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POSGRADO EN CIENCIAS BIOLÓGICAS

FACULTAD DE CIENCIAS

SISTEMÁTICA

REVISIÓN TAXONÓMICA DE *SCELOPORUS TORQUATUS* WIEGMANN, 1828 Y SUS SUBESPECIES

TESIS

(**POR ARTÍCULO CIENTÍFICO**)

HIDDEN DIVERSITY WITHIN A POLYTYPIC SPECIES: THE ENIGMATIC *Sceloporus torquatus* WIEGMANN, 1828 (REPTILIA, SQUAMATA, PHRYNOSOMATIDAE)

QUE PARA OPTAR POR EL GRADO DE:

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M. en C. Ivonne Ramírez Wence
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Me permito informar a usted que en la reunión virtual del Comité Académico del Posgrado en Ciencias Biológicas, celebrada el día 13 de septiembre de 2021 se aprobó el siguiente jurado para el examen de grado de **MAESTRO EN CIENCIAS BIOLÓGICAS** en el campo de conocimiento de **SISTEMÁTICA** del estudiante **CAMPILLO GARCIA GUSTAVO** con número de cuenta **517024832** con la **tesis por artículo científico** titulado: **Hidden diversity within a polytypic species: The enogmatic Sceloporus torquatus Wiegmann, 1828 (Reptilia, Squamata, Phrynosomatidae)** que es producto del proyecto realizado en la maestría que lleva por título: **REVISIÓN TAXONÓMICA DE SCELOPORUS TORQUATUS WIEGMANN, 1828 Y SUS SUBESPECIES,** realizada bajo la dirección del **DR. OSCAR ALBERTO FLORES VILLELA,** quedando integrado de la siguiente manera:

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Sin otro particular, me es grato enviarle un cordial saludo.

A T E N T A M E N T E
“POR MI RAZA HABLARÁ EL ESPÍRITU”
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Dedicatoria

A mi madre.

Índice

Resumen

El género de lagartijas espinosas *Sceloporus* fue descrito en 1828 por Wiegmann, posteriormente en 1936, Smith designó *Sceloporus torquatus* como la especie tipo. Desde entonces la historia taxonómica de *S. torquatus* ha sido complicada ya que ha sido confundido con diferentes taxones por varios autores. Actualmente se reconocen cinco subespecies: *S. t. torquatus*, *S. t. melanogaster*, *S. t. binocularis*, *S. t. mikeprestoni* y *S. t. madrensis*. Aunque el género *Sceloporus* ha sido objeto de estudio en numerosos artículos sistemáticos recientes, ninguno ha incluido todas las subespecies de *S. torquatus*. Evidencias moleculares previas sugieren la existencia de por lo menos otra especie no descrita dentro del complejo *torquatus*. Esta tesis es la primera revisión taxonómica del enigmático *S. torquatus*, con base en filogenias moleculares usando fragmentos de los genes mitocondriales 12S y ND4, y del gen nuclear RAG1, inferidas mediante los métodos Bayesiano y Máxima Verosimilitud. Además, con una estimación de tiempos de divergencia y una serie de modelos de nicho ecológico, se pretende establecer un contexto espacio-temporal para interpretar la evolución de este grupo de lagartijas. Adicionalmente, a partir de un extenso muestreo a lo largo de la distribución del complejo *torquatus*, una serie de caracteres morfológicos fueron analizados para identificar diferencias morfológicas significativas entre los linajes consistentemente recuperados en las filogenias moleculares. Usando este enfoque integrativo, se presenta la evidencia de ocho linajes dentro del complejo *torquatus*, cinco de los cuales corresponden a las cinco subespecies previamente reconocidas, y tres representan especies no descritas enmascaradas por el conservadurismo morfológico. Finalmente, para preservar estabilidad taxonómica fueron designados, de la serie tipo original, un lectotipo y paralectotipo de *S. torquatus*, y ciertos cambios taxonómicos fueron sugeridos para reflejar las relaciones filogenéticas dentro del complejo de especies *torquatus*.

Abstract

The spiny lizard genus *Sceloporus* was described by Wiegmann in 1828. Latter in 1936, Smith designated *S. torquatus* as the type species by Smith. Since then, the taxonomic history of *S. torquatus* has been complicated, as it has been confused with other taxa by several authors. Currently, five subspecies are recognized: *S. t. torquatus*, *S. t. melanogaster*, *S. t. binocularis*, *S. t. mikeprestoni*, and *S. t. madrensis*. Although the genus *Sceloporus* has been subject in several recent systematic papers, none have included all five *S. torquatus* subspecies. Previous molecular evidence suggests the existence of at least one additional unnamed species in the *torquatus* complex. This thesis is the first taxonomic revision of the enigmatic *S. torquatus*, based on molecular phylogenies using 12S, ND4 mitochondrial genes and RAG1 nuclear gene, inferred by Maximum Likelihood and Bayesian methods. Furthermore, with estimations of divergence time and a series of ecological niche models, it is intended to establish a spatio-temporal framework for understanding the evolution of this lizard group. Additionally, from an extensive sampling throughout the distribution of the *torquatus* complex, a series of morphological characters was analyzed to identify significant differences between lineages consistently recovered in the molecular phylogenies. Using this integrative approach, evidence is presented for eight lineages within the *torquatus* complex, five of which correspond to previously recognized subspecies and three represent unnamed taxa masked by the morphological conservatism. Finally, to maintain taxonomic stability, a lectotype and paralectoype were designated from the original type series of *S. torquatus*, and certain taxonomic changes are suggested to reflect the phylogenetic relationships within the *torquatus* species complex.

Introducción general

Si tuviéramos que elegir un género representativo de Norteamérica, *Sceloporus* Wiegmann 1828, sería un buen candidato por ser uno de los grupos de lagartijas más diversos y conspicuos. Las más de 100 especies de *Sceloporus* están distribuidas desde el sureste de Canadá hasta el oeste de Panamá (Sites et al. 1992; Köhler y Heimes 2002; Bell et al. 2003; Wiens et al. 2010; Uetz et al. 2020); la mayor diversidad se encuentra concentrada en México (Flores-Villela y García-Vázquez 2014) y más especies siguen siendo descubiertas (Castañeda-Gaytán y Díaz-Cárdenas 2017 en Díaz-Cárdenas et al. 2017).

Está comprobado que *Sceloporus* es un género ideal para dirigir estudios sistemáticos (Sites et al. 1992), consecuentemente, la sistemática molecular de este grupo ha sido muy dinámica y es fundamental para entender las relaciones filogenéticas, así como en la práctica de la delimitación de especies (Leaché y Reeder 2002; Wiens y Penkrot 2002; Leaché y Mulcahy 2007; Leaché 2010; Wiens et al. 2010; Bryson et al. 2012; Leaché et al. 2013; Grummer et al. 2015; Díaz-Cárdenas et al. 2017, 2019; Lambert et al. 2019).

A pesar de la gran cantidad de trabajos sistemáticos sobre *Sceloporus*, persiste la controversia sobre el reconocimiento de especies y las relaciones filogenéticas al nivel de grupo de especies. Además, el muestreo de muchas especies y subespecies sigue incompleto (Leaché 2010; Wiens et al 2010), como en el caso de *Sceloporus torquatus* Wiegmann 1828 (Martínez-Méndez y Méndez-De la Cruz 2007; Martínez-Méndez et al. 2019).

Sceloporus torquatus es la especie tipo del género *Sceloporus* (Smith 1938). Actualmente es reconocida como una especie politípica que comprende cinco subespecies con mínima diferenciación morfológica, distinguibles esencialmente, por el patrón de coloración, el número de escamas ventrales, tamaño del cuerpo y longitud del brazo (Olson 1990): *S. t. torquatus*, *S. t. melanogaster* Cope 1885, *S. t. binocularis* Dunn 1936, *S. t. mikeprestoni* Smith y Álvarez 1974, y *S. t. madrensis* Olson 1986. En su totalidad, la distribución geográfica de *S. torquatus* es amplia en el centro y norte de México (Figura 1) en las zonas áridas y semiáridas del Altiplano Mexicano y en las tierras altas templadas aledañas de la Faja Volcánica Transmexicana, Sierra Madre Occidental y Sierra Madre Oriental. Al menos tres zonas de simpatría han sido identificadas en el centro de México, en donde presuntamente hay entrecruzamiento entre *S. t. torquatus* y *S. t. melanogaster*, y *S. t. torquatus* y *S. t. madrensis* (Smith 1938; Webb 1967; Olson 1990, 1991). De las cinco subespecies reconocidas únicamente *S. t. madrensis* tiene una distribución disyunta, con poblaciones aisladas en dos zonas montañosas del oriente de México (Olson 1991).

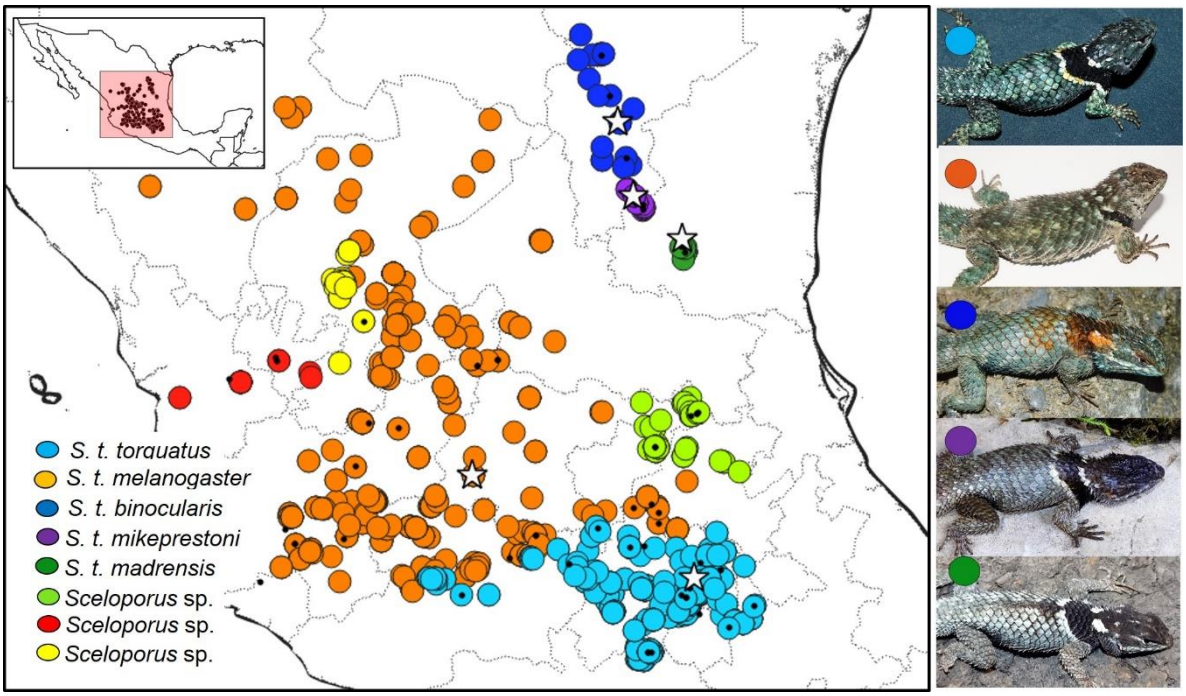

Figura 1. Distribución geográfica del complejo de especies *torquatus*. Las estrellas señalan las localidades tipo. El muestreo de tejidos está indicado por los puntos negros.

Estudios previos han incluido muestras de tres de las cinco subespecies reconocidas de *S. torquatus*, así como, evidencias moleculares de la existencia de una especie sin nombre de *Sceloporus* del occidente de México, que está más relacionada con *S. torquatus* (Martínez-Méndez y Méndez-De la Cruz 2007; Martínez-Méndez et al. 2019). Sin embargo, las relaciones filogenéticas y el estatus taxonómico del grupo de subespecies de *S. torquatus* no ha sido evaluado con un enfoque integrativo.

Esta tesis representa la primera revisión taxonómica de *S. torquatus* y sus subespecies, basada en filogenias moleculares inferidas por los métodos Bayesiano y Máxima Verosimilitud con datos de DNA mitocondrial y nuclear. Para interpretar la evolución de esta especie endémica de México en un contexto espacio-temporal, se calcularon las distancias genéticas, se estimaron los tiempos de divergencia y se realizaron modelos de nicho ecológico. Adicionalmente, fueron analizados una serie de caracteres morfométricos y de escamación, para identificar diferencias morfológicas significativas entre los linajes que fueron recuperados consistentemente en las filogenias moleculares.

Con esta revisión se pretende resolver uno de los problemas taxonómicos más antiguos de la herpetología mexicana, así como, proveer información útil para el desarrollo de estrategias de conservación de especies a nivel regional.

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Submission Confirmation

Herewith I confirm that the manuscript

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Sincerely,

Prof. Dr. Uwe Fritz
Chief Editor, *Vertebrate Zoology*

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Hidden diversity within a polytypic species: The enigmatic *Sceloporus torquatus* Wiegmann, 1828 (Reptilia, Squamata, Phrynosomatidae)

Taxonomic revision of *Sceloporus torquatus*

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Abstract

The spiny lizard genus *Sceloporus* was described by Wiegmann in 1828 with *S. torquatus* designated as the type species. The taxonomic history of *S. torquatus* is complicated, as it has been confused with other taxa by numerous authors and five subspecies are currently recognized. Many modern systematics works have been published on *Sceloporus*, but none have included all five *S. torquatus* subspecies. Additionally, there is previous evidence for at least one unnamed taxon. The present study realizes the first taxonomic revision of the enigmatic *S. torquatus* based on Maximum Likelihood and Bayesian inference phylogenetic methods using mitochondrial (12S, ND4) and nuclear (RAG1) data. This work includes the most extensive sampling across the entire distribution, as well as divergence time estimates and environmental niche modelings, which combined offer a spatio-temporal framework for understanding the evolution of the species. Additionally, a series of morphological characters are analyzed to identify significant differences between lineages consistently recovered in the molecular phylogenies. Using this integrative approach, evidence is presented for eight independent lineages within the *S. torquatus* complex, five of which correspond to previously recognized subspecies and three represent unnamed taxa masked by this polytypic species. Finally, in order to maintain taxonomic stability, a lectotype and paralectoype is designated for *S. torquatus*, and certain taxonomic changes are suggested in order to reflect the phylogenetic relationships within the *S. torquatus* species complex.

Keywords

Collared spiny lizard, Environmental niche modeling, Integrative taxonomy

Introduction

If we were to choose a representative genus of North American reptiles, *Sceloporus* Wiegmann, 1828 would certainly be a good candidate, as it is one of the most diverse and conspicuous. *Sceloporus* is a genus of Phrynosomatid lizards distributed from southern Canada to western Panama with over 100 species (Sites et al. 1992; Köhler and Heimes 2002; Bell et al. 2003; Wiens et al. 2010; Uetz et al. 2020), although the greatest diversity is found in Mexico (Flores-Villela and García-Vázquez 2014), where new species are still being described (Castañeda-Gaytán and Díaz-Cárdenas in Díaz-Cárdenas et al. 2017).

Sceloporus has proven to be an ideal group to study systematics (Sites et al. 1992), and consequently the molecular systematics of the genus has been very dynamic and fundamental for the understanding of phylogenetic relationships as well as in the practice of species delimitation (Leaché and Reeder 2002; Wiens and Penkrot 2002; Leaché and Mulcahy 2007; Leaché 2010; Wiens et al. 2010; Bryson et al. 2012; Leaché et al. 2013; Grumer et al. 2015; Díaz-Cárdenas et al. 2017, 2019; Lambert et al. 2019).

Despite the amount of published data on the group, controversy persists about the recognition of species and the phylogenetic relationships at species group level in the genus *Sceloporus*. Also sampling of some species and subspecies is still incomplete (Leaché 2010; Wiens et al. 2010), as is the case for *Sceloporus torquatus* Wiegmann, 1828 (Martínez-Méndez and Méndez-De la Cruz 2007; Martínez-Méndez et al. 2019).

Sceloporus torquatus is the type species of the genus (Smith 1938) and is currently recognized as a polytypic species comprising five subspecies that display minimal morphological differentiation, essentially distinguishable by color pattern, number of ventral scales, body size and arm length (Olson 1990): *S. t. torquatus*, *S. t. melanogaster* Cope, 1885, *S. t. binocularis* Dunn, 1936, *S. t. mikeprestoni* Smith and Álvarez, 1974, and *S. t. madrensis* Olson, 1986. As a whole, the geographic distribution of *S. torquatus* is wide in central and northeastern Mexico (Fig. 1), where they are found from the arid and semi-arid zones of the Altiplano Mexicano into the temperate highlands of the peripheral Faja Volcánica Transmexicana, Sierra Madre Occidental, and Sierra Madre Oriental. At least two zones of sympatry have been suggested in central Mexico, in which interbreeding presumably occurs between *S. t. torquatus* and both *S. t. melanogaster* and *S. t. madrensis* (Smith 1938; Olson 1990, 1991). Among the five recognized subspecies, only *S. t. madrensis* has a disjunct distribution, separated by ~175 km and isolated on a mountainous range of eastern Mexico.

Previous works included sampling of three of the five recognized subspecies as well as molecular evidence for an unnamed taxon from western Mexico related to *S. torquatus* (Martínez-Méndez and Méndez-De la Cruz 2007; Martínez-Méndez et

al. 2019). However, phylogenetic relationships and taxonomic statuses of all five subspecies have not been reassessed with an integrative approach.

Herein we perform the first taxonomic revision of the five subspecies of *S. torquatus* based on a molecular phylogeny as inferred by Bayesian and Maximum Likelihood methods, using mitochondrial and nuclear DNA data. To set up a spatio-temporal framework for interpreting the evolution of this endemic Mexican group, we also calculate genetic distances, estimate divergence times, and perform ecological niche modeling for the lineages consistently recovered in the inferred phylogenies. Additionally, we analyze a series of morphometric and scalation characteristics, using both Principal Component Analysis (PCA) and non-Parametric Multidimensional Scaling (nMDS), in order to identify significant differences between lineages.

With this revision we aim to solve one of the oldest taxonomic problems in Mexican herpetology, while providing useful data that may be applied for species conservation efforts.

Taxonomic background

Since its original description, the taxonomy of *S. torquatus* has been problematic (Smith 1938), largely due to it being confused with other similar species such as *Sceloporus cyanogenys* Cope, 1885 (Baird 1859; Yarrow 1882), *Sceloporus mucronatus* Cope, 1885 (Olson 1990), *Sceloporus poinsettii* Baird and Girard, 1852 (Yarrow 1882), *Sceloporus serrifer* Cope, 1866 (Martin 1952), and *Sceloporus spinosus* Wiegmann, 1828 (Cope 1885). Some of these taxa have since been relegated to synonymy or reassigned to subspecific categories. Therefore, to address the taxonomic problems associated with *S. torquatus*, it is necessary to briefly review its taxonomic history:

Originally, the genus *Sceloporus* was erected by Wiegmann (1828) to include the first six Mexican species of spiny lizards, of which *S. torquatus* is the type species (Smith 1938). However, Wiegmann never designated type specimens for the taxa he described, and it was Taylor (1969) who listed a series of four specimens (Zoologische Museum in Berlin, **ZMB** 628-631) from “Mexico” as *S. torquatus* **syntypes** (Fig. 2).

A year after Wiegmann (1828) described the first species of *Sceloporus*, Peale and Green described *Agama torquata* Peale and Green, 1829 (**Holotype**: Academy of Natural Sciences of Philadelphia, ANSP 8499) based on a single specimen from "Temascaltepec, about eighty miles SW of the city of Mexico."

Later, Wiegmann (1834) expanded the description of *S. torquatus* and distinguished the varieties “α” and “β”, essentially by coloration patterns and the shape of the nuchal collar. He also synonymized *A. torquata* with *S. torquatus* “Var. α", and suggested that the "β" variety could be a hybrid between *S. torquatus* and *S. spinosus*.

Cope (1885) reaffirmed the synonymy of *A. torquata* with *S. torquatus* and described *Sceloporus ferrariperezi* Cope, 1885 (**Cotypes**: United States National

Museum, USNM 9874, 9876, 9878, 9880, and 9895 now Museum of Comparative Zoology, MCZ 46922), as well as *Sceloporus melanogaster* Cope, 1885 (**Holotype**: USNM 9877) from specimens sent to him by Dugès (1887). That same year, Boulenger (1885) considered *S. ferrariperezi* and *S. melanogaster* to be varieties of *S. torquatus*.

Almost 50 years later, Smith (1936) recognized *S. torquatus* and *S. ferrariperezi* as valid, although in a subsequent review Smith (1938) synonymized *S. ferrariperezi* with *S. torquatus* and reassigned *S. melanogaster* as a subspecies of *S. torquatus*, but clarified that, according to the taxonomic rules at the time, *S. ferrariperezi* had to replace *S. torquatus* because the latter was a homonym of *Stellio torquatus* (= *Tropidurus torquatus*) Wied-Neuwied, 1820. That same year, *Sceloporus binocularis* Dunn, 1936 was described (**Holotype**: ANSP 20032; **Paratypes**: 20019-20) with specimens from "Trail from Pablillo to Alamar, Nuevo Leon." Two years later, Smith (1939) applied the nomenclatural change from *S. torquatus* to *S. ferrariperezi*, and recognized the species as polytypic containing *S. f. ferrariperezi*, *S. f. melanogaster*, and *S. f. binocularis*. This nomenclatural change was subsequently reversed by Smith and Taylor (1950), reestablishing the validity of *S. torquatus*.

Several years later, another subspecies *Sceloporus torquatus mikeprestoni* Smith and Álvarez, 1974 (**Holotype**: MCZ R115679; **Paratypes**: Escuela Nacional de Ciencias Biológicas, ENCB 5756-5763) was described from specimens collected in "Marcela, Tamaulipas."

Finally, the subspecies *Sceloporus torquatus madrensis* Olson 1986 (**Holotype**: Texas Cooperative Wildlife Collection, TCWC 62433; **Paratypes**: University of Michigan Museum of Zoology, UMMZ 101395, 101400, 101401, 110743, Rupert Earl Olson, REO 1184-1186, 1193, 5569) was described based on specimens from "about Rancho del Cielo, 7 km. NW Gomez Farias, Tamaulipas."

Methods

Museum specimens

In total we examined 684 specimens (Table 1) deposited at the Colección Nacional de Anfibios y Reptiles (CNAR), Escuela Nacional de Ciencias Biológicas (ENCB), and Museo de Zoología Alfonso L. Herrera (MZFC). Additionally, to verify some historical records and for comparison and objective reference, we requested photographs of museum specimens including type material deposited in 19 international collections (See supplementary file 1: Revised and examined specimens).

Taxa	Confirmed	Examined	Morphometry	Scalation
S. t. torquatus	206	289	249	279
S. t. melanogaster	273	256	226	235
S. t. binocularis	3	13	5	13
S. t. mikeprestoni	1	21	12	21

S. t. madrensis El Cielo	1	27	21	27
S. t. madrensis Huasteca	23	35	28	31
Sceloporus sp.	6	15	10	15
Sceloporus Zacatecas	9	28	25	17
Type material	21	7	6	6
Others	32	0	0	0

Table 1. Number of confirmed and examined specimens. Confirmed specimens are those whose records were corroborated. Examined specimens are those whose records were corroborated and measurements and/or scale counts were made. 'Others' are misidentified museum specimens.

We georeferenced all localities using GoogleEarth Pro v.7.3.3.7699 and digitized topographic maps available in the digital library of the Instituto Nacional de Estadística y Geografía (INEGI, https://www.inegi.org.mx/app/mapas/). In the field we used a Garmin etrex30 GPS with WGS84 datum to record collection localities.

Tissue sampling

For genetic analyses, we obtained 56 tissue samples from the MZFC collection and field work that include individuals collected in close proximity to the type localities of all five recognized subspecies of *S. torquatus*, as well as the undescribed *Sceloporus* sp. from western Mexico sensu Martínez-Méndez and Méndez-De la Cruz (2007). Samples of *Sceloporus bulleri* Boulenger, 1895, *S. mucronatus* Cope, 1885, and *Sceloporus grammicus* Wiegmann, 1828 were also included (Fig. 1; Supplementary file 2: Tissue sampling).

Laboratory protocols

To perform DNA extractions, we used the Qiagen™ DNeasy Blood & Tissue Kit™ following the manufacturer's protocol.

We amplified fragments of the 12S and ND4 mtDNA regions, and RAG1 of nDNA by means of polymerase chain reaction (PCR) under the following standardized conditions: 1µL DNA extraction, 9.45µL dH_2O, 3µL 5X MyTaq™ Reaction Buffer, 0.5µL Primer F [10µM], 0.5µL Primer R (10µM) and 0.15µL MyTaq™ Bioline™ (5U). PCRs were carried out in a Multigene Optimax LabNet™ thermocycler with the following annealing temperatures for each molecular marker: 45°C, 12S; 54°C, ND4; and 50°C, RAG1. The oligonucleotides sequences used (Table 2) were taken from Kocher et al. (1989), Fortsner et al. (1995) and Wiens et al. (2010).

Gene	Name: Sequence (5'–3')	Source
12S	L1091rRNA12S: CAAACTGGATTAGATACCCCACTAT	Kocher et al. 1989
	H1478rRNA12S: AGGGTGACGGGCGGTGTGT	
ND4	ND4: TGACTACCAAAAGCTCATGTAGAAGC	Fortsner et al. 1995
	TLeu2b: TRCTTTTACTTGGATTTGCACCA	
RAG1	JRAG1f2: CAAAGTRAGATCACTTGAGAAGC	Wiens et al. 2010
	JRAG1r3: ACTTGYAGCTTGAGTTCTCTCTTAGRCG	
Data	Partitions	Models

		Bayesian	ML
12S + ND4	Subset1 = 1-351 354-983\3 984-1070	GTR+I+Γ	GTRGAMMA
	Subset2 = 352-983\3		
	Subset3 = 353-983\3		
12S + ND4 + RAG1	Subset1 = 1-351 352-983\3 354-983\3 984-1070 1071-1979\3 1072-1979\3 1073-1979\3		
	Subset2 = 353-983\3	GTR+Γ	

Table 2. Oligonucleotides, partitions, and substitution models used.

We used the sequencing service of the National Biodiversity Laboratory (LANABIO) at the Instituto de Biología (IBUNAM), which uses the BigDye™ Terminator v.3.1 Applied Biosystems™ kit and a final purification with Sephadex™ G-50 before analyzing cycle sequencing product on an Applied Biosystems™ 3730 xL DNA Analyzer Sequencer.

Sequence alignment

Once sequences were obtained, we used MUSCLE (Edgar 2004) implemented in MEGA-X v.10.0.5 (Kumar et al. 2018) to pair contigs and align sequences. Subsequently, we reviewed alignments by eye, and eliminated small regions of the sequences that contained polymorphic sites that were difficult to align.

Phylogenetics analysis

We constructed two molecular data matrices —the first one exclusively with the mtDNA data (12S + ND4) and the second with the combined data from mtDNA + nDNA (12S + ND4 + RAG1). We also included sequence data generated in previous works (Martínez-Méndez and Méndez-De la Cruz 2007; Leaché and Mulcahy 2007). For accession numbers of sequences used see supplementary file 2: Tissues sampling. To identify the optimal partitions in both datasets, as well as the best nucleotide substitution model for each partition (Table 2), we used PartitionFinder2 (Lanfear et al. 2016) through the CIPRES Science Gateway v.3.3 interface (Miller et al. 2010).

To infer the phylogenetic relationships of *S. torquatus* ssp. we performed both Bayesian inference and ML analyses with both mitochondrial and combined datasets, using MrBayes v.3.2.7a (Ronquist et al. 2012) and RaxML-HPC2 (Stamatakis 2014) through the CIPRES Science Gateway v.3.3 interface (Miller et al. 2010). In each Bayesian analysis we specified the following parameters: mcmcp ngen = 60000000, burninfrac = 0.25, printfreq = 6000, and samplefreq = 6000; while in each Maximum Likelihood analysis we specified the GTRGAMMA model of nucleotide substitution and 1000 bootstrap iterations. We rooted the trees using *S. bulleri* as the sister species of *S. torquatus*, and *S. mucronatus* as a member of the *torquatus* species group sensu lato, as well as *S. grammicus* as a sister group to the entire *torquatus* species group (Martínez-Méndez and Méndez-De la Cruz 2007).

We used Tracer v.1.7.1. (Rambaut et al. 2018) to check the Marcov's chains (MCMC) convergence implemented in MrBayes, and FigTree v1.4.4 (Rambaut 2018) to visualize the resulting phylogenetic trees.

Genetic distances

Using MEGA X v.10.0.5 (Kumar et al. 2018), we constructed a Neighbor-Joining tree with 1000 bootstrap iterations and the Kimura2-parameter model (Kimura 1980) to subsequently calculate the genetic distances between groups defined by lineages recovered in the phylogenetic analyses under the same parameters. We designed *S. bulleri* as the external group because it is the sister species of *S. torquatus*.

Divergence times

We estimated divergence times between lineages using BEAST v2.5.1 (Bouckaert et al. 2019) under a Yule tree model. We inferred models of substitution and rate heterogeneity using bModelTest (Bouckaert and Drummond 2017) for four partitions: 12S, the ND4 coding region, the noncoding tNRA region of ND4, and RAG1. We estimated two separate uncorrelated relaxed clock models for the combined mitochondrial loci and the nuclear RAG1 loci, respectively. Given the lack of fossils for the group, a secondary calibration was used to calibrate the node corresponding to the most recent common ancestor between the *S. torquatus* group and *S. grammicus*. A uniform prior between 12.9 and 18.0 mya was used for this node, as this range encompasses the estimated divergence date for these taxa in two previous studies on the group (Wiens et al. 2013; Leaché et al. 2016), and has been used in recent divergence estimations for the *S. torquatus* group (Lambert et al. 2019). Three independent runs of 40000000 MCMC generations were run, sampling every 4000 generations. We assessed convergences in Tracer v.1.7.1 (Rambaut et al. 2018), where we compared replicate runs for similar parameter values and then combined them using LogCombiner after discarding the first 10% of trees of each run as burn-in. We used TreeAnnotator to create a maximum clade credibility tree using the median ancestor height and visualized the resulting tree in FigTree v1.4.4 (Rambaut 2018).

Ecological niche modelling (ENM)

We performed a series of statistical analyses to evaluate the multivariate niche overlap between lineages in the environmental spaces. We used the "PCA-env" approach (Broennimann et al. 2012) implemented in the ecospat R packages (Di Cola et al. 2017). This approach calculates niche overlap using the Schoener's *D* metric from the first two principal component analysis (PCA) including climate information from the respective lineage occurrence distributions and their background from the calibration area (see below). A smoothed occurrence density was estimated for each lineage using a kernel density function, and this was used to calculate niche overlap. We implemented randomization tests to assess niche similarity for each lineage pair (Di Cola et al. 2017). Here we test whether lineage pairs are more similar than expected based on their background environments (i.e.,

species are occupying niches that are more similar given the environmental availability in the region). We used 100 random replications for these tests. We used an ensemble approach given the high uncertainty in model algorithm selection on transferability under past climate change scenarios. We selected a set of bioclimatic variables for model fit based on collinearity which was calculated using the Variance Inflation Factor (VIF; Marquaridt 1970). The VIF was calculated for the 19 bioclimatic variables from WorldClim using the *vifcor* R function from the *usdm* package (Naimi et al. 2014). Afterward, we selected the following variables for model fit: bio4, bio9, bio15, bio18 and bio19. We evaluated our models by creating pseudo-absences and with data-splitting methods. First, we randomly partitioned the presence data into two sets for calibration (70%) and validation (30%). For each dataset (calibration and validation), we generated a set of pseudo-absences using the *ecospat.rand.pseudoabsences* function from *ecospat* R package (Di Cola et al. 2017). The number of pseudo-absences for calibration was 10 times the number of training presences and for validation was 100 times the number of testing presences (i.e., 800 pseudo-absences). Pseudo-absences were created randomly across the entire calibration area or accessible area (M area; Soberón and Peterson 2005) with a minimum distance of at least 5km with respect to presence records. This area represents the hypothetical historical suitable area (HSA) where lineages recovered in our phylogenetic analysis evolved through time. We adopted this validation approach to maximize the number of pseudo-absences in both cross-validation splits and external validation. We used eight model algorithms available in the sdm R package (Naimi and Aráujo 2016), including MaxEnt (Maximum Entropy), MARS (Multivariate Adaptive Regression Splines), GBM (Gradient Boosting Machine), RF (Random Forest), CART (Classification and Regression Trees), SVM (Support Vector Machines), GLM (Generalized Linear Model) and GAM (Generalized Additive Model). Models were trained using 5-folds of cross-validation and 10 bootstrapping replications for a total of 50 replications per algorithm. For each individual model, we evaluated geographical predictive accuracy using the true skill statistic (TSS) and omission rate (Allouche et al. 2006; Fielding and Bell 1997). Finally, we generated a consensus ensemble model weighting for those models maximizing TSS values. This model identifies areas where those models with the highest predictive capacity tend to agree with the environmental conditions for successful population establishment (i.e., habitat suitability distribution).

Then, ensembles were transferred to past climate change scenarios from the paleoclimatic database PaleoClim (Brown et al. 2018) to generate past suitable conditions. This database contains bioclimatic information for 11 time horizons since the last Meghalayan until the mid-Miocene. The time periods are as follows (in parentheses the estimated time period): Meghalayan (4.2–0.3kya), Northgrippian (8.3–4.2kya), Greenlandian (11.7–8.3kya), Younger Dryas Stadial (12.9–11.7kya), Bølling-Allerød (14.7–12.9kya), Heinrich Stadial (17.0–14.7kya), Last Glacial Maximum (LGM ~21kya), Inter-Glacial (LIG ~121kya), the Marine Isotope Stage 19 in the Pleistocene (MIS19; ~787kya), mid-Pliocene Warm (3.2mya) and the Marine Isotope Stable M2 in the Late Pliocene (M2; 3.3mya). These periods include several abrupt global climate change events (Thornally et al.

2010; 2011; 2013; Brown et al. 2018). We stacked individual models and then estimated the median of suitability values across the region to identify areas where the optimal niche conditions coincided for the majority of lineages as the historical stable areas (HSA).

Morphological analysis

We test whether those lineages recovered by molecular phylogenetic analyses exhibit morphological differences through PCA and nMDS methods using morphometric and scalation characters.

We follow Olson (1990) and Smith (1939) for morphometric and scalation terminology. All measurements and counts were made by the same person (GCG) using a Mitutoyo 500-196-30 digital caliper (with an accuracy of ± 0.1 mm), a 3X magnifier, and a Zeiss 5X stereomicroscope.

We measured 576 individuals with SVL snout-vent length exceeding 70 mm, as S. torquatus reaches sexual maturity at this body size (Guillette and Méndez-De la Cruz 1993; Feria Ortiz et al. 2001), to build a data matrix with 10 morphometric traits (See supplementary file 3: Morphometric measurements). Additionally, a data matrix with 18 scalation characters (See supplementary file 4: Scalation counts) was built from 638 adult and juvenile specimens, as these traits are not body size dependent.

We removed the effect of body size on morphometric variables following Velasco and Herrel (2007) where each variable was log10-transformed and regressed against snout-vent length (log10). The residuals of all variables and the snout-vent length (log10) were used in a PCA. Then, we performed a Multivariate Analysis of Variance (MANOVA) with the scores obtained from the principal components (PC) to test for significant differences (p <0.05) between the means of the variances of the lineages compared.

Alternatively, with the scaling data matrix we implemented a Non-Parametric Multidimensional Scaling (nMDS) analysis with the Manhattan coefficient to calculate the total differences of the measured variables between individuals of each recovered lineage.

We carried out these statistical analyzes with the tools provided in PAST v.4.01 (Hammer et al. 2001).

Results

Sceloporus torquatus syntypes

We discovered that more than one species is represented in the type series of *S. torquatus* (Fig. 2). Specifically, the specimen ZMB 628 has divided supraocular scales, 32 dorsal scales, 43 ventral scales, and blue coloration on the belly, throat, and both sides of the head; furthermore, the dorsal scales are bordered with black,

and the light borders of the dark nuchal collar are complete. These characters led us to redetermine this specimen as *Sceloporus aureolus* Smith, 1942.

Additionally, we redetermined the specimen ZMB 630, a syntype of *S. torquatus*, as *S. t. melanogaster* by having undivided supraocular scales, 30 dorsal scales, 41 ventral scales, diffuse dark nuchal collar interrupted by dorsolateral light bands or marks, as well as a series of dark irregular spots that fade over the base of the tail.

Finally, we found that the specimen ENCB 5756, a paratype of *S. t. mikeprestoni*, actually pertains to *Sceloporus minor* Cope, 1885. This specimen has divided supraocular scales, 36 dorsal scales, 40 scales around the body, and 44 ventral scales.

Molecular data

We obtained 170 sequences from the 12S (321-351 bp), ND4 + adjacent tRNA (553–719 bp), and RAG1 (909 bp) regions. The mitochondrial data matrix contains 60 samples, 1070 bp, 770 conserved sites, 300 variable sites, and 196 parsimony informative sites, while the combined data matrix contains 50 individuals, 1979 bp, with 1639 conserved sites, 350 variable sites, and 205 parsimony informative sites.

The optimal partitioning schemes of the mitochondrial and combined data sets, as well as the best substitution model for each partition, are shown in Table 2.

Phylogenetic analyses

The mitochondrial gene trees resulting from the Bayesian and ML analyses maintain a similar topology (Fig. 3). We can identify eight different lineages forming the *torquatus* complex: *S. t. torquatus* (Posterior probability, PP = 1; Bootstrap, BS = 89), *S. t. melanogaster* (PP = 0.99; BS = 60), *S. t. binocularis* (PP = 1; BS = 100), *S. t. mikeprestoni* (PP = 1; BS = 100), *S. t. madrensis* El Cielo (PP = 1; BS = 100), *S. t. madrensis* Huasteca (PP = 1, BS = 97), *Sceloporus* sp. (PP = 1, BS = 100) and *Sceloporus* Zacatecas (PP = 1, BS = 97). The *torquatus* complex was found to be monophyletic with respect to the included outgroup taxa, although with low support (PP = 0.77; BS = 46)

In both mitochondrial trees, *S. t. torquatus*, *S. t. binocularis*, *S. t. mikeprestoni*, *S. t. madrensis* El Cielo, and *S. t. madrensis* Huasteca forms a clade sister to the clade formed by *Sceloporus* sp. and *Sceloporus* Zacatecas.

The phylogenies with combined mitochondrial and nuclear data (Fig. 4) recovered the same eight lineages: *S. t. torquatus* (PP = 1; BS = 97), *S. t. melanogaster* (PP = 0.97; BS = 32), *S. t. binocularis* (PP = 1; BS = 100), *S. t. mikeprestoni* (PP = 1; BS = 100), *S. t. madrensis* El Cielo (PP = 1; BS = 100), *S. t. madrensis* Huasteca (PP = 1, BS = 100), *Sceloporus* sp. (PP = 1, BS = 100) and *Sceloporus* Zacatecas (PP = 1, BS = 97). In the ML phylogeny, *Sceloporus* sp. and *Sceloporus* Zacatecas form the sister clade to *S. t. melanogaster*.

We consistently recover *S. bulleri* and *S. mucronatus* as the sister species of the *torquatus* complex, while *S. grammicus* is sister to all of them.

Genetic distances

The genetic distance between *S. bulleri* from any member of the *torquatus* complex ranges from 0.069-0.085. The genetic distance between *S. t. torquatus* and *S. t. melanogaster* is 0.054, between *S. t. binocularis* and *S. t. mikeprestoni* is 0.025, between *S. t. madrensis* El Cielo and *S. t. madrensis* Huasteca is 0.045, and that between *Sceloporus* sp. and *Sceloporus* Zacatecas is 0.032 (Table 3).

S. bulleri								
S. t. torquatus	0.074							
S. t. melanogaster	0.069	0.054						
S. t. binocularis	0.083	0.045	0.058					
S. t. mikeprestoni	0.084	0.041	0.059	0.025				
S. t. madrensis El Cielo	0.082	0.051	0.055	0.046	0.043			
S. t. madrensis Huasteca	0.085	0.042	0.059	0.041	0.039	0.045		
Sceloporus sp.	0.072	0.057	0.044	0.062	0.062	0.064	0.066	
Sceloporus Zacatecas	0.071	0.062	0.059	0.067	0.063	0.063	0.062	0.032

Table 3. Genetic distances between taxa, calculated using the Kimura 2-parameters model.

Divergence times

The BEAST time-tree recovered a similar topology and support values to the RAxML and MrBayes trees (Fig. 5). The crown age for the *torquatus* complex is ~5.51 mya (3.61–7.77, 95% HPD). The split between *S. t. melanogaster* and the Sierra Huichola clades dates to ~4.33 mya (2.63–6.32, 95% HPD). The divergence between *torquatus* and the Sierra Madre Oriental clades is ~4.12 mya (2.64–6.03, 95% HPD). The four Sierra Madre Oriental lineages (*S. t. madrensis* El Cielo, *S. t. madrensis* Huasteca, *S. t. binocularis,* and *S. t. mikeprestoni*) are recovered as monophyletic with good support and a crown age of ~3.31 mya (2.06–4.76, 95% HPD); the relative splitting of the two *S. t. madrensis* lineages is uncertain, given the low internal posterior probability value within this subclade. The timing of these divergences from the *binocularis* subclade (*S. t. binocularis* + *S. t. mikeprestoni*) is recovered between 1.89–4.4 mya, and the most recent common ancestor between *S. t. binocularis* and *S. t. mikeprestoni* lineages is recovered at ~1.81 mya (0.97–2.81, 95% HPD).

ENM

In general, there are no similarities in the ecological niches of each lineage within the *torquatus* complex (Table 4). The comparison between *S. t. melanogaster* and *S. t. binocularis* shows the highest niche similarity (Schoener's $D = 0.44$), although their respective p-values in the randomization test are discrepant ($p = 0.01$, $p = 0.09$; Table 5), and therefore this similarity must be taken with reservations.

sp. 1 vs sp. 2/sp. 2 vs sp. 1	*S. t. torquatus*	*S. t. melanogaster*	*S. t. binocularis*	*S. t. mikeprestoni*	*S. t. madrensis* El Cielo	*S. t. madrensis* Huasteca	*Sceloporus* sp.	*Sceloporus* Zacatecas
S. t. torquatus								
S. t. melanogaster	0.18							
S. t. binocularis	0.10	0.44						
S. t. mikeprestoni	0.05	0.02	0.10					
S. t. madrensis El Cielo	0.01	0.04	0.01	0.00				
S. t. madrensis Huasteca	0.29	0.35	0.12	0.21	0.01			
Sceloporus sp.	0.06	0.18	0.10	0.01	0.08	0.08		
Sceloporus Zacatecas	0.02	0.13	0.11	0.00	0.00	0.00	0.00	

Table 4. Schroener's similarity index (Schoener's *D*).

sp. 1 vs sp. 2/sp. 2 vs sp. 1	*S. t. torquatus*	*S. t. melanogaster*	*S. t. binocularis*	*S. t. mikeprestoni*	*S. t. madrensis* El Cielo	*S. t. madrensis* Huasteca	*Sceloporus* sp.	*Sceloporus* Zacatecas
S. t. torquatus		0.17	0.25	0.12	0.01	0.12	0.16	0.18
S. t. melanogaster	0.27		0.01	0.15	0.03	0.08	0.06	0.04
S. t. binocularis	0.22	0.07		0.05	0.14	0.26	0.09	0.06
S. t. mikeprestoni	0.09	0.15	0.05		1.00	0.25	0.09	0.14
S. t. madrensis El Cielo	0.05	0.01	0.09	1.00		0.04	0.01	0.00
S. t. madrensis Huasteca	0.15	0.10	0.31	0.18	0.13		0.13	0.42
Sceloporus sp.	0.11	0.02	0.03	0.17	1.00	0.11		1.00
Sceloporus Zacatecas	0.21	0.03	0.00	0.12	0.19	0.44	1.00	

Table 5. *p*-values obtained in a randomization test. sp. 1 versus sp. 2 below diagonal, sp. 2 versus sp. 1 above diagonal.

The potential distribution models (see supplementary file 5: Potential distribution models of the *torquatus* complex) illuminate some interesting patterns. For

example, *S. t. torquatus* has a greater affinity with the existing climatic conditions of central and southern Mexico. Given the suitability values observed in each model, there seems to be reciprocity between the potential areas of *S. t. binocularis*, *S. t. mikeprestoni*, and *S. t. madrensis* El Cielo, which together inhabit northeastern Mexico, with respect to the potential area of *S. t. madrensis* Huasteca which is distributed in central eastern Mexico.

According to the models projected into the past, the HSA have been very dynamic as they have expanded and contracted consecutively since the late Pliocene, but have remained associated with the main mountainous regions of central and northern Mexico. Between the mid-Pliocene Warm period (3.2 mya) and MIS19 (~787 kya), another HSA in the northeast of Mexico appears. Through the different temporal scenarios, except for the mid-Pliocene Warm, an extensive HSA has been maintained in central Mexico (Fig. 6).

Morphology

A summary of the descriptive statistics for each taxa is shown in the supplementary file 6: Geographic distribution, morphometrics and scalation of the *torquatus* complex.

We perform five different PCA and nMDS routines to contrast the morphology of *S. t. torquatus* versus *S. t. melanogaster*, *S. t. binocularis* versus *S. t. mikeprestoni*, *S. t. mikeprestoni* versus *S. t. madrensis* El Cielo, *S. t. madrensis* El Cielo versus *S. t. madrensis* Huasteca, and *Sceloporus* sp. versus *Sceloporus* Zacatecas.

None of five PCA routines show a clear segregation of the analyzed datasets (Fig. 7A–D). The first three PCs of each routine explain 63.8-77.4% of the total variance, and the MANOVA performed with the scores of these PCs yielded p <0.05, except for the comparison between *S. t. madrensis* El Cielo and *S. t. madrensis* Huasteca (p = 0.421, Wilks λ = 0.94, F = 0.957; Table 6). The scores and eigenvalues of the first three PCs of each routine are shown in supplementary file 7: PCA statistics.

	nMDS			PCA			
		R^2		MANOVA			%
Routines	Stress	Axis 1	Axis 2	Wilks´ λ	F	p	Variance
S. t. torquatus versus *S. t. melanogaster*	1.563	0.032	0.009	0.939	1E+01	2E-06	63.8
S. t. binocularis versus *S. t. mikeprestoni*	0.279	0.545	0.130	0.461	5.07	0.02	76.5
S. t. madrensis El Cielo versus *S. t. mikeprestoni*	0.239	0.695	0.130	0.222	33.87	1E-09	67.9
S. t. madrensis El Cielo versus *S. t. madrensis* Huasteca	0.198	0.818	0.088	0.94	0.957	0.421	66.3
Sceloporus sp. versus *Sceloporus* Zacatecas	0.273	0.455	0.191	0.369	17.68	7E-07	77.4

Table 6. Stress and R^2 values obtained in nMDS routines, and MANOVA and percentage of explained variance for PCAs.

The nMDS routine between *S. t. madrensis* El Cielo versus *S. t. madrensis* Huasteca yielded the lowest Stress value (0.198) and highest Coefficients of determination R^2 (Axis 1 = 0.818, Axis 2 = 0.088). In the rest of the comparisons, the Stress values range from 0.239-1.563 (Table 6; Fig. 8A–D).

Discussion

Taxonomy

According to the International Code of Zoological Nomenclature (ICZN; The International Trust for Zoological Nomenclature 1999) the fixation of a type specimen serves as an objective reference for the application of the taxonomic name it carries (Art. 61.1), and such objectivity is hierarchically continuous from the species level to the family level (Art. 61.1.2). Now, if in the original description of a nominal taxon a specimen or specimens bearing the name was not designated, it is possible that such a designation was made later by the figure of the first reviewer (Arts. 24.2.1). In this context, Taylor (1969) served as the first reviewer by designating four syntypes for *S. torquatus*. The results presented here show that the specimens ZMB 628 and ZMB 630 belong to distinct taxonomic species than *S. torquatus*, thus causing instability in the application of the species name, and therefore warranting a lectotype to be designated from the syntypes (ICZN Arts. 70.3, 74.1). For this purpose, we designate as the **lectotype** for the name *S. torquatus* the specimen ZMB 629, and as the **paralectotype** the specimen ZMB 631. We base the designation of the lectotype on its similarity to the specimen illustrated in Wiegmman (1834; tab. VII, fig. 1), according to ICZN Art.72.4.1.1.

In the other case, the misidentification of the *S. t. mikeprestoni* paratype ENCB 5756 in the original description (Smith and Álvarez 1974) does not exclude it from the type series of this nominal taxon (ICZN Art.72.4.2).

Integrative systematics of the torquatus complex

This study includes genetic data from *S. t. mikeprestoni* and *S. t. madrensis* for the first time ever, as well as the most extensive sampling throughout the distribution of the *torquatus* complex, to accomplish the most complete molecular phylogeny of this emblematic group of phrynosomatid lizards to date. The *torquatus* complex is a monophyletic group composed of eight independent lineages, five of which represent recognized subspecies, while the remaining three represent unnamed taxa that are awaiting descriptions (Flores-Villela et al. in preparation).

There is evidence to recognize populations referred here as *S. t. madrensis* Huasteca as an independent lineage that was previously confused with *S. t melanogaster* and *S. t. madrensis* (Smith 1939; Olson 1991). In addition we confirm the existence of other cryptic species from western Mexico suggested by Martínez-Méndez and Méndez-De la Cruz (2007) and Martínez-Méndez et al. (2019) in this research; these lineages are more closely related to *S. t.*

melanogaster given the smaller genetic distances between them and their geographical proximity (see Figs. 1 and 5).

Additional tissue samples from the northernmost populations of *S. t. melanogaster* could help elucidate phylogenetic relationships within the *torquatus* complex as a sister taxon of *Sceloporus* sp. from Nayarit, Jalisco and Zacatecas, and could also resolve phylogenetic relationships within the lineage *S. t. melanogaster*.

At the end of the Neogene, tectonic and volcanic activity gave rise to the main mountain systems of Mexico, promoting vicariance events in numerous taxa (Bryson et al. 2012; Morafka 1977). Our estimation of divergence times shows that the current phylogeographic structure of the *torquatus* complex coincides with this period. Pleistocene climate changes may have led to the diversification of numerous taxa (Bryson et al. 2011, 2012; Leaché et al. 2013; Díaz-Cárdenas et al. 2019), to which we include the most recently diverged lineages within the *torquatus* complex, *S. t. binocularis* and *S. t. mikeprestoni*.

It has been suggested that morphological convergence may be related to environmental similarity in other species of the *torquatus* group (Martínez-Méndez et al. 2012). In the case of *S. t. torquatus* and *S. t. melanogaster*, we observe morphological convergence (Figs. 7 and 8) despite their wide geographic distributions (Fig. 1) and heterogeneity of environments inhabited (Table 4). *Sceloporus t. torquatus* is distributed in central Mexico, where it inhabits mainly pine forests, oak forests and scrub, at 1300-3533 masl, while *S. t. melanogaster* is distributed throughout central and much of northern Mexico, living mainly in different types of scrub, pine forests, oak forests and grasslands, at 1100-2745 masl. Both can be found frequently on stone walls or fences, in agricultural land, and urban areas. Future samplings in the contact zone of *S. t. torquatus* and *S. t. melanogaster* in central Mexico would be useful to determine the extent of gene flow, and to investigate the mechanisms of reproductive isolation, especially since behavior and coloration are known to be related to conspecific recognition and reproductive success in *Sceloporus* (Hunsaker 1962; Jiménez-Arcos et al. 2017).

The modeled HSA (Fig. 6) indicates that climatic conditions have been favorable for the *torquatus* complex repeatedly in east central Mexico, as far east as Veracruz, very close to the Gulf of Mexico slope. We did not find populations of *S. torquatus* beyond Tlaxcala during field work, and the historical records from Veracruz that we reviewed were redetermined as *S. mucronatus* and *S. formosus*. According to the HSA, future sampling in western Mexico could reveal the discovery of new species of *Sceloporus* related to the *torquatus* complex, as was the case of *Sceloporus* sp. from Nayarit, Jalisco and Zacatecas.

Although the niche similarity test that we performed is not conclusive (Tables 4 and 5), we note the fact that four main biogeographic provinces constitute the current geographic distribution of the *torquatus* complex, implying a great heterogeneity of suitable habitats and topography. The distribution of some lineages within the *torquatus* complex are isolated in mountainous areas where the climatic change has been accelerated (Sinervo et al. 2010), thus future studies could be directed to reassess the extinction risk of these lineages.

The lack of considerable differences in morphometry and scalation among the populations of the compared lineages may be a consequence of the relatively recent diversification of the *torquatus* complex. In live and preserved specimens, the coloration characteristics are generally useful for distinguishing between members of the *torquatus* complex, except for specimens from the wide contact zone between *S. t. torquatus* and *S. t. melanogaster* along the Faja Volcánica Transmexicana.

Conclusions

With all available evidence examined herein, we conclude that *S. torquatus* represents a multi-faceted taxonomic problem. We identified several different taxa in the syntype series of *S. torquatus*, and discovered a greater diversity than currently recognized within the complex that is masked by recently diverged cryptic species.

In order for nomenclature to reflect the phylogenetic relationships in the *torquatus* complex, we recommend the following taxonomic changes: the reassignment of *S. t. melanogaster* (= *S. melanogaster*) and *S. t. binocularis* (= *S. binocularis*) to species level, and the use of the new combinations *S. mikeprestoni* comb. nov. Smith and Álvarez, 1974, and *S. madrensis* Olson 1986 comb. nov. These changes allow *S. torquatus* to be monotypic.

Those populations from southern San Luis Potosí, northeastern Querétaro and northern Hidalgo represent a distinct species that has previously been confused with both *S. t. torquatus* and *S. t. madrensis*. Similarly, populations from eastern Zacatecas, previously considered as *S. t. melanogaster*, represent another unnamed species. Formal descriptions for both will be published separately, including expanded sampling in northern, western, and central Mexico to investigate phylogeographic structure and gene flow between neighboring species (Flores et al. in prep.).

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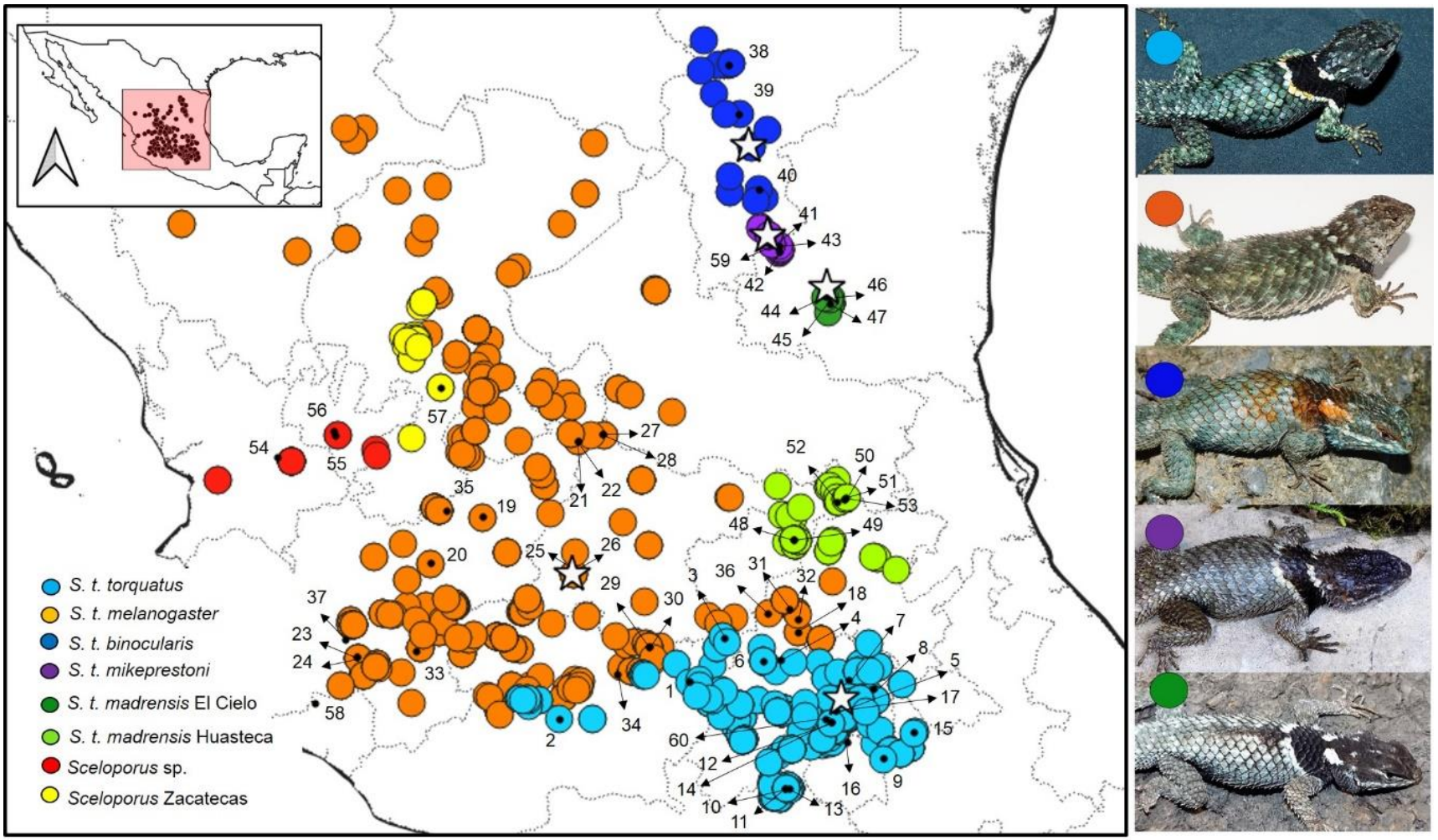


Figure 1. Geographic distribution of *Sceloporus torquatus* spp. Light blue = *S. t. torquatus*, orange = *S. t. melanogaster*, dark blue = *S. t. binocularis*, purple = *S. t. mikeprestoni*, dark green = *S. t. madrensis* El Cielo, light green = *S. t. madrensis* Huasteca, red = *Sceloporus* sp. yellow = *Sceloporus* Zacatecas. Black dots = tissue sampling. Stars represent type localities of described taxa. Numbers are specified in supplementary file 2: Tissue sampling.

Figure 2. Syntypes of *S. torquatus*, Zoologische Museum Berlin (ZMB) 628-630, collected by Ferdinand Deppe and Alexander von Sack in Mexico (circa 1825), currently in Museum für Naturkunde (MFN). ZMB 628, ♂ adult; ZMB 629, ♂ adult; ZMB 630, ♀ adult; ZMB 631, ♂ adult. For all cases scale bar 20 mm. Photographs courtesy of F. Tillack.

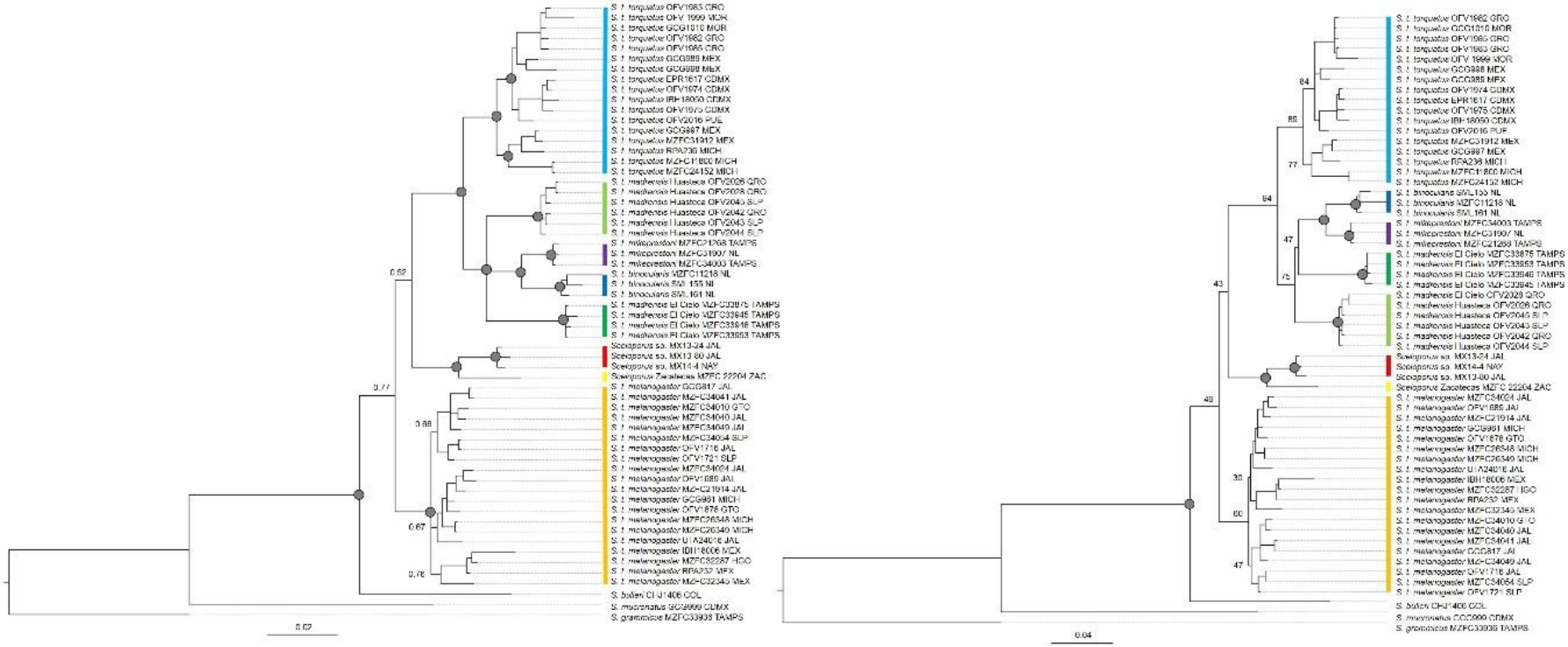


Figure 3. Mitochondrial gene tree with support values, obtained by MrBayes and RAxML. Posterior probability values (PP) and Bootstraps values (BS) are displayed at nodes, with values greater than 0.95 designated with grey dots.

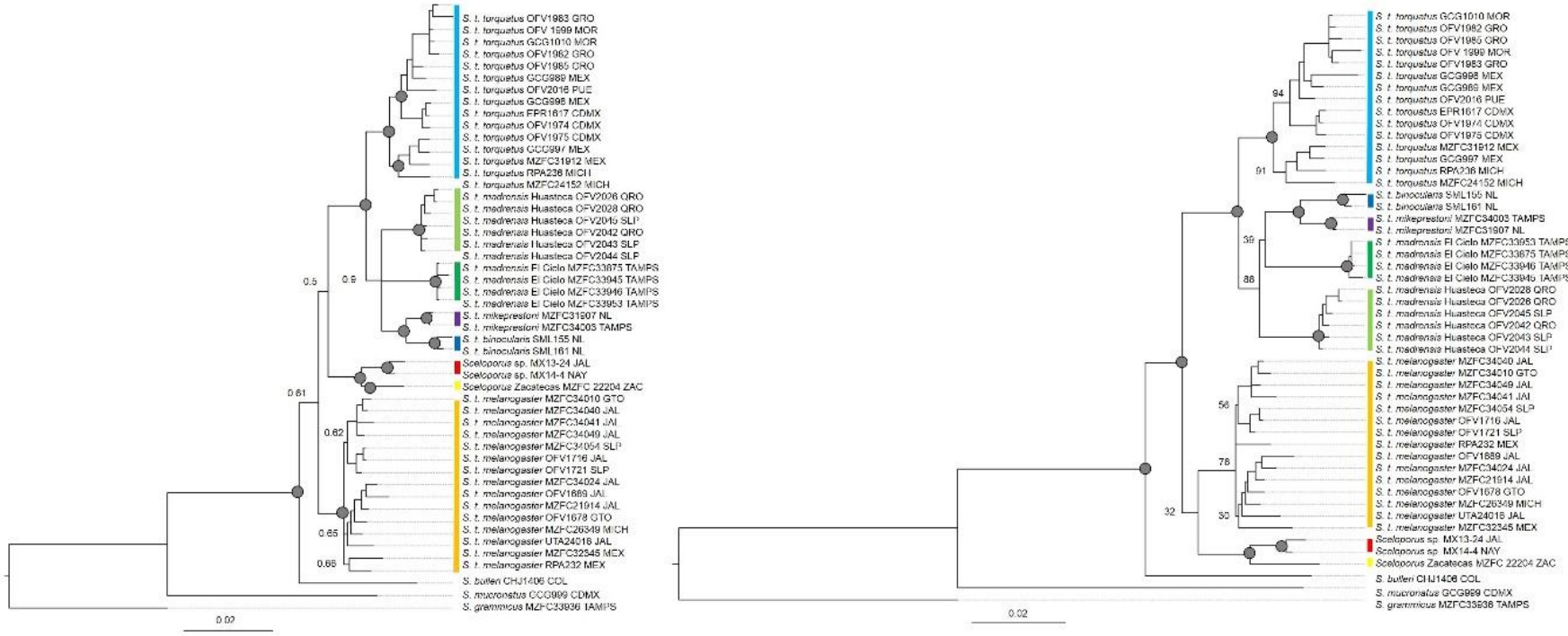


Figure 4. Combined mitochondrial and nuclear gene trees with support values, obtained by MrBayes and RAxML. Posterior probability values (PP) and Bootstraps values (BS) are displayed at nodes, with values greater than 0.95 designated with grey dots.

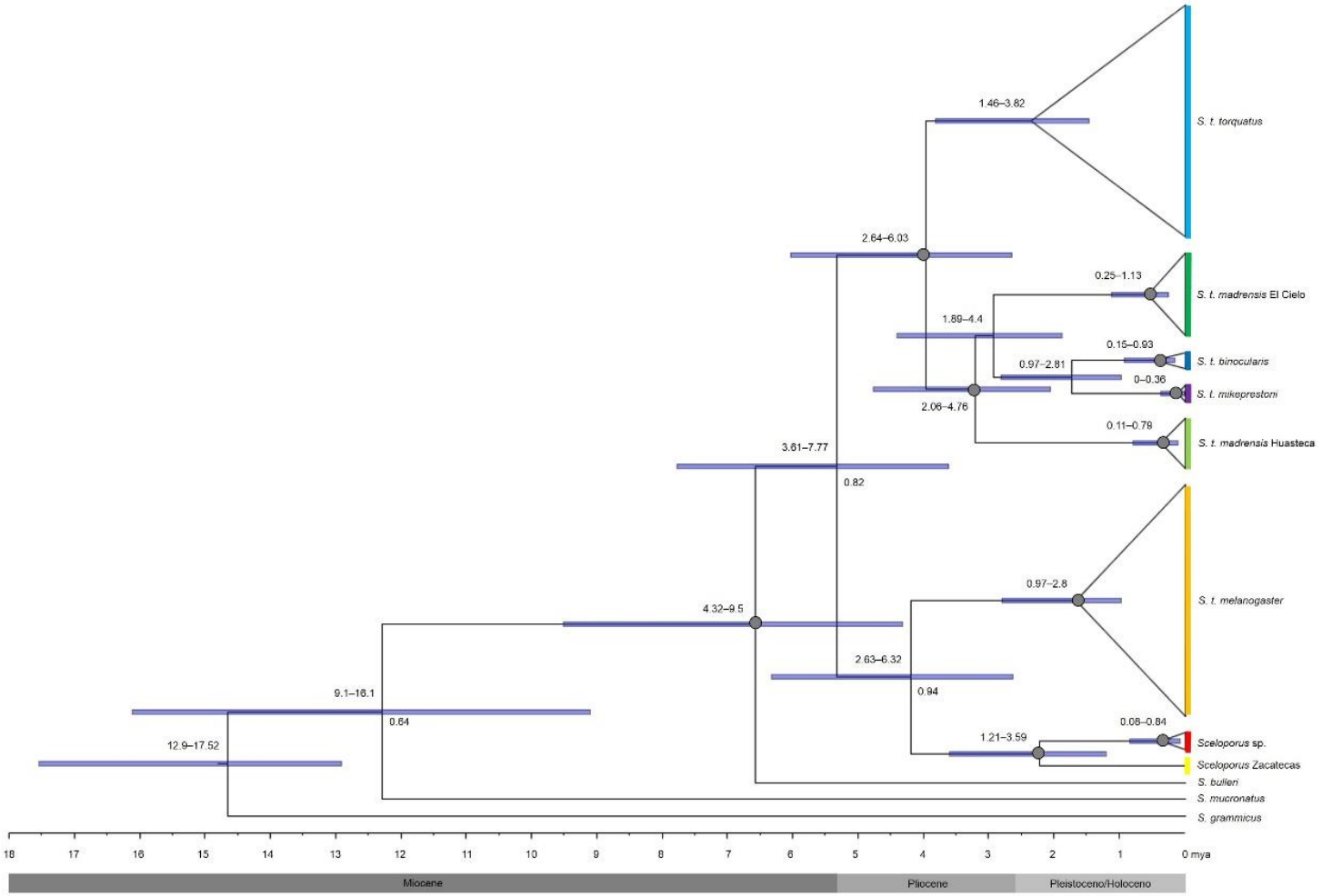


Figure 5. Time-calibrated phylogeny estimated in BEAST2. Posterior probability values (PP) are displayed at nodes, with values greater than 0.95 designated with grey dots. Node age (height), given in millions of years ago (mya), are also displayed at nodes.

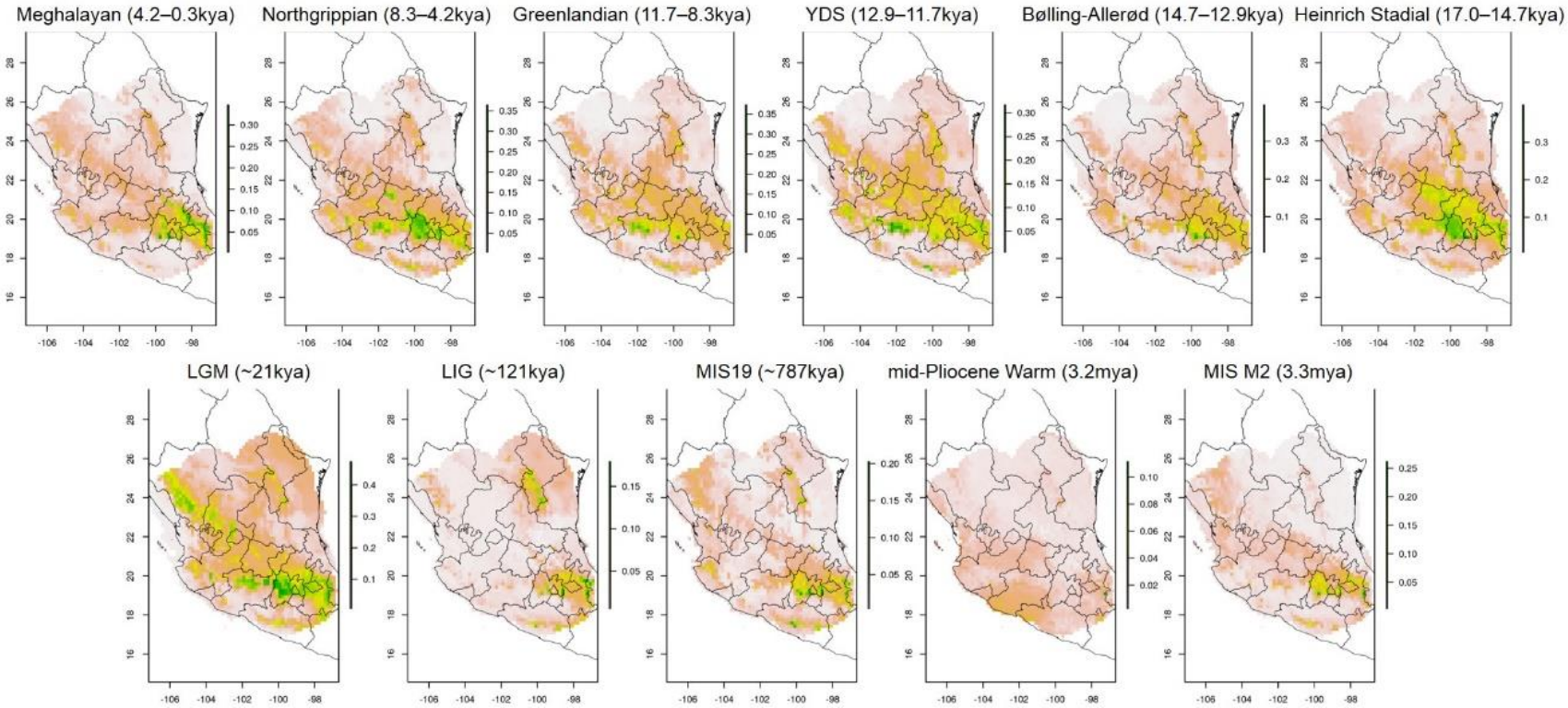


Figure 6. Historical Suitable Areas (HSA) modeled through 11 past climatic scenarios.

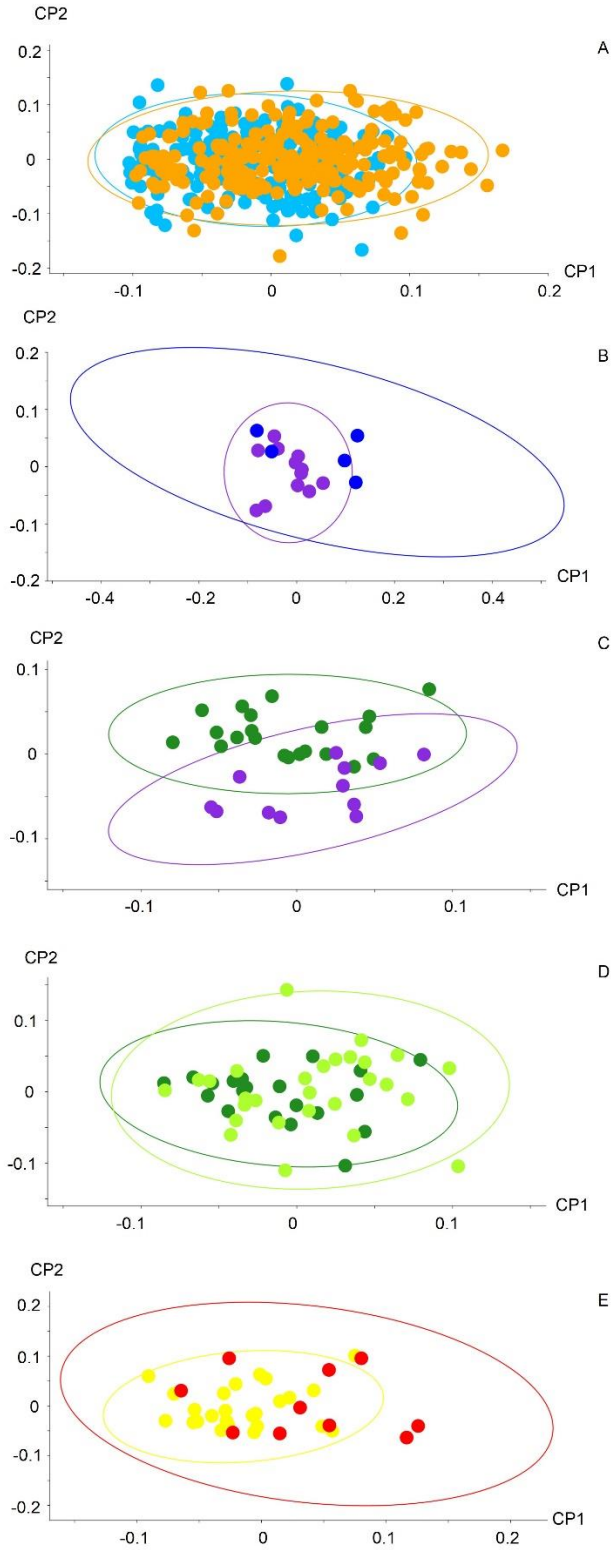


Figure 7. PCA comparisons. **A** *S. t. torquatus* versus *S. t. melanogaster* **B** *S. t. binocularis* versus *S. t. mikeprestoni* **C** *S. t. mikeprestoni* versus *S. t. madrensis* El Cielo **D** *S. t. madrensis* El Cielo versus *S. t. madrensis* Huasteca **E** *Sceloporus* sp. versus *Sceloporus* Zacatecas.

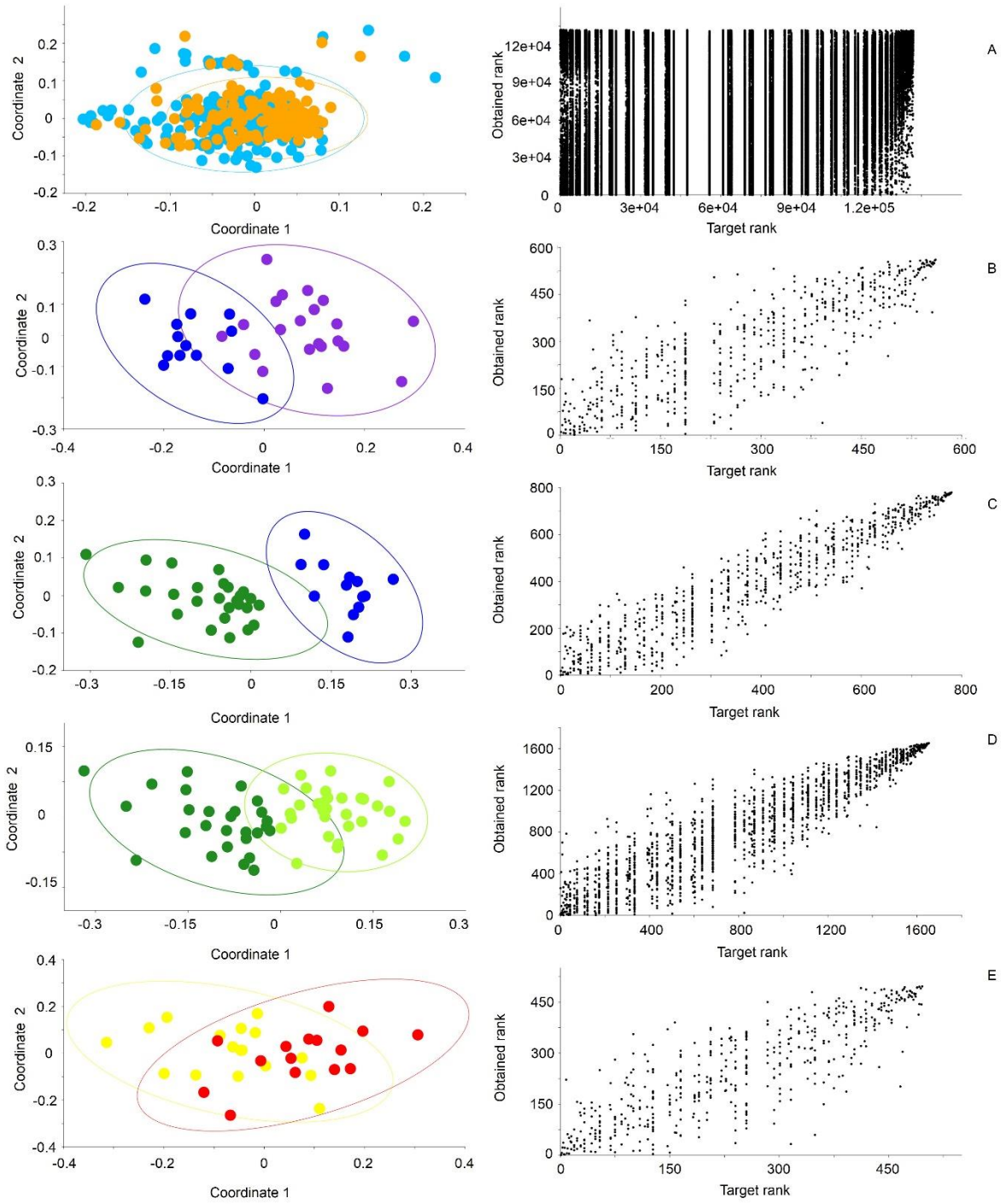


Figure 8. nMDS comparisons. **A** *S. t. torquatus* versus *S. t. melanogaster* **B** *S. t. binocularis* versus *S. t. mikeprestoni* **C** *S. t. mikeprestoni* versus *S. t. madrensis* El Cielo **D** *S. t. madrensis* El Cielo versus *S. t. madrensis* Huasteca **E** *Sceloporus* sp. versus *Sceloporus* Zacatecas.

Supplementary file 1: Confirmed and examined specimens. American Museum of Natural History (AMNH), Academy of Natural Sciences of Philadelphia (ANSP), Brigham Young University (BYU), California Academy of Sciences (CAS), Centro Interdisciplinario de Investigación para el Desarrollo Integral Regional, Unidad Durango (CRD), Carnegie Museum of Natural History (CM), Colección Nacional de Anfibios y Reptiles (IBH), Escuela Nacional de Ciencias Biológicas (ENCB), Field Museum of Natural History (FMNH), Florida Museum of Natural History (FLMNH), Kansas University (KUH), Museo de Zoología Alfonso L. Herrera (MZFC), Museum für Naturkunde Berlin (ZMB); Museum of Comparative Zoology (MCZ), Naturhistorisches Museum Basel (NMBA), Texas Cooperative Wildlife Collection (TCWC), Texas Natural History Collection (TNHC), United States National Museum (USNM), University of Illinois Museum of Natural History (UIMNH). Field numbers: Oscar Flores-Villela (OFV), Ricardo Palacios Aguilar (RPA), Edmundo Pérez-Ramos (EPR), Sol de Mayo Mejénez López (SML). For duplicates specimens we use -.

Examined specimens

S. t. binocularis. Nuevo León: MZFC 7420 (2 Mi E de Pablillo en carretera a ojo de agua); MZFC 11226 (2.5 Km E San Isidro (cerca de Laguna Sanchez), en Santiago-Saltillo camino a Nuevo León carretera 20); MZFC 11218 (aprox. 12 km W Santiago camino a Laguna Sánchez); MZFC 11222 to 11224 (aprox. 20 Km W Santiago on road to Laguna Sánchez (5.8 Km W Puerto Genovove)); IBH 16635 (Cerro Potosí); MZFC 747 (CIENEGA DEL TORO, 0.4 MI E); SML 161 (13 km NW Aramberri, 1947m); SML 155 (6.75 km NNE Galeana, 1440m); MZFC 24487, 24650 (Pablillo); MZFC 7421 (Río Potosi 5 Mi E carretera a Galeana en carretera a Brownsville (NL-38), en cañon).

S. t. madrensis El Cielo. Tamaulipas: MZFC 33945, 33949, OFV 1545, 1727 (3 km ENE Joya de Salas); MZFC 33875 (3.5 km SW Julilo); MZFC 33946 (4.5 km ENE Joya de Salas); MZFC 33931, OFV 1549 to 1550 (6.3 km ENE Joya de Salas); MZFC 33876 to 33885, 33939, 33951, 33953, OFV 1453, 1455, 1539, 1554, 1522 (La Perra).

S. t. madrensis Huasteca. Hidalgo: MZFC 20872 (1.5 km W Eloxochitlán); MZFC 20876 to 20877 (2.5 km E Eloxochitlán); MZFC 20874 (3 km W Eloxochitlán); MZFC 11197 to 11199 (Barranca de los Marmoles, a lo largo de la carretera 85 alrededor de San Vicente); MZFC 3299 (CRUCITAS, LAS (VILLA NUEVA)); MZFC 24349 (El Salto (carretera Mex. 85 Zimapán-Jacala, km 160)). Querétaro: MZFC 9857 (2.5 Km E El Doctor); MZFC 9858 (2.6 Km E El Doctor); IBH 4050 (3 km al NE de Ahuacatlán, aprox. Huajales); IBH 16555 (5.6 km O de El Lobo); MZFC 9134 (6 Km NO Rancho Los Velazquez (Camino a San Gaspar)); MZFC 8427 (Afueras de La Florida (Iglesia)); MZFC 8872 (Aproximadamente 1 Km por Terracería de El Cañón hacia Valle Verde); MZFC 9287 to 9289 (Aproximadamente 2.5 Km NE El Madroño); MZFC 8424 (Aproximadamente 3 Km NE El Doctor Camino a Cueva El Sarzo); MZFC 9291 (Aproximadamente 5 Km N El Madroño, en vereda al Pinalito); MZFC 9614

(Carretera Sn. Joaquin-Bucareli); MZFC 8971, 8973 (El Cañón); MZFC 9911 (El Madroño, Km 229 Carretera San Juan del Río-Xilitla); MZFC 8426 (En Carretera a San Pedro Escanela); MZFC 6921 to 6922 (MADROÑO, 3 KM S); MZFC 32112 (Municipalidad Jalpan de Serra. Microhondas Penalito 2002m); MZFC 12020 (Rancho El Cañón, camino Zoyapilca-Rancho Nuevo); IBH 3705, 16564, 31163 (San Joaquín); MZFC 9292 (Valle de Guadalupe lado SSO Pueblo).

S. t. melanogaster. Aguascalientes: ENCB 15236 to 15238 (0.5 km N, 0.8 km W Soledad de Arriba, 2000 m); ENCB 15239 (1 km SW Zacatequillas); ENCB 14979 to 14981 (16 km N, 6 km W San José de Gracia, 2150 m); ENCB 14978 (5 km S, 14 km E Ojocaliente, 2110 m); MZFC 22361 (Calvillo); IBH 6129 (La Congoja, barranca "Las Prietas"); IBH 6130 (Los Jacales); ENCB 14987 to 14988 (Milpillas); IBH 3447 (presa de Malpaso, aproximadamente 2 km E. de Malpaso); IBH 3214 (Presa Jocoqui, 4 km. E. de San José de Gracia, aproximadamente); MZFC (Road from HWY 70 thru Jaltiche de Arriba to Cienega de Los Pinos (Past El Garruno and Presa Los Alamitos) SW of Calvillo). Durango: IBH 16641, 16645 (3 km. NE., de Coyotes). Estado de México: RPA 231 to 232 (Jilotepec); IBH 18006 (Polotitlan, Estado de México). Guanajuato: IBH 5022 (50 km ENE de San Luis de la Paz (cerca de Xichú)-transecto); IBH 5022-2 (51 km ENE de San Luis de la Paz (cerca de Xichú)-transecto); IBH 23327 (Amoles); IBH 26342, 26374 to 26346, 26379 (Area natural protegida Peña Alta); IBH 12713 to 12714 (Cañada de la Virgen, Peña Colorada); MZFC 27372 (Cerro Culiacán), OFV 1676 to 1679 (Tupátaro). Hidalgo: ENCB 12217 (2 km S Amealco, 2240 m.); ENCB 7313 (5 km N Ixquimiquilpan); ENCB 16391 to 16399 (8 km N, 3 km E Tepeji del Río). Jalisco: IBH 7209 (0.8 mi N Cd. Guzman); IBH 6076 (1 km al E. De la Presa El Capulín, aprox. 30 km N. De Lagos de Moreno); OFV 1692 to 1693, 1689 to 1691 (10 km SW Sayula); OFV 1705 to 1706 (12 km NE Zapotlanejo); ENCB 14828 (2 km S Atemajac de Brizuela, 2350 m); ENCB 14137 (2.5 km S, 1 km E Ocotlán, 1400 m); ENCB 14141 (2.5 km S, 1.5 km W Ocotlán, 1350 m); ENCB 14929, 14932 to 14933 (3 km NW Ciudad Guzmán, 1550 m); OFV 1715 to 1716 (3.6 km S Ojuelos); ENCB 2493 (3-6 km W Jamay); ENCB 14830 to 14831 (4 km SE Atemajac de Brizuela, 1380 m); ENCB 2496 to 2498 (4 km W Jamay, 1560 m); OFV 1707 to 1708 (4.5 km SSW Jalostotitlán); ENCB 2490 (5 km W Jamay); ENCB 14142 (7 km W Ocotlán, 1360 m); MZFC 32161 to 32162 (Barda de aboves fuera del CUCBA Km. 15.5 Carretera Guadalajara-Nogales, Predio las Agujas, Nextipac); IBH 11070 (Cerro de la Cuchilla, "Sierra del Laurel", 7 km al NO de Villa Hidalgo); IBH 11072 (Ciénega, 13 km al NO de Villa Hidalgo); MZFC 28085 to 28087 (Isla mayor del Lago de Chapala); IBH 4260-1, 4260-3 (Lago de Chapala, San Pedro Tesistlán); IBH 17463, 17465, 17469, 17473 (Laguna Zaputlan, 3.4 mi N of Ciudad Guzman, then 0.5 mi W); IBH 6090, 6090-3, 6090-5, 6090-14, 6090-16, 6090-19 (Llano de Los Ruiz (transecto por brecha entre 2.5 y 6 km al NO. de Yahualica)); IBH 6091, 6091-10, 6091-11, 6091-16 (presa Estribón, a aprox. 1.5 km de Yahualica); IBH 6075, 6075-2 (presa Guadalupe a 2.5 km al NO. de Matancillas); IBH 6077, 6077-2 (pueblo Moscos, aprox. 20 km al N. De Lagos de Moreno); IBH 6060-4,

6060-5 (puerto El Floripondio, 19 km SO. Cd. Guzmán, km 86-89 carr. Cd. Guzmán-El Grullo, Chaparral "La Añoranza"); IBH 6092, 6092-3 (rancho El Codito, aprox. 15 km al NO. de Arandas); MZFC 31914 (Road between Copala and Ciudad Guzman; N of Nevado de Colima); IBH 7173-2 (Sierra del Tigre ~ 3.0 km N of El Terrero (Carretera Liquilpan-Cd. Guzman)); IBH 2744-4 (Sur del Lago Chapala, 15 km. E. de Jocotepec, cerca del Rancho "Los Cuates"); MZFC 31885 to 31886 (Tapalpa: Road from Tapalpa thru Atemajac de Brizuela to HWY 54); ENCB 507 to 508 (Zapotitlán). Michoacán: ENCB 13194. 13196 (1 km S Queréndaro, 1910 m); ENCB 14164, 13349 (1 km S, 10 km E Jiquilpan, 1570 m); ENCB 9340 to 9347 (11 km E Morelia); ENCB 13350 to 13351 (14 km N Puruandiro, 1700 m); MZFC 14496 (14 km. en la carretera Periban-Apo); IBH 5214, 5219-8 (15 km SW de la Piedad, presa "La Providencia"); IBH 5219-7 (16 km SW de la Piedad, presa "La Providencia"); ENCB 12791 to 12799 (2 km N, 8 km W Zamora, 1600 m); ENCB 13374 (3 km N, 9 km E Penjamillo, 1700 m); ENCB 13197 (3 km S, 1.5 km W Queréndaro, 2010 m); ENCB 15547 to 15548 (3 km S, 34 km W Sahuayo, 1990 m); ENCB 10165 (3.3 km S, 4.1 km W Nahuatzen, 2230); ENCB 16589 (4.5 km N, 2 km W Chilchota); ENCB 13352 (5 km NE Huandacareo, 1970 m); ENCB 13342 (5 km S La Piedad, 1740 m); ENCB 13344 to 13347 (5 km W La Piedad, 1550 m); ENCB 13198 to 13199 (6 km W Pátzcuaro, 2030 m); ENCB 5632 (6.7 mi N Uruapan); ENCB 13841 (7 km S, 3.5 km E Tancitaro, 1950 m); IBH 4781 (Anahuacan (al N volcán Paricutín)); ENCB 1517, 1524 to 1525 (Camécuaro); MZFC 2293 to 2294 (CARRETERA PATZCUARO-QUIROGA); MZFC 2295 (CHARAHUEN); IBH 3337 (Cojumatlán, 3 km al Oeste); IBH 7681 (En 59 between Amealco & Acambaro c. 2 km. W. of Coroneo); ENCB 6252 (Epitacio Huerta, 2480 m); MZFC 26348 to 26349 (Estación Queréndaro, Isla Palma); MZFC 28472 (Estación Queréndaro, Isla Palma, Lago de Cuitzeo); MZFC 31856, 31858 (HWY 14 W from Uruapan to Tancitaro); IBH 7683 (Hwy Uruapán to Paracho < Capecuaro); ENCB 13371 (Isla Cerro Grande, 9 km N, 14 km W Zinapécuaro, 1820 m); ENCB 13353 to 13358, 13360 (Isla La Palma, 6 km N, 11 km W Zinapécuaro, 1820 m); ENCB 12276 (Jiquilpan); MZFC 780 (LAGO DE PATZCUARO, RIBERAS); IBH 4525, 4525-4, 4525-5 (Lago Ziraguén (región NE)); MZFC 5874 (MORELIA, AFUERAS DE LA CIUDAD); IBH 5220-1, 5220-2, 5220-3 (ojo de Rana); ENCB 2070 (Patzcuaro); MZFC 31861 to 31864 (Patzcuaro: Lago Patzcuaro); ENCB 5005 (Queréndaro); MZFC 904 (UCAZANASTACUA, ALREDEDORES); ENCB 544 to 545, 548, 550, 556, 559, 561 to 564, 830 to 831, 835, 844, 846, 850, 852 (Zamora). Querétaro: IBH 16563 (.64 km E jtc. Amealco, Santiago Mexquititlan, autopista a la Piedad). San Luis Potosí: OFV 1720 to 1721 (2.9 km ESE Villa de Arriaga); IBH 4745, 4745-3, 4746, 4746-2 (30 km al NE de Charcas aprox., pueblo Miguel Hidalgo); ENCB 14035 to 14037 (9 km S, 5 km W Ahualulco, 1870 m); ENCB 7208 (Mexquitic). Zacatecas: IBH 26742 (0.16 Km S, 4. 87 Km W Yerbabuena (Hierbabuena)); IBH 26739 (0.29 Km N, 2.46 Km W Yerbabuena (Hierbabuena)); IBH 31168 (0.54 Km N, 0.72 Km E Presa de Maravillas); IBH 26731 (1.18 Km S, 1.64 Km W El Laurel); IBH 26763 (1.38 Km S, 5.98 Km W El Obraje); IBH 26735 (1.90 Km S, 2.25 Km E Colonia Miguel Hidalgo); IBH 5058 (20 km al SW de Zacatecas, presa Malpaso pueblo El Fuerte); IBH 5054-

1, 5054-2, 5054-4 (3 km al E de Loreto aprox., de San Marcos); IBH 26729, 26736, 26741, 26761 (3.07 Km S, 0.86 Km W Emilio Carranza); IBH 26746, 26757 (3.67 Km S, 3.52 km W El Laurel); IBH 26745 (3.83 Km N, 3.30 Km E Yerbabuena (Hierbabuena)); MZFC 22956 (carretera Concepción de Oro-Zacatecas, 3 km SW Mahoma); MZFC 22207 (carretera Fresnillo-Durango); MZFC 24684 (José María Morelos); IBH 26727 (Noria de Ángeles); IBH 4027-25 (Pánuco); MZFC 27865 (Pánuco, Cañada de la Quebrada); IBH 4934, 4934-3, 4934-4 (rancho Santa Cruz, a 16 km al Oeste de Fresnillo sobre carretera Fresnillo-Valparaiso); ENCB 3580 (Rio Grande); MZFC 27834, 27841 (San Tiburcio); IBH 4270 (Santa Cruz, 16 km al Oeste de Fresnillo).

S. t. mikeprestoni. Nuevo León: MZFC 755, 5368 (SAN ANTONIO PEÑA NEVADA, 12.2 MI NE). Tamaulipas: MZFC 33957 to 33958, OFV 1513, 1544, 1546, 1548 (4 km WNW Valle Hermoso); MZFC 21268 (km 11 carretera La Peña a Aserradero Peña Nevada); ENCB 5757 to 5759, 5761 to 5763 (Marcela, 2400 m); MZFC 31901 to 31905, 31907 (Rd from La Pena north to Las Joyas (to Aserradero)).

Sceloporus sp. Jalisco: ENCB 14315 to 14316 (7 km N, 6 km W Bolaños, 2345 m). Nayarit: IBH 5819, 5819-2, 5819-4, 5819-5, 5819-6, 5819-7, 5819-8, 5819-9, 5819-11, 5819-12, 5819-14, 5819-15 (9 km al SE de huajimic). Zacatecas: MZFC 24832 (2.3 km SE La Estancia).

Sceloporus Zacatecas. Zacatecas: IBH 26762 (0.35 Km N, 1.78 Km W El Cargadero); IBH 26751 (0.5 Km S (en línea recta) Guadalupe Victoria (El Yegue)); IBH 26754 (0.54 Km N, 1.27 Km E Guadalupe Victoria (El Yegue)); IBH 26737, 26750 (0.84 Km N, 4.96 Km W El Cargadero); IBH 26730 (0.93 Km N, 0.54 Km E Plan de Carrillo); IBH 26747, 26758 (1.03 Km S, 0.92 Km E Guadalupe Victoria (El Yegue)); IBH 26732, 26734, 26738, 26755 (1.57 Km S, 3.68 Km E Guadalupe Victoria (El Yegue)); IBH 26743, 26749 (1.63 Km S, 1.43 Km E Guadalupe Victoria (El Yegue)); IBH 26752, 26756 (2.51 km E (en línea recta) Los Cuervos); IBH 26744 (2.63 Km N, 0.98 Km W Villa Hermosa); IBH 26733, 26760 (2.83 Km S, 0.87 Km E Guadalupe Victoria (El Yegue)); IBH 26726 (3.12 Km N, 0.33 Km E Guadalupe Victoria (El Yegue)); IBH 26740 (3.89 Km S, 3.01 Km E Guadalupe Victoria (El Yegue)); IBH 4935 to 4936 (carr. Fresnillo-Valparaiso, a 16 km de Fresnillo); IBH 26748 (Monte de los García (poblado)); MZFC 11212 (Sierra Fresnillo E, de Colonia Guanajuato, carretera 24 Km W Fresnillo por camino carretera 54 con Fresnillo-Sauceda); IBH 16547 (Temascal 13.2 km SO de Joaquín A).

S. t. torquatus. Ciudad de México: ENCB 1681 to 1681 (1.4 km W Parres, 3000 m); MZFC 24071 to 24072 (1.7 km ENE torre del Cerro San Miguel (muy cerca del Paraje El Mirador)); ENCB 15338 (10.3 km NE Tres Marías); ENCB 1668 (2.4 km W Parres, 3000 m); MZFC 20296 (Barrio San Francisco, Av. Juárez, Milpa Alta); MZFC 545 (CANTERA, LA); MZFC 522, 522-2, 522-3, 522-4 (CAPULIN, EL); ENCB 6283, 6285 (Cerro del Chiquihuite, 2 km N Zacatenco); ENCB 5021 (Cerro del Peñón); MZFC 106 (CIMA, LA); ENCB 899, EPR 1617 (Ciudad Universitaria); MZFC 119, 1748, 3734 (CIUDAD

UNIVERSITARIA, FACULTAD DE CIENCIAS); IBH 18050 (Ciudad Universitaria, México D.F); MZFC 789 (COLONIA HEROES DE PADIERNA, 3 KM E); ENCB 411 to 414, 417, 419 (Copilco); MZFC 3504-1, 3504-2, 3504-3, 3504-4, 3504-5, 3504-6, 3504-7, 3504-8 (COYOACAN, CIUDAD UNIVERSITARIA); MZFC 23588 to 23590, 23611 (Delegación Magdalena Contreras); MZFC 23349 to 23350 (dentro de C. U. junto a cementera); MZFC 21347 (Instituto de Biología); ENCB 3394 (Lomas de Tecamachalco); MZFC 1703 to 1705, 1709, 1711 to 1712, 1714 to 1716, 1718 to 1719 (PARRES); ENCB 939 to 940, 1059 (Pedregal de San Ángel); ENCB 1610, 1612 (San Gregorio Atlapulco); ENCB 1721 to 1729, 1731 to 1734, 1736 to 1741, 1755 (Santa Cruz Acalpisca); MZFC 3405 (SIERRA DE SANTA CATARINA, CERRO XOLTEPETL); MZFC 3406-1, 3406-2, 3406-3 (SIERRA DE SANTA CATARINA, TETECON); MZFC 23599 (Tercer Dínamo); IBH 18179 (Tlalpan, 3 km S Bosque del Pedregal); MZFC 870 (VOLCAN XITLE); ENCB 2077 (Xalotepingo); ENCB 6675 to 6676 (Xochimilco). Estado de México: ENCB 1587 (1 km S Tlapacoyan); ENCB 3334 (2 km E Coatlinchan, 2300 m); ENCB 6273 to 6274 (2 km E Villa Nicolás Romero); IBH 9348 (2 km NNW de Torres de Satelite); ENCB 10977 (2 km S San Juan Temamatla); IBH 17474 (2,9 miles (by Méx. 115) NE Nepantla); ENCB 3719 to 3721 (3 km S Atlacomulco, 2500 m); ENCB 5309 to 5311 (3 km S Temascaltepec); ENCB 12819 (3 km S, 9 km E Almoloya de Alquisiras, 2230 m); ENCB 7753, 7755 to 7758 (5 km NW Toluca); ENCB 7713, 7715, 7721 to 7727 (5 km W Toluca); ENCB 4402 to 4403 (5 km W Xalostoc, 2500 m); IBH 16557 (6.4 km E de la Piramide del Sol); ENCB 13231 (7.5 km E Tenango de Arista, 2600 m); ENCB 3335 to 3337 (8 km E Coatlinchan, 2600 m); MZFC 22694 (Acambay); ENCB 12423 (Almoloya, 2040 m); ENCB 2293 (Amecameca); MZFC 120 to 121 (ARCOS DEL SITIO); ENCB 17120, 17124 (Arroyo Barranca Grande, 1.7 km N, 12 km W Sta. Ma. Palapa); ENCB 17125 to 17126, 17129 (Arroyo Puente del Diablo, 0.5 km E Santiago Tolman, 2550); IBH 13882 (Carr. Coatepec Harinas-Ixtapan de la Sal); MZFC 17854 (Carretera Cuernavaca-Ocuilán); MZFC 14497 (Carretera Valle de Bravo-San Pedro Teneyac, por Albarrada); ENCB 2306, 2343, 5291 (Chimalhuacán); MZFC 31912 (Cotecitos; In rocky field beside Libre between Toluca and Atlacomulco); ENCB 8313 (Criadero de San Cayetano, Villa Victoria); ENCB 13578 (Cuatutitlán); MZFC 7583 (Gustavo Baz); ENCB 4175 (Huizachal); MZFC 31868 to 31869 (HWY 1 between Valle de Bravo and Amanalco); IBH 17470 (Hwy. 15, 5.2 mi E of turnoff to Villa Victoria between Km. Markers 35 & 36); ENCB 14359 (Ixtapan del Oro, 1710 m); MZFC 14282 (La Marqueza, San Andrés Texcalyacac); MZFC 7584 (Ocuilan de Arteaga); ENCB 11949 to 11950 (San Cayetano); MZFC 5034 (SAN FRANCISCO CHEJE); ENCB 3422 to 3425 (San Francisco Cuatliquixa, 2300 m); ENCB 2076 (San Juan Teotihuacán); ENCB 7728, 7731 to 7732, 7734 to 7736 (San Luis Maxtepec); IBH 8389, 8395 (Santiago Oxtotitlan); IBH 18007 (Suroeste de la Presa); IBH 13138 (Temascaltepec); ENCB 7742, 7744, 7748 to 7749 (Tenancingo); MZFC 892 (TOLUCA, 5 KM W, LAGUNA DE OJUELOS); MZFC 3970 to 3971 (TRES CRUCES DE MAMATLA); MZFC 4321 (VALLE DE BRAVO, ACATITLAN). Guerrero: MZFC 3933, 3936 to 3939, 3947 to 3049, 3962 (CARRETERA TAXCO-IXCATEOPAN, KM 26.5); MZFC 3964 (CERRO

DE LA TENTACION); MZFC 3952, 3954 (CERRO DEL HUIZTECO); MZFC 3974 (CRUZ ALTA, 0.6 KM SW); MZFC 3980 (CRUZ ALTA, 200 M ANTES DE); MZFC 3935 (IXCATEOPAN DE CUAUHTEMOC, 1 KM N); MZFC 3930, 3957 to 3961, 3981 (IXCATEOPAN DE CUAUHTEMOC, 2 KM E); MZFC 3975 (IXCATEOPAN DE CUAUHTEMOC, 3 KM E); MZFC 3979 (IXCATEOPAN DE CUAUHTEMOC, 4.5 KM NNE); MZFC 3976 (IXCATEOPAN DE CUAUHTEMOC, 600 M NE); MZFC 3967 (JARILLOS, LOS); MZFC 3932, 3940, 3950 (LLANOS, LOS, KM 10 CARRETERA TAXCO-TETIPAC); MZFC 3965 to 3966, 3968 (SAN MIGUEL); MZFC 3978 (SAN MIGUEL, 1 KM SW). Hidalgo: ENCB 3142 to 3143 (3 km SW Zapotlán, 2350 m). Michoacán: ENCB 13191 to 13193 (0.5 km N, 15 km E Maravatio, 2050 m); ENCB 13839 (1 km NW Nuevo San Juan Parangaricutiro); ENCB 13840 (2 km E Nuevo San Juan Parangaricutiro); MZFC 22639 (2 km E Senguio); ENCB 8127 (2 km SE Zitácuaro); IBH 16562 (3.7 km N de Tuxpan en la autopista 15); ENCB 872 (4 km S Tepuxtepec); MZFC 24152 (Carretera Nueva Italia-Opopeo); MZFC 968-2, 983, 983-1, 983-2, 983-3, 983-4, 984, 984-2, 984-3, 6960 (Coatepec de Morelos); MZFC 4327, 4327-2, 4327-3, 4327-4 (COATEPEC DE MORELOS, 2.5 KM DE ZITACUARO); MZFC 3277 (COATEPEC DE MORELOS, RANCHO LA "CAROLINA"); RPA 236 (Contepec, Tepuxtepec, junto a la laguna arroyo del muerto); IBH 16426 (Francisco Serrato, "Tercera Manzana"); MZFC 31867 (HWY 1 between Valle de Bravo and Amanalco); MZFC 31865 to 31866 (HWY15 between Morelia and Ciudad Hidalgo); IBH 17979 to 17980 (Parque Nacional Barrancas del Cupatitzio); MZFC 830-1, 830-2, 833-1, 833-2 (SAN FRANCISCO DE COATEPEC, 4 KM SSE); IBH 31629 (Tacámbaro); MZFC 6612-1, 6612-2, 6612-3 (Uruapan, 6-7 km E, Carretera Patzcuaro-Uruapan). Morelos: ENCB 15339, 15347 to 15348 (6 km N, 1 km E Hueyapan, 2680); ENCB 14083 to 14090, 14094 to 14095, 14097 (6.5 km N, 1 km E Hueyapan, 2680); MZFC 117 (CARRETERA MEXICO-CUERNAVACA, KM 44, 0.5 KM NNW); MZFC 541 (CHICHINAUTZIN, DERRAME DEL); MZFC 11190 (Lagos de Zempoala (Lago No. 1), on Hwy 95 W of Huitzilac); MZFC 890 (LAGUNA DE QUILA, ZEMPOALA); MZFC 544 (LAGUNA SECA); MZFC 118 (LAGUNAS DE ZEMPOALA, PARQUE NACIONAL); MZFC 11823 (Tetela del Volcán). ENCB 5361 to 5365 (9 km NNW Atlixco); MZFC 122 to 123 (CALPAN, 1 KM N PUEBLO NUEVO); ENCB 5367 to 5368, 5370 to 5371 (La Magadalena Yancuitlalpan, 3 km NW Tochimilco). Tlaxcala: ENCB 5976 (3 km S Calpulalpan, 2540 m).

Confirmed specimens

S. t. binocularis. Coahuila: TNHC 103172 (Jame, 6.3 km S, 17 km E), Nuevo León: FMNH 30769 to 30770 (42 mi S Monterrey, Santiago, Horsetail Falls); TNHC 30172 (7 mi E San Pedro de Iturbide, Caleana Lineares Hwy); CM 59722 to 59723 (Doctor Arroyo, 32 mi N); CRD 887–8 (Dr. Arroyo: 51.7 km N Dr. Arroyo, 1614 m); CRD 895 (Galeana: 69.3 km N Dr. Arroyo, 1674 m); KUH 192598 (La Huasteca Canon).

S. t. madrensis El Cielo. Tamaulipas: MZFC 8505 (Ejido La Gloria, Reserva de la Biósfera, Rancho El Cielo).

S. t. madrensis Huasteca. Hidalgo: MZFC 3299-2, 3299-3 (CRUCITAS, LAS (VILLA NUEVA)); MZFC 24350 (El Salto (carretera Mex. 85 Zimapán-Jacala, km 160)); MZFC 6267 (MOJONERA, LA). Querétaro: IBH 4051 (1 km al S de Pinal de Amoles); MZFC 14291 (15 km. W San Joaquín); ENCB 10716, 10719 to 10720, 10724 (2 km S, 2 km E San Joaquín, 2300 m); MZFC 8422, 8425 (Aproximadamente 2 Km NE, El Doctor, Camino a Cueva El Tecolote); MZFC 8423 (Aproximadamente 4 Km W El Doctor, Carretera a Intersección Carretera a San Joaquin); MZFC 8972 (El Cañón); IBH 16552 (Hidalgo); IBH 3706 to 3707, 16565 to 16566 (San Joaquín); MZFC 27704 (Sierra Gorda, San Juan de los Durán).

S. t. melanogaster. Aguascalientes: ENCB 14982 to 14983 (16 km N, 6 km W San José de Gracia, 2150 m); ENCB 14984 to 14986 (17 km N, 10 km W San José de Gracia, 2350 m); ENCB 14989 to 14992 (Milpillas); IBH 3446 (presa "El Jocoqui", aproximadamente 4 km E. San José). Durango: UIMNH 6626 (9.8 mi S Cuencame); KUH 40423, 44782 (Hacienda de Atotonilco); CRD 238 to 239 (Súchil: 14.9 km S, 11.6 km O San José de la Parrilla, 980 m). Guanajuato: IBH 5035 (15 km al NE de Guanajuato aprox., Santa Rosa, pueblo Puerto de Santa Rosa); IBH 26335, 26341 to 26343, 26367 (Area natural protegida Peña Alta); IBH 12700 (Cañada de la Virgen, Puertecito Colorado). Hidalgo: ENCB 19844 to 19845, 19866, 19880 to 19881 (UMA Vitejhe, 5 km S Huichapan). Jalisco: IBH 6076-2, 6076-3 (1 km al E. De la Presa El Capulín, aprox. 30 km N. De Lagos de Moreno); IBH 16548 (1.4 km por México 54 N de Ixtlahuacan); ENCB 14810 to 14832 (2.5 km S Atemajac de Brizuela, 2350 m); ENCB 14930 (3 km NW Ciudad Guzmán, 1550 m); ENCB 2494 (3-6 km W Jamay); ENCB 14866 to 14867 (4 km N, 2 km W Juanacatlán, 2360 m); ENCB 14813 to 14821 (4 km SE Atemajac de Brizuela, 1380 m); ENCB 2499 to 2502 (4 km W Jamay, 1560 m); ENCB 2491 to 2492 (5 km W Jamay); IBH 6079-1, 6079-2, 6079-3 (7 km al N. De Lagos de Moreno aprox); ENCB 14224 (7 km W Ocotlán, 1360 m); IBH 11073 (Cerro "La Cuchilla" Sierra de Laurel 8 km al NO de Villa Hidalgo); IBH 11071 (Ciénega, 13 km al NO de Villa Hidalgo); IBH 3336 (Cojumatlán, orilla del Lago de Chapala); IBH 4013 (Ejido El Carrión); IBH 11076 to 11077 (La Borrosa, "Cerro Espinazo del Diablo" a un lado del arroyo "El Novillo" 9.5 km al NO de villa Hidalgo); IBH 2762 (Lago de Chapala); IBH 4260-2, 460-4 (Lago de Chapala, San Pedro Tesistlán); IBH 17472 (Laguna Zaputlan, 3.4 mi N of Ciudad Guzman, then 0.5 mi W); IBH 6090-2, 6090-4, 6090-5, 6090-6, 6090-7, 6090-8, 6090-9, 6090-10, 6090-11, 6090-12, 6090-13, 6090-17, 6090-18, 6090-21, 6090-22 (Llano de Los Ruiz (transecto por brecha entre 2.5 y 6 km al NO. de Yahualica)); IBH 11074 to 11075 (Los Gabalices, 1 km al NO de Villa Hidalgo); IBH 6091-2, 6091-3, 6091-4, 6091-5, 6091-6, 6091-7, 6091-9 (presa Estribón, a aprox. 1.5 km de Yahualica); IBH 6060-1, 6060-1, 6060-2 (puerto El Floripondio, 19 km SO. Cd. Guzmán, km 86-89 carr. Cd. Guzmán-El Grullo, Chaparral "La Añoranza"); IBH 6092, 6092-1, 6092-2, 6092-3 (rancho El Codito, aprox. 15 km al NO. de Arandas); CAS 165279 (Sierra del Halo, rd from Tecalitlan to Tepalcatepec, Michoacan, 21.2 mi SE of Mex Hwy 110 (or 2.8 mi NE of Plan de Ayala); IBH 7173 (Sierra del Tigre ~ 3.0 km N of El Terrero (Carretera Liquilpan-Cd. Guzman)); IBH 7176, 7176-2 (Sierra del Tigre, Las

Cabañas (0.5 km N), carretera Cd. Guzman-Jiquilpan); IBH 2744 (Sur del Lago Chapala, 15 km. E. de Jocotepec, cerca del Rancho "Los Cuates"); IBH 3335 (Tamazula de Gordiano). Michoacán: ENCB 13195 (1 km S Queréndaro, 1910 m); IBH 5219-5 (14 km SW de la Piedad, presa "La Providencia"); IBH 5214-2, 5214-3, 5219-2, 5219-3, 5219-6, 5219-10, 5219-13 (15 km SW de la Piedad, presa "La Providencia"); IBH 5219-1, 5219-12 (16 km SW de la Piedad, presa "La Providencia"); IBH 5219-4, 5219-9 (17 km SW de la Piedad, presa "La Providencia"); IBH 5219-11 (18 km SW de la Piedad, presa "La Providencia"); ENCB 13843 (2 km N Apo); ENCB 12785 to 12790, 13183, 13190 (2 km N, 8 km W Zamora, 1600 m); ENCB 2488 to 2489 (20 km E Morelia, 2010 m); ENCB 1257 to 1258 (21 mi E Jiquilpan); IBH 16608 (3.2 km E de Pátzcuaro); ENCB 16590 (4.5 km N, 2 km W Chilchota); ENCB 13343 (5 km W La Piedad, 1550 m); ENCB 970 (7 km NNE Pátzcuaro); IBH 4781-2, 4781-3, 4781-4 (Anahuacan (al N volcán Paricutín)); ENCB 14913 (Araró); ENCB 1828 (Camécuaro); MZFC 26347 (Estación Queréndaro, Isla Palma); MZFC 31857, 31859 (HWY 14 W from Uruapan to Tancitaro); ENCB 13372 (Isla Cerro Grande, 9 km N, 14 km W Zinapécuaro, 1820 m); ENCB 13359 (Isla La Palma, 6 km N, 11 km W Zinapécuaro, 1820 m); ENCB 12275 (Jiquilpan); IBH 4182, 4182-2 (Lago Chapala, Petatlán); IBH 3458, 3458-2 (Lago Cuitzeo, puente de orilla Sur); IBH 4179 (Lago de Chapala, orilla Sur); IBH 4525-2, 4525-3, 4525-6, 4525-X (Lago Ziraguén (región NE)); IBH 4193 (Lago Zirahuén); IBH 2365, 2365-2 (Peninsula de San Agustín del Pulque); IBH 16559 (Presa San Juanico); IBH 16671, 17457, 17467, IBH 17471 (Presa San Juanico, 3.2 mi. N junction to Cotija de la Paz, then 1.2 mi. W); IBH 2744-2, 2744-3 (Sur del Lago Chapala, 15 km. E. de Jocotepec, cerca del Rancho "Los Cuates"); ENCB 547, 549, 555 to 556, 854 (Zamora). Querétaro: MZFC 3333, 3333-4, 3333-5, 3297 (AMEALCO). San Luis Potosí; BYU 36296 (16 Mi E San Luis Potosi (hwy 70), S.l.p); IBH 4745-2 (29 km al NE de Charcas aprox., pueblo Miguel Hidalgo); IBH 4745-4 (30 km al NE de Charcas aprox., pueblo Miguel Hidalgo); IBH 4745-5 (31 km al NE de Charcas aprox., pueblo Miguel Hidalgo); ENCB 14033 to 14034 (9 km S, 5 km W Ahualulco, 1870 m); ENCB 7206 (Mexquitic). Zacatecas: IBH 31175 (0.69 Km S, 0.60 Km E Perales); IBH 31174 to 31176 (1.34 Km N, 3.37 Km W Estación Palmira); IBH 26753 (1.64 Km S, 0.14 Km E La Lobeña); IBH 5058-2, 5058-3 (20 km al SW de Zacatecas, presa Malpaso pueblo El Fuerte); IBH 5054-3 (3 km al E de Loreto aprox., de San Marcos); IBH 26764 (3.67 Km S, 3.52 km W El Laurel); MZFC 22206 (carretera Fresnillo-Durango); MZFC 22201 (carretera Villa de Reyes-Ojuelos); MZFC 22960 (carretera Zacatecas-Cuencame, 9 km NW Fresnillo); CM 59731 (Concepcion del Oro, 3.1 mi NW on road to Mazapil); IBH 4027, IBH 4027-1, IBH 4027-2, IBH 4027-3, IBH 4027-4, IBH 4027-5, IBH 4027-6, IBH 4027-7, IBH 4027-8, IBH 4027-9, IBH 4027-10, IBH 4027-11, IBH 4027-12, IBH 4027-13, IBH 4027-14, IBH 4027-15, IBH 4027-16, IBH 4027-17, IBH 4027-18, IBH 4027-19, IBH 4027-20, IBH 4027-21, IBH 4027-22, IBH 4027-23, IBH 4027-24, IBH 4027-27, IBH 4027-28, IBH 4027-29, IBH 4027-30, IBH 4027-31, IBH 4027-32, IBH 4027-33, IBH 4027-34, IBH 4027-35, IBH 4027-36, IBH 4027-37, IBH 4027-38, IBH 4027-39, IBH 4027-40, IBH 4027-41, IBH 4027-42, IBH 4027-43, IBH 4027-44, IBH 4027-45, IBH 4027-46, IBH 4027-47, IBH 4027-48, IBH 4027-49,

IBH 4027-50, IBH 4027-51, IBH 4027-52, IBH 4027-53, IBH 4027-54, IBH 4027-55, IBH 4027-56, IBH 4027-57, IBH 4027-58, IBH 4027-59, IBH 4027-60, IBH 4027-61, IBH 4027-62, IBH 4027-63, IBH 4027-74 (Pánuco); IBH 16550 (Presa Cazadero, 14 a 16 km río arriba sobre Río Aguanaval de Río Grande); IBH 4934-2 (rancho Santa Cruz, a 16 km al Oeste de Fresnillo sobre carretera Fresnillo-Valparaiso); IBH 4832, 4832-2 (Santa Cruz); IBH 4270-2 (Santa Cruz, 16 km al Oeste de Fresnillo); IBH 5486-1, 5486-2, 5486-3, 5486-4 (Santa Cruz, entre Fresnillo y Zacatecas); CAS 92105 to 92109 (Somberete, 10 mi NW); AMNH 118376 to 118377 (Villa de Cos, 11 mi NE); TNHC 30401 (Zacatecas, 30 mi NNE, Saltillo Rd); MZFC 22926 (Zoquite, 12 km E Zacatecas).

S. t. mikeprestoni. Tamaulipas: MZFC 31906 (Rd from La Pena north to Las Joyas (to Aserradero)).

S. t. torquatus. Ciudad de México: ENCB 1683 to 1687 (1.4 km W Parres, 3000 m); ENCB 1666 to 1673 (2.4 km W Parres, 3000 m); MZFC 116 (Ajusco, carretera Periferico-Ajusco); MZFC 3383 (CAPULIN, EL); MZFC 16623 (Carretera libre a Cuernavaca, km. 38+173, planta de asfalto "Parres"); MZFC 23602 (carretera Tercer-Segundo Dínamo); MZFC 4355 (Cerro de las cruces); ENCB 6284 (Cerro del Chiquihuite, 2 km N Zacatenco); ENCB 21 (Cerro del Peñon); MZFC 1917 (Ciudad Universitaria, Facultad de Ciencias); MZFC 20567 (Ciudad Universitaria, Facultad de Contaduria y Administración); MZFC 789-2 (Colonia Heroes de Padierna, 3 km E); ENCB 415 to 416, 418 (Copilco); MZFC 23593 (Cuarto Dínamo); MZFC 11690 (Facultad de Ciencias, UNAM); MZFC 1706, 1708, 1710, 1713, 1717 (Parres); ENCB 941, 1060 (Pedregal de San Ángel); ENCB 410 (San Ángel); ENCB 1609, 1611, 1613 to 1614 (San Gregorio Atlapulco); ENCB 1730, 1735, 1742 to 1754, 1837 to 1840 (Santa Cruz Acalpisca); ENCB 6674, 6677, 6682 (Xochimilco); MZFC 4356 (Xochimilco, Zona Arqueologica, 1 KM S). Estado de México: ENCB 1588 (1 km S Tlapacoyan); ENCB 15498 (2 km W Ocoyoacac); ENCB 3722 to 3723 (3 km S Atlacomulco, 2500 m); ENCB 5312 to 5315 (3 km S Temascaltepec); ENCB 12818 (3 km S, 9 km E Almoloya de Alquisiras, 2230 m); ENCB 7751 to 7752, 7754, 7759 (5 km NW Toluca); ENCB 7714, 7716 to 7720 (5 km W Toluca); UIMNH 48032 (7 mi W Villa Victoria); ENCB 13232 (7.5 km E Tenango de Arista, 2600 m); ENCB 3338 (8 km E Coatlinchan, 2600 m); ENCB 17119 (Arroyo Barranca Grande, 1.7 km N, 12 km W Sta. Ma. Palapa); ENCB 17128, 17130 (Arroyo Puente del Diablo, 0.5 km E Santiago Tolman, 2550); MZFC 11801 (Avándaro); ENCB 5292 (Chimalhuacán); ENCB 6126 to 6127 (Coacalco); ENCB 3112 (Criadero de San Cayetano); IBH 7048 (Experimental San Cayetano); MZFC 31870 to 31871 (HWY 1 between Valle de Bravo and Amanalco); IBH 17454 (Hwy. 15, 5.2 mi E of turnoff to Villa Victoria between Km. Markers 35 & 36); ENCB 14977 (Ixtapan del Oro, 1710 m); ENCB 529 to 530, 532 to 534 (Lagunas de Zempoala, 3000 m); MZFC 31872 to 31873 (Road between Avandaro and Temascaltepac); ENCB 11951 to 11952 (San Cayetano); ENCB 3426 (San Francisco Cuatliquixa, 2300 m); IBH 7468 (San Juanico); ENCB 7729 to 7730, 7733, 7737 to 7738 (San Luis Maxtepec); MZFC 3323 (SAN MARTIN DE LAS PIRAMIDES); ENCB 5014 (Santa María

Tlalminilopan); IBH 13139 to 13142 (Temascaltepec); ENCB 7739 to 7741, 7743, 7745 to 7747 (Tenancingo); MZFC 11799 (Tlaltizapan, por la terracería Cuernavaca-Chalma); ENCB 5350 (Tlapacoya); ENCB 10541 (Zempoala). Guerrero: MZFC 3963 to 3964 (Carretera TAXCO-IXCATEOPAN, KM 26.5); MZFC 3941 to 3946, 3953, 3955 to 3956 (CERRO DEL HUIZTECO); MZFC 3973 (CRUZ ALTA, 0.5 KM SW); MZFC 3977 (IXCATEOPAN DE CUAUHTEMOC, 3 KM E); MZFC 3969 (JARILLOS, LOS); MZFC 3972 (PERAL, EL, KM 10.2 CARRETERA TAXCO-TETIPAC); ENCB 13842 (1 km NW Nuevo San Juan Parangaricutiro); ENCB 4173 (2 km S Tuxpan); ENCB 8126 (2 km SE Zitácuaro); IBH 4489, 4489-2, 4489-3, 4489-4, 4489-6, 4489-8, 4489-10, 4489-11, 4489-13, 4489-14, 4489-15 (25 km al E de Morelia aprox., Parque Nacional Insurgente José Mª. Morelos); IBH 4489-5, 4489-7 (26 km al E de Morelia aprox., Parque Nacional Insurgente José Mª. Morelos); IBH 4489-9 (27 km al E de Morelia aprox., Parque Nacional Insurgente José Mª. Morelos); IBH 4489-12 (28 km al E de Morelia aprox., Parque Nacional Insurgente José Mª. Morelos); ENCB 869, 870 (3 km NO Tepuxtepec); ENCB 12545 (6 km N, 25 km W Villa Victoria, 2810 m); IBH 16430 (Carpinteros, "El Voladero chiquito"); MZFC 19262 (Carretera Uruapan-Nueva Italia, Méx. 37: Arroyo Colorado); MZFC 968-1 (COATEPEC DE MORELOS); MZFC 3277-2 (COATEPEC DE MORELOS, RANCHO LA "CAROLINA"); IBH 16433 (Crescencio Morales, "Bo-A-SeRe"); IBH 16427 (Curungueo, "El Álamo"); MZFC 11800 (El Pinal); ENCB 2071 (Jungapeo); MZFC 19261, 19267 (Microondas Milpillas); IBH 17981, 17977 (Parque Nacional Barrancas del Cupatitzio); MZFC 830, 830-3, 830-4, 830-5, 833-4, 833-5 (SAN FRANCISCO DE COATEPEC, 4 KM SSE); IBH 16425 (San Juan Zitácuaro "La junta del camino"); IBH 31628 (Tacámbaro); IBH 17978 (Uruapan). Morelos: IBH 16561 (1.6 km NE de Tres Cumbres); ENCB 15340 to 15341, 15349 (6 km N, 1 km E Hueyapan, 2680); ENCB 14091 to 14093, 14096 (6.5 km N, 1 km E Hueyapan, 2680); MZFC 29696 (8 km S Tres Marías); MZFC 792 (HUITZILAC, 2.5 KM SE A PARTIR DE IGLESIA); MZFC 11191 to 11192 (Lagos de Zempoala (Lago No. 1), on Hwy 95 W of Huitzilac); MZFC 3473, 3473-2 (TRES MARIAS, 5 KM S); MZFC 7581 (Zempoala). Puebla: ENCB 5360 (9 km NNW Atlixco); ENCB 5366, 5369 (La Magadalena Yancuitlalpan, 3 km NW Tochimilco). Tlaxcala: ENCB 5978 (3 km S Calpulalpan, 2540 m.). Suchitepequez: NMBA 3653 (Suchitepéquez Departamento Costa Grande).

Sceloporus sp. Nayarit: IBH 5819-3, 5819-10, 5819-15 (9 km al SE de huajimic); AMNH 75780 to 75781 (Volcán San Juan, SW of Tepic). Zacatecas: MZFC 24825 (Cañada bajo el Ojo de Agua, 2.6 km NW Rancho Los Adobes).

Sceloporus Zacatecas. Zacatecas: IBH 31180 (0.70 Km S, 3.16 Km W Parral de las Huertas); IBH 26750 (0.84 Km N, 4.96 Km W El Cargadero); IBH 31154 (0.86 Km N, 4.96 Km W El Cargadero); IBH 26728 (1.03 Km S, 0.92 Km E Guadalupe Victoria (El Yegue)); IBH 31151, 31158 (2.95 Km S, 3.79 Km E Monte de los García); IBH 26740 (3.89 Km S, 3.01 Km E Guadalupe Victoria (El Yegue)); MZFC 22204 to 22205 (Villanueva).

Others specimens

S. aureolus. Puebla: CM 19353 (8 mi WSW Puerto del Aire); FMNH 116673 (near Laguna San Bernardino). Veracruz: MCZ 46029 (Cumbres).

S. cyanogenys. Tamaulipas: MZFC 8503 (Río Sabinos, en carretera a Cd. Victoria); MZFC 8504, 8506 (Estación Canindo, Reserva de la Biósfera, Rancho El Cielo).

S. formosus. Veracruz: UIMNH 21879 (3 mi E Las Vigas); UIMNH 21880 (Actopan, Pan American Hwy); USNM 64670 (Orizaba).

S. jarrovii. Durango: IBH 7567-1, IBH 7567-2 (Hwy 40, 1.1 mi E Navios at kilometer marker 57), 16616 [(Cd. Durango (Rio Mimbres), 17458 (Hwy. 40, 1.1 mi E of Navios at kilometer marker 57).

S. melanorhinus. Oaxaca: NMB 6351 (Salina Cruz).

S. minor. Hidalgo: IBH 7682, 7569, 16558 (El Pirul, Metzquititlan). Nuevo León: FLMNH 105809 (Cerro Potosi, 3km.NW La Cuesta). Querétaro: ENCB 10722 to 10721 (2 km S, 2 km E San Joaquín, 2300 m).

S. mucronatus. Puebla: MZFC 4792 (Arroyo a 10 km S de Chignahuapan); UIMNH 20925 (El Limon, Totalco). Veracruz: AMNH 62310 (Encino Gacho); AMNH 118361 (Las Vigas, 2 mi SE by road); MZFC 13891 (Las Vigas)

S. poinsettii. Durango: NMBA 3174, 3178 (Coyote); TNHC 105471 (Donato Guerra, 8.5 mi N on Pan Am Hwy); MCZ 16030 (Durango). Zacatecas: CAS 95922 (Chalchuites, 8 mi S); IBH 17476 (Hwy. 40, 1.1 mi E of Navios at kilometer marker 57).

S. spinosus. Zacatecas: IBH 31166 (3.23 Km S, 0.39 Km E Adjuntas del Refugio).

Type specimens

Agama torquata. Estado de México: Holotype ANSP 8499 (Temascaltepec about eighty miles S. W. of the city of Mexico).

Sceloporus binocularis. Nuevo León: Holotype ANSP 20032, paratypes ANSP 20019 to 20020 (trail btwn Pablillo and Alamar).

Sceloporus ferrariperezi. Guanajuato: Syntypes MCZ 46922, USNM 9874, 9876, 9878, 9880 (Guanajuato).

Sceloporus melanogaster. Guanajuato: Holotype: USNM 9877 (Tupataro near Cueramaro).

Sceloporus torquatus. Ciudad de México: Syntypes ZMB 628 to 631 (Mexico).

Sceloporus torquatus madrensis. Tamaulipas: Holotype TCWC 62433 (Rancho del Cielo), paratypes UMMZ 101395 (5 MI S E OF LA JOYA DE SALAS ON TRAIL AT 6000 FT), 101400 to 101401 (ON TRAIL NEAR LA JOYA DE SALAS

7000 FT), 110743 (1-5 KM S E OF LA JOYA DE SALAS ALONG TRAIL TO GOMEZ FARIAS).

Sceloporus torquatus mikeprestoni. Tamaulipas: Holotype MCZ 115679, paratypes: ENCB 5756 to 5759, 5761 to 5763 (Marcela).

Supplementary file 2. Tissue sampling and GenBank accession numbers.

ID	Taxa	Catalogue	12S	ND4	RAG1	GenSeq Nomenclature
1	*S. t. torquatus*	MZFC 11800			NA	genseq-4 12S, ND4
2	*S. t. torquatus*	MZFC 24152				genseq-4 12S, ND4, RAG1
3	*S. t. torquatus*	RPA 236				genseq-4 12S, ND4, RAG1
4	*S. t. torquatus*	GCG 997				genseq-4 12S, ND4, RAG1
5	*S. t. torquatus*	EPR 1617				genseq-4 12S, ND4, RAG1
6	*S. t. torquatus*	MZFC 31912				genseq-4 12S, ND4, RAG1
7	*S. t. torquatus*	GCG 998				genseq-4 12S, ND4, RAG1
8	*S. t. torquatus*	GCG 989				genseq-4 12S, ND4, RAG1
9	*S. t. torquatus*	OFV 1999				genseq-4 12S, ND4, RAG1
10	*S. t. torquatus*	OFV 1983				genseq-4 12S, ND4, RAG1
11	*S. t. torquatus*	OFV 1985				genseq-4 12S, ND4, RAG1
12	*S. t. torquatus*	OFV 1974				genseq-4 12S, ND4, RAG1
13	*S. t. torquatus*	OFV 1982				genseq-4 12S, ND4, RAG1
14	*S. t. torquatus*	OFV 1975				genseq-4 12S, ND4, RAG1
15	*S. t. torquatus*	OFV 2016				genseq-4 12S, ND4, RAG1
16	*S. t. torquatus*	GCG 1010				genseq-4 12S, ND4, RAG1
17	*S. t. torquatus*	IBH 18050	DQ525888	DQ525867	NA	genseq-4 12S, ND4
18	*S. t. melanogaster*	RPA 232				genseq-4 12S, ND4, RAG1
19	*S. t. melanogaster*	MZFC 34041				genseq-4 12S, ND4, RAG1
20	*S. t. melanogaster*	MZFC 34040				genseq-4 12S, ND4, RAG1
21	*S. t. melanogaster*	OFV 1716				genseq-4 12S, ND4, RAG1
22	*S. t. melanogaster*	MZFC 34049				genseq-4 12S, ND4, RAG1
23	*S. t. melanogaster*	MZFC 34024				genseq-4 12S, ND4, RAG1
24	*S. t. melanogaster*	OFV 1689				genseq-4 12S, ND4, RAG1
25	*S. t. melanogaster*	MZFC 34010				genseq-4 12S, ND4, RAG1

26	*S. t. melanogaster*	OFV 1678				genseq-4 12S, ND4, RAG1
27	*S. t. melanogaster*	MZFC 34054				genseq-4 12S, ND4, RAG1
28	*S. t. melanogaster*	OFV 1721				genseq-4 12S, ND4, RAG1
29	*S. t. melanogaster*	MZFC 26348			NA	genseq-4 12S, ND4
30	*S. t. melanogaster*	MZFC 26349				genseq-4 12S, ND4, RAG1
31	*S. t. melanogaster*	MZFC 32287			NA	genseq-4 12S, ND4
32	*S. t. melanogaster*	MZFC 32345				genseq-4 12S, ND4, RAG1
33	*S. t. melanogaster*	MZFC 21914				genseq-4 12S, ND4, RAG1
34	*S. t. melanogaster*	GCG 981			NA	genseq-4 12S, ND4
35	*S. t. melanogaster*	GCG 817			NA	genseq-4 12S, ND4
36	*S. t. melanogaster*	IBH 18006	DQ525892	DQ525863	NA	genseq-4 12S, ND4
37	*S. t. melanogaster*	UTA24016	EU086048	EU085843	EU085726	genseq-4 12S, ND4, RAG1
38	*S. t. binocularis*	MZFC 11218			NA	genseq-4 12S, ND4
39	*S. t. binocularis*	SML 155				genseq-4 12S, ND4, RAG1
40	*S. t. binocularis*	SML 161				genseq-4 12S, ND4, RAG1
41	*S. t. mikeprestoni*	MZFC 34003				genseq-4 12S, ND4, RAG1
42	*S. t. mikeprestoni*	MZFC 21268			NA	genseq-4 12S, ND4
43	*S. t. mikeprestoni*	MZFC 31907				genseq-4 12S, ND4, RAG1
44	*S. t. madrensis* El Cielo	MZFC 33945				genseq-4 12S, ND4, RAG1
45	*S. t. madrensis* El Cielo	MZFC 33946				genseq-4 12S, ND4, RAG1
46	*S. t. madrensis* El Cielo	MZFC 33875				genseq-4 12S, ND4, RAG1
47	*S. t. madrensis* El Cielo	MZFC 33953				genseq-4 12S, ND4, RAG1
48	*S. t. madrensis* Huasteca	OFV 2026				genseq-4 12S, ND4, RAG1
49	*S. t. madrensis* Huasteca	OFV 2028				genseq-4 12S, ND4, RAG1
50	*S. t. madrensis* Huasteca	OFV 2044				genseq-4 12S, ND4, RAG1
51	*S. t. madrensis* Huasteca	OFV 2043				genseq-4 12S, ND4, RAG1
52	*S. t. madrensis* Huasteca	OFV 2042				genseq-4 12S, ND4, RAG1
53	*S. t. madrensis* Huasteca	OFV 2045				genseq-4 12S, ND4, RAG1

54	*Sceloporus* sp.	MX14-4				genseq-4 12S, ND4, RAG1
55	*Sceloporus* sp.	MX13-24				genseq-4 12S, ND4, RAG1
56	*Sceloporus* sp.	MX13-80	EF608017	EF608020	NA	genseq-4 12S, ND4
57	*Sceloporus* sp. Zacatecas	MZFC 22204				genseq-4 12S, ND4, RAG1
58	*S. bulleri*	CHJ 1406				genseq-4 12S, ND4, RAG1
59	*S. grammicus*	MZFC 33936				genseq-4 12S, ND4, RAG1
60	*S. mucronatus*	GCG 999				genseq-4 12S, ND4, RAG1

Supplementary file 3. Morphometric measurements. SVL: snout-vent length, SS: snout-shoulder length, HU: humeral length, RA: radius length, FE: femoral length, TI: tibial length, 4T: fourth toe length, HW: head width, PS: pineal eye-snout length, TS: tympanum-snout length.

Catalogue	Taxa	PS	HW	ES	SS	HU	RA	FE	TI	4T	SVL
MZFC 7421	*S. t. binocularis*	20.0	25.9	28.8	39.4	31.1	17.1	32.5	24.7	19.5	119.8
MZFC 24487	*S. t. binocularis*	14.2	17.1	20.7	27.8	20.0	11.1	20.8	17.9	13.5	80.0
SML 155	*S. t. binocularis*	19.6	23.6	27.6	32.7	28.3	16.4	31.4	19.7	19.2	112.8
SML 161	*S. t. binocularis*	20.3	27.3	29.5	34.1	31.4	18.4	35.7	19.5	18.1	118.9
IBH 16635	*S. t. binocularis*	13.5	16.9	19.7	27.8	18.6	9.8	21.6	14.4	13.8	74.6
OFV 1435	*S. t. madrensis* El Cielo	15.2	18.6	21.8	30.0	22.3	13.9	24.9	18.6	14.8	94.6
OFV 1436	*S. t. madrensis* El Cielo	14.1	15.8	19.8	26.5	19.5	13.5	22.8	16.0	14.0	77.9
OFV 1437	*S. t. madrensis* El Cielo	13.3	15.6	18.8	24.8	19.3	12.7	22.4	16.8	12.7	77.3
OFV 1438	*S. t. madrensis* El Cielo	14.1	17.1	20.1	25.2	20.3	13.1	22.6	15.7	13.7	79.0
OFV 1439	*S. t. madrensis* El Cielo	13.9	17.7	20.3	26.6	21.0	14.1	23.3	17.4	12.3	84.8
OFV 1440	*S. t. madrensis* El Cielo	14.1	16.8	19.4	28.0	19.6	12.8	22.6	17.4	13.1	79.4
OFV 1441	*S. t. madrensis* El Cielo	13.4	15.5	18.4	23.7	18.1	12.2	21.5	16.8	14.0	73.4
OFV 1442	*S. t. madrensis* El Cielo	12.8	15.7	17.6	24.2	17.9	12.1	19.7	16.7	11.5	70.3
OFV 1443	*S. t. madrensis* El Cielo	14.3	16.1	19.1	28.9	20.3	13.3	22.6	16.8	13.8	78.9
OFV 1444	*S. t. madrensis* El Cielo	13.8	15.0	18.9	25.0	19.1	12.1	21.6	15.8	13.5	75.0
OFV 1445	*S. t. madrensis* El Cielo	13.6	16.7	19.5	26.4	19.6	12.6	21.5	16.0	12.2	75.5
OFV 1498	*S. t. madrensis* El Cielo	13.4	17.0	20.7	26.4	20.9	12.7	24.5	17.3	12.9	82.9
OFV 1504	*S. t. madrensis* El Cielo	15.4	18.2	21.1	29.0	20.5	13.1	22.2	17.2	13.3	83.4
OFV 1505	*S. t. madrensis* El Cielo	17.6	21.5	25.5	33.3	27.2	16.6	29.6	21.7	17.3	102.7
OFV 1508	*S. t. madrensis* El Cielo	14.6	18.3	20.3	30.2	21.4	13.4	24.1	17.9	13.9	88.2
OFV 1510	*S. t. madrensis* El Cielo	14.2	18.5	20.6	28.8	21.4	14.2	22.7	17.8	12.7	85.5
OFV 1512	*S. t. madrensis* El Cielo	16.0	19.9	23.3	31.6	24.2	14.6	25.4	20.3	16.3	94.0

OFV 1549	*S. t. madrensis* El Cielo	15.5	22.0	23.0	26.9	21.6	14.5	24.0	19.0	14.4	87.6
OFV 1550	*S. t. madrensis* El Cielo	14.6	17.4	20.5	28.4	20.4	13.5	23.1	18.1	15.6	81.4
OFV 1545	*S. t. madrensis* El Cielo	14.9	15.6	20.4	28.5	22.8	13.6	24.8	18.9	13.4	91.9
OFV 1727	*S. t. madrensis* El Cielo	16.1	18.2	22.5	32.9	25.4	14.7	28.1	18.9	14.3	93.5
MZFC 20876	*S. t. madrensis* Huasteca	14.5	16.6	20.0	26.8	20.6	12.3	18.8	16.5	13.2	79.2
MZFC 20872	*S. t. madrensis* Huasteca	14.7	17.9	21.9	31.0	20.2	14.1	25.0	17.4	13.8	87.2
MZFC 20877	*S. t. madrensis* Huasteca	13.5	16.1	19.4	26.2	19.0	12.2	20.8	16.2	12.2	78.2
MZFC 11199	*S. t. madrensis* Huasteca	14.0	14.0	18.7	27.9	20.2	11.4	20.4	15.6	12.7	77.6
MZFC 11198	*S. t. madrensis* Huasteca	13.7	16.1	19.3	27.6	20.0	11.8	18.7	16.2	12.5	74.0
MZFC 20874	*S. t. madrensis* Huasteca	17.2	20.5	24.1	38.8	23.3	14.8	27.2	20.1	14.9	94.1
MZFC 9287	*S. t. madrensis* Huasteca	15.0	18.5	21.6	30.7	22.0	13.1	23.0	19.5	15.1	90.5
MZFC 9288	*S. t. madrensis* Huasteca	15.3	19.4	22.3	30.5	20.5	13.2	23.1	19.0	17.2	89.0
MZFC 9911	*S. t. madrensis* Huasteca	13.0	16.0	17.7	26.1	17.4	11.5	19.2	15.3	11.1	70.4
MZFC 6921	*S. t. madrensis* Huasteca	16.2	19.9	24.3	34.7	25.7	14.9	26.0	20.5	13.8	95.3
MZFC 6922	*S. t. madrensis* Huasteca	18.2	21.4	25.9	40.8	27.7	17.2	28.6	23.9	15.2	107.2
MZFC 8971	*S. t. madrensis* Huasteca	17.0	21.0	23.4	31.5	22.5	14.7	25.5	20.7	14.8	92.6
MZFC 8973	*S. t. madrensis* Huasteca	17.4	21.2	24.5	37.1	24.7	15.5	27.4	23.1	15.1	99.3
MZFC 8426	*S. t. madrensis* Huasteca	18.1	18.8	26.9	32.5	26.2	14.6	27.9	20.7	15.0	100.8
MZFC 8427	*S. t. madrensis* Huasteca	14.3	17.4	20.3	31.7	20.9	13.7	23.7	18.4	13.2	87.1
MZFC 9134	*S. t. madrensis* Huasteca	15.0	16.7	21.6	29.2	24.1	14.1	26.7	19.1	14.4	93.1
MZFC 9290	*S. t. madrensis* Huasteca	15.0	17.3	21.9	31.0	21.6	13.9	22.5	18.4	15.4	86.6
MZFC 9858	*S. t. madrensis* Huasteca	16.2	20.3	23.6	34.5	22.0	14.3	25.5	20.2	16.4	94.6
MZFC 8872	*S. t. madrensis* Huasteca	13.6	16.1	18.6	26.3	18.2	12.1	20.7	15.7	14.3	75.2
MZFC 9291	*S. t. madrensis* Huasteca	16.2	20.0	23.3	34.2	21.6	14.2	25.8	18.4	16.9	84.3
MZFC 9614	*S. t. madrensis* Huasteca	16.2	20.2	23.6	32.1	22.9	14.5	25.4	18.5	14.9	90.6
MZFC 9292	*S. t. madrensis* Huasteca	13.6	15.0	18.9	29.6	17.9	12.3	22.4	17.5	15.2	80.5
MZFC 32112	*S. t. madrensis* Huasteca	14.2	15.3	19.9	26.8	20.7	12.8	22.1	17.1	13.7	79.3
IBH 16564	*S. t. madrensis* Huasteca	14.5	16.8	17.0	26.8	18.7	12.2	20.7	16.0	12.7	84.1

IBH 31163	*S. t. madrensis* Huasteca	16.9	21.1	24.9	36.2	24.3	14.7	25.8	17.9	14.7	97.7
IBH 16555	*S. t. madrensis* Huasteca	16.8	20.2	23.5	35.1	28.2	13.4	29.2	18.5	15.6	108.6
IBH 4050	*S. t. madrensis* Huasteca	14.9	18.0	20.6	28.6	18.4	12.1	20.5	15.9	13.4	78.3
IBH 3705	*S. t. madrensis* Huasteca	14.4	17.6	20.6	28.0	20.9	12.3	19.2	15.6	13.8	83.3
MZFC 31887	*S. t. melanogaster*	15.2	18.8	22.1	30.2	22.0	12.8	23.2	18.5	12.4	90.1
MZFC 22361	*S. t. melanogaster*	15.0	18.5	21.7	33.3	22.4	13.4	24.3	18.7	14.5	90.0
RPA 231	*S. t. melanogaster*	14.1	16.5	20.5	34.3	18.8	12.2	21.5	17.4	12.9	87.4
RPA 232	*S. t. melanogaster*	14.8	18.5	20.3	31.7	21.2	13.6	25.0	17.0	13.6	91.2
MZFC 27372	*S. t. melanogaster*	16.0	20.2	24.5	36.3	26.8	16.6	27.9	23.2	16.4	114.0
OFV 1678	*S. t. melanogaster*	13.1	13.3	18.7	28.5	19.2	12.2	19.8	16.1	10.9	74.9
OFV 1677	*S. t. melanogaster*	15.7	15.7	21.9	31.0	23.3	13.8	23.9	20.6	13.0	89.9
OFV 1679	*S. t. melanogaster*	13.9	15.4	20.0	30.0	22.0	13.1	23.2	18.1	13.3	85.3
OFV 1676	*S. t. melanogaster*	17.1	19.7	24.7	35.9	25.6	15.9	25.8	21.8	14.1	103.3
MZFC 28086	*S. t. melanogaster*	15.0	15.8	21.3	29.2	19.6	12.3	20.9	17.8	13.1	84.1
MZFC 28087	*S. t. melanogaster*	20.5	28.0	31.0	40.0	29.9	18.3	32.5	25.1	17.3	130.8
MZFC 32161	*S. t. melanogaster*	17.0	21.7	25.0	38.3	25.3	16.1	27.7	22.9	15.1	105.2
MZFC 31914	*S. t. melanogaster*	15.2	18.6	20.9	27.5	18.7	12.0	22.2	17.2	14.1	79.3
MZFC 32162	*S. t. melanogaster*	14.8	17.9	20.4	27.4	20.9	13.6	24.5	17.8	12.4	86.4
MZFC 31885	*S. t. melanogaster*	16.8	19.5	24.5	30.6	24.5	14.9	25.9	18.8	14.9	98.5
MZFC 31886	*S. t. melanogaster*	15.6	20.0	22.1	28.7	21.5	13.4	23.1	16.8	12.1	90.3
MZFC 31886	*S. t. melanogaster*	15.0	16.2	19.6	28.0	19.3	13.7	23.8	18.4	12.5	79.9
OFV 1706	*S. t. melanogaster*	13.4	13.8	19.4	27.0	19.4	11.7	20.8	18.3	11.4	80.9
OFV 1715	*S. t. melanogaster*	13.4	13.7	18.9	28.2	17.5	11.2	20.3	14.7	11.5	74.2
OFV 1689	*S. t. melanogaster*	17.0	19.7	24.6	36.0	24.7	15.6	26.4	21.5	14.6	98.6
OFV 1690	*S. t. melanogaster*	16.7	18.7	22.4	32.1	22.8	14.5	24.8	20.0	14.4	88.6
OFV 1691	*S. t. melanogaster*	16.2	17.0	21.6	31.0	22.1	14.5	23.7	19.6	13.2	95.1
MZFC 28472	*S. t. melanogaster*	14.2	16.6	20.2	30.0	19.9	12.9	22.4	18.3	11.8	82.4

MZFC 31863	*S. t. melanogaster*	15.6	18.1	22.5	33.3	23.1	14.8	25.7	19.6	15.7	91.6
MZFC 31856	*S. t. melanogaster*	13.8	17.3	18.7	25.6	21.3	13.8	23.6	17.2	12.7	82.0
MZFC 31861	*S. t. melanogaster*	14.5	14.7	19.6	26.0	19.0	12.1	20.2	17.2	12.1	75.1
MZFC 31862	*S. t. melanogaster*	12.6	15.0	18.2	29.0	17.8	11.1	20.4	15.6	12.6	74.4
MZFC 31864	*S. t. melanogaster*	13.0	14.5	18.7	25.6	17.8	12.0	20.6	16.2	10.7	74.4
MZFC 14496	*S. t. melanogaster*	18.8	24.1	27.7	37.9	27.0	17.0	28.7	23.3	16.3	108.6
MZFC 2295	*S. t. melanogaster*	19.4	21.5	23.9	35.4	24.7	14.7	27.7	19.9	13.6	107.6
MZFC 2294	*S. t. melanogaster*	15.7	19.0	21.7	30.5	22.6	13.6	23.2	17.7	13.8	88.9
MZFC 780	*S. t. melanogaster*	15.9	17.6	22.4	32.1	23.9	14.7	26.5	18.8	13.2	99.0
MZFC 2293	*S. t. melanogaster*	16.7	20.0	22.3	31.1	23.7	13.9	25.6	20.4	15.4	100.4
MZFC 26348	*S. t. melanogaster*	16.2	16.2	18.5	30.2	23.4	13.3	25.9	17.8	15.3	91.5
MZFC 26349	*S. t. melanogaster*	17.0	17.3	23.7	32.4	26.5	13.7	30.3	17.8	17.2	98.2
OFV 1721	*S. t. melanogaster*	15.8	17.1	21.9	29.2	24.6	13.9	24.9	19.5	11.8	90.6
OFV 1720	*S. t. melanogaster*	18.3	22.4	25.6	33.1	27.6	15.8	27.8	22.6	14.5	105.2
MZFC 27841	*S. t. melanogaster*	16.2	17.7	24.0	33.6	22.9	14.5	23.7	21.8	16.1	94.2
MZFC 27865	*S. t. melanogaster*	16.9	20.4	23.8	37.2	25.2	15.4	27.6	19.9	12.6	100.1
MZFC 22207	*S. t. melanogaster*	16.7	21.1	24.6	33.2	23.4	14.8	26.5	21.9	14.5	100.9
MZFC 22956	*S. t. melanogaster*	17.4	21.2	26.1	35.7	27.6	16.5	29.4	22.9	15.8	102.3
MZFC 24684	*S. t. melanogaster*	18.8	21.0	25.7	39.3	27.2	16.6	30.8	24.0	15.7	108.3
MZFC 27834	*S. t. melanogaster*	15.7	17.4	20.9	28.7	21.8	14.3	25.6	18.6	15.4	86.2
IBH 6130	*S. t. melanogaster*	14.7	17.6	19.7	28.6	19.6	12.9	21.8	16.2	13.1	84.9
IBH 6129	*S. t. melanogaster*	15.5	18.2	21.2	33.2	22.7	12.7	24.0	18.1	13.6	88.5
IBH 3447	*S. t. melanogaster*	14.4	16.4	19.3	27.7	20.9	12.3	22.9	16.6	13.3	83.4
IBH 3214	*S. t. melanogaster*	21.1	24.7	28.8	39.7	28.0	17.1	31.4	23.5	14.4	124.1
IBH 18006	*S. t. melanogaster*	17.2	21.1	24.0	36.3	26.1	14.2	29.1	18.4	13.2	104.7
IBH 26374	*S. t. melanogaster*	16.6	19.8	22.3	34.7	22.9	12.8	26.1	17.5	13.2	93.6
IBH 26375	*S. t. melanogaster*	11.5	21.0	24.7	37.0	24.3	14.1	26.8	18.7	14.9	103.1

IBH 26376	*S. t. melanogaster*	14.6	17.8	20.4	28.8	21.7	11.7	25.5	16.9	12.7	89.9
IBH 12713	*S. t. melanogaster*	14.7	18.9	19.7	30.9	20.2	12.2	21.7	15.8	12.8	85.8
IBH 12714	*S. t. melanogaster*	14.0	17.5	19.1	28.6	19.5	11.5	21.0	14.3	11.6	82.6
IBH 23327	*S. t. melanogaster*	13.3	16.7	18.0	27.5	18.9	9.8	20.2	15.8	12.5	75.8
IBH 26379	*S. t. melanogaster*	15.1	18.4	20.7	33.5	22.1	13.5	22.5	17.7	12.1	92.3
IBH 5022	*S. t. melanogaster*	13.9	16.1	17.2	23.8	18.0	11.0	20.9	14.8	11.8	73.3
IBH 6091-10	*S. t. melanogaster*	15.4	19.5	22.3	33.9	22.6	14.2	24.5	17.1	13.4	93.7
IBH 6092-3	*S. t. melanogaster*	16.9	22.2	24.4	34.8	25.3	13.6	26.3	18.7	13.2	100.9
IBH 6090-3	*S. t. melanogaster*	14.9	20.0	20.6	32.4	23.7	12.8	24.5	18.1	12.6	88.9
IBH 6090-14	*S. t. melanogaster*	15.2	20.3	22.4	30.4	24.2	14.3	23.3	17.8	13.2	99.5
IBH 6090-16	*S. t. melanogaster*	16.6	21.1	23.1	34.0	24.3	14.3	24.3	19.6	13.4	92.9
IBH 6090-19	*S. t. melanogaster*	17.4	23.0	26.0	38.6	29.2	15.3	28.9	20.5	15.5	113.9
IBH 17473	*S. t. melanogaster*	16.8	19.7	23.0	33.4	25.5	12.7	27.6	18.9	13.7	110.5
IBH 17463	*S. t. melanogaster*	15.8	18.3	21.5	33.2	24.0	13.3	26.8	16.8	13.7	101.0
IBH 17469	*S. t. melanogaster*	15.4	17.3	21.7	32.1	22.7	12.2	24.4	17.5	13.2	96.8
IBH 7209	*S. t. melanogaster*	17.8	22.8	25.4	33.9	28.4	13.6	29.3	19.5	14.4	112.5
IBH 6090	*S. t. melanogaster*	20.0	23.9	27.9	42.3	28.2	15.7	30.3	24.7	15.9	120.1
IBH 6090-5	*S. t. melanogaster*	18.5	23.7	26.9	37.3	29.6	15.0	32.6	20.7	16.2	114.3
IBH 6092	*S. t. melanogaster*	18.1	23.3	25.2	37.0	26.1	15.0	28.2	19.3	11.9	114.6
IBH 6077	*S. t. melanogaster*	20.5	26.7	26.5	39.8	30.3	15.9	35.5	21.7	15.2	127.5
IBH 6077-2	*S. t. melanogaster*	19.0	23.5	26.8	43.0	28.1	15.0	29.3	21.7	14.1	110.4
IBH 6091	*S. t. melanogaster*	16.4	20.4	22.7	36.3	23.1	14.0	26.9	19.4	12.9	102.6
IBH 6091-16	*S. t. melanogaster*	16.7	21.5	22.4	34.5	24.0	14.9	24.7	19.9	13.5	91.8
IBH 6091-11	*S. t. melanogaster*	14.5	17.5	21.2	30.6	23.5	12.1	24.3	17.3	12.6	85.8
IBH 6075	*S. t. melanogaster*	16.8	20.0	21.9	32.3	22.6	13.0	24.9	17.9	12.5	97.1
IBH 6075-2	*S. t. melanogaster*	15.8	20.0	22.2	34.3	24.4	14.2	26.5	17.3	12.7	97.3
IBH 6076	*S. t. melanogaster*	17.8	22.8	25.5	36.5	26.6	15.4	28.5	21.1	15.1	111.0

IBH 6060-4	*S. t. melanogaster*	16.5	20.2	23.1	33.2	26.0	12.8	27.2	19.1	13.8	97.9
IBH 6060-5	*S. t. melanogaster*	17.0	21.7	24.5	37.7	27.0	13.3	27.0	19.2	12.9	107.4
IBH 4260-1	*S. t. melanogaster*	17.3	20.8	24.0	35.4	26.7	13.4	28.7	20.8	13.8	101.8
IBH 4260-3	*S. t. melanogaster*	17.9	23.3	25.2	36.5	27.2	15.6	30.7	21.7	12.1	104.7
IBH 7173-2	*S. t. melanogaster*	14.4	16.5	19.3	29.7	20.1	10.1	20.8	16.9	13.7	80.3
IBH 2744-4	*S. t. melanogaster*	14.5	17.2	20.1	27.2	20.7	11.9	20.9	16.3	12.3	79.0
IBH 11070	*S. t. melanogaster*	16.4	20.5	23.6	32.1	26.0	13.7	25.0	18.3	13.8	94.4
IBH 11072	*S. t. melanogaster*	18.6	23.9	26.2	35.5	28.9	15.4	29.8	20.6	14.0	110.2
IBH 7681	*S. t. melanogaster*	19.5	25.2	27.3	42.2	28.4	15.8	31.6	20.9	14.3	118.3
IBH 7683	*S. t. melanogaster*	17.9	20.8	24.0	34.9	22.4	13.7	26.8	17.8	15.3	97.9
IBH 4525-4	*S. t. melanogaster*	15.5	17.7	20.8	29.8	20.2	10.5	21.2	16.0	12.1	83.2
IBH 4525-5	*S. t. melanogaster*	16.7	20.0	22.3	31.0	22.9	13.5	25.7	18.1	14.1	94.3
IBH 5220-1	*S. t. melanogaster*	19.7	26.4	27.3	40.4	30.9	15.7	34.3	22.8	16.3	122.1
IBH 5220-2	*S. t. melanogaster*	17.7	23.2	25.0	35.4	27.1	16.0	28.0	21.3	15.5	107.5
IBH 5220-3	*S. t. melanogaster*	16.0	19.3	22.0	29.9	24.4	13.4	25.0	20.1	13.6	90.8
IBH 5219-7	*S. t. melanogaster*	16.5	19.6	23.4	30.9	24.4	13.0	26.0	18.6	13.7	98.7
IBH 4781	*S. t. melanogaster*	16.2	19.3	22.7	30.0	22.9	13.6	23.3	17.1	11.9	90.8
IBH 5214	*S. t. melanogaster*	16.6	21.1	23.4	34.5	22.3	15.5	26.0	19.9	13.0	104.6
IBH 5219-8	*S. t. melanogaster*	18.3	24.8	26.5	36.6	28.9	13.9	31.0	19.3	14.5	113.7
IBH 4525	*S. t. melanogaster*	14.4	17.1	20.3	28.6	23.5	12.3	21.6	16.4	12.3	84.1
IBH 3337	*S. t. melanogaster*	18.9	23.5	26.3	35.8	29.3	16.9	33.3	23.2	15.5	111.3
IBH 16563	*S. t. melanogaster*	15.2	18.0	22.2	35.3	21.0	13.0	24.1	18.0	12.0	92.3
IBH 4745	*S. t. melanogaster*	18.3	22.0	25.4	34.4	27.3	14.1	29.1	20.7	16.3	108.4
IBH 4745-3	*S. t. melanogaster*	14.3	17.7	19.4	28.7	20.1	11.9	21.2	16.2	12.5	81.1
IBH 4746	*S. t. melanogaster*	16.2	22.2	23.9	33.8	28.1	14.1	30.4	19.7	13.7	107.7
IBH 4746-2	*S. t. melanogaster*	13.6	15.0	17.4	25.5	19.7	10.9	21.5	14.7	11.7	73.0
IBH 26736	*S. t. melanogaster*	14.2	15.7	19.9	29.5	21.0	11.9	24.1	17.4	13.1	85.9
IBH 31168	*S. t. melanogaster*	13.2	15.6	18.2	28.0	17.5	9.6	19.6	13.3	11.0	78.3

IBH 26745	*S. t. melanogaster*	16.8	24.3	35.5	37.3	29.9	14.9	27.6	19.3	13.2	115.4
IBH 26746	*S. t. melanogaster*	14.2	19.8	20.9	30.1	22.5	13.1	25.9	16.5	13.0	92.8
IBH 26731	*S. t. melanogaster*	14.0	17.8	19.9	28.1	20.9	10.5	22.7	14.3	10.7	90.3
IBH 26739	*S. t. melanogaster*	13.8	16.0	18.6	26.4	18.4	10.5	22.3	14.6	10.5	78.6
IBH 26741	*S. t. melanogaster*	19.4	23.4	26.6	39.4	29.2	16.5	29.7	23.2	14.6	115.6
IBH 26742	*S. t. melanogaster*	12.8	15.4	18.1	24.8	18.4	9.4	21.2	14.5	11.5	77.4
IBH 26727	*S. t. melanogaster*	16.4	21.3	23.6	33.2	25.2	13.2	27.2	18.6	13.2	101.9
IBH 26763	*S. t. melanogaster*	16.1	19.8	22.2	30.1	23.4	12.4	27.4	18.4	12.7	95.2
IBH 26735	*S. t. melanogaster*	13.7	17.5	19.4	27.3	21.4	12.1	23.5	14.9	12.1	84.2
IBH 26761	*S. t. melanogaster*	15.8	21.5	22.3	29.2	24.5	13.3	23.7	17.2	12.4	93.2
IBH 5058	*S. t. melanogaster*	14.4	16.5	19.0	29.6	20.8	11.8	20.0	15.5	12.3	79.3
IBH 4934-3	*S. t. melanogaster*	15.4	18.0	20.9	30.8	22.4	11.7	25.6	18.1	14.0	86.7
IBH 4934-4	*S. t. melanogaster*	13.7	16.8	19.7	28.4	21.5	11.7	23.3	16.2	11.9	84.9
IBH 4027-25	*S. t. melanogaster*	16.5	21.8	23.0	33.0	26.3	13.7	26.8	20.1	13.3	99.2
IBH 4934	*S. t. melanogaster*	15.2	18.5	21.3	30.0	21.7	12.0	24.3	17.1	11.6	84.5
IBH 4270	*S. t. melanogaster*	17.0	20.9	24.0	30.9	25.2	13.6	28.2	19.1	14.4	99.6
IBH 5054-1	*S. t. melanogaster*	16.2	19.3	21.4	30.8	23.2	14.2	24.6	18.6	14.6	95.2
IBH 5054-2	*S. t. melanogaster*	14.4	18.1	19.7	29.1	20.0	10.8	22.8	17.3	12.6	84.1
IBH 5054-4	*S. t. melanogaster*	17.5	21.8	24.8	38.6	23.1	13.4	27.4	19.8	15.6	100.5
ENCB 15236	*S. t. melanogaster*	17.7	25.0	24.9	34.7	28.2	16.7	29.0	23.0	15.3	105.7
ENCB 15237	*S. t. melanogaster*	14.5	17.4	20.2	29.2	22.4	13.3	21.9	17.7	11.4	83.3
ENCB 14979	*S. t. melanogaster*	17.0	19.9	24.7	33.6	28.5	13.9	27.0	20.9	13.8	96.9
ENCB 14980	*S. t. melanogaster*	14.9	18.2	21.4	31.1	20.3	13.0	24.2	17.1	13.7	87.9
ENCB 14981	*S. t. melanogaster*	15.5	19.6	21.0	32.5	26.7	13.1	25.1	18.2	13.3	82.9
ENCB 14978	*S. t. melanogaster*	15.9	23.5	24.9	36.0	23.5	16.9	29.0	20.1	13.2	104.1
ENCB 14987	*S. t. melanogaster*	15.0	17.3	21.1	30.4	21.4	13.6	27.3	19.0	12.8	86.7
ENCB 14988	*S. t. melanogaster*	16.3	22.6	24.6	33.8	25.2	15.5	27.2	19.8	12.7	94.7
ENCB 3580	*S. t. melanogaster*	17.2	21.4	24.7	37.6	23.9	16.3	27.5	20.1	14.6	96.0

ENCB 12217	*S. t. melanogaster*	16.4	20.2	23.4	33.0	22.0	15.1	25.3	18.9	13.2	89.6
ENCB 7313	*S. t. melanogaster*	13.9	18.0	20.4	27.9	19.6	12.0	21.9	17.1	13.1	87.1
ENCB 16391	*S. t. melanogaster*	17.5	19.7	24.1	31.6	26.3	15.3	27.7	19.9	12.6	101.8
ENCB 16392	*S. t. melanogaster*	17.1	20.7	23.8	38.8	26.9	15.0	27.0	18.9	13.9	100.4
ENCB 16393	*S. t. melanogaster*	15.6	17.4	20.8	27.3	20.3	11.9	22.5	16.5	11.0	82.8
ENCB 16394	*S. t. melanogaster*	16.3	20.2	23.5	32.4	23.6	14.9	26.3	18.9	12.5	93.4
ENCB 16395	*S. t. melanogaster*	12.3	15.1	17.3	24.5	17.4	11.9	19.1	14.2	10.7	73.1
ENCB 16396	*S. t. melanogaster*	17.3	21.3	24.7	37.2	20.7	15.2	27.1	20.0	14.5	103.9
ENCB 16397	*S. t. melanogaster*	17.2	20.0	23.5	36.2	22.2	15.4	27.7	19.6	13.2	98.7
ENCB 16398	*S. t. melanogaster*	13.3	15.5	17.8	26.6	19.1	10.7	20.6	15.1	11.6	76.1
ENCB 16399	*S. t. melanogaster*	12.9	15.8	18.1	23.7	19.1	11.8	19.2	14.3	11.4	72.2
ENCB 14828	*S. t. melanogaster*	12.7	13.3	17.9	27.0	17.3	10.5	19.3	15.2	12.1	74.4
ENCB 14829	*S. t. melanogaster*	15.1	17.6	21.2	30.7	19.3	12.2	20.4	15.2	12.5	86.3
ENCB 14137	*S. t. melanogaster*	14.2	15.1	19.7	27.7	20.4	12.3	24.0	16.1	12.5	83.1
ENCB 14141	*S. t. melanogaster*	14.6	15.4	19.9	29.0	20.9	13.6	23.9	17.5	11.1	81.4
ENCB 14929	*S. t. melanogaster*	19.6	23.8	27.1	41.8	27.6	17.1	30.2	21.3	14.4	107.6
ENCB 14932	*S. t. melanogaster*	16.9	20.8	24.1	35.9	25.7	16.5	26.3	20.0	15.1	109.0
ENCB 14933	*S. t. melanogaster*	17.2	19.5	23.0	34.8	23.4	14.0	25.8	19.6	14.0	97.0
ENCB 14830	*S. t. melanogaster*	14.9	17.9	19.8	28.4	20.8	12.6	22.7	16.8	11.1	82.9
ENCB 14831	*S. t. melanogaster*	15.3	17.2	21.1	31.2	21.6	13.4	22.4	17.2	12.4	83.8
ENCB 2496	*S. t. melanogaster*	14.8	16.3	21.3	32.2	18.5	12.5	24.2	17.0	12.0	88.1
ENCB 2497	*S. t. melanogaster*	17.0	24.7	25.6	34.7	24.6	14.8	27.5	21.5	15.1	107.4
ENCB 2498	*S. t. melanogaster*	16.7	19.7	23.5	34.8	23.0	14.3	27.1	20.3	14.1	100.6
ENCB 2490	*S. t. melanogaster*	16.6	21.0	22.1	38.1	26.1	15.1	30.5	21.0	12.3	106.8
ENCB 14142	*S. t. melanogaster*	15.6	18.5	23.4	29.8	24.1	14.5	23.6	19.1	14.0	96.7
ENCB 507	*S. t. melanogaster*	13.2	15.1	18.8	25.7	18.5	11.7	21.1	15.3	10.8	81.4
ENCB 508	*S. t. melanogaster*	13.8	15.4	20.0	26.2	17.5	12.1	18.8	16.4	10.5	71.9
ENCB 13194	*S. t. melanogaster*	13.7	15.8	18.5	26.5	19.2	10.9	21.5	16.0	14.4	75.1

ENCB 13196	*S. t. melanogaster*	13.1	15.9	18.3	26.3	18.9	10.3	20.9	14.6	11.8	74.8
ENCB 13349	*S. t. melanogaster*	14.5	16.5	20.3	28.5	20.0	12.6	19.9	16.1	12.5	76.9
ENCB 14164	*S. t. melanogaster*	15.6	19.1	20.2	30.0	23.2	12.4	26.4	17.7	14.4	94.6
ENCB 9340	*S. t. melanogaster*	14.9	17.6	20.1	29.9	20.4	12.2	21.3	16.6	11.5	85.6
ENCB 9341	*S. t. melanogaster*	17.7	25.1	24.8	32.6	29.3	13.9	29.7	20.6	13.5	104.0
ENCB 9342	*S. t. melanogaster*	15.2	20.5	20.7	32.6	21.6	12.0	23.3	17.6	12.5	92.6
ENCB 9343	*S. t. melanogaster*	18.2	21.5	23.8	38.5	26.2	15.3	27.7	20.9	15.0	105.3
ENCB 9344	*S. t. melanogaster*	13.3	18.0	18.4	29.2	19.7	11.7	21.0	16.0	10.7	79.9
ENCB 9345	*S. t. melanogaster*	17.4	22.5	25.5	37.8	24.8	16.4	26.4	21.8	15.1	108.8
ENCB 9346	*S. t. melanogaster*	13.6	16.8	17.8	26.2	16.4	10.9	19.9	15.8	12.0	76.9
ENCB 9347	*S. t. melanogaster*	14.1	15.0	18.9	27.0	19.6	10.3	20.0	15.1	11.2	73.0
ENCB 13350	*S. t. melanogaster*	20.1	24.5	28.2	39.2	27.1	16.0	30.9	22.0	15.8	109.4
ENCB 13351	*S. t. melanogaster*	16.1	19.4	21.6	30.9	22.5	12.8	22.5	18.4	14.1	92.2
ENCB 12791	*S. t. melanogaster*	17.6	25.4	25.4	40.9	29.7	17.6	33.1	24.1	15.9	113.3
ENCB 12792	*S. t. melanogaster*	19.0	22.6	26.9	39.7	27.4	17.0	32.8	21.4	15.1	115.1
ENCB 12793	*S. t. melanogaster*	15.3	18.2	19.9	31.2	21.8	11.8	24.2	17.4	12.0	85.0
ENCB 12794	*S. t. melanogaster*	15.2	16.9	20.4	28.7	20.9	11.8	22.3	17.1	12.7	84.0
ENCB 13184	*S. t. melanogaster*	19.7	23.4	26.7	39.2	30.3	14.0	30.4	21.8	14.8	102.7
ENCB 13186	*S. t. melanogaster*	16.1	18.8	21.8	31.3	23.4	12.8	25.5	18.3	13.4	89.5
ENCB 13187	*S. t. melanogaster*	18.6	23.7	24.3	38.4	28.4	15.6	31.5	22.0	15.3	101.5
ENCB 13188	*S. t. melanogaster*	15.8	17.7	20.2	32.0	24.1	13.8	24.8	18.3	10.8	79.1
ENCB 13189	*S. t. melanogaster*	17.2	18.7	24.0	35.7	22.6	12.8	25.1	24.3	13.1	97.9
ENCB 13374	*S. t. melanogaster*	13.5	16.3	20.1	27.9	18.4	11.7	23.4	16.3	11.6	75.4
ENCB 13197	*S. t. melanogaster*	16.7	21.5	24.0	34.5	24.2	14.2	30.5	20.0	13.2	109.3
ENCB 15547	*S. t. melanogaster*	15.4	18.9	22.8	34.0	24.6	14.0	26.1	19.5	13.7	92.6
ENCB 15548	*S. t. melanogaster*	13.1	15.3	17.8	25.4	15.8	10.6	19.2	14.1	12.0	73.5
ENCB 10165	*S. t. melanogaster*	13.5	15.3	18.2	27.3	16.4	10.5	20.5	13.0	11.6	73.6
ENCB 13352	*S. t. melanogaster*	15.3	17.5	22.0	37.2	19.4	14.3	22.1	18.1	14.3	89.0

ENCB 13342	*S. t. melanogaster*	14.8	20.1	21.7	30.2	22.8	13.1	22.3	19.6	12.8	86.9
ENCB 13344	*S. t. melanogaster*	13.9	13.7	18.4	25.0	18.4	11.2	20.0	16.0	12.0	74.2
ENCB 13345	*S. t. melanogaster*	13.1	15.1	18.2	28.7	19.0	11.4	19.9	15.6	12.8	72.7
ENCB 13346	*S. t. melanogaster*	14.2	17.5	20.1	33.0	20.1	11.4	22.5	17.3	11.5	76.9
ENCB 13347	*S. t. melanogaster*	15.3	17.9	21.1	32.6	20.9	13.6	24.6	18.4	13.1	83.3
ENCB 13198	*S. t. melanogaster*	14.2	19.3	20.3	27.3	20.5	12.2	21.8	16.7	12.9	81.7
ENCB 13199	*S. t. melanogaster*	16.9	19.4	22.9	36.6	25.0	13.1	25.5	20.5	15.2	96.7
ENCB 1517	*S. t. melanogaster*	13.9	15.2	18.9	29.7	17.9	9.9	19.9	15.4	12.0	73.3
ENCB 1524	*S. t. melanogaster*	13.3	15.2	18.6	28.3	16.8	11.4	21.1	15.5	12.1	80.1
ENCB 1525	*S. t. melanogaster*	15.3	17.4	20.8	36.6	22.8	13.1	24.2	18.1	12.2	88.0
ENCB 6252	*S. t. melanogaster*	12.5	14.6	17.6	24.4	17.0	10.4	19.6	14.7	11.2	71.1
ENCB 13371	*S. t. melanogaster*	15.8	20.8	23.3	33.7	26.3	14.2	27.9	17.8	12.5	101.2
ENCB 13353	*S. t. melanogaster*	15.4	14.6	20.8	30.2	19.6	13.0	24.0	18.4	14.1	80.0
ENCB 13354	*S. t. melanogaster*	15.3	17.6	20.9	33.2	19.3	13.3	21.9	17.2	12.3	87.7
ENCB 13355	*S. t. melanogaster*	16.9	18.8	23.6	36.3	25.0	12.5	26.9	18.1	13.9	94.7
ENCB 13356	*S. t. melanogaster*	16.7	19.0	22.8	32.8	21.5	16.0	24.5	18.4	14.1	93.7
ENCB 13357	*S. t. melanogaster*	15.4	16.5	22.5	37.2	19.5	13.9	24.1	17.1	12.2	88.7
ENCB 13358	*S. t. melanogaster*	16.2	17.5	23.1	35.7	21.9	14.7	24.5	19.8	14.2	91.5
ENCB 13360	*S. t. melanogaster*	17.1	18.2	24.1	33.6	24.5	14.8	26.6	19.0	13.3	92.9
ENCB 12276	*S. t. melanogaster*	15.0	19.1	20.9	29.4	20.4	12.7	25.0	17.8	13.2	85.6
ENCB 2070	*S. t. melanogaster*	13.6	16.3	19.0	25.0	18.9	11.5	22.3	15.8	11.5	75.8
ENCB 5005	*S. t. melanogaster*	15.1	17.0	20.8	30.2	19.7	11.1	22.8	16.8	14.1	78.1
ENCB 544	*S. t. melanogaster*	13.7	16.3	18.9	28.5	17.7	10.8	20.9	15.0	12.2	76.6
ENCB 545	*S. t. melanogaster*	13.6	16.9	19.0	31.7	19.5	12.3	21.2	15.7	11.3	80.9
ENCB 548	*S. t. melanogaster*	13.5	13.9	26.1	26.1	15.0	9.7	20.2	13.4	11.5	71.6
ENCB 550	*S. t. melanogaster*	12.4	14.6	16.5	25.6	16.0	10.0	18.0	14.0	10.6	71.4
ENCB 561	*S. t. melanogaster*	17.1	18.1	24.2	37.0	24.4	13.9	28.0	19.1	12.4	96.7
ENCB 562	*S. t. melanogaster*	14.0	15.1	20.1	30.0	22.1	13.0	24.7	17.6	10.8	83.5

ENCB 564	*S. t. melanogaster*	16.1	18.9	21.3	34.6	23.5	12.7	26.9	17.9	13.1	92.1
ENCB 830	*S. t. melanogaster*	14.5	19.7	20.0	32.3	20.5	14.1	23.4	17.8	13.0	83.4
ENCB 831	*S. t. melanogaster*	15.3	21.3	22.2	34.4	23.5	13.2	27.6	17.6	12.6	97.2
ENCB 844	*S. t. melanogaster*	14.5	15.8	20.6	33.4	19.0	11.4	21.9	16.3	11.0	83.0
ENCB 846	*S. t. melanogaster*	14.1	15.5	19.6	29.8	21.6	11.4	21.7	17.6	13.4	82.8
ENCB 850	*S. t. melanogaster*	15.8	20.9	23.3	32.5	24.7	12.1	27.6	20.2	14.1	95.0
ENCB 852	*S. t. melanogaster*	15.7	19.1	21.6	32.2	22.2	13.5	24.1	19.4	13.4	88.5
ENCB 14035	*S. t. melanogaster*	17.6	18.2	23.7	37.0	22.9	15.3	26.1	19.7	14.1	94.4
ENCB 7208	*S. t. melanogaster*	15.7	21.8	23.2	36.7	23.1	14.3	23.6	18.1	12.9	98.5
MZFC 5368	*S. t. mikeprestoni*	17.2	20.2	23.9	30.1	23.4	12.6	23.9	20.6	14.7	90.6
MZFC 21268	*S. t. mikeprestoni*	16.1	20.8	23.7	31.6	22.2	14.1	22.8	18.3	14.2	89.5
MZFC 31902	*S. t. mikeprestoni*	13.9	16.9	20.3	26.4	20.0	9.9	19.7	16.2	12.7	75.0
MZFC 31905	*S. t. mikeprestoni*	14.7	18.6	20.6	27.9	21.0	10.3	22.6	16.7	13.3	82.4
MZFC 31907	*S. t. mikeprestoni*	13.9	17.1	20.3	24.3	19.3	12.3	22.0	15.7	11.6	77.6
OFV 1513	*S. t. mikeprestoni*	17.6	20.9	25.0	26.4	23.7	13.6	25.8	20.7	14.9	95.5
OFV 1516	*S. t. mikeprestoni*	16.3	19.4	23.0	28.5	23.5	13.3	23.0	19.0	13.1	90.4
OFV 1517	*S. t. mikeprestoni*	14.3	16.9	19.7	22.7	19.7	11.0	20.8	16.2	10.8	74.4
OFV 1544	*S. t. mikeprestoni*	15.6	19.1	22.7	29.9	21.7	12.8	23.5	17.3	13.2	91.9
OFV 1546	*S. t. mikeprestoni*	14.8	17.6	22.3	30.3	24.0	12.5	22.7	17.6	13.0	92.2
OFV 1548	*S. t. mikeprestoni*	17.1	20.5	26.2	29.7	25.7	14.8	27.7	19.9	15.5	101.9
ENCB 5759	*S. t. mikeprestoni*	14.8	17.7	19.3	30.3	20.5	10.7	20.4	16.5	13.1	81.0
MZFC 24071	*S. t. torquatus*	13.5	15.9	18.9	26.9	18.1	13.0	20.3	17.1	11.8	75.0
MZFC 23350	*S. t. torquatus*	15.5	17.1	22.3	33.2	21.4	13.1	24.7	17.5	13.6	89.6
MZFC 23590	*S. t. torquatus*	13.4	14.8	18.4	25.3	18.4	11.6	21.1	16.0	11.1	70.8
MZFC 23349	*S. t. torquatus*	13.1	16.6	18.4	25.0	17.8	10.5	20.3	15.1	10.8	72.4
MZFC 23588	*S. t. torquatus*	15.1	17.8	20.4	29.3	21.0	13.0	23.7	18.1	12.9	81.9
MZFC 20296	*S. t. torquatus*	14.8	16.7	21.1	28.0	20.7	12.4	23.2	17.3	12.3	82.2
MZFC 23589	*S. t. torquatus*	16.0	19.2	21.8	31.9	23.1	13.4	25.1	18.4	12.4	86.3

MZFC 24072	*S. t. torquatus*	13.3	13.8	17.4	27.2	16.2	10.6	20.1	16.4	11.3	72.8
MZFC 23599	*S. t. torquatus*	14.0	16.1	19.8	27.3	20.1	12.2	21.8	20.7	11.6	78.1
MZFC 522	*S. t. torquatus*	13.0	16.1	18.4	23.9	18.6	12.3	20.8	15.0	11.9	78.7
MZFC 545	*S. t. torquatus*	15.1	15.5	20.6	26.4	21.3	12.5	22.0	17.8	12.2	85.9
MZFC 3405	*S. t. torquatus*	17.6	21.6	25.7	38.5	25.5	17.3	28.5	22.0	13.4	105.4
MZFC 3504-1	*S. t. torquatus*	15.0	17.0	21.1	31.1	22.8	15.5	25.8	19.1	14.6	90.7
MZFC 3504-2	*S. t. torquatus*	15.1	19.3	20.8	31.5	22.1	14.2	23.9	16.9	12.2	85.6
MZFC 3504-3	*S. t. torquatus*	15.2	18.4	21.0	29.9	22.4	13.8	23.9	17.4	13.1	88.6
MZFC 3504-4	*S. t. torquatus*	13.8	16.8	20.6	30.1	21.6	12.1	23.8	18.1	13.3	86.0
MZFC 3504-5	*S. t. torquatus*	15.2	18.2	21.6	32.0	20.1	14.6	25.2	19.6	11.9	94.1
MZFC 3504-6	*S. t. torquatus*	14.2	15.7	20.2	31.3	20.9	12.5	23.2	17.5	13.3	81.2
MZFC 3504-7	*S. t. torquatus*	13.9	16.2	20.9	30.7	20.1	13.5	23.1	17.7	13.6	84.6
MZFC 3504-8	*S. t. torquatus*	15.0	18.4	20.8	32.6	21.7	14.5	23.6	17.6	13.2	89.5
MZFC 1703	*S. t. torquatus*	16.3	19.5	23.0	33.9	22.8	13.3	24.4	18.8	13.9	94.4
MZFC 1707	*S. t. torquatus*	13.9	15.8	18.6	25.1	17.1	12.2	22.5	15.3	11.2	76.8
MZFC 1709	*S. t. torquatus*	13.3	16.4	18.2	28.5	16.1	10.9	20.4	15.3	12.2	72.9
MZFC 1711	*S. t. torquatus*	15.3	17.8	22.1	32.3	20.6	13.4	21.3	17.6	12.2	85.4
MZFC 1712	*S. t. torquatus*	13.0	13.6	17.5	24.8	16.6	9.4	18.8	14.1	10.7	73.5
MZFC 1714	*S. t. torquatus*	15.3	18.1	21.2	35.0	21.3	13.8	25.3	17.0	12.2	88.4
MZFC 1715	*S. t. torquatus*	16.6	19.2	23.7	36.4	20.4	15.4	24.1	19.5	13.5	94.0
MZFC 1716	*S. t. torquatus*	16.8	21.0	23.1	34.6	23.0	13.6	25.2	19.3	12.3	96.9
MZFC 1719	*S. t. torquatus*	15.4	16.6	20.1	31.9	18.4	13.0	24.1	18.3	12.2	86.1
MZFC 1720	*S. t. torquatus*	15.2	17.4	21.3	32.0	20.0	12.4	23.2	17.1	12.7	84.1
MZFC 1748	*S. t. torquatus*	14.0	15.3	19.9	29.5	18.9	12.8	20.5	15.7	12.9	76.8
MZFC 3406-1	*S. t. torquatus*	14.1	17.9	19.5	30.2	19.6	11.7	22.6	16.8	11.5	78.5
MZFC 3406-2	*S. t. torquatus*	13.0	16.0	18.4	27.3	17.7	10.6	19.7	16.1	12.3	73.1
MZFC 870	*S. t. torquatus*	15.7	18.4	21.3	31.1	21.3	12.1	26.0	18.9	12.8	86.7
MZFC 3734	*S. t. torquatus*	15.0	18.6	20.9	31.1	22.1	14.0	23.5	18.8	12.9	87.4

MZFC 522-2	*S. t. torquatus*	14.2	15.5	20.0	27.7	19.3	12.1	21.5	14.9	12.7	74.8
MZFC 522-3	*S. t. torquatus*	15.4	20.2	22.0	29.9	20.2	13.1	25.4	17.9	12.8	85.5
MZFC 522-4	*S. t. torquatus*	16.3	20.4	23.6	31.9	22.9	14.5	27.1	18.7	13.1	90.8
MZFC 789	*S. t. torquatus*	13.5	16.5	19.5	30.6	21.5	11.8	22.5	18.0	13.2	77.2
EPR 1617	*S. t. torquatus*	14.8	16.3	21.1	32.0	20.4	14.0	23.4	16.6	12.5	81.9
MZFC 31868	*S. t. torquatus*	15.8	20.3	22.9	32.0	23.2	14.3	24.6	19.3	12.3	96.2
MZFC 31869	*S. t. torquatus*	13.7	15.2	20.4	31.0	20.9	13.0	21.2	16.9	11.8	77.4
MZFC 31912	*S. t. torquatus*	16.7	17.9	20.8	31.2	19.4	14.1	21.7	17.3	13.1	81.9
MZFC 121	*S. t. torquatus*	15.5	17.5	21.6	33.5	20.5	12.9	23.2	18.1	10.8	92.0
MZFC 22694	*S. t. torquatus*	14.9	19.3	20.3	27.7	22.9	14.3	22.7	18.5	13.2	88.9
MZFC 4321	*S. t. torquatus*	17.3	21.2	25.0	34.2	23.4	13.3	25.3	19.8	14.3	98.3
MZFC 14282	*S. t. torquatus*	14.6	15.4	20.3	26.8	20.6	13.8	23.1	17.5	13.4	82.2
MZFC 14497	*S. t. torquatus*	15.4	17.8	21.4	31.0	20.5	12.9	23.7	18.0	13.1	90.4
MZFC 17854	*S. t. torquatus*	15.2	18.6	22.0	30.4	22.1	13.4	23.8	17.7	11.5	94.5
MZFC 120	*S. t. torquatus*	17.5	21.0	25.3	39.7	24.8	14.4	28.4	21.2	13.3	106.4
MZFC 892	*S. t. torquatus*	15.2	18.1	22.1	29.4	21.7	12.9	24.4	18.7	11.9	95.7
MZFC 3970	*S. t. torquatus*	14.2	16.5	18.8	29.7	20.2	11.9	22.5	15.8	13.1	80.9
MZFC 3971	*S. t. torquatus*	13.6	15.7	18.5	26.4	18.2	11.8	21.3	15.3	12.4	72.5
MZFC 3930	*S. t. torquatus*	16.4	19.6	22.3	32.1	21.9	13.0	27.0	17.5	13.9	99.8
MZFC 3932	*S. t. torquatus*	15.3	18.7	21.5	30.6	22.0	12.0	23.0	17.1	13.6	85.3
MZFC 3933	*S. t. torquatus*	14.4	18.5	20.9	32.7	21.9	13.7	23.8	17.0	14.3	89.0
MZFC 3935	*S. t. torquatus*	17.4	20.3	23.0	35.6	24.1	13.4	26.5	17.9	16.7	98.1
MZFC 3936	*S. t. torquatus*	17.1	22.7	22.9	34.4	25.2	15.0	27.3	20.3	15.1	99.3
MZFC 3937	*S. t. torquatus*	15.2	15.2	20.4	29.6	21.6	12.6	22.0	15.2	13.1	87.4
MZFC 3938	*S. t. torquatus*	19.0	23.3	26.5	37.8	24.1	14.7	28.2	20.7	14.8	108.1
MZFC 3939	*S. t. torquatus*	15.2	18.3	20.7	29.1	21.4	12.6	22.0	17.1	14.1	83.5
MZFC 3947	*S. t. torquatus*	13.6	17.1	18.8	26.3	18.7	11.0	20.5	16.6	13.8	77.0
MZFC 3948	*S. t. torquatus*	17.7	21.0	25.1	39.6	23.4	15.3	26.2	18.6	15.1	105.1

MZFC 3950	*S. t. torquatus*	16.1	19.7	22.0	32.9	24.5	13.1	26.6	18.0	12.9	96.7
MZFC 3952	*S. t. torquatus*	13.4	14.2	18.1	27.1	17.5	11.4	17.9	13.8	11.5	74.2
MZFC 3954	*S. t. torquatus*	19.7	22.3	28.0	38.9	27.4	13.3	29.9	21.1	15.8	111.3
MZFC 3957	*S. t. torquatus*	19.3	23.3	26.6	37.7	27.0	15.1	28.1	19.7	15.2	109.3
MZFC 3958	*S. t. torquatus*	17.2	23.6	24.8	36.0	28.2	14.7	28.6	20.9	14.4	103.9
MZFC 3959	*S. t. torquatus*	16.4	19.6	22.3	32.9	24.6	13.3	26.5	18.9	11.9	99.6
MZFC 3960	*S. t. torquatus*	16.9	20.9	23.6	35.0	25.1	12.6	28.4	18.1	13.0	105.4
MZFC 3961	*S. t. torquatus*	16.4	20.6	23.2	34.5	24.1	13.1	27.3	17.2	13.3	100.9
MZFC 3962	*S. t. torquatus*	16.0	18.2	22.0	33.4	24.3	13.1	24.4	17.0	14.7	94.9
MZFC 3964	*S. t. torquatus*	16.8	19.2	22.9	34.1	25.0	14.5	26.2	17.8	14.4	97.1
MZFC 3965	*S. t. torquatus*	16.0	17.9	22.2	33.2	23.7	13.5	25.1	16.3	13.0	94.9
MZFC 3966	*S. t. torquatus*	13.0	14.8	17.2	26.4	18.8	10.9	21.3	13.9	12.6	78.0
MZFC 3967	*S. t. torquatus*	14.8	17.8	20.6	30.1	22.0	12.2	23.7	16.8	12.8	93.8
MZFC 3968	*S. t. torquatus*	14.5	16.5	19.4	28.1	18.4	10.5	22.0	15.0	13.8	73.9
MZFC 3974	*S. t. torquatus*	17.5	19.4	23.3	35.2	22.7	13.4	25.4	18.5	15.7	95.8
MZFC 3975	*S. t. torquatus*	17.2	19.6	24.3	33.2	25.2	14.5	29.4	20.9	16.3	103.3
MZFC 3976	*S. t. torquatus*	16.8	20.8	23.9	37.1	25.0	13.9	26.7	18.0	15.3	104.7
MZFC 3978	*S. t. torquatus*	14.3	14.6	18.5	26.4	20.8	11.3	21.0	12.5	12.9	74.2
MZFC 3979	*S. t. torquatus*	15.5	19.9	21.3	29.6	23.5	13.0	25.2	19.0	15.5	88.1
MZFC 3980	*S. t. torquatus*	16.1	19.1	21.6	30.6	23.4	12.8	23.6	17.1	14.3	89.6
MZFC 3981	*S. t. torquatus*	16.2	19.5	22.9	33.0	25.2	13.8	26.9	19.0	14.7	99.1
MZFC 24152	*S. t. torquatus*	13.1	17.7	18.2	24.6	18.2	12.4	19.7	16.5	12.3	76.0
MZFC 31865	*S. t. torquatus*	15.0	17.6	21.6	33.3	21.1	13.2	22.5	18.7	14.6	83.8
MZFC 31866	*S. t. torquatus*	13.2	14.8	18.8	26.2	18.1	11.9	21.7	15.3	11.0	77.0
MZFC 31867	*S. t. torquatus*	12.6	15.0	17.2	23.7	16.4	11.9	21.2	15.9	11.8	71.5
MZFC 22639	*S. t. torquatus*	14.3	16.6	20.8	31.3	21.1	12.6	22.7	17.2	12.8	81.4
MZFC 983-1	*S. t. torquatus*	17.5	21.3	23.9	31.7	24.5	15.5	27.7	19.8	13.1	93.1
MZFC 983-2	*S. t. torquatus*	14.5	17.3	19.3	27.1	21.2	11.8	23.5	15.8	12.8	81.8

MZFC 984-2	*S. t. torquatus*	14.7	17.8	21.1	29.0	18.9	13.1	21.0	15.8	12.4	88.2
MZFC 4327-2	*S. t. torquatus*	15.9	19.9	24.2	34.1	24.0	15.3	27.6	19.9	14.1	99.0
MZFC 6612-1	*S. t. torquatus*	16.9	20.2	22.6	34.2	23.1	14.8	25.6	19.8	12.8	95.3
MZFC 6612-2	*S. t. torquatus*	13.7	15.5	19.3	31.3	20.6	11.3	23.0	18.3	11.9	81.1
MZFC 6612-3	*S. t. torquatus*	14.5	15.9	20.7	30.4	18.2	12.2	21.7	18.1	13.2	78.4
MZFC 4327	*S. t. torquatus*	13.7	16.1	19.5	31.5	21.7	12.2	22.5	17.0	11.7	83.0
MZFC 4327-3	*S. t. torquatus*	12.2	15.2	17.8	25.0	17.0	11.1	19.2	14.2	11.3	70.3
MZFC 830-2	*S. t. torquatus*	13.4	15.2	19.0	28.4	17.8	11.7	21.4	16.1	12.2	79.1
MZFC 833-1	*S. t. torquatus*	16.0	19.4	22.7	32.9	25.6	14.6	27.2	19.7	12.8	93.0
MZFC 833-2	*S. t. torquatus*	14.7	16.3	21.6	31.8	22.3	12.9	24.8	19.2	12.3	92.1
MZFC 968-2	*S. t. torquatus*	13.4	15.2	18.5	27.6	19.8	12.9	21.7	16.4	12.0	71.5
MZFC 983-3	*S. t. torquatus*	12.7	13.9	17.8	24.8	16.9	10.1	20.2	13.9	10.8	70.6
MZFC 983-4	*S. t. torquatus*	12.0	13.6	16.6	24.7	17.1	10.8	19.8	14.0	10.5	73.6
MZFC 984-3	*S. t. torquatus*	14.6	18.1	21.0	31.1	21.7	14.5	24.7	17.3	13.2	92.9
MZFC 3277	*S. t. torquatus*	14.5	16.9	20.6	28.6	19.9	12.8	21.8	15.8	12.8	78.5
RPA 236	*S. t. torquatus*	15.3	19.4	21.7	33.0	25.0	14.7	27.2	19.3	15.0	94.3
MZFC 544	*S. t. torquatus*	16.8	18.6	23.6	30.5	24.3	15.7	24.9	20.6	14.0	97.6
MZFC 890	*S. t. torquatus*	18.6	22.8	26.3	35.9	24.5	16.5	28.9	22.2	15.1	108.0
MZFC 118	*S. t. torquatus*	15.0	17.9	21.3	30.2	21.7	11.1	23.8	17.5	13.0	83.5
MZFC 541	*S. t. torquatus*	13.9	16.0	19.4	32.0	18.7	13.4	22.0	17.1	13.6	73.7
MZFC 11823	*S. t. torquatus*	13.6	14.3	19.0	25.5	18.3	11.4	20.3	16.0	12.3	71.8
MZFC 11190	*S. t. torquatus*	15.3	17.5	21.7	30.2	23.0	14.1	25.8	17.7	13.4	86.7
MZFC 122	*S. t. torquatus*	16.5	18.2	23.3	33.1	24.8	15.2	28.8	20.1	14.1	97.8
MZFC 123	*S. t. torquatus*	15.3	20.1	23.1	36.3	22.3	15.8	24.7	21.6	14.7	95.7
IBH 18179	*S. t. torquatus*	15.2	17.1	20.6	32.7	23.0	12.4	26.6	16.8	13.3	98.5
IBH 18050	*S. t. torquatus*	15.3	16.5	21.0	33.2	21.1	15.2	24.3	16.9	12.6	89.8
IBH 18007	*S. t. torquatus*	15.7	20.3	22.9	33.4	24.5	13.0	26.4	17.6	13.0	97.8
IBH 17474	*S. t. torquatus*	15.7	21.2	22.8	36.5	21.3	12.1	26.0	17.9	13.7	98.4

IBH 9348	*S. t. torquatus*	15.1	20.0	22.4	31.3	22.0	13.7	23.8	18.6	13.3	91.0
IBH 8389	*S. t. torquatus*	15.3	17.8	21.5	31.6	23.5	12.4	24.3	16.8	13.0	103.5
IBH 13138	*S. t. torquatus*	15.2	18.2	22.0	34.5	21.3	12.8	23.9	18.3	12.4	95.7
IBH 13882	*S. t. torquatus*	13.0	14.5	17.2	25.2	16.9	8.9	18.5	14.2	11.1	74.6
IBH 13144	*S. t. torquatus*	16.1	19.6	21.7	32.4	22.9	12.8	25.5	19.3	13.9	94.8
IBH 31629	*S. t. torquatus*	15.8	19.1	21.0	29.6	22.2	12.0	24.4	15.1	12.9	92.4
IBH 16426	*S. t. torquatus*	15.2	18.1	21.9	31.9	20.9	12.6	20.7	16.7	12.6	80.6
ENCB 1681	*S. t. torquatus*	16.7	20.6	22.9	35.7	21.1	12.9	24.5	18.4	12.7	94.5
ENCB 1682	*S. t. torquatus*	14.9	18.5	20.4	31.3	19.2	10.8	22.6	16.7	13.1	82.0
ENCB 15338	*S. t. torquatus*	13.0	15.2	18.3	26.7	17.7	9.7	21.0	13.9	11.8	74.1
ENCB 1668	*S. t. torquatus*	17.8	21.9	23.5	38.6	20.9	12.6	25.5	17.7	13.9	95.9
ENCB 6283	*S. t. torquatus*	14.3	17.8	19.9	27.6	21.7	11.8	20.8	15.9	11.7	89.3
ENCB 6285	*S. t. torquatus*	15.6	21.1	22.0	33.2	21.7	12.7	26.9	19.6	12.9	93.5
ENCB 899	*S. t. torquatus*	17.8	21.8	24.5	36.3	24.8	14.9	29.0	20.1	14.4	99.9
ENCB 411	*S. t. torquatus*	14.6	16.6	20.9	30.3	21.7	12.4	24.4	17.1	13.0	90.3
ENCB 413	*S. t. torquatus*	16.6	20.8	23.2	34.0	25.6	13.4	26.2	19.4	14.3	95.7
ENCB 414	*S. t. torquatus*	15.6	19.6	21.3	34.8	22.4	12.5	23.0	18.9	14.5	91.3
ENCB 417	*S. t. torquatus*	14.9	17.8	19.6	28.5	18.3	12.8	17.6	16.2	11.2	78.4
ENCB 419	*S. t. torquatus*	17.8	22.2	25.4	36.0	23.6	14.8	27.2	19.9	14.4	91.4
ENCB 3394	*S. t. torquatus*	15.9	20.4	21.8	34.1	21.6	13.9	25.3	19.5	13.9	91.8
ENCB 1059	*S. t. torquatus*	15.6	20.2	21.9	32.8	21.7	11.9	24.3	17.5	13.1	91.5
ENCB 1610	*S. t. torquatus*	16.6	20.2	23.9	35.0	21.8	13.6	26.7	18.7	12.9	95.4
ENCB 1612	*S. t. torquatus*	17.7	21.9	25.5	38.2	24.3	14.8	25.8	18.3	11.8	103.4
ENCB 1721	*S. t. torquatus*	14.9	17.6	20.8	32.2	19.9	12.7	24.6	16.9	13.2	92.8
ENCB 1722	*S. t. torquatus*	16.9	19.0	24.4	34.9	23.8	12.9	26.4	17.9	13.5	95.9
ENCB 1724	*S. t. torquatus*	17.2	20.5	22.7	36.6	24.6	13.4	25.7	19.0	13.4	97.3
ENCB 1725	*S. t. torquatus*	15.2	18.0	21.1	30.3	21.8	11.1	24.6	16.8	13.2	88.9
ENCB 1727	*S. t. torquatus*	16.2	17.0	22.8	33.7	22.8	11.8	25.1	16.7	11.9	86.1

ENCB 1728	*S. t. torquatus*	14.3	17.4	20.2	30.2	21.3	12.9	23.1	15.3	12.4	86.8
ENCB 1729	*S. t. torquatus*	17.0	21.5	23.2	37.9	24.3	12.8	24.5	19.2	14.0	94.2
ENCB 1731	*S. t. torquatus*	14.8	17.4	20.3	31.2	21.6	11.1	21.5	16.3	13.0	83.3
ENCB 1732	*S. t. torquatus*	14.7	17.5	20.9	28.9	19.2	12.1	23.8	15.4	13.6	82.1
ENCB 1733	*S. t. torquatus*	13.3	15.5	18.2	28.4	18.8	10.7	20.5	15.3	12.0	74.6
ENCB 1734	*S. t. torquatus*	15.7	16.9	21.1	33.8	20.3	12.6	22.6	16.5	13.2	86.9
ENCB 1737	*S. t. torquatus*	15.3	19.8	21.2	36.3	23.9	13.1	27.6	17.2	13.1	95.7
ENCB 1738	*S. t. torquatus*	17.0	20.1	23.4	32.0	23.4	13.2	28.1	18.3	14.8	97.5
ENCB 1739	*S. t. torquatus*	16.1	18.9	22.7	37.0	23.0	12.9	28.1	19.5	12.8	94.8
ENCB 1740	*S. t. torquatus*	14.3	17.4	20.6	32.0	22.2	11.6	24.1	16.3	11.9	90.3
ENCB 1755	*S. t. torquatus*	18.0	22.2	25.5	38.4	23.2	14.8	28.3	19.4	13.0	99.0
ENCB 2077	*S. t. torquatus*	16.5	19.2	23.7	33.5	23.4	14.4	29.0	19.8	14.5	91.5
ENCB 6675	*S. t. torquatus*	15.1	19.0	21.4	29.9	21.1	11.0	25.5	16.0	12.3	91.7
ENCB 6676	*S. t. torquatus*	16.5	20.3	22.3	33.1	25.1	12.6	26.7	18.8	13.9	94.5
ENCB 1587	*S. t. torquatus*	12.6	14.7	17.5	25.6	18.2	9.8	20.2	15.0	12.0	71.9
ENCB 3334	*S. t. torquatus*	15.6	18.0	21.8	30.8	22.3	11.7	22.4	17.2	14.3	85.9
ENCB 6274	*S. t. torquatus*	14.5	17.2	19.8	27.8	20.3	12.8	21.4	16.2	11.6	92.8
ENCB 10977	*S. t. torquatus*	14.6	16.8	19.7	33.4	20.8	13.5	23.0	18.6	13.1	91.0
ENCB 3719	*S. t. torquatus*	13.1	16.9	18.6	26.8	19.2	11.6	21.5	14.6	11.0	77.4
ENCB 3720	*S. t. torquatus*	12.3	13.9	17.1	26.5	16.6	10.0	18.0	14.5	10.0	72.9
ENCB 5309	*S. t. torquatus*	14.6	18.1	21.1	28.5	18.6	13.2	22.1	17.1	14.1	83.6
ENCB 5310	*S. t. torquatus*	15.5	17.4	20.7	29.5	19.8	11.3	22.3	16.2	12.1	81.1
ENCB 5311	*S. t. torquatus*	15.1	17.2	22.2	32.7	18.1	10.6	22.6	18.0	13.1	91.5
ENCB 7753	*S. t. torquatus*	14.5	16.2	19.2	34.7	20.5	11.3	22.0	15.4	12.8	81.1
ENCB 7755	*S. t. torquatus*	13.4	15.3	18.5	22.7	16.7	10.2	19.9	14.1	11.5	73.7
ENCB 7757	*S. t. torquatus*	14.3	18.8	19.8	27.9	18.0	11.5	21.4	15.2	12.7	81.8
ENCB 7758	*S. t. torquatus*	16.0	18.2	21.5	30.0	22.2	13.4	23.0	17.9	14.1	89.2
ENCB 7713	*S. t. torquatus*	14.6	17.8	21.0	33.7	20.8	11.2	23.1	15.1	12.3	89.3

ENCB 7715	*S. t. torquatus*	14.2	17.5	20.2	30.0	21.0	12.4	24.2	17.2	11.5	88.1
ENCB 7721	*S. t. torquatus*	12.4	14.5	17.0	26.2	17.5	10.7	17.3	13.4	11.8	71.6
ENCB 7722	*S. t. torquatus*	13.8	14.8	19.4	29.3	19.8	12.0	22.8	15.6	10.9	82.9
ENCB 7723	*S. t. torquatus*	14.1	16.6	19.2	30.2	19.4	11.7	22.9	16.3	12.5	85.6
ENCB 7724	*S. t. torquatus*	15.4	17.4	21.4	31.4	20.2	12.7	21.2	16.3	12.6	89.3
ENCB 7725	*S. t. torquatus*	13.4	14.8	18.7	27.0	18.9	11.7	21.9	15.8	10.5	74.6
ENCB 7726	*S. t. torquatus*	14.9	15.6	20.9	29.9	20.5	13.3	24.7	17.3	12.2	92.0
ENCB 7727	*S. t. torquatus*	14.1	15.8	18.8	28.0	18.1	10.4	19.9	14.8	10.5	77.7
ENCB 4402	*S. t. torquatus*	14.2	16.9	18.8	27.0	17.7	11.0	22.3	15.5	12.1	82.6
ENCB 4403	*S. t. torquatus*	15.1	18.9	20.2	32.8	20.6	11.0	23.7	17.6	12.3	85.7
ENCB 13231	*S. t. torquatus*	13.9	16.3	18.9	26.6	19.5	10.6	20.3	14.1	11.5	80.1
ENCB 3335	*S. t. torquatus*	15.3	20.0	20.9	32.6	19.1	13.9	24.0	17.9	11.8	86.7
ENCB 3336	*S. t. torquatus*	14.7	17.5	20.2	30.0	20.8	12.5	21.3	14.2	12.1	84.9
ENCB 12423	*S. t. torquatus*	16.2	19.0	22.4	31.6	21.9	13.0	22.3	17.4	13.7	88.7
ENCB 2293	*S. t. torquatus*	19.0	22.9	25.7	38.1	24.9	14.7	27.3	17.6	14.0	102.2
ENCB 17120	*S. t. torquatus*	14.3	18.6	19.9	31.0	19.9	11.7	23.0	16.5	12.5	80.4
ENCB 17124	*S. t. torquatus*	16.0	22.0	25.1	34.2	25.0	14.4	27.8	18.9	13.4	101.6
ENCB 17125	*S. t. torquatus*	17.0	19.1	24.2	32.3	24.2	12.5	27.0	19.1	12.2	96.6
ENCB 17126	*S. t. torquatus*	14.9	19.3	20.9	32.8	21.4	13.2	24.2	17.3	11.2	95.8
ENCB 17129	*S. t. torquatus*	13.9	18.1	20.2	28.2	19.2	12.1	20.9	15.7	12.0	81.8
ENCB 5291	*S. t. torquatus*	14.3	19.2	20.2	31.1	20.9	11.5	23.0	16.1	11.6	82.9
ENCB 2306	*S. t. torquatus*	14.8	15.7	19.9	29.4	19.4	11.8	22.2	16.0	13.1	79.8
ENCB 2343	*S. t. torquatus*	15.6	18.7	22.6	30.7	21.8	12.1	24.2	16.7	12.1	93.0
ENCB 8313	*S. t. torquatus*	15.3	18.7	20.7	32.3	19.3	10.6	21.8	16.8	12.7	77.0
ENCB 13578	*S. t. torquatus*	14.1	18.1	19.5	28.6	19.0	11.7	22.0	15.6	12.2	75.2
ENCB 4175	*S. t. torquatus*	15.5	18.8	21.6	34.5	20.8	14.0	25.3	17.3	14.0	90.9
ENCB 11949	*S. t. torquatus*	16.1	18.2	21.3	33.2	20.5	12.6	23.3	17.5	13.4	90.2
ENCB 11950	*S. t. torquatus*	15.1	18.2	20.1	27.4	21.5	13.1	23.5	16.7	13.0	83.3

ENCB 3422	*S. t. torquatus*	17.3	20.2	24.4	34.6	23.9	14.5	25.9	17.2	13.3	99.9
ENCB 3423	*S. t. torquatus*	14.1	17.9	19.1	27.4	21.5	10.5	21.5	16.1	12.4	85.2
ENCB 3424	*S. t. torquatus*	14.2	18.2	18.9	28.2	21.9	11.6	20.9	16.0	11.1	81.6
ENCB 3425	*S. t. torquatus*	13.6	17.4	18.9	30.3	19.2	12.2	22.0	16.1	12.6	79.1
ENCB 2076	*S. t. torquatus*	14.3	16.9	19.8	26.8	18.0	10.7	22.5	16.0	12.9	76.7
ENCB 7728	*S. t. torquatus*	16.5	18.0	21.8	35.7	21.1	11.4	22.3	16.9	13.8	90.7
ENCB 7731	*S. t. torquatus*	13.9	15.4	18.4	25.6	17.6	10.2	20.0	15.1	11.9	71.7
ENCB 7732	*S. t. torquatus*	14.6	18.8	21.3	33.4	20.8	11.4	23.4	15.8	12.4	81.6
ENCB 7734	*S. t. torquatus*	13.3	15.6	18.2	26.9	17.1	10.4	19.1	14.7	11.4	71.8
ENCB 7735	*S. t. torquatus*	13.9	17.6	20.0	33.9	19.5	10.9	21.3	15.8	11.7	81.6
ENCB 7736	*S. t. torquatus*	14.3	17.0	20.3	31.5	19.9	10.8	20.1	14.6	12.7	79.3
ENCB 7742	*S. t. torquatus*	16.9	21.1	24.5	32.6	22.0	12.7	26.2	18.8	14.7	100.2
ENCB 7748	*S. t. torquatus*	16.0	17.9	22.7	32.8	21.9	12.5	21.1	18.0	13.2	88.4
ENCB 7749	*S. t. torquatus*	17.1	17.3	23.1	33.2	22.9	14.7	24.9	18.6	15.7	95.4
ENCB 3142	*S. t. torquatus*	14.2	18.4	20.9	31.9	19.8	12.7	21.0	16.0	12.4	83.3
ENCB 3143	*S. t. torquatus*	15.0	16.7	20.6	28.4	20.8	12.0	21.6	16.2	12.5	84.1
ENCB 13191	*S. t. torquatus*	17.7	20.7	25.4	35.8	25.0	14.7	30.3	19.8	15.6	106.4
ENCB 13192	*S. t. torquatus*	16.7	20.0	23.1	35.4	22.3	13.8	24.6	19.5	12.4	95.2
ENCB 13193	*S. t. torquatus*	16.5	18.3	23.9	35.0	20.7	14.0	24.8	18.5	14.3	94.5
ENCB 13839	*S. t. torquatus*	15.3	20.0	20.9	29.8	23.4	12.7	24.0	17.3	13.8	89.8
ENCB 13840	*S. t. torquatus*	17.5	21.3	24.2	33.8	25.3	14.4	28.2	19.7	15.1	98.0
ENCB 8127	*S. t. torquatus*	15.2	17.5	21.2	30.5	19.9	11.4	23.1	18.3	14.0	84.9
ENCB 872	*S. t. torquatus*	16.0	19.7	23.1	33.7	21.4	13.5	23.8	16.5	13.9	93.9
ENCB 6960	*S. t. torquatus*	14.5	17.7	18.7	30.7	20.2	11.7	21.6	15.3	12.5	78.4
ENCB 15339	*S. t. torquatus*	15.6	19.3	22.5	32.7	22.8	14.1	24.0	17.2	12.5	90.4
ENCB 15347	*S. t. torquatus*	16.1	19.0	22.9	34.9	22.4	13.2	26.4	18.4	14.4	94.1
ENCB 15348	*S. t. torquatus*	16.6	19.3	22.4	26.8	21.5	13.2	25.1	18.0	14.6	86.0
ENCB 14083	*S. t. torquatus*	16.5	19.6	23.4	33.4	23.1	13.5	25.3	19.1	14.9	94.4

ENCB 14084	*S. t. torquatus*	16.4	22.1	24.8	34.9	21.6	13.5	27.2	19.9	15.4	95.9
ENCB 14085	*S. t. torquatus*	16.7	21.9	23.1	34.4	24.2	13.7	27.0	20.0	14.1	95.0
ENCB 14086	*S. t. torquatus*	13.4	17.5	18.6	25.1	17.7	10.5	20.2	15.1	11.7	71.6
ENCB 14087	*S. t. torquatus*	12.6	14.6	18.2	26.6	18.1	10.7	20.5	15.2	12.4	72.6
ENCB 14088	*S. t. torquatus*	12.9	15.5	18.3	23.3	16.6	10.5	20.8	14.2	12.4	73.5
ENCB 14089	*S. t. torquatus*	13.0	16.0	18.6	25.5	17.2	10.4	19.6	14.5	12.1	72.7
ENCB 14095	*S. t. torquatus*	13.7	15.3	17.9	23.6	17.1	9.3	19.8	14.8	11.2	70.4
ENCB 14097	*S. t. torquatus*	13.8	15.6	18.9	26.6	15.4	10.4	19.6	16.6	12.1	75.3
ENCB 5361	*S. t. torquatus*	15.7	18.7	21.0	30.6	21.1	11.5	21.1	17.9	14.1	84.9
ENCB 5362	*S. t. torquatus*	15.7	16.5	21.2	30.6	21.7	14.7	24.6	18.9	14.6	87.9
ENCB 5363	*S. t. torquatus*	16.8	21.4	22.5	32.0	21.3	12.4	24.9	18.4	15.2	91.9
ENCB 5364	*S. t. torquatus*	15.1	19.3	21.1	34.2	20.1	10.8	25.1	19.3	13.2	89.5
ENCB 5365	*S. t. torquatus*	14.5	16.1	19.3	27.7	21.4	12.6	20.2	18.2	13.9	84.8
ENCB 5367	*S. t. torquatus*	15.4	17.2	22.8	31.4	21.9	12.7	23.2	18.3	14.8	85.2
ENCB 5368	*S. t. torquatus*	16.7	19.2	23.6	30.4	18.4	13.5	25.2	18.5	14.2	88.6
ENCB 5370	*S. t. torquatus*	14.1	15.8	19.3	29.6	19.0	11.3	22.3	17.0	11.9	77.7
ENCB 5371	*S. t. torquatus*	13.0	13.4	17.9	27.6	16.8	9.9	19.5	14.6	12.2	73.8
ENCB 5976	*S. t. torquatus*	13.6	16.9	18.5	30.7	20.3	11.7	21.9	17.5	12.1	79.7
IBH 5819	*Sceloporus* sp.	14.7	15.6	18.9	25.7	18.4	11.1	20.9	15.4	12.6	72.6
IBH 5819-2	*Sceloporus* sp.	16.3	19.7	22.9	30.8	26.1	13.3	25.7	18.1	13.5	104.8
IBH 5819-5	*Sceloporus* sp.	14.9	15.4	20.0	27.2	20.9	11.5	20.7	16.1	13.7	76.6
IBH 5819-6	*Sceloporus* sp.	13.2	14.0	17.7	23.3	19.0	9.5	19.1	13.8	11.1	74.3
IBH 5819-7	*Sceloporus* sp.	14.7	15.7	19.2	26.9	18.8	11.0	22.4	14.9	11.6	76.8
IBH 5819-8	*Sceloporus* sp.	14.6	16.2	20.8	27.6	20.6	11.1	21.8	14.2	14.2	83.4
IBH 5819-9	*Sceloporus* sp.	14.8	17.4	19.4	26.2	21.5	10.7	22.3	15.4	12.5	90.2
IBH 5819-11	*Sceloporus* sp.	13.8	14.6	17.9	23.1	18.0	10.0	19.1	13.8	12.4	74.0
IBH 5819-15	*Sceloporus* sp.	18.1	22.2	25.6	33.9	27.2	14.7	28.7	19.5	14.4	104.8

MZFC 24832	*Sceloporus* sp.	16.5	20.4	23.3	27.6	25.9	13.8	26.6	17.7	15.2	99.3
MZFC 11212	*Sceloporus* sp. Zacatecas	13.5	15.1	18.1	26.8	20.1	11.4	21.2	16.6	9.9	74.9
IBH 26756	*Sceloporus* sp. Zacatecas	12.5	16.4	18.3	25.4	18.1	10.8	21.4	12.6	10.9	76.8
IBH 26749	*Sceloporus* sp. Zacatecas	13.1	16.6	18.3	25.3	20.3	10.4	18.4	15.1	10.4	76.5
IBH 26754	*Sceloporus* sp. Zacatecas	14.1	19.5	21.7	27.9	22.0	12.0	25.2	16.9	12.5	93.0
IBH 26738	*Sceloporus* sp. Zacatecas	12.8	16.8	18.3	25.4	18.1	10.1	20.7	13.7	10.6	78.2
IBH 26758	*Sceloporus* sp. Zacatecas	15.3	19.8	20.8	28.8	21.1	11.4	23.1	16.7	10.5	89.1
IBH 26733	*Sceloporus* sp. Zacatecas	15.4	18.9	21.7	28.6	23.8	12.5	24.9	16.6	12.7	90.3
IBH 26734	*Sceloporus* sp. Zacatecas	12.9	15.7	18.0	27.2	17.3	10.4	19.6	12.6	11.4	74.4
IBH 26747	*Sceloporus* sp. Zacatecas	12.9	15.7	18.0	26.3	20.5	11.2	20.5	14.6	11.9	80.4
IBH 26760	*Sceloporus* sp. Zacatecas	15.0	19.0	21.0	32.1	23.8	13.0	27.2	16.6	13.4	97.2
IBH 26744	*Sceloporus* sp. Zacatecas	15.7	18.2	22.0	29.7	21.2	10.8	25.7	16.3	11.4	96.5
IBH 26730	*Sceloporus* sp. Zacatecas	14.6	17.7	19.6	27.0	19.5	11.0	22.6	14.8	11.9	88.9
IBH 26737	*Sceloporus* sp. Zacatecas	13.2	15.5	18.2	24.1	17.7	9.7	20.8	13.9	11.1	77.9
IBH 26752	*Sceloporus* sp. Zacatecas	13.0	15.4	17.3	27.3	19.1	10.1	21.2	14.4	11.3	78.4
IBH 26748	*Sceloporus* sp. Zacatecas	14.9	19.3	21.7	29.8	21.1	12.8	23.8	15.2	11.3	87.3
IBH 26756	*Sceloporus* sp. Zacatecas	13.5	16.6	18.5	27.1	19.2	10.9	21.8	14.7	10.4	82.6
IBH 26726	*Sceloporus* sp. Zacatecas	13.3	16.8	18.0	27.4	18.1	10.7	20.6	14.7	10.9	80.3
IBH 26755	*Sceloporus* sp. Zacatecas	12.2	15.7	16.9	24.3	18.2	10.2	19.7	14.0	10.7	75.1
IBH 26751	*Sceloporus* sp. Zacatecas	13.4	17.4	19.0	25.7	19.3	11.3	21.5	14.3	11.7	76.5
IBH 26732	*Sceloporus* sp. Zacatecas	15.4	20.6	22.2	29.9	24.5	13.5	25.9	17.2	11.0	95.4
IBH 26743	*Sceloporus* sp. Zacatecas	13.3	16.1	18.8	27.2	17.0	9.1	20.0	14.1	10.6	78.5
IBH 26730	*Sceloporus* sp. Zacatecas	13.9	16.8	18.7	27.8	19.0	10.7	20.6	14.8	11.7	82.2
IBH 26762	*Sceloporus* sp. Zacatecas	13.9	17.5	18.7	28.3	20.0	10.9	23.2	15.4	10.4	81.1
IBH 4935	*Sceloporus* sp. Zacatecas	14.7	18.2	20.5	29.8	21.6	11.5	23.3	15.6	11.8	85.9
IBH 4936	*Sceloporus* sp. Zacatecas	17.8	23.5	24.5	35.8	25.7	16.7	30.0	19.1	13.3	106.1

Supplementary file 4. Scalation counts.

Catalogue	Taxa	Dorsals	Tranversals	Ventrals	Femoral pores	Scales between femoral pores	Supraoculars	Frontals	Frontonasals	Intercanthals	Internasals	Postrostrals	Preoculars	Postoculars	Suboculars	Canthals	Loreals	Supralabials	Infralabials	Auricular lobules
MZFC 747	S. t. binocularis	29	32	35	28	4	9	1	3	3	3	5	2	4	2	4	2	8	11	6
MZFC 7420	S. t. binocularis	28	29	36	26	4	8	2	3	3	2	4	2	4	2	4	2	8	10	7
MZFC 7421	S. t. binocularis	26	29	36	28	4	8	2	3	2	3	4	2	4	2	4	2	8	10	6
MZFC 11218	S. t. binocularis	28	33	39			8	3	6	3	4	4	2	2	2	4	2	8	12	6
MZFC 11222	S. t. binocularis	23	33	38	26	4	8	2	3	4	2	4	2	4	2	4	2	8	12	6
MZFC 11223	S. t. binocularis	26	29	38	26		8	2	3	4	4	3	2	4	2	4	2	8	12	6
MZFC 11224	S. t. binocularis	26	36	35				2	3	3	4	4	2	2	2	4	2	8	11	6
MZFC 11226	S. t. binocularis	28	29	38	30	4	8	2	3	8	2	4	2	4	2	4	2	8	12	6
MZFC 24487	S. t. binocularis	30	32	35	26	4	8	2	3	4	5	3	2	4	2	4	2	8	10	7
MZFC 24650	S. t. binocularis	28	33	34	26	5	8	2	3	4		3	2	4	2	4	2	8	8	6
SML 155	S. t. binocularis	28	33	39	26	4	8	2	3	4	4	3	2	4	2	4	2	8	10	7
SML 161	S. t. binocularis	28	30	34	26	4	8	2	3	2	3	2	2		2		2	8	10	6
IBH 16635	S. t. binocularis	29	34	37	32	4	8	2	3	2	4	3	3	3	2	2	2	8	8	6
OFV 1435	S. t. madrensis El Cielo	28	34	43	29	6	8	2	3	4	2	4	2	3	2	4	2	8	9	6
OFV 1436	S. t. madrensis El Cielo	28	35	46	29	6	8	2	3	2	2	4	2	4	2	4	2	9	10	7
OFV 1437	S. t. madrensis El Cielo	29	35	43	34	6	8	2	5	4	2	4	2	4	2	4	2	8	9	8
OFV 1438	S. t. madrensis El Cielo	28	34	45	30	6	9	2	6	4	4	4	2	4	2	4	2	8	8	6
OFV 1439	S. t. madrensis El Cielo	28	34	42	28	6	9	2	3	4	2	4	4	4	2	4	2	8	10	6
OFV 1440	S. t. madrensis El Cielo	28	37	43	28	7	8	2	3	4	5	4	2	4	2	4	2	8	10	6
OFV 1441	S. t. madrensis El Cielo	29	35	41	30	7	8	2	3	5	4	4	3	4	2	4	2	8		8
OFV 1442	S. t. madrensis El Cielo	29	36	42	29	7	8	2	3	5	4	4	2	4	2	4	3	8	8	6
OFV 1443	S. t. madrensis El Cielo	29	36	46	30	6	8	2	3	6	4	4	2	2	2	4	2	9	10	6
OFV 1444	S. t. madrensis El Cielo	29	34	42	30	7	9	2	3	6	4	3	2	4	2	4	2		9	10

OFV 1445	S. t. madrensis El Cielo	29	35	43	29	7	9	2	3	6	3	4	2	4	2	4	2	9	12	5
OFV 1490	S. t. madrensis El Cielo	26	35	43	31	6	8	2	4	4	3	4	2		2	4	2			8
OFV 1498	S. t. madrensis El Cielo	27	34	43	29	6	8	2	3	4	3	4	2	4	2	4	3	7	9	8
OFV 1504	S. t. madrensis El Cielo	31	35	48	33	6	10	2	3	4	3	4	4	4	2	4	3	8	10	6
OFV 1505	S. t. madrensis El Cielo	28	35	43	27	5	10	2	3	5	5	4	4	4	2	4	2	8	8	6
OFV 1508	S. t. madrensis El Cielo	29	34	45	29	6	10	2	3	5	3	3	2	2	2	2	2	8	11	7
OFV 1510	S. t. madrensis El Cielo	29	34	45	28	8	8	2	5	4	4	4	2	4	2	4	2	8	10	7
OFV 1512	S. t. madrensis El Cielo	29	39	47	32	8		2	3	4	4	2	4	4	2	4	3	8	12	6
OFV 1549	S. t. madrensis El Cielo	29	36	48	30	6	10	2	3	4	4	4	2	4	2	4	2	10	11	8
OFV 1550	S. t. madrensis El Cielo	29	39	48	34	7	8	3	5	7	5	5	4	4	2	4	4	9	10	8
OFV 1545	S. t. madrensis El Cielo	27	35	43	30	7	8	2	3	3	3	4	2	2	2	4	2	8	10	6
OFV 1727	S. t. madrensis El Cielo	28	36	42	28	5	11	2	3	5	2	4	2	4	2	4	2		10	8
OFV 1453	S. t. madrensis El Cielo	28	35	47		7	10	2	4	4	4	4	3	4	2	4	2	8	10	5
OFV 1455	S. t. madrensis El Cielo	28	39	47	30	5	8	2	3	6	3	4	3	4	2	4	2	8	10	6
OFV 1539	S. t. madrensis El Cielo	30	38	47	31	7	8	2	3	3	4	4	2	4	2	2	2	8	9	5
OFV 1554	S. t. madrensis El Cielo	30	41	46	30	5	10	2	3	7	3	4	2	4	2	4	2	9	12	8
OFV 1522	S. t. madrensis El Cielo	28	39	48	34	7	8	2	5	6	4	4	2	3	2	4	2	8	10	6
MZFC 20876	S. t. madrensis Huasteca	26	36	39	32		10	2	3	5	2	4	2	4	2	2	2	8	10	6
MZFC 20872	S. t. madrensis Huasteca	28	33		26		8	2	3	6		4	2	4	2	3	2		8	9
MZFC 20877	S. t. madrensis Huasteca	27	32	38	31	6	8	2	3	5	3	3	2	4	2	3	2	8	10	8
MZFC 24349	S. t. madrensis Huasteca	26	34	38	32	5	8	2	3	3	2	4	2	4	2	2	2	8	10	7
MZFC 11197	S. t. madrensis Huasteca	26	31	40	31	5	8	2	3	3	2	4	2	4	2	4	2	8	10	6
MZFC 11198	S. t. madrensis Huasteca	26	35	39	33	4	8	2	3	4	2	4	2	4	2	4	2	8	10	6
MZFC 20874	S. t. madrensis Huasteca	26	35		31	4	8	2	3	4	4	4	2	4	2	3	2		8	10
MZFC 3299	S. t. madrensis Huasteca	28	35	39	29	6	8	2	3	4	2	4	2	4	2	4	2	8	10	6
MZFC 9287	S. t. madrensis Huasteca	26	30	37	26	6	10	2	3	3	6		2	4	2	4	2	8	10	6
MZFC 12020	S. t. madrensis Huasteca	26	32	40	30	6	8	2	3	2	2	4	2	3	2	4	2	8	9	6
MZFC 9911	S. t. madrensis Huasteca	25	31	36	30	5	8	2	3	3	2	4	2	4	2	2	2	8	10	6

MZFC 6921	S. t. madrensis Huasteca	26	30	33	27	6	8	2	3	4		4	2	4	2	2	2	8	11	8
MZFC 6922	S. t. madrensis Huasteca	26	34	38		5	8	2	3	3	2	3	3	3	2	3	2	8	10	6
MZFC 8971	S. t. madrensis Huasteca	25	32	39	35	6	8	2	3	3	2	4	2		2	4	2	8	9	6
MZFC 8973	S. t. madrensis Huasteca	27	32	42	32	6	8	2	3	3	4	4	2	4	2	2	2	8	10	6
MZFC 8426	S. t. madrensis Huasteca	26	32	37	27	5	8	2	3	3	2	4	4	4	2	4	2	8	10	5
MZFC 8427	S. t. madrensis Huasteca	29	34	39	32	5	9	2	3	4	4	4	2	4	2	4	2	8	10	7
MZFC 9134	S. t. madrensis Huasteca	26	30	35	29	4	8	2	3	6	3	4	2	4	2	3	2	8	10	6
MZFC 9290	S. t. madrensis Huasteca	28	34	41	31	7	8	2	3	4	7	4	2	4	2	4	2	8	10	6
MZFC 9858	S. t. madrensis Huasteca	29	32	37	32	6	8	2	3	4	7	4	2	4	2	4	2	8	9	5
MZFC 9289	S. t. madrensis Huasteca	26	30	35	30	6	8	2	3	4	4	3	2	4	2	2	2	8	11	4
MZFC 8424	S. t. madrensis Huasteca	26	32	32	27	6	8	2	3	3	3	4	2	4	2	4	2	7	7	6
MZFC 9291	S. t. madrensis Huasteca	27	33	37	30	7	8	2	3	4	5	4	2	4	2	4	2	9	10	4
MZFC 9614	S. t. madrensis Huasteca	26	32	34	30	4	8	2	3	2	2	4	2	4	2	4	2	8	10	6
MZFC 9292	S. t. madrensis Huasteca	26	33	37	33	6	8	2	3	4	4	4	2	4	2	4	2	8	10	7
MZFC 32112	S. t. madrensis Huasteca	26	30		30	5	8	2	3	4	3	4	2	4	2	2	2	8	9	6
MZFC 9857	S. t. madrensis Huasteca	28	31	38		7	8	2	3	3	5	3	2	4	2	4	2	8	9	4
IBH 16564	S. t. madrensis Huasteca	27	33	37	30	5	8	2	3	6	2	4	4	4	2	2	2	8	10	6
IBH 16555	S. t. madrensis Huasteca	28	30	32	32	4	8	2	3	4	2	4	2	4	2	2	2	8	10	6
IBH 4050	S. t. madrensis Huasteca	27	32	35	29	5	8	3	3	4	4	4	2	4	2	4	2	8	10	8
IBH 3705	S. t. madrensis Huasteca	26	32	37	30	5	8	2	3	3	4	4	2	3	2	4	2	8	12	7
MZFC 31887	S. t. melanogaster	30	36	45		6	8	2	5	4	4	4	4	5	2	4	2	8	10	4
MZFC 22361	S. t. melanogaster	30	39	41	33	6	8	2	3	4	4	4	4	5	2	4	2	8	10	7
RPA 231	S. t. melanogaster	30	39	44	33	5	9	2	3	4	2	5	2	4	2	4	2	8	11	6
RPA 232	S. t. melanogaster	31	38	43	35	5	8	2	3	4	4	4	2	4	2	4	2	8	12	8
MZFC 27372	S. t. melanogaster	31	36	45	37	6	8	1	3	3	2	4	4	6	2		4	8	10	8
OFV 1678	S. t. melanogaster	29	40	43	33	5	8	2	3	4	3	2	2	3	2	4	2	8	10	6
OFV 1677	S. t. melanogaster	30	40	47	34	5	10	3	3	4	4	4	2	5	2	4	2	8	10	5
OFV 1679	S. t. melanogaster	29	39	44	37	6	8	2	3	4	2	4	2	5	2	4	2	9	10	4

OFV 1676	S. t. melanogaster	33	43	45	36	7	10	2	3	4	3	3	2	4	2	4	2	8	12	4
MZFC 28086	S. t. melanogaster	30	38	39	30	6	8	2	4	3	5	4	3	4	2	4	2	8	10	7
MZFC 28087	S. t. melanogaster	34	40	44	42	4	8	2	3	4	4		2	4	2		2		10	7
MZFC 32161	S. t. melanogaster	31	38	43	35	6	8	2		2	4	2	2	2	2	2	2	8	8	6
MZFC 31914	S. t. melanogaster	29	36	40	34	3	8	2	4	3	2	4	2	4	2	4	2	9	12	8
MZFC 32162	S. t. melanogaster	30	41	38	30	5	8	3	3	4	4	4	4	6	2	4	2	9	11	4
MZFC 28085	S. t. melanogaster	30	36	37	31	5	10	2	3	4	4	4	2	4	2	4	4	8	10	6
MZFC 31885	S. t. melanogaster	29	39	39	37	5	8	2	3	4	4	5	4	4	2	3	2	8	10	6
MZFC 31886	S. t. melanogaster	27	41	41	26	8	8	2	3	4	4	4	2		2	2	2	8	10	6
OFV 1706	S. t. melanogaster	33	41	46	38	5	10	2	3	4	4	4	2	4	2	4	2	8	10	7
OFV 1707	S. t. melanogaster	31	38	38	31	5	8	2	3	4	6	5	3	4	2	4	2	8	10	6
OFV 1715	S. t. melanogaster	32	41	46	37	7	8	2	3	4	4	4	2	4	2	4	2	8	11	5
OFV 1693	S. t. melanogaster	30	42	44	31	5	8	3	3	5	2	4	2	2	2	4	2	8	10	4
OFV 1716	S. t. melanogaster	31	36	39	32	5	9	2	5	4	4	3	2	3	2	4	2	8	10	6
OFV 1705	S. t. melanogaster	30	39	40	30	8	8	2	3	6	4	4	4	4	2	2	2	8	10	6
OFV 1708	S. t. melanogaster	29	35	43	32	6	8	3	3	4	2	4	2	2	2	4	2	8	10	4
OFV 1692	S. t. melanogaster	29	38	46	34	8	8	2	4	3	4	2	4	3	2	4	3	9	12	6
OFV 1689	S. t. melanogaster	28	38	41	38	6	8	2	3	3	3	3	4	3	2	4	2	8	10	5
OFV 1690	S. t. melanogaster	30	39	44	32	7	9	2	3	3	3	3	2	4	2	2	2	8	11	6
OFV 1691	S. t. melanogaster	31	39	42	34	5	8	2	3	5	2	4	2	4	2	4	2	8	12	4
MZFC 28472	S. t. melanogaster	29	36	43	38	5	8	2	3	4	3	4	2	4	2	4	2	8	10	7
MZFC 31863	S. t. melanogaster	28	32	38	31	4	8	2	3	4	4	4	2	4	2	4	2	8	10	8
MZFC 31856	S. t. melanogaster	27	42	43	33	5	8	2	3	4	3	4	2	3	2	2	2	8	10	6
MZFC 31858	S. t. melanogaster	28	38	44	33	4	8	2	3	4	5	4	2	4	2	3	2	8	10	6
MZFC 31861	S. t. melanogaster	29	39	43	32	5	8	2	4	5	4	4	4	4	2	2	4	8	10	6
MZFC 31862	S. t. melanogaster	29	37	42	36	6	8	2	3	4	2	4	4	4	2	2	2	8	10	6
MZFC 31864	S. t. melanogaster	29	35	39	30	5	8	2	3	5	3	4	2	4	2	2	2	8	9	6
MZFC 14496	S. t. melanogaster	29	37	43	33	4	8	2	3	4	4	4	2	4	2	2	2	8	10	7

MZFC 2295	S. t. melanogaster	28	37	42	37	4	8	2	3	4	4	4	2	4	2	2	2	8	10	6
MZFC 904	S. t. melanogaster	28	38	41	37	4	8	2	3	4	3	4	4	4	2	3	2	8	10	6
MZFC 2294	S. t. melanogaster	30	37	41	38	6	8	2	4	4	4	4	4	4	2	3	2	8	12	6
MZFC 5874	S. t. melanogaster	28	40	43	45	4	8	2	3	4	5	4	3	4	2	2	2	8	10	6
MZFC 780	S. t. melanogaster	28	34	43	34	5	8	2	3	4	4	4	3	4	2	3	2	8	11	6
MZFC 2293	S. t. melanogaster	30	33	42	38	6	8	2	3	4	2	4	2	4	2	4	2	8	8	6
MZFC 26348	S. t. melanogaster	30	37	41	40	5	8	2	3	4	6		4	4	2	4	2		10	4
MZFC 26349	S. t. melanogaster	31	43	46	43	4	8		3	4	4	5	2	4	2	4	2	8	11	5
OFV 1721	S. t. melanogaster	29	34	38	32	4	8	2	3	3	3	4	3	4	2	4	2	8	10	4
OFV 1720	S. t. melanogaster	30	36	43	32	6	8	2	3	4	4	4	2	4	2	4	2	9	10	6
MZFC 27841	S. t. melanogaster	30	33	43	34	4	8	2	5	4	4	3	4	4	2	4	2	9	10	6
MZFC 27865	S. t. melanogaster	27	36	41	34	4	8	2	5	6	3	3	4	3	2	4	2			7
MZFC 22207	S. t. melanogaster	30	41	39	31	6	8	2	3	4	4	3	4	4	2	4	4	9	10	6
MZFC 22956	S. t. melanogaster	31	35	40	35	5	8	2	5	4	5	4	4	4	2	4	6	8	10	4
MZFC 24684	S. t. melanogaster	30	39	36	31	4	8	2	3	4	4	4	4	4	2	4	4	8	8	5
MZFC 27834	S. t. melanogaster	28	37	38	31	4	8	2	4	4	5	3	3	4	2	4	2	9	10	6
IBH 6130	S. t. melanogaster	28	36	40	35	4	8	2	3	5	4	4	2	3	2	2	2	8	10	6
IBH 6129	S. t. melanogaster	30	38	43	36	5	8	2	4	4	4	4	2	2	2	2	2	8	9	
IBH 3447	S. t. melanogaster	28	37	40		5	8	2	3	4	3	4	4	4	2	4	2	8	10	6
IBH 3214	S. t. melanogaster	30	40	42	40	4	9	3	3	4	4		2	4	2		2	8	10	6
IBH 16645	S. t. melanogaster	30	42	42	38	4	8	2	3	4	5	4	2	4	2	2	2	8	10	6
IBH 16642	S. t. melanogaster	28	42	38	30	6	8	2	3	2	4	4	2	4	2	4	2	8	10	6
IBH 18006	S. t. melanogaster	29	42	49	37	5	8	3	3	3	4	3	3	2	2	2	2	8	10	7
IBH 26374	S. t. melanogaster	28	37	41	36	5	8	2	3	3	3	4	2	4	2	2	2	8	10	6
IBH 26375	S. t. melanogaster	27	36	38	34	4	8	2	3	4	2	4	2	4	2	3	2	8	10	6
IBH 26376	S. t. melanogaster	27	37	41		5	8	2	3	4	4	4	2	4	2	4	2	8	10	6
IBH 12713	S. t. melanogaster	30	37	36	31	4	8	2	3	2	3	4	2	4	2	2	2	8	10	6
IBH 12714	S. t. melanogaster	28	38	42	31	5	9	2	4	3	4	3	2	4	2	2	2	8	10	6

IBH 23327	S. t. melanogaster	27	40	40	35	4	8	2	3	5	4	4	2	4	2	2	2	8	10	6
IBH 26379	S. t. melanogaster	29	34	38		4	8	2	3	4	4	4	2	4	2	2	2	8	10	6
IBH 26342	S. t. melanogaster	29	35	42		4	8	2	3	4	2	2	2	4	2	2	2	8	10	6
IBH 5022	S. t. melanogaster	26	32	35	31	5	8	2	3	5	3	4	3	4	2	2	2	8	10	6
IBH 5022-2	S. t. melanogaster	27	35	37	31	5	8	2	3	4	4	4	3	4	2	2	2	8	10	6
IBH 17463	S. t. melanogaster	28	39	41	32	5	8	2	3	5	4	4	2	4	2	3	2	8	10	7
IBH 17469	S. t. melanogaster	29	36	44	36	6	8	3	3	5	4	4	2	4	2	4	2	8	9	7
IBH 17465	S. t. melanogaster	28	36	41	34	5	8	2	3	4	4	3	4	2	4	2	2	8	10	6
IBH 7209	S. t. melanogaster	30	42	47		5	8	2	4	4	4	4	3	3	2	4	2	8	10	5
IBH 6090	S. t. melanogaster	28	35	42	36	4	9	2	3	4	4	4	2	4	2	4	2	8	11	5
IBH 6090-5	S. t. melanogaster	29	41	46	38	5	8	2	3	4	4	4	4	2	4	4	2	10	10	7
IBH 6092	S. t. melanogaster	29	36	43	30	6	8	2	3	4	5	3	2	4	2	3	2	8	10	6
IBH 6077	S. t. melanogaster	28	35	45	36	4	8	2	3	4	4	3	4		2	3	2	8	8	6
IBH 6077-2	S. t. melanogaster	28	37	43	37	4	8		3	4	4	3	4	4	2	4	2	8	10	4
IBH 6091	S. t. melanogaster	30	41	43	32	4	8	2	3	4	3	4	2	4	2	2	2	8	10	6
IBH 6091-16	S. t. melanogaster	30	38	38	37	5	8	2	3	4	3	4	2	4	2	2	2	8	10	6
IBH 6091-11	S. t. melanogaster	28	37	41	30	6	8	2			5	2	2	4	2	2	2	8	10	7
IBH 6075	S. t. melanogaster	29	35	42	32	5	8	3	3	4	4	4	4	4	2	3	2	8	11	
IBH 6075-2	S. t. melanogaster	27	40	42	36	5	8	2	3	2	4	4	2	4	2	3	2	8	11	6
IBH 6076	S. t. melanogaster		39	45	38	5	8	2	3	4	4	3	4	4	2	2	2	8	10	6
IBH 6060-4	S. t. melanogaster	26	38	40	35	4	8	2	3	4	3	4	4	4	2	2	2	8	11	6
IBH 6060-5	S. t. melanogaster	28	38	38	33	5	8	2	3	3	4	2	4	4	2	2	2	8	9	6
IBH 4260-1	S. t. melanogaster	28	38	40	38	4	8	2	3	5	3	4	2	4	2	4	2	8	10	6
IBH 4260-3	S. t. melanogaster	31	40	45	38	6	11	2	3	4	4	4	2	4	2	4	2	8	10	6
IBH 7173-2	S. t. melanogaster	30	38	41	29	4	8	2	3	5	5	4	2	4	2	2	2	8	10	6
IBH 2744-4	S. t. melanogaster	28	36	38	36	4	8	2	3	4	4	3	2	5	2	3	2	8	9	6
IBH 11070	S. t. melanogaster	28	41	42	34	6	8	2	3	5	4	4	2	4	2	4	2	8	10	8
IBH 11072	S. t. melanogaster	28	37	42	36	6	9	2	4	5	2	4	2	4	2	4	2	8	10	6

IBH 7681	S. t. melanogaster	32	41	45	34	6	8	2	3	4	3	5	2	4	2	3	2	8	10	6
IBH 7683	S. t. melanogaster	31	40	46	37	5	8	4	3	5	4	4	2	4	2	4	2	8	9	6
IBH 4525-4	S. t. melanogaster	31	39	41	34	6	8	2	3	5	4	4	2	4	2	3	2	8	10	6
IBH 4525-5	S. t. melanogaster	28	39	44	38	5	9	3	3	5	4	4	2		2	4	2	8	10	6
IBH 5220-1	S. t. melanogaster	28	39	42	37	3	8	2	3	4	4	2	4	4	2	4	2	8	10	6
IBH 5220-2	S. t. melanogaster	29	42	39	34	4	8		3	4	4	4	3	4	2	2	2	8	10	6
IBH 5220-3	S. t. melanogaster		36	38	37	5	8	2	3	2	4	4	2	4	2	4	2	8	10	6
IBH 5219-7	S. t. melanogaster	31	38	44	30	4	8	2	4	5	4	4	3	4	2	4	2	8	10	6
IBH 4781	S. t. melanogaster	27	36	41	31	4	8	2	3	4	4	5	2	3	2	2	2	8	10	6
IBH 5214	S. t. melanogaster	29	40	44	33	6	8	2	5	6	4	4	3	3	2	2	2	9	12	6
IBH 5219-8	S. t. melanogaster	30	42	39	32	6	8	2	4	5	3	5	4	3	2	4	4	8	11	8
IBH 4525	S. t. melanogaster	30	40	47	32	4	8	2	3	4	4	4	2	4	2	3	2	8	9	6
IBH 3337	S. t. melanogaster	28	39	45	30	4	8	2	3	4	3	2	2	3	2	2	2	8	10	6
IBH 16563	S. t. melanogaster	29	37	45		5	8	2	3	4	4	4	2	4	2	2	2	8	10	5
IBH 4745	S. t. melanogaster	27	37	39	33	5	8	2	3	4	4	3	4	4	2	4	2	8	10	6
IBH 4745-3	S. t. melanogaster	28	35	37	32	4	8	2	5	5	2	3	4	4	2	4	2	8	10	6
IBH 4746	S. t. melanogaster	26	31	36	31	4	8	2	5	4	5	4	2	4	2	4	2	8	11	6
IBH 4746-2	S. t. melanogaster	28	37	36	33	4	10	2	3	4	4	3	3	4	2	4	2	8	10	6
IBH 31168	S. t. melanogaster	32	39	46	36	5	8	3	3	5	4	4	4	4	2	3	4	8	12	6
IBH 26745	S. t. melanogaster	29	38		32	5	10	3	3	6	4	4	4	4	2	3	3	8	10	6
IBH 26746	S. t. melanogaster	30	38	42	33	6	8	2	3	6	2	4	3	4	2	4	2	8	12	7
IBH 26731	S. t. melanogaster	29	39	39	32	6	8	2	4	7	4	4	4	4	2	4	2	8	10	6
IBH 26739	S. t. melanogaster	27	39	39	32	5	8	2	3	5	4	4	4	4	2	4	2	8	11	6
IBH 26741	S. t. melanogaster	28	34	38	30	4	8	2	3	5	4	4	4	4	2	4	2	8	8	6
IBH 26742	S. t. melanogaster	28	38	42	35	4	8	2	3	2	4	4	3	4	2	4	2	8	11	6
IBH 26727	S. t. melanogaster	27	36	38	32	5	8	2	5	4	4	4	2	4	2	2	2	8	10	6
IBH 26763	S. t. melanogaster	29	36	39	34	5	8	2	3	4	4	4	2	4	2	4	2	8	10	6
IBH 26735	S. t. melanogaster	27	40	44	34	4	8	2	3	4	4	4	3	4	2	4	2	8	10	6

IBH 26757	S. t. melanogaster	29	38	42	39	5	8	2	4	4	4	4	2	4	2	4	2	8	10	6
IBH 26729	S. t. melanogaster	28	37	39	36	5	8	2	3	5	3		4	4	2	2	2	8	11	6
IBH 26761	S. t. melanogaster	28	35	39	31	5	8	2	3	4	4	3	2	4	2	3	2	8	10	6
IBH 5058	S. t. melanogaster	28	35	41	32	6	8	2	3	4	4	2	2	3	2	4	2	8	10	6
IBH 4934-3	S. t. melanogaster	28	38	39	34	4	8	2	3	4	2	4	3	4	2	2	2	8	10	6
IBH 4934-4	S. t. melanogaster	29	37	42	35	5	8	2	3	4	2	4	2	4	2	2	2	8	10	6
IBH 4027-25	S. t. melanogaster	29	34		35	4	8	3	3	3	4	4		4	2	4	2	8	10	6
IBH 4934	S. t. melanogaster	29	37	43	34	2	8	2	3	3	2	4	2	4	2	4	2	8	10	6
IBH 4270	S. t. melanogaster	29	36	42	32	5	8	2	3	4	2	2	4	4	2	4	2	10	10	6
IBH 5054-1	S. t. melanogaster	29	38	45	37	5	8	2	3	4	4	4	2	4	2	3	2	8	12	6
IBH 5054-2	S. t. melanogaster	30	36	42	35	5	8	2	5	4	4	4	4	4	2	4	4	9	11	6
IBH 5054-4	S. t. melanogaster	28	35	39	36	4	8	2	3	4	3	4	3	3	2	4	2	8	10	6
ENCB 15236	S. t. melanogaster		43	49	39	5		2	4	5	4	4	4	4	2	4	6	8	10	6
ENCB 15237	S. t. melanogaster	28	33	40	34	5	8	3	3	5	4	2	2	5	2	4	2	8	9	4
ENCB 15238	S. t. melanogaster	29	37	43	33	4	8	2	3	4	4	2	2	4	2	3	2	8	11	4
ENCB 15239	S. t. melanogaster	34		40	38	4	8	2	3	4	4	4	2	4	2	4	2	8	11	6
ENCB 14979	S. t. melanogaster	30	41	47	37	6	8	2	3	6	4	2	4	3	2	4	2	8	10	4
ENCB 14980	S. t. melanogaster	29	37	46	32	6	8	2	3	4	6	2	2	4	2	4	2	8	12	6
ENCB 14981	S. t. melanogaster	28	38	40	36	4	8	2	3	4	4	4	2	4	2	3	2	8	10	
ENCB 14978	S. t. melanogaster	30	36	40	34	6	8	2	3	4	4	4	2	4	2	4	2	8	10	6
ENCB 14987	S. t. melanogaster	30	35	40	35	5	11	2	3	5	4	4	2	4	2	4	2	8	11	6
ENCB 14988	S. t. melanogaster	29	36	40	33	5	8	2	5	5	4	4	2	3	2	4	2	7	10	6
ENCB 3580	S. t. melanogaster	27	37	45	31	4	8	2	5	5	4	4	2	4	2	4	2	8	12	6
ENCB 12217	S. t. melanogaster	29	39	43	38	5	8	3	3	4	4	3	2	4	2	4	2	8	10	4
ENCB 7313	S. t. melanogaster	30	40	45	39	6		3	3	4	3	4	2	4	2	4	2	8	10	5
ENCB 16391	S. t. melanogaster	29	39	44	36	5	10	2	3	6	2	4	2	4	2	4	2	8	10	6
ENCB 16392	S. t. melanogaster	30	41	45	33	5	11	2	3	5		4		4	2	2	2	8	10	4
ENCB 16393	S. t. melanogaster	26	40	44	35	4	8	2	3	4	3	4	2	4	2	2	2	8	9	4

ENCB 16394	S. t. melanogaster		44	44	43	5	10	3	3	5	4	4	2	4	2	4	3	8	11	6
ENCB 16396	S. t. melanogaster	30	41	46	38	4	11	2	3		4	2	2	4	2	3	2	8	10	4
ENCB 16397	S. t. melanogaster	31	40		33	5	10	2	3	5	2	4	2	4	2	2	2	8	10	6
ENCB 14828	S. t. melanogaster	29	39	44	37	4	10	3	5	5	4	4	2	4	2	3	2	8	11	6
ENCB 14829	S. t. melanogaster	30	39	44	35	5	8	2	4	4	4	4	2	4	2	2	2	8	12	7
ENCB 14137	S. t. melanogaster	28	37	41	33	4	8	3	3	4	4	3	2	4	2	3	2	9	10	6
ENCB 14141	S. t. melanogaster	30	37	41	35	5	8	2	5	4	4	4	3	4	2	3	2	8	10	6
ENCB 14929	S. t. melanogaster	31	38	48	34	5	8	2	3	4	4	2	4	4	2	4	2	9	8	6
ENCB 14932	S. t. melanogaster	30	40	46	31	6	8	2	3	5	5	3	2	5	2	3	2	8	10	5
ENCB 14933	S. t. melanogaster	31	37	41	34	6	8	2	3	2	4	3	2	4	2	4	2	8	10	6
ENCB 2493	S. t. melanogaster	32	45	48	32	5	10	2	6	6	4	4	3	4	2	3	2	8	10	6
ENCB 14830	S. t. melanogaster	31	42	45	30	6	8	2	3	4	4	2	2	4	2	4	2	8	10	6
ENCB 14831	S. t. melanogaster	30	38	43	43	5	8	2	3	4	3	4	2	4	2	4	2	8	10	6
ENCB 2496	S. t. melanogaster	30	40	44	34	8	10	2	3	4	5	4	3	5	2	4	2	9	10	6
ENCB 2498	S. t. melanogaster	30	40	43	35	4	8	3	3	4	4	2	2	4	2	4	2	9	10	6
ENCB 2490	S. t. melanogaster	31	39	43		16	10	2	3	4	5	4	2	4	2	4	2	8	10	6
ENCB 507	S. t. melanogaster	29	40	43	39	6	8	2	3	4	4	4	2	4	2	4	2	8	12	6
ENCB 508	S. t. melanogaster	29	40	47	37	5	8	3	3	4	4	4	2	4	2	4	2	8	10	4
ENCB 13194	S. t. melanogaster	31	45	48	35	5	9	2	3	6	3	4	2	4	2	4	2	8	10	4
ENCB 13196	S. t. melanogaster	31	46	45	32	4	10	2	3	6	4	4	2	4	2	3	2	9	12	5
ENCB 13349	S. t. melanogaster	30	42	40		5	8		3	4	4	3	4	4	2	4	2	8	10	4
ENCB 14164	S. t. melanogaster	31	42	43	34	6	9	2	4	4	4	4	4	4	2	4	2	8	10	4
ENCB 9340	S. t. melanogaster	33	37	44	35	4	8	2	3	4	3	4	3	4	2	3	2	8	10	5
ENCB 9341	S. t. melanogaster	29	42	46	41	4	8	2	3	5	4	4	4	4	2	2	2	9	10	4
ENCB 9342	S. t. melanogaster	29	42	48	38	3	8	2		4	4	4	4	4	2	2	2	8	10	4
ENCB 9343	S. t. melanogaster	30	44	47	39	4	8	2	3	4	4	4	2	4	2	2	2	8	10	4
ENCB 9344	S. t. melanogaster	28	36	38	32	3	8	2	3	4	3	4	2	4	2	4	2	8	9	4
ENCB 9345	S. t. melanogaster	29	41	48	39	5		2	3	4	3	4	4	4	2	4	2	8	10	4

ENCB 13350	S. t. melanogaster	30	41	45	38	3	8	2	3	5	3	3	4	4	2	4	2	8	10	3
ENCB 13351	S. t. melanogaster	29	38	43	35	4	9	2	3	5		4		4	2	4	2	8		5
ENCB 12791	S. t. melanogaster	30	39	42	38	5	8	2	3	6	4	4	3	3	2	3	2	8	10	6
ENCB 12792	S. t. melanogaster	30	39	46	38	6	8	2	4	5	6	4	2	3	2	2	2	8	12	5
ENCB 12793	S. t. melanogaster	30	37	39	33	5	8	2	3	4	4	4	2	4	2	4	2	8	10	4
ENCB 12794	S. t. melanogaster	29	39	43	31	5	8	2	3	6	4	4	2		2	4	2	8	10	6
ENCB 13184	S. t. melanogaster	29	40	40	36	4	8	2	3	5	4	4	2	3	2	3	2	8	10	4
ENCB 13185	S. t. melanogaster	28	38	34	31	3	8	2	3	4	4	3	2	4	2	3	2	8	10	4
ENCB 13186	S. t. melanogaster	32	39	43	34	5	8	2	4	4	5	4	2	4	2	4	2	8	10	4
ENCB 13187	S. t. melanogaster	29	40	44	38	4	8	2	4	6	4	4	2	3	2	4	2	7	10	4
ENCB 13188	S. t. melanogaster	30	38	38	34	4	8	2	3	5	7	4	5	4	2	2	3	8	11	4
ENCB 13189	S. t. melanogaster	28	42	39	39	4	8	2	3	4	4	4	2		2	3	2	8	10	5
ENCB 13374	S. t. melanogaster	30	39	43	33	5	8	2	6	7	4	4	2	3	2	4	2	8	9	4
ENCB 13197	S. t. melanogaster	29	38	42	33	5	8	2	3	5	3	3	2	4	2	4	2	9	10	4
ENCB 15547	S. t. melanogaster	33	40	42	34	5	9	3	3	4	3	4	3	4	2	4	2	10	12	6
ENCB 15548	S. t. melanogaster	28	38	39	35	4	8	2	3	4	2	3	2	4	2	4	2	8	10	6
ENCB 10165	S. t. melanogaster	28	35	41	33	5	8	2	3	3	4	2	2	4	2	3	2	8	10	5
ENCB 16589	S. t. melanogaster	29	34	39	28	4	8	2	3	4	4	4	2	4	2	2	2	9	9	6
ENCB 13352	S. t. melanogaster	27	40	42	34	4	8	3	3	3	6	3	4	4	2	4	3	8	10	6
ENCB 13342	S. t. melanogaster	30	38	43	40	4	8	2		4	4	4	2	4	2	4	2	8	9	6
ENCB 13345	S. t. melanogaster	31	42	42	38	4	8	2	5	5	4	4	2	4	2	4	2	10	12	6
ENCB 13346	S. t. melanogaster	32	44	44	36	3	8	3	3	6	4	4	4	4	2	4	3	8	13	
ENCB 13347	S. t. melanogaster	31			38	5	8		3	4	3	2	4	2	4	4	2	8	10	4
ENCB 13198	S. t. melanogaster	30	39	47	38	4			3	4	7	3	2	4	2	2	2	9	11	5
ENCB 13199	S. t. melanogaster	33	41	45	38	5	8	2	3	3	6	4	2	4	2	2	2	8	9	4
ENCB 5632	S. t. melanogaster	30	39	39	35	5			3	4	4	4	2	4	2	3	2	8	10	3
ENCB 13841	S. t. melanogaster	30	39	42	36	5	8	2	4	5	3	3	2	4	2	2	2	8	10	4
ENCB 1517	S. t. melanogaster	31	37	42	32	4	8	2	3	4	4	4	3	4	2	3	2	7	9	4

ENCB 1524	S. t. melanogaster	30	41	44	39	5	8	2	3	4	4	4	2	4	2	3	2	7	10	4
ENCB 1525	S. t. melanogaster	29	38	38	32	4	8	3	3	4	4	4	2	4	2	4	2	8	10	4
ENCB 6252	S. t. melanogaster	33	39	35	38	4	8	2	3	5	4		2	4	2	2	2	8	9	4
ENCB 13371	S. t. melanogaster	29	40	41	31	6	9	2	3	4	3	3	2	4	2	4	2	9	10	6
ENCB 13353	S. t. melanogaster	27	39	40	33	4	8	2	3	2	3	4	2	3	2	2	2	8	10	4
ENCB 13354	S. t. melanogaster	30	37	37	40	4	8	2	4	4	2	4	2	4	2	2	2	8	10	4
ENCB 13355	S. t. melanogaster	30	39	42	40	4	8	2	3	4	4	5	2	4	2	4	2	8	10	4
ENCB 13356	S. t. melanogaster	29	39	45	39	4	8	2	3	4	4	4	3	4	2	2	2	10	12	4
ENCB 13357	S. t. melanogaster	28	37	42	37	4	8	3	3	2	2	4	2	4	2	4	2	9	10	4
ENCB 13358	S. t. melanogaster	29	38	44	41	4	8	2	3	4	4	4	2	3	2	4	2	8	11	6
ENCB 13360	S. t. melanogaster	29	36	42	43	4	8	2	3	5	4	5	2	4	2	4	2	8	11	6
ENCB 12276	S. t. melanogaster	27	37	39	36	4	8	2	3	4	4	3	2	4	2	4	2	9	11	4
ENCB 2070	S. t. melanogaster		40	44	36	5	8	2	3	3	2	4	2	4	2	2	2	8	10	4
ENCB 5005	S. t. melanogaster	29	34	41	33	4	8	2	3	2	2	4	2	3	2	3	2	8	10	4
ENCB 544	S. t. melanogaster	33			39	4	8	2	3	4	4	4	3	4	2	4	2	8	10	4
ENCB 545	S. t. melanogaster	30	38	39	36	4	8	3	3	3	2	4	2	4	2	4	2	8	10	4
ENCB 561	S. t. melanogaster	28	43	45	37	6	8	2	5	4	4	4	2	3	2	4	2	8	11	4
ENCB 562	S. t. melanogaster	29	36	40	33	5	8	2	4	3	4	3	2	4	2	4	2	8	10	4
ENCB 563	S. t. melanogaster	30	37	49		5	8	3	3	4	5	2	4	4	2	3	2		10	4
ENCB 564	S. t. melanogaster	28	36	44		5	8	2	3	4	4	4	2	4	2	4	2	8	10	4
ENCB 830	S. t. melanogaster	31	38	46	36	5	8	3	3	4	4	4	2	4	2	3	2	8	11	4
ENCB 831	S. t. melanogaster	35	44	44	31	6	8	3	3	4	4	4	2	4	2	2	2	8	10	4
ENCB 835	S. t. melanogaster	31	37	40	30	5	8	3	4	4	3	4	2	5	2	2	2	8	10	4
ENCB 844	S. t. melanogaster	29	38	42	35	4	8	2	3	4	3	4	2	3	2	3	2	9	11	4
ENCB 846	S. t. melanogaster	31	41	44	36	4	8	2	3	6	5	5	4	4	2	2	2	8	10	5
ENCB 850	S. t. melanogaster	27	39	40	35	5	8	2	3	4	4	4	2	4	2	2	2	8	11	4
ENCB 852	S. t. melanogaster	33	43	47	38	5	8	2	3	4	4	4	4	4	2	4	2	8	10	4
ENCB 14035	S. t. melanogaster	28	37	42	32	4	8	2			4	4	2	4	2		2	8	10	6

ENCB 14036	S. t. melanogaster	29	35	43	35	4	8	2	3	3	4	4	3	4	2	4	2	8	9	4
ENCB 14037	S. t. melanogaster	28	37	39	33	4	8	2	3	4	4	3	2	4	2	3	2	8	9	6
ENCB 7208	S. t. melanogaster	28	31	39	34	4		2	3	4	4	4	2	4	2	2	2	8	10	5
MZFC 755	S. t. mikeprestoni	26	34	38	26	6	8	2	3	2	3	4	4	4	2		4	8	9	6
MZFC 5368	S. t. mikeprestoni	27	33	38	28		8	2	3	3	3	3	2	4	2	4	6	8	10	7
MZFC 21268	S. t. mikeprestoni	29	33	43	30	6	8	2	3	3	2	4	2		2	4	2	7		8
MZFC 31901	S. t. mikeprestoni	29	37	42	27	7	8	2	3	2	4	3	4	3	2	4	2	8	10	6
MZFC 31902	S. t. mikeprestoni	27	34	41	28	4	9	2	4	4	3	5	4	3	2	4	2	8	10	6
MZFC 31903	S. t. mikeprestoni	27	43	43			8	2	3	3	3	3	3	2	2	2	2	8	10	4
MZFC 31904	S. t. mikeprestoni	27	40	38		6	8	2	3	3	3	3	2	2	2	2	2	8	9	4
MZFC 31905	S. t. mikeprestoni	28	34	44	28	5	8	2	4	2	2	4	2	2	2	4	2	8	9	6
MZFC 31907	S. t. mikeprestoni	25	34	41	26	8	8	2	3	4	2	4	2	3	2	2	2	8	9	7
OFV 1513	S. t. mikeprestoni	30	36	42	32	6	9	4	3	3	3	4	4	4	2	2	2	8	10	8
OFV 1516	S. t. mikeprestoni	30	37	41	28	5	8	2	3	4	3	3	4	4	2	4	2	8	8	7
OFV 1517	S. t. mikeprestoni	27	35	42	25	6	8	2	4	6	2	4	2	4	2	2	2	8	10	7
OFV 1544	S. t. mikeprestoni	28	32	40	26	6	8	2	3	2	2	3	2	3	2	4	2	8	12	6
OFV 1546	S. t. mikeprestoni	28	32	43	29	7	8	2	3		2	4	2	4	2	4	3	9	10	6
OFV 1548	S. t. mikeprestoni	26	35	43	30	6	10	2	3	3	4	4	2	4	2	4	2	8		6
ENCB 5757	S. t. mikeprestoni	30	37	40	28	6	10	2	3	3	3	4	2	2	2	4	2	8	10	6
ENCB 5758	S. t. mikeprestoni	27	36	40	29	6	8	2	3	2	3	4	2	2	2	2	2	8	10	5
ENCB 5759	S. t. mikeprestoni	27	31	39	27	5	8	2	3	2	2	4	2	2	2	2	2	8	8	4
ENCB 5761	S. t. mikeprestoni	28	38	41	28	6	8	2	3	2	4	4	2	4	2	2	2	8	10	6
ENCB 5762	S. t. mikeprestoni	29	36	43	26	7	8	2	3	3	2	4	2	3	2	3	2	8	10	4
ENCB 5763	S. t. mikeprestoni	25	33	43	26	5	10	2	3	2	4	2	2	4	2	2	2			
MZFC 21347	S. t. torquatus	29	38	45	35	6	8	2	4	4	4	4	4	4	2	4	2	8	11	6
MZFC 24071	S. t. torquatus	28	37	41	31	7	8	3	3	3	2	4	3	4	2	3	2	8	10	6
MZFC 23350	S. t. torquatus	30	40	50		6	8	3	3	3	4	4	2	4	2	4	2	8	10	6
MZFC 23590	S. t. torquatus	28	41	43	34	6	8	2	3	6	2	4	4	2	4	3	3	8	10	6

MZFC 23349	S. t. torquatus	29	38	42	34	5	8	3	3	3	3	4	2	4	2	2	2	8	10	6
MZFC 23611	S. t. torquatus	30	37	42	38	6	8	2	3	4	3	4	2	4	2	4	2	8	10	6
MZFC 23588	S. t. torquatus	29	43	44	36	6	8	2	3	4	2	4	4	4	2	4	2	8	11	6
MZFC 20296	S. t. torquatus	30	42				8	2	3	4	2	5	4	4	2	3	2	8	10	6
MZFC 23589	S. t. torquatus	28	43	43	36	7	8	2	3	4	4	4	4	4	2	3	2	8	11	6
MZFC 24072	S. t. torquatus	27	39	43	32	7	8	2	3	3	2	4	4	2	4	3	2	8	10	5
MZFC 23599	S. t. torquatus	27	40	41	35	7	8	2	3	3	3	4	4	2	4	2	2	9	10	6
MZFC 522	S. t. torquatus	28	35	42	34	5	8	3	3	4	3	4	2	4	2	3	2	8	10	8
MZFC 545	S. t. torquatus	28	36	46	38	6	8	3	3	4	2	4	2	4	2	2	2	8	10	8
MZFC 3405	S. t. torquatus	29	37	42	37	5	8	2	3	5	4	4	4	4	2	2	2	8	10	5
MZFC 3504-1	S. t. torquatus	28	44	46	42	5	8	2	3	3	2	5	4	4	2	4	4	8	10	6
MZFC 3504-2	S. t. torquatus	29	38	46	36	4	12	2	3	4	2	4	2	4	2	3	2	9	10	6
MZFC 3504-3	S. t. torquatus	29	37	46	33	6	8	2	3	3	3	4	2	3	2	3	2	8	10	6
MZFC 3504-4	S. t. torquatus	29	37	46	35	6	8	2	3	3	2	4	4	3	2	3	3	8	10	6
MZFC 3504-5	S. t. torquatus	30	40			7	8	2	3	2	4	4	2	4	2	2	2	8	9	7
MZFC 3504-7	S. t. torquatus	29			33	6	9	3	3	4	2	4	3	4	2	2	2	8	8	6
MZFC 3504-8	S. t. torquatus	29			34	5	9	3	3	4	4	4	4	4	2	4	2	8	11	6
MZFC 1703	S. t. torquatus	29	41	45	40	5	9	2	3	4	3	4	2	4	2	3	2	8	10	6
MZFC 1705	S. t. torquatus	29	37	46	33	5	8	2	3	4	2	4	3	4	2	3	2	9	11	6
MZFC 1707	S. t. torquatus	26	36	40	33	7	8	2	3	4	2	4	3	3	2	3	2	8	10	6
MZFC 1709	S. t. torquatus	29	39	45	44	5	9	2	3	4	4	4	2	4	2	2	2	8	10	6
MZFC 1711	S. t. torquatus	28	43	43	39	6	8	2	3	3	2	4	2	4	2	2	2	8	10	7
MZFC 1712	S. t. torquatus	27	34	40	32	6	8	2	3	3	2	4	4	4	2	2	2	8	9	6
MZFC 1714	S. t. torquatus	27	35	46	35	5	8	2	3	4	3	4	3	4	2	4	2	8	9	6
MZFC 1715	S. t. torquatus	27	39	45	35	6	8	2	3	4	2	4	2	4	3	2	2	8	10	6
MZFC 1716	S. t. torquatus	27	40	45	35	6	8	3	3	2	3	4	4	2	4	2	2	8	10	6
MZFC 1718	S. t. torquatus	29	38	44	41	5	8	2	3	4	4	3	3	4	2	2	2	8	11	7
MZFC 1719	S. t. torquatus	28	37	45	35	6	8	1	3	2	2	4	2	4	2	4	2	8	10	6

MZFC 1720	S. t. torquatus	28	37	42	35	4	8	5	3	4	4	6	3	4	2	2	2	8	10	6
MZFC 1748	S. t. torquatus	29	41	46	38	4	8	4	3	7	4	4	4	5	2	4	2	8	10	6
MZFC 106	S. t. torquatus	27		42	35	4	8	2	3	4	5	4	2	4	2	4	2	8	11	7
MZFC 119	S. t. torquatus	29	37	48	38	5	8	2	4	4	4	4	4	4	2	2	2	8	10	6
MZFC 3406-1	S. t. torquatus	30	41	45	38	8	8	2	3	4	3	4	4	6	2	4	2	8	10	4
MZFC 3406-2	S. t. torquatus	30	40	51	42	7	9	3	3	3	3	4	2	4	2	4	2	8	10	4
MZFC 3406-3	S. t. torquatus	29	36	45	32	4		2	3	4	4	4	4	4	2	4	4	8	10	9
MZFC 3734	S. t. torquatus	28	42	48		5	8	3	3	4	2	4	4	4	2	2	2	8	10	6
MZFC 522-2	S. t. torquatus	31	37	45	38	5	8	2	3	4	4	4	3	4	2	4	2	9	10	8
MZFC 522-3	S. t. torquatus	28	37	39	42	4	8	2	3	4	5	4	2	4	2	2	2	8	10	6
MZFC 522-4	S. t. torquatus	28	38	46	42	5	8	4	3	4	4	3	4	4	2	3	2	10	12	8
MZFC 789	S. t. torquatus	29	38	44	33	4	8	2	3	4	3	4	2	4	2	4	2	8	10	6
EPR 1617	S. t. torquatus	27	38	45	35	7	9	2	3	4	3	4	2	4	2	2	2	7	10	6
MZFC 31868	S. t. torquatus	27	39	44	38	5	8	2	3	6	4	4	2	4	2	2	2	8	9	7
MZFC 31869	S. t. torquatus	29	38	43	35	3	8	2	3	4	4	4	2	4	2	4	2	8	10	6
MZFC 31912	S. t. torquatus	32	40	43	37	7	9	2	3	4	4	4	2	4	2	2	2	8	10	6
MZFC 121	S. t. torquatus	30	38	44	32	4	8	2	4	4	2	4	3	4	2	4	2	8	10	6
MZFC 22694	S. t. torquatus	28	36	44	38	6	8	1	3	2	3	4	2	4	2	3	2	8	10	6
MZFC 4321	S. t. torquatus	29	41	46	38	4	8	2	4	5	4	4	3	4	2	2	3	8	11	6
MZFC 14282	S. t. torquatus	35	37	43	42	5	8	3	3	3	3	4	3	3	2	3	2	8	8	6
MZFC 14497	S. t. torquatus	30	34	48	29	5	8	2	3	4	6	4	4	2	4	2	4	10	10	7
MZFC 17854	S. t. torquatus	28	36	45	37	6	8	2	4	5	4	4	3	5	2	2	3	8	10	6
MZFC 120	S. t. torquatus	29	40	46	35	5	8	2	3	4	2	4	3	4	2	2	2	8	10	
MZFC 892	S. t. torquatus	31	41	41	37	4	8	2	3	4	4	4	4	4	2	3	2	8	10	4
MZFC 5034	S. t. torquatus	30	42	43	38	4	8	2	3	2	2	4	2	2	2	4	2	8	8	4
MZFC 7583	S. t. torquatus	28	36	40	34	4	8	2	3	4	6	4	4	4	2	4	2	8	10	6
MZFC 7584	S. t. torquatus	27	39	38	35	4	8	2	3	2	2	4	3	4	2	3	2	8	9	6
MZFC 3970	S. t. torquatus	29	36	41	27	7	8	2	3	2	4	4	4	4	2	4	2	8	10	6

MZFC 3971	S. t. torquatus	30	36	39	24	9	8	2	3	3	2	4	4	4	2	4	2	8	10	6
MZFC 3930	S. t. torquatus	30	37	40	24	12	8	2	3	6	2	4	4	5	2	4	2	8	11	6
MZFC 3932	S. t. torquatus	29	41	41	36	5	8	2	3	4	3	4	4	4	2	4	2	8	10	6
MZFC 3933	S. t. torquatus	29	35	42	29	10		2	3	3	3	4	4	4	2	4	2	8	11	6
MZFC 3935	S. t. torquatus	28	39	40	26	11	8	2	3	6	2	4	4	4	3	4	4	9	10	8
MZFC 3936	S. t. torquatus	31	41	47	34	6	10	4	3	6	4	4	4	4	2	3	3	8	10	6
MZFC 3937	S. t. torquatus	29	35	42	32	6	10	3	3	4	2	3	4	5	2	2	3	8	10	4
MZFC 3938	S. t. torquatus	30	38	42	36	5	8	2	3	6	4	3	2	4	2	4	2	8	11	6
MZFC 3939	S. t. torquatus	30	41	40	38	4	8	2	3	5	4	4	4	4	2	4	4	8	10	6
MZFC 3940	S. t. torquatus	29	43	42	29	7	10	2	3	4	3	5	4	4	2	2	3	8	10	6
MZFC 3947	S. t. torquatus	30	37	44	30	6	9	2	3	5	2	4	2	4	2	3	2	8	11	6
MZFC 3948	S. t. torquatus	31	39	44	35	5	9	2	3	8	4	4	2		3	4	2	8	10	6
MZFC 3949	S. t. torquatus	31	46	45	32	5	9	2	3	5	4	5	4	4	2	2	2	9	11	6
MZFC 3950	S. t. torquatus	27	40	46	32	6	9	2	3	4	3	4	4	4	2	4	2	8	11	6
MZFC 3952	S. t. torquatus	29	42	42	30	7	8	2	5	5	2	6	4	4	2	4	2	8	10	6
MZFC 3954	S. t. torquatus	29	41	45	37	5	8	2	5	6	3	4	4	4	2	4	3	8	10	7
MZFC 3957	S. t. torquatus	32	40	45	28	11	10	2	3	5	3	5	4	2	2	4	2	8	10	6
MZFC 3958	S. t. torquatus	30	41	45	27	10	8	3	3	4	4	3	2	4	2	4	2	8	10	7
MZFC 3959	S. t. torquatus	30	39	45	29	10	8	2	3	4	2	4	4	4	2	4	3	8	11	6
MZFC 3960	S. t. torquatus	30	41	44	24	10	8	3	3	5	2	2	4	4	2	4	2	8	10	6
MZFC 3961	S. t. torquatus	30	37	41	26	12	8	1	3	4	2	4	2	4	3	4	3	8	10	6
MZFC 3962	S. t. torquatus	31	38	44	26	11	8	2	3	4	2	5	4	4	2	4	2	8	12	6
MZFC 3964	S. t. torquatus	29	39	40	25	8	8	4	3	7	2	4	4	5	2	4	3	8	11	6
MZFC 3965	S. t. torquatus	29	37	44	29	8	8	2	3	5	2	4	4	4	3	4	2	8	10	6
MZFC 3966	S. t. torquatus	28	34	40	23	8	9	2	3	3	3	6	4	4	2	4	2	8	11	8
MZFC 3967	S. t. torquatus	31	38	41	24	9	8	2	3	5	2	4	3	4	2	4	2	8	12	6
MZFC 3968	S. t. torquatus	29	42	47	33	6	9	2	3	4	5	4	4	4	2	4	2	8	12	6
MZFC 3974	S. t. torquatus	29	38	39	32	5	8	2	3	4	4	4	2	4	2	3	2	8	9	6

MZFC 3975	S. t. torquatus	31	40	44	28	10	8	2	3	5	2	6	4	4	2	4	4	8	10	7
MZFC 3976	S. t. torquatus	31	33	39	26	5	8	2	3	4			4	3	2		3	9	11	6
MZFC 3978	S. t. torquatus	29	39	45	33	6	8	2	3	4	3	5	2	4	2	2	2	8	10	6
MZFC 3979	S. t. torquatus	30	40	43	32	8	8	2	3	3	6	5	4	4	2	4	4	8	10	6
MZFC 3980	S. t. torquatus	30	36	39	26	8	9	2	3	4	2	4	4	3	2	4	4	9	10	6
MZFC 3981	S. t. torquatus	30	35	41	24	10	8	2	3	8	2	5	4	4	2	4	2	8	10	8
MZFC 31865	S. t. torquatus	28	38	44	34	4	8	2	3	4	3	4	2	4	2	4	2	8		7
MZFC 31866	S. t. torquatus	29	36	41	32	4	8	2	3	4	2	4	2	4	2	4	2	8	10	6
MZFC 31867	S. t. torquatus	29	45	50	37	4	10		4	6	4	4	2	4	2	2	2	8	10	8
MZFC 22639	S. t. torquatus	29	38	42	38	3	8	2	3	4	2	4	3	4	2	2	2	8	10	6
MZFC 983-2	S. t. torquatus	30	40	47	39	5	9	3	3	4	4	4	2	4	2	2	2	8	10	6
MZFC 984-2	S. t. torquatus	27	41	40	37	4	8	2	3	4	4	4	4	4	2	4	2	8	9	6
MZFC 4327-2	S. t. torquatus	29	40	42	38	6	8	2	3	4	4	4	4	4	2	2	2	8	9	6
MZFC 6612-1	S. t. torquatus	29	37				8	2	3	4	4	4		4	2	2	2	8	10	6
MZFC 6612-2	S. t. torquatus	31	39				8	3	3	5	4	4	2	3	2	2	2	8	10	6
MZFC 6612-3	S. t. torquatus	29	40				8	2	3	4	6	3	2	2	4	2	2	9	10	6
MZFC 4327	S. t. torquatus	30	41	47	42	5	8	2	3	4	4	4	3	4	2	4	4	8	11	6
MZFC 4327-3	S. t. torquatus	30	42	45	37	4	10	2	3	2	4	3	2	4	2	2	2	8	11	6
MZFC 4327-4	S. t. torquatus	29	38	42	40	4	8	2	3	6	4	4	2	4	2	3	2	8	10	6
MZFC 830-1	S. t. torquatus	27	49	37	36	6	8	2	3	4	3	4	2	4	2	3	2	9	10	6
MZFC 830-2	S. t. torquatus	30	38	40	38	5	10	2	5	6	2	4	4	4	2	4	3	8	10	8
MZFC 833-1	S. t. torquatus	29	41	47	43	6	8	2	3	3	4	4	3	3	2	3	2	8	10	6
MZFC 833-2	S. t. torquatus	26	37	41	37	6	8	2	3	2	2	4	2	3	2	4	2	7	10	6
MZFC 968-2	S. t. torquatus	29	41	41	34	6	8	2	3	6	3	4	2	4	2	2	2	8	10	6
MZFC 983-3	S. t. torquatus	29	40	48	42	5	8	2	3	4	4	4	2	4	2	3	2	8	9	8
MZFC 983-4	S. t. torquatus	29	39	43	35	5	8	2	3	4	3	4	2	2	2	2	2	8	10	6
MZFC 984	S. t. torquatus	29	40	43	34	8	8	2	3	4	2	4	2	4	2	2	2	8	8	6
MZFC 984-3	S. t. torquatus	30	43	43	37	5	8	2	3	4	3	5	4	4	2	2	2		10	6

MZFC 3277	S. t. torquatus	29	38	41	36	6	8	2	3	4	4	4	2	4	2	3	2	8	11	6
RPA 236	S. t. torquatus	29	40	45	34	6	8	2	3	4	3	4	2	4	2	4	2	10	10	6
MZFC 544	S. t. torquatus	30	41	45	35	5	8	2	3	3	3	4	2	4	2	3	2	8	10	6
MZFC 890	S. t. torquatus	29	39	41	34	5	8	2	3	4	4	4	2	4	2	2	2	8	10	6
MZFC 117	S. t. torquatus	28	41	45	35	5	8	2	3	2	4	3	2	4	2	2	2	8	10	7
MZFC 118	S. t. torquatus	28	40	42	39	4	8	2	3	2	4	4	2	4	2	3	2	8	10	7
MZFC 541	S. t. torquatus	28	38	44	29	5	10	3	3	4	3	4	4	5	2			9	11	6
MZFC 11823	S. t. torquatus	31	41	46	39	5	8	2	3	5	4	4	2	3	2	4	2	8	11	6
MZFC 11190	S. t. torquatus	30	42	43	38	5	8	3	3	3	2	3	2	3	2	2	2	8	8	6
MZFC 122	S. t. torquatus	28	38	48	39	6	8	2	3	4	4	2	3	4	2	2	2	8	11	6
MZFC 123	S. t. torquatus	29	39	45	40	5	8	2	3	3	3	4	2	4	2	4	2	8	11	6
IBH 18179	S. t. torquatus	29	36	40	29	6	9	2	3	3	4	4	2	4	2	4	2	8	10	6
IBH 18050	S. t. torquatus	26	40	44	34	6	9	2	3	3	2	4	3	3	2	2	2	8	9	6
IBH 18007	S. t. torquatus	31	43	52	35	6	8	2	3	2	2	4	2	3	2	2	2	8	10	6
IBH 17470	S. t. torquatus	29	40	43		6	8	2	3	4	3	4	3	4	2	2	2	8	10	6
IBH 17474	S. t. torquatus	27	42	44	39	6	8	2	3	2	4	4	2	4	2	3	2	8	10	6
IBH 9348	S. t. torquatus	29	38	43	35	6	8	3	3	4	3	4	2	4	2	2	2	8	10	6
IBH 8389	S. t. torquatus	30	38	44	28	6	8	2	3	4	3	4	4	4	2	2	2	8	8	6
IBH 13138	S. t. torquatus	32	42	44	38	4	8	3	3	2	3	5	4	4	2	4	2	7	9	6
IBH 13882	S. t. torquatus	29	38	46	31	4	8				4	4	2	3	2	3	2	8	10	6
IBH 16557	S. t. torquatus	29	35	41	36	4	8	3	3	4	4	6	2	4	2	4	2	8	11	6
IBH 13144	S. t. torquatus	29	40	44	40	4	8	2	3	3	4	4	4	4	2	3	2	8	10	6
IBH 8395	S. t. torquatus	28	36	44	35	5	8	2	3	3	4	4	4	4	2	2	2	8	11	6
IBH 31629	S. t. torquatus	29	40	42		5	8	2	4	3	4	4	2	3	2	2	2	8	8	10
IBH 16562	S. t. torquatus	29	35	37	34	5	8	2	3	3	4	3	2	4	2	2	2	8	10	6
IBH 16426	S. t. torquatus	27	39	44	34	5	8	2	3	4	4	3	4	4	2	2	4	8	10	6
IBH 17980	S. t. torquatus	28	40	41	35	6	9	2	3	5	4	4	2	4	2	2	2	8	10	6
IBH 17979	S. t. torquatus	29	42	42	36	5	8	2	3	4	5	4	2	4	2	2	2	8	10	6

ENCB 1681	S. t. torquatus	29	36	46	38	6	8	2	3	4	4	4	2	4	2	2	2	8	10	4
ENCB 1682	S. t. torquatus	30	38	46	35	6	8	1	3	2	3	4	2	4	2	2	2	8	9	5
ENCB 15338	S. t. torquatus	29	41	45	32	5	8	2	3	3	3	4	2	4	2	2	2	8	10	2
ENCB 1668	S. t. torquatus	28	35	44	37	4	8	2	3	3	4	4								4
ENCB 6283	S. t. torquatus	27	40	39	34	4	9	2	3	2	3	3	2	4	2	4	2	8	10	5
ENCB 6285	S. t. torquatus	30	39	39	30	6	9	2	3	3	4	4	2	4	2	3	2	8	10	6
ENCB 5021	S. t. torquatus	29	37	42	35	4	8	2	3	5	3	4	3	4	2	2	2	8	10	5
ENCB 899	S. t. torquatus	30	43	44	34	4	8	2	3	3	4	4	3	3	2	4	2	8	11	4
ENCB 411	S. t. torquatus	33	43	54	34	6	8	2	3	4	4	4	2	4	2	2	2	8	10	6
ENCB 412	S. t. torquatus	30	41	49	33	5	8	2	3	4	4	4	2	4	2	2	2	8	10	4
ENCB 413	S. t. torquatus	29	40	47	37	4	8	2	3	5	4	4	2	4	2	4	2	8	10	4
ENCB 414	S. t. torquatus	30	40	42	37	6	8	3	3	3	4	4	2	4	2	2	4	9	8	9
ENCB 417	S. t. torquatus	29	42	45	38	5	10	2	3	4	4	4	2	2	2	2	2	8	8	4
ENCB 419	S. t. torquatus	28	41	42	32	6	8	2	3	4	3	4	2	4	2	2	2	8	10	4
ENCB 3394	S. t. torquatus	31	42	46	34	5	9	3	3	4	3	4	2	4	2	4	2	8	10	4
ENCB 1059	S. t. torquatus	29	37	48	36	6	8	3	3	3	4	4	2	4	2	4	2	8	9	6
ENCB 939	S. t. torquatus	30	40	45	34	4	8	2	3	3	3	4		5	2	4	2	8	10	
ENCB 940	S. t. torquatus	30	39	45	35	6	9	2	3	4	4	4				4				4
ENCB 1610	S. t. torquatus	30	43	41	38	6	10	2	3	5	3	5		4		4			10	4
ENCB 1612	S. t. torquatus	30	42	45	40	5	8	2	3	4	5	4	3	4	2	3	4	8	11	4
ENCB 1721	S. t. torquatus	28	39	43	36	6	8	3	3	3	2	4	2	4	2	2	2	8	8	6
ENCB 1722	S. t. torquatus	29	44	43	34	5	9	2	3	4	4	4	4	4	2	2	2		10	5
ENCB 1723	S. t. torquatus	30	42	48	36	5	8	2	3	2	2	4	2	4	2	2	2	8		5
ENCB 1724	S. t. torquatus	28	41	47	35	5	8		3	3	4	4	2	4	2	4	2	8	10	
ENCB 1725	S. t. torquatus	30	39	45		6	8	2	3	2	4	4	2	4	2	2	2	8	10	5
ENCB 1726	S. t. torquatus	30	40	42		6	8	4	3	4	4	4	2	4	2	2	2	8	10	4
ENCB 1731	S. t. torquatus	28	38	49		7	8	2	3	4	2	4	2	4	2	2	2	9	10	2
ENCB 1732	S. t. torquatus	30	40	42		6	8	2	3	2	4	3	2	4	2	4	2	8	10	5

ENCB 1734	S. t. torquatus	31	39	50	34	4	8	2	3	3	2	4	2	4	2	2	2	8	8	2
ENCB 1736	S. t. torquatus	32	40	46	38	5	10	2	3	4	4	4	4	4	2	2	2	9	10	4
ENCB 1737	S. t. torquatus	28	36	45	35	5	8	2	3	5	3	4	3	4	2	3	2	8	8	5
ENCB 1738	S. t. torquatus	31	40	46	39	7	8	2	3	4	4	4	2	3	2	2	2		8	10
ENCB 1739	S. t. torquatus	30	36	50		6	8	2	3	5	3	4	3	4	2	3	5	8	10	3
ENCB 1740	S. t. torquatus	30	40	44	37	6	8	2	3	4	4	4	4	4	2	3	2	8	10	4
ENCB 1741	S. t. torquatus	28	40	43	35	4	8	2	3	4	4	4	3	3	2	2	2	8	10	4
ENCB 1755	S. t. torquatus	32	43	45	41	6	8	2	3	4	4	4	2	4	2	4	3	8	10	4
ENCB 2077	S. t. torquatus	30	40	44	36	7	8	2	3	4	3	4	2	4	2	4	2	8	11	4
ENCB 6675	S. t. torquatus	32	40	44	34	7	8	2	3	5	3	4	4	4	2	3	2	8	10	3
ENCB 6676	S. t. torquatus	28	41	41	34	5	8	3	3	3	3	4	2	4	2	2	2	8	10	4
ENCB 1587	S. t. torquatus	30	39	42	35	6	8	2	3	6	5	3	2	4	2	2	2	8	10	5
ENCB 3334	S. t. torquatus	29	41	45	37	5	8	2	3	4	4	4	2	5	2	3	2	8	10	6
ENCB 6273	S. t. torquatus	30	42	42	37	6	9	2	3	7	4	4	2	4	2	4	2	8	10	5
ENCB 6274	S. t. torquatus	30	43	45	33	6	9	2	3	8	4	4	2	4	2	4	2	10	12	6
ENCB 10977	S. t. torquatus	31	41	48	36	4	9	2	3	4	4	4	2	4	2	2	2	8	10	4
ENCB 3719	S. t. torquatus	31	39	44	36	5	8	3	3	3	3	4	2	4	2	2	2	8	9	4
ENCB 3720	S. t. torquatus	29	35	45	34	6	8	2	3	4	4	5	2	4	2	4	2	8	11	8
ENCB 3721	S. t. torquatus	29	40	43	39	6	8	2	3	4	3	4	2	4	2	4	2	8	10	7
ENCB 5309	S. t. torquatus	31	45	44	36	6	8	2	3	3	4	4	2	4	2	3	2		11	5
ENCB 5310	S. t. torquatus	30	45	48	40	5	8	2	3	3	4	4	2	4	2	2	2	9	10	4
ENCB 5311	S. t. torquatus	29	42	41	34	5	8	2	3	4	5	3	2	4	2	4	2	9	12	5
ENCB 12819	S. t. torquatus	31	46	49	36	5	8	2	3	4	4	4	2	3	2	3	2	7	10	4
ENCB 7753	S. t. torquatus	30	39	41	34	4	8	2	3	4	4	5	3	4	2	4	2	8	10	2
ENCB 7755	S. t. torquatus	29	43	49	38	5	8	2	3	4	4	3	4	4	2	3	2	8	10	4
ENCB 7756	S. t. torquatus	29	41	45	32	4	8	2	3	4	4	4	2	4	2	2	2	8	10	4
ENCB 7757	S. t. torquatus	30	37	41	34	6	8	2	3	4	4	4	4	4	2	4	2	9	12	4
ENCB 7758	S. t. torquatus	28	37	45	36	5	10	2	3	2	4	4	2	3	2	4	2	9	10	4

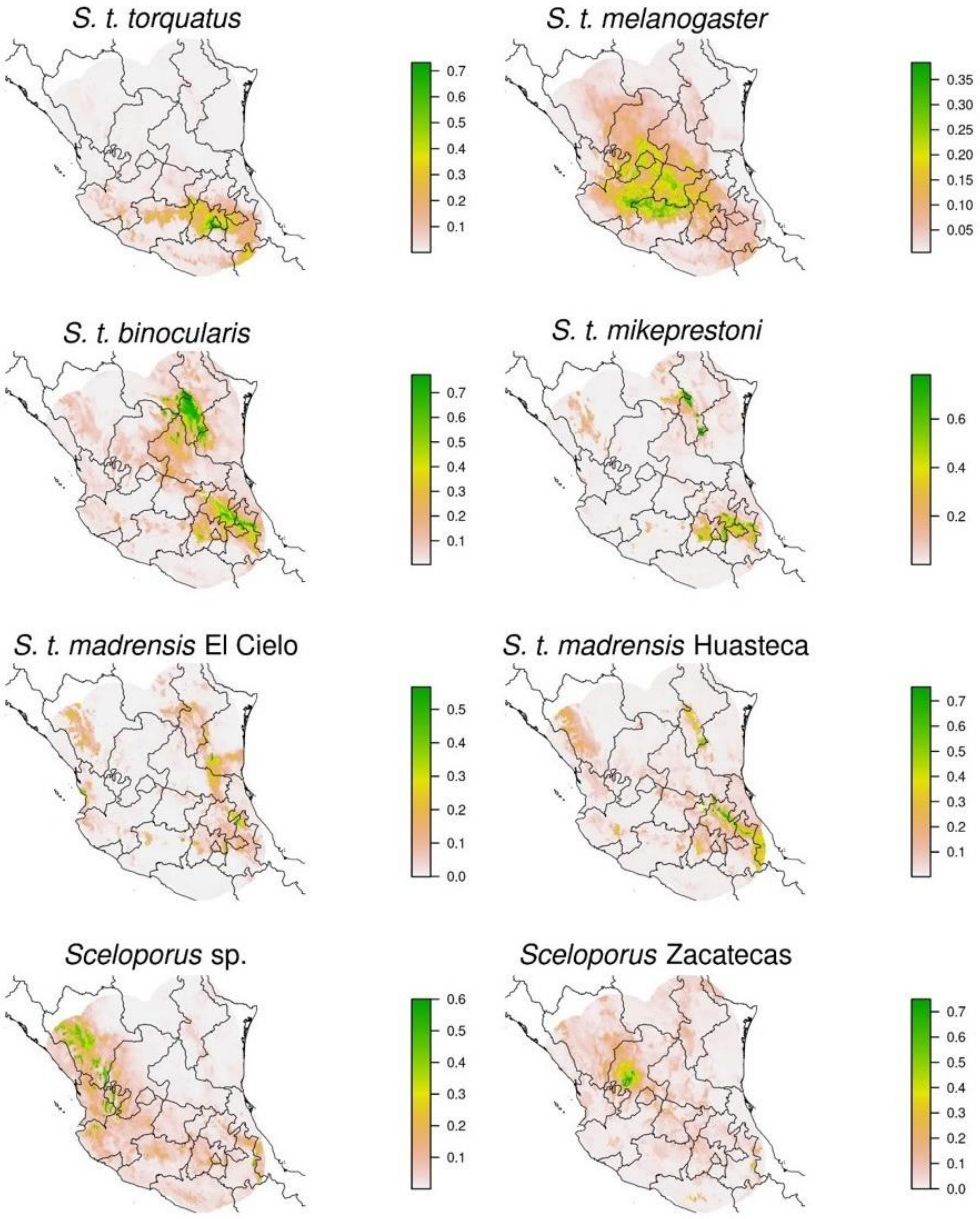
ENCB 7713	S. t. torquatus	28	36	41	33	5	8	2	3	3	5	5	4	4	2	4	2	8	10	4
ENCB 7715	S. t. torquatus	28	39	45	38	4	8	2	3	4	4	4	2	4	2	2	2	8	10	4
ENCB 7722	S. t. torquatus	29	39	43	33	4	8	2	3	3	4	4	3	4	2	2	2	8	10	4
ENCB 7723	S. t. torquatus	29	39	46	37	3	9	3	6	4	4	4	2	3	2	2	2	8	10	4
ENCB 7724	S. t. torquatus	28	38	44	34	4	8	2	3	2	4	3	2	4	2	4	2	8	10	4
ENCB 7725	S. t. torquatus	29	34	38	29	4	8	2	3	4	4	4	2	3	2	2	2	8	10	4
ENCB 7726	S. t. torquatus	31	44	44	38	5	8	2	3	2	4	4	2	4	2	4	2	8	10	4
ENCB 7727	S. t. torquatus	27	37	41	27	4	8	2	3	3	4	4	4	4	2	4	2	8	10	4
ENCB 4402	S. t. torquatus	28	39	48	34	4	8	2	3	4	2	4			2	4	2	8	10	4
ENCB 4403	S. t. torquatus	33	40	48	36	6	8	2	3	6	4	3	2	4	2	3		8	10	4
ENCB 13231	S. t. torquatus	28	38	45	32	4	8	2	3	5	4	4	3	4	2	4	2	7	9	3
ENCB 3335	S. t. torquatus	29	39	42	36	4	8	2	3	4	4	4	2	4	2	4	2	8	10	4
ENCB 3336	S. t. torquatus	29	37	49	42	4	8	2	3	5	4	4	2	4	2	2	2	8	10	4
ENCB 3337	S. t. torquatus	32	44	46	42	6	9	2	3	5	3	4	2	4	2	2	2	8	10	4
ENCB 12423	S. t. torquatus	33	38	42	26	7	8	1	3	3	4	4	2	3	2	4	4	8	9	6
ENCB 2293	S. t. torquatus	28	41	48	36	4	8	2	3	5	4	4	4	4	2	4	4	8	10	6
ENCB 17120	S. t. torquatus	27	39	47	39	5	8	2	3	4	4	4	2	4	2	2	2	8	10	4
ENCB 17124	S. t. torquatus	30	38	44	38	4	8	2	3	3	4	4	2	4	2	2	2		10	4
ENCB 17125	S. t. torquatus	29	39	47	39	7	8	2	3	4	4	2	2	4	2	2	2	8	9	4
ENCB 17126	S. t. torquatus	30	40	44	38	7	8	2	3	2	5	4	2	4	2	3	2	9	10	5
ENCB 17129	S. t. torquatus	29	39	40	37	5	8	2	3	2	3	4	2	4	2	2	2	8	10	5
ENCB 5291	S. t. torquatus	27	39	39	36	5	8	2	3	4	3	4	4	4	2	2	2	8	10	4
ENCB 2306	S. t. torquatus	30	45	43	43	6	8	2	3	5	4	4	2	4	2	2	2	8	10	4
ENCB 2343	S. t. torquatus	30	42	43	39	6	8	2	3	4	3	4	2	4	2	2	2	8	10	4
ENCB 8313	S. t. torquatus	28	41	44	34	4	8	2	3	4	4	4	2	4	2	2	2	8	10	4
ENCB 13578	S. t. torquatus	29	43	43	35	5	10	2	4	3	4	5	2	4	2	3	2	9	14	4
ENCB 4175	S. t. torquatus	30	38	43	35	4	8	2	3	4	3	4	2	3	2	4	4	8	9	4
ENCB 14359	S. t. torquatus	35	47	52	37	5	8	2	3	6	4	4	2	4		2	2	8	12	4

ENCB 11949	S. t. torquatus	29	40	42	31	4	8	2	3	4	2	4	3	4	2	2	3	8	8	4
ENCB 11950	S. t. torquatus	28	42	42	35	4	9	3	3	4	4	4	2	4	2	3	2	8	10	4
ENCB 3422	S. t. torquatus	30	37	43	34	4	9	2	3	4	5	4	2	4	2	2	2		11	4
ENCB 3423	S. t. torquatus	29	40	43	37	4	8	2	3	4	3	5	2	4	2	2	2	8	10	4
ENCB 3424	S. t. torquatus	29	41	48	35	7	8	2	3	4	5	4	2	4	2	2	2	8	10	4
ENCB 3425	S. t. torquatus	29	37	41	34	5	8	2	3	4	4	4	2	3	2	2	2	8	10	4
ENCB 2076	S. t. torquatus		46		36	5	10	2	3	4	4	5	2	4	2	4	2	9	12	5
ENCB 7728	S. t. torquatus	30	41	48	38	5	8	2	3	4	4	4	2	4	2	2	2	9	10	4
ENCB 7731	S. t. torquatus	29	44	44	37	4	8	2	3	4	4	3	2	4	2	4	2	8	10	4
ENCB 7732	S. t. torquatus	29	38	42	38	5	8	2	3	4	4	4	2	4	2	4	2	8	10	4
ENCB 7734	S. t. torquatus	29	40	43	27	5	8	2	4	4	4	4	4	4	2	2	2	8	9	4
ENCB 7735	S. t. torquatus	30	36	38	35	5	8	2	3	5	4	4	2	3	2	2	2	8	10	4
ENCB 7736	S. t. torquatus	29	41	47	34	4	9	2	3	4	4	4	2	4	2	2	2	8	10	4
ENCB 7742	S. t. torquatus	32	40	45	41	6	8	2	3	6	2	4	2	4	2	2	2	8	10	4
ENCB 7744	S. t. torquatus	28	43	47	33	5	8		3	4	3	5	4	4	2	2	2	8	9	4
ENCB 7748	S. t. torquatus	31	41	48	33	7	8	2	3	5	4	4	2	4	2	2	2	8	10	4
ENCB 7749	S. t. torquatus	34	42	43	32	5	8	2	3	4	4	4	3	4	2	4	3	8	10	3
ENCB 3142	S. t. torquatus	29	44	44	37	5	10	2	3	3	3	4		4	2	4	2	8	10	4
ENCB 3143	S. t. torquatus	29	41	46	37	5	10	2	3	5	4	4	2	4	2	2	2	8	9	4
ENCB 13191	S. t. torquatus	31	40	45	36	4	8	2	3	4	2	4		4	2	2	2	8	10	4
ENCB 13192	S. t. torquatus	30	33	42	32	4	8	2	3	4	4	4	2	4	2	3	2	8	10	4
ENCB 13193	S. t. torquatus	28	42	43	38	5	8	2	4	5	3	4	2	4	2	4	2	8	9	4
ENCB 13839	S. t. torquatus	27	37	38	34	4	8	2	4	3	3	4	2	4	2	4	2	8	10	4
ENCB 13840	S. t. torquatus	30	41	46	40	7	8	2	5	5	4	4	3	4	2	2	2	8	10	6
ENCB 8127	S. t. torquatus	29	40	42	37	5	8	2	3	4	3	4	2	4	2	3	2	8	9	4
ENCB 872	S. t. torquatus	27	39	37	36	6		2	3	4	4	3	2	4	2	2	2	8	10	5
ENCB 6960	S. t. torquatus	29	41	42	39	4	8	4	3	4	4	4	4	4	2	3	2	9	12	4
ENCB 15339	S. t. torquatus	29	41	47	35	6	8	2	3	5	4	4	4	4	2	3	4	8	11	4

ENCB 15347	S. t. torquatus	27	39	48	36	6	8	2	3	4	5	4	4	4	2	4	2	8	10	4
ENCB 15348	S. t. torquatus	28	45	48	41	5	8	3	3	4	4	4	2	4	2	2	2	9	10	4
ENCB 14083	S. t. torquatus	29	38	46	40	5	8	2	3	3	3	4	2	4	2	4	2	8	12	5
ENCB 14084	S. t. torquatus	28	44	48	38	5	8	2	3	3	5	5	2	4	2	3	2	8	10	6
ENCB 14085	S. t. torquatus	28	41	43	40	5	8	2	3	4	4	4	2	4	2	3	2	8	10	5
ENCB 14086	S. t. torquatus	30	42	38	38	5	8	2	3	4	4	3	2	4	2	2	2	7	10	4
ENCB 14087	S. t. torquatus	28	42	39	42	4	8	3	3	6	2	4	4	3	2	4	2	8	9	4
ENCB 14088	S. t. torquatus	27	35	42	33	6	8	2	3	3	4	4	2			2	2	8	11	4
ENCB 14089	S. t. torquatus	28	36		36	6	8	2	3	5	4	5	2	3	2	4	2	9	11	7
ENCB 14090	S. t. torquatus	30	41	42	34	5	8	2	3	2	4	4	2	4	2	3	2	10	12	4
ENCB 14094	S. t. torquatus	29	41	44	37	4	8	2	3	2	3	4	2	4	2	2	2	10	10	4
ENCB 14095	S. t. torquatus	29	41	40	40	5	8	2	3	5	4	4	4	4	2	3	2	8	10	5
ENCB 14097	S. t. torquatus	31	40	43	40	5	8	2	3	4	4	4	2	4	2	4	2	8	10	4
ENCB 5361	S. t. torquatus	28	42	46	35	5	8	2	3	4			4	4	2	2	2	8	10	4
ENCB 5362	S. t. torquatus	29	40	42	42	5	8	2	3	3	4	4	2	4	2	4	2		11	6
ENCB 5363	S. t. torquatus	28	41	42	35	6	9	2	3	4	3	5	2	4	2	2	2	8	10	5
ENCB 5364	S. t. torquatus	29	36	48	36	6		2	3	3	4	4	2	5	2	3	2	8	10	5
ENCB 5365	S. t. torquatus	28	38	45	32	7	8	2	3	4	4	4	4	4	2	4		8	10	6
ENCB 5367	S. t. torquatus	31	43	44	38	6	8	2	5	4	4	4	2			3	2	8	12	4
ENCB 5368	S. t. torquatus	30	46	49	38	7	8	2	3	4	4	4	2	4	2	4	2	8	10	6
ENCB 5370	S. t. torquatus	29	34	42	38	7	8	2	5	4	4	4	2	4	2	4	4	8	10	5
ENCB 5371	S. t. torquatus	30	35	49	35	6	8	3	3	5	4	4	2	5	2	2	2	8	10	4
ENCB 5976	S. t. torquatus	28	40	43	37	4	9	2	3	4	4	4	4	3	2	2	2	10	10	4
MZFC 24832	Sceloporus sp.	30	40	43	33	5	8	2	3	2	4	4	2	4	2	4	2	8	9	5
IBH 5819	Sceloporus sp.	29	41	42	38	6	8	2	5	4	5	4	2		2	4	2	8	12	4
IBH 5819-2	Sceloporus sp.	28	39	41	29	7	8	3	4	2	4	4	3	3	2	4	2	8	9	6
IBH 5819-4	Sceloporus sp.	30	40	42	36	6	8	2	3	4	4	4	2	4	2				10	6
IBH 5819-5	Sceloporus sp.	28	38	44	37	5	9	2	4		4	4	4	4	2		2	8	10	6

IBH 5819-6	Sceloporus sp.		39	43	30	7	8	2	5	4	4	4	4	2	4	4	2	8	8	5
IBH 5819-7	Sceloporus sp.	30	37	40	32	4	8	2	3	4	4	4				2	2	8	10	5
IBH 5819-8	Sceloporus sp.	29	39	45	35	6	8	2	3	3	4	4				4	2	8	8	6
IBH 5819-9	Sceloporus sp.	30	38	45	33	5	8	2	3	3	4	3	2	4	2	4	2			
IBH 5819-11	Sceloporus sp.	30	38	43	31	6	8	2	3	5	3	4	2	4	2	3	2	8	10	6
IBH 5819-12	Sceloporus sp.	29	43	46	34	5	8	2	3	4	4	3	3	4	2	2	2	8	10	6
IBH 5819-14	Sceloporus sp.	28	40	42	35	6			3	2	2	4				2		8	10	6
IBH 5819-15	Sceloporus sp.	28	39	42	34	6	8	2	3	3	2	4	2	4	2	4	2	8	10	6
ENCB 14315	Sceloporus sp.	30	38	42	35	6	9	2	3	4	4	4	2	4	2	2		8	12	6
ENCB 14316	Sceloporus sp.	29	40	43	42	6	8	2	3	4	4	4	2	4	2	2	2	8	10	6
MZFC 11212	Sceloporus Zacatecas	29	37	38	32	5	8	3	3	4	3	4	2	4	2	2	2	8	10	6
IBH 16547	Sceloporus Zacatecas	29	35	36	30	4	8	2	3	4	5	2	2	4	2	2	2	8	10	6
IBH 26760	Sceloporus Zacatecas	30	39	44	30	6	8	2	3	4	4	4	2	4	2	3	2	8	10	6
IBH 26744	Sceloporus Zacatecas	31	39	47	32	4	8	2	3	6	2	5	2	4	2	3	2	8	10	8
IBH 26730	Sceloporus Zacatecas	29	37	41	31	5	8	2	3	4	4	4	2	4	2	2	2	8	10	6
IBH 26737	Sceloporus Zacatecas	28	37	42	31	5	9	2	3	4	4	4	2	4	2	2	2	8	10	6
IBH 26752	Sceloporus Zacatecas	29	38	42	31	4	8	2	5	6	3	4	4	4	2	4	2	8	10	6
IBH 26748	Sceloporus Zacatecas	27		39	26	4	8	2	3	2		4	3	4	2	2	2	7	8	6
IBH 26756	Sceloporus Zacatecas	27	37	42	30	6	8	2	3	4	5	3	2	4	2	3	2		8	9
IBH 26726	Sceloporus Zacatecas	28	37	45	35	7	8	2	3	4	4	4	2	4	2	4	2	8	10	6
IBH 26755	Sceloporus Zacatecas	27	39	40	34	4	8	2	3	3	3	4	2	4	2	2	2	8	10	6
IBH 26751	Sceloporus Zacatecas	28	36	41	32	5	8		3	3	4	4	2	4	2	3	2	8	10	7
IBH 26732	Sceloporus Zacatecas	30	35	46	34	6	8	2	4	4	3	4	2	4	2	4	2	8	10	6
IBH 26730	Sceloporus Zacatecas	28	37	44	29	7	8	2	3	4	5	3	2	4	2	2	2	9	11	6
IBH 26762	Sceloporus Zacatecas	29	44	41	32	4	8	2	3	4	3	4	2	4	2	3	2	8	10	5
IBH 4935	Sceloporus Zacatecas	28	36	38	36	5	8	2	3	3	2	4	2	4	2	4	2	8	10	6
IBH 4936	Sceloporus Zacatecas	27	37	36	31	4	8	2	3	5	2	4	2	4	2	4	2	7	9	6

Supplementary file 5. Potential distribution models of taxa in the *S. torquatus* complex.



Supplementary file 6. Geographic distribution, morphometrics, and scalation of the *S. torquatus* complex. AGS: Aguascalientes, CDMX: Ciudad de México, COAH: Coahuila, DGO: Durango, GTO: Guanajuato, GRO: Guerrero, HGO: Hidalgo, JAL: Jalisco, MEX: Estado de México, MICH: Michoacán, MOR: Morelos, NAY: Nayarit, NL: Nuevo León, PUE: Puebla, QRO: Querétaro, SLP: San Luis Potosí, TAMPS: Tamaulipas, TLAX: Tlaxcala, ZAC: Zacatecas, PS: pineal eye-snout length, HW: head width, TS: tympanum-snout length, SS: snout-shoulder length, HU: humeral length, RA: radius length, FE: femoral length, TI: tibial length, 4T: fourth toe length, SVL snout-vent length. Statistics are shown as follows: sample size (interval) mean ± standard deviation. All measurements given in millimeters.

Taxa	*S. t. torquatus*	*S. t. melanogaster*
Distribution	CDMX, HGO, GRO, MEX, MICH, MOR, PUE, TLAX.	AGS, COAH, DGO, GTO, HGO, JAL, MEX, MICH, QRO, SLP, ZAC.
Elevation	1309-3533 masl.	1129-2745 masl.
PS	249 (12-19.7) 15.2 ± 1.4	226 (11.5-21.1) 15.8 ± 1.8
HW	249 (13.4-23.6) 18.1 ± 2.2	226 (13.3-28) 19 ± 2.9
TS	249 (16.6-28) 21.2 ± 2.1	226 (16.5-35.5) 22.1 ± 2.8
SS	249 (22.7-39.7) 31.1 ± 3.5	226 (23.7-43) 32.3 ± 4.2
HU	249 (15.4-28.2) 21.1 ± 2.4	226 (15-30.9) 22.8 ± 3.4
RA	249 (8.9-17.3) 12.7 ± 1.5	226 (9.4-18.3) 13.4 ± 1.8
FE	249 (17.3-30.3) 23.6 ± 2.6	226 (18-35.5) 25 ± 3.5
TI	249 (12.5-22.2) 17.3 ± 1.8	226 (13-25.1) 18.4 ± 2.4
4T	249 (10-16.7) 13 ± 1.2	226 (10.5-17.3) 13.2 ± 1.4
SVL	249 (70.3-111.3) 87.3 ± 9.4	226 (71.1-130.8) 92.4 ± 12.6
Dorsals	278 (26-35) 29 ± 1	230 (26-35) 29 ± 2
Transversals	276 (33-49) 40 ± 3	232 (31-46) 38 ± 3
Ventrals	270 (37-54) 44 ± 3	230 (34-49) 42 ± 3
Femoral pores	265 (23-44) 35 ± 4	224 (26-45) 35 ± 3
Scale between femoral pores	275 (3-12) 6 ± 2	235 (2-16) 5 ± 1
Supraoculars	275 (8-12) 8 ± 1	229 (8-11) 8 ± 1
Frontals	275 (1-5) 2 ± 0	228 (1-4) 2 ± 0
Frontonasals	278 (3-6) 3 ± 0	230 (3-6) 3 ± 1
Intercanthals	278 (2-8) 4 ± 1	232 (2-7) 4 ± 1
Internasals	277 (2-6) 3 ± 1	233 (2-7) 4 ± 1
Postrostrals	277 (2-6) 4 ± 1	230 (2-5) 4 ± 1
Preoculars	271 (2-4) 3 ± 1	232 (2-5) 3 ± 1
Postoculars	273 (2-6) 4 ± 1	230 (2-6) 4 ± 1
Suboculars	273 (2-4) 2 ± 0	235 (2-4) 2 ± 0
Canthals	276 (2-4) 3 ± 1	231 (2-4) 3 ± 1
Loreals	273 (2-5) 2 ± 1	235 (2-5) 2 ± 1

Supralabials	269 (7-10) 8 ± 0	231 (7-10) 8 ± 0
Infralabials	275 (8-14) 10 ± 1	233 (8-13) 10 ± 1
Auricular lobules	277 (2-10) 5 ± 1	231 (3-8) 5 ± 1
Taxa	*S. t. binocularis*	*S. t. mikeprestoni*
Distribution	COAH, NL.	NL, TAMPS.
Elevation	720-2213 masl.	2418-3072 masl.
PS	5 (13.5-20.3) 17.5 ± 3.4	12 (13.9-17.6) 15.5 ± 1.3
HW	5 (16.9-27.3) 22.2 ± 4.9	12 (16.9-20.9) 18.8 ± 1.6
TS	5 (19.7-29.5) 25.3 ± 4.7	12 (19.3-26.2) 22.3 ± 2.2
SS	5 (27.8-39.4) 32.4 ± 4.9	12 (22.7-31.6) 28.3 ± 2.7
HU	5 (18.6-31.4) 25.9 ± 6.1	12 (19.3-25.7) 22.1 ± 2.1
RA	5 (9.8-18.4) 14.6 ± 3.8	12 (9.9-14.8) 12.3 ±1.6
FE	5 (20.8-35.7) 28.4 ± 6.8	12 (19.7-27.7) 22.8 ± 2.2
TI	5 (14.4-24.7) 19.2 ± 3.7	12 (15.7-20.7) 17.9 ± 1.8
4T	5 (13.5-19.5) 16.8 ± 2.9	12 (10.8-15.5) 13.3 ± 1.4
SVL	5 (74.6-119.8) 101.2 ± 22.1	12 (74.4-101.9) 86.9 ± 8.7
Dorsals	13 (23-30) 27 ± 2	21 (25-30) 28 ± 1
Transversals	13 (29-36) 32 ± 2	21 (31-43) 35 ± 3
Ventrals	13 (34-39) 36 ± 2	21 (38-44) 41 ± 2
Femoral pores	11 (26-32) 27 ± 2	19 (25-32) 28 ± 2
Scale between femoral pores	10 (4-5) 4 ± 0	19 (4-8) 6 ± 1
Supraoculars	12 (8-9) 8 ± 0	21 (8-10) 8 ± 1
Frontals	13 (1-3) 2 ± 0	21 (2-4) 2 ± 0
Frontonasals	13 (3-6) 3 ± 1	21 (3-4) 3 ± 0
Intercanthals	13 (2-8) 4 ± 2	21 (2-6) 3 ± 1
Internasals	12 (2-5) 3 ± 1	21 (2-4) 3 ± 1
Postrostrals	13 (2-5) 4 ± 1	21 (2-5) 4 ± 1
Preoculars	13 (2-3) 2 ± 0	21 (2-4) 3 ± 1
Postoculars	12 (2-4) 4 ± 1	20 (2-4) 3 ± 1
Suboculars	13 (2) 2 ± 0	21 (2) 2 ± 0
Canthals	12 (2-4) 4 ± 1	20 (2-4) 3 ± 1
Loreals	13 (2) 2 ± 0	21 (2-6) 2 ± 1
Supralabials	13 (8) 8 ± 0	20 (7-9) 8 ± 0
Infralabials	13 (8-12) 10 ± 1	18 (8-12) 10 ± 1
Auricular lobules	13 (6-7) 6 ± 0	20 (4-8) 6 ± 1
Taxa	*S. t. madrensis* El Cielo	*S. t. madrensis* Huasteca
Distribution	TAMPS.	HGO, QRO, SLP.
Elevation	1630-1975 masl.	1198-2900 masl.
PS	21 (12.8-17.6) 14.5 ± 1.1	28 (13-18.2) 15.3 ± 1.5
HW	21 (15-22) 17.5 ± 1.9	28 (14-21.4) 18.2 ± 2.1
TS	21 (17-6-25.5) 20.6 ± 1.8	28 (17-26.9) 21.7 ± 2.6

SS	21 (23.7-33.3) 27.9 ± 2.7	28 (26.1-40.8) 31.2 ± 4
HU	21 (17.9-27.2) 21.1 ± 2.3	28 (17.4-28.2) 21.8 ± 2.9
RA	21 (12.1-16.6) 13.5 ± 1.1	28 (11.4-17.2) 13.5 ± 1.4
FE	21 (19.7-29.6) 23.5 ± 2.2	28 (18.7-29.2) 23.6 ± 3.2
TI	21 (15.7-21.7) 17.7± 1.5	28 (15.3-23.9) 18.3 ± 2.3
4T	21 (11.5-17.3) 13.8 ± 1.4	28(11.1-17.2) 14.3 ± 1.4
SVL	21 (70.3-102.7) 83.7 ± 8.3	28 (70.4-108.6) 87.8 ± 9.8
Dorsals	27 (26-31) 29 ± 1	31 (25-29) 27 ± 1
Transversals	27 (34-41) 36 ± 2	31 (30-36) 32 ± 2
Ventrals	27 (41-48) 45 ± 2	28 (32-42) 37 ± 3
Femoral pores	26 (27-34) 30 ± 2	29 (26-35) 30 ± 2
Scale between femoral pores	27 (5-8) 6 ± 1	29 (4-7) 5 ± 1
Supraoculars	26 (8-11) 9 ± 1	31 (8-10) 8 ± 1
Frontals	27 (2-3) 2 ± 0	31 (2-3) 2 ± 0
Frontonasals	27 (3-6) 3 ± 1	31 (3) 3 ± 0
Intercanthals	27 (2-7) 5 ± 1	31 (2-6) 4 ± 1
Internasals	27 (2-5) 3 ± 1	29 (2-7) 3 ± 2
Postrostrals	27 (2-5) 4 ± 1	30 (3-4) 4 ± 0
Preoculars	27 (2-4) 2 ± 1	31 (2-4) 2 ± 1
Postoculars	26 (2-4) 4 ± 1	30 (3-4) 4 ± 0
Suboculars	26 (2) 2 ± 0	31 (2) 2 ± 0
Canthals	27 (2-4) 4 ± 1	31 (2-4) 3 ± 1
Loreals	27 (2-4) 2 ± 1	31 (2) 2 ± 0
Supralabials	24 (7-10) 8 ± 1	29 (7-9) 8 ± 0
Infralabials	26 (8-12) 10 ± 1	31 (7-12) 10 ± 1
Auricular lobules	27 (5-10) 7 ± 1	31 (4-10) 6 ± 1
Taxa	*Sceloporus* sp.	*Sceloporus* sp. Zacatecas
Distribution	JAL, NAY, ZAC.	ZAC.
Elevation	1736-2260 masl.	2093-2488 masl.
PS	10 (13.2-18.1) 15.2 ± 1.4	25 (12.2-17.8) 14 ± 1.3
HW	10 (14-22.2) 17.1 ± 2.7	25 (15.1-23.5) 17.6 ± 2
TS	10 (23.1-33.9) 20.6 ± 2.6	25 (16.9-24.5)19.6 ± 1.9
SS	10 (23.1-33.9) 27.2 ± 3.2	25 (24.1-35.8) 27.8 ± 2.5
HU	10 (18-27.2) 21.6 ± 3.5	25 (17-25.7) 20.3 ± 2.3
RA	10 (9.5-14.7) 11.7 ± 1.7	25 (9.1-16.7) 11.3 ± 1.6
FE	10 (19.1-28.7) 22.7 ± 3.2	25 (18.4-30) 22.5 ± 2.7
TI	10 (13.8-19.5) 15.9 ± 2	25 (12.6-19.1) 15.2 ± 1.5
4T	10 (11.1-15.2) 13.1 ± 1.3	25 (9.9-13.4) 11.3 ± 0.9
SVL	10 (72.6-104.8) 85.7 ± 13.1	25 (74.4-106.1) 84.1 ± 8.5
Dorsals	14 (28-30) 29 ± 1	17 (27-31) 28 ± 1
Transversals	15 (37-43) 39 ± 1	16 (35-44) 37 ± 2

Ventrals	15 (40-46) 43 ± 2	17 (36-47) 41 ± 3
Femoral pores	15 (29-42) 34 ± 3	17 (26-36) 32 ± 2
Scale between femoral pores	15 (4-7) 6 ± 1	17 (8-9) 8 ± 0
Supraoculars	14 (8-9) 8 ± 0	17 (8-9) 8 ± 0
Frontals	14 (2-3) 2 ± 0	16 (2-3) 2 ± 0
Frontonasals	15 (3-5) 3 ± 0	17 (3-5) 3 ± 0
Intercanthals	14 (2-4) 3 ± 1	17 (2-6) 4 ± 1
Internasals	15 (2-5) 3 ± 1	16 (2-5) 3.5 ± 1
Postrostrals	15 (3-4) 4 ± 0	17 (2-5) 4 ± 1
Preoculars	12 (2-4) 4 ± 0	17 (2-4) 2 ± 0
Postoculars	11 (2-4) 4 ± 1	17 (4-4) 4 ± 0
Suboculars	12 (2-4) 4 ± 1	17 (2-2) 2 ± 0
Canthals	13 (2-4) 3 ± 1	17 (2-4) 3 ± 1
Loreals	12 (2) 2 ± 0	17 (2) 2 ± 0
Supralabials	13 (8) 8 ± 0	16 (7-9) 8 ± 0
Infralabials	14 (8-12) 10 ± 1	17 (8-11) 10 ± 1
Auricular lobules	14 (4-6) 6 ± 1	17 (5-9) 6 ± 1

Supplementary file 7. PCA statistics. PS: pineal eye-snout length, HW: head width, TS: tympanum-snout length, SS: snout-shoulder length, HU: humeral length, RA: radius length, FE: femoral length, TI: tibial length, 4T: fourth toe length, SVL snout-vent length.

Variable	*S. t. torquatus* versus *S. t. melanogaster*			*S. t. binocularis* versus *S. t. mikeprestoni*			*S. t. mikeprestoni* versus *S. t. madrensis* El Cielo			*S. t. madrensis* El Cielo versus *S. t. madrensis* Huasteca			*Sceloporus* sp. versus *Sceloporus* sp. Zacatecas		
	PC 1	PC 2	PC 3	PC 1	PC 2	PC 3	PC 1	PC 2	PC 3	PC 1	PC 2	PC 3	PC 1	PC 2	PC 3
PS	4.00E-10	0.27	0.206	-6.00E-10	-0.05	0.287	-2.00E-09	-0.009	0.409	2.00E-08	0.278	0.046	0.323	-6.00E-12	-0.057
HW	-5.00E-10	0.269	0.594	-5.00E-10	0.04	0.475	-2.00E-09	-0.063	0.668	4.00E-08	0.476	0.294	0.137	-1.00E-10	0.372
TS	-5.00E-10	0.262	0.156	-8.00E-10	-0.113	0.232	-1.00E-09	-0.031	0.413	4.00E-08	0.394	0.119	0.279	1.00E-09	0.005
SS	5.00E-10	0.26	0.215	-1.00E-09	0.677	-0.165	5.00E-10	0.053	0.027	3.00E-08	0.375	0.108	0.181	-2.00E-09	0.328
HU	-7.00E-11	0.284	0.097	-2.00E-09	-0.011	0.048	-2.00E-09	-0.006	0.087	6.00E-09	0.052	0.238	0.362	1.00E-09	-0.01
RA	-2.00E-10	0.465	-0.653	-3.00E-09	-0.45	0.2	-2.00E-08	0.732	-0.18	3.00E-08	0.308	0.238	0.537	-5.00E-10	0.263
FE	4.00E-10	0.263	0.088	-1.00E-09	-0.109	0.54	-9.00E-09	0.352	-0.095	1.00E-08	0.196	0.007	0.218	-1.00E-09	0.199
TI	-2.00E-10	0.466	-0.253	2.00E-09	0.026	-0.114	-7.00E-09	0.198	0.252	3.00E-08	0.312	0.095	0.333	6.00E-11	0.191
4T	-6.00E-10	0.367	0.163	8.00E-10	0.556	0.514	-1.00E-08	0.542	0.32	4.00E-08	0.408	-9.00E-01	0.434	2.00E-09	-0.778
SVL	1	3.00E-10	6.00E-11	1	-1.00E-09	1.00E-09	1	2.00E-08	4.00E-09	1	-9.00E-08	2.00E-09	-7.00E-10	1	3.00E-09
Eigenvalue	0.003	0.002	0.001	0.005	0.002	0.001	0.002	0.002	0.001	0.002	0.002	0.001	0.003	0.002	0.001
% Variance	29.4	24.8	9.7	46.2	17.6	12.7	25.3	23.9	18.7	27.5	27.3	11.5	32.7	27.5	17.2

Discusión general y conclusiones

Datos genéticos de *S. t. mikeprestoni* y *S. t. madrensis* fueron obtenidos por primera vez en este estudio, así como el muestreo más extenso a través de la distribución geográfica de *S. torquatus*, para realizar la filogenia molecular más completa de este emblemático grupo de lagartijas.

El complejo de especies *torquatus* es un grupo monofilético compuesto de ocho clados, cinco de los cuales representan las subespecies previamente reconocidas, mientras que los tres restantes representan especies no descritas (Figura 2).

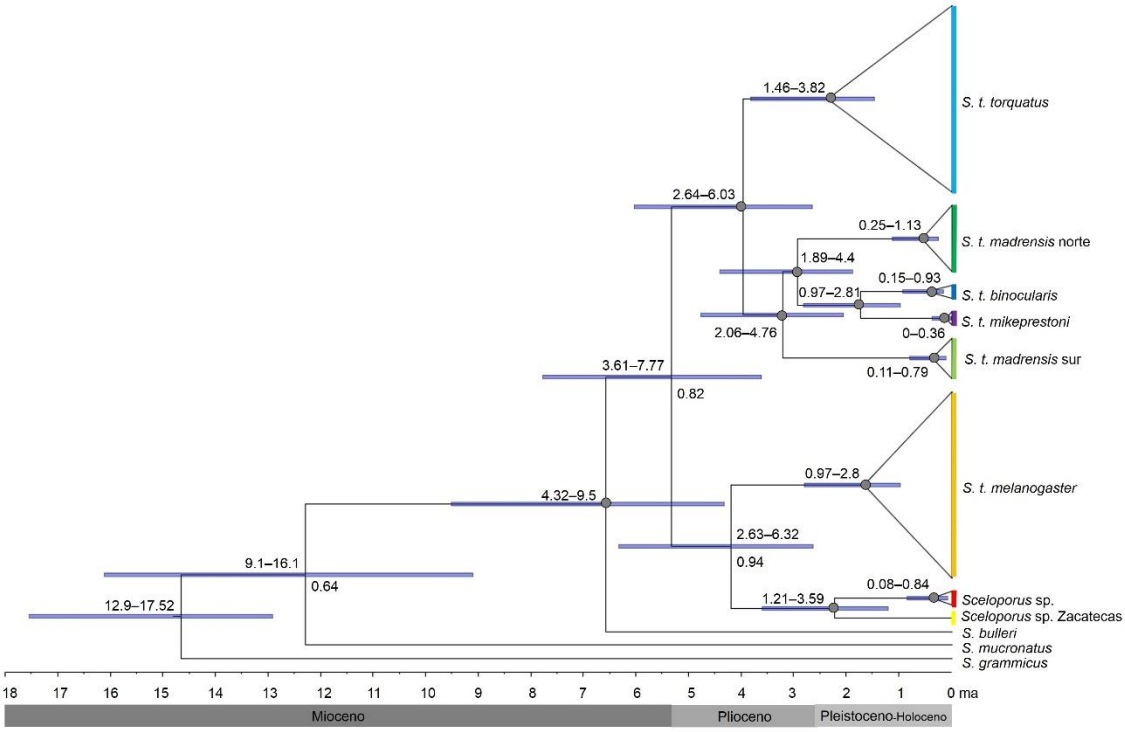


Figura 2. Relaciones filogenéticas y tiempos de divergencia del complejo *torquatus*.

En conjunto *S. t. madrensis* norte, *S. t. madrensis* sur, *S. t. binocularis* y *S. t. mikeprestoni*, forman un clado cuya distribución geográfica casi se restringe a los bosques templados de la Sierra Madre Oriental, en los estados de Nuevo León, Tamaulipas, San Luis Potosí, Querétaro e Hidalgo.

Se encontraron evidencias genéticas, morfológicas y ecológicas para reconocer que las poblaciones sureñas de *S. t. madrensis* sur representan una especie distinta, que previamente fue confundida con *S. t. torquatus, S. t. melanogaster* y *S. t. madrensis* (Smith 1938, 1939; Olson 1991).

Se confirma la existencia de una especie críptica endémica de Nayarit y Jalisco (*Sceloporus* sp.), de acuerdo con Martínez-Méndez y Méndez-De la Cruz (2007) y Martínez-Méndez et al. (2019). Adicionalmente, se identificó la existencia de otra especie críptica que está representada por las poblaciones del sureste de Zacatecas (*Sceloporus* sp. Zacatecas). *Sceloporus* sp. y *Sceloporus* sp. Zacatecas

forman un clado que está más relacionado con *S. t melanogaster*, dadas las menores distancias genéticas entre ellos (Cuadro 1), así como su distribución parapátrica (Figura 1).

Cuadro1. Distancias genéticas dentro del complejo *torquatus*.

S. bulleri								
S. t. torquatus	0.074							
S. t. melanogaster	0.069	0.054						
S. t. binocularis	0.083	0.045	0.058					
S. t. mikeprestoni	0.084	0.041	0.059	0.025				
S. t. madrensis norte	0.082	0.051	0.055	0.046	0.043			
S. t. madrensis sur	0.085	0.042	0.059	0.041	0.039	0.045		
Sceloporus sp.	0.072	0.057	0.044	0.062	0.062	0.064	0.066	
Sceloporus sp. Zacatecas	0.071	0.062	0.059	0.067	0.063	0.063	0.062	0.032

Muestreos adicionales dirigidos hacia el norte y occidente del país, podrían ayudar a resolver las relaciones filogenéticas al interior del linaje de *S. t. melanogaster*, así como para definir la posición de *Sceloporus* sp. y *Sceloporus* sp. Zacatecas dentro del complejo *torquatus*.

Durante el Neogeno, la formación de los principales sistemas montañosos de México, propició la vicarianza y diversificación de otras especies de reptiles (Bryson et al. 2011, 2012; Morafka 1977). El primer evento de divergencia del complejo *torquatus*, hace ~5.51 ma, coincide con ese periodo. Posteriormente, los cambios climáticos durante el Pleistoceno condujeron la diversificación de númerosos taxones (Bryson et al. 2011, 2012; Leaché et al. 2013; Díaz-Cárdenas et al. 2019), incluyendo a *S. t. binocularis* y *S. t. mikeprestoni,* que son los linajes más recientemente divergentes (~1.8 ma) del complejo *torquatus* (Figura 2). De acuerdo con los Modelados de Nicho Ecológico, las áreas dónde el clima ha sido favorable históricamente han estado asociadas a las principales regiones montañosas de México.

En otras especies del grupo *torquatus* se ha sugerido que la convergencia morfológica entre especies emparentadas, está relacionada con la similitud de sus ambientes (Martínez-Méndez et al. 2012). En el caso de *S. t. torquatus* y *S. t. melanogaster*, se observó conservadurismo morfológico, a pesar de su amplia distribución geográfica y de la heterogeneidad de ambientes dónde habita.

Se propone una serie de cambios taxonómicos para reflejar las relaciones filogenéticas del complejo torquatus: Reasignar a *S. t. melanogaster* (= *S. melanogaster*) y *S. t. binocularis* (= *S. binocularis*) al nivel específico. Usar las nuevas combinaciones: *S. mikeprestoni* comb. nov. y *S. madrensis* comb. nov. Dichos cambios taxonómicos permitirán que *S. torquatus* permanezca como una especie monotípica.

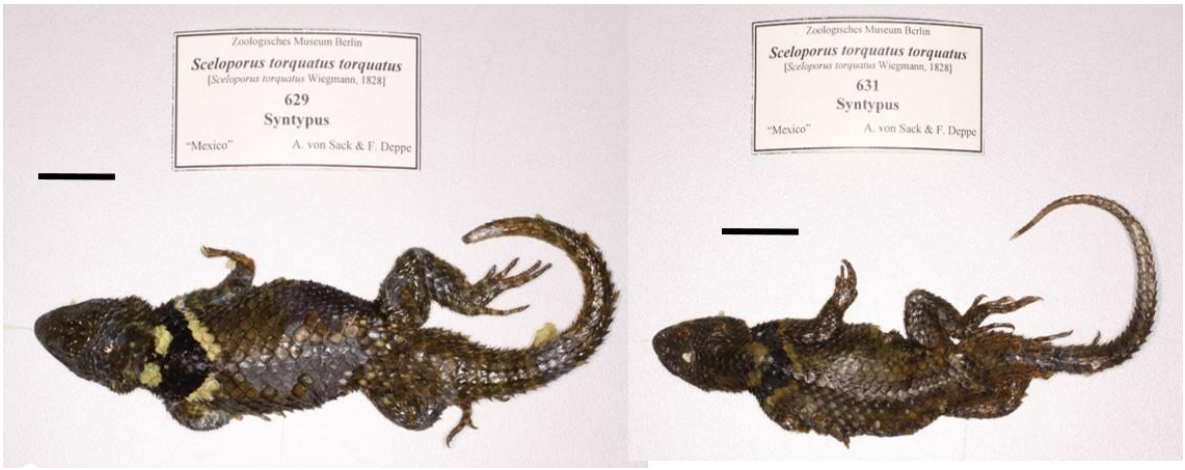


Figura 3. Lectotipo y paralectotipo de *Sceloporus torquatus* Wiegmann.

A partir de la serie de sintipos, se designaron el lectotipo (ZMB 629) y paralectotipo (ZMB 631) de *Sceloporus torquatus* Wiegmann, 1828 (Figura 3) para garantizar la estabilidad en la aplicación del nombre de la especie, de acuerdo con el código internacional de nomenclatura zoológica (ICZN Arts. 70.3, 72.4.1.1, 74.1).

Principalmente el mtDNA dirige los patrones filogeográficos encontrados en el complejo *torquatus*. Existen limitaciones al usar mayormente o únicamente datos de mtDNA para delimitar especies (Leaché y Mulcahy 2007; Leaché 2010), pero esta es una práctica común en el estudio de complejos de complejos de especies de *Sceloporus* (Wiens y Penkrot 2002; Martínez-Méndez et al. 2012; Bryson et al. 2012; Díaz-Cárdenas et al. 2017).

Muestreos en las zonas de contacto entre las especies del complejo *torquatus* pueden servir para determinar si ahí ocurre intercambio genético. Además, futuros estudios con un mayor número de datos genéticos, podrían corroborar los patrones filogeográficos encontrados en el complejo *torquatus*.

Con el conjunto de evidencias, se puede concluir que *S. torquatus* representa un problema taxonómico con varias facetas, ya que más de una especie fueron identificadas en la serie tipo de *S. torquatus* y *S. t. mikeprestoni*; por otro lado, una diversidad mayor a la previamente conocida, está enmascarada por especies crípticas de reciente divergencia.

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