus* occur within the confines of Mexico City, as well as in northern Morelos (Castro-Franco and Bustos-Zagal, 2003). Except for *S. formosus* (see last paragraph of this section and Conclusions) and the ubiquitous *S. grammicus*, none of the species from the 1854 shipment is recorded from adjacent Guerrero (Pérez-Ramos et al., 2000), but *T. melanogaster*, *B. imbricata*, *S. grammicus*, and *S. torquatus* occur along the Pacific area of Mexico, which AG visited between the mid-1840s and 1853, and especially in northern Michoacán (see above).

In April of 1852, while on a prolonged stay at Ciudad Hidalgo ("Tajimaroa," Michoacán) and after years of non-communication, AG re-established relations with the Paris Museum (MNHN) through Adolphe Brongniart (Schätti et al., *In Press*). Bearing in mind his primary objective, i.e., the transportation of rare living orchids or cacti, he had to consider the weight, space, and potential risks of preserving agents, and therefore natural history material collected during arduous field trips to such remote areas as Michoacán or Guerrero merely consisted of dry and living plants. After receiving confirmation from Paris, AG procured herpetological specimens in 1853, which were the only documented vertebrates collected by AG after 1840, for his last (1854) shipment. They came from a relatively small area around Mexico City, as evidenced by specimens of *Tantilla deppii*, with its limited highland distributional range, *Aquiloerycea cephalica* (see Note 14), and the microendemic *Ambystoma mexicanum* (Fig. 2).

The only amphibian and reptile species (coll. AG) from the 1854 shipment that was not recorded within the environs of Mexico City is *Sceloporus formosus*. The identity of this specimen relies entirely on its allocation in the MNHN Catalogue of Acquisitions (Table 1), which perhaps was a previous misidentification. After evaluating all of the available evidence, we are convinced that this lizard was found in central Guerrero in 1853, which supports the collector's presence in the Chilpancingo area (see above, Figs. 1 and 2A, and Note 12), even though no a priori reasoning excludes that the specimen might have been obtained between 1845 and 1853 in AG's former hunting grounds in the Pico de Orizaba range or southeast of the Central Highlands.

CONCLUSIONS

The amphibians and reptiles from "Mexique" (Mexico) and "Oaxaca" collected by AG between 1841 and 1853 (MNHN series, recorded from 1842 to 1854) originated from the Gulf versant, the Central Highlands around the capital, and possibly the Sierra Madre del Sur in Guerrero. Up until 1845, most specimens were from between Huatusco, Xalapa, and the Cerro Cofre de Perote area in interior central Veracruz. *Pituophis catenifer* (syntype of *P. mexicanus* Duméril, Bibron and Duméril 1854) was recorded in 1841 or early 1842, probably from farther north near Tlacolula (21°05'30"N, 97°57'34"W; elev. ca. 153 m) on the coastal plain of northern Veracruz. Systematically verified species from the last (1854) shipment and the presumably present specimens of *Sceloporus formosus*, *S. grammicus*, and *S. torquatus* are highland endemics. All of the taxa except for *S. formosus* most likely were obtained in 1853 along the periphery of Mexico City, but also might have come from northern Morelos and/or the Popocatepetl range in the southeastern portion of the state of México. The unverified *S. formosus* (not located in the MNHN collection), an arboreal species, might have originated from central Guerrero.

For example, AG secured the lectotype or paralectotype of *Leptophis mexicanus* Duméril, Bibron and Duméril 1854 and the only syntype of *Conophis lineatus* (Duméril, Bibron and Duméril 1854) for which the individual identification and collector undoubtedly are documented. Based on the holotype (MNHN-RA 7378) of *Coryphodon* [*Coluber constrictor* L.] *oaxaca* Jan 1863 (trinominal combination *sensu* Wilson, 1978) collected in 1841 or early 1842, we restrict the type locality of this taxon to Mata de Indio (19°13'49"N, 96°50'28"W; elev. ca. 900 m) in the municipality of Totutla, Veracruz, located about 2.5 kms ENE from AG's residence during that time (Hacienda El Mirador, see Note 11) and within the species' confirmed elevational range in that region (up to ca. 1,000 m, see Appendix 1). The southern Nearctic and northern Mesoamerican *C. constrictor* Linnaeus 1758 likely does not occur in the state of Oaxaca.

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Appendix 1. Literature records from the Huatusco–Xalapa–Cerro Cofre de Perote region for 11 species of amphibians, lizards, and snakes present in Auguste Ghiesbreght's 1841–1845 collections (see Note 11).

Barisia imbricata (“6 mi. E Las Vigas” [Las Vigas de Ramírez, 19°38'14"N, 97°05'54"W; elev. ca. 2,400 m] and “6.1 mi. SE Perote,” Auth et al., 2000). *Coluber constrictor* (“El Chico [19°27'56"N, 96°50'11"W; elev. ca. 1,040 m], 7 miles SSE Jalapa,” Wilson 1966). *Conopsis lineatus* (“N Huatusco” Pérez-Higareda and Smith, 1991). *Laemanctus serratus* (“Finca Mirador, near Huatusco” McCoy, 1968; see Note 8). *Lampropeltis* cf. *polyzona* (as *L. triangulum smithi* Williams 1978: including “Las Vigas” vic. Xalapa [intergrade with *L. t. polyzona*], or “ENE Huatusco” [sic], Pérez-Higareda and Smith, 1991). *Leptophis mexicanus* (“El Xuchil” [?El Súchil], 19°13'55"N, 96°54'08"W [elev. ca. 1,140 m], Pérez-Higareda and Smith, 1991). *Pseudoeurycea gadovii* (“Cofre de Perote” area, Solano-Zavaleta et al., 2009). *Sceloporus grammicus* [ssp. *microlepidotus*] (“Jalapa” Boulenger, 1885; “Cofre de Perote” Smith, 1939). *Sceloporus variabilis* (vic. Xalapa etc., Smith, 1939). *Sibon dimidiatus* (Xalapa, Pérez-Higareda and Smith, 1991). *Smilisca baudinii* (e.g., 1–4 km SW Huatusco, Duellman, 2001).

Note 1: Brocchi (1883) noted a single *Ambystoma mexicanum* received from AG, but at least two (MNHN-RA 4774–75) out of 10 originally catalogued specimens that were dried and in poor condition upon arrival at the MNHN, and possibly discarded, are in the collection today. One “*Tropidolepis undulatus*” catalogued in 1844 is an unidentified specimen, *Sceloporus* sp. (see Table 1 and Note 13). The 1854 record (entries n° 1–4) lists five lizards assigned to four nominal species of *Sceloporus* Wiegmann 1828, i.e., *S. formosus* (possibly MNHN-RA 2522), *S. grammicus* (two unlocated ex.), *S. torquatus* (possibly MNHN-RA 2520 or 2521), and one *S. “undulatus”* (see Note 13); the latter perhaps is included among MNHN-RA 2525 (two specimens) or 2526, classified under *S. variabilis*.

Note 2: False Brook Salamander populations from Querétaro, northern Hidalgo, and southern Tamaulipas, currently referred to the *Aquiloerycea cephalica* complex, might involve “up to 5 new species” (Parra-Olea et al., 2010: 57). The extreme southwestern record from near Ciudad Mendoza (“Mun. Camerino Z. Mendoza” ca. 18°48'N, 97°10'W; Contreras-Calvario et al., 2016) at an elevation above 1,300 m on the edge of the Central Highlands in Veracruz requires comparison with *A. cafetalera* (Parra-Olea et al. 2010). The Chunky False Brook Salamander has been recorded from elevations above 1,000 m (Flores-Villela et al., 2010), but also is known to occur as low as 710 m in the vicinity of Zapotlán de Méndez, in northern Puebla (Gutiérrez-Mayén and Salazar-Arenas, 2006). The alligator lizard *Barisia imbricata cil-iaris* auct. extends north of the given range (Table 2) to southern Nuevo León, southeastern Tamaulipas, and over the Northwest Plateau into southern Chihuahua. “*Gerrhonotus imbricatus*” from Patamba (18°48'43"N, 103°08'10"W) in the Sierra de Coacomán, Michoacán (Dugès, 1896), is referred to *B. jonesi* (see Material and Terminology). Guillette and Smith (1982: 30, fig. 4) noted *B. imbricata* for the Sierra Cuale in the hinterland of Puerto Vallarta (Jalisco), and in Nayarit along the Jalisco state line (see Woolrich-Piña et al., 2016). Bryson and Riddle (2012: fig. 2, table 1) examined a specimen (no. 439: LVT 10839) from the Sierra Huichol, mapped in Jalisco's Región Norte, and another (no. 437: LVT 10837) from the “Sierra Taxco” in “Guerrero.” This species is not listed from Guerrero (Pérez-Ramos et al., 2000), however, and the Sierra de Taxco includes territory in the state of México. A record from southwestern Puebla (Navarro-López et al., 2003) came from an elevation of 1,450 m, versus from generally above 2,100 m (Guillette and Smith, 1982), more than 300 m lower than from unspecified localities in Hidalgo (Valley of México) at approximately 1,800 m (Ramírez-Bautista et al., 2009: 211; Ramírez-Bautista et al., 2014: table 1.1). Based upon theoretical considerations (allopatry), Pérez-Ramos and Saldaña-de la Riva (2008) regarded *Sceloporus [formosus] scitululus* Smith 1942b as a valid species (see Note 9). The range of *S. grammicus* (see Table 2) is tentative (see Material and Terminology) and encompasses the nominotypical subspecies from the Sierra Madre del Sur, as well as *S. grammicus microlepidotus* Wiegmann 1828. For practical reasons and despite certain reservations, particularly in northern Veracruz, the contour line we show in Fig. 2B follows the map in Hammerson et al. (2007). At least two of Olson's (1990: fig. 1) entries for *S. torquatus* in northwestern Hidalgo, and others in northern Puebla (ca. 19°45'N, 98°00'W) or southeastern San Luis Potosí (ca. 21°15'N, 99°00'W), are not documented by specimens (op. cit.: 125–26). Auth et al. (2000) recorded the “Crevice Swift” from “Zapotán” in Jalisco, possibly one of four populations with that name located between 19°32'–20°30'N and 104°39'–105°01'W of eastern Costa Sur in the municipalities of La Huerta, Mascota, or Villa Purificación, over 100 km (airline distance) roughly west from the closest reported collecting site of *S. torquatus* in the vicinity of Ciudad Guzmán (Olson, 1990). “Zapotlan” (Smith, 1936: 576, fig. 8) refers to Zapotlán del Rey (20°27'57"N, 102°55'28"W), and “Calotlan” (USNM 46936–41, leg. Nelson and Goldman) in Jalisco possibly refers to La Cofradía Santa Cruz de Camotlán (20°55'51"N, 104°38'34"W) or Puente de Camotlán (21°41'55"N, 104°04'47"W).

Note 3: Davis and Smith (1953) restricted the type locality of *Homalocranion deppii* Bocourt (as “*deppii*,” see Table 1 regarding the lectotype) to Huitzilac in Morelos. The terra typica restricta of *Tropidonotus melanogaster* Peters is Xochimilco, Mexico City (Smith and Taylor, 1950). *Tropidonotus melanogaster* Deppe 1830 is a nomen nudum. We share doubts first expressed by Rossman et al. (1996) pertaining to the status of *T. mesomelanus* Jan 1863 (allegedly a nomen dubium) declared by Smith et al. (1950: 576) when, at the same time, *T. mesomelanus* Jan 1865 (based on identical material) is considered an available name (“earliest date of adequate description”). Savage and McDiarmid (2017) demonstrated that Jan's taxon was sufficiently diagnosed in the ‘Elenco’ and resurrected the subjective senior synonym (a “nomen oblitum”, also see Wallach et al., 2014) *T. mesomelanus* (“use [...] in preference to *T. melanogaster*”). Although *mesomelanus* Jan clearly has priority over *melanogaster* Peters, we continue to denominate the gartersnake in question

in accordance with the long-standing and universally applied specific epithet prior to Savage and McDiarmid (2017). Smith (1942a) inadvertently designated a “specimen [...] from the Vienna Museum” as the lectotype of *mesomelanus* Jan, i.e., the one illustrated in Jan and Sordelli (1868: pl. 5.3, “Mexique”; see Smith and Taylor, 1945: 164, footnote 80). This specimen could not be identified within the NMW series of *Thamnophis melanogaster* (Peters), which consists of about seven older vouchers that probably include the corresponding type (Silke Schweiger, *in litt.*, October 2017).

Note 4: “Little is known about the type specimen, and nothing, concerning its collector or the locality at which it was collected” (Wellman, 1967: 267). Bocourt (1876: 407; 1886) reported two *Conophis lineatus* including MNHN-RA 3740 (coll. AG) from the city of Oaxaca de Juárez (“recueillis à Oaxaca, par MM. Ghiesbreght et Schlumberger”). The MNHN Catalogue of Acquisitions n° 42 lists a toad (*Bufo* sp., one ex.) and 10 species of reptiles received from Henri Dieudonné Schlumberger, a resident of Guebwiller (Haut-Rhin), i.e., a kinosternid turtle (*Staurotypus* sp.) and nine species of snakes (13 specimens), including a “*Tomodon lineatum*” (see Plate 1 legend) or a *Leptophis mexicanus* (MNHN-RA 3454, see Note 5), but curiously not a single lizard. The same “Mexique” herpetological series plus two fish species (five examples) procured by the same source (H. D. S.) appears on the first page of this ledger, surprisingly with a later date (September [“9bre”] 1859) than the entry on page 92. The complete collection was acquired in exchange for 226 butterflies, the pastime of Henri’s cousin Jean Schlumberger.

Note 5: No arboreal Mexican snake deposited in the MNHN before 1854, other than *Leptophis mexicanus*, can be assigned to AG’s “*Dendrophis* ?.” Another specimen, MNHN-RA 3454 without type status, was received in 1859 from Henri D. Schlumberger (see Note 4). We assume that both syntypes of *L. mexicanus* Dum., B. and D. were purchased from overseas collectors and/or that the shipments might have included living plants destined for the Paris Botanical Garden, i.e., the Jardin des Plantes, seat of the Natural History Museum.

Note 6: *Lycodon* auct. apparently was used as the generic denomination for certain pinesnakes or bullsnakes (*Pituophis* spp.) by leading contemporary curators and their staffs, as exemplified by the holotype of *Elaphis [Pituophis] deppei* Duméril, Bibron and Duméril 1854 (RMNH 355), which originally was catalogued in the Leiden collection as “*Lycodon pholidostictus*” (Esther Dondorp, *in litt.*, September 2017). Sweet and Parker’s (1990) consideration of a “[h]olotype” of *Pituophis mexicanus* Dum., B. and D. (“not seen”) is incorrect, and these authors treated *P. catenifer* (Blainville 1835) and *P. melanoleucus* (Daudin 1803) as conspecific. The latter, the type species of *Pituophis* Holbrook 1842, only inhabits the southeastern United States.

Note 7: The unidentified syntype of *Pituophis mexicanus* reproduced in Duméril et al. (1854a: pl. 62) exhibits only two prefrontals and does not agree with Stull’s (1940) diagnosis of *P. catenifer* (Blainville), i.e., the presence of “four prefrontals” (BS, unpublished). Both USNM 1415 (♂ syntype) and the *P. mexicanus* “(Duméril et Bibron)” illustrated in Bocourt (1888: pl. 42.4, status uncertain) conform to *P. catenifer* (the former at least with respect to the supralabial–eye condition).

Note 8: The maximum elevations for various species addressed in this study are discordant (also, see Notes 9 and 10). According to Wellman (1963), *Conophis lineatus* is confined to “the coastal plain of Veracruz,” but the range of this species extends from sea level to 1,000 m in Central America. Johnson et al. (2010) reported the maximum elevation of the Road Guarder in southeastern Mexico as 500 m, but the vertical range of this species later was reported as from near sea level to 1,500 m (Wilson and Johnson, 2010: 174), and “up to 2,000 m” in “central Veracruz” (Heimes, 2016: 225). A record of *Leptophis mexicanus* from Reserva Ecológica Cerro de Amalucan (Woolrich-Piña et al., 2017: table 19), located on a hill (elevation above 2,200 m) surrounded by the heavily urbanized city of Puebla perhaps is an error. The essentially lowland generalist *Smilisca baudinii* has been reported at the exceptionally high elevation of approximately 1,925 m, northwest of Comitán in Chiapas (Duellman and Trueb, 1966). Ramírez-Bautista et al. (2014: 69, map 42) also report this species from an isolated highland locality in southwestern Hidalgo (unspecified, municipality of Huichapan). Similarly, Woolrich-Piña et al. (2017: table 19) list this species from Reserva Estatal Sierra del Tentzo, located south of the city of Puebla, and also from Parque Nacional Iztaccihuatl–Popocatepetl, which lies at an elevation above 2,000 m along the Puebla–México border. *Ctenosaura acanthura* is indicated to occur at elevations up to 1,200 m

(Ramírez-Bautista et al., 2014; “1,945 msnm” [op. cit.: 107] probably is a lapsus calami), but has been documented from close to 250 m (Atlapexco) to nearly 1,000 m (municipality of Huehuetla) in Hidalgo. Records of *Laemanctus serratus* (op. cit.: “0–1,200 msnm”) are from below 500 m (municipalities of Huejutla and Pisaflores) and possibly lower than 1,000 m in Molango de Escamilla (unspecified). An old record from “Zacualtipan” (Dugès, 1896) in north-eastern Hidalgo at almost 2,000 m should be interpreted in a geographically broader sense, supposedly from along Río Atlapexco or the Amajac in the Lower Huasteca, as opposed to the “Huasteca [sic] Potosina” (op. cit.), which is synonymous with the lowlands of southeastern San Luis Potosí (see Material and Terminology). The “Guanajuato” record for *L. serratus* attributed to Dugès (1896) in the pertinent literature (e.g., McCoy, 1968; McCranie and Köhler, 2004: map including caption) probably is based on a more recent source, i.e., Smith and Laufe’s (1945: 330) inadvertent placing of the “Huasteca Potosina” within the state of Guanajuato (species absent *vide* Leyte-Manrique et al., 2015). McCoy (1968) concurred with the earlier authorities and accepted the incorrect identification of “Tlacolula” (Veracruz; Dugès, 1896) with a homonymic city near Oaxaca de Juárez (for details see Schätti et al., *In Press*: nota 12). Duméril’s (1856: 512, pl. XXI.4) equally erroneous origin for AG’s specimen (MNHN-RA 2094) from the vicinity of Oaxaca de J. (“près de la ville d’Oaxaca”) enhances the confusion regarding the actual Mexican inland distribution of the Serrated Casque-headed Basilisk. Obviously, the upper vertical limit of “about 1500 m” (e.g., McCranie and Köhler, 2004) relies on the species’ putative presence in “central Oaxaca.” The highest verifiable records are from ca. 1,000 m in Los Tuxtlas (southern Veracruz; Pérez-Higareda and Vogt, 1985), and this species attains similar elevations in the mountains of central Veracruz. McCoy (1968) reported *L. serratus* “in coastal and foothills habitats below 800 m elevation,” but the examined “Finca Mirador, near Huatusco” specimen (UIMNH 50102) probably came from close to 1,000 m (see Note 11). The maximum elevation of ca. 4,100 m indicated for *Sceloporus grammicus* is based on Smith (1939: *S. m. microlepidotus* auct., “13,500 feet on Mount Orizaba”). Flores-Villela et al. (2010) recorded a maximum elevation of 2,600 m for *S. microlepidotus* (see Note 2).

Note 9: Verified distributional data for *Sceloporus formosus* (Fig. 2A) suggest disjunct ranges. An apparent gap in eastern Guerrero, however, might be due to the lack of collecting in this area (Schätti and Stutz, 2016: nota 19). We cannot confirm the presence of this species from the “Sierra Madre del Sur” in Puebla (García-Vázquez et al., 2009; only the Sierra Madre Oriental *vide* Woolrich-Piña et al., 2017: table 4) and we did not come across records for most of this state, including the southeastern corner (present in contiguous Oaxaca) or large areas of mountainous Guerrero, as noted by Sites et al. (1992: 53, fig. 30; also, see Duellman, 1966: fig. 7). “Asoleadero,” based on IBUNAM 6488, is in the municipality of Leonardo Bravo (Pérez-Ramos and Saldaña-de la Riva, 2008; see Note 2) and not farther to the northwest (ca. 25 km beyond range indicated in Fig. 2A), as recorded in the institutional file (www.idigbio.org, coll. Edmundo Pérez-Ramos). The names “Chalma” and “Las Palancas” (op. cit.) are ambiguous. The “Crucero del Carrizal” (Carrizal junction) is near Carrizal de Bravo (17°37'12"N, 99°50'15"W) and not in the municipality of Zirándaro (El Carrizal; Flores-Villela et al., 1991) along the border with Michoacán. “Tepoztepec” (op. cit.) refers to Llanos de Tepoztepec (17°28'34"N, 99°31'35"W, municipality of Chilpancingo) instead of the village of Tepoztepec (18°08'57"N, 99°53'22"W), which lies farther north. The closest documented localities in eastern Guerrero and southwestern Oaxaca are in the vicinity of Tlacoapa (La Compuerta de T., ca. 17°16'N, 98°45'W; Pérez-Ramos and Saldaña-de la Riva, 2008) and San Andrés Chicahuaxtla (17°09'25"N, 97°50'13"W; elev. ca. 2,450 m; Lynch and Smith, 1965) on the Putla Villa de Guerrero–Tlaxiaco road, respectively. The coordinates and plot for “Mex. Hwy 125, 19 km WSW Sta. María Tlaxiaco” at 17°31'48"N, 98°07'48"W (MCZ 136224; www.idigbio.org) are erroneous (ca. 17°12'N, 97°44'45"W; elev. ca. 2,200 m). The minimum elevation within the northern range is the type locality (“Xalapa,” see main text) at approximately 1,407 m, far lower than any verified collecting sites in Puebla and Veracruz. Pérez-Ramos and Saldaña-de la Riva (2008: table 1) report a minimum of “850” m, but populations in Guerrero might not occur below 1,100 m, e.g., around Acahuizotla (17°21'37"N, 99°28'03"W). The species attains an elevation of ca. 2,700 m to the southwest of Chilpancingo (Davis and Dixon, 1961: “9000 ft.”). In Oaxaca, *S. formosus* is known to occur from ca. 1,425 m (Miramar) to 2,880 m (Cañada Morelos; Pérez-Ramos and Saldaña-de la Riva, 2008) along the southwestern edge of the range within this state. This species is confined to elevations from 2,200 to 2,540 (2,620) m on Cerro Piedra Larga (Townsend-Peterson et al., 2004: 447, appendix 2) or found close to 2,200 m on Cerro Zempoaltepec (northeastern slope, CAS 165293), but another peripheral collecting site in the adjacent Sierra Mixe (vic. Santiago Choápam, ca. 17°21'00"N, 95°56'45"W; IBUNAM 7604) is situated as low as about 700 m, and appears doubtful. LACM 129936 was collected above Candelaria Loxicha

(15°58'00"N, 96°27'40"W) in the vicinity of San Pedro Pochutla, at an elevation of ca. 1,100 m. Two out of four available records for the Sierra Madre del Sur are from roughly 70 kms to the west and were collected at elevations between ca. 1,800 and 1,950 m, but UCM 52590 from Santa Rosa de Lima (ca. 16°10'08"N, 97°05'30"W, San Juan Lachao, coll. Thomas MacDougall), in the same general area, came from a considerably lower elevation (1,150–1,300 m; see Schätti and Stutz, 2016). The origin or identification of ENCB 1411, from near Santos Reyes Nopala (as 16°07'19"N, 97°07'28"W) below 500 m inland of Puerto Escondido, needs rectification (“4 km S Lachao” along Mexican Highway 131 would be at ca. 1,825 m near 16°12'45"N, 97°08'30"W starting from San Juan L. “El Viejo”; op. cit.: 13, map). Although mostly based on unconfirmed data (www.idigbio.org) and possibly including phrynosomatid species other than *S. formosus*, the cluster of collecting sites at low elevations might reflect the presence of the Mexican Emerald Spiny Lizard at elevations close to 1,000 m in the southern range, especially along the distributional limit in the Pacific versant of the Sierra Madre del Sur.

Note 10: The semi-aquatic *Thamnophis melanogaster* is recorded from the headwaters of the Río Bavispe (Mesa Tres Ríos area), i.e., the northern tributary of the Yaqui in Sonora, and the vicinity of Yécora (elev. ca. 1,400–1,500 m), which lies approximately 90 km (airline distance) to the south, as well as the Upper Río El Fuerte drainage (including, e.g., Chinipas, San Miguel, and Urique rivers and their tributaries) in the Sierra Tarahumara, western Chihuahua (Tanner, 1959, 1985; Lemos-Espinal et al., 2004; Lemos-Espinal and Smith, 2007; Rorabaugh and Lemos-Espinal, 2016). This species also might occur in the Aros Valley system that empties into the Yaqui and attains elevations of ca. 1,900 m in Sonora (Mesa Tres Ríos) and 2,250 m in Chihuahua (Mojárachi, Upper Río Oteros; “Mojarachic” or “Majorachic”). A record from “435 m” along “Arroyo [Creek] El Camuchil” (Lemos-Espinal et al., 2004) definitely came from elevations above ca. 600 m (confluence of Guamúchil with Río Batopilas, INEGI map G13A41), and probably as high as 1,000 m at the indicated geodetic position. The coordinates above Satevó (26°59'25.8"N, 107°45'52"W; elev. “567 m”; op. cit.) coincide with a much higher elevation to the southwest of Cerro Aguja Tempisque (ca. 1,500 m, INEGI sheet G13A51). These northwestern populations (*T. m. chihuahuaensis* Tanner 1959) from the Pacific versant of the Sierra Madre Occidental are isolated by roughly 225 km (airline distance) in relation to the main range that extends northward to peripheral Durango at the central Chihuahua state line near Las Nieves (Canutillo, 26°22'48"N, 105°22'22"W) at an elevation of ca. 1,860 m in the Río Conchos catchment area (Conant, 1963: 479: “6,100 feet”). The presumed occurrence of this species along the Río Florido in adjacent Chihuahua (op. cit.: 494, “one record”) probably is based on confusion and pending corroboration, and the species’ presence in extreme southwestern Coahuila as indicated by Conant (1963: fig. 9), Rossman et al. (1996: map 14), and Heimes (2016: 373, map 164), remains unconfirmed. IBUNAM 2786 from Rancho La Peña (22°46'14"N, 104°26'30"W), recorded as in northern Durango’s municipality of Mapimí (www.idigbio.org), which borders southeastern Chihuahua, actually is from Reserva de la Biosfera La Michilía in the southern portion of Durango. This specimen and UTEP 11946 from the vicinity of Santiago Teneraca (Webb, 2002; ca. 23°06'05"N, 104°52'30"W) establish the presence of this species in the region (municipality of Mezquital). On the Northern Plateau, records are lacking for most of northern Durango (see above), so the Black-bellied Gartersnake apparently is absent in northeastern Zacatecas, but its distribution extends into the Moctezuma–Pánuco drainage (Río Verde) in southwestern San Luis Potosí (Laguna de la Media Luna, 21°51'47"N, 100°01'28"W; IBUNAM 4757). “Hacienda La Parada” (Smith, 1942a: USNM 46411–14) plotted in the lowland municipality of Santa Catarina (Lemos-Espinal and Dixon, 2013: 300, map 90) is an estate near La Parada (22°19'51"N, 101°12'40"W) at an elevation of ca. 1,850 m in southwestern San Luis Potosí. *Thamnophis melanogaster* inhabits appropriate habitats (permanent watercourses, marshes, lakes, ponds, and irrigation ditches) on the Pacific drainage of southern Durango, southern Zacatecas, Nayarit, Aguascalientes, Jalisco, northern Michoacán (see below), and Guanajuato (absent from the extreme northeast, Huasteca). This species occurs along the Río Lerma to the Nevado de Toluca range in the state of México and into Morelos (Lagunas de Zempoala), and also has been documented from southern Querétaro (Lerma and Moctezuma systems, see below as to Tangojé specimen) and Hidalgo (excluding the northeast) encompassing the Río Tula Plain, Metztlán Valley (ca. 1,300 m, one locality), and “Santa Rosa” (IBUNAM 3667; www.idigbio.org) farther upstream in the Amajac Basin along the Río Tulancingo (no record for Amajac proper), and from the northern part of the state of México (see next), or the Mexico City area (e.g., Smith, 1942a; Duellman, 1961; Uribe-Peña et al., 1999; Auth et al., 2000; Ramírez-Bautista et al., 2009; Dixon and Lemos-Espinal, 2010; Fernández-Badillo and Goyenechea-Mayer-G., 2010; González-Hernández et al., 2011; Manjarrez et al., 2013; Ramírez-Bautista et al., 2014; Heimes, 2016; Lemos-Espinal and Dixon, 2016; Roth-Monzón et

al., 2018). According to García-Vázquez et al. (2009) and Woolrich-Piña et al. (2017) this species is absent in Puebla, and it has not been confirmed from the border areas or the northeastern corner of the state of México or from Tlaxcala, and the identification of IBUNAM 4304 from San Felipe Teotlalcingo (19°13'51"N, 98°30'02"W; elev. ca. 2,430 m, Fig. 2: question mark) in northwest-central Puebla requires verification. Heimes (2016: map 164) indicated this region and adjacent western Tlaxcala, and the Sierra de Coalcomán in southwestern Michoacán (see above), within the range of *T. melanogaster*. Smith et al. (1950) corrected a record from Jalisco (“La Laguna, Juanacatlan [...] 6500 feet”; Boulenger, 1893), i.e., Laguna de Juanacatlán (ca. 20°38'N, 104°44'W; elev. 2,000 m) as La Cumbre de los Arrastrados at “8500 ft” (i.e., vic. La Cumbre de Guadalupe, 20°10'16"N, 104°42'42"W), which undoubtedly is the westernmost reported locality for this species in the Central Highlands, beyond the boundaries indicated by Rossman et al. (1996: map 14), and slightly extralimital to Fig. 2A. The presence of *T. melanogaster* in “Colima” (e.g., Smith and Taylor, 1945) might be based on Gadow’s (1905) “Nevado de Colima” specimen(s) from the border region in Jalisco or MCZ 11421 (coll. Gustav Glückert 1914) allegedly from the state capital at an elevation of ca. 500 m, but this species was not listed in Martínez-Ortega (2005). We did not find detailed collecting data for eastern Nayarit (*vide* Woolrich-Piña et al., 2016; see, e.g., Smith and Taylor, 1945) or for the Lower Río Grande de Santiago as shown in Rossman et al. (1996: map 14). The verified minimum vertical distribution is ca. 1,000 m above Río Batopilas (tributary of the San Miguel, see above) in Chihuahua. MZFC 7590 from Tangojío (21°09'36"N, 99°06'28"W, Fig. 1; www.idigbio.org) in Querétaro, which lies at an elevation slightly above 500 m in the Low Huasteca along the Hidalgo state line (Río Moctezuma, below Puerto de los Naranjos), is considered doubtful as to its specific identification. Ramírez-Bautista et al. (2010: 86) indicated “850 msnm” for a specimen without a precise locality (“Sin nombre de localidad”) from the municipality of Tepeji del Río, in southwestern Hidalgo, where elevations generally are above 2,000 m (Fig. 1). The lowest reliable collecting sites south of Chihuahua are at La Goma at ca. 1,160 m in northern Durango (Conant, 1963: “3,800 feet”) and possibly ca. 1,025 m along a tributary of the Río Verde in San Luis Potosí (see above). *Thamnophis melanogaster* attains elevations of at least 2,500 m in Durango (vic. of El Salto, including Hacienda Coyotes and Rancho Las Margaritas; op. cit.) and possibly in Jalisco (see above), above 2,700 m in the state of México (Eleno-Villa et al., 2012; Manjarrez et al., 2013), above 2,800 m at Lagunas de Zempoala (México–Morelos border), and ca. 3,000 m at an unspecified locality, or various sites (Ramírez-Bautista et al., 2009: 212; 2014: table 1.1).

Note 11: Hacienda El Mirador (19°12'46"N, 96°52'49"W; elev. ca. 1,025–1,200 m), “Carlos” Sartorius’s (1796–1872) sugar cane plantation west of Totutla, was “a place of refuge for all naturalists who visited the area and is perhaps the most frequently cited Mexican locality of collection during the whole nineteenth century” (Ossenbach, 2007: 182). Nevertheless, we advise caution regarding the accompanying data for specimens from “El Mirador” or “Mirador” in Veracruz, and the names associated with numerous mountains, hills, settlements and other sites, including a summit of the Pico de Orizaba range in adjacent Puebla. For the sake of unambiguity, we leave unconsidered literature records (e.g., Smith, 1939; Pérez-Higareda and Smith, 1991; Duellman, 2001) from places with those names for the verification of a species’ presence in the Huatusco–Xalapa–Cerro Cofre de Perote range sector (Appendix 1). Plants, and possibly invertebrates, from “Zacuapam” (e.g., Ossenbach, 2007) or “Rancho Zacuapam” originated from another estate owned by the Sartorius family at El Mirador, a German colony once known as “Paso de los Monos.”

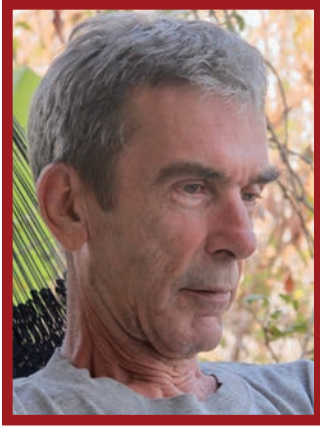
Note 12: According to Roviroso (1889), who not always provided accurate details such as exact chronological data (see Silvestre, 2014), AG suffered a vicious assault by thieves in a canyon near Puebla (“Barranca de los Ocotes”) during 1846. In mid-October of 1849, the protagonist gave a “vivid description of his journeys through Mexico” (Ossenbach, 2007: 186, footnote 10) to the botanist Charles François Antoine Morren. The letter could not be located in the archives of the University of Liège, so Morren’s correspondence apparently is lost (Denis Diagre, *in litt.*, October 2017, *vide* Joseph Beaujean; for details about this peculiar case see Schätti et al., *In Press*). Du Buysson’s (1878) mention of living orchids from the vicinity of Acapulco is a surprisingly detailed locality record, because this Pacific harbor (today a tourist destination) likely was not popular in those days and suggests that AG collected specimens in northern Guerrero 10 years after what apparently were his first (1843) investigations there (see Conclusions).

Note 13: The iguanid *Ctenosaura acanthura*, an esteemed food item by people, could be found at any larger marketplace. Aside from a few other unlocated and possibly missing specimens, including an unidentified toad (see Material

and Terminology, Table 1), we did not consider two species of lizards reputedly present in AG's herpetological collections in our analysis of distribution patterns. Both "*Tropidolepis undulatus*" (Cat. 41, entry n° 2, 1844 and n° 1, 1854) apparently are the same *Sceloporus* sp. but different from *S. undulatus* (eastern and central United States) or *S. cowlesi* (Leache 2009), a species that ranges into eastern Durango and northern Zacatecas (see Lemos-Espinal et al., 1998). These spiny lizards and a racerunner assigned to *Aspidoscelis sexlineata* (Cat. 41, entry n° 5, see Table 1), a species confined to the southeastern United States and the border region in Tamaulipas (Jiménez-Ramos et al., 1999), are extralimital to AG's field activity range.

Note 14: Dunn (1926: including fig. 60, map) considered "*Oedipus sulcatus*" (i.e., *Aquiloerycea cephalica*) to inhabit the "Mountains of Oaxaca, Mexico," because "Ghuisbrecht [sic] collected in Oaxaca (see Duméril and Bibron 1854)," an erroneous remark expressed in context with five *Pseudoeurycea gadovii* (see Table 1 and Plate 2). "No salamander from Oaxaca" exhibits "the combination of characters possessed by the holotype of *sulcatus*" which "revealed [...] to be virtually identical with female *Pseudoeurycea cephalica* from the Distrito Federal" and it "is more than probable" that *A. cephalica* MNHN-RA 6396 (holotype of *Spelerpes sulcatus* Brocchi) originated "from the vicinity of Mexico City" (Bogert, 1967: 5).





Beat A. Schätti was born in Switzerland and collected his first “grass snakes” to compete with his father. Two uncles, sailors who were uncomfortable with their home culture, evoked the youngster’s fascination for foreign countries. Eventually, he obtained his Ph.D. from Zurich University, before working as a research fellow and curator at the Geneva Muséum d’Histoire naturelle. His main scientific topics encompass the evolution and relationships of Holarctic, Oriental, and Afrotropical racer and ratsnake tribes, the Saharo-Sindian herpetofauna, and the systematics of Neotropical pitvipers. Except for a collecting trip as a student, his passion for the enormous diversity of Mexico’s landscapes, animals, and plants remained limited to observance and admiration. Ultimately driven by unexpected and fascinating outdoor encounters, unknown road-kills, and people who kept sending photographs for identification, one day he decided to delve into the study of the herpetofauna around the immediate surroundings of his permanent residence in Oaxaca, Mexico. By studying the travels and specimens collected by Auguste Ghiesbreght in Mexico, the scope of his interest extended north to the Central Highlands and beyond. An eyewitness to the uncontrolled local destruction, rapid decline of habitats and species, or lack of concern about environmental changes and vanishing biodiversity, every day Beat feels more deprived of the paramount beauty called nature, the essence of life, and our existence.



Christoph Kucharzewski is an amateur herpetologist who volunteers in the herpetological department of the Museum für Naturkunde, Berlin. Besides the identification of reptiles in this collection, his principal interest involves the systematics of snakes worldwide, with a focus on clarifying the taxonomic status of enigmatic snake taxa. To date, Christoph has authored or co-authored 24 scientific articles and notes, including the descriptions of five currently recognized snake species from Madagascar and Asia. The Mesoamerican herpetofauna, and in particular the snake fauna of Mexico, is another topic of interest.