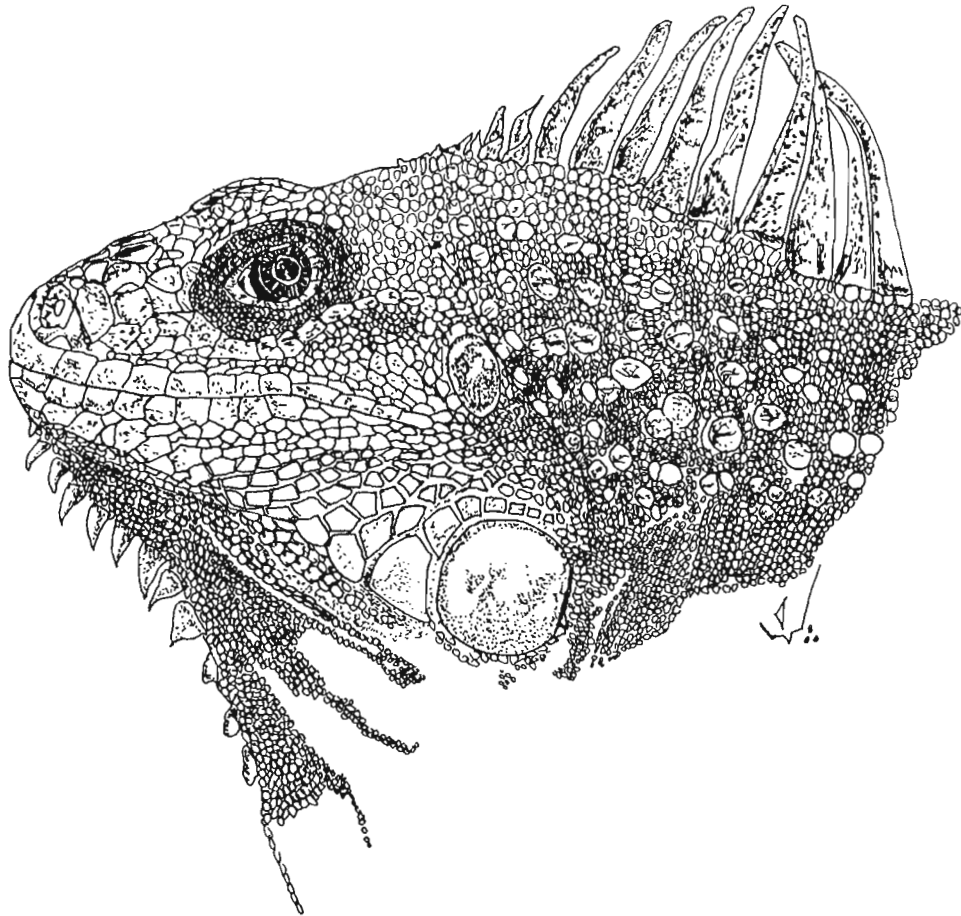


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**CHECKLIST AND KEY TO THE EXTANT SPECIES  
OF MEXICAN IGUANAS (REPTILIA: IGUANINAE)**

Universidad Nacional Autónoma de México  
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**CHECKLIST AND KEY TO THE EXTANT SPECIES  
OF MEXICAN IGUANAS (REPTILIA: IGUANINAE)**

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## RESUMEN

En México ocurren 17 especies del clado de los Iguaninae, de las cuales 12 son endémicas (\*): *Ctenosaura acanthura*\*, *C. clarki*\*, *C. defensor*\*, *C. hemilopha*\*, *C. pectinata*\*, *C. quinquecarinata*, *C. similis*, *Dipsosaurus dorsalis*, *Iguana iguana*, *Sauromalus ater*\*, *S. australis*\*, *S. hispidus*\*, *S. klauberi*\*, *S. obesus*, *S. shawi*\*, y *S. varius*\*. En este trabajo, se presenta una clave dicotómica para la determinación de estas especies, seguida de una lista anotada en orden alfabético. En la lista anotada se incluye la siguiente información para cada especie: lista de sinonimias (que incluye números de museo, nombre de los recolectores y localidad de recolecta de los especímenes tipo), descripción de coloración, distribución geográfica, notas aclaratorias sobre problemas de nomenclatura, información sobre los tipos y registros de distribución.

*Palabras claves: Iguaninae, México, Checklist, Distribución, Nomenclatura.*

## ABSTRACT

Seventeen currently recognized species of the clade Iguaninae occur in México, twelve of which are endemic (\*): *Ctenosaura acanthura*\*, *C. clarki*\*, *C. defensor*\*, *C. hemilopha*\*, *C. pectinata*\*, *C. quinquecarinata*, *C. similis*, *Dipsosaurus dorsalis*, *Iguana iguana*, *Sauromalus ater*\*, *S. australis*\*, *S. hispidus*\*, *S. klauberi*\*, *S. obesus*, *S. shawi*\*, and *S. varius*\*. A dichotomous key is presented for the identification of organism forming these species, a reference list of synonyms (with museum numbers, names of collectors, and collection localities for the type specimens), descriptions of coloration and geographic distribution, and remarks clarifying issues concerning nomenclature, information about types, and distributional records.

*Key Words: Iguaninae, Mexico, Checklist, Distribution, Nomenclature.*

## INTRODUCTION

The key in this paper was originally prepared as part of a comprehensive set of keys to the species of Mexican amphibians and reptiles (Flores-Villela, in prep). Although I was given complete freedom regarding format and information content, much of the information that I presented in the original manuscript could not be published in the comprehensive set of keys because of space limitations. Nevertheless, Oscar Flores-Villela thought that it would be useful to publish the complete version, and he has provided a means of doing so. The inclusion of synonymies was suggested by Darrel Frost and makes the present paper very much an update of the corresponding part of the comprehensive checklists and keys of the Mexican amphibians and reptiles published by Smith and Taylor (1945, 1948, 1950).

The most effective use of the key in the present paper requires an understanding of some of the decisions that went into its construction. Some important points are as follows: 1) The key is artificial; its arrangement reflects a convenient sequence for identification rather than closeness of phylogenetic relationship, which is to say that groups of species united under a single number in the key may or may not correspond with monophyletic groups of species. Nevertheless, in the case of three supraspecific taxa that are represented by more than one Mexican species (*Ctenosaura*, *Enyaliosaurus*, and *Sauromalus*), the key has been arranged so that the appropriate species are united under a single number. Although all three of these taxa have been assigned, at one time or another, to the genus category in the Linnean System, *Enyaliosaurus* appears to be a subgroup of *Ctenosaura* rather than a separate taxon (de Queiroz 1987a, b). 2) The key is designed for use in México, which is to say that it may not result in correct identifications if used in nearby areas (e.g., Central America and the West Indies) where other species of iguanas occur. This situation results less from geographic variation within the species that occur in both Mexico and nearby areas than from the existence of extralimital species with similar combinations of characters. 3) I have tried to use multiple characters for each couplet wherever possible. Consequently, separation of some taxa by few characters or ones that are less than ideal (e.g., see number 4) reflects current knowledge, which is to say that additional or better characters, if they exist, are currently unknown. Nevertheless, I did not include all relevant characters for cases in which using additional characters offered little in terms of increased effectiveness. 4) Some characters apply to one sex only, or to certain developmental stages only, or they exhibit variation within populations unrelated to sex or developmental stage. Although characters of this kind are less useful for identification than those that are invariant within

species, for cases in which only a few characters are known to distinguish between species, such information can be indispensable. 5) The key stops at the level of currently recognized species; references for the identification of subspecies are included in the checklist.

Following the key itself, I have provided an alphabetical checklist of the species of Mexican iguanas. The individual entries in the checklist include the current binomial, a list of synonyms, and sections titled COLORATION, DISTRIBUTION, and REMARKS.

The lists of synonyms do not chronicle the entire nomenclatural history for each currently recognized species. Instead, they provide lists of the different binomials formerly applied to those species (not including lapses), in chronological order. The lists are intended to facilitate access to the literature as well as the identification of available names for future taxonomic revisions. Consequently, they include references for the first uses of new specific epithets and new combinations as applied to the species in question, but not for subsequent uses of the same names. They also include information on type specimens, their collectors, and type localities. The synonyms are names that have been used to designate each species as a whole; thus, they include names applied to populations outside of México. New names are distinguished from new combinations by separation of the binomial and the author's name with a hyphen in new combinations. The designation "part" is used when the species as currently recognized comprises only part of a nominal species designated by a name other than the one in current use, but not when the species as currently recognized comprises only part of a nominal species designated by the name in current use. I have included references for the synonymy of every junior synonym of the currently recognized specific epithet under its original binomial combination so that all names should be traceable, either directly or indirectly, to the currently recognized name. If no statement about the synonymy of a specific epithet (other than the valid one) is given under any of its combinations, the name is either the valid name of a different species or a synonym of such a name. The names of institutions housing type specimens have been converted to the standard abbreviations recommended by Leviton et al. (1985). Information concerning collectors and type localities is quoted from the original description, unless otherwise indicated by brackets or references, though only the descriptions of the type locality are presented in quotation marks. I have not recognized reference to a specimen as "the type" or "holotype" as constituting designation of a lectotype unless either it is accompanied by an explicit statement indicating that an inference was made about the intent of the original author, or there is evidence that the existence or location of other syntypes was unknown at the time. Restrictions of type localities

are considered inappropriate if they were not based on an inference about the place of collection of the type specimen; restrictions of type localities are said to be without justification if insufficient information is provided to determine whether they were based on an inference about the place of collection of the type specimen.

The section titled COLORATION consists of a description of organismal coloration, and that titled DISTRIBUTION consists of a description of the geographic distribution. These descriptions are taken almost entirely from the literature (references are included) and are intended to serve as a means of corroborating identifications based on the key. Distributions are described in greater detail for México than for other parts of the range, and the distribution of each subspecies is described separately.

The section titled REMARKS includes discussions of various problems involving synonyms, type specimens, collectors, type localities, and distributions. I was able to solve some of these problems but not others. The REMARKS section also includes the name or names used by Smith and Taylor (1950) for the Mexican populations of each species as well as references for the identification of the subspecies of polytypic species.

The taxonomy adopted in both the checklist and key does not follow that of any single author. Instead, it is based on the most recent taxonomic revisions of various subtaxa of iguanas along with a consideration of subsequently proposed taxonomic changes. For the most part, I did not adopt unsubstantiated taxonomic changes of recent authors, holding them to higher standards than their predecessors.

## DICHOTOMOUS KEY

- 1a. Rostral scale frequently subdivided so that no median scale is evident, or if median scale present, subequal to surrounding scales; superciliary scales quadrangular and nonoverlapping; 2-5 anterior auricular scales greatly enlarged, projecting posteriorly more than 1/2 distance across tympanic recess; no discernable longitudinal row of mid-dorsal scales; body strongly depressed; tail short (tail length/snout vent length  $\leq$  1.25), never with whorls of large, spinous scales; pedal subdigital scales weakly keeled

- and roughly symmetrical about longitudinal axis of digits (i.e., anterior and posterior keels subequal) . . . . . *Sauromalus* 4
- 1b. An unpaired, median rostral scale several times larger than surrounding scales; superciliary scales elongated and overlapping to various degrees; anterior auricular scales not or only slightly enlarged and not projecting posteriorly more than 1/3 distance across tympanic recess; a longitudinal row of mid-dorsal scales (scales may be enlarged and differentiated from adjacent scales to various degrees and row may be interrupted in the lumbosacral region); body slightly depressed to laterally compressed; tail long (TL/SVL  $\geq 1.25$ ), or if short (TL/SVL  $\leq 1.25$ ), with whorls of enlarged spinous scales; pedal subdigital scales (especially those of digits II-IV) strongly keeled and asymmetrical (i.e., anterior keels distinctly larger than posterior ones) . . . . . 2
- 2a. Cephalic scales of dorsal midline and snout few and large, 2-4 scales between posterior canthals, strongly differentiated from supraoculars; subocular scales subequal in size or largest less than 2 times longer than next largest; nonextensible gular fan (dewlap) with row of large, pointed, compressed scales forming crest along anterior margin; maxillary and dentary teeth serrated, with numerous (at least some teeth with  $\geq 10$ ) small cusps; one row of labiomenal scales distinctly larger than postmentals; a large (diameter  $\geq 80\%$  tympanic diameter), subcircular scale at posterior end of lower jaw ventral to tympanum; nape with enlarged, tubercular scales surrounded by smaller scales . . . . .  
. . . . . *Iguana iguana*
- 2b. Cephalic scales of dorsal midline and snout numerous and small, 6-9 scales between posterior canthals, weakly differentiated from supraoculars; largest subocular scale 2-3 times longer than next largest; gular fan and crest absent; maxillary and dentary teeth tricuspid to polycusate, but with fewer than 8 cusps per tooth; labiomenal scales subequal to or smaller than postmentals; scales at posterior end of lower jaw ventral to tympanum subequal in size and all much smaller than tympanum (largest  $< 20\%$  tympanic diameter); nape scales subequal in size, enlarged, tubercular scales absent . . . . . 3
- 3a. Head moderately to strongly elongate (distance from snout to anterior edge of tympanum/maximum head width  $\geq 1.20$  in adults), superciliaries only moderately elongate and overlapping; tail with whorls of large, spinous scales, at least anteriorly;



- 4-13 femoral pores (one thigh); species from 155 mm to 489 mm maximum SVL (de Queiroz 1987b) . . . . . *Ctenosaura* 11
- 3b. Head short (snout-anterior edge of tympanum/maximum head width < 1.20 in adults), superciliaries greatly elongate and strongly overlapping; tail without large, spinous scales; 16-26 femoral pores (one thigh); 145 mm maximum SVL (Mayhew 1971) . . . . . *Dipsosaurus dorsalis*

#### 4. *Sauromalus*<sup>2</sup>

- 4a. Dorsal body scales relatively small, largest nuchals smaller than scales in frontal region, usually more than 20 dorsal scales in the length of the head (measured halfway between fore and hind limbs on mid-dorsal line; range 20-42); scales on dorsal surface of limbs and tail weakly to moderately keeled; except for *S. varius*, maximum SVL  $\leq$  223 mm (Van Denburgh 1922; Shaw 1945; Case 1982) . . . . . 5
- 4b. Dorsal body scales relatively large, largest nuchals equal to or larger than scales in frontal region, usually less than 20 dorsal scales in the length of the head (measured halfway between fore and hind limbs on mid-dorsal line; mean 18, range 16-21); scales on dorsal surface of limbs and tail spinous and strongly carinate; large animals, 304 mm maximum SVL (Case 1982) . . . . . *Sauromalus hispidus*
- 5a. Dorsal color pattern variable, often consisting of 2 to 5 dark-brown or black transverse bands on a lighter background, but may be grey with fine spots of dark brown or black, red flecked with yellow and black spots, or more or less uniform black; moderate-sized animals, maximum SVL 223 mm (Case 1982) . . . . . 6
- 5b. Dorsal color pattern consisting of large, irregular, dark-brown or black blotches on a yellowish or orange-brown background; large animals, maximum SVL = 324 mm (Case 1982) . . . . . *Sauromalus varius*

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<sup>2</sup>Subsequent to the revision of *Sauromalus* by Shaw (1945) and the description of *S. shawi* by Cliff (1958), several taxonomic changes have been proposed for the southern insular taxa *ater*, *klauberi*, *shawi*, and *slevini*, and those inhabiting the peninsular mainland of Baja California, *australis* and *obesus*--all of which were recognized as separate species by Shaw and Cliff (Soulé and Sloan 1966; Robinson 1972, 1974; Seib 1980; Case 1982; Etheridge 1982; Murphy 1982, 1983a, b; Murphy and Ottley 1984; Stebbins 1985). Although some of these changes may be warranted, they have not been adopted here because no evidence has been presented to support them.

- 6a. Ventral scale rows between gular fold and vent 125 or more (mean for each species  $\geq$  130, range 125-220) (Shaw 1945; Cliff 1958) . . . . . 7
- 6b. Ventral scale rows between gular fold and vent fewer than 125 (mean 116, range 107-123) (Shaw 1945) . . . . . *Sauromalus slevini*
  
- 7a. Transverse body bands, if present, with light centers and dark-brown or black borders giving a double-banded effect; if absent, dorsal pattern of small, dark-brown or black spots on a gray background . . . . . 8
- 7b. Transverse body bands, if present, more or less uniform; if absent, dorsal color pattern highly variable but not as above (some possibilities are yellow spotted with brown, yellowish-gray spotted with black and red, and more or less uniform black) . . . . .  
 . . . . . *Sauromalus obesus*
  
- 8a. Ventral scale rows between gular fold and vent usually fewer than 151 (mean for each species  $\leq$  140, range 125-151) (Shaw 1945; Cliff 1958) . . . . . 9
- 8b. Ventral scale rows between gular fold and vent 151 or more (mean 164, range 151-186) (Shaw 1945) . . . . . *Sauromalus australis*
  
- 9a. Dorsal color pattern of body consisting of small dark brown or black spots on a grey background . . . . . *Sauromalus klauberi*
- 9b. Dorsal color pattern consisting of 4-5 dark brown or black transverse bands with lighter centers on a yellowish-brown or grayish-brown background with brown or black spots.  
 . . . . . 10
  
- 10a. Isla San Marcos . . . . . *Sauromalus shawi*<sup>3</sup>
- 10b. Islas Danzante, Santa Cruz, San Diego, San José, San Francisco, Partida Sur, or Espíritu Santo . . . . . *Sauromalus ater*

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<sup>3</sup>The presence of "large, acutely pointed scales in the lateral neck fold, almost equal in size to the largest scales on the top of the head, and [an] especially pronounced lateral neck fold" were used by Cliff (1958:259) to distinguish *S. shawi* from *S. ater* in his diagnosis. Neither of these characters appears to be diagnostic (Shaw 1945; personal observation).

11. *Ctenosaura*

- 11a. Usually four postmental scales in contact with mental; scales on dorsal surface of hindlimb weakly differentiated, smooth or keeled but not spinous, subequal in size; at least some of proximal (first ten) whorls of large, spinous caudal scales separated dorsally by two or more rows of intercalary scales; relatively large body size (large adults > 200 mm SVL) . . . . . 12
- 11b. Usually two postmental scales in contact with mental; scales on dorsal surface of hindlimb strongly differentiated with patch of large, strongly keeled or spinous scales on shank or shank and thigh; proximal (first ten) whorls of large, spinous caudal scales separated dorsally by no more than one row of intercalary scales; relatively small body size (maximum SVL < 175 mm) . . . . . *Enyaliosaurus* 15
  
- 12a. Mid-dorsal scale row broadly discontinuous in lumbosacral region (terminates slightly anterior to level of groin or as little as 2/3 the distance from back of head to that level); scales of mid-dorsal row of adult males tall (height > length) and pointed on neck and shoulders only . . . . . *Ctenosaura hemilopha*
- 12b. Mid-dorsal scale row continuous from neck to tail or only narrowly interrupted in sacral region (terminates posterior to level of groin); scales of mid-dorsal row of adult males tall (height > length) and pointed on neck, shoulders, and most of back . . . . . 13
  
- 13a. Parietal roof of skull remains deeply notch posteriorly throughout ontogeny so that braincase remains broadly exposed in dorsal view; central Veracruz (east) and Isthmus of Tehuantepec (west) southward and eastward . . . . . *Ctenosaura similis*
- 13b. Parietal roof of skull extends posteriorly during postembryonic ontogeny so that braincase comes to be largely covered in dorsal view; Isthmus of Tehuantepec northward . . 14
  
- 14a. At least some whorls of large, spinous caudal scales separated dorsally by a single intercalary scale row; Atlantic Coast of México north of Isthmus of Tehuantepec . . . . . *Ctenosaura acanthura*
- 14b. All whorls of large, spinous caudal scales separated dorsally by at least two intercalary scale rows; Pacific Coast of México north of Isthmus of Tehuantepec . . . . . *Ctenosaura pectinata*

15. *Enyaliosaurus*

- 15a. Scales of mid-dorsal row tall (height > length) and compressed, strongly differentiated from adjacent body scales, at least in neck region of adult males; mid-dorsal scale row extends about to level of sacrum; marginal teeth with maximum of 3 cusps; (unregenerated) tail strongly spinose proximally but not distally and always longer than SVL (tail length/SVL ≥ 1.30); spinous dorsal caudal scales forming 5 rows, one mid-dorsal row and two on each side separated by 3-4 rows of flat or weakly keeled scales at sixth whorl . . . . . *Ctenosaura quinquecarinata*
- 15b. Scales of mid-dorsal row short (height < length) and depressed, scarcely differentiated from adjacent body scales, even in neck region of adult males; mid-dorsal scale row extends to about level of groin or as little as 1/3 distance from back of head to that level; marginal teeth with maximum of four or more cusps; tail strongly spinose throughout length and usually shorter than SVL (TL/SVL ≤ 1.10); spinous dorsal caudal scales usually not forming 5 distinct rows, adjacent scales of enlarged caudal whorls subequal, those on either side of mid-dorsal row not markedly less spinous than others or, if in 5 rows, the lateral and mid-dorsal rows separated by 2-3 rows of less spinous scales at sixth whorl . . . . . 16
- 16a. Usually 7 (range 5-9) premaxillary teeth; marginal teeth with maximum of four cusps; parietal eye visible externally; a patch of large, spinous scales on dorsal surface of shank, but not of thigh; anterior surfaces of subdigital scales at base of pedal digit III unfused basally; intercalary scales between whorls of large, spinous caudal scales conspicuous throughout length of tail; enlarged dorsal caudal scales forming 9-11 longitudinal rows at sixth whorl; 4-6 femoral pores (one thigh) . . . . . *Ctenosaura clarki*
- 16b. Less than seven (range 5-6) premaxillary teeth; marginal teeth with maximum of five or more cusps; parietal eye inconspicuous or absent; a patch of large, spinous scales on dorsal surface of both shank and thigh; anterior surfaces of subdigital scales at base of pedal digit III fused basally to form a comb; intercalary scales between whorls of large, spinous caudal scales absent or inconspicuous (confined to mid-dorsal region) proximally; enlarged dorsal caudal scales forming 7 longitudinal rows at sixth whorl; 5-11 femoral pores (one thigh) . . . . . *Ctenosaura defensor*

## ALPHABETICAL CHECKLIST OF SPECIES

*Ctenosaura acanthura* (Shaw)

*Lacerta Acanthura* Shaw 1802, General zoology, London 3(1):216. HOLOTYPE: BMNH XXII 20-a (Bailey 1928); = BMNH RR1946.8.30.19 (Etheridge 1982). COLLECTOR: unknown (Bailey 1928). TYPE LOCALITY: [not given]; "California" (Boulenger 1885), in error (Smith and Taylor 1950); "Mexico" (Bailey 1928); inappropriately restricted to "Tampico, Tamaulipas, Mexico" (Bailey 1928) (see REMARKS).

*Uromastix acanthurus* - Merrem 1820, Tentamen systematis amphibiorum, Marburg, p. 56.

*Cyclura teres* Harlan 1825, J. Acad. Nat. Sci. Phila. 4:250; Pl. 16 (synonym of *Ctenosaura acanthura* fide Gray 1845). HOLOTYPE: ANSP [number not given]; lost (Smith and Taylor 1950; Malnate 1971). COLLECTOR: Captain Dallas. TYPE LOCALITY: "Tampico".

*Cyclura acanthura* - Gray 1827, Phil. Mag., ser. 2, 2:57.

*Ctenosaura cycluroides* Wiegmann 1828, Isis von Oken, Leipzig 21:371 (synonym of *Ctenosaura acanthura* fide Gray 1845). SYNTYPES: ZMB 576-578 (Bailey 1928); ZMB 577 = MCZ 22453 (Bailey 1928; Barbour and Loveridge 1929; see REMARKS). COLLECTOR: Ferdinand Deppe. TYPE LOCALITY: Mexico, by implication; "Mexico" (Bailey 1928); "Tampico" (Etheridge 1982), in error (see REMARKS); restricted without justification to "Veracruz, Veracruz" (Smith & Taylor 1950).

*Iguana (Ctenosaura) Cycluroides* - Gray 1831, A synopsis of the species of the Class Reptilia, in Griffith (ed.) Cuvier's Animal Kingdom, London 9:37.

*Iguana (Ctenosaura) Acanthura* - Gray 1831, A synopsis of the species of the Class Reptilia, in Griffith (ed.) Cuvier's Animal Kingdom, London 9:38.

*Cyclura Shawii* Gray 1831, A synopsis of the species of the Class Reptilia, in Griffith (ed.) Cuvier's Animal Kingdom, London 9:38 (replacement name (in synonymy) for *Lacerta acanthura* Shaw 1802) (see REMARKS).

*Iguana (Ctenosaura) Armata* Gray 1831, A synopsis of the species of the Class Reptilia, in Griffith (ed.) Cuvier's Animal Kingdom, London 9:38 (synonym of *Ctenosaura acanthura* fide Gray 1845). TYPE: Mus. [of Mr.] Bell [number not given]; lost (Smith and Taylor 1950). COLLECTOR: [unknown]. TYPE LOCALITY: [not given]; restricted without justification to "Tampico, Tamaulipas" (Smith and Taylor 1950).

*Iguana (Ctenosaura) Lanceolata* Gray 1831, A synopsis of the species of the Class Reptilia, in Griffith (ed.) Cuvier's Animal Kingdom, London 9:38 (synonym of *Ctenosaura acanthura* fide Gray 1845[?]; Boulenger 1885). TYPE: Mus. [of Mr.] Bell [number not given]; lost (Smith and Taylor 1950). COLLECTOR: [unknown]. TYPE LOCALITY: [not given]; restricted without justification to "Tampico, Tamaulipas" (Smith and Taylor 1950).

*Iguana (Ctenosaura) Bellii* Gray 1831, A synopsis of the species of the Class Reptilia, in Griffith (ed.) Cuvier's Animal Kingdom, London 9:38 (synonym of *Ctenosaura acanthura* fide Bailey 1928). TYPE: Mus. [of Mr.] Bell [number not given]; lost (Smith and Taylor 1950). COLLECTOR: [unknown]. TYPE LOCALITY: [not given]; restricted without justification to "Tampico, Tamaulipas" (Smith and Taylor 1950).

*Iguana (Cyclura) Teres* - Gray 1831, A synopsis of the species of the Class Reptilia, in Griffith (ed.) Cuvier's Animal Kingdom, London 9:39.

*Cyclura articulata* Wiegmann 1834, Herpetologia Mexicana, Berlin p. 42 (synonym of *Ctenosaura acanthura* fide Gray 1845) (see REMARKS). TYPE: unknown (Smith and Taylor 1950); not catalogued in Berlin (Taylor 1969). COLLECTOR: [unknown]. TYPE LOCALITY: "Mexico".

*Cyclura denticulata* Wiegmann 1834, Herpetologia Mexicana, Berlin, p. 42; Pl. 3 (replacement name (in synonymy) for *Ctenosaura cycluroides* Wiegmann 1828) (see REMARKS).

*Cyclura (Ctenosaura) denticulata* - Fitzinger 1843, Systema reptilium, Vienna, p. 56.

*Cyclura (Ctenosaura) semicristata* Fitzinger 1843, Systema reptilium, Vienna, p. 56 (replacement name (in synonymy) for *Cyclura denticulata* Wiegmann 1834) (see REMARKS).

*Cyclura (Ctenosaura) articulata* - Fitzinger 1843, Systema reptilium, Vienna, p. 56.

*Cyclura (Ctenosaura) Shawii* - Fitzinger 1843, Systema reptilium, Vienna, p. 56.

*Cyclura (Ctenosaura) Bellii* - Fitzinger 1843, Systema reptilium, Vienna, p. 56.

*Ctenosaura acanthura* - Gray 1845, Catalogue of the specimens of lizards in the collection of the British Museum, London, p. 191.

*Cyclura (Ctenosaura) acanthura* - Cope 1870, Proc. Am. Philos. Soc. (1869) 11:161.

*Ctenosaura teres* - Bocourt 1874, in Duméril, Bocourt & Mocquard, Mission scientifique au Mexique et dans l'Amérique Centrale, Études sur les reptiles, Paris 3:142.

*Ctenosaura multispinis* (part) Cope 1886, Proc. Am. Philos. Soc. 23:267 (synonym of *Ctenosaura acanthura* fide Bailey 1928). HOLOTYPE: Sumichrast collection No. 201; = USNM 72737 (Smith and Taylor 1950; Cochran 1961; see REMARKS).

COLLECTOR: [F.] Sumicrast (see REMARKS). TYPE LOCALITY: "Dondomingvillo, in the State of Oaxaca"; corrected to "Dondominguillo" (Smith and Taylor 1950; Cochran 1961).

DISTRIBUTION: Lowlands of eastern México from near the Tropic of Cancer (Llera and Tepehuaje de Arriba; Martin 1958) in Tamaulipas southward to the Isthmus of Tehuantepec in southeastern Veracruz and eastern Oaxaca (Bailey 1928), at elevations below 570 m (Martin 1958). Reliably reported from the states of Tamaulipas, San Luis Potosí, Veracruz, and Oaxaca (Smith and Taylor 1950).

COLORATION: Young blue-green. In specimens ca. 150 mm SVL, green ground color most evident laterally; interrupted by black bars that extend from mid-dorsal line onto sides of belly and are bordered anteriorly with narrow whitish bands. Large specimens of both sexes more or less uniform black dorsally; suffused to varying degrees with black ventrally (Smith 1935).

REMARKS: Boulenger (1885) gave "California" as the type locality of *C. acanthura*, which is the locality entered in the BMNH catalogue (C. McCarthy in litt. 1994). Smith and Taylor (1950) concluded that this locality is incorrect, presumably because the species does not occur in California. Bailey (1928) stated that the locality and collector of the holotype of *C. acanthura* were unknown; his restriction of the type locality was based on the locality of the type of *C. teres*.

Brygoo (1989) considered *Cyclura acanthura* of Duméril and Bibron (1837) a different nominal taxon than *Lacerta acanthura* of Shaw (1802). Duméril and Bibron's (1837) *C. acanthura* included, through synonymy of *C. acanthura* of Blainville (1835), at least one specimen now referred to *C. hemilopha* (see Bocourt 1882). Nevertheless, Duméril and Bibron (1837) listed *Lacerta acanthura* Shaw in the synonymy of *Cyclura acanthura*, implying that the two names referred to the same nominal taxon.

Barbour and Loveridge (1929; see also Taylor 1969) considered the same three specimens (ZMB 576-578; 577 = MCZ 22453) the types of both *C. cycluroides* and *C. denticulata*, but according to Bailey (1928) only one of them (ZMB 578) is the type of *C. denticulata*. Bailey (1928) did not present the basis for his conclusion, and it agrees neither with the original description of *C. denticulata* (Wiegmann 1834), which is based on at least two specimens, nor

with the ZMB catalogue, which indicates that all three specimens are types (A. Bauer pers. comm. 1994). Bailey (1928) gave two different numbers for the Harvard syntype of *C. cycluroides* and *C. denticulata*. One of them, MCZ "2253", contains a typographical error, which was perpetuated by Smith and Taylor (1950) and Etheridge (1982); the correct number is MCZ 22453 (Barbour and Loveridge 1929). Etheridge (1982) gave "Tampico" as the type locality of *C. cycluroides*. Given his statement that he copied the type localities as originally stated, this seems to be an error, for there is no mention of that locality in the original description.

Gray (1831:38) attributed the name *Cyclura shawii* to "Gray Ann. Phil.", but that name does not appear in his earlier paper (Gray 1825), and his later use of the name (Gray 1845) conspicuously omits reference to any published work. Similarly, Fitzinger (1843) attributed the name *Cyclura (Ctenosaura) semicristata* to Wiegmann, but Smith and Taylor (1950) could not locate Wiegmann's use of the name and followed Bailey (1928) in attributing it to Fitzinger. Although this name is associated with ZMB 580 both in the Berlin catalogue and on the jar label (A. Bauer pers. comm. 1994), it does not appear to have been published by Wiegmann.

Bailey (1928) and Etheridge (1982) considered *C. articulata* a substitute name for *C. armata*, but Smith and Taylor (1950) did not. Although Wiegmann (1834) considered *C. articulata* a "Species dubia", he indicated that the synonymy with *C. armata* was questionable.

Cochran (1961) considered USNM 72737 a cotype (syntype) of *C. multispinis*, but Smith and Taylor (1950) regarded it as the type, and Etheridge (1982) explicitly referred to it as the holotype. In the original description of *C. multispinis*, Cope (1886:267) noted that he had examined two specimens, but he explicitly referred to the one now catalogued under the number USNM 72737 as "the type". The location of the other specimen is currently unknown. If it was indeed collected at Batopilas, Chihuahua (Cope 1886), it is probably a specimen of *C. hemilopha* rather than *C. acanthura* (see Smith 1972). Smith and Taylor (1950) gave Captian Dallas as the collector of USNM 72737, but Cope's (1886) original description as well as the USNM catalogue both indicate that the collector was Sumichrast.

*Ctenosaura acanthura*  $\approx$  *Ctenosaura acanthura* of Smith and Taylor (1950).



*Ctenosaura (Enyaliosaurus) clarki* Bailey

*Enyaliosaurus quinquecarinatus* (part) - Dugès 1897, La Naturaleza, ser. 2, 2:523, Pl. 34.

*Ctenosaura clarki* Bailey 1928, Proc. U. S. Natl. Mus. 73(12): 44, Pl. 7. HOLOTYPE: MCZ 22454. COLLECTOR: H. Gadow. TYPE LOCALITY: "Ovopeo, Michoacan, Mexico"; corrected to "Oropeo ... at an elevation of about 1000 feet in the lower Tepalcatepec Valley about 8 miles south of La Huacana" (Duellman and Duellman 1959).

*Enyaliosaurus clarki* - Smith & Taylor 1950, U. S. Natl. Mus. Bull. (199):76.

DISTRIBUTION: The Balsas-Tepalcatepec Basin of western México between elevations of 200 and 510 m; specimens have been collected only in Michoacán, but the species may occur in Jalisco and Guerrero (Duellman and Duellman 1959; Duellman 1961; Gicca 1982).

COLORATION: Olive-brown to black dorsal ground color with light cream to tan blotches and spots; venter light; chin streaked with dark markings; adult males with black chest, anterior part of flank, axilla, and forelimb (Duellman and Duellman 1959; Gicca 1982).

REMARKS: *Ctenosaura clarki* = *Enyaliosaurus clarki* of Smith and Taylor (1950).

*Ctenosaura (Enyaliosaurus) defensor* (Cope)

*Cachryx defensor* Cope 1866, Proc. Acad. Nat. Sci. Phila. 18:124. SYNTYPES: Exped. Coll. 585; = USNM 12282 [3 specimens] (Bailey 1928; Cochran 1961). COLLECTOR: Arthur Schott. TYPE LOCALITY: Yucatan, by implication; "Yucatan, Mexico" (Bailey 1928); inappropriately restricted to "Chichén Itzá, Yucatan, Mexico" (Bailey 1928; see REMARKS).

*Ctenosaura erythromelas* Boulenger 1886, Proc. Zool. Soc. Lond. 1886:241, Pl. 23 (synonym of *Ctenosaura defensor* fide Duellman 1965). HOLOTYPE: BMNH 86.8.9.1 = BMNH RR1946.8.30.18 (Etheridge 1982). COLLECTOR: [unknown] (acquired by purchase of Mr. W. Cross). TYPE LOCALITY: "not known"; restricted to "Mexico" (Bailey 1928); inappropriately restricted to "Balchacaj, Campeche" (Smith and Taylor 1950; see REMARKS).

*Cachryx erythromelas* - Cope 1887, U. S. Natl. Mus. Bull. 32:34.

*Ctenosaura defensor* - Günther 1890, *Biologia Centrali-Americana*, Reptilia and Batrachia, London, p. 58.

*Ctenosaura (Cachryx) annectens* Werner 1911, *Jahrb. Hamb. Wiss. Anst.* 27(2):25 (synonym of *Ctenosaura erythromelas* fide Bailey 1928). HOLOTYPE: ZMH 3420 (Bailey 1928), destroyed (Etheridge 1982). COLLECTOR: P. Pohl (Bailey 1928). TYPE LOCALITY: [not given]; "Mexico" (Bailey 1928).

*Enyaliosaurus erythromelas* - Smith & Taylor 1950, *U. S. Natl. Mus. Bull.* 199:77.

*Enyaliosaurus defensor* - Smith & Taylor 1950, *U. S. Natl. Mus. Bull.* 199:77.

DISTRIBUTION: The Yucatán Peninsula of México in the states of Campeche and Yucatán (Duellman 1965; Lee 1980).

COLORATION: Olive to olive-black dorsal ground color; anterior part of dorsum and scapular region black; often with a mid-dorsal series of greenish spots and sometimes also additional lateral greenish spots which form, with the mid-dorsal spots, two transverse series anteriorly; brick red to brownish red in the mid-dorsal region of adults; shoulder and upper arm with 2-3 black bands; venter tan to grey; iris golden (Cope 1866; Boulenger 1886; Duellman 1965).

REMARKS: Bailey's (1928) restriction of the type locality of *C. defensor* apparently was not based on any specific information concerning the syntypes. His action seems to have been based on the fact that the only specimen known to him with locality data more specific than the Yucatán Peninsula (i.e., MCZ 7095) had been collected at Chichén Itzá.

Bailey (1928) gave "Mexico" as the type locality of *C. erythromelas*, but this was based on the locality of the only specimen known to him with locality data (ZMH 3420, the type of *C. annectens*), not on information about the type specimen of *C. erythromelas*. Nevertheless, the species is endemic to México (see DISTRIBUTION). Smith and Taylor's (1950) restriction of the type locality of *C. erythromelas* apparently was not based on information about the type specimen but on the fact that Balchacaj was the only specific locality from which the presumptive species was then known (Smith 1938).

*Ctenosaura defensor* = *Enyaliosaurus defensor* and *Enyaliosaurus erythromelas* of Smith and Taylor (1950).

*Ctenosaura hemilopha* (Cope)

*Ignana* (*Cyclura*) *acanthura* (non Shaw 1802) Blainville 1835, *Nouv. Ann. Mus. Hist. Nat.* (Paris) 4:288, Pl. 24, Fig. 1 (homonym of *Lacerta acanthura* Shaw). Lectotype: MNHN 2245 (Brygoo 1989; see REMARKS). COLLECTOR: M. P. E. Botta. TYPE LOCALITY: "Californie".

*Cyclura acanthura* (part) - Duméril & Bibron 1837, *Erpétologie générale*, Paris 4:222.

*Cyclura* (*Ctenosaura*) *hemilopha* Cope 1863, *Proc. Acad. Nat. Sci. Phila.* 15:105. SYNTYPES: Xantus collection No. 789; = USNM 5295 [4 specimens] (Cope 1900), one recataloged as USNM 69489 (see REMARKS). COLLECTOR: Mr. [J.] Xantus. TYPE LOCALITY: "Cape St. Lucas"; "near Soria Ranch, Cape San Lucas, Baja California, Mexico" [USNM 5295] and "San Nicolás, between Cape San Lucas and La Paz, Baja California, Mexico" [USNM 69489] (Cochran 1961).

*Ctenosaura hemilopha* - Cope 1866, *Proc. Acad. Nat. Sci. Phila.* 18:312.

*Ctenosaura acanthura* (part) - Bocourt 1874, *in* Duméril, Bocourt & Mocquard, *Mission scientifique au Mexique et dans l'Amérique Centrale, Études sur les reptiles*, Paris 3:138.

*Ctenosaura interrupta* Bocourt 1882, *Le Naturaliste* (Paris) 2(6):47 (synonym of *Ctenosaura hemilopha* fide Boulenger 1885). SYNTYPES: MNHN 2243, 2245, 2843; BMNH 85.11.2.1 (= BMNH RR1946.8.3.85) (Bailey 1928; Etheridge 1982; Brygoo 1989; see REMARKS). COLLECTOR: [M. P. E.] Botta. TYPE LOCALITY: "Californie"; restricted without justification to "Cape San Lucas" (Smith and Taylor 1950).

*Cyclura hemilopha* - Yarrow 1882, *U. S. Natl. Mus. Bull.* 24:71.

*Cyclura teres* (part) - Yarrow 1882, *U. S. Natl. Mus. Bull.* 24:71.

*Cyclura acanthura* (part) - Yarrow 1882, *U. S. Natl. Mus. Bull.* 24:71.

?*Ctenosaura multispinis* (part) Cope 1886, *Proc. Am. Philos. Soc.* 23:267 (see REMARKS).

*Ctenosaura conspicuosa* Dickerson 1919, *Bull. Am. Mus. Nat. Hist.* 41(10):461. HOLOTYPE: AMNH 5027; = USNM 64440 (Bailey 1928; Cochran 1961; see REMARKS). COLLECTOR: C. H. Townsend. TYPE LOCALITY: "San Esteban Island, Gulf of California, Mexico".

*Ctenosaura insulana* Dickerson 1919, *Bull. Am. Mus. Nat. Hist.* 41(10):462. HOLOTYPE: AMNH 2694; = USNM 64439 (Bailey 1928; Cochran 1961; see REMARKS). COLLECTOR: C. H. Townsend. TYPE LOCALITY: "Cerralvo Island, Gulf of California, Mexico".

*Ctenosaura hemilopha conspicuosa* - Lowe & Norris 1955, *Herpetologica* 11:89.

*Ctenosaura hemilopha hemilopha* - Lowe & Norris 1955, Herpetologica 11:90 (see REMARKS).

*Ctenosaura hemilopha insulana* - Lowe & Norris 1955, Herpetologica 11:90.

*Ctenosaura hemilopha macrolopha* - Smith 1972, Great Basin Nat. 32(2):104. HOLOTYPE: FMNH 108705. COLLECTOR: E. H. Taylor. TYPE LOCALITY: "La Posa, San Carlos Bay, 10 mi NW Guaymas, Sonora".

*Ctenosaura hemilopha nolascensis* - Smith 1972, Great Basin Nat. 32(2):107. HOLOTYPE: UCM 26391. COLLECTOR: T. Paul Maslin et al. TYPE LOCALITY: "Isla San Pedro Nolasco, Sonora".

DISTRIBUTION: The southern part of Baja California Sur from La Paz southward to Cape San Lucas and northwards along the east coast of the peninsula as far as Loreto (*hemilopha*; Van Denburgh 1922; Hoard 1939; Smith 1972; Grismer 1992; see REMARKS); northwestern mainland of México from Hermosillo, Sonora southward through the northern third of Sinaloa, and inland to extreme western Chihuahua (*macrolopha*; Hardy and McDiarmid 1969; Smith 1972); as well as the islands of San Esteban and Lobos (Cholludo) (*conspicua*; Lowe and Norris 1955), Cerralvo (*insulana*; Dickerson 1919), and San Pedro Nolasco (*nolascensis*; Smith 1972) in the Gulf of California (see REMARKS).

COLORATION: In adults, top and sides of head grey brown to almost black; dorsal ground color pale straw color heavily spotted or reticulated with brown or black to form a series of about 9 more or less distinct bands, the anterior 3-5 of which are dark brown to black and increase in size posteriorly from the first through the third or fourth; a longitudinal dark blotch on each side of neck; limbs spotted with dark brown; venter pale but may be spotted with brown, especially on chest; gular region and throat grayish-brown to black; chest sometimes black; tail with broad dark olive bands separated by narrow brown bands. Hatchlings bright green dorsally with only faint indications of bands (Van Denburgh 1922; Smith 1935, 1972).

REMARKS: Guibe (1954) considered MNHN 2245 the holotype of *C. acanthura* Blainville, but Brygoo (1989) pointed out that the original description was based on multiple specimens, and he designated MNHN 2245 a lectotype.

There are several discrepancies in the literature concerning the types of *C. hemilopha*. Cope (1900) reported that there were four syntypes, all bearing the number USNM 5295, but Bailey (1928:21) reported only three syntypes bearing that number, with a fourth bearing the

number USNM 69489. Cochran (1961) indicated that there were five syntypes, four bearing the number USNM 5295 and one bearing the number USNM 69489. Examination of the USNM catalogue and type collection revealed that there are only four syntypes, three bearing the number USNM 5295 and one bearing the number USNM 69489. The latter specimen was originally catalogued under the former number but was recatalogued under the number USNM 69489 in 1925, that is, subsequent to Cope (1900) but prior to Bailey (1928). Cochran (1961) apparently overlooked the fact that USNM 69489 was one of the four original syntypes. The number USNM 529 reported by Bailey (1928) and Etheridge (1982) appears to be the result of a typographical error.

There are also several discrepancies in the literature concerning the types of *C. interrupta*. Bailey (1928), Smith and Taylor (1950), Etheridge (1982) and Brygoo (1989) all listed MNHN 2243 and 2843 as syntypes, and Brygoo (1989) indicated that one of the specimens originally catalogued as MNHN 2243 was sent to the British Museum, which is presumably the BMNH specimen cited by the other three authors (the BMNH catalogue does not indicate the original number, C. McCarthy in litt. 1994). However, Bailey (1928), Smith and Taylor (1950), and Etheridge (1982) all listed MNHN 2245 as one of the syntypes of *C. interrupta*, whereas Brygoo (1989) did not. In the original description of *C. interrupta*, Bocourt (1882) explicitly mentioned four specimens, all collected by Botta in (Baja) California. MNHN 2245 meets these criteria, by Brygoo's own account (p. 6, where it is listed as the lectotype of *C. acanthura* Blainville). If MNHN 2245 is a syntype of *C. interrupta*, the number of syntypes would be four according to Brygoo's statement that MNHN 2243 originally consisted of two specimens (p. 6), which agrees with the MNHN catalogue. In another place (p. 58) Brygoo stated that MNHN 2243 originally consisted of three specimens, which would bring the total to five, but this does not agree with the MNHN catalogue.

Cope (1886) referred a specimen from Batopilas, Chihuahua to *C. multispinis*. Although the location of this specimen is currently unknown, the locality data suggest that it is probably a specimen of *C. hemilopha* (see Smith 1972).

The USNM numbers given by Schmidt (1922) for the types of *C. conspicuosa* and *C. insulana* are reversed from those given by Bailey (1928), Smith and Taylor (1950), and Cochran (1961). I checked both the USNM catalogue and type collection and found that the numbers reported by the latter authors are the correct ones. Cochran (1961) considered USNM 64440 a

cotype (syntype) of *C. conspicuosa*, but Dickerson's (1919) original description clearly identified a single specimen (AMNH 5027 = USNM 64440) as the (holo)type.

Lowe and Norris (1955) used the name *C. h. hemilopha* for the subspecies from the mainland of México and the name *C. h. interrupta* for the peninsular subspecies. Hardy and McDiarmid (1969) pointed out that *interrupta* is a junior synonym of *hemilopha*, and Smith (1972) coined the name *C. h. macrolopha* for the mainland subspecies. Stebbins (1985) indicated that the northern limit of *C. hemilopha hemilopha* in Baja California is just south of Santa Rosalia, but I have been unable to find any records north of Loreto associated with voucher specimens. A locality record for Puebla (Smith and Van Gelder 1955) requires confirmation; current knowledge of distributions suggests that the specimen probably is a specimen of *C. pectinata* or *C. acanthura*.

*Ctenosaura hemilopha*  $\approx$  *Ctenosaura hemilopha* of Smith and Taylor (1950). For identification of subspecies see Smith (1972).

### ***Ctenosaura pectinata* (Wiegmann)**

*Cyclura pectinata* Wiegmann 1834, Herpetologia Mexicana, Berlin, p. 42, Pl. 2. SYNTYPES: ZMB 574-575 (Taylor 1969; see REMARKS). COLLECTOR: F. Deppe (Bailey 1928). TYPE LOCALITY: "Mexico" (see REMARKS); restricted without justification to "Colima, Colima, Mexico" (Bailey 1928).

*Cyclura (Cyclura) pectinata* - Fitzinger 1843, Systema reptilium, Vienna, p. 56.

*Ctenosaura pectinata* - Gray 1845, Catalogue of the specimens of lizards in the collection of the British Museum, London, p. 191.

*Ctenosaura acanthura* (part) - Boulenger 1885, Catalogue of the lizards in the British Museum (Natural History), London 2:195.

*Ctenosaura brevirostris* Cope 1886, Proc. Am. Philos. Soc. [1885] 23:268 (synonym of *Ctenosaura pectinata* fide Smith 1949). SYNTYPES: USNM 24708-24709 (Cochran 1961, see REMARKS). COLLECTOR: John Xantus. TYPE LOCALITY: "Colima, in Western Mexico".

*Ctenosaura teres brachylopha* Cope 1886, Proc. Am. Philos. Soc. [1885] 23:269 (synonym of *Ctenosaura pectinata* fide Smith 1935). SYNTYPES: USNM 7180-7183. COLLECTOR:

[F.] Bischoff. TYPE LOCALITY: "Mazatlan"; "Mazatlan, Sinaloa, Mexico" (Bailey 1928).

*Ctenosaura brachylopha* - Bailey 1928, Proc. U. S. Natl. Mus. 73(12):22; Pl. 6.

*Ctenosaura parkeri* Bailey 1928, Proc. U. S. Natl. Mus. 73(12):29; Pl. 14, 15 (synonym of *Ctenosaura pectinata* fide Smith 1949). HOLOTYPE: USNM 18967. COLLECTOR: P. L. Jouy. TYPE LOCALITY: "Barranca Ibarra, Jalisco, Mexico".

DISTRIBUTION: Lowlands of western México from the vicinity of Pericos, Sinaloa (Hardy and McDiarmid 1969) southward at elevations less than 300 m in the north (Hardy and McDiarmid 1969) and 1050 m in the south (Duellman 1961) to the Isthmus of Tehuantepec in southeastern Oaxaca (Smith 1949; Smith and Taylor 1950), and including Isla Isabela and las Islas de las Tres Marías, Nayarit. Reported from the states of Sinaloa, Durango, Nayarit, Jalisco, Colima, Michoacán, Morelos, Guerrero, Puebla, and Oaxaca (Smith 1949; Smith and Taylor 1950).

COLORATION: Young blue-green. In specimens ca. 110 mm SVL, dorsal pattern a more or less uniform reticulation of black on blue; ventral surfaces light blue with faint spotting of darker markings in gular region. In specimens ca. 135 mm SVL, 5-7 dim, transverse, dorsal bands are evident and extend onto belly as transverse rows of black spots; gular region more strongly maculate and lower labial region barred. Adults rusty brown dorsally, with only faint traces of dorsal bands or none at all; one or more bands cross belly anteriorly. Tail banded alternately with black and light blue in immature specimens, with dark and light brown in adults. In adult males, head mostly black, as are dorsal surfaces of limbs (Smith 1935; Oelrich 1956; Hardy and McDiarmid 1969).

REMARKS: Both Bailey (1928) and Smith and Taylor (1950) gave only ZMB 574 as the type of *C. pectinata*, and Etheridge (1982) stated that this specimen was the holotype, but Taylor (1969) listed ZMB 574-575 as the syntypes of this species, which agrees with the Berlin catalogue (A. Bauer, pers. comm.). Furthermore, Wiegmann's (1834) original description of was based on at least two specimens, although one of them is mentioned only under the subheading "Var." Etheridge (1982) stated that the type locality of *C. pectinata* was not given. Although no locality accompanies Wiegmann's (1834) detailed description of the species beginning at the bottom of p. 42, the diagnosis provided earlier on that page includes the locality "Mexico".

There is confusion concerning the types of *C. brevirostris*. Cope's (1886) original description was based explicitly on two specimens, and both USNM 24708 and 24709 are designated as cotypes in the USNM catalogue. Smith and Taylor's (1950) reference to USNM 27409 as the type and Etheridge's (1982) reference to the same specimen as the holotype appear to have been based on Bailey's (1928) reference to this specimen alone under the prominent heading "Type". Bailey (1928), however, was inconsistent in his references to type specimens, referring to USNM 27408 as the type on p. 28 (where USNM 27409 is called a cotype) and then referring to both specimens as cotypes on p. 29. Furthermore, treatment of USNM 27409 as the type or holotype does not seem to reflect an inference about the author's intent in the original description. Cope (1886) gave a more complete description of one of the specimens by including measurements, but those measurements are for the other specimen (USNM 27408). Finally, there does not appear to have been any time when one of the syntypes was unknown (see Cope 1886; Bailey 1928; Cochran 1961). Because the specimen emphasized by Cope (1886) is not the same as the one said to be the type by some subsequent authors, and because the first author to refer to one of the syntypes as the type did so inconsistently, designation of either as the lectotype is not entirely satisfactory. Both specimens bear the same data and are unlikely to represent different species. For these reasons, I consider it most appropriate simply to reiterate that the nominal taxon *C. brevirostris* is based on two syntypes.

*Ctenosaura pectinata* = *Ctenosaura pectinata* of Smith and Taylor (1950).

*Ctenosaura (Enyaliosaurus) quinquecarinata* (Gray)

*Cyclura quinquecarinata* Gray 1842, Zoological miscellany, London, p. 59. HOLOTYPE: BMNH 41.3.5.61 = BMNH RR1946.8.30.48 (Etheridge 1982). COLLECTOR: unknown (Bailey 1928). TYPE LOCALITY: "Demerara?", in error; "South America" (BMNH catalogue), in error; inappropriately restricted to "Tehuantepec, Oaxaca, Mexico" (Bailey 1928) (see REMARKS).

*Enyaliosaurus quinquecarinatus* - Gray 1845, Catalogue of the specimens of lizards in the collection of the British Museum, London, p. 192.

*Cyclura (Ctenosaura) quinquecarinata* - Cope 1870, Proc. Am. Philos. Soc. [1869] 11:161.



*Ctenosaura (Enyaliosaurus) quinquecarinata* - Bocourt 1874, in Duméril, Bocourt & Mocquard, Mission scientifique au Mexique et dans l'Amérique Centrale, Études sur les reptiles, Paris 3:138.

*Ctenosaura quinquecarinata* - Sumichrast 1880, Bull. Soc. Zool. Fr. 5:175.

DISTRIBUTION: Arid lowland forests (below 800 m elevation) in the Tehuantepec region of southern Oaxaca (Bailey 1928; Gicca 1983); Departamento La Paz, Honduras (Meyer and Wilson 1973; see REMARKS), Departamentos Morazán and Cabañas, El Salvador (Hidalgo 1980), Departamentos Chontales, Boaco, Matagalpa, and Jinotega, Nicaragua (Villa and Scott 1967; Villa 1971), and Provincia Guanacaste, Costa Rica (McDiarmid pers. comm. cited by Gicca 1983).

COLORATION: Dorsal ground color olive-green with dark brown or black crossbands and black and olive green spots between bands, or dark brown to black ground color with cream-colored spots and blotches; dorsal surfaces of arms and legs variously spotted or blotched with dark brown or black, dark markings on legs often forming bands; venter pale, sometimes with dark spots on chest; throat and gular region unmarked, greyish-white with dark streaks or spots, or (in adult males) black; top of head dark but otherwise unmarked (Villa and Scott 1967; Gicca 1983).

REMARKS: Gray (1842) gave "Demerara?" (=Georgetown, Guyana) as the type locality of *C. quinquecarinata*, and in the BMNH catalogue the locality is given as "South America" (C. McCarthy in litt. 1994). Both of these localities are probably incorrect, for the species is not known to occur in South America (see DISTRIBUTION). According to Bailey (1928), the type is without any locality or collector's label; his restriction of the type locality was based on the incorrect inference that the species is confined to the Isthmus of Tehuantepec (see DISTRIBUTION).

According to Gicca (1983), a published record of *C. quinquecarinata* from Puebla (Webb and Fugler 1957) is probably an error. Gicca (1983) reported that *C. quinquecarinata* occurs in Departamento Yoro, Honduras; however, none of the references that he cited as the source of this information gives a more precise locality than "Honduras", the original source of which seems to have been Günther (1885). According to Smith (1987) Günther's record is for *C. palearis*.

The taxon *Deltamema premaxillaris* (Langebartel 1953), based on a fossil premaxillary bone, was referred to *Ctenosaura* by Estes (1983), who considered the name a *nomen dubium* and the specimen potentially referable to *C. quinquecarinata*.

*Ctenosaura quinquecarinata* = *Enyaliosaurus quinquecarinatus* of Smith and Taylor (1950).

*Ctenosaura similis* (Gray)

*Iguana (Ctenosaura) Similis* Gray 1831, A synopsis of the species of the Class Reptilia in Griffith (ed.) Cuvier's Animal Kingdom, London 9:38. TYPE: Mus. [of Mr.] Bell [number not given]; not located (Bailey 1928). COLLECTOR: [unknown]. TYPE LOCALITY: [not given]; inappropriately restricted to "Tela, Honduras, Central America" (Bailey 1928; see REMARKS).

*Cyclura (Ctenosaura) similis* - Wiegmann 1834, Herpetologia Mexicana, Berlin, p. 42

*Ctenosaura completa* Bocourt 1874, in Duméril, Bocourt & Mocquard, Mission scientifique au Mexique et dans l'Amérique Centrale, Études sur les reptiles, Paris 3:145 (synonym of *Ctenosaura similis* fide Bailey 1928). SYNTYPES: MNHN 2252, 2256, 6499, 6500 (Guibe 1954; Brygoo 1989; see REMARKS). COLLECTOR: [unknown]. TYPE LOCALITY: "Guatemala [and] ... la Union"; restricted without justification to "La Unión" [El Salvador] (Smith and Taylor 1950; see REMARKS).

*Ctenosaura acanthura* (part) - Boulenger 1885, Catalogue of the lizards in the British Museum (Natural History), London 2:195.

*Ctenosaura similis* - Bailey 1928, Proc. U. S. Natl. Mus. 73(12):32, Pl. 16-20.

*Ctenosaura similis similis* - Barbour and Shreve 1934, Occas. Pap. Boston Soc. Nat. Hist. 8:197.

*Ctenosaura similis multipunctata* Barbour and Shreve 1934, Occas. Pap. Boston Soc. Nat. Hist. 8:197. HOLOTYPE: MCZ 36830. COLLECTOR: J. C. Greenway, Jr. TYPE LOCALITY: "Old Providence Island".

DISTRIBUTION: Lowlands (< 1000 m elevation) of southern México and Central America from the Isthmus of Tehuantepec on the Pacific versant and central Veracruz (Mirador) and the Yucatán Peninsula on the Atlantic versant southeastward at least as far as Ciudad de Panamá

(Pacific) and Colón (Atlantic), Panamá, and including the islands of Utila and Guanaja, Honduras, el Rey (San Miguel), Panamá, and San Andrés, Colombia; in México, reported from the states of Veracruz, Tabasco, Campeche (including Isla del Carmen), Yucatán, Quintana Roo (including the islands of Cozumel and Mujeres), Oaxaca, and Chiapas (*similis*; Bailey 1928; Smith and Taylor 1950; Duellman 1965; Wilson and Hahn 1973); Isla Providencia, Colombia (*multipunctata*; Barbour and Shreve 1934).

COLORATION: Dorsal ground color of adults olive, grey, brown, or tan with a series of 4-5 dark bands between neck and sacrum that extend to varying degrees onto the ventral surface; sometimes with spots of dull red or orange; tail with tan and dark brown or black bands; venter pale, sometimes with brown or black on chin, throat, and area just behind gular fold; limbs strongly banded to nearly uniform black; young bright yellow-green with relatively faint indications of dark banding; some old animals may be almost entirely black, or rusty brown anteriorly and black posteriorly (Bailey 1928; Smith 1935; Taylor 1956; Fitch and Hackforth-Jones 1983).

REMARKS: Bailey's (1928) restriction of the type locality of *C. similis* apparently was not based on any specific information concerning the type, the location of which was unknown to him. Instead, it seems only to have been based on the fact that a large number of specimens of this species had been collected at the locality in question.

Although Smith and Taylor (1950) did not justify their restriction of the type locality of *C. completa* to La Union [El Salvador], that locality corresponds with one of two given by Bocourt (1874) and is the locality of all the extant types (Guibe 1954; Brygoo 1989). The Guatemalan syntypes apparently have been lost (Brygoo 1989). Bailey (1928) and Smith and Taylor (1950) listed MNHN 2251 as a type of *C. completa*, giving El Salvador as the locality, while Barbour and Loveridge (1929) and Etheridge (1982) listed MCZ 22662 as a type of *C. completa*, with Barbour and Loveridge (1929; see also Smith and Taylor 1950) giving Mexico as the locality. According to Brygoo (1989), three specimens were originally catalogued under the number MNHN 2251, one of which was sent to the MCZ in 1927; all are from Mexico (contra Bailey 1928; Smith and Taylor 1950) and none are types (contra Barbour and Noble 1929; Smith and Taylor 1950; Etheridge 1982). Bailey (1928) listed USNM 11003, which bears the locality "Mexico" and was received from the MNHN, as a paratype of *C. completa*, and Cochran (1961) listed it as a cotype (syntype). This specimen does not appear to be one of the

three originally catalogued as MNHN 2251, for there are still two specimens bearing that number in the MNHN collection (H. Zaher in litt. 1994); in any case, the locality of the specimen indicates that it is not a type.

The Mexican populations of *Ctenosaura similis* = *Ctenosaura similis similis* of Smith and Taylor (1950). For identification of subspecies, only one of which occurs in México, see Barbour and Shreve (1934).

### ***Dipsosaurus dorsalis* (Baird and Girard)**

*Crotaphytus dorsalis* Baird and Girard 1852, Proc. Acad. Nat. Sci. Phila. 6:126. HOLOTYPE: USNM 2699 (Cochran 1961). COLLECTOR: Dr. John L. LeConte. TYPE LOCALITY: "Desert of Colorado, California"; restricted without justification to "Winterhaven, (=Fort Yuma), Imperial County" (Smith and Taylor 1950).

*Dipso-saurus dorsalis* - Hallowell 1854, Proc. Acad. Nat. Sci. Phila. 7:92.

*Dipsosaurus dorsalis* - Baird 1859, United States and Mexican boundary survey 2(2, Reptiles of the boundary):8.

*Dipsosaurus dorsalis dorsalis* - Van Denburgh 1920, Proc. Calif. Acad. Sci., Fourth Ser. 10(4):33.

*Dipsosaurus dorsalis lucasensis* - Van Denburgh 1920, Proc. Calif. Acad. Sci., Fourth Ser. 10(4):33. HOLOTYPE: CAS 46090. COLLECTOR: J. R. Slevin. TYPE LOCALITY: "San Jose del Cabo, Lower California, Mexico".

*Dipsosaurus carmenensis* Van Denburgh 1922, Occas. Pap. Calif. Acad. Sci. 10(1):81 (synonym of *D. d. lucasensis* fide Soulé and Sloan 1966). HOLOTYPE: CAS 50504. COLLECTOR: Joseph R. Slevin. TYPE LOCALITY: "Near Puerto Bellandro, Carmen Island, Gulf of California, Mexico".

*Dipsosaurus catalinensis* - Van Denburgh 1922, Occas. Pap. Calif. Acad. Sci. 10(1):83. HOLOTYPE: CAS 50505. COLLECTOR: Joseph R. Slevin. TYPE LOCALITY: "Santa Catalina Island, Gulf of California, Mexico".

*Dipso-saurus dorsalis sonoriensis* Allen 1933, Occas. Pap. Mus. Zool. Univ. Mich. (259):4. HOLOTYPE: UMMZ 72121. COLLECTORS: Morrow J. Allen, Jean Piatt, and John Scofield (Kluge 1984). TYPE LOCALITY: "Hermosillo, Sonora, Mexico".

*Dipsosaurus dorsalis catalinensis* - Soulé & Sloan 1966, Trans. San Diego Soc. Nat. Hist. 14(11):141.

COLORATION: Pale gray dorsally, with a gray-brown wash and brown markings forming longitudinal stripes, circles, or a reticulated pattern; pale ventrally, with pinkish to buff areas on sides of belly in both sexes during breeding season (modified from Stebbins 1985).

DISTRIBUTION: Desert regions below 1520 m elevation (Stebbins 1985) of southeastern California, southern Nevada, extreme southwestern Utah, and western Arizona in the United States, northwestern Sonora at least as far south and east as 1.5 mi. W Altar (Langebartel and Smith 1954), and Baja California east of the Sierra de Juárez and the Sierra San Pedro Mártir southward to at least 29° N, as well as the islands of Encantada Grande (San Luis) and Ángel de la Guarda in the Gulf of California (*dorsalis*<sup>4</sup>; Van Denburgh 1922; Smith and Taylor 1950; Murray 1955; Smith and Holland 1971); western Sonora and extreme northwestern Sinaloa from at least as far north as the vicinity of Puerto (30°11'N) southward to the Bahía de Topolobampo (*sonoriensis*; Allen 1933; Hardy and McDiarmid 1969); Baja California Sur from at least as far north as San Ignacio southward to the end of the peninsula, as well as the islands of San Marcos, Monserrate, San José, Espíritu Santo, and Cerralvo in the Gulf of California, and the islands of Magdalena and Santa Margarita in the Pacific Ocean (*lucasensis*<sup>4</sup>; Van Denburgh 1922; Linsdale 1932; Cliff 1954; Soulé and Sloan 1966; Smith and Holland 1971); Isla Carmen and Isla Coronados in the Gulf of California, Baja California Sur (*carmenensis*; Van Denburgh 1922); and Isla Santa Catalina in the Gulf of California, Baja California Sur (*catalinensis*; Van Denburgh 1922).

REMARKS: The taxon *Tetralophosaurus minutus* (Olson 1937), based on a fossil dentary bone, was referred to *Dipsosaurus* and considered indistinguishable from *D. dorsalis*, though not placed in synonymy with that name, by Estes (1983).

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<sup>4</sup>Although Smith and Holland (1971) revised the diagnoses of *Dipsosaurus dorsalis dorsalis* and *D. d. lucasensis*, they determined the distributions of these taxa only approximately. My description of the distributions of these taxa in the central part of the Baja California Peninsula and various nearby islands is based on examination of specimens in the collection of the California Academy of Sciences. The subspecific referral of specimens from localities between 27° 30' N and 29° 00' N (e.g., Mosauer 1936) needs to be determined.

*Dipsosaurus dorsalis* = *Dipsosaurus carmenensis*, *Dipsosaurus catalinensis*, *Dipsosaurus dorsalis lucasensis*, *Dipsosaurus dorsalis dorsalis*, and *Dipsosaurus dorsalis sonoriensis* of Smith and Taylor (1950). For identification of subspecies see Van Denburgh (1922), Allen (1933), and Smith and Holland (1971).

*Iguana iguana* (Linnaeus)

*Lacerta iguana* Linnaeus 1758, Systema naturae, Ed. 10, Stockholm 1:206. SYNTYPES: NHRM [1 specimen, number not given]; ZMUU [1 specimen, number not given] (Lönnerberg 1896; Andersson 1900; Hoogmoed 1973; see REMARKS). COLLECTORS: [unknown]. TYPE LOCALITY: "Indiis"; inappropriately restricted to "island of Terre de Haut, Les Iles des Saintes, Departement de La Guadeloupe, French West Indies" (Lazell 1973); restricted to "confluence of the Cottica River and the Perica Creek, Surinam" (Hoogmoed 1973) (see REMARKS).

?*Iguana minima* Laurenti 1768, Specimen medicum, exhibens synopsis reptilium, Vienna, p. 48 (synonym of *Iguana tuberculata* fide Fitzinger 1843). HOLOTYPE: Museo Illustrissimi Comitum Turriani [number not given]; not located (Elter 1981; Etheridge 1982). COLLECTOR: [unknown]. TYPE LOCALITY: [not given].

*Iguana tuberculata* Laurenti 1768, Specimen medicum, exhibens synopsis reptilium, Vienna, p. 49 (synonym of *Iguana iguana* fide Lönnerberg 1896). HOLOTYPE: Museo Illustrissimi Comitum Turriani [number not given]; not located (Elter 1981; Etheridge 1982). COLLECTOR: [unknown]. TYPE LOCALITY: [not given].

*Iguana delicatissima* (part) - Latreille 1802, in Sonnini & Latreille, Histoire naturelle des reptiles, Paris 1:255.

*Iguana caerulea* (part) Daudin 1802, Histoire naturelle, générale et particulière, des reptiles, Paris 3:286 (synonym of *Iguana tuberculata* fide Gray 1831) (see REMARKS). SYNTYPES: MNHN [2 specimens], lost (Brygoo 1989). COLLECTOR: [unknown]. TYPE LOCALITY: "j'ignore la patrie".

*Iguana vulgaris* Link 1806, Beschreibung der Naturalien-Sammlung der Universität zu Rostock 2:58 (replacement name for *Lacerta iguana* Linnaeus 1758 fide Peters and Donoso-Barros 1970).

*Iguana sapidissima* Merrem 1820, Tentamen systematis amphibiorum, Marburg, p. 47 (replacement name (in synonymy) for *Lacerta iguana* Linnaeus 1758).

- Iguana squamosa* Spix 1825, *Animalia nova sive species novae lacertarum*, Munich 1:5; Pl. 5 (synonym of *Iguana tuberculata* fide Gray 1831). Lectotype: ZSM 537/0 (Hoogmoed and Gruber 1983; see REMARKS). COLLECTOR: J. B. de Spix. TYPE LOCALITY: "Bahiae, Parae"; "Salvador and Belém" (Vanzolini 1981).
- Iguana viridis* Spix 1825, *Animalia nova sive species novae lacertarum*, Munich 1:6; Pl. 6 (synonym of *Iguana tuberculata* fide Gray 1831). Lectotype: ZSM 540/0 (Hoogmoed and Gruber 1983). COLLECTOR: J. B. de Spix. TYPE LOCALITY: "Rio St. Francisci et Itapicuru".
- Iguana coerulea* (non Daudin 1802) Spix 1825, *Animalia nova sive species novae lacertarum*, Munich 1:7; Pl. 7 (synonym *Iguana tuberculata* fide Fitzinger 1843). SYNTYPES: ZSM 71/0 [2 specimens], destroyed (Etheridge 1982; Hoogmoed and Gruber 1983). COLLECTOR: J. B. de Spix. TYPE LOCALITY: "Rio St. Francisci".
- Iguana emarginata* Spix 1825, *Animalia nova sive species novae lacertarum*, Munich 1:7; Pl. 8 (synonym of *Iguana tuberculata* fide Gray 1831). HOLOTYPE: ZSM 535/0 (Hellmich 1961; Hoogmoed and Gruber 1983). COLLECTOR: J. B. de Spix. TYPE LOCALITY: "[Rio] St. Francisci".
- Iguana lophyroides* Spix 1825, *Animalia nova sive species novae lacertarum*, Munich 1:8; Pl. 9 (synonym of *Iguana tuberculata* fide Fitzinger 1843). Lectotype: ZSM 546/0 A (Hoogmoed and Gruber 1983; see REMARKS). COLLECTOR: J. B. de Spix. TYPE LOCALITY: "Rio de Janeiro, Bahiae"; "Rio de Janeiro and Salvador" (Vanzolini 1981).
- Iguana Iguana* - Gray 1827, *Phil. Mag.*, ser. 2, 2:57.
- Iguana tuberculosa* Bory de Saint-Vincent 1828, *Résumé d'erpétologie*, Paris, p. 120, Pl. 21 (replacement name (in synonymy) for *Lacerta iguana* Linnaeus 1758).
- Hypsilophus iguana* - Wagler 1830, *Natürliches System der Amphibien*, Munich p. 147.
- Iguana (Iguana) tuberculata* - Gray 1831, A synopsis of the species of the Class Reptilia in Griffith (ed.) Cuvier's Animal Kingdom, London 9:36.
- Iguana (Hypsilophus) rhinolophus* Wiegmann 1834, *Herpetologia Mexicana*, Berlin, p. 44 (synonym of *Iguana iguana* fide Lazell 1973). SYNTYPES: ZMB 571[2 specimens] (Etheridge 1982), one recatalogued as ZMB 36300; ZMB 572, lost (see REMARKS). COLLECTOR: Ferdinand Deppe (Wiegmann 1828). TYPE LOCALITY: Mexico, by implication through reference to Wiegmann (1828); restricted without justification to "Córdoba, Veracruz" (Smith and Taylor 1950).
- Iguana rhinolopha* - Duméril & Bibron 1837, *Erpétologie générale*, Paris 4:207.
- Hypsilophus (Hypsilophus) Rhinolophus* - Fitzinger 1843, *Systema reptilium*, Vienna p. 55.

*Hypsilophus (Hypsilophus) tuberculatus* - Fitzinger 1843, Systema reptilium, Vienna p. 55.

*Iguana rhinolophus* - Gray 1845, Catalogue of the specimens of lizards in the collection of the British Museum, London, p. 186.

*Metopoceros cornutus* - Tyler 1850, Proc. Zool. Soc. Lond. 1850:106, Pl. 3.

?*Iguana Hernandezii* Jan 1857, Indice sistematico dei rettili ed anfibii esposti nel Museo Civico di Milano, Milan, p. 38 (*nomen nudum* fide Smith and Taylor 1950).

*Iguana tuberculata* Var. *rhinolopha* - Boulenger 1885, Catalogue of the lizards in the British Museum (Natural History), London 2:190.

*Iguana iguana rhinolopha* - Van Denburgh 1898, Proc. Acad. Nat. Sci. Phila. (1897) 49:461.

*Iguana iguana iguana* - Dunn 1934, Copeia 1934(1):1.

COLORATION: Usually some shade of green dorsally, varying from olive to brilliant "arsenic" green, marked with dark transverse bands frequently bordered anteriorly by whitish streaks; however, background color may be grey, grey-brown, or reddish, and dark pattern may be lacking, of ornate scalloped and interrupted bands, overlain by speckling, or obscured by melanism (Lazell 1973).

DISTRIBUTION: Lowlands (below 1000 m) of the Americas from central Sinaloa (Costa Rica, 24° 33' N [Smith and Van Gelder 1955]) on the Pacific Coast and northern Veracruz (Laguna de Tamiahua, ca. 21° 30' N [Smith and Burger 1950]) on the Atlantic Coast southward at least to the Tropic of Capricorn in South America (including various offshore islands) and the Lesser Antilles, but excluding most of the Yucatán Peninsula; reported from Isla Cozumel but not Las Islas Tres Marías (Lazell 1973; Etheridge 1982). In México, reported from the states of Sinaloa, Nayarit, Colima, Jalisco, Michoacán, Guerrero, Puebla, Oaxaca, Veracruz, Tabasco, Campeche, Quintana Roo, and Chiapas (Smith and Taylor 1950).

REMARKS: According to Lazell (1973), no type was ever designated for *Iguana iguana*; however, Lönnberg (1896) and Andersson (1900) identified specimens in the collections of Uppsala University and the Natural History Museum of Stockholm as types of this nominal taxon. Given that Lazell (1973) did not recognize types for *I. iguana*, his restriction of the type locality cannot have been based on any specific information concerning the syntypes. His action seems to have been based on the abundance of iguanas at the locality in question. In contrast, Hoogmoed's (1973) restriction of the type locality of the same taxon was based on his inference that the specimens identified as syntypes most likely came from Surinam, in particular, the



confluence of the Cottica River and Perica Creek, though he did not give the basis for this inference in detail.

Etheridge (1982) considered *I. caerulea* Daudin (1802) to be based on figures in Seba (1734); however, as noted by Brygoo (1989), Daudin (1802) made explicit reference to two specimens that he apparently examined directly. With regard to the specimens illustrated in Seba (1934), Daudin (1802) stated only that their names were synonyms of *I. caerulea*.

Hoogmoed and Gruber (1983) discussed several discrepancies between their findings and those of Etheridge (1982) concerning the types of *Iguana squamosa*, *I. viridis*, and *I. emarginata*. They did not, however, comment on the discrepancy between the syntypes of *I. lophyroides* reported by themselves (ZSM 536/0, 546/0 (2), RMNH 2780) and those reported by Etheridge (1982) (ZSM 546/0 (2)) nor did they comment on the discrepancy between the catalogue number of one of the types of *I. squamosa* reported by them (ZSM 537/0) and that reported by Hellmich (1960) (ZSM 537/3).

Etheridge (1982) listed two syntypes of *I. rhinolopha* under the catalogue number ZMB 571, whereas Taylor (1969) stated that ZMB 571 was the holotype and ZMB 36300 a syntype. Taylor's statement is self-contradictory in that a nominal taxon cannot have at the same time both a holotype and a syntype. In any case, his statement suggests that one of the two specimens originally designated ZMB 571 may have been recatalogued under the number ZMB 36300, which is confirmed by the Berlin catalogue (A. Bauer pers. comm. 1994). The Berlin catalogue also indicates that ZMB 572 is a syntype of *I. rhinolopha*, though it indicates that this specimen is lost (A. Bauer pers. comm. 1994).

The Mexican populations of *Iguana iguana* = *Iguana iguana rhinolopha* of Smith and Taylor (1950).

### ***Sauromalus ater* Duméril**

*Sauromalus ater* Duméril 1856, Arch. Mus. Natl. Hist. Nat., Paris 8:536, Pl. 23, Fig. 3, 3a.

HOLOTYPE: MNHN 813 (Guibe 1954; Brygoo 1989). COLLECTOR: donné au Muséum par [Lieutenant] M. Jaurès. TYPE LOCALITY: "nous ignorons l'origine";

restricted without justification to "Espíritu Santo Island" (Smith and Taylor 1950; see REMARKS).

*Sauromalus interbrachialis* Dickerson 1919, Bull. Am. Mus. Nat. Hist. 41(10):463 (synonym of *Sauromalus ater* fide Schmidt 1922). HOLOTYPE: AMNH 6809 = USNM 64443 (Schmidt 1922; Cochran 1961). COLLECTOR: C. H. Townsend. TYPE LOCALITY: "La Paz, Lower California, Mexico", doubtful (Shaw 1945; see REMARKS).

*Sauromalus ater ater* - Soulé & Sloan 1965, Trans. San Diego Soc. Nat. Hist. 14(11):141.

COLORATION: Top of head brown, usually somewhat lighter laterally; ground color of dorsal body and limbs dull yellowish brown to grayish brown; four broad, dark brown transverse bands across the back; a fifth band usually present on the nape in juveniles; centers of bands invaded by light ground color giving a double-banded effect; limbs and area between bands spotted with dark brown or black; gular region and chest dull gray or brown and more or less obscurely marbled, streaked, or spotted with brown or black; belly grayish or yellowish brown, spotted with darker brown laterally; 4-5 brown bands encircling tail with areas of yellowish-brown between (Shaw 1945).

DISTRIBUTION: Islands of Danzante, Santa Cruz, San Diego, San José, San Francisco, Partida Sur, and Espíritu Santo in the Gulf of California, Baja California Sur (Shaw 1945; Cliff 1958; Murphy and Ottley 1984).

REMARKS: Smith and Taylor's (1950) restriction of the type locality of *S. ater* to Espíritu Santo Island apparently was not based on any specific information about the holotype; however, Shaw (1945) had concluded previously, based on coloration and scale counts, that the holotype was collected on one of the following islands: Espíritu Santo, Partida, San Marcos, San Diego, Santa Cruz, or San Francisco. Etheridge (1982) attributed to Schmidt (1922) the conclusion that Dickerson's (1919) type locality for *S. interbrachialis* was in error; however, Schmidt (1922) stated only that the specimen was possibly from Espíritu Santo Island. Schmidt expressed his reasons for doubting Dickerson's stated locality in a letter to Shaw (see Shaw 1945), who noted agreement in scale counts of the holotype with insular rather than mainland specimens. Nevertheless, Shaw (1945) stated only that the type locality was uncertain, not incorrect (contra Cochran 1961), although he placed *S. interbrachialis* in the synonymy of *S. ater*.

*Sauromalus ater*  $\approx$  *Sauromalus ater* of Smith and Taylor (1950).

*Sauromalus australis* Shaw

*Sauromalus ater* (part) - Mocquard 1899, *Nouv. Arch. Mus. Natl. Hist. Nat. Paris*, ser. 4, 1:302.

*Sauromalus obesus* (part) - Schmidt 1922, *Bull. Am. Mus. Nat. Hist.* 46(11):641.

*Sauromalus australis* Shaw 1945, *Trans. San Diego Soc. Nat. Hist.* 10(15):286. HOLOTYPE: L. M. Klauber 30170; = SDSNH 30170 (Sloan 1965; Pregill and Berrian 1984). COLLECTOR: Robert S. Hoard. TYPE LOCALITY: "San Francisquito Bay, Baja California, Mexico".

*Sauromalus obesus australis* - Case 1982, in Burghardt & Rand, *Iguanas of the world*, Park Ridge, New Jersey, p. 185 (see REMARKS).

COLORATION: Top of head brown, usually somewhat lighter laterally; ground color of dorsal body and limbs gray to dull yellowish brown; 2-4 broad, dark brown transverse bands across the back; a fifth band or blotch usually present on the nape in juveniles; centers of bands invaded by light ground color giving a double-banded effect; limbs and area between bands spotted with brown; gular region and chest dull gray or brown and more or less obscurely marbled, streaked or spotted with darker brown; belly grayish or yellowish brown, spotted with darker brown laterally; 4-5 brown bands encircling tail with areas of gray or yellowish brown between (modified from Shaw 1945).

DISTRIBUTION: The peninsula of Baja California from the southern part of the state of Baja California (Arroyo San Javier, 28° 32'N, 114°05'W, [Bostic 1971] on the Pacific Coast and Bahía de Los Ángeles<sup>5</sup> on the Gulf Coast) southward at least as far as La Paz, Baja California Sur; also recorded from Isla Coyote, Bahía Concepción, Baja California Sur (Van Denburgh 1922; Shaw 1945; Leviton and Banta 1964; Grismer 1992).

REMARKS: Dickerson (1919) gave La Paz as the type locality of *S. interbrachialis*, which, if correct, would give *S. interbrachialis* priority as the name of the species inhabiting the southern part of the Baja California peninsula. However, Shaw (1945) presented reasons for questioning this locality, and he considered *interbrachialis* a synonym of *ater* (see REMARKS for *S. ater*). For these reasons, Shaw coined the name *S. australis* for the species from the southern part of

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<sup>5</sup>Based on personal observations as well as on specimens in the collection of the California Academy of Sciences.

the Baja California peninsula. Case (1982) stated that he followed the nomenclature of Robinson (1972) in treating *australis* as a subspecies of *obesus*; however, Robinson (1972) retained *australis* as a separate species. Seib (1980) considered *australis* conspecific with *obesus*, but he did not indicate whether he recognized *australis* as a subspecific taxon.

*Sauromalus australis* = *Sauromalus australis* of Smith and Taylor (1950).

### *Sauromalus hispidus* Stejneger

*Sauromalus ater* (part) - Streets 1877, U. S. Natl. Mus. Bull. (7):36.

*Sauromalus hispidus* Stejneger 1891, Proc. U. S. Natl. Mus. 14(864):409. HOLOTYPE: USNM 8563. COLLECTOR: Dr. Thos. H. Streets. TYPE LOCALITY: "Angel de la Guardia Island, Gulf of California"; "Ángel de la Guarda Island, Baja California" (Smith and Taylor 1950).

COLORATION: Juveniles with 1-5 transverse body bands; subadults brown with small dark brown spots dorsally, light grey-brown with faint darker spots ventrally; adults more or less uniform olive brown to black with occasional evidences of irregular dark markings dorsally, especially between shoulders and near insertion of arms, yellowish or grayish brown and unspotted ventrally (Shaw 1945).

DISTRIBUTION: Islands of Ángel de la Guarda, Granito (Granite), Mejía, Estanque (Pond), Smith, Piojo, La Ventana (Nuevo Amor?), Cabeza de Caballo, San Lorenzo Norte (Las Animas), and San Lorenzo Sur in the Gulf of California, Baja California (Shaw 1945, 1946; Murphy 1983a, b) (see REMARKS).

REMARKS: According to Murphy (1983a) and Murphy and Ottley (1984), the occurrence of *S. hispidus* on the islands of Smith, Cabeza de Caballo, Piojo, and La Ventana may be the result of human introductions.

*Sauromalus hispidus* = *Sauromalus hispidus* of Smith and Taylor (1950).

*Sauromalus klauberi* Shaw

*Sauromalus klauberi* Shaw 1941, Trans. San Diego Soc. Nat. Hist. 9(28):285. HOLOTYPE: L. M. Klauber 6859; = SDSNH 6859 (Sloan 1965; Pregill and Berrian 1984). COLLECTOR: J. R. Pemberton. TYPE LOCALITY: "Santa Catalina Island, Gulf of California, Mexico".

*Sauromalus ater klauberi* - Soulé & Sloan 1966, Trans. San Diego Soc. Nat. Hist. 14(11):141 (see REMARKS).

COLORATION: Dorsal ground color of adults dark brown, becoming nearly black on the head; irregular black markings present on dorsal body but not forming bands; gular region spotted or streaked with brown; chest streaked with reddish-brown; belly unspotted except laterally where small, faint, brown spots may be present; tail gray, brown, or greenish brown, sometimes flecked with yellow and/or dark brown proximally. In a juvenile specimen, ground color of dorsal body gray, marked with many small brown spots which have some semblance of arrangement into longitudinal rows (Shaw 1945).

DISTRIBUTION: Isla Santa Catalina in the Gulf of California, Baja California Sur (Shaw 1945).

REMARKS: Pregill and Berrian (1984) attributed the combination *S. ater klauberi* to Avery and Tanner (1964), but I can find no use of that combination in that paper.

*Sauromalus klauberi* = *Sauromalus klauberi* of Smith and Taylor (1950).

*Sauromalus obesus* (Baird)

*Euphryne obesus* Baird 1859, Proc. Acad. Nat. Sci. Phila. (1858) 10:253. HOLOTYPE: USNM 4172 (see REMARKS). COLLECTOR: Maj. [G. H.] Thomas. TYPE LOCALITY: "canons of the Colorado, of California"; "Fort Yuma" (Shaw 1945; Smith and Taylor 1950; Cochran 1961; Etheridge 1982).

*Euphryne obesa* - Baird 1859, United States and Mexican boundary survey 2(2, Reptiles of the boundary):6, Pl. 27.

*Sauromalus ater* (part) - Bocourt 1874, in Duméril, Bocourt & Mocquard, Mission scientifique au Mexique et dans l'Amérique Centrale, Études sur les reptiles, Paris 3:149.

*Sauromalus townsendi* Dickerson 1919, Bull. Am. Mus. Nat. Hist. 41(10):464. HOLOTYPE: AMNH 5643; = USNM 64442 (Schmidt 1922; Shaw 1945; Cochran 1961). COLLECTOR: C. H. Townsend. TYPE LOCALITY: "Tiburon Island, Gulf of California, Mexico".

*Sauromalus obesus* - Schmidt 1922, Bull. Am. Mus. Nat. Hist. 46(11):641.

*Sauromalus obesus townsendi* - Shaw 1945, Trans. San Diego Soc. Nat. Hist. 10(15):290.

*Sauromalus obesus tumidus* - Shaw 1945, Trans. San Diego Soc. Nat. Hist. 10(15):292. HOLOTYPE: L. M. Klauber 27323; = SDSNH 27323 (Sloan 1965; Pregill and Berrian 1984). COLLECTOR: L. M. Klauber. TYPE LOCALITY: "Telegraph Pass, Gila Mountains, Yuma County, Arizona".

*Sauromalus obesus obesus* - Shaw 1945, Trans. San Diego Soc. Nat. Hist. 10(15):295.

*Sauromalus obesus multiforminatus* Tanner and Avery 1964, Herpetologica 20(1):38. HOLOTYPE: BYU 11376. COLLECTOR: Wilmer W. Tanner. TYPE LOCALITY: "North Wash, 11 miles northwest of Hite, Garfield County, Utah".

COLORATION: Extremely variable; dorsal surface of head light brown to yellowish gray to black; ground color of dorsal body grayish to yellowish, often marked with 1-5 brown or black transverse bands between nape and sacral region, although these bands may be absent; dorsal body may also be variously flecked and spotted with yellow, flecked, spotted, or reticulated with black, and suffused with red; in specimens with black heads the black color may extend onto the neck and shoulders or the entire body (except tail); ventral ground color yellowish to gray to red, sometimes peppered or spotted with black and sometimes heavily marked with black in gular region, chest, and groin, or the entire ventral surface of the body (except tail); limbs brown, gray, or black, with or without spots of yellow, yellowish brown, or gray; tail gray or yellowish brown with or without 4-5 brown or black encircling bands; body and tail bands prominent in juveniles, becoming fainter with age and with a greater tendency toward loss in males than in females (modified from Shaw 1945).

DISTRIBUTION: Desert regions at elevations below 1830 m (Stebbins 1985) of the southwestern United States in southeastern California, southern Nevada, extreme southwestern Utah, and western and central Arizona (*obesus*; Shaw 1945); the Colorado River Area in northern Arizona and southern Utah (*multiforminatus*; Tanner and Avery 1964); Isla Tiburón

in the Gulf of California, Sonora, and adjacent western Sonora from at least as far north as Puerto de Lobos to at least as far south as Guaymas and inland to the vicinity of Hermosillo (*townsendi*; Shaw 1945); and southern central and southwestern Arizona (*tumidus*; Shaw 1945). Some specimens from northwestern Sonora have been considered intergrades between *S. o. tumidus* and *S. o. townsendi* (Shaw 1945), others intergrades between *S. o. tumidus* and *S. o. obesus* (Smith and Hensley 1958). The range of *Sauromalus obesus* extends southward into northeastern Baja California at least as far south as Arrastas de Arriola (Gates 1968). According to Gates (1968), the subspecific assignment of specimens from this area is uncertain, although Stebbins (1954) considered them to be *S. o. obesus*.

REMARKS: Yarrow (1882) and Cope (1900) both gave the incorrect number USNM 4772 for the type of *S. obesus*.

The Mexican populations of *Sauromalus obesus* = *Sauromalus obesus townsendi*, *S. o. tumidus*, and *S. o. obesus* of Smith and Taylor (1950). For identification of subspecies see Shaw (1945) and Tanner and Avery (1964).

### *Sauromalus shawi* Cliff

*Sauromalus interbrachialis* (part) - Van Denburgh 1922, Occas. Pap. Calif. Acad. Sci. 10(1):95.

*Sauromalus ater* (part) - Shaw 1945, Trans. San Diego Soc. Nat. Hist. 10(15):284.

*Sauromalus shawi* Cliff 1958, Copeia 1958(4):259. HOLOTYPE: SU 16120; = CAS-SU 16120

(J. Vindum pers. comm. 1993). COLLECTORS: James Böhlke and Jay M. Savage.

TYPE LOCALITY: "San Marcos Island".

*Sauromalus ater shawi* - Soulé & Sloan 1966, Trans. San Diego Soc. Nat. Hist. 14(11):141.

COLORATION: Top of head and lateral temporal region dark brown; side of head anterior to eye gray, spotted lightly with dark brown; region lateral and posterior to ear dark brown with dark yellow suffusions; ground color of dorsal body dark yellow to light brown, lighter yellow mid-dorsally, marked with four indistinct dark brown transverse bands (more distinct anteriorly than posteriorly); spotted with dark brown laterally; centers of bands invaded by lighter ground color resulting in a reticulated pattern; ground color of ventral surface lighter than that of

dorsum; throat, neck, and limbs spotted and/or blotched with dark brown; tail uniform light brown (Cliff 1958).

DISTRIBUTION: Isla San Marcos in the Gulf of California (Cliff 1958), Baja California Sur.

REMARKS: *Sauromalus shawi* = part of *Sauromalus ater* of Smith and Taylor (1950).

### *Sauromalus slevini* Van Denburgh

*Sauromalus slevini* Van Denburgh 1922, Occas. Pap. Calif. Acad. Sci. 10(1):97. HOLOTYPE: CAS 50503. COLLECTOR: Joseph R. Slevin. TYPE LOCALITY: "South end of Monserrate Island, Gulf of California, Mexico".

*Sauromalus ater slevini* - Robinson 1974, Herpetologica 30:163.

COLORATION: Subadults with 2-4 dark brown bands with lighter centers across the back on a yellowish brown background; adults nearly uniform dark brown with faint irregular streaks and spots of darker brown or black dorsally; yellowish brown ventrally with dark brown spotting, streaking, or mottling in the gular region; head dark brown or nearly black dorsally and yellowish grey laterally; tail yellowish or olive-brown dorsally and lighter brown ventrally (Shaw 1945).

DISTRIBUTION: Islands of Coronados, Carmen, and Monserrate in the Gulf of California, Baja California Sur (Van Denburgh 1922).

REMARKS: *Sauromalus slevini* = *Sauromalus slevini* of Smith and Taylor (1950).

### *Sauromalus varius* Dickerson

*Sauromalus varius* Dickerson 1919, Bull. Am. Mus. Nat. Hist. 41(10)464. HOLOTYPE: AMNH 5633; = USNM 64441 (Schmidt 1922; Shaw 1945; Cochran 1961). COLLECTOR: C. H. Townsend. TYPE LOCALITY: "San Esteban Island, Gulf of California, Mexico".



COLORATION: Snout, chin, and top of head black, or nearly so; dorsal body and tail with irregular reddish brown or black blotches and spots on a yellowish or orange-brown background (Shaw 1945).

DISTRIBUTION: Islands of San Esteban and Lobos (Cholludo; sight record) in the Gulf of California, Sonora (Dickerson 1919; Lowe and Norris 1955) (see REMARKS).

REMARKS: Chuckwallas from Isla Pelicano (Alcatraz) were originally referred to *S. varius* (Lowe and Norris 1955) but have subsequently been considered parts of a hybrid swarm involving *S. varius*, *S. hispidus*, and *S. obesus* (Robinson 1972). According to Murphy and Ottley (1984), the occurrence of *S. varius* on the islands of Pelicano and Lobos may be the result of human introduction.

*Sauromalus varius* = *Sauromalus varius* of Smith and Taylor (1950).

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## LITERATURE CITED

- ALLEN, M. J. 1933. Report on a collection of amphibians and reptiles from Sonora, Mexico, with the description of a new lizard. *Occas. Pap. Mus. Zool. Univ. Mich.* 259:1-15.
- ANDERSSON, L. G. 1900. Catalogue of Linnean type-specimens of Linnæus's Reptilia in the Royal Museum in Stockholm. *Bih. till K. Svenska Vet.-Akad. Handl.* 26:1-29.
- EVERY, D. F., and W. W. Tanner. 1964. The osteology and myology of the head and thorax regions of the *obesus* group of the genus *Sauromalus* Dumeril (Iguanidae). *Brigham Young Univ. Sci. Bull. Biol. Ser.* 5:1-30.
- BAILEY, J. W. 1928. A revision of the lizards of the genus *Ctenosaura*. *Proc. U. S. Natl. Mus.* 73:1-58.
- BAIRD, S. F. 1959. Reptiles of the boundary. (2):1-35 in *United States and Mexican Boundary Survey. Part II. Zoology of the Boundary.* Department of the Interior, Washington.
- BARBOUR, T., and A. Loveridge. 1929. Typical reptiles and amphibians. *Bull. Mus. Comp. Zool.* 69:305-360.
- BARBOUR, T., and B. Shreve. 1934. A new race of rock iguana. *Occas. Pap. Boston Soc. Nat. Hist.* 8:197-198.
- de BLAINVILLE, M. H. D. 1835. Description de quelques espèces de reptiles de la Californie, précédée de l'analyse d'un système général d'erpétologie et d'amphibiologie. *Nouv. Ann. Mus. Natl. Hist. Nat. Paris* 4:233-296 + plates 24-27.
- BOCOURT, M.-F. 1874. Ordre des sauriens. Pp. 28-494 in *Mission Scientifique au Mexique et dans l'Amérique Centrale. Troisième partie. Études sur les reptiles et les batraciens* (A. Duméril, M.-F. Bocourt, and F. Mocquard, eds.). Imprimerie Nationale, Paris.
- BOCOURT, M.-F. 1882. Note sur les espèces appartenant au genre *Ctenosaura*. *Le Naturaliste* (Paris) 2:47.

- BOSTIC, D. L. 1971. Herpetofauna of the Pacific Coast of North Central Baja California, Mexico, with a description of a new subspecies of *Phyllodactylus xanti*. Trans. San Diego soc. Nat. Hist. 16:237-264.
- BOULENGER, G. A. 1885. Catalogue of the lizards in the British Museum (Natural History). Taylor and Francis, London.
- BOULENGER, G. A. 1886. Description of a new iguanoid lizard living in the Society's gardens. Proc. Zool. Soc. Lond. 1886:241.
- BRYGOO, É. R. 1989. Les types d'Iguanidés (Reptiles, Sauriens) du Muséum national d'Histoire naturelle Catalogue critique. Bull. Mus. Natl. Hist. Nat. Paris (ser. 4) 11:1-112.
- CASE, T. J. 1982. Ecology and evolution of the insular gigantic chuckwallas, *Sauromalus hispidus* and *Sauromalus varius*. Pp. 184-212 in *Iguanas of the world: Their behavior, ecology, and conservation* (G. M. Burghardt and A. S. Rand, eds.). Noyes, Park Ridge, New Jersey.
- CLIFF, F. S. 1954. Variation and evolution of the reptiles inhabiting the islands in the Gulf of California, Mexico. Ph.D. dissertation. Stanford Univ.
- CLIFF, F. S. 1958. A new species of *Sauromalus* from Mexico. *Copeia* 1958:259-261.
- COCHRAN, D. M. 1961. Type specimens of reptiles and amphibians in the U.S. National Museum. U. S. Natl. Mus. Bull. (220):1-291.
- COPE, E. D. 1866. Fourth contribution to the herpetology of tropical America. Proc. Acad. Nat. Sci. Phila. 18:123-132.
- COPE, E. D. 1886. On the species of Iguaninae. Proc. Am. Philos. Soc. 23:261-271.
- COPE, E. D. 1900. The crocodilians, lizards, and snakes of North America. Smithsonian Institution (Annu. Rep.) 1898:153-1294.

- DAUDIN, F. M. 1802. Histoire naturelle, generale et particuliere, des reptiles. Imprimerie de F. Dufart, Paris.
- DICKERSON, M. C. 1919. Diagnoses of twenty-three new species and a new genus of lizards from Lower California. Bull. Am. Mus. Nat. Hist. 41:461-477.
- DUELLMAN, W. E. 1961. The amphibians and reptiles of Michoacán, México. Univ. Kans. Publ. Mus. Nat. Hist. 15:1-148.
- DUELLMAN, W. E. 1965. Amphibians and reptiles from the Yucatan Peninsula, México. Univ. Kans. Publ. Mus. Nat. Hist. 15:577-614.
- DUELLMAN, W. E., and A. S. Duellman. 1959. Variation, distribution, and ecology of the iguanid lizard *Enyaliosaurus clarki* of Michoacan, Mexico. Occas. Pap. Mus. Zool. Univ. Mich. (598):1-10.
- DUMÉRIL, A. M. C., and G. Bibron. 1837. Erpétologie générale ou histoire naturelle complète des reptiles. Librairie Encyclopédique de Roret, Paris.
- DUNN, E. R. 1934. Notes on *Iguana*. Copeia 1934:1-4.
- ELTER, O. 1981. La collezione erpetologica del Museo di Zoologia dell'Università di Torino. Mus. Reg. Sci. Nat. Cat. (Torino) 5:1-116.
- ESTES, R. 1983. Sauria terrestria, Amphisbaenia. Handbuch der Paläoherpetologie, 10A. Gustav Fisher Verlag, Stuttgart.
- ETHERIDGE, R. E. 1982. Checklist of iguanine and Malagasy iguanid lizards. Pp. 7-37 in Iguanas of the world: Their behavior, ecology, and conservation (G. M. Burghardt and A. S. Rand, eds.). Noyes, Park Ridge, New Jersey.
- FITCH, H. S., and J. Hackforth-Jones. 1983. *Ctenosaura similis* (Garrobo, Iguana Negra, Ctenosaur). Pp. 394-396 in Costa Rican natural history (D. H. Janzen, ed.). Univ. of Chicago Press, Chicago.

- FITZINGER, L. 1843. *Systema reptilium*. Apud Braumüller et Seidel Bibliopolas, Vienna.
- GATES, G. O. 1968. Geographical distribution and character-analysis of the iguanid lizard *Sauromalus obesus* in Baja California, Mexico. *Herpetologica* 24:285-288.
- GICCA, D. F. 1982. *Enyaliosaurus clarki* (Bailey). *Cat. Am. Amphib. Reptiles* (301):1-2.
- GICCA, D. F. 1983. *Enyaliosaurus quinquecarinatus* (Gray). *Cat. Am. Amphib. Reptiles* (329):1-2.
- GRAY, J. E. 1825. A synopsis of the genera of reptiles and Amphibia, with a description of some new species. *Ann. Philos. (Ser. 2)* 10:193-217.
- GRAY, J. E. 1831. A synopsis of the species of the Class Reptilia. Pp. 1-110 (paginated separately) *in* The Animal Kingdom arranged in conformity with its organization, by the Baron Cuvier ... with additional descriptions of all the species hitherto named, and of many not before noticed, by Edward Griffith ... and others (E. Griffith and E. Pidgeon, eds.). Whittaker, Treacher, and Co., London.
- GRAY, J. E. 1842. Description of some new species of reptiles, chiefly from the British Museum collection. *Zoological miscellany* 2:57-59.
- GRAY, J. E. 1845. Catalogue of the specimens of lizards in the collection of the British Museum. Edward Newman, London.
- GRISMER, L. L. 1992. The evolutionary and ecological biogeography of the herpetofauna of Baja California and the Sea of Cortés, México. Ph.D. dissertation. Loma Linda Univ.
- GUIBE, J. 1954. Catalogue des types de lézards du Muséum National D'Histoire Naturelle. Imprimerie Nationale, Paris.
- GÜNTHER, A. C. L. G. 1885-1902. Reptilia and Batrachia. *In* *Biologia Centrali-Americana* (F. D. Godman and O. Salvin, eds.). Dulau and Co., London.

- HARDY, L. M., and R. W. McDiarmid. 1969. The amphibians and reptiles of Sinaloa, México. Univ. Kans. Publ. Mus. Nat. Hist. 18:39-252.
- HIDALGO, H. 1980. *Enyaliosaurus quinquecarinatus* (Gray) and *Leptodeira nigrofasciata* Günther in El Salvador. Herpetol. Rev. 11:42-43.
- HOARD, R. S. 1939. New Lower California reptile records. Pomona College J. Entomol. Zool. 31:4-5.
- HOOGMOED, M. S. 1973. Notes on the herpetofauna of Surinam IV. The lizards and amphisbaenians of Surinam. W. Junk, The Hague.
- HOOGMOED, M. S., and U. Gruber. 1983. Spix and Wagler type specimens of reptiles and amphibians in the Natural History Musea in Munich (Germany) and Leiden (The Netherlands). Spixiana Suppl. (Munich) 9:319-415.
- KLUGE, A. G. 1984. Type-specimens of reptiles in the University of Michigan Museum of Zoology. Misc. Publ. Mus. Zool. Univ. Mich. (167):1-85.
- LANGEBARTEL, D. A. 1953. The reptiles and amphibians. Pp. 91-108 in Faunal and archeological researches in Yucatan Caves (R. T. Hatt, ed.). Cranbrook Inst. Sci. Bull. (33).
- LANGEBARTEL, D. A., and H. M. Smith. 1954. Summary of the Norris Collection of reptiles and amphibians from Sonora, Mexico. Herpetologica 10:125-136.
- LAZELL, J. D. 1973. The lizard genus *Iguana* in the Lesser Antilles. Bull. Mus. Comp. Zool. 145:1-28.
- LEE, J. C. 1980. An ecogeographic analysis of the herpetofauna of the Yucatán Peninsula. Univ. Kans. Mus. Nat. Hist. Misc. Publ. 67:1-75.

- LEVITON, A. E., and B. H. Banta. 1964. Midwinter reconnaissance of the herpetofauna of the cape region of Baja California, Mexico. Proc. Calif. Acad. Sci. (Fourth Ser.) 30:127-156.
- LEVITON, A. E., R. H. Gibbs, Jr., E. Heal, and C. E. Dawson. 1985. Standards in herpetology and ichthyology: part I. Standard symbolic codes for institutional resource collections in herpetology and ichthyology. Copeia 1985:802-832.
- LINSDALE, J. M. 1932. Amphibians and reptiles from Lower California. Univ. Calif. Publ. Zool. 38:345-386.
- LÖNNBERG, E. 1896. Linnean type-specimens of birds, reptiles, batrachians and fishes in the Zoological Museum of the R. University in Upsala. Bih. till K. Svenska Vet.-Akad. Handl. 22:1-45.
- LOWE, C. H., Jr., and K. S. Norris. 1955. Analysis of the herpetofauna of Baja California, Mexico. III. New and revived reptilian subspecies of Isla de San Esteban, Gulf of California, Sonora, Mexico, with notes on other satellite islands of Isla Tiburon. Herpetologica 11:89-96.
- MALNATE, E. V. 1971. A catalog of primary types in the herpetological collections of the Academy of Natural Sciences, Philadelphia (ANSP). Proc. Acad. Nat. Sci. Phila. 123:345-375.
- MARTIN, P. S. 1958. A biogeography of reptiles and amphibians in the Gomez Farias region, Tamaulipas, Mexico. Misc. Publ. Mus. Zool. Univ. Mich. (101):1-102.
- MAYHEW, W. W. 1971. Reproduction in the desert lizard, *Dipsosaurus dorsalis*. Herpetologica 27:57-77.
- MEYER, J. R., and L. D. Wilson. 1973. A distributional checklist of the turtles, crocodilians, and lizards of Honduras. Contrib. Sci. Nat. Hist. Mus. Los Angeles Co. (244):1-39.

- MOSAUER, W. 1936. The reptilian fauna of the sand dune areas of the Vizcaino Desert and of northwestern Lower California. Occas. Pap. Mus. Zool. Univ. Mich. (329):1-21 + 2 pl.
- MURPHY, R. W. 1982. The genetic relationships and biogeography of the Baja California herpetofauna. Ph.D. dissertation. Univ. Calif. Los Angeles.
- MURPHY, R. 1983. The reptiles: Origins and evolution. Pp. 130-158, 429-437 in *Island biogeography in the Sea of Cortéz* (T. J. Case and M. L. Cody, eds.). University of California Press, Berkeley.
- MURPHY, R. W. 1983. Paleobiogeography and genetic differentiation of the Baja California herpetofauna. Occas. Pap. Calif. Acad. Sci. (137):1-48.
- MURPHY, R. W., and J. R. Ottley. 1984. Distribution of amphibians and reptiles on islands in the Gulf of California. *Ann. Carnegie Mus.* 53:207-230.
- MURRAY, K. F. 1955. Herpetological collections from Baja California. *Herpetologica* 11:33-48.
- OELRICH, T. M. 1956. The anatomy of the head of *Ctenosaura pectinata* (Iguanidae). Misc. Publ. Mus. Zool. Univ. Mich. (94):1-122.
- OLSON, E. C. 1937. A Miocene lizard from Nebraska. *Herpetologica* 1:111-112.
- PETERS, J. A., and R. Donoso-Barros. 1970. Catalogue of the Neotropical Squamata: Part II. Lizards and amphisbaenians. U. S. Natl. Mus. Bull. (297):1-293.
- PREGILL, G. K., and J. E. Berrian. 1984. Type specimens of amphibians and reptiles in the San Diego Natural History Museum. *Trans. San Diego Soc. Nat. Hist.* 20:151-164.
- de QUEIROZ, K. 1987. A new spiny-tailed iguana from Honduras, with comments on relationships within *Ctenosaura* (Squamata: Iguania). *Copeia* 1987:892-902.



- de QUEIROZ, K. 1987. Phylogenetic systematics of iguanine lizards: A comparative osteological study. Univ. Calif. Publ. Zool. 118:1-203.
- ROBINSON, M. D. 1972. Chromosomes, protein polymorphism, and systematics of insular chuckwalla lizards (genus *Sauromalus*) in the Gulf of California, Mexico. Ph.D. dissertation. Univ. Arizona.
- ROBINSON, M. D. 1974. Chromosomes of the insular species of chuckwalla lizards (genus *Sauromalus*) in the Gulf of California, Mexico. *Herpetologica* 30:162-167.
- SCHMIDT, K. P. 1922. The amphibians and reptiles of Lower California and the neighboring islands. Bull. Am. Mus. Nat. Hist. 46:607-707.
- SEBA, A. 1734. *Locupletissimi rerum naturalium thesauri*. J. Wetstenium and Gul. Smith, Amsterdam.
- SEIB, R. L. 1980. Baja California: A peninsula for rodents but not for reptiles. *Am. Nat.* 115:613-620.
- SHAW, C. E. 1945. The chuckwallas, genus *Sauromalus*. *Trans. San Diego Soc. Nat. Hist.* 10:269-306.
- SHAW, C. E. 1946. A new locality for the spiny chuckwalla, *Sauromalus hispidus*. *Copeia* 1946:254.
- SHAW, G. 1802. *General zoology*. Vol III. Part I. Amphibia. G. Kearsley, London.
- SLOAN, A. J. 1965. Holotype specimens of reptiles in the collection of the San Diego Society of Natural History. *Trans. San Diego Soc. Nat. Hist.* 14:1-8.
- SMITH, H. M. 1935. Miscellaneous notes on Mexican lizards. *Univ. Kans. Sci. Bull.* 36:119-155.

- SMITH, H. M. 1938. Notes on reptiles and amphibians from Yucatan and Campeche, Mexico. Occas. Pap. Mus. Zool. Univ. Mich. (388):1-22.
- SMITH, H. M. 1949. Miscellaneous notes on Mexican lizards. J. Wash. Acad. Sci. 39:34-43.
- SMITH, H. M. 1972. The Sonoran subspecies of the lizard *Ctenosaura hemilopha*. Great Basin Nat. 32:104-111.
- SMITH, H. M. 1987. Current nomenclature for the names and material cited in Günther's Reptilia and Batrachia volume of the *Biologia Centrali-Americana*. Pp. xxiii-li in [reprint of] *Biologia Centrali-Americana, Reptilia and Batrachia*. Society for the Study of Amphibians and Reptiles, Athens, Ohio.
- SMITH, H. M., and R. L. Holland. 1971. Noteworthy snakes and lizards from Baja California. J. Herpetol. 5:56-59.
- SMITH, H. M., and E. H. Taylor. 1945. An annotated checklist and key to the snakes of Mexico. U. S. Natl. Mus. Bull. (187):1-239.
- SMITH, H. M., and E. H. Taylor. 1948. An annotated checklist and key to the Amphibia of Mexico. U. S. Natl. Mus. Bull. (194):1-118.
- SMITH, H. M., and E. H. Taylor. 1950. An annotated checklist and key to the reptiles of Mexico exclusive of the snakes. U. S. Natl. Mus. Bull. (199):1-253.
- SMITH, H. M., and R. G. Van Gelder. 1950. New and noteworthy amphibians and reptiles from Sinaloa and Puebla, Mexico. Herpetologica 11:145-149.
- SMITH, P. W., and W. L. Burger. 1950. Herpetological results of the University of Illinois Field Expedition, Spring 1949. III. Sauria. Trans. Kans. Acad. Sci. 53:165-175.
- SMITH, P. W., and M. M. Hensley. 1958. Notes on a small collection of amphibians and reptiles from the vicinity of the Pinacate Lava Cap in northwestern Sonora, Mexico. Trans. Kans. Acad. Sci. 61:64-76.

- SOULÉ, M., and A. J. Sloan. 1966. Biogeography and distribution of the reptiles and amphibians on islands in the Gulf of California, Mexico. *Trans. San Diego Soc. Nat. Hist.* 14:137-156.
- STEBBINS, R. C. 1954. *Amphibians and reptiles of western North America*. McGraw-Hill, New York.
- STEBBINS, R. C. 1985. *A field guide to western reptiles and amphibians*. Houghton Mifflin, Boston.
- TANNER, W. W., and D. F. Avery. 1964. A new *Sauromalus obesus* from the Upper Colorado Basin of Utah. *Herpetologica* 20:38-42.
- TAYLOR, E. H. 1956. A review of the lizards of Costa Rica. *Univ. Kans. Sci. Bull.* 38:1-322.
- TAYLOR, E. H. 1969. Wiegmann and the herpetology of México. Pp. iii-vi *in* [reprint of] *Herpetologica Mexicana*. Society for the Study of Amphibians and Reptiles, Athens, Ohio.
- VAN DENBURGH, J. 1922. The reptiles of Western North America. *Occas. Pap. Calif. Acad. Sci.* (10):1-1028.
- VANZOLINI, P. E. 1981. The scientific and political contexts of the Bavarian expedition to Brasil. Pp. ix-xxix *in* *Herpetology of Brazil*. Society for the Study of Amphibians and Reptiles, Athens, Ohio.
- VILLA, J. 1971. Notes on some Nicaraguan reptiles. *J. Herpetol.* 5:45-48.
- VILLA R., J., and N. J. Scott. 1967. The iguanid lizard *Enyaliosaurus* in Nicaragua. *Copeia* 1967:474-476.
- WEBB, R. G., and C. M. Fugler. 1957. Selected comments on amphibians and reptiles from the Mexican state of Puebla. *Herpetologica* 13:33-36 [Erratum p. 222].

WIEGMANN, A. F. 1828. Beiträge zur Amphibienkunde. *Isis* (von Oken) 21:364-383.

WIEGMANN, A. F. 1834. *Herpetologia Mexicana, seu descriptio amphibiorum Novae Hispaniae, quae itineribus Comitis de Sack, Ferdinandi Deppe et Chr. Guil. Schiede in Museum Zoologicum Berolinense pervenerunt.* C. G. Lüderitz, Berlin.

WILSON, L. D., and D. E. Hahn. 1973. The herpetofauna of the Islas de la Bahía, Honduras. *Bull. Fla. State Mus. Biol. Sci.* 17:93-150.