

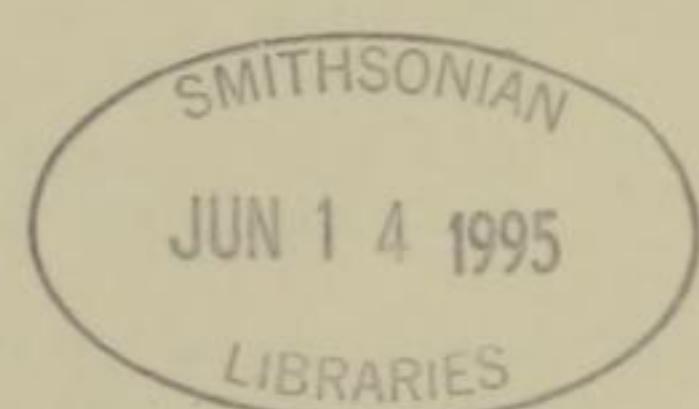
40  
666  
EPT

**CHECKLIST AND BIBLIOGRAPHY  
OF THE  
AMPHIBIANS AND REPTILES OF PANAMA**



**DAVID L. AUTH**

**Division of Herpetology  
Florida Museum of Natural History**



**SMITHSONIAN  
HERPETOLOGICAL INFORMATION  
SERVICE  
NO. 98**

**1994**

**SMITHSONIAN  
HERPETOLOGICAL  
INFORMATION  
SERVICE**

The SHIS series publishes and distributes translations, bibliographies, indices, and similar items judged useful to individuals interested in the biology of amphibians and reptiles, but unlikely to be published in the normal technical journals. Single copies are distributed free to interested individuals. Libraries, herpetological associations, and research laboratories are invited to exchange their publications with the Division of Amphibians and Reptiles.

We wish to encourage individuals to share their bibliographies, translations, etc. with other herpetologists through the SHIS series. If you have such items please contact George Zug for instructions on preparation and submission. Contributors receive 50 free copies.

Please address all requests for copies and inquiries to George Zug, Division of Amphibians and Reptiles, National Museum of Natural History, Smithsonian Institution, Washington DC 20560 USA. Please include a self-addressed mailing label with requests.

INTRODUCTION

Many amphibians and reptiles dispersed between North and South America along the Isthmus of Panama during the "Great American Biotic Interchange," after the Pliocene closure of the isthmian gap. The results of interchanges before the gap formed are also in evidence today, but involve fewer species (Vanzolini and Heyer, 1990). Panama's herpetological significance goes beyond being a land bridge between continents, however. The country has distributional continuities with North, Middle and South America, and border to border from both directions. The country also has a significant number of endemics (14 percent of the amphibians; 7 percent of the reptiles; 10 percent overall). With an area of only 77,082 km<sup>2</sup>, about half (50.8%) the size of Florida, Panama has approximately 2.8 times more native amphibians and reptiles than Florida, 5.7 times expectation based on area alone.

There is no published checklist and bibliography for just the herpetofauna of Panama. Partial lists are available: Dunn, 1931a and b; Myers and Rand, 1969; Rand and Myers, 1990; and Smith, 1958. Peters and Orejas-Miranda (1970), Peters and Donoso-Barros (1970), and Vanzolini (1986) cover a much larger area for the snakes and lizards. Campbell and Lamar (1989) have done the same for the poisonous snakes, Iverson (1992) for turtles, King and Burke (1989) for turtles and crocodilians, Frost (1985) for amphibians, and Villa, Wilson, and Johnson (1988) for the herpetofauna of Middle America.

The checklist documents 395 native species of amphibians and reptiles described from 1756 through 1992 (Table 1). This taxonomic effort can be divided into four periods based on four different average rates of species description. The average rate was second highest between 1756 and 1766 during the time of Linnaeus (2.9 described species a year for 32 species). The slowest period spanned from 1767 to 1849, with only 42 new species described (0.5 a year). The highest rate of discovery (3.8 species a year) occurred between 1850 and 1899, when 188 species were described. The rate from 1900 through 1992 has dropped to 1.4 a year (133 species). The latter two rates are almost linear. Since the latest rate is not approaching an asymptote, it isn't possible to estimate total Panamanian amphibian and reptile diversity. With only about twenty percent of the country's primary forests relatively intact, many species undoubtedly are already extinct or on the verge of extinction. Panama's complete pre-European herpetofaunal diversity will probably never be known, even after unexploited material in museum collections is analyzed.

Approximately two-thirds of the known native amphibians and reptiles of Panama were described before 1900 (10.4% prior to 1800, 55.9% in the 1800's). Edward Drinker Cope (80 species) and Wilhelm C. H. Peters (29 species) alone described slightly over one-fourth of the known fauna from 1860 to 1899. Linnaeus described 31 native species, Boulenger 26, Dunn 28, Taylor 20, and Dumeril, Bibron, and Dumeril 16. Thus, only nine taxonomists described 58 percent of Panama's known herpetofauna.

Table 1. Summary of the Number of Species by Family for the Amphibians and Reptiles of Panama

GROUP	NUMBER OF SPECIES	GROUP	NUMBER OF SPECIES
<b>AMPHIBIA</b>	170 (2)*	<b>AMPHIBIA-Cont.</b>	170 (2)
<b>ANURA</b>	140 (2)	<b>ANURA-Cont.</b>	140 (2)
Bufoidae	15	Pipidae	1
Centrolenidae	12	Ranidae	4
Dendrobatidae	14	CAUDATA	21
Hylidae	46	Plethodontidae	21
Leptodactylidae	44 (2)	GYMNOPHIONA	9
Microhylidae	4	Caeciliaidae	9
<b>REPTILIA</b>	225 (6)	<b>REPTILIA-Cont.</b>	225 (6)
<b>AMPHISBAENIA</b>	3	<b>SERPENTES-Cont.</b>	132
Amphisbaenidae	3	Boidae	6
<b>CROCODYLIA</b>	2	Colubridae	99
Alligatoridae	1	Elapidae	10
Crocodylidae	1	Leptotyphlopidae	2
<b>LACERTILIA</b>	74 (6)	Viperidae	11
Anguidae	5	<b>TESTUDINES</b>	14
Gekkonidae	9 (6)	Cheloniidae	4
Iguanidae	41	Chelydridae	1
Scincidae	2	Dermochelyidae	1
Teiidae	16	Emydidae	1
Xantusiidae	1	Kinosternidae	3
<b>SERPENTES</b>	132	Testudinidae	4
Anomalepididae	4	<b>TOTAL</b>	395(8)

\* Introduced species in parentheses. Also marked with an asterisk in the checklist.

Country geographic ranges are included for each species, often with more detailed ranges inside Panama. Ranges were taken from the literature and from direct examination of museum specimens at the National Museum of Natural History, Museum of Comparative Zoology at Harvard, and Florida Museum of Natural History. The geographic range of none of the 395 native species listed in the checklist is thoroughly known.

The first section of the bibliography consists of complete citations of the 395 native and 8 introduced original species descriptions. A compilation of other works on Panamanian herpetology forms the second part of the bibliography. Due to space limitation, this resource is far from complete, but at least may decrease initial search time.

The checklist and bibliography will need to be continually revised, due to ongoing taxonomic and survey work. To illustrate this I have included six species (bold lettering) which are known from near the Panamanian border, but have not been documented inside the country as yet. These species are not included in Figure 1 nor in the checklist tallies. To help keep the checklist up to date and remove errors, please write me at the

Division of Herpetology, Florida Museum of Natural History,  
University of Florida, Gainesville, Florida 32611.

ACKNOWLEDGEMENTS.- The author alone is responsible for any inaccuracies. George Zug made the work possible. Jay Savage reviewed the manuscript and was especially helpful in moving the effort along. Ronald Crombie and William Duellman also reviewed the manuscript. Van Wallach reviewed an early version of the snake checklist. Ernest Williams provided a copy of his Anolis checklist for Panama. Inspiration to compile this work evolved while on active duty in Panama with the United States Navy during 1990, 1991, and 1992. Use of the library at the Smithsonian's Division of Amphibians and Reptiles was also made possible by the U.S. Naval Reserve, which paid transportation costs for quarterly weekend training near Baltimore. Thanks to the staff of the Division of Amphibians and Reptiles for their gracious hospitality and valued conversations. I also thank my supervisors at Florida Museum of Natural History for permitting the research time needed for this project.

## I. A CHECKLIST OF THE AMPHIBIANS AND REPTILES OF PANAMA

### **AMPHIBIA (170 native species; 2 introduced)**

#### **I. ANURA (140 native species; 2 introduced)**

##### **A. Bufonidae (15 species)**

- Atelopus certus Barbour, 1923. Panama (Darien Province).
- Atelopus chiriquiensis Shreve, 1936. Costa Rica, Panama  
(Bocas del Toro, Chiriquí Provinces).
- Atelopus glyphus Dunn, 1931. Panama (Darien Province), Colombia.
- Atelopus varius (Lichtenstein, 1856). Costa Rica, Panama,  
Colombia.
- Atelopus zeteki Dunn, 1933. Panama (western; Cerro Campana, Valle  
de Anton area). CITES Appendix I/USFWS Endangered.
- Bufo coccifer Cope, 1866. Mexico to Panama (western Pacific  
versant).
- Bufo coniferus Cope, 1862. Nicaragua, Costa Rica, Panama  
(Atlantic and Pacific versants), Colombia, Ecuador.
- Bufo fastidiosus Cope, 1875. Costa Rica, Panama (western).
- Bufo granulosus Spix, 1824. Panama to Argentina.
- Bufo haematiticus Cope, 1862. Honduras to Ecuador.
- Bufo marinus (Linnaeus, 1758). United States (Texas) to Peru.  
Introduced to many Caribbean, southeast Asian, and Pacific  
basin islands.
- Bufo peripatetes Savage, 1972. Panama (known from the type  
locality in Chiriquí Province, above Boquete on Almirante  
Trail, elevation 1500 m and from the border of Bocas del  
Torro and Chirique Provinces border at Cerro Bollo, 80 km  
ESE of the type locality).
- Bufo typhonius (Linnaeus, 1758). Panama, South America.
- Crepidophryne epiotica (Cope, 1875). Costa Rica, Panama  
(western).

*Rhamphophryne acrolopha* Trueb, 1971. Panama (eastern), Colombia.

**B. Centrolenidae (12 species)**

*Centrolene ilex* (Savage, 1967). Nicaragua, Costa Rica, Panama (Atlantic versant), Colombia.

*Centrolene prosoblepon* (Boettger, 1892). Nicaragua to Ecuador.

*Cochranella albomaculata* (Taylor, 1949). Costa Rica, Panama (Pacific versant), Colombia.

*Cochranella euknemos* (Savage and Starrett, 1967). Costa Rica to Colombia.

*Cochranella granulosa* (Taylor, 1949). Nicaragua, Costa Rica, Panama.

*Cochranella spinosa* (Taylor, 1949). Costa Rica, Panama (Pacific versant), Colombia, Ecuador.

*Hyalinobatrachium chirripoi* (Taylor, 1958). Costa Rica to Colombia.

*Hyalinobatrachium colymbiphyllum* (Taylor, 1949). Costa Rica, Panama (Colon Province).

*Hyalinobatrachium fleischmanni* (Boettger, 1893). Mexico to Ecuador, Surinam.

*Hyalinobatrachium pulveratum* (Peters, 1873). Nicaragua, Costa Rica, Panama (Pacific versant).

*Hyalinobatrachium valerioi* (Dunn, 1931). Costa Rica to Ecuador.

*Hyalinobatrachium vireovittatum* (Starrett and Savage, 1973). Costa Rica, Panama.

**C. Dendrobatidae (14 species)**

*Colostethus chocoensis* (Boulenger, 1912). Panama (eastern), Colombia, Ecuador.

*Colostethus flotator* (Dunn, 1931). Panama.

*Colostethus inguinalis* (Cope, 1868). Panama (eastern, west-central), Colombia.

*Colostethus latinasus* (Cope, 1863). Panama (Darien Province), Colombia, Ecuador.

*Colothethus nubicola* (Dunn, 1924). Costa Rica, Panama (Chiriqui Province), Colombia.

*Colostethus pratti* (Boulenger, 1899). Panama (western), Colombia, Ecuador.

*Colostethus talamancae* (Cope, 1875). Costa Rica, Panama, Colombia.

*Dendrobates arboreus* Myers, Daly, and Martinez, 1984. Panama (Chiriqui, Bocas del Toro Provinces). CITES Appendix II.

*Dendrobates auratus* (Girard, 1855). Nicaragua to Colombia. CITES Appendix II.

*Dendrobates pumilio* O. Schmidt, 1857. Nicaragua, Costa Rica, Panama (Bocas del Toro, Chiriqui Provinces). CITES Appendix II.

*Dendrobates speciosus* O. Schmidt, 1857. Panama (Bocas del Toro, Chiriqui Provinces). CITES Appendix II.

*Epipedobates maculatus* (Peters, 1873). Panama (Bocas del Toro, Chiriqui Provinces). CITES Appendix II.

*Minyobates minutus* (Shreve, 1935). Panama (Colon Province) to

*Colombia*. CITES Appendix II.  
*Phylllobates lugubris* (O. Schmidt, 1857). Panama (Bocas del Toro, Chiriquí Provinces). CITES Appendix II.

#### D. Hylidae (46 species)

- Agalychnis calcarifer* Boulenger, 1902. Costa Rica, Panama (Caribbean slopes), Colombia, Ecuador.
- Agalychnis callidryas* (Cope, 1862). Mexico to Panama (central Atlantic versant, eastern Pacific versant).
- Agalychnis litodryas* (Duellman and Trueb, 1967). Panama (eastern), Ecuador.
- Agalychnis spurrelli* Boulenger, 1913. Costa Rica, Panama, Colombia, Ecuador.
- Anotheca spinosa* (Steindachner, 1864). Mexico, Costa Rica, Panama (western).
- Duellmanohyla lythrodes* (Savage, 1968). Costa Rica, Panama (western Atlantic versant).
- Duellmanohyla rufiocularis* (Taylor, 1952). Costa Rica, Panama (western?).
- Duellmanohyla uranochroa* (Cope, 1875). Costa Rica, Panama (western mountains).
- Gastrotheca cornuta* (Boulenger, 1898). Costa Rica, Panama (eastern, western Atlantic versant), Colombia, Ecuador.
- Gastrotheca nicefori* Gaige, 1933. Panama (eastern and central highlands), Colombia, Venezuela.
- Hemiphractus fasciatus* Peters, 1862. Panama, Colombia, Ecuador.
- Hyla angustilineata* Taylor, 1952. Costa Rica, Panama (western).
- Hyla boans* (Linnaeus, 1758). Panama (eastern), Trinidad, Colombia, the Guianas, Amazon and Orinoco Basins.
- Hyla colymba* Dunn, 1931. Costa Rica, Panama (western Atlantic versant; central and eastern Pacific versant).
- Hyla crepitans* Wied-Neuwied, 1824. Honduras, Panama (eastern), Colombia, Ecuador, the Guianas, Brazil.
- Hyla debilis* Taylor, 1952. Costa Rica, Panama (southwestern Pacific versant).
- Hyla ebraccata* Cope, 1874. Mexico to Colombia.
- Hyla fimbriemembra* Taylor, 1948. Costa Rica, Panama (western).
- Hyla graceae* Myers and Duellman, 1982. Panama (western mountains).
- Hyla lancasteri* Barbour, 1928. Costa Rica, Panama (Atlantic versant).
- Hyla microcephala* Cope, 1886. Mexico to Brazil.
- Hyla miliaria* (Cope, 1886). Nicaragua, Costa Rica, Panama, Colombia.
- Hyla palmeri* Boulenger, 1908. Panama (central), Colombia, Ecuador.
- Hyla phlebodes* Stejneger, 1906. Nicaragua, Costa Rica, Panama (Caribbean lowlands, Pacific eastern lowlands), Colombia.
- Hyla picadoi* Dunn, 1937. Costa Rica and Panama (western mountains).
- Hyla pictipes* Cope, 1875. Costa Rica, Panama (western)

- mountains).
- Hyla pseudopuma* Gunther, 1901. Costa Rica, Panama (western mountains).
- Hyla pugnax* Schmidt, 1857. Panama (central), Colombia.
- Hyla rivularis* Taylor, 1952. Costa Rica, Panama (western mountains).
- Hyla rosenbergi* Boulenger, 1898. Costa Rica, Panama, Colombia, Ecuador.
- Hyla rufitela* Fouquette, 1961. Nicaragua, Costa Rica, Panama (Atlantic versant).
- Hyla subocularis* Dunn, 1934. Panama (eastern), Colombia.
- Hyla thysanota* Duellman, 1966. E. Panama (Darien Province-Serrania de Darien).
- Hyla tica* Starrett, 1966. Costa Rica, Panama (western mountains).
- Hyla zeteki* Gaige, 1929. Costa Rica, Panama (western mountains).
- Phrynohyas venulosa* (Laurenti, 1768). Mexico to Argentina.
- Phyllomedusa lemur* Boulenger, 1882. Costa Rica, Panama (moderate elevations).
- Phyllomedusa venusta* Duellman and Trueb, 1967. Panama (Darien Province).
- Ptychohyla legleri* (Taylor, 1958). Costa Rica, Panama (western Pacific versant).
- Scinax boulengeri* (Cope, 1887). Nicaragua, Costa Rica, Panama (Caribbean lowlands, eastern Pacific lowlands).
- Scinax elaeochroa* (Cope, 1875). Nicaragua, Costa Rica, Panama (western Caribbean lowlands, Pacific lowlands).
- Scinax rostrata* (Peters, 1863). Panama (central), Colombia, Venezuela, French Guiana.
- Scinax rubra* (Laurenti, 1768). Panama (eastern), Colombia, Ecuador, Venezuela, the Guianas, Trinidad, St. Lucia, Tobago, Brazil.
- Scinax staufferi* (Cope, 1865). Mexico to Panama (central).
- Smilisca baudinii* (Dumeril and Bibron, 1841). United States (Texas) to Panama (western?).
- Smilisca phaeota* (Cope, 1862). Nicaragua, Costa Rica, Panama, Colombia, Ecuador.
- Smilisca sila* Duellman and Trueb, 1966. Costa Rica, Panama (Caribbean and Pacific lowlands), Colombia (northwestern).
- Smilisca sordida* (Peters, 1863). Costa Rica, Panama (western).

#### E. Leptodactylidae (44 native species; 2 introduced)

- Eleutherodactylus achatinus* (Boulenger, 1898). Panama (Darien and San Blas Provinces), Colombia, Ecuador.
- Eleutherodactylus andi* Savage, 1974. Costa Rica, Panama (extreme western).
- Eleutherodactylus altae* Dunn, 1942. Costa Rica, Panama (Bocas del Toro Province).
- \**Eleutherodactylus antillensis* (Reinhardt and Lutken, 1863). Islands of Puerto Rico Bank. \* = Introduced in Panama.

- Eleutherodactylus azueroensis*. Savage, 1975. Panama  
 (Peninsula de Azuero).
- Eleutherodactylus biporcatus* (Peters, 1863). Guatemala to Colombia.
- Eleutherodactylus bransfordii* (Cope, 1886). Honduras to Panama (eastern).
- Eleutherodactylus bufoniformis* (Boulenger, 1896). Costa Rica, Panama, Colombia.
- Eleutherodactylus caryophyllaceus* (Barbour, 1928). Costa Rica, Panama, Colombia.
- Eleutherodactylus cerasinus* (Cope, 1875). Nicaragua, Costa Rica, and Panama (western and central; Atlantic and Pacific versants).
- Eleutherodactylus crassidigitus* Taylor, 1952. Costa Rica, Panama.
- Eleutherodactylus cruentus* (Peters, 1873). Costa Rica, Panama (western and central), Colombia, Ecuador.
- Eleutherodactylus diastema* (Cope, 1875). Nicaragua to Ecuador.
- Eleutherodactylus emcelae* Lynch, 1985. Panama (western).
- Eleutherodactylus fitzingeri* (Schmidt, 1858). Nicaragua, Costa Rica, Panama (both Atlantic and Pacific versants), Colombia.
- Eleutherodactylus fleischmanni* (Boettger, 1892). Costa Rica Panama (western).
- Eleutherodactylus gaigeae* (Dunn, 1931). Costa Rica, Panama, Colombia.
- Eleutherodactylus gollmeri* (Peters, 1863). Nicaragua, Costa Rica, Panama.
- \**Eleutherodactylus johnstonei* Barbour, 1914. Lesser Antilles. \* = Introduced on Bermuda, Bequia (Grenadines), Curacao, Jamaica, Panama (Panama City), Venezuela, Guyana.
- Eleutherodactylus iota* Lynch, 1980. Panama (Bocas del Toro Province).
- Eleutherodactylus latidiscus* (Boulenger, 1898). Panama, Colombia, Ecuador.
- Eleutherodactylus longirostris* (Boulenger, 1898). Panama (Darien Province), Colombia, Ecuador.
- Eleutherodactylus melanostictus* (Cope, 1875). Costa Rica, Panama (western).
- Eleutherodactylus monnichorum* Dunn, 1940. Panama (Chiriqui Province).
- Eleutherodactylus moro* Savage, 1965. Costa Rica, Panama, Colombia.
- Eleutherodactylus noblei* Barbour and Dunn, 1926. Honduras, Nicaragua, Costa Rica, Panama.
- Eleutherodactylus pardalis* (Barbour, 1928). Costa Rica, Panama.
- Eleutherodactylus podiciferus* (Cope, 1875). Costa Rica, Panama.
- Eleutherodactylus punctariolus* (Peters, 1863). Costa Rica, Panama.
- Eleutherodactylus raniformis* (Boulenger, 1896). Panama (east-central and east), Colombia.

- Eleutherodactylus rayo* Savage and DeWeese, 1979. Costa Rica (southwestern), Panama.
- Eleutherodactylus ridens* (Cope, 1866). Honduras, Nicaragua, Costa Rica, Panama (Atlantic and Pacific versants), Colombia, Ecuador.
- Eleutherodactylus rugulosus* (Cope, 1869). Mexico to Panama (western).
- Eleutherodactylus stejnegerianus* (Cope, 1893). Costa Rica, Panama (extreme western Pacific drainages).
- Eleutherodactylus taeniatus* (Boulenger, 1912). Panama (central), Colombia, Ecuador.
- Eleutherodactylus talamancae* Dunn, 1931. Nicaragua, Costa Rica, Panama (Atlantic versant).
- Eleutherodactylus taurus* Taylor, 1958. Costa Rica, Panama.
- Eleutherodactylus vocator* Taylor, 1955. Costa Rica, Panama, Colombia.
- Leptodactylus fuscus* (Schneider, 1799). Panama to Argentina.
- Leptodactylus insularum* Barbour, 1906. Mexico to Colombia, Venezuela.
- Leptodactylus labialis* (Cope, 1877). Texas to Colombia, Venezuela.
- Leptodactylus melanotus* (Hallowell, 1861). Mexico to Ecuador.
- Leptodactylus pentadactylus* (Laurenti, 1768). Honduras to Peru, Brazil.
- Leptodactylus poecilochilus* (Cope, 1862). Costa Rica to Colombia, Venezuela.
- Physalaemus pustulosus* (Cope, 1864). Mexico to Colombia, Venezuela, Trinidad, Tobago.
- Pleurodema brachyops* (Cope, 1869). Panama, Colombia, Venezuela, Netherland Antilles, Brazil.

#### F. Microhylidae (4 species)

- Chiasmocleis panamensis* Dunn, Trapido, and Evans, 1948. Panama, Colombia.
- Elachistocleis ovalis* (Schneider, 1799). Panama, Trinidad, South America east of Andes to Argentina.
- Nelsonophryne aterrimum* (Gunther, 1900). Costa Rica, Panama, Colombia, Ecuador.
- Relictivomer pearsei* (Ruthven, 1914). Panama, Colombia.

#### G. Pipidae (1 species)

- Pipa myersi* Trueb, 1984. Panama (Darien Province), Colombia.

#### H. Ranidae (4 species)

- Rana "pipiens"* Hillis, 1988 (undescribed species "E"). Costa Rica, Panama (western, to the canal).
- Rana vaillanti* Brocchi, 1877. Mexico to Panama.
- Rana vibicaria* (Cope, 1894). Costa Rica, Panama (western).
- Rana warschewitschii* (Schmidt, 1857). Honduras, Nicaragua,

Costa Rica, Panama (eastern).

## II. CAUDATA (21 species)

### Plethodontidae (21 SPECIES)

- Bolitoglossa biseriata* Tanner, 1962. Panama (Bocas del Toro, Coclé, Panama, San Blas, Darién Provinces), Colombia.
- Bolitoglossa colonnea* (Dunn, 1924). Costa Rica, Panama (western to Colon Province-Barro Colorado Island).
- Bolitoglossa compacta* Wake, Brame, and Duellman, 1973. Panama (Bocas del Toro Province).
- Bolitoglossa cuna* Wake, Brame, and Duellman, 1973. Panama (San Blas Province).
- Bolitoglossa lignicolor* (Peters, 1873). Costa Rica, Panama (Chiriquí and Veraguas Provinces, Azuero Peninsula).
- Bolitoglossa marmorea* (Tanner and Brame, 1961). Panama (known from the type locality only- Chiriquí Province, Volcán Chiriquí).
- Bolitoglossa medemi* Brame and Wake, 1972. Panama (Darién Province), Colombia.
- Bolitoglossa minutula* Wake, Brame, and Duellman, 1973. Panama (area of type locality only-Bocas del Toro Province, north Slope of Cerro Pando).
- Bolitoglossa nigrescens* (Taylor, 1949). Costa Rica, Panama (Chiriquí Province).
- Bolitoglossa phalarosoma* Wake and Brame, 1962. Panama (Darién Province), Colombia.
- Bolitoglossa robusta* (Cope, 1894). Costa Rica, Panama (Bocas del Toro Province).
- Bolitoglossa schizodactyla* Wake and Brame, 1966. Panama (central and northwestern).
- Bolitoglossa subpalmata* (Boulenger, 1896). Costa Rica, Panama (Chiriquí Province).
- Bolitoglossa taylori* Wake, Brame, and Myers, 1970. Panama (Darién Province).
- Oedipina alfaroi* Dunn, 1921. Costa Rica, Panama (Bocas del Toro Province).
- Oedipina collaris* (Stejneger, 1907). Nicaragua, Costa Rica, Panama (Atlantic versant).
- Oedipina complex* (Dunn, 1924). Costa Rica, Panama, Colombia, Ecuador.
- Oedipina cyclocauda* Taylor, 1952. Honduras, Nicaragua, Costa Rica, Panama (northwest).
- Oedipina grandis* Brame and Duellman, 1970. Panama (known from the type locality only-Bocas del Toro Province, north slope of Cerro Pando).
- Oedipina parvipes* (Peters, 1879). Costa Rica, Panama, Colombia.
- Oedipina uniformis* Keferstein, 1868. Costa Rica, Panama (western).

## III. GYMNOPHIONA (9 species)

**Caeciliaidae (9 species)**

- Caecilia leucocephala* Taylor, 1968. Panama (Darien Province), Colombia, Brasil.
- Caecilia nigricans* Boulenger, 1902. Panama (Atlantic versant), Colombia, Ecuador.
- Caecilia tentaculata* Linnaeus, 1758. Panama, South America east of the Andes, south to Peru.
- Caecilia volvani* Taylor, 1969. Panama (known from the type locality-Cocle Province, El Valle de Anton and from Bocas del Toro and Chiriqui Provinces at the continental divide).
- Dermophis mexicanus* (Dumeril and Bibron, 1841). Mexico to Panama (western Pacific versant).
- Dermophis parviceps* (Dunn, 1924). Panama (Bocas del Toro Province).
- Gymnopis multiplicata* Peters, 1874. Honduras to Panama.
- Oscaecilia elongata* (Dunn, 1942). Panama (known from the type locality only-Darien Province, Yaviza).
- Oscaecilia ochrocephala* (Cope, 1866). Panama (Atlantic versant of Darien Province).

**REPTILIA (225 native species; 6 introduced)****I. AMPHISBAENIA (3 species)****Amphisbaenidae (3 species)**

- Amphisbaena alba* Linnaeus, 1758. Panama, Colombia, Venezuela, the Guianas, Trinidad, Peru, Brazil, Bolivia, Paraguay.
- Amphisbaena fuliginosa* Laurenti, 1768. Panama, Colombia, Ecuador, Venezuela, Peru, Brazil, Bolivia, Argentina.
- Amphisbaena spurrelli* Boulenger, 1915. Panama, Colombia (northern).

**II. CROCODYLIA (2 species)****A. Alligatoridae (1 species)**

- Caiman crocodilus* (Linnaeus, 1758). CITES Appendix II. Mexico to Argentina, Trinidad, Tobago.

**B. Crocodylidae (1 species)**

- Crocodylus acutus* (Cuvier, 1807). CITES Appendix I/USFW Endangered. South Florida, Cuba, Isla de Juventud, Jamaica, Hispaniola, Atlantic coastal drainages from Mexico to Venezuela, Pacific coastal drainages from Mexico to Peru.

**III. LACERTILIA (74 native species; 6 introduced)**

**A. Anguidae (5 species)**

- Coloptychon rhombifer* (Peters, W.C.H., 1877). Costa Rica, Panama (Chiriqui Province).
- Diploglossus bilobatus* (O'Shaughnessy, 1874). Costa Rica, Panama (Bocas del Toro Province).
- Diploglossus monotropis* (Kuhl, 1820). Nicaragua, Costa Rica, Panama, Colombia, Ecuador.
- Diploglossus montisilvestris* Myers, 1973. Panama (known from the type locality only-Serrania de Pirre; extreme eastern).
- Mesaspis monticola* (Cope, 1877). Costa Rica, Panama (to Chiriqui Province).

**B. Gekkonidae (9 native species; 6 introduced)**

- Coleonyx mitratus* (Peters, W.C.H., 1863). Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, Panama.
- Gonatodes albogularis* (Dumeril and Bibron, 1836). Mexico to Colombia, Venezuela, Aruba, Cuba, Hispaniola, Jamaica, Grand Cayman, Curacao, Tortuga, Orchila, Gorgona, lower Florida Keys.
- Gonatodes annularis* Boulenger, 1887. Panama, Colombia, Venezuela, Guyana, Surinam, French Guiana, Brazil (Amapa).
- \**Hemidactylus brookii* Gray, 1845. India, Sri Lanka, Burma. \* = Introduced in Indonesia, Malaysia, Philippines, Cuba, Hispaniola, Panama (Panama Province, Tocumen), Puerto Rico.
- \**Hemidactylus frenatus* Dumeril and Bibron, 1836. S.E. Asia. \* = Introduced in S.E. Mexico, Guatemala, Panama (Panama City, Chepo, Tucuman area), Africa, Oceania.
- \**Hemidactylus mabouia* (Moreau de Jonnes, 1818). South Africa north to Liberia, Madagascar and neighboring islands. \* = Introduced in Mexico (Veracruz), Panama (old Canal Zone), Colombia, Venezuela, Guyana, Surinam, Brazil, Uruguay, Ecuador, Peru, Cuba, Hispaniola, Barbados, Martinique, Trinidad, Tobago, Little Tobago, St. Lucia.
- \**Hemidactylus turcicus* (Linnaeus, 1758). Borders of the Mediterranean basin, Red Sea, and Arabian Sea to Pakistan. \* = Introduced in southern United States, Mexico, Cuba, Panama (old Canal Zone).
- Lepidoblepharis sanctaemartae* (Ruthven, 1916). Panama (eastern, from old Canal Zone to Sapo Mountains), Colombia (Santa Marta Mountains).
- Lepidoblepharis xanthostigma* (Noble, 1916). Nicaragua, Costa Rica, Panama, Colombia.
- \**Lepidodactylus lugubris* (Dumeril and Bibron, 1836). India, Ceylon, Nicobars, Andamans, Burma, Malay Archipelago, Philippines, Indo-Australian Archipelago, Oceania. \* = Introduced in Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Brazil.
- \**Sphaerodactylus argus* Gosse, 1850. Jamaica. \* = Introduced in Cuba, San Andres Island (Colombia), Corn Islands (Nicaragua), Bahamas, Florida (Key West), Mexico (Yucatan), Nicaragua, Costa Rica, Panama (Bocas del Toro, San Blas)

*Provinces).*

- Sphaerodactylus graptolaemus* Harris and Kluge, 1984. Costa Rica, Panama (western).
- Sphaerodactylus homolepis* Cope, 1886. Nicaragua, Costa Rica, and Panama (western, central; all Atlantic versants).
- Sphaerodactylus lineolatus* Lichtenstein, 1856. Panama (western, Pacific versant), Colombia (northwest).
- Thecadactylus rapicauda* (Houttuyn, 1782). Mexico (S.E., Yucatan), Belize, Guatemala, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Venezuela, Guyana, Surinam, French Guiana, Trinidad, Lesser Antilles, Brazil.

**C. Iguanidae (41 species)**

- Anolis altae* Dunn, 1930. Costa Rica, Panama (Bocas del Toro, Chiriqui Provinces).
- Anolis aquaticus* Taylor, 1956. Costa Rica (Puntarenas Province), Panama (western).
- Anolis auratus* Daudin, 1802. Panama (eastern and central), Colombia, Ecuador, Venezuela, the Guianas, Brazil.
- Anolis biporcatus* (Wiegmann, 1834). Mexico (southeast, Yucatan), Guatemala, Belize, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Ecuador.
- Anolis capito* Peters, 1863. Mexico (southeast, Yucatan), Guatemala, Belize, Honduras, Nicaragua, Costa Rica, Panama.
- Anolis carpenteri* Echelle, Echelle, and Fitch, 1971. Nicaragua, Costa Rica, Panama.
- Anolis casildae* Arosemena, Ibanez, and Sousa, 1991. Panama (western, central cordillera).
- Anolis chloris* Boulenger, 1898. Panama (Darien Province), Colombia (Pacific versant), Ecuador (Pacific versant).
- Anolis chocorum* Williams and Duellman, 1967. Costa Rica, Panama, Colombia, Ecuador.
- Anolis frenatus* Cope, 1899. Costa Rica, Panama, Colombia (northern, central).
- Anolis fungosus* Myers, 1971. Costa Rica, Panama (Bocas del Toro Province, Cordillera de Talamanca, north slope Cerro Pando).
- Anolis fuscoauratus* D'Orbigny, 1837 (see Dumeril and Bibron, 1837). Panama, Colombia, Ecuador, Venezuela, the Guianas, Brazil, Bolivia, Peru.
- Anolis humilis* Peters, 1863. Guatemala, Belize, Honduras, Nicaragua, Costa Rica, Panama.
- Anolis insignis* Cope, 1871. Costa Rica, Panama (Pacific versant to Darien Province).
- Anolis intermedius* Peters, 1863. Nicaragua, Costa Rica, Panama.
- Anolis kemptoni* Dunn, 1940. Panama (known only from the type locality-Chiriqui Province, Finca Lerida, above Boquete, 5399 ft).
- Anolis latifrons* Berthold, 1846. Panama, Colombia (Choco), Ecuador (northwest).
- Anolis lemurinus* Cope, 1861. Mexico (southeast, Yucatan), Guatemala, Belize, Honduras, El Salvador, Nicaragua, Costa Rica, Panama.
- Anolis limifrons* Cope, 1862. Mexico (Isthmus of Tehuantepec),

- Guatemala, Belize, Honduras, El Salvador, Nicaragua, Costa Rica, Panama.
- Anolis lionotus* Cope, 1861. Panama (central).
- Anolis microtus* Cope, 1871. Costa Rica, Panama (Chiriquí Province, extreme southwest, 1000-1500 m).
- Anolis oxylophus* Cope, 1875. Nicaragua, Costa Rica, Panama (western).
- Anolis pachypus* Cope, 1875. Costa Rica, Panama (Chiriquí Province, Volcan Chiriquí).
- Anolis pentaprion* Cope, 1862. Mexico (southeast, Yucatan), Nicaragua, Costa Rica, Panama, Colombia (northwest).
- Anolis poecilopus* Cope, 1862. Panama (Darien Province), Colombia (extreme northwest).
- Anolis polylepis* Peters, 1874. Costa Rica, Panama.
- Anolis procellaris* Myers, 1971. Panama (Veraguas Province).
- Anolis tropidogaster* Hallowell, 1856. Panama, Colombia (Pacific versant), Ecuador (Pacific versant), Venezuela (western).
- Anolis vociferans* Myers, 1971. Costa Rica, Panama (Chiriquí Province).
- Anolis woodi* Dunn, 1940. Costa Rica, Panama (Chiriquí Province, higher elevations).
- Basiliscus basiliscus* (Linnaeus, 1758). Nicaragua, Costa Rica, Panama, Colombia (Pacific versant), Ecuador (northwest), Venezuela (to Merida State).
- Basiliscus galeritus* Dumeril and Dumeril, 1851. Panama (eastern), Colombia and Ecuador (Pacific versants).
- Basiliscus plumifrons* Cope, 1875. Honduras, Nicaragua, Costa Rica, Panama.
- Basiliscus vittatus* Wiegmann, 1828. Mexico (Jalisco, Tamaulipas), Belize, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, Panama, Colombia.
- Corytophanes cristatus* (Merrem, 1820). Mexico (Veracruz), Belize, Guatemala, Honduras, Nicaragua, Costa Rica, Panama, Colombia (northwest).
- Ctenosaura similis* (Gray, 1831). Mexico (Isthmus of Tehuantepec), Guatemala, Belize, Honduras, El Salvador, Nicaragua, Costa Rica, Panama (at least to old Canal Zone, beaches on both sides), Old Providence and San Andres Islands.
- Enyalioides heterolepis* (Bocourt, 1874). Panama, Colombia, Ecuador (northwest).
- Iguana iguana* (Linnaeus, 1758). Mexico (Sinaloa, Veracruz), Belize, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, Panama, Colombia, Venezuela, the Guianas, Ecuador, Peru, Brazil, Bolivia, Paraguay, Argentina, Uruguay(?).  
CITES Appendix II.
- Morunasaurus groi* Dunn, 1933. Panama (El Valle de Anton), Ecuador (Amazonian side).
- Polychrus gutturosus* Berthold, 1846. Honduras, Nicaragua, Costa Rica, Panama, Colombia, Ecuador.
- Sceloporus malachiticus* Cope, 1864. Mexico (Veracruz, Chiapas), Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, Panama.

#### D. Scincidae (2 species)

*Mabuya unimarginata* (Cope, 1862) Mexico (southeast) to Panama.  
*Sphenomorphus cherriei* (Cope, 1893). Mexico (southeast) to Panama.

#### E. Teiidae (16 species)

- Ameiva ameiva* (Linnaeus, 1758). Panama, Colombia, Venezuela, Guyana, Surinam, French Guiana, Ecuador, Peru, Brazil, Trinidad, Tobago, Margarita Islands.
- Ameiva festiva* (Lichtenstein, 1856). Mexico (southeast) to Panama, Colombia.
- Ameiva leptophrys* (Cope, 1893). Costa Rica, Panama.
- Ameiva quadrilineata* (Hallowell, 1861). Nicaragua, Costa Rica, Panama.
- Anadia ocellata* Gray, 1845. Costa Rica, Panama, Colombia, Ecuador.
- Anadia vittata* Boulenger, 1913. Panama, Colombia.
- Bachia blairi* (Dunn, 1940). Costa Rica, Panama (Chiriquí Province).
- Bachia pallidiceps* (Cope, 1862). Panama, Colombia (west-central).
- Cnemidophorus lemniscatus* (Linnaeus, 1758). Guatemala, Honduras, Costa Rica, Nicaragua, Panama, Colombia, Venezuela, the Guianas, islands of Trinidad, Tobago, Pato, Margarita, Coche, Cubagua, Old Providence, Swan, Milford, Aruba, Los Roques Archipelago, Aves, Orchila, Blanquilla, San Andres, Santa Catalina.
- Echinosaura horrida* (Boulenger, 1890). Panama, Colombia, Ecuador.
- Gymnophthalmus speciosus* (Hallowell, 1861). S.E. Mexico, Guatemala, Belize, Honduras, El Salvador, Nicaragua, Costa Rica, Panama, Colombia, Venezuela (east to Margarita Island). Introduced on Grenada.
- Leposoma rugiceps* (Cope, 1869). Panama (Canal eastward), Colombia (north and east of the Andes).
- Leposoma southi* Ruthven and Gaige, 1924. Costa Rica, Panama (to Panama Canal).
- Prionadactylus vertebralis* (O'Shaughnessy, 1879). Panama (Darien Province), Colombia (Pacific versant), Ecuador (Pacific versant and Zamora (City)).
- Ptychoglossus festae* (Peracca, 1896). Panama (San Blas Province), Colombia.
- Ptychoglossus plicatus* (Taylor, 1949). Costa Rica, Panama.

#### F. Xantusiidae (1 species)

- Lepidophyma flavimaculatum* Dumeril and Dumeril, 1851. Mexico (Tamaulipas and Veracruz) to Panama (old Canal Zone).

### IV. SERPENTES (132 species)

#### A. Anomalepididae (4 species)

*Anomalepis mexicanus* Jan, 1860. Nicaragua, Costa Rica, Panama.  
*Helminthophis frontalis* Peters, 1860. Costa Rica, Panama.  
*Liotyphlops albirostris* (Peters, 1857). Costa Rica, Panama,  
 Colombia, Venezuela, Ecuador, Curacao.  
*Liotyphlops rowani* Smith and Grant, 1958. Panama.

### B. Boidae(6 species)

*Boa constrictor* Linnaeus, 1758. Mexico to Argentina, Trinidad,  
 Tobago. CITES Appendix II.  
*Corallus annulatus* (Cope, 1875). Nicaragua to Ecuador. CITES  
 Appendix II.  
*Corallus enydris* (Linnaeus, 1758). Nicaragua to Ecuador and Peru,  
 Trinidad, Windward Islands. CITES Appendix II.  
*Epicrates cenchria* (Linnaeus, 1758). Costa Rica to Argentina,  
 Trinidad, Tobago. CITES Appendix II.  
*Trachyboa boulengeri* Peracca, 1910. Panama, Colombia, Ecuador.  
 CITES Appendix II.  
*Ungaliophis panamensis* Schmidt, 1933. Nicaragua, Costa Rica,  
 Panama, Colombia. CITES Appendix II.

### C. Colubridae (99 species)

*Amastridium veliferum* Cope, 1861. Atlantic and Pacific slopes of  
 Mexico (from Nuevo Leon and Chiapas), Guatemala, Belize,  
 Honduras, Nicaragua, Costa Rica, Panama.  
*Atractus clarki* Dunn and Bailey, 1939. Panama (known from the  
 type locality only-Darien Province, Santa Cruz de Cana  
 mine).  
*Atractus crassicaudatus* Dumeril, Bibron, and Dumeril, 1854.  
 Panama, Colombia, Venezuela.  
*Chironius carinatus* (Linnaeus, 1758). Nicaragua to Brazil and  
 Argentina, Trinidad, Guadalupe, San Vicenti I.  
*Chironius exoletus* (Linnaeus, 1758). Costa Rica, Panama,  
 Colombia, Brazil, Argentina (northeast).  
*Chironius fuscus* (Linnaeus, 1758). Panama, Colombia, Venezuela,  
 Surinam, Brazil, Bolivia (northern), Peru (eastern),  
 Ecuador (eastern).  
*Chironius grandisquamis* (Peters, 1868). Honduras, Nicaragua,  
 Costa Rica, Panama, Colombia, Ecuador (northeast).  
*Clelia clelia* (Daudin, 1803). Mexico to Ecuador (northwest),  
 Argentina (northern).  
*Clelia equatoriana* (Amaral, 1924). Panama, Colombia, Ecuador.  
*Clelia scytalina* (Cope, 1866). Mexico to Colombia.  
*Coniophanes bipunctatus* (Gunther, 1858). Mexico to Panama  
 (Darien).  
*Coniophanes fissidens* (Gunther, 1858). Mexico to Ecuador.  
*Coniophanes joanae* Myers, 1966. Panama (eastern highlands).  
*Conophis lineatus* (Dumeril, Bibron, and Dumeril, 1854). Mexico to  
 Panama (Cocle Province), Colombia (?).  
*Dendrophidion nuchale* (Peters, 1863). Belize to Colombia,  
 Venezuela, Ecuador.  
*Dendrophidion paucicarinatum* (Cope, 1894). Costa Rica, Panama

- (western).  
*Dendrophidion percarinatum* (Cope, 1893). Honduras, Nicaragua,  
 Costa Rica, Panama.  
*Dentrophidion vinitor* Smith, 1941. Mexico to Panama, Colombia  
 (northwestern).  
*Diaphorolepis wagneri* Jan, 1863. Panama (Darien Province),  
 Colombia, Ecuador (western).  
*Dipsas articulata* (Cope, 1868). Costa Rica, Panama.  
*Dipsas temporalis* (Werner, 1909). Panama (Atlantic versant),  
 Colombia, Ecuador (Pacific versant).  
*Dipsas tenuissima* Taylor, 1954. Panama, Costa Rica.  
*Dipsas variegata* (Dumeril, Bibron, and Dumeril, 1854). Panama,  
 Colombia, Venezuela, Trinidad, Brazil, Ecuador, Peru.  
*Dipsas viguieri* (Bocourt, 1884). Panama (Pacific versant).  
*Dryadophis melanolumus* (Cope, 1868). Mexico to Bolivia,  
 Brazil (western), Tobago.  
*Dryadophis pleei* Dumeril, Bibron, and Dumeril, 1854. Panama,  
 Colombia, Venezuela, Margarita and Testigos Islands.  
*Drymarchon corais* (Boie, 1827). United States to Argentina  
 (northern).  
*Drymobius chloroticus* (Cope, 1886). Mexico to Panama.  
*Drymobius margaritiferus* (Schlegel, 1837). Texas (southern) to  
 Colombia.  
*Drymobius rhombifer* (Gunther, 1860). Nicaragua, Panama, Colombia,  
 Venezuela (eastern), Ecuador, Peru, Bolivia.  
*Enulius flavitorques* (Cope, 1869). Mexico (southern) to Colombia.  
*Enulius sclateri* (Boulenger, 1894). Nicaragua to Colombia.  
*Erythrolamprus bizonus* Jan, 1863. Costa Rica, Panama, Colombia,  
 Venezuela.  
*Erythrolamprus mimus* (Cope, 1869). Honduras to Ecuador, Peru.  
*Geophis brachycephalus* (Cope, 1871). Costa Rica, Panama,  
 Colombia.  
*Geophis championi* Boulenger, 1894. Panama (Chiriqui Province;  
 Chiriqui and Boquete).  
*Geophis godmani* Boulenger, 1894. Costa Rica, Panama.  
*Geophis hoffmanni* Peters, 1859. Honduras to Panama.  
*Hydromorphus concolor* Peters, 1859. Guatemala to Panama  
 (central).  
*Hydromorphus dunnii* Slevin, 1942. Panama (known from the type  
 locality only-Chiriqui Province, north of Boquete).  
*Imantodes cenchoa* (Linnaeus, 1758). Mexico to Argentina  
 (northern).  
*Imantodes gemmistratus* (Cope, 1861). Mexico (Sonora, Veracruz) to  
 Colombia (northern).  
*Imantodes inornatus* (Boulenger, 1896). Nicaragua, Costa Rica,  
 Panama, Colombia, Ecuador (northwest).  
*Imantodes phantasma* Myers, 1982. Panama (eastern Darien Province-  
 Serrania de Pirre).  
*Lampropeltis triangulum* (Lacepede, 1789). United States to  
 Colombia, Ecuador.  
*Leptodeira annulata* (Linnaeus, 1758). Mexico to Argentina.  
*Leptodeira nigrofasciata* Gunther, 1868. Mexico to Panama.  
*Leptodeira septentrionalis* (Kennicott, 1859). United States  
 (Texas) to Peru, excluding Venezuela, Brazil.

- Leptophis ahaetulla* (Linnaeus, 1758). S.E. Mexico to Argentina, Brazil, Guyana, Trinidad, Tobago.
- Leptophis depressirostris* (Cope, 1861). Atlantic versant of Nicaragua, Costa Rica, Panama, Colombia and Ecuador (Pacific versants).
- Leptophis riveti* Despax, 1910. Costa Rica, Panama, Colombia, Ecuador, Peru, Trinidad.
- Liophis epinephelus* (Cope, 1862). Costa Rica, Panama, Colombia, Venezuela, Ecuador, Peru.
- Liophis lineatus* (Linnaeus, 1758). Panama, Colombia, Venezuela, the Guianas, Brazil, Ecuador.
- Masticophis mentovarius* (Dumeril, Bibron and Dumeril, 1854). Mexico to Colombia, Venezuela.
- Ninia atrata* (Hallowell, 1845). Honduras, El Salvador, Costa Rica, Panama, Colombia, Venezuela, Ecuador, Trinidad.
- Ninia maculata* (Peters, 1861). Guatemala to Panama (Darien Province).
- Ninia psephotus* (Cope, 1875). Costa Rica (Cordillera de Talamanca), Panama (to Chiriqui Province-Volcan de Chiriqui).
- Nothopsis rugosus* Cope, 1871. Honduras, Nicaragua, Costa Rica, and Panama (Atlantic versants), Colombia and Ecuador (Pacific versants).
- Oxybelis aeneus* (Wagler, 1824). United States (Arizona) to Peru, Bolivia, Paraguay, Argentina (northern).
- Oxybelis brevirostris* (Cope, 1861). Nicaragua, Costa Rica, and Panama (Atlantic versants), Colombia and Ecuador (Pacific versants).
- Oxybelis fulgidus* (Daudin, 1803). Mexico to Surinam, Brazil, Argentina.
- Oxyrhopus petola* (Linnaeus, 1758). Mexico to Colombia, Venezuela, Surinam, Trinidad, Brazil, Ecuador (northwest), Peru, Bolivia.
- Phimophis guianensis* (Troschel, 1848). Panama (Cocle Province), Colombia, Venezuela, Surinam.
- Pliocercus euryzonus* Cope, 1862. Guatemala, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Brazil.
- Pseudoboa neuwiedii* (Dumeril, Bibron, and Dumeril, 1854). Panama (Pacific versant, just W of Panama Canal), Colombia, Surinam, Trinidad, Tobago, Brazil.
- Pseustes poecilonotus* (Gunther, 1858). Mexico (Isthmus of Tehuantepec and Yucatan) to Colombia, Venezuela, Guyana, Surinam, French Guiana, Trinidad, Brazil, Ecuador, Peru, Bolivia.
- Pseustes shropshirei* (Barbour and Amaral, 1924). Panama, Colombia and Ecuador (Pacific versants).
- Rhadinaea calligaster* (Cope, 1875). Costa Rica, Panama (extreme western-Cordillera de Talamanca).
- Rhadinaea decipiens* (Gunther, 1893). Costa Rica, Panama, Colombia (northern).
- Rhadinaea decorata* (Gunther, 1858). Mexico (Veracruz) to Colombia, Ecuador (northern).
- Rhadinaea fulviceps* Cope, 1886. Panama (central and eastern lowlands), Colombia, Ecuador.

- Rhadinaea godmani* (Gunther, 1865). Mexico to Panama (western).
- Rhadinaea guentheri* Dunn, 1938. Nicaragua, Costa Rica, Panama (to Panama Canal).
- Rhadinaea pachyura* (Cope, 1875). Costa Rica, Panama (western).
- Rhadinaea pulveriventris* Boulenger, 1896. Costa Rica, Panama (extreme western).
- Rhadinaea sargenti* Dunn and Bailey, 1939. Panama (central, east of Panama Canal in Rio Chagres and Rio Pequeni watersheds).
- Rhadinaea vermiculaticeps* (Cope, 1860). Panama (west, central).
- Rhinobothryum bovallii* Andersson, 1916. Guatemala, Honduras, Nicaragua, Costa Rica, Panama, Colombia (northwest), Ecuador (northwest).
- Scaphiodontophis annulatus* (Dumeril, Bibron, and Dumeril, 1854). Mexico (southeast) to Panama, Colombia.
- Sibon annulatus* (Gunther, 1872). Costa Rica, Panama (western Atlantic versant, western Pacific versant at El Valle de Anton, eastern Pacific versant).
- Sibon argus* (Cope, 1875). Costa Rica, Panama (eastern Pacific versant and western Pacific at El Valle de Anton).
- Sibon longifrenis* (Stejneger, 1909). Costa Rica and Panama (Atlantic versants).
- Sibon nebulatus* (Linnaeus, 1758). Mexico to Colombia, Venezuela, Trinidad, Tobago, Ecuador, Brazil.
- Siphlophis cervinus* (Laurenti, 1768). Panama (Panama Canal) to Colombia, Ecuador, Trinidad, Brazil, Peru, Bolivia.
- Spilotes pullatus* (Linnaeus, 1758). Mexico (southern) to Brazil, Argentina (northern), Trinidad, Tobago.
- Stenorhina degenhardtii* (Berthold, 1846). Mexico (southeast) to Colombia, Venezuela, Ecuador (Pacific versant).
- Stenorhina freminvillei* (Dumeril, Bibron, and Dumeril, 1854). Mexico (Guerrero) to Panama.
- Tantilla albiceps* Barbour, 1925. Panama (known only from the type locality-Barro Colorado Island in Gatun Lake in Panama Canal).
- Tantilla alticola* (Boulenger, 1903). Nicaragua, Costa Rica, Panama (?), Colombia.
- Tantilla melanocephala* (Linnaeus, 1758). Guatemala to Colombia, Venezuela, Guyana, Surinam, Trinidad, Tobago, Brazil, Ecuador, Peru, Bolivia, Argentina (northern). Not east of Andes.
- Tantilla reticulata* Cope, 1860. Nicaragua, Costa Rica, Panama (Atlantic versant), Colombia (northwest Pacific versant).
- Tantilla schistosa* (Bocourt, 1883). Mexico (southeast) to Panama (Panama Canal).
- Tantilla supracincta* (Peters, 1863). Nicaragua (extreme southeast), Costa Rica, Panama (Atlantic and Pacific versants to central), Ecuador.
- Tretanorhinus mocquardi* Bocourt, 1891. Panama (Atlantic and Pacific versants of the Panama Canal area only).
- Tretanorhinus nigroluteus* Cope, 1861. Mexico (southeast, Yucatan) to Panama (Atlantic versant), Colombia (to City of Bogota).
- Trimetopon barbouri* Dunn, 1930. Panama (known from the type locality only-Pedro Miguel in the old Canal Zone).

- Trimetopon pliolepis* Cope, 1894. Costa Rica, Panama.  
*Trimetopon slevini* Dunn, 1940. Costa Rica, Panama (Chiriquí Province, near Boquete).  
*Tripanurgos compressus* (Daudin, 1803). Costa Rica, Panama, Colombia, Venezuela, Trinidad, Ecuador, Brazil, Peru, Bolivia.  
*Xenodon rabdocephalus* (Wied-Neuwied, 1824). Mexico (Guerrero, Veracruz) to Panama, Colombia, Ecuador, Brasil, Bolivia.

#### D. Elapidae (10 species)

- Micrurus alleni* Schmidt, 1936. Nicaragua, Costa Rica, Panama (northwest Bocas del Toro Province, extreme southwest Chiriquí Province, and one record from Darien Province).  
*Micrurus ancoralis* (Jan, 1872). Panama (Darien Province), Colombia, Ecuador.  
*Micrurus clarki* Schmidt, 1936. Costa Rica, Panama (southwest Pacific lowlands, Atlantic versant from central Panama to Darien Province, Darien Province), Colombia (Pacific versant).  
*Micrurus dissoluteucus* (Cope, 1860). Panama (Panama Canal) to Colombia (northern), Venezuela (northern).  
*Micrurus dumerilii* (Jan, 1858). Panama (extreme border of Darien Province), Colombia, Venezuela (northwest), Ecuador (northern).  
*Micrurus mipartitus* (Dumeril, Bibron, and Dumeril, 1854). Panama (Darien Province), Colombia, Venezuela, Ecuador.  
*Micrurus multifasciatus* (Jan, 1858). Nicaragua, Costa Rica, and Panama (Atlantic versants).  
*Micrurus nigrocinctus* (Girard, 1854). Mexico (Oaxaca, Chiapas) to Panama, Colombia (northwest).  
*Micrurus stewarti* Barbour and Amaral, 1928. Guatemala, Panama (Cocle and Panama Provinces-El Valle de Anton; Colon Province- Cerro Bruja and uplands near Sabanita).  
*Pelamis platurus* (Linnaeus, 1766). East coast of Africa, Indian Ocean, Indo-Australian Region, Pacific Ocean, coast of Central and South America from the Gulf of California to Northern Peru.

#### E. Leptotyphlopidae(2 species)

- Leptotyphlops goudotii* (Dumeril and Bibron, 1844). Mexico (Colima and Tehuantepec) to Colombia and Venezuela (Atlantic versants).  
*Leptotyphlops macrolepis* (Peters, 1857). Panama, Colombia, Venezuela, Guyana, Surinam, French Guiana, Brazil (northern).

#### F. Viperidae (11 species)

- Bothriechis lateralis* Peters, 1863. Costa Rica, Panama (to Veraguas Province).  
*Bothriechis nigroviridis* Peters, 1859. Costa Rica, Panama (Bocas del Toro Province).

- Bothriechis schlegelii* (Berthold, 1846). Mexico (southeast) to Colombia, Venezuela (western), Ecuador (northern).
- Bothriopsis punctata* (Garcia, 1896). Panama (Darien Province), Colombia (Pacific versant), Ecuador (northwest Pacific versant).
- Bothrops asper* (Garman, 1883). Mexico to Colombia (northern), Venezuela (northern), Trinidad, Ecuador (Pacific versant).
- Lachesis muta* (Linnaeus, 1766). Nicaragua (southern) to Colombia, Venezuela, Guyana, Surinam, French Guiana, Brazil, Ecuador, Peru, Bolivia (northern).
- Porthidium godmani* (Gunther, 1863). Mexico, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, Panama (Cordillera de Talamanca).
- Porthidium lansbergii* (Schlegel, 1841). Panama (Pacific versant of old Canal Zone to Darien Province), Colombia (northern), Venezuela (extreme northern).
- Porthidium nasutum* (Bocourt, 1868). Mexico (southeast) to Panama (Atlantic versant except for cross country range in the Panama Canal area and Darien Province), Colombia (Pacific versant), Ecuador (extreme northern Pacific versant).
- Porthidium nummifer* (Ruppel, 1845). Mexico (San Luis Potosi) to Panama (Atlantic versant of western Panama to the Canal, extreme southwestern Chiriqui Province).
- Porthidium ophryomegas* (Bocourt, 1868). Guatemala to Costa Rica, Panama (western?).
- Porthidium picadoi* (Dunn, 1939). Costa Rica, Panama (western Bocas del Toro Province).

## V. TESTUDINES (14 species)

### A. Cheloniidae (4 species)

- Caretta caretta* (Linnaeus, 1758). Globally in tropical and subtropical seas. CITES Appendix I/USFWS Threatened.
- Chelonia agassizii* Bocourt, 1868. Pacific (eastern) from California to Chile, east to the Galapagos and Papua New Guinea. CITES Appendix I/USFWS Threatened.
- Chelonia mydas* (Linnaeus, 1758). Globally in temperate and tropical seas. CITES Appendix I/USFWS Threatened.
- Eretmochelys imbricata* (Linnaeus, 1766). Globally in tropical seas, occasionally in temperate seas. CITES Appendix I/USFWS Endangered.
- Lepidochelys kempii* (Garman, 1880). Atlantic Ocean (northern) and Gulf of Mexico. Reported from Colombia and Venezuela. Panama? CITES Appendix I/USFWS Endangered.
- Lepidochelys olivacea* (Eschscholtz, 1829). Pacific and Indian Oceans, Caribbean Sea from Cuba and eastward from Cartagena, Colombia (Panama?), Atlantic Ocean south to Brazil, western central African coast. CITES Appendix I/USFWS Threatened.

### B. Chelydridae (1 species)

*Chelydra serpentina* (Linnaeus, 1758). Canada to Ecuador.

**C. Dermochelyidae (1 species)**

*Dermochelys coriacea* (Vandelli, 1761). Globally in temperate to tropical seas. CITES Appendix I/USFWS Endangered.

**D. Emydidae (1 species)**

*Trachemys scripta* (Schoepf, 1792). United States to Colombia, Venezuela; isolated populations in Brazil, Argentina, Uruguay.

**E. Kinosternidae (3 species)**

*Kinosternon angustipons* Legler, 1965. Nicaragua, Costa Rica, Panama (western, Atlantic versant).

*Kinosternon leucostomum* Dumeril and Dumeril, 1851. Mexico to Colombia, Ecuador.

*Kinosternon scorpioides* (Linnaeus, 1766). Mexico to Argentina, Colombia, Venezuela, Guyana, Brazil, Trinidad.

**F. Testudinidae (4 species)**

**Testudininae (1 Species)**

*Geochelone carbonaria* (Spix, 1824). Panama (Darien Province) to Paraguay, Brazil. CITES Appendix II.

**Batagurinae (3 Species)**

*Rhinoclemmys annulata* (Gray, 1860). Honduras to Ecuador.

*Rhinoclemmys funerea* (Cope, 1875). Honduras-Nicaragua border (Atlantic versant) to Panama (Atlantic versant, central).

*Rhinoclemmys melanosterna* (Gray, 1861). Panama (eastern), Colombia, Ecuador.

**II. PANAMA HERPETOLOGICAL BIBLIOGRAPHY: ORIGINAL DESCRIPTIONS OF CURRENTLY RECOGNIZED SPECIES**

Amaral, A. 1924. New genus and species of South American snakes contained in the United States National Museum. J. Wash. Acad. Sci. 14:200-202 (Clelia equatoriana-202).

Andersson, L.G. 1916. Notes on the reptiles and batrachians in the Zoological Museum at Gothenberg, with an account of some new species. Medd. Goteborgs. Mus. Zool. Afdeling 9:1-38 (Rhinobothryum bovallii-32).

Arosemena, F.A., R. Ibanez, and F. Sousa. 1991. Una especie nueva de Anolis (Squamata: Iguanidae) del grupo latifrons de Fortuna, Panama. Rev. Biol. Trop. 39(2):255-262 (Anolis

casilda-255).

- Barbour, T. 1906. Vertebrata from the savannah of Panama, IV. Reptilia and Amphibia. Bull. Mus. Comp. Zool. 46(12):224-229 (Leptodactylus insularum-228).
- Barbour, T. 1914. A contribution to the zoogeography of the West Indies, with especial reference to amphibians and reptiles. Mem. Mus. Comp. Zool. 44:209-359 (Eleutherodactylus johnstonei-249).
- Barbour, T. 1923. Notes on reptiles and amphibians from Panama. Occas. Pap. Mus. Zool. Univ. Michigan. 129:1-16 (Atelopus certus-12).
- Barbour, T. 1925. A new frog and a new snake from Panama. Occas. Pap. Boston Soc. Nat. Hist. 5:155-156 (Tantilla albiceps-156).
- Barbour, T. 1928. New Central American frogs. Proc. New England Zool. Club 10:25-31 (Hyla lancasteri-31; Eleutherodactylus caryophyllaceus-28; Eleutherodactylus pardalis-26).
- Barbour, T. and A. Amaral. 1924. Notes on some Central American snakes. Occas. Pap. Boston Nat. Hist. Soc. 5:129-132 (Pseustes shropshirei-131).
- Barbour, T. and A. Amaral. 1928. A new elapid from Western Panama. Bull. Antivenin Inst. Amer. 1:100 (Micrurus stewarti-100).
- Barbour, T. and E.R. Dunn. 1921. Herpetological novelties. Proc. Biol. Soc. Wash. 34:157-162 (Eleutherodactylus noblei-161).
- Berthold, A.A. 1846. Mittheilungen über das Zoologische Museum zu Gottingen. 1. Verzeichniss der Aufgestellten Reptilien. Nachr. Univ. Konigl. Ges. Wiss. Gottingen 8-10:1-28 (Anolis latifrons-11; Polychrus gutturosus-11).
- Berthold, A.A. 1846. Über verschiedene neue oder seltene Reptilien aus Neu-Granada und Crustaceen aus China. Abhand. der Königlichen Gesellschaft der Wissenschaften zu Gottingen 3:3-32 (Bothriechis schlegelii-13; Stenorhina degenhardtii-8).
- Bocourt, M.F. 1868. Description de quelques cheloniens nouveaux appartenant à la fauna Mexicaine. Annales des Sciences Naturelles, Zoologique. Paris 10(5):121-122 (Chelonia agassizii-121).
- Bocourt, M.F. 1868. Descriptions de quelques crotaliens nouveaux appartenant au genre Bothrops recueillis dans le Guatemala. Ann. Sci. Nat. Paris 10(5):201-202 (Porthidium nasutum-202; Porthidium ophryomegas-201).
- Bocourt, M.F. 1873-1897. Etudes sur les Reptiles. Mission Scientifique au Mexique et dans l'Amérique Centrale-Recherches Zoologiques Livr. Miss. Sci. Mex., Rept. 33-860 (Tantilla schistosa-584).
- Bocourt, M.F. 1874. Notes sur quelques sauriens de l'Amérique Tropicale. Ann. Sci. Nat. Paris (5)19(4):1-5 (Enyaliooides heterolepis-1).
- Bocourt, M.F. 1884. Note sur quelques ophidiens nouveaux, provenant de l'Amérique Inter-tropicale. Bull. Soc. Philom. Paris (7)8:133-142 (Dipsas viguieri-136).

- Bocourt, M.F. 1891. Sur quelques Ophidiens de l'Amerique Intertropicale appartenant au genre Tretanorhinus. Le. Naturaliste 13(2):121-122 (Tretanorhinus mocquardi-122).
- Boettger, O. 1892. Katalog der Batrachier Sammlung im Museum der Senckenbergischen Naturforschenden Gesellschaft in Frankfurt am Main. Kat. Batr. Samml. Mus. Senckenb. Naturf. Ges. 1892:1-45 (Centrolene prosoblepon-45; Eleutherodactylus fleischmanni-27).
- Boettger, O. 1893. Ein neuer Laubfrosch aus Costa Rica. Ber. Senchekb. Naturf. Ges. 1893:251-252 (Hyalinobatrachium fleischmanni-251).
- Boie, F. 1827. Bemerkungen über Merrem's Versuch eines Systems der Amphibien. Isis von Oken 20:508-566 (Drymarchon corais-537).
- Boulenger, G.A. 1882. Catalogue of the batrachia Salientia S. Ecaudata in the collection of the British Museum. 2nd. ed. London. 1-503 (Phyllomedusa lemur-425).
- Boulenger, G.A. 1887. On a new geckoid lizard from British Guiana. Proc. Zool. Soc. London 1887(I):153-154 (Gonatodes annularis-154).
- Boulenger, G.A. 1890. First report on additions to the lizard collection in the British Museum (Natural History). Proc. Zool. Soc. London 1890:77-86 (Echinosastra horrida-83).
- Boulenger, G.A. 1894. Catalogue of the Snakes in the British Museum (Natural History). 2:1-382 (Enulius sclateri-251; Geophis championi-321; Geophis godmani-322).
- Boulenger, G.A. 1896. Catalogue of the snakes in the British Museum (Natural History). 3:1-727 (Imantodes inornatus-88; Rhadinaea pulviventris-635).
- Boulenger, G.A. 1896. Descriptions of new reptiles and batrachians from Colombia. Ann. Mag. Nat. Hist. (6)17:16-21 (Eleutherodactylus bufoniformis-19; Eleutherodactylus raniformis-19).
- Boulenger, G.A. 1896. Descriptions of new batrachians collected by Mr. C.F. Underwood in Costa Rica. Ann. Mag. Nat. Hist. (6)18:340-342 (Bolitoglossa subpalmata-341).
- Boulenger, G.A. 1898. An account of the reptiles and batrachians collected by Mr. W.F.H. Rosenberg in Western Ecuador. Proc. Zool. Soc. London 1898:107-126 (Anolis chloris-110; Eleutherodactylus achatinus-120; Eleutherodactylus latidiscus-121; Eleutherodactylus longirostris-120; Gastrotheca cornuta-124; Hyla rosenbergi-123).
- Boulenger, G.A. 1899. Descriptions of new batrachians in the collection of the British Museum (Natural History). Ann. Mag. Nat. Hist. (7)3:273-277 (Colostethus pratti-274).
- Boulenger, G.A. 1902. Descriptions of new batrachians and reptiles from north-western Ecuador. Ann. Mag. Nat. Hist. (7):9:51-57 (Agalychnis calcarifer-52; Caecilia nigricans-51).
- Boulenger, G.A. 1903. Descriptions of new snakes in the collection of the British Museum. Ann. Mag. Nat. Hist. 12(7):350-354 (Tantilla alticola-353).
- Boulenger, G.A. 1908. Descriptions of new batrachians and

- reptiles discovered by Mr. M.G. Palmer in South-western Colombia. Ann. Mag. Nat. Hist. (8)2:515-522 (Hyla palmeri-515).
- Boulenger, G.A. 1912. Descriptions of new batrachians from the Andes of South America, preserved in the British Museum. Ann. Mag. Nat. Hist. (8)10:185-191 (Colothesis chocoensis-190; Eleutherodactylus taeniatus-188).
- Boulenger, G.A. 1913. On a collection of batrachians and reptiles made by Dr. H.G.F. Spurrell, F.Z.S., in the Choco, Colombia. Proc. Zool. Soc. London 1913:1019-1038 (Agalychnis spurrelli-1024; Anadia vittata-1033).
- Boulenger, G.A. 1915. Descriptions of a new Amphisbaena and a new snake discovered by Dr. H.G.F. Spurrell in southern Colombia. Proc. Zool. Soc. London 1915(4):659-661 (Amphisbaena spurrelli-659).
- Brame, A.H. and W.E. Duellman. 1970. A new salamander (Genus Oedipina) of the uniformis group from western Panama. Contrib. Sci. Nat. Hist. Mus. Los Angeles Co. 201:1-8 (Oedipina grandis-1).
- Brame, A.H. and D.B. Wake. 1972. New species of salamanders (Genus Bolitoglossa) from Colombia, Ecuador and Panama. Contrib. Sci. Nat. Hist. Mus. Los Angeles Co. 219:1-34 (Bolitoglossa medemi-2).
- Brocchi, M. 1877. Sur quelques Batraciens Raniformes et Bufoniformes de l'Amerique Centrale. Bull. Soc. Philom. Paris. 7th. Ser. 1:175-197 (Rana vaillanti-175).
- Cope, E.D. 1860. Catalogue of the venomous serpents in the Museum of the Academy of Natural Sciences of Philadelphia, with notes on the families, genera and species. Proc. Acad. Nat. Sci. Phila. 12:332-347 (Micrurus dissoleucus-345).
- Cope, E.D. 1860. Supplement to "A Catalogue of the Venomous Serpents in the Museum of the Academy of Natural Sciences of Philadelphia. Proc. Acad. Nat. Sci. Phila. 12:74-79 (Tantilla reticulata-77).
- Cope, E.D. 1860. Catalogue of the colubridae in the museum of the Academy of Natural Sciences of Philadelphia, with notes and descriptions of new species. Part 2. Proc. Acad. Nat. Sci. Phila. 12:241-266 (Rhadinaea vermiculaticeps-249).
- Cope, E.D. 1861. Notes and descriptions of Anoles. Proc. Acad. Nat. Sci. Phila. 12:208-215 (Anolis lemurinus-213; Anolis lionotus-210).
- Cope, E.D. 1861. Contributions to the ophiology of Lower California, Mexico, and Central America. Proc. Acad. Nat. Sci. Phila. 12:292-306 (Imantodes gemmistratus-296; Tretanorhinus nigroluteus-298).
- Cope, E.D. 1861. Descriptions of reptiles from Tropical America and Asia. Proc. Acad. Nat. Sci. Phila. 12:368-374 (Amastridium veliferum-370).
- Cope, E.D. 1861. Catalogue of the colubridae in the Museum of the Academy of Natural Sciences of Philadelphia. Part 3. Proc. Acad. Nat. Sci. Phila. 12:553-566 (Leptophis

- Dipsas depressirostris*-557; *Oxybelis brevirostris*-555).
- Cope, E.D. 1862. Contributions to neotropical saurology. Proc. Acad. Nat. Sci. Phila. 13:176-188 (*Anolis limifrons*-178; *Anolis pentaprion*-178; *Anolis poecilopus*-179; *Mabuya unimarginata*-187).
- Cope, E.D. 1862. Synopsis of the species of *Holcosus* and *Ameiva*, with diagnoses of new West Indian and South American colubridae. Proc. Acad. Nat. Sci. Phila. 14:60-82 (*Liophis epinephelus*-78; *Pliocercus euryzonus*-72).
- Cope, E.D. 1862. On some new and little known American anura. Proc. Acad. Nat. Sci. Phila. 14:151-158 (*Bufo coniferus*-158; *Bufo haematiticus*-157; *Leptodactylus poecilochilus*-156).
- Cope, E.D. 1862. Catalogues of the reptiles obtained during the explorations of the Parana, Paraguay, Vermejo and Uruguay rivers, by Captain Thos. J. Page, U.S.N., and those procured by Lieut. N. Michler, U.S. Trop. Eng. Commander of the expedition conducting survey of the Atrato River. Proc. Acad. Nat. Sci. Phila. 14:346-359 (*Agalychnis callidryas*-359; *Smilisca phaeota*-358; *Bachia pallidiceps*-356).
- Cope, E.D. 1863. On *Trachycephalus*, *Scaphiopus*, and other batrachia. Proc. Acad. Nat. Sci. Phila. 15:43-54 (*Colostethus latinatus*-48).
- Cope, E.D. 1864. Contributions to the herpetology of tropical America. Proc. Acad. Nat. Sci. Phila. 16:166-181 (*Physalaemus pustulosus*-180; *Sceloporus malachiticus*-178).
- Cope, E.D. 1865. Third contribution to the herpetology of tropical America. Proc. Acad. Nat. Sci. Phila. 17:185-198 (*Scinax staufferi*-195).
- Cope, E.D. 1866. Fourth contribution to the herpetology of tropical America. Proc. Acad. Nat. Sci. Phila. 18:123-132 (*Oscaecilia ochrocephala*-132; *Bufo coccifer*-130; *Eleutherodactylus ridens*-131).
- Cope, E.D. 1866. Fifth contribution to the herpetology of tropical America. Proc. Acad. Nat. Sci. Phila. 18:317-323 (*Clelia scytalina*-320).
- Cope, E.D. 1868. An examination of the reptilia and batrachia obtained by the Orton Expedition to Ecuador and the upper Amazon, with notes on other species. Proc. Acad. Nat. Sci. Phila. 20:119-138 (*Colostethus inguinalis*-137; *Dipsas articulata*-135; *Dryadophis melanolomus*-134).
- Cope, E.D. 1869. Sixth contribution to the herpetology of tropical America. Proc. Acad. Nat. Sci. Phila. 20:305-313 (*Enulius flavitorques*-307; *Erythrolamprus mimus*-307; *Leposoma rugiceps*-305; *Pleurodema brachyops*-312).
- Cope, E.D. 1869. Seventh contribution to the herpetology of tropical America. Proc. Am. Philos. Soc. 11:147-169 (*Eleutherodactylus rugulosus*-160).
- Cope, E.D. 1871. Ninth contribution to the herpetology of tropical America. Proc. Acad. Nat. Sci. Phila. 23:200-224 (*Anolis insignis*-213; *Anolis microtus*-214; *Geophis brachycephalus*-211; *Nothopsis rugosus*-201).
- Cope, E.D. 1874. Description of some species of reptiles

obtained by Dr. John F. Bransford, Assistant Surgeon United States Navy, while attached to the Nicaraguan Surveying Expedition in 1873. Proc. Acad. Nat. Sci. Phila. 26:64-72 (Hyla ebraccata-69).

Cope, E.D. 1875. On the batrachia and reptilia collected by Dr. John M. Bransford during the Nicaraguan Canal Survey of 1874. J. Acad. Nat. Sci. Phila. (2)8:155-157 (Eleutherodactylus diastema-155).

Cope, E.D. 1875. On the batrachia and reptilia of Costa Rica with notes on the herpetology and ichthyology of Nicaragua and Peru. J. Acad. Nat. Sci. Phila. (2)8(4):93-154 (Anolis oxylophus-123; Anolis pachypus-122; Basiliscus plumifrons-125; Bufo fastidiosus-96; Colostethus talamancae-102; Corallus annulatus-129; Crepidophryne epiotica-97; Duellmanohyla uranochroa-103; Eleutherodactylus cerasinus-112; Eleutherodactylus melanostictus-109; Eleutherodactylus podiciferus-107; Hyla pictipes-106; Ninia psephota-146; Rhadinaea calligaster-146; Rhadinaea pachyura-145; Rhinoclemmys funerea-154; Scinax elaeochroa-105; Sibon argus-130).

Cope, E.D. 1877. Tenth contribution to the herpetology of tropical America. Proc. Amer. Phil. Soc. 17:85-98 (Leptodactylus labialis-90; Mesaspis monticola-97).

Cope, E.D. 1886. Thirteenth contribution to the herpetology of tropical America. Proc. Am. Phil. Soc. 23:271-287 (Drymobius chloroticus-278; Eleutherodactylus bransfordii-274; Hyla microcephala-281; Hyla miliaria-272; Rhadinaea fulviceps-279; Sphaerodactylus homolepis-277).

Cope, E.D. 1887. Catalog of batrachians and reptiles of Central America and Mexico. Bull. U.S. Natl. Mus. 32:1-98 (Scinax boulengeri-12).

Cope, E.D. 1893. Second addition to the knowledge of the batrachia and reptilia of Costa Rica. Proc. Am. Phil. Soc. 31:333-347 (Ameiva leptophrys-341; Dendrophidion percarinatum-344; Eleutherodactylus stejnegerianus-338; Sphenomorphus cherrieri-340).

Cope, E.D. 1894. Third addition to a knowledge of the batrachia and reptilia of Costa Rica. Proc. Acad. Nat. Sci. Phila. 46:194-206 (Bolitoglossa robusta-194; Dendrophidion paucicarinatum-202; Rana vibicaria-197; Trimetopon pliolepis-201).

Cope, E.D. 1899. Contributions to the herpetology of New Granada and Argentina. Sci. Bull. Phila. Mus. 1:1-22 (Anolis frenatus-6).

Cuvier, G.L.C.F.D. 1807. Sur les differentes especes de crocodiles vivans et sur leurs caracteres distinctifs. Annales du Museum d'Histoire Naturelle Paris 10:8-66 (Crocodylus acutus-55).

Daudin, F.M. 1802. Des Couleuvres. Hist. Nat. Rept. 4:1-397 (Anolis auratus-89).

Daudin, F.M. 1803. Des Couleuvres. Hist. Nat. Rept. 6:1-447 (Clelia clelia-330; Oxybelis fulgidus-352; Tripanurgos compressus-247).

- Despax, M.R. 1910. Mission Geodesique de L'Equateur.  
 Collections Recueillies par M. le Dr. Rivet. Liste des  
 Orchidiens et description des especes nouvelles. Bull. Mus.  
 Nat. Hist. Paris 7:368-376 (Leptophis riveti-368).
- Duellman, W.E. 1966. A new species of fringe-limbed tree  
 frog, Genus Hyla, from Darien, Panama. Univ. Kansas  
 Publ. Mus. Nat. Hist., 17:257-262 (Hyla thysanota-259).
- Duellman, W.E. and L. Trueb. 1966. Smilisca sila neotropical  
 hylid frogs, Genus Smilisca. Univ. Kansas Publ. Mus.  
 Nat. Hist. 17:281-375 (Smilisca sila-318).
- Duellman, W.E. and L. Trueb. 1967. Two new species of tree  
 frogs (Genus Phyllomedusa) from Panama. Copeia  
 1967:125-131 (Agalychnis litodryas-125; Phyllomedusa  
venusta-128).
- Dumeril, A.M.C. and G. Bibron. 1836. Erpetologie Generale ou  
 Histoire Naturelle Complete des Reptiles. 3:1-517 (Gonatodes  
albogularis-415; Hemidactylus frenatus-366; Lepidodactylus  
lugubris-304).
- Dumeril, A.M.C. and G. Bibron. 1837. Erpetologie Generale ou  
 Histoire Naturelle Complete des Reptiles. 4:1-571 (Anolis  
fuscoauratus-110).
- Dumeril, A.M.C. and G. Bibron. 1841. Erpetologie Generale ou  
 Histoire Naturelle Complete des Reptiles. 8:1-792  
 (Dermophis mexicanus-284; Smilisca baudinii-564).
- Dumeril, A.M.C. and G. Bibron. 1844. Erpetologie generale ou  
 histoire naturelle complete des reptiles 6:1-609  
 (Leptotyphlops goudotii-330).
- Dumeril, A.M.C., G. Bibron, and A. Dumeril. 1854.  
 Erpetologie generale ou histoire naturelle complete des  
 reptiles 7 (Part 1):1-780 (Atractus crassicaudatus-103;  
Dipsas variegata-477; Dryadophis pleei-661; Masticophis  
mentovarius-187; Scaphiodontophis annulatus-335).
- Dumeril, A.M.C., G. Bibron, and A. Dumeril. 1854.  
 Erpetologie generale ou histoire naturelle complete des  
 reptiles 7 (Part 2):781-1536 (Conophis lineatus-936;  
Micrurus mipartitus-1220; Pseudoboa neuwiedii-1001;  
Stenorhina freminvillei-868).
- Dumeril, A.M.C. and A. Dumeril. 1851. Catalogue methodique de la  
 collection des reptiles du Museum d'Histoire Naturelle de  
 Paris. Gide and Baudry, Paris. 1-224 (Basiliscus galeritus-  
 61; Kinosternon leucostomum-17; Lepidophyma flavimaculatum-  
 137).
- Dunn, E.R. 1921. Two new Central American salamanders. Proc.  
 Biol. Soc. Washington 34:143-146 (Oedipina alfaroi-144).
- Dunn, E.R. 1924. Some Panamanian frogs. Occas. Pap. Mus.  
 Zool., Univ. Michigan 151:1-16 (Colothethus nubicola-7).
- Dunn, E.R. 1924. New amphibians from Panama. Occ. Papers Boston  
 Soc. Nat. Hist. 5(118):93-95 (Dermophis parviceps-93;  
Oedipina complex-94).
- Dunn, E.R. 1924. New salamanders of the Genus Oedipus with a  
 synoptical key. Field Mus. Nat. Hist. Publ., Zool.  
 Ser. 12(7)95-100 (Bolitoglossa colonnea-96).
- Dunn, E.R. 1930. New snakes from Costa Rica and Panama. Occ.  
 Pap. Boston Soc. Nat. Hist. 5:329-32 (Trimetopon barbouri-

- 331).
- Dunn, E.R. 1930. Notes on Central American Anolis. Proc. New England Zool. Club 12:15-24 (Anolis altae-22).
- Dunn, E.R. 1931. New frogs from Panama and Costa Rica. Occ. Pap. Boston Soc. Nat. Hist. 5:385-401 (Atelopus glyphus-396; Colothesus flotator-389; Hyalinobatrachium valerioi-397; Eleutherodactylus gaigeae-387; Eleutherodactylus talamanca-385; Hyla colymba-400).
- Dunn, E.R. 1933. Amphibians and reptiles from El Valle de Anton, Panama. Occ. Pap. Boston Soc. Nat. Hist. 8:65-79 (Atelopus zeteki-71; Morunasaurus groi-75).
- Dunn, E.R. 1934. Two new frogs from Darien. Amer. Mus. Novitates 747:1-2 (Hyla subocularis-2).
- Dunn, E.R. 1937. The amphibian and reptilian fauna of bromeliads in Costa Rica and Panama. Copeia 1937(3):163-167 (Hyla picadoi-164).
- Dunn, E.R. 1938. A new Rhadinaea from Central America. Copeia 1938(4):197-198 (Rhadinaea guentheri-197).
- Dunn, E.R. 1939. A new pit viper from Costa Rica. Proc. Biol. Soc. Washington 52:165 (Porthidium picadoi-165).
- Dunn, E.R. 1940. New and noteworthy herpetological material from Panama. Proc. Acad. Nat. Sci. Phila. 92:105-122 (Anolis kemptoni-111; Anolis woodi-110; Bachia blairi-115; Eleutherodactylus monnichorum-107; Trimetopon slevini-117).
- Dunn, E.R. 1942. The American caecilians. Bull. Mus. Comp. Zool. 91(6):439-540 (Oscacecilia elongata-527).
- Dunn, E.R. 1942. A new species of frog (Eleutherodactylus) from Costa Rica. Not. Nat. Phila. 104:1-2 (Eleutherodactylus altae-1).
- Dunn, E.R. and J.R. Bailey. 1939. Snakes from the uplands of the Canal Zone and of Darien. Bull. Mus. Comp. Zool. 86(1):1-22 (Atractus clarki-8; Rhadinaea sargenti-10).
- Dunn, E.R., H. Trapido, and H. Evans. 1948. A new species of the microhylid frog genus Chiasmocleis from Panama. Amer. Mus. Novitates 1376:1-8 (Chiasmocleis panamensis-1).
- Echelle, A.A., A.I. Echelle, and H.S. Fitch. 1971. A new anole from Costa Rica. Herpetologica 27(3):354-362 (Anolis carpenteri-355).
- Eschscholtz, J.F. von. 1829-1833. Zoologischer Atlas, enthaltend Abbildungen und Beschreibungen neuer Thierarten, Wahrend des Flottcapitains von Kotzebue zweiter Reise um die Welt, auf Russisch-Kaiserlich Kreigsschupp Predpriaete in den Jahren 1823-1826. G. Reimer, Berlin. Pt. 1 (Lepidochelys olivacea-3).
- Fouquette, M.J. Jr. 1961. Status of the frog Hyla albomarginata in Central America. Fieldiana: Zool. 39:595-601 (Hyla rufitela-595).
- Gaige, H.T. 1929. Three new tree-frogs from Panama and Bolivia. Occas. Pap. Mus. Zool. Univ. Michigan 207:1-6 (Hyla zeteki-).

- 4).
- Gaige, H.T. 1933. A new Gastrotheca from Colombia. Occas. Pap. Mus. Zool. Univ. Michigan 263:1-3 (Gastrotheca nicefori-1).
- Garcia, E. 1896. Los Ofidios venenosas de Cauca, Cali, Colombia. Metodos empiricos y racionales empleados contra los accidentes producidos por la Mordepura de esos reptiles. Cali, Colombia. Libreria Colombiana 1896:1-102 (Bothriopsis punctata-31).
- Garman, S. 1880. On certain species of Chelonioidae. Bull. Mus. Comp. Zool. 6:123-126 (Lepidochelys kempii-123).
- Garman, S. 1883. On the reptiles and batrachians. Mem. Mus. Comp. Zool. 8(3):1-180 (Bothrops asper-124).
- Girard, C. 1854. Reptiles, fishes, and crustacea. In: The U.S. Naval Astronomical Expedition to the southern hemisphere during the years 1849-52. Proc. Acad. Nat. Sci. Philadelphia 7:207-262 (Dendrobates auratus-226; Micrurus nigrocinctus-210).
- Gosse, P.H. 1850. Descriptions of a new genus and six new species of saurian reptiles. Ann. Mag. Nat. Hist. 6(2): 344-348 (Sphaerodactylus argus-347).
- Gray, J.E. 1831. A synopsis of the species of the Class Reptilia In: Griffith, E. Cuvier's Animal Kingdom. Whittaker, Treacher, and Co. London. 9:1-110 (Ctenosaura similis-38).
- Gray, J.E. 1845. Catalogue of the specimens of lizards in the collection of the British Museum. London. 1-289 (Anadia ocellata-58; Hemidactylus brookii-153).
- Gray, J.E. 1860. Description of a new species of Geoclemmys from Ecuador. Proc. Zool. Soc. London 231-232 (Rhinoclemmys annulata-231).
- Gray, J.E. 1861. On a new species of water-tortoise (Geoclemmys melanosterna) from Darien. Proc. Zool. Soc. London 204-205 (Rhinoclemmys melanosterna-205).
- Gunther, A.C.L.G. 1858. Catalogue of colubrine snakes in the collection of the British Museum. Brit. Mus.:1-281 (Coniophanes bipunctatus-36; Coniophanes fissidens-36; Pseustes poecilonotus-100; Rhadinaea decorata-35).
- Gunther, A.C.L.G. 1860. Third list of cold-blooded vertebrata collected by Mr. Fraser in Ecuador. Proc. Zool. Soc. London 1860 Pt. 28:233-240 (Drymobius rhombifer-236).
- Gunther, A.C.L.G. 1863. Third account of new species of snakes in the Collection of the British Museum. Ann. Mag. Nat. Hist. 12(3):348-365 (Porthidium godmani-364).
- Gunther, A.C.L.G. 1865. Fourth account of new species of snakes in the collection of the British Museum. Ann. Mag. Nat. Hist. Ser. 3(15):89-98 (Rhadinaea godmani-94).
- Gunther, A.C.L.G. 1868. Sixth account of new species of snakes in the collection of the British Museum. Ann. Mag. Nat. Hist. Ser. 4:1(6):413-429 (Leptodeira nigrofasciata-425).
- Gunther, A.C.L.G. 1872. Seventh account of new species of snakes in the collection of the British Museum. Ann. Mag. Nat. Hist. 9(4):13-37 (Sibon annulatus-30).
- Gunther, A.C.L.G. 1885-1902. Reptilia and batrachia. In: Godman, F.D. and O. Salvin. eds. Biologia Centrali-Americana. 1-326

(Hyla pseudopuma-274; Nelsonophryne aterrimum-210; Rhadinaea decipiens-105).

- Hallowell, E. 1845. Descriptions of reptiles from South America, supposed to be new. Proc. Acad. Nat. Sci. Phila. 2(9):241-247 (Ninia atrata-245).
- Hallowell, E. 1856. Notes on the reptiles in the collection of the Academy of Natural Sciences of Philadelphia. Proc. Acad. Nat. Sci. Phila. 1856:221-238 (Anolis tropidogaster-224).
- Hallowell, E. 1861. Report upon the reptilia of the North Pacific exploring expedition under command of Capt. John Rogers, U.S.N. Proc. Acad. Nat. Sci. Phila. 1860:480-510 (Ameiva quadrilineata-483; Gymnophthalmus speciosus-484; Leptodactylus melanotus-485).
- Harris, D.M. and A.G. Kluge. 1984. The Sphaerodactylus (Sauria: Gekkonidae) of Middle America. Occas. Pap. Mus. Zool. Univ. Michigan 706:1-59 (Sphaerodactylus graptolaemus-4).
- Hillis, D.M. 1988. Systematics of the Rana pipiens complex: puzzle and paradigm. Ann. Rev. Ecol. and Syst. 19:39-63 (Rana "pipiens" species "E"-57).
- Houttuyn, M. 1782. Het onderscheidt der Salamanderen van de Haagdissen in 't algemeen, en van de Gekkoos in 't byzonder. Verh. Zeeuws Gen. Wet. Vlissingen 9:305-336 (Thecadactylus rapicauda-323).
- Jan, G. 1858. Plan d'une Iconographie descriptive des Ophidiens, et description Sommaire de nouvelles especes de serpents. Rev. Mag. Zool. Paris 10(2):514-527 (Micrurus dumerilii-522; Micrurus multifasciatus-521).
- Jan, G. 1860. Iconographie generale des ophidiens. Premiere Livraison. De Soye et Bouchet (printer). 1-10 (Anomalepis mexicanus-Plates V & VI).
- Jan, G. 1863. Elenco sistema degli ofidi. 1547:1-143 (Diaphorolepis wagneri-98).
- Jan, G. 1863. Enumerazione sistematica degli ofidi appartenential Gruppo Coronellidae. Arch. Zool. Anat. Fis. 2(2):213-330 (Erythrolamprus bizonus-314).
- Jan, G. and F. Sordelli. 1870-1881. Iconographie generale par M. le Professeur Jan et M. Ferd. Sordelli. Icon. Gen. Ophid., Livraison 3:35-50 (Micrurus ancoralis-42 & pl.4).
- Keferstein, 1868. Beschreibung einigerneuen batrachier aus Australien und Costa Rica. Nach. Ges. Wiss. Gottingen 15:326-332 (Oedipina uniformis-331).
- Kennicott, R. 1859. Reptiles of the Boundary. In: Baird, S.F., ed. United States and Mexican Boundary Survey 2: 1-35 (Leptodeira septentrionalis-16).
- Kuhl, H. 1820. Beitrage zur Zoologie und vergleichenden Anatomie Verlag der Hermannschen Buchhandlung. Frankfurt am Main. Part One:1-152 (Diploglossus monotropis-128).
- Lacepede, B.G. 1789. Histoire naturelle des Quadrupedes ovipares et des Serpens. Sous le Privilege de L'Academie

- Royale des Sciences. Hist. Nat. Quadr. Ovip. Serp. 2:1-527 (Lampropeltis triangulum-86).
- Laurenti, J.N. 1768. Specimen medicum exhibens synopsin reptilium emendatum cum experimentis circa venera et antidota reptilium Austriacorum. Vienna. 1-214 (Amphisbaena fuliginosa-66; Leptodactylus pentadactylus-32; Phrynohyas venulosa-31; Scinax rubra-5; Siphlophis cervinus-88).
- Legler, J.M. 1965. A new species of turtle, Genus Kinosternon, from Central America. Univ. Kansas Publ. Mus. Nat. Hist. 15:615-625 (Kinosternon angustipons-617).
- Lichtenstein, H. 1856. Namenverzeichnifs in der zoologischen sammlung der Koniglichen Universitat zu Berlin aufgestellten arten von reptilien und amphibien nach ihren ordnungen, familien und gattungen. Nomencl. Rept. Amph. Mus. Zool. Berolin. 40:1-48 (Ameiva festiva-13; Atelopus varius-40; Sphaerodactylus lineolatus-6).
- Linnaeus C. von. 1758. Systema naturae per regna tria naturae secundum Classes, Ordines, Genera, Species, cum Characteribus, Differentiis, Synonymis, Locis. Stockholm. ed. 10. 1:1-824 (Ameiva ameiva-202; Amphisbaena alba-229; Basiliscus basiliscus-206; Boa constrictor-215; Bufo marinus-211; Bufo typhonius-211; Caecilia tentaculata-229; Caiman crocodilus-200; Caretta caretta-197; Chelonia mydas-197; Chelydra serpentina-199; Chironius carinatus-223; Chironius exoletus-223; Chironius fuscus-222; Cnemidophorus lemniscatus-204; Corallus enydris-215); Epicrates cenchria-215; Hemidactylus turcicus-202; Hyla boans-213; Iguana iguana-206; Imantodes cenchoa-226; Leptodeira annulata-224; Leptophis ahaetulla-225; Liophis lineatus-221; Oxyrhopus petola-225; Sibon nebulatus-222; Spilotes pullatus-225; Tantilla melanocephala-218).
- Linnaeus, C. von. 1766. Systema Naturae per Regna tria Naturae secundum Classes, Ordines, Genera, Species, cum Characteribus, Differentiis, Synonymis, Locis. Stockholm, ed. 12. 1:1-532 (Eretmochelys imbricata-350; Kinosternon scorpioides-352; Lachesis muta-373; Pelamis platurus-391).
- Lynch, J.D. 1980. A new frog of the Genus Eleutherodactylus from Western Panama. Trans. Kansas Acad. Sci 83(3):101-105 (Eleutherodactylus iota-101).
- Lynch, J.D. 1985. A new species of Eleutherodactylus from Western Panama (Amphibia: Leptodactylidae). Herpetologica 41(4):443-447 (Eleutherodactylus emcelae-443).
- Merrem, B. 1820. Tentamen systematis Amphibiorum. Johann Christian Krieger. Marburg. 1-191 (Corytophanes cristatus-50).
- Moreau de Jonnes. 1818. Monographie du Mabouia des murailles, ou Gecko Mabouia des Antilles. Bull. Sci. Soc. Philom. Paris 1818:138-139 (Hemidactylus mabouia-138).
- Myers, C.W. 1966. A new species of colubrid snake, Genus Coniophanes, from Darien, Panama. Copeia 4:665-668 (Coniophanes joanae-665).
- Myers, C.W. 1971. A new species of green anole (Reptilia: Sauria) from the North Coast of Veraguas, Panama. Amer.

- Mus. Novitates 2470:1-14 (Anolis procellaris-2).  
 Myers, C.W. 1971. Central American lizards related to Anolis pentaprion: two new species from the Cordillera de Talamanca. Amer. Mus. Novitates 2471:1-40 (Anolis fungosus-3; Anolis vociferans-10).  
 Myers, C.W. 1973. Anguid lizards of the Genus Diploglossus in Panama, with the description of a new species. Amer. Mus. Novitates 2523:1-20 (Diploglossus montisilvestris-3).  
 Myers, C.W. 1982. Blunt-headed vine snakes (Imantodes) in Panama, including a new species and other revisionary notes. Amer. Mus. Novitates 2738:1-50 (Imantodes phantasma-3).  
 Myers, C.W., J.W. Daly, and V. Martinez. 1984. An arboreal poison frog (Dendrobates) from Western Panama. Am. Mus. Novitates 2783:1-20 (Dendrobates arboreus-5).  
 Myers, C.W. and W.E. Duellman. 1982. A new species of Hyla from Cerro Colorado, and other tree frog records and geographical notes from Western Panama. Am. Mus. Novitates 2752:1-32 (Hyla graceae-5).

Noble, G.K. 1916. Description of a new eublepharid lizard from Costa Rica. Proc. Biol. Soc. Wash. 29:87-88 (Lepidoblepharis xanthostigma-87).

- O'Shaughnessy, A.W.E. 1874. Description of a new species of lizard of the Genus Celestus. Ann. Mag. Nat. Hist. 14(4):257-258 (Diploglossus bilobatus-257).  
 O'Shaughnessy, A.W.E. 1879. Descriptions of new species of lizards in the collection of the British Museum. Ann. Mag. Nat. Hist. (5)4:295-303 (Prionadactylus vertebralis-298).

Peracca, M.G. 1896. Descrizione di un nuovo Genere e. di una nuova species di Teiidae raccolta nel. Darien Dal. Dott. Boll. Mus. Zool. Comp. Anat. Univ. Torino 11(235):1-4 (Ptychoglossus festae-2).

Peracca, M.G. 1910. Descrizione di alcune nuove specie di ofidii del Museo Zoologico Della R. Universita di Napoli. Ann. Mus. Zool. Univ. Napoli 3(12):1-3 (Trachyboa boulengeri-1).

Peters, W.C.H. 1857. Vier neue Amerikanische Schlangen aus der Familie der Typhlopinen. Monats. Akad. Wiss. Berlin 1857:402-403 (Leptotyphlops macrolepis-402; Liotyphlops albirostris-402).

Peters, W.C.H. 1859. Über die von Hrn. Dr. Hoffman in Costa Rica Gesammelten Schlangen und an das Konigl. Zoologische Museum Gesandten Schlangen. Monats. Akad. Wiss. Berlin 1859:275-278 (Bothriechus nigroviridis-278; Geophis hoffmani-276; Hydromorphus concolor-277).

Peters, W.C.H. 1860. Drei neue Schlangen des K. Zoologischen Museums aus America und Bemerkungen über die generelle Unterscheidung von anderen Bereits bekannten arten. Monatsber Konigl. Akad. Wiss. Berlin 1860:517-521 (Helminthophis frontalis-517).

Peters, W.C.H. 1861. Über neue Schlangen des Konigl. Zoologischen

- Museums: Typhlops striocatus, Geophidium dubium,  
Streptophorus (Ninia) maculatus, Elaps hippocrepis.  
Monatsber. Konigl. Akad. Wiss. Berlin 1861:922-925 (Ninia maculata-924).
- Peters, W.C.H. 1862. Über die Batrachier-Gattung Hemiphractus  
Monatsber. Preuss. Akad. Wiss. Berlin 1862:144-152  
(Hemiphractus fasciatus-149).
- Peters, W.C.H. 1863. Einen neuen gecko, Brachydactylus mitratus,  
aus Costa Rica. Monats. Akad. Wiss. Berlin 1863:41-44  
(Coleonyx mitratus-42).
- Peters, W.C.H. 1863. Eine Mittheilung über einige Neuearten  
der Saurier-Gattung Anolis. Monats. Akad. Wiss. Berlin  
1863:135-149 (Anolis capito-142; Anolis humilis-138;  
Anolis intermedius-143).
- Peters, W.C.H. 1863. Einige neue oder weniger bekannte  
schlangenarten des zoologischen museums zu Berlin. Monats.  
Konigl. Akad. Wiss. Berlin 1863:272-289 (Dendrophidion nuchale-285; Tantilla supracincta-272).
- Peters, W.C.H. 1863. Über eine neue Schlangengattung,  
Styphorhynchus, und Verschiedene andere Amphibien des  
Zoologischen Museums. Monatsber. Preuss. Akad. Wiss.,  
Berlin 1863:399-413 (Eleutherodactylus biporcatus-405;  
Eleutherodactylus gollmeri-409).
- Peters, W.C.H. 1863. Mittheilungen über neue Batrachier.  
Monatsber. Preuss. Akad. Wiss. Berlin, 1863:445-471  
(Scinax rostrata-466; Smilisca sordida-460;  
Eleutherodactylus punctariolus-462).
- Peters, W.C.H. 1863. Vortrag über die craniologischen  
verschiedenheiten der Grubenotern (Trigonocephali) und  
über eine neue Art der Gaitung Bothriechis. Monats. Akad.  
Wiss. Berlin 1863:670-674 (Bothriechis lateralis-674).
- Peters, W.C.H. 1868. Eine neue Nagergattung, Chiropodomys penicillatus, so wie einige neue oder weniger bekannte  
Amphibien und Fische. Monats. Akad. Wiss. Berlin 1868:448-461 (Chironius grandisquamis-451).
- Peters, W.C.H. 1873. Eine neue Schildkrotenart, Cinosternon effeldtii und einige andere neue oder weniger bekannte  
Amphibien. Monataber. Preuss. Akad. Wiss. Berlin 1873:603-618 (Bolitoglossa lignicolor-617; Hyalinobatrachium pulverata-614; Epipedobates maculatus-617; Eleutherodactylus cruentus-609).
- Peters, W.C.H. 1874. Über neue amphibien (Gymnopis,  
Siphonops, Polypedates, Rhacophorus, Hyla, Cyclodus,  
Euprepes, Clemmys). Monatsber. Preuss. Akad. Wiss.  
Berlin 1874:616-624 (Gymnopis multiplicata-616).
- Peters, W.C.H. 1874. Neue Saurier (Spaeriodactylus, Anolis,  
Phrynosoma, Tropidolepisma, Lygosoma, Ophioscincus) aus  
Centralamerica, Mexico und Australien. Monataber.  
Preuss. Akad Wiss. Berlin 1874:738-747 (Anolis polylepis-738).
- Peters, W.C.H. 1877. Über neue Arten der Sauriergattung  
Gerrhonotus. Monats. Akad. Wiss. Berlin 1877:297-300  
(Coloptychon rhombifer-298).
- Peters, W.C.H. 1879. Hr. W. Peters machte eine mittheilung über

neue amphibien des kgl. zoologischen museums (Euprepes, Acontias, Typhlops, Zamenis, Spilotes, Oedipus). Monatsber. Konigl. Akad. Wiss. Berlin 1879:775-779 (Oedipina parvipes-778).

Reinhardt, J. and C.F. Lutken 1863. Bidrag til det vestindiske oeriges og. navnlingen til de denskvestindiske ders Herpetologie Vidensk. Meddel. Naturhis. Foren (Copenhagen). Vidensk. Medd. Dansk. Naturhist. Foren. 1862:153-291 (Eleutherodactylus antillensis-209).

Ruppel, L. 1845. Verzeichniss der in dem Museum der Senckenberischen Gesellschaft Aufgestellten Sammlung. Amphibien. Verh. Mus. Senckenberg 3:293-316 (Porthidium nummifer-313).

Ruthven, A.G. 1914. Description of a new engystomatid frog of the Genus Hypopachus. Proc. Biol. Soc. Wash. 27:77-80 (Relictivomer pearsei-77).

Ruthven, A.G. 1916. A new genus and species of lizard from Colombia, with remarks on the Genus Pseudogonatodes. Occas. Pap. Mus. Zool. Univ. Mich. 21:1-3 (Lepidoblepharis sanctaemartae-2).

Ruthven, A.G. and H.T. Gaige. 1924. A new Leposoma from Panama. Occas. Pap. Mus. Zool. Univ. Mich. 147:1-3 (Leposoma southi-1).

Savage, J.M. 1965. A new bromeliad frog of the Genus Eleutherodactylus from Costa Rica. Bull. S. California Acad. Sci. 64(2):106-110 (Eleutherodactylus moro-106).

Savage, J.M. 1967. A new tree-frog (Centrolenidae) from Costa Rica. Copeia 1967:326-331 (Centrolene ilex-326).

Savage, J.M. 1968. A new red-eyed tree-frog (Family Hylidae) from Costa Rica, with a review of the Hyla uranochroa group. Bull. S. Calif. Acad. Sci. 67:1-20 (Duellmanohyla lythrodex-1).

Savage, J.M. 1972. The systematic status of Bufo simus O. Schmidt with description of a new toad from Western Panama. J. Herpetol. 6(1):25-33 (Bufo peripatetes-26).

Savage, J.M. 1974. On the leptodactylid frog called Eleutherodactylus palmatus (Boulenger) and the status of Hylodes fitzingeri O. Schmidt. Herpetologica 30(3):289-299 (Eleutherodactylus andi-295).

Savage, J.M. 1975. Panama (Peninsula de Azuero) systematics and distribution of the Mexican and Central American stream frogs related to Eleutherodactylus rugulosus. Copeia 1975:254-306 (Eleutherodactylus azueroensis-277).

Savage, J.M. and J.E. DeWeese. 1979. A new species of leptodactylid frog, Genus Eleutherodactylus, from the Cordillera de Talamanca, Costa Rica. Bull. S. Calif. Acad. Sci. 78(2):107-115 (Eleutherodactylus rayo-107).

Savage, J.M. and P.H. Starrett. 1967. A new fringe-limbed tree frog (Family Centrolenidae) from lower Central America. Copeia 1967:604-609 (Cochranella euknemos-604).

Schlegel, H. 1837. Essai sur la Physiognomie des Serpents. Libraire-Editeur M.H. Schonekat. Amsterdam. 2:1-606

- (Drymobius margaritiferus-184).  
 Schlegel, H. 1841. Description d'une nouvelle espece du genre  
Trigonocephalus (Trigonocephalus lansbergii). Mag. Zool.  
 Rept. Ser. 2(19):1-3 (Porthidium lansbergii-3).  
 Schmidt, K.P. 1933. Amphibians and reptiles collected by the  
 Smithsonian Biological Survey of the Panama Canal Zone.  
 Smithsonian Misc. Coll. 89(1):1-20 (Ungaliophis panamensis-  
 12).  
 Schmidt, K.P. 1936. Notes on Central American and Mexican Coral  
 snakes. Zool. Ser. Field Mus. Nat. Hist. 20(20):205-216  
 (Micrurus alleni-209; Micrurus clarki-211).  
 Schmidt, O. 1857. Diagnosen neuer Frosche des zoologischen  
 cabinets zu Krakau. Sitzungsber. Konigl. Akad. Wiss.  
 Wien, Math. Naturwiss. Kl. 24:10-15 (Dendrobates pumilio  
 -12; Dendrobates speciosus-12; Hyla pugnax-11;  
Phyllobates lubugris-12; Rana warschewitschii-11).  
 Schmidt, O. 1858. Deliciae Herpetologicae Musei Zoologici  
 Cracoviensis. Beschreibung der im k.k. Museum zu Krakau  
 befindlichen von J.V. Warszewicz in Neu-Granada und  
 Bolivia gesammelten ungeschwanzten Batrachier. Denkschr.  
 Akad. Wiss. Wien, Math. Naturwiss. Kl. 14:237-257  
 (Eleutherodactylus fitzingeri-248).  
 Schneider, J.G. 1799. Historiae Amphibiorum Naturalis et  
 Literariae. 1:1-264 (Elachistocleis ovalis-131;  
Leptodactylus fuscus-130).  
 Schoepf, J.D. 1792-1801. Historia Testudinum Iconibus Illustrata.  
 J.J. Palm, Erlangae 1-136 (Trachemys scripta-16).  
 Shreve, B. 1935. On a new teiid and amphibia from Panama,  
 Ecuador, and Paraguay. Occas. Pap. Boston Soc. Nat. Hist.  
 8:209-218 (Minyobates minutus-212-213).  
 Shreve, B. 1936. A new Atelopus from Panama and a new  
Hemidactylus from Colombia. Occas. Pap. Boston Soc. Nat.  
 Hist. 8:269-272 (Atelopus chiriquiensis-269).  
 Slevin, J.R. 1942. Notes on a collection of reptiles from  
 Boquete, Panama, with the description of a new species  
 of Hydromorphus. Proc. Calif. Acad. Sci. 23(32):463-480  
 (Hydromorphus dunni-474).  
 Smith, H.M. 1941. A new name for the Mexican snakes of the  
 Genus Dendrophidion. Proc. Biol. Soc. Wash. 54:73-76  
 (Dendrophidion vinitor-74).  
 Smith, H.M. and C. Grant. 1958. New and noteworthy snakes from  
 Panama. Herpetologica 14:207-215 (Liotyphlops rowani-207).  
 Spix, J.B. von. 1824. Animalia nova sive species novae  
 testudineum-amphibia. Spec. Nov. Testud. Ran. Brasil  
 25-53 (Bufo granulosus-51; Geochelone carbonaria-22).  
 Starrett, P.H. 1966. Rediscovery of Hyla pictipes Cope, with  
 description of a new montane stream Hyla from Costa  
 Rica. Bull. S. Calif. Acad. Sci. 65:17-28 (Hyla tica-23).  
 Starrett, P.H. and J.M. Savage. 1973. The systematic status  
 and distribution of Costa Rican Glass-Frogs, Genus  
Centrolenella (Family Centrolenidae), with description  
 of a new species. Bull. So. Calif. Acad. Sci. 72(2):57-78  
 (Hyalinobatrachium viteovittata-66).  
 Stejneger, L.H. 1906. A new tree toad from Costa Rica. Proc.

- U.S. Nat. Mus. 30:817-818 (Hyla phlebodes-817).  
 Stejneger, L.H. 1907. A new species from Nicaragua. Proc. U.S. Nat. Mus. 32(1538):465-466 (Oedipina collaris-465).  
 Stejneger, L.H. 1909. Description of a new snake from Panama. Proc. U.S. Nat. Mus. 26(1681):457-458 (Sibon longifrenis-457).  
 Steindachner, F. 1864. Batrachologische Mittheilungen. Verh. Zool. Bot. Ges. Wien 14:239-288 (Anotheca spinosa-239).
- Tanner, W.W. 1962. A new Bolitoglossa (salamander) from southern Panama. Herpetologica (1):18-20 (Bolitoglossa biseriata-19).  
 Tanner, W.W. and A.H. Brame. 1961. Description of a new species of salamander from Panama. Great Basin Nat. 21(1&2):23-26 (Bolitoglossa marmorea-23).  
 Taylor, E.H. 1948. Two new hylid frogs from Costa Rica. Copeia 1948(4):233-238 (Hyla fimbriimembra-235).  
 Taylor, E.H. 1949. Costa Rican frogs of the Genera Centrolene and Centrolenella. Univ. Kansas Sci. Bull. 33(4):257-270 (Cochranella albomaculata-267; Hyalinobatrachium colymbiphyllum-262; Cochranella granulosa-265; Cochranella spinosa-259).  
 Taylor, E.H. 1949. Two new teiid lizards from Costa Rica. Univ. Kansas Sci. Bull. 33(5):271-278 (Ptychoglossus plicatus-272).  
 Taylor, E.H. 1949. New salamanders from Costa Rica. Univ. Kansas Sci. Bull. 33(6):279-288 (Bolitoglossa nigrescens-282).  
 Taylor, E.H. 1952. The salamanders and caecilians of Costa Rica. Univ. Kansas Sci. Bull. 34(12):695-791 (Oedipina cyclocauda-764).  
 Taylor, E.H. 1952. A review of the frogs and toads of Costa Rica. Univ. Kansas Sci. Bull. 35:577-942 (Hyla angustilineata-850; Hyla debilis-880; Hyla rivularis-847; Duellmanohyla rufiocularis-827; Eleutherodactylus crassidigitus-740).  
 Taylor, E.H. 1954. Further studies on the serpents of Costa Rica. Univ. Kansas Sci. Bull. 26, Pt.2(11):673-801 (Dipsas tenuissima-771).  
 Taylor, E.H. 1955. Additions to the known herpetological fauna of Costa Rica with comments on other species. No. II. Univ. Kansas Sci. Bull. 37:499-575 (Eleutherodactylus vocator-522).  
 Taylor, E.H. 1956. A review of the lizards of Costa Rica. Univ. Kansas Sci. Bull. 38(1):3-322 (Anolis aquaticus-141).  
 Taylor, E.H. 1958. Additions to the known herpetological fauna of Costa Rica with comments on other species. No. III. Univ. Kansas Sci. Bull. 39(1):3-40 (Ptychohyla legleri-33; Eleutherodactylus taurus-17).  
 Taylor, E.H. 1958. Notes on Costa Rican Centrolenidae with descriptions of new forms. Univ. Kansas Sci. Bull. 39(2): 41-68 (Hyalinobatrachium chirripoi-59).  
 Taylor, E.H. 1968. Caecilians of the World. A Taxonomic Review. University of Kansas Press. Lawrence, Kansas. 848 p. (Caecilia leucocephala-404).  
 Taylor, E.H. 1969. A new Panamanian caecilian. Univ. Kansas Sci.

- Bull. 48(12):315-323 (Caecilia volcani-315).  
 Troschel, F.H. 1848. Reisen in Britisch-Guiana in den Jahren 1840-1844 mit Abbildungen und einer Karte von Britisch-Guiana aufgenommen von Sir Robert Schombergk. Leipzig. Part III:645-661 (Phimophis guianensis-653).  
 Trueb, L. 1971. Phylogenetic relationships of certain neotropical toads with the description of a new Genus (Anura: Bufonidae). Contrib. Sci. Nat. Hist. Mus. Los Angeles Co. 216:1-40 (Rhamphophryne acrolopha-6).  
 Trueb, L. 1984. Description of a new species of Pipa (Anura: Pipidae) from Panama. Herpetologica 40:225-234 (Pipa myersi-225).  
 Vandelli, D. 1761. Epistola de holothurio, et testudine coriacea ad celeberrinum Carolum Linnaeum equitem naturae curiosum Discoridum II. Conzatti, Patavii (Padova). 1-12 (Dermochelys coriacea-2).  
 Wagler, J. 1824. Serpentum brasiliensium species novae ou historie naturelle des especes nouvelles de serpens, recueillies et observees pendant le voyage dans L'interieuer du Bresil dans les années 1817, 1818, 1819, 1820, ... publiee par Jean de Spix, Franc. Seraph. Hubschmanni, Monachii. 1-75 (Oxybelis aeneus-12).  
 Wake, D.B. and A.H. Brame, Jr. 1962. A new species of salamander from Colombia and the status of Geotriton andicola Posada Arango. Contrib. Sci. Nat. Hist. Mus. Los Angeles Co. 49:1-8 (Bolitoglossa phalarosoma-1).  
 Wake, D.B. and A.H. Brame, Jr. 1966. A new species of lungless salamander (Genus Bolitoglossa) from Panama. Fieldiana: Zool. 51(1):1-10 (Bolitoglossa schizodactyla-1).  
 Wake, D.B., A.H. Brame, Jr., and C.W. Myers. 1970. Bolitoglossa taylori, A new salamander from cloud forest of the Serrania de Pirre, Eastern Panama. Amer. Mus. Novitates 2430:1-18 (Bolitoglossa taylori-3).  
 Wake, D.B. A.H. Brame, Jr., and W.E. Duellman. 1973. New species of salamanders, genus Bolitoglossa from Panama. Contrib. Sci. Nat. Hist. Mus. Los Angeles Co. 248:1-19 (Bolitoglossa compacta-12; Bolitoglossa cuna-2; Bolitoglossa minutula-7).  
 Werner, F. 1909. Über neue oder seltene Reptilien des Naturhistorischen Museums in Hamburg. Mitt. Naturhist. Mus. Hamburg 26:205-247 (Dipsas temporalis-241).  
 Wied-Neuwied, M.A.P. 1824. Abbildungen zur Naturgeschichte Brasiliens Verzeichnis der Amphibien welche im zweiten Bande der Naturgeschichte Brasiliens von Prinz Max von Wied werden beschrieben werden (nach Merrems Versuch eines Systems der Amphibien). Abbild. Naturgesch. Brasil:662-674 & pls. 83-90 (Hyla crepitans-pl. 47; Xenodon rabdocephalus-668).  
 Wiegmann, A.F.A. 1828. Beytrage zur Amphibienkunde. Isis von Oken 21:364-383 (Basiliscus vittatus-373).  
 Wiegmann, A.F.A. 1834. Herpetologia Mexicana, seu descriptio amphibiorum novae Hispaniae. Berolini:1-54 (Anolis biporcatus-47).

Williams, E.E. and W.E. Duellman. 1967. Anolis chocorum, a new punctatus-like anole from Darien, Panama (Sauria, Iguanidae). *Breviora* 256:1-12 (Anolis chocorum-2).

### III. PANAMA HERPETOLOGICAL BIBLIOGRAPHY: PAPERS, MONOGRAPHS, AND BOOKS OTHER THAN ORIGINAL SPECIES DESCRIPTIONS

- Allee, W.C. 1926. Measurements of environmental factors in the tropical rain-forest of Panama. *Ecology* VII(3):273-302.
- Andrews, R.M. 1989. Intra-population variation in age of sexual maturity of the tropical lizard Anolis limifrons in Panama. *Copeia* 1989(3):751-753.
- Arosemena, F.A. 1991. Anolis biscutiger. *Herp. Rev.* 22(4):134.
- Arosemena, F.A. and R. Ibanez D. 1991. Hyla angustilineata. *Herp. Rev.* 22(4):133.
- Bailey, J.R. 1939. A systematic study of the snakes of the Genus Coniophanes. *Pap. Michigan Acad. Sci. Arts. Lett.* 24:1-48.
- Bailey, J.W. 1928. A revision of the lizards of the Genus Ctenosaura. *Proc. U.S. Nat. Mus.* 73(12):1-55.
- Barbour, T. 1915. A revision of the lizards of the Genus Ameiva. *Bull. Mus. Comp. Zool.* 59(6):417-479.
- Barbour, T. 1924. Two noteworthy new lizards from Panama. *Proc. New England Zool. Club* 9:7-10.
- Barbour, T. 1930. The bushmaster in the Canal Zone. *Bull. Antivenin Inst. Amer.* 4(1):90.
- Barbour, T. 1933. Barro Colorado Island. *Bull. Pan Amer. Union.* 9 p.
- Barbour, T. 1934. The anoles II. The mainland species from Mexico southward. *Bull. Mus. Comp. Zool.* 77(4):121-155.
- Barbour, T. 1936. The Canal Zone forest reserve. *Bull Pan Amer. Union.* 4 p.
- Barbour, T. 1937. Ovoviparity in Trachyboa. *Copeia* 1937(2):139.
- Barbour, T. and W.S. Brooks. 1923. The Sapo Mountains and the Sambu Valley A biological reconnaissance in southeastern Panama. *Geog. Rev.* 13(2):211-222.
- Barden, A.A. 1943. Food of the basilisk lizard in Panama. *Copeia* 1943(2):118-121.
- Bezy, R.L. 1989. Morphological differentiation in unisexual and bisexual xantusiid lizards of the Genus Lepidophyma in Central America. *Herpetol. Monogr.* 3:61-80.
- Blair, W.F. 1972. Evolution in the genus Bufo. Univ. Texas Press. Austin. 459 p.
- Blaney, R.M. Lampropeltis Fitzinger. *Cat. Amer. Amphib. Rept.* 150.1-2.
- Bogert, C.M. 1968. The variations and affinities of the Dwarf boas of the Genus Ungaliophis. *Amer. Mus. Novitates* 2340:1-26.
- Brame, A.H. Jr. 1963. A new Costa Rican salamander (Genus Oedipina) with a reexamination of O. collaris and O. serpens. *Los Angeles Co. Mus. Contrib. Sci.* 65:3-12.
- Brame, A.H. Jr. 1967. A list of the world's recent and fossil salamanders. *J. S. W. Herpetol. Soc.* 2(1):1-26.

- Brame, A.H. Jr. 1968. Systematics and evolution of the Mesoamerican salamander Genus Oedipina. J. Herpetol. 2(1-2):1-64.
- Brame, A.H. Jr. and D.B. Wake. 1962. A new plethodontid salamander (Genus Magnaditita) from the Cordillera Occidental of Colombia. Proc. Biol. Soc. Wash. 75:71-76.
- Brame, A.H. Jr. and D.B. Wake. 1963. The salamanders of South America. Los Angeles Co. Mus. Contrib. Sci. 69:1-72.
- Brame, A.H. Jr. and D.B. Wake. 1963. Redescription of the plethodontid salamander Bolitoglossa lignicolor (Peters), with remarks on the status of B. palustris Taylor. Proc. Biol. Soc. Wash. 76:289-296.
- Breder, C.M. Jr. 1925. In Darien jungles. Nat. Hist. 25(4):324-337.
- Breder, C.M. Jr. 1946. Amphibians and reptiles of the Rio Chucunaque drainage, Darien, Panama, with notes on their life histories and habitats. Bull. Amer. Mus. Nat. Hist. 86:375-436.
- Briggs, J.C. 1968. Panama's sea level canal. Science 162:511-513.
- Briggs, J.C. 1969. The sea-level Panama Canal: Potential biological catastrophe. BioScience 19(1):44-47.
- Burt, C.E. 1931. A study of the teiid lizards of the genus Cnemidophorus with special reference to their phylogenetic relationships. U.S. Nat. Mus. Bull. 154:1-286.
- Burghardt, G.M., H.W. Green, and A.S. Rand. 1977. Social behavior in hatchling green iguanas: life at a reptile rookery. Science 195:689-691.
- Burghardt, G.M. and A.S. Rand. eds. 1982. Iguanas of the World. Noyes Publ. 472 p.
- Burt, C.E. and M.D. Burt. 1931. South American lizards in the collection of the American Museum of Natural History. Bull. Amer. Mus. Nat. Hist. 51:227-395.
- Busack, S.D. 1966. Notes on a herpetological collection from the Azuero Peninsula, Panama. Copeia 1966(2):371.
- Cadle, J.S. 1984. Molecular systematics of neotropical xenodontine snakes. II. Central American xenodontines. Herpetologica 40(1):21-30.
- Cadle, J.S. 1985. The neotropical colubrid snake fauna (Serpentes: Colubridae): lineage components and biogeography. Syst. Zool. 34(1):1-20.
- Campbell, H.W. 1971. Observations on two species of the Hyla rubra group in Panama (Anura: Hylidae). J. Herpetol. 5(1-2):52-55.
- Campbell, H.W. 1973. Ecological observations on Anolis lionotus and Anolis poecilopus (Reptilia, Sauria) in Panama. Amer. Mus. Novitates 2516:1-29.
- Campbell, H.W. and S.R. Telford. 1971. Observations on two species of the Hyla rubra group in Panama. J. Herpetol. 5:52-55.
- Campbell, J.A. and E.D. Brodie, Jr. eds. 1992. Biology of the Pitvipers. Selva. Tyler, Texas. 466 p.
- Campbell, J.A. and W.W. Lamar. 1989. Venomous Reptiles of

- Latin America. Comstock Publ. Assoc./Cornell Univ. Press.  
Ithaca, New York. 425 p.
- Campbell, J.A. and E.N. Smith. 1992. A new frog of the Genus Ptychohyla (Hylidae) from the Sierra de Santa Cruz, Guatemala, and description of a new genus of Middle American stream-breeding treefrogs. *Herpetologica* 48(2):153-167.
- Campbell, J.A. and J.P. Vannini. 1989. Distribution of amphibians and reptiles in Guatemala and Belize. *Western Foundation of Vert. Zool.* 4(1):1-21.
- Cannatella, D.C. and W.E. Duellman. 1984. Leptodactylid frogs of the Physalaemus pustulosus group. *Copeia* 1984(4):902-921.
- Cochran, D.M. and C.J. Goin. 1970. Frogs of Colombia. U.S. Natl. Mus. Bull. 288:1-655.
- Cooper, R.S. 1944. Pattern and color variation in Canal Zone salientia. *Copeia* 1944(2):121-122.
- Cope, E.D. 1875. On the batrachia and reptilia of Costa Rica with notes on the herpetology and ichthyology of Nicaragua and Peru. Reprint of the 1875 edition; 1967. Departamento de Publicaciones de la Universidad de Costa Rica. San Jose, Costa Rica. 70 p.
- Daly, J.W. and C.W. Myers. 1967. Toxicity of Panamanian Poison Frogs (Dendrobates): Some biological and chemical aspects. *Science* 156(3777):970-973.
- Dixon, J.R. 1964. The systematics and distribution of lizards of the genus Phyllodactylus in North and Central America. *New Mexico State Univ. Sci. Bull.* 64:1-139.
- Dixon, J.R. 1970. Coleonyx Gray. *Cat. Amer. Amphib. Rept.* 95.1-2.
- Dixon, J.R. 1973. A systematic review of the teid lizards, Genus Bachia, with remarks on Heterodactylus and Anotosaura. *Univ. Kansas Mus. Nat. Hist. Misc. Publ.* 57:1-47.
- Dixon, J.R. 1979. Origin and distribution of reptiles in lowland tropical rainforests of South America. Pp. 217-240. In: W.E. Duellman (ed). *The South American Herpetofauna: Its origin, evolution, and dispersal*. Univ. Kansas Mus. Nat. Hist. Monogr. 7:1-485.
- Dixon, J.R. 1980. The neotropical colubrid snake genus Liophis. The generic concept. *Milwaukee Publ. Mus. Contrib. Biol. Geol.* 31:1-40.
- Dixon, J.R. 1983. The Central and South American Anomalepid snakes of the Genus Liophlops. *Amphibia-Reptilia* 4:241-264.
- Dixon, J.R. 1983. Systematics of the Latin American snake, Liophis epinephalus (Serpentes: Colubridae). Pp. 132-149. In: Rhodin, A.G.J. and K. Miyata, (eds.) *Advances in Herpetology and Evolutionary Biology. Essays in honor of Ernest E. Williams*. Mus. Comp. Zool. Cambridge, Mass. 725 p.
- Dixon, J.R. 1984. The Central and South American anomalepid snakes of the Genus Liophlops. *Amphibia-Reptilia* 4:241-264.
- Dixon, J.R. 1989. A key and checklist to the neotropical snake Genus Liophis with country lists and maps. *Smiths. Herpetol. Info. Serv.* 79:1-40.

- Dixon, J.R. and F. S. Hendricks. 1979. The worm snakes (Family Typhlopidae) of the neotropics, exclusive of the Antilles. Zool. Verhandl. 173:1-39.
- Dixon, J.R. and C.P. Kofron. 1983. The Central and South American Anomalepid snakes of the Genus Liotyphlops. Amphibia-Reptilia 4:241-264.
- Dodd, C.K. Jr. 1990. Caretta Rafinesque Loggerhead sea turtles. Cat. Amer. Amphib. Rept. 482.1-2.
- Dodd, C.K. Jr. 1990. Caretta caretta (Linnaeus) Loggerhead Sea Turtle. Cat. Amer. Amphib. Rept. 483.1-7.
- Donnelly, M.A. C. Guyer, D. M. Krempels, and H.E. Braker. 1987. The tadpole of Agalychnis calcarifer (Anura: Hylidae). Copeia 1987(1):247-250.
- Downs, F.L. 1967. Intrageneric relations among colubrid snakes of the genus Geophis Wagler. Misc. Publ. Mus. Zool. Univ. Michigan 131:1-193.
- Drewry, G.E., W.R. Heyer, and A.S. Rand. 1982. A functional analysis of the complex call of the frog Physalaemus pustulosus. Copeia 1982(3):636-645.
- Dudley, R. and A.S. Rand. 1991. Sound production and vocal sac inflation in the Tungara frog, Physalaemus pustulosus (Leptodactylidae). Copeia 1991(2):460-470.
- Duellman, W.E. 1958. A monographic study of the colubrid snake Genus Leptodeira. Bull. Amer. Mus. Nat. Hist. 114:1-152.
- Duellman, W.E. 1966. The Central American herpetofauna: an ecological perspective. Copeia 1966(4):700-719.
- Duellman, W.E. 1968. Smilisca Cope. Cat. Amer. Amphib. Rept. 58.1-2.
- Duellman, W.E. 1968. Smilisca baudinii (Dumeril and Bibron). Cat. Amer. Amphib. Rept. 59:1-2.
- Duellman, W.E. 1968. Smilisca phaeota (Cope). Cat. Amer. Amphib. Rept. 61:1-2.
- Duellman, W.E. 1968. Smilisca sila Duellman and Trueb. Cat. Amer. Amphib. Rept. 63:1-2.
- Duellman, W.E. 1968. Smilisca sordida (Peters). Cat. Amer. Amphib. Rept. 64:1-2.
- Duellman, W.E. 1970. The Hylid Frogs of Middle America. Monogr. Mus. Nat. Hist. Kansas, No. 1. Two vol. 753 p.
- Duellman, W.E. 1988. Patterns of species diversity in anuran amphibians in the American tropics. Ann. Missouri Bot. Garden 75:79-104.
- Duellman, W.E. 1989. Tropical herpetofaunal communities: Patterns of community structure in neotropical rainforests. In: M.L. Harmelin-Vivien and F. Bourliere, eds. Vertebrates in complex tropical systems. Springer-Verlag. New York. 61-88.
- Duellman, W.E. 1993. Amphibian species of the world: additions and corrections. Univ. Kansas Mus. Nat. Hist. Spec. Pub. 21:1-372.
- Duellman, W.E. and A. Veloso. 1977. Phylogeny of Pleurodema (Anura: Leptodactylidae): a biogeographic model. Occ. Pap. Mus. Nat. Hist. Univ. Kansas 64:1-46.
- Duellman, W.E. and J.J. Wiens. 1992. The status of the hylid frog genus Oolygon and the recognition of Scinax Wagler 1830.

- Occ. Pap. Mus. Nat. Hist. Univ. Kansas 151:1-23.
- Dugan, B. 1983. The mating behavior of the Green iguana, Iguana iguana. In: Burghardt, G.M. and A.S. Rand eds. Iguanas of the World: their behavior, ecology, and conservation. Noyes Publ. Park Ridge, New Jersey. 472 p.
- Dunn, E.R. 1924. Amastridium, a neglected Genus of snakes. Proc. U.S. Nat. Mus. 65:1-3.
- Dunn, E.R. 1926. The salamanders of the Family Plethodontidae. Smith Coll. 50th. Anniv. Publ. 7:1-441.
- Dunn, E.R. 1928. Notes on Bothrops lansbergii and Bothrops ophryomegas. Bull. Antivenin Inst. Amer. 2:28-30.
- Dunn, E.R. 1931a. Preliminary list of the reptiles and amphibians of the Canal Zone and the provinces of Panama and Colon, R.P. Pp. 15-18 ex: Barbour, T. Seventh Ann. Report of Barro Colorado Island Biological Laboratory, Panama Canal Zone Nat. Research Council. 24 pp (mimeo).
- Dunn, E.R. 1931b. The amphibians of Barro Colorado Island. Occ. Pap. Boston Soc. Nat. Hist. 5:403-421.
- Dunn, E.R. 1931c. The herpetological fauna of the Americas. Copeia 1931(3):106-119.
- Dunn, E.R. 1932. The status of the snake Genus Rhadinaea Cope. Occas. Pap. Mus. Zool. Univ. Mich. 251:1-2.
- Dunn, E.R. 1933. A new Hyla from the Panama Canal Zone. Occ. Pap. Boston Soc. Nat. Hist. 8:61-64.
- Dunn, E.R. 1933. Notes on Coluber oaxaca and Masticophis mentovarius Copeia 1933(4):214.
- Dunn, E.R. 1933. A new snake from Panama. Copeia 1933(4):193-194.
- Dunn, E.R. 1934. Notes on Iguana. Copeia 1934(1):1-4.
- Dunn, E.R. 1935. The snakes of the Genus Ninia. Proc. Nat. Acad. Acad. Sci. 21:9-12.
- Dunn, E.R. 1936. Notes on North American Leptodeira. Proc. Nat. Acad. Sci 22(12):689-698.
- Dunn, E.R. 1936. Notes on American Mabuyas. Proc. Acad. Nat. Sci. Philadelphia 137:533-557.
- Dunn, E.R. 1937. The giant mainland Anoles. Proc. New England Zool. Club 16:5-9.
- Dunn, E.R. 1937. New or unnamed snakes from Costa Rica. Copeia 1937(4):213-215.
- Dunn, E.R. 1937. Notes on tropical Lampropeltis. Occas. Pap. Mus. Zool. Univ. Mich. 353:1-11.
- Dunn, E.R. 1938. The snake Genus Enulius Cope. Proc. Acad. Nat. Sci. Philadelphia 89:415-418.
- Dunn, E.R. 1939. Mainland forms of Tretanorhinus. Copeia 1939(4):212-217.
- Dunn, E.R. 1940. Notes on some American lizards and snakes in the Museum of Goteborg. Herpetologica 1:189-194.
- Dunn, E.R. 1941. Notes on Dendrobates auratus. Copeia 1941(2):88-93.
- Dunn, E.R. 1942. The American caecilians. Bull. Mus. Comp. Zool. Harvard. 91(6):439-540.
- Dunn, E.R. 1949. Relative abundance of some Panamanian snakes. Ecology 30:39-57.
- Dunn, E.R. 1951. The status of the snake Genera Dipsas and Sibon, a problem for quantum evolution. Evolution 5(4):355-358.

- Dunn, E.R. 1953. The coral snake "mimic" problem in Panama. *Evolution* 8(2):97-102.
- Dunn, E.R. 1957. Neotropical frog genera: Prostheradis versus Hyloxalus, with remarks on Phyllobates. *Copeia* 1957(2): 77-78.
- Dunn, E.R. 1963. Natural history notes on the amphibians and reptiles of Barro Colorado Island. Manuscript edited and distributed by C.J. Goin and W.R. Duellman after E.R. Dunn's death. 29 p.
- Dunn, E.R. and H.G. Dowling. 1957. The neotropical snake Genus Nothopsis Cope. *Copeia* 1957(4):255-261.
- Dunn, E.R. and L.C. Stuart. 1951. Comments on some recent restrictions of type localities of certain South and Central American amphibians and reptiles. *Copeia* 1951(1):55-61.
- Downs, F.L. 1967. Intrageneric relationships among colubrid snakes of the Genus Geophis Wagler. *Misc. Publ. Mus. Zool. Univ. Mich.* 131:1-193.
- Easteal, S. 1986. Bufo marinus (Linnaeus). *Cat. Amer. Amphib. Rept.* 395.1-4,
- Echternacht, A.C. 1971. Middle American lizards of the Genus Ameiva. *Misc. Publ. Mus. Nat. Hist. Univ. Kansas* 55:1-86.
- Ernst, C.H. 1980. Rhinoclemmys annulata (Gray). *Cat. Amer. Amphib. Rept.* 250.1-2.
- Ernst, C.H. 1980. Rhinoclemmys funerea (Cope). *Cat. Amer. Amphib. Rept.* 263.1-2.
- Ernst, C.H. 1981. Rhinoclemmys punctularia (Daudin). *Cat. Amer. Amphib. Rept.* 276.1-2. Note: Includes R. melanosterna.
- Ernst, C.H., J.W. Gibbons, and S.S. Novak. 1988. Chelydra Schweigger Snapping turtles. *Cat. Amer. Amphib. Rept.* 419.1-4.
- Espada, M.J. de la. 1875. Vertebrados del Viaja al Pacifico. SSAR Miscel. Publ. 1978. 208 p.
- Evans, H.E. 1947. Notes on Panamanian reptiles and amphibians. *Copeia* 1947(3):166-170.
- Fleishman, L.J. 1985. Cryptic movements in the vine snake Oxybelis aeneus. *Copeia* 1985(1):242-245.
- Fouquette, M.J. Jr. 1958. A new tree frog, Genus Hyla, from the Canal Zone. *Herpetologica* 14(2):125-128.
- Fouquette, M.J. Jr. 1960. Notes on a collection of anurans from the Canal Zone. *Herpetologica* 16(1):58.
- Fouquette, M.J. Jr. 1960. Isolating mechanisms in three sympatric treefrogs in the Canal Zone. *Evolution* 14(4):484-497.
- Fouquette, M.J. Jr. 1968. Some hylid frogs of the Canal Zone, with special reference to call structure. *Caribbean J. Sci.* 6(3-4):167-172.
- Frost, D.R. ed. 1985. *Amphibian Species of the World*. Assoc. Syst. Coll. Lawrence, Kansas. 732 p.
- Frost, D.R. 1987. A replacement name for Glossotoma Gunther, 1900 (Anura: Microhylidae). *Copeia* 1987(4):1025.
- Funkhouser, A. 1957. A review of the neotropical tree-frogs of the Genus Phyllomedusa. *Occas. Pap. Nat. Hist. Mus. Stanford Univ.* 5:1-90.

- Gallardo, J.M. 1965. The species Bufo granulosus Spix (Salientia: Bufonidae) and its geographic variations. Bull. Mus. Comp. Zool. 134:107-138.
- Gans, C. 1962. Notes on amphisbaenids (Amphisbaenia, Reptilia). 5. A redefinition and bibliography of Amphisbaena alba Linne. Amer. Mus. Novitates 2105:1-31.
- Gans, C. 1962. Notes on amphisbaenids (Amphisbaenia, Reptilia). 6. Redescription and range extension of Amphisbaena spurreli Boulenger. Breviora 171:1-11.
- Gans, C. 1967. A check list of recent amphisbaenians (Amphisbaenia, Reptilia). Bull. Amer. Mus. Nat. Hist. 135:61-106.
- Gibbons, J.W., S.S. Novak, and C.H. Ernst. 1988. Chelydra serpentina (Linnaeus) Snapping turtle. Cat. Amer. Amphib. Rept. 420.1-4.
- Green, H.W. 1988. Species richness in tropical predators. pp 259-279. In: Almeda, F. and C.M. Pringle, eds. Tropical Rainforests: Diversity and Conservation. Cal. Acad. Sci. and Pacific Division, Amer. Assoc. Advancement Sci. San Francisco, Calif.
- Green, H.W., G.M. Burghardt, B.A. Dugan, and A.S. Rand. 1978. Predation and the defensive behavior of Green iguanas (Reptilia, Lacerta, Iguanidae). J. Herpetol. 12(2):169-176.
- Greer, B.J. and K.D. Wells. 1980. Territorial and reproductive behavior of the tropical American frog Centrolenella fleischmanni. Herpetologica 36(4):318-326.
- Grocott, R.G. and G.G. Sadler. 1958. The poisonous snakes of Panama. Panama Canal Printing Plant. Mount Hope, Canal Zone. 38 p.
- Guyer, C. and J.M. Savage. 1986. Cladistic relationships among anoles (Sauria: Iguanidae). Syst. Zool. 35(4):509-531.
- Hahn, D.E. 1979. Leptotyphlops. Cat. Amer. Amphib. Rept. 230:1-4.
- Hanken, J. and D.B. Wake. 1982. Genetic differentiation among plethodontid salamanders (Genus Bolitoglossa) in Central and South America: implications for the South American invasion. Herpetologica 38(2):272-287.
- Heatwole, H. 1963. The frog Genus Pipa in Panama. Copeia 1963(2): 436-438.
- Heatwole, H. 1966. The effects of man on distribution of some reptiles and amphibians in Eastern Panama. Herpetologica 22(1):55-59.
- Heatwole, H. and O.J. Sexton. 1966. Herpetofaunal comparisons between two climatic zones in Panama. Amer. Midl. Nat. 75(1):45-60.
- Henderson, R.W. 1972. Notes on the reproduction of a giant anole, Anolis biporcatus (Sauria: Iguanidae). J. Herpetol. 6(2-3):239-240.
- Henderson, R.W. and L.G. Hoevers. 1975. A checklist and key to the amphibians and reptiles of Belize, Central America. Milwaukee Pub. Mus. Contrib. Biol. Geol. 5:1-63.
- Heselhaus, R. 1988. Gonatodes fuscus, ein Zwerg-taggecko aus Panama. Aquarien-Terrarien 41(3):131-133.

- Heyer, W.R. 1970. Studies on the frogs of the Genus Leptodactylus (Amphibia, Leptodactylidae). VI. Biosystematics of the melanonotus group. Los Angeles County Mus. Nat. Hist., Contrib. Sci. 191:1-48.
- Heyer, W.R. 1971. Leptodactylus labialis (Cope). Cat. Amer. Amphib. Rept. 104.1-3. Note: Now L. fragilis.
- Heyer, W.R. 1978. Systematics of the fuscus group of the frog Genus Leptodactylus (Amphibia, Leptodactylidae). Nat. Hist. Mus. Los. Angeles County., Sci. Bull. 29:1-85.
- Heyer, W.R. 1979. Systematics of the pentadactylus species group of the frog Genus Leptodactylus (Amphibia, Leptodactylidae). Smithsonian Contrib. Zool. 301:1-43.
- Heyer, W.R. and A.S. Rand. 1977. Foam nest construction in the leptodactylid frogs Leptodactylus pentadactylus and Physalaemus pustulosus (Amphibia, Anura, Leptodactylidae). J. Herpetol. 11(2):225-228.
- Hidalgo, H. 1981. Additions to the reptile fauna of El Salvador. Kansas Acad. Sci 84(1):55-58.
- Hillis, D.M. 1985. Evolutionary genetics and systematics of New World frogs of the Genus Rana: An analysis of ribosomal DNA, allozymes, and morphology. Ph.D. thesis, Univ. Kansas, Lawrence. 304 p.
- Hillis, D.M. and S.K. Davis. 1986. Evolution of ribosomal DNA: fifty million years of recorded history in the frog Genus Rana. Evolution 40:1275-1288.
- Hillis, D.M. and R. de Sa. 1988. Phylogeny and taxonomy of the Rana palmipes group (Salientia: Ranidae). Herpetol. Monogr. 2:1-26.
- Hilton, W.A. 1946. Salamanders from Barro Colorado Island, Canal Zone. J. Ent. Zool. 38:37-39.
- Hirth, H.F. 1980. Chelonia Brongniart and Chelonia mydas (Linnaeus). Cat. Amer. Amphib. Rept. 248.1-249.4.
- Hoge, A.R. 1964. Sur la position systematique de quelques serpents du genre Siphlophis Fitzinger 1843. Serpentes. Mem. Inst. Butantan (1960-1962) 30:35-50.
- Hoogmoed, M.S. 1973. Notes on the herpetofauna of Surinam IV. The lizards and amphisbaenians of Surinam. Dr. W. Junk. B.V. The Hague. 419 p.
- Hooper, S.T. and D.P. Young. 1986. Kinosternon leucostomum: distribution. Herpetol. Rev. 17:50-51.
- Ibanez D., R. 1982. El estado específico de dos Ranas del Genero Colostethus (Anura: Dentrobatidae). Lic. Biol. Thesis, Univ. Panama.
- Ibanez D., R. 1988. Centrolenella pulverata. Herpetol. Rev. 19(3):59.
- Ibanez D., R. and A.S. Rand. 1990. Eleutherodactylus johnstonei. Herpetol. Rev. 21(2):37.
- Ibanez D., R., C.A. Jaramillo, F.A. Solis, and F.E. Jaramillo. 1991. Hyla fimbriemembra. Herpetol. Rev. 22(4):133-134.
- Ibanez D., R., C.A. Jaramillo, F.A. Solis, and F.E. Jaramillo. 1992. Hemidactylus brookii. Herpetol. Rev. 23(4):123.
- Iverson, J.B. 1980. Kinosternon angustipons Legler. Cat. Amer. Amphib. Rept. 262.1-2.

- Iverson, J.B. 1985. Checklist of the Turtles of the World with English Common Names. Soc. Stud. Amph. Rept. Herpetol. Circ. 14:1-14.
- Iverson, J.B. 1992. A Revised Checklist with Distribution Maps of the Turtles of the World. Privately printed. 363 p.
- Janzen, D.H. ed. 1983. Costa Rican Natural History. Univ. Chicago Press. Chicago, Illinois. 816 p.
- Jaramillo, C.A. 1984. Revision of Centrolenella of Panama. B.S. Thesis. Univ. Seattle. Seattle, Washington.
- Jaramillo, C.A., F.E. Jaramillo, and R. Ibanez. 1988. Centrolenella colymbiphyllum. Herpetol. Rev. 19(3):59.
- Jaramillo, F.E., C.A. Jaramillo, and R. Ibanez. 1988. Centrolenella vireovittata. Herpetol. Rev. 19(3):59.
- Jaslow, A.P. 1982. Factors affecting the distribution and abundance of tadpoles in a lowland tropical stream. Diss. Abstr. Int. (B) 43(6):1722-1723.
- Johnson, J.D. 1977. The taxonomy and distribution of the neotropical whipshake Masticophis mentovarius (Reptilia, Serpentes, Colubridae). J. Herpetol. 11:287-309.
- Johnson, J.D. 1982. Masticophis mentovarius. Cat. Amer. Amphib. Rept. 295:1-4.
- Jungfer, K.H. 1985. Beitrag zug Kenntnis von Dendrobates speciosus O. Schmidt, 1857. Salamandra 21:263-280.
- Jungfer, K.H. 1988. Froschlurche von Fortuna, Panama I. Microhylidae, Ranidae, Bufonidae, Hylidae. Herpetofauna 10(54):25-34.
- Jungfer, K.H. 1988. Froschlurche von Fortuna, Panama II. Hylidae(2), Centrolenidae, Dendrobatidae. Herpetofauna 10(56):6-12.
- Jungfer, K.H. 1988. Froschlurche von Fortuna, Panama III. Leptodactylidae. Herpetofauna 10(57):15-21.
- Keiser, E.D. Jr. 1974. A systematic study of the neotropical vine snake Oxybelis aeneus (Wagler). Bull. Texas Mem. Mus 22:1-51.
- Keiser, E.D. Jr. 1982. Oxybelis aeneus (Wagler). Cat. Amer. Amphib. Rept. 305:1-4.
- Keiser, E.D. Jr. 1991. Bibliography of the Genus Oxybelis Wagler (Serpentes: Colubridae). Smithsonian Herp. Inf. Serv. 86:1-45.
- King, F.W. and R.L. Burke. 1989. Crocodilian, Tuatara, and Turtle Species of the World A Taxonomic and Geographic Reference. Assoc. Syst. Coll. Washington, D.C. 216 p.
- Klauber, L.M. 1945. The geckos of the Genus Coleonyx with descriptions of new subspecies. Trans. San Diego Soc. Nat. Hist. 10:133-216.
- Kluge, A.G. 1968. Phylogenetic relationships of the gekkonid lizard Genera Lepidodactylus Fitzinger, Hemiphyllodactylus Bleeker, and Pseudogekko Taylor. Philippine J. Sci. 1966 (95):331-352.
- Kluge, A.G. 1979. The gladiator frogs of Middle America and Colombia-a reevaluation of their systematics. Occ. Pap. Mus. Zool. Univ. Mich. 688:1-24.

- Kluge, A.G. 1981. The life history, social organization and parental behavior of Hyla rosenbergi Boulenger, a nestbuilding gladiator frog. *Misc. Publ. Mus. Zool. Univ. Mich.* 160:1-170.
- Kofron, C.P. 1985. Systematics of the neotropical gastropod-eating snake Genera Tropidodipsas and Sibon. *J. Herpetol.* 19(1):84-92.
- Kourani, M., C.W. Meyers, and C.R. Schneider. 1970. Panamanian amphibians and reptiles as carriers of Salmonella. *Amer. J. Trop. Med. Hyg.* 19:632-638.
- Kropach, C. 1975. The yellow-bellied sea snake, Pelamis, in the eastern Pacific. Pp. 185-213. In Dunson, W. (ed.), *The Biology of Sea Snakes*. Univ. Park Press. Baltimore, Maryland. 530 p.
- Lahanas, P.N. and J.M. Savage. 1993. A new species of caecilian from the Peninsula de Osa of Costa Rica. *Copeia* 1993(3):703-708.
- Legler, J.M. 1963. Tortoises (Geochelone carbonaria) in Panama: distribution and variation. *Amer. Midl. Nat.* 70:490-503.
- Leon, J.R. 1969. The systematics of the frogs of the Hyla rubra group in Middle America. *Univ. Kansas Publ. Mus. Nat. Hist.* 18:505-545.
- Leon, J.R. and R. Donoso-Barros. 1970. Desarrollo embrionario y metamorfosis del Pleurodema brachyops (Cope). *Bol. Biol. Soc Concepcion (Chile)*. 17:355-79.
- Leviton, A. E. and S.C. Anderson. 1966. Further comments on the behavior of the Panamanian microteiid Echinosaura horrida. *Herpetologica* 22:10.
- Lieb, C.S. 1991. Dendrophidion nuchale (W. Peters). *Cat. Amer. Amphib. Rept.* 520.1-2.
- Lieb, C.S. 1991. Dendrophidion paucicarinatum (Cope). *Cat. Amer. Amphib. Rept.* 521.1-2.
- Lieb, C.S. 1991. Dendrophidion vinator Smith. *Cat. Amer. Amphib. Rept.* 522.1-2.
- Lynch, J.D. 1964. A small collection of Anuran amphibians from Panama, with the description of two new species of Eleutherodactylus (Leptodactylidae). *J. Ohio Herpetol. Soc.* 4:65-68.
- Lynch, J.D. 1970. Systematic status of the American leptodactylid frog Genera Engystomops, Eupemphix, and Physalaemus. *Copeia* 1970(3):488-496.
- Lynch, J.D. 1971. Evolutionary relationships, osteology, and zoogeography of Leptodactyloid frogs. *Univ. Kansas Mus. Nat. Hist. Misc. Publ.* 53:1-238.
- Lynch, J.D. 1975. A review of the broad-headed eleutherodactyline frogs of South America. *Occ. Pap. Mus. Nat. Hist. Univ. Kansas* 38:1-46.
- Lynch, J.D. 1986. Mimetic and non-mimetic populations of Eleutherodactylus gaigeae in lower Central America and Colombia. *Stud. Neotrop. Fauna Environ.* 20:195-202.
- Lynch, J.D. and C.W. Myers. 1983. Frogs of the fitzingeri group of Eleutherodactylus in eastern Panama and Chocoan South America. *Bull. Amer. Mus. Nat. Hist.* 175:481-572.

- Lynch, J.D. and J.M. Renjifo. 1990. Two new toads (Bufonidae: Rhamphophryne) from the Northern Andes of Colombia. *J. Herpetol.* 24(4):364-371.
- Martinez, C.V. 1983. Panama: nuevo ambito de distribucion para la serpiente venenosa Bothrops picadoi (Dunn). *ConCiencia* (Univ. Panama) 10:26-27.
- Martinez, C.V. 1984. Investigacion preliminar de los amfibios (Salientia) de Quebrada de Arena y areas adyacentes: listado anotado. *Natura (Panama)* 4:30-33.
- Martinez, C.V. and R. Bolanos. 1983. The bushmaster, Lachesis muta muta (Linnaeus) (Ophidia: Viperidae) in Panama. *Rev. Biol. Trop.* 30:100-101.
- Maturana, H.R. 1962. A study of the species of the Genus Basiliscus. *Bull. Mus. Comp. Zool.* 128:1-34.
- McCoy, C.J. 1970. Hemidactylus turcicus (Linnaeus). *Cat. Amer. Amphib. Rept.* 87:1-2.
- McCoy, C.J. 1990. Additions to the herpetofauna of Belize, Central America. *Carib. J. Sci* 26(3-4):164-166.
- McCrannie, J.R. 1980. Drymarchon, D. corais. *Cat. Amer. Amphib. Rept.* 267:1-4.
- McDiarmid, R.W. and J.E. DeWeese. 1977. The systematic status of the lizard Bachia blairi (Dunn) 1940 (Reptilia: Teiidae) and its occurrence in Costa Rica. *Brenesia* 12/13:143-153.
- McDiarmid, R.W. and M.S. Foster. 1981. Breeding habits of the toad Bufo coccifer in Costa Rica with a description of the tadpole. *Southwest Nat.* 26:353-363.
- McDiarmid, R.W. and J.M. Savage. 1984. Taxonomic status of the frog genus Centrolenella Noble (Anura: Centrolenidae). *J. Herpetol.* 18:213-215.
- Mertens, R. 1973. Bemerkenswerte schlanknettern der neotropischen Gattung Leptophis. *Stud. Neotrop. Fauna* 8:141-154.
- Meyer, J.R. and L.D. Wilson. 1971. A distributional checklist of the amphibians of Honduras. *Los Angeles Co. Mus. Nat. Hist. Contrib. Sci.* 218:1-47.
- Meyer, J.R. and L.D. Wilson. 1973. A distributional checklist of the turtles, crocodilians, and lizards of Honduras. *Los Angeles Co. Mus. Nat. Hist. Contrib. Sci.* 244:1-39.
- Meylan, A. and P. Meylan. 1985. Nesting of Dermochelys coriacea in Caribbean Panama. *Herpetologica* 19(2):293-297.
- Michaud, E.J. and J.R. Dixon. 1987. Taxonomic revision of the Liophis lineatus complex (Reptilia: Colubridae) of Central and South America. *Mil. Publ. Mus. Contrib. Biol. Geol.* 71:1-26.
- Mittermeier, R.A. 1971. Notes on the behavior and ecology of Rhinoclemmys annulata Gray. *Herpetologica* 27(4):485-488.
- Mittermeier, R.A. 1972. Turtles recorded from Barro Colorado Island, Canal Zone, Panama. *J. Herpetol.* 6:240-241.
- Miyamoto, M.M. 1983. Biochemical variation in the frog Eleutherodactylus bransfordii: geographic patterns and cryptic species. *Syst. Zool.* 32:43-51.
- Miyamoto, M.M. 1983. Frogs of the Eleutherodactylus rugulosus group: a cladistic study of allozyme, morphological and karyological data. *Syst. Zool.* 32:109-124.

- Miyata, K. 1982. A check list of the amphibians and reptiles of Ecuador with a bibliography of Ecuadorian herpetology. Smithsonian Herp. Infor. Serv. 54:1-70.
- Moll, E.O. and J.M. Legler. 1971. The life history of a neotropical slider turtle Pseudemys scripta (Schoepff), in Panama. Bull. Los Angeles Co. Mus. Nat. Hist. 11:1-102.
- Morgan, E.C. 1973. Snakes of the Subfamily Sibynophinae. Ph.D. disc. Univ. Southwest Louisiana. Lafayette. 260 p.
- Myers, C.W. 1966. The distribution and behavior of a tropical horned frog, Cerathyla panamensis Stejneger. Herpetologica 22(1):68-71.
- Myers, C.W. 1969. Snakes of the genus Coniophanes in Panama. Amer. Mus. Novitates 2372:1-28.
- Myers, C.W. 1969. The ecological geography of cloud forest in Panama. Amer. Mus. Novitates 2396:1-52.
- Myers, C.W. 1970. Amphibians and reptiles protected in Panama. Herpetol. Rev. 2(3):10.
- Myers, C.W. 1972. The status of herpetology in Panama. Bull. Biol. Soc. Wash. 2:199-209.
- Myers, C.W. 1974. The systematics of Rhadinaea (Colubridae), a genus of New World snakes. Bull. Am. Mus. Nat. Hist. 153:1-262.
- Myers, C.W. 1982. Spotted poison frogs: description of three new dendrobates from western Amazonia, and resurrection of a lost species from "Chiriqui." Amer. Mus. Novitates 2721:1-23.
- Myers, C.W. 1987. New generic names for some neotropical poison frogs (Dendrobatidae). Papéis Avulsos Zool. São Paulo 36(25):301-306.
- Myers, C.W. 1991. Distribution of the dendrobatid frog Colostethus chocoensis and description of a related species occurring macrosympatrically. Amer. Mus. Novitates 3010:1-15.
- Myers, C.W. and J.W. Daly. 1967. Toxicity of Panamanian poison frogs (Dendrobates). Some biological and chemical aspects. Science 156:970-973.
- Myers, C.W. and J.W. Daly. 1976. Preliminary evaluation of skin toxins and vocalizations in taxonomic and evolutionary studies of poison-dart frogs (Dendrobatidae). Bull. Amer. Mus. Nat. Hist. 157:173-262.
- Myers, C.W. and J.W. Daly. 1983. Dart-Poison Frogs. Sci. Amer. Feb:120-133.
- Myers, C.W. and A.S. Rand. 1969. Checklist of amphibians and reptiles of Barro Colorado Island, Panama, with comments on faunal change and sampling. Smithsonian Contributions to Zool. 10:1-11.
- Myers, C.W. and L. Trueb. 1967. The hemipenis of an anomalepidid snake. Herpetologica 23(3):235-238.
- Nelson, C.E. 1966. Systematics and distribution of snakes of the Central American genus Hydromorphus (Colubridae). Texas J. Sci. 18:365-371.
- Nelson, C.E. 1972. Distribution and biology of Chiasmocleis panamensis (Amphibia: Microhylidae). Copeia 1972(4):895

-898.

- Nelson, C.E. 1972. Systematic studies of the North American microhylid Genus Gastrophryne. J. Herpetol. 6(2):111-137.
- Nelson, C.E. 1973. Gastrophryne. Cat. Amer. Amphib. Rept. 134:1-2.
- Nelson, C.E. 1973. Gastrophryne pictiventris. Cat. Amer. Amphib. Rept. 135:1-2.
- Netting, M.G. 1935. Hyla rosenbergi Boulenger, an addition to the fauna of the Panama Canal Zone. Annal. Carnegie Mus. 25:15-16.
- Netting, M.G. 1936. Notes on a collection of reptiles from Barro Colorado Island, Panama Canal Zone. Annal. Carnegie Mus. 25:113-120.
- Occhipinti, N.A. In Press. Diploglossus monotropis. Cat. Amer. Amphib. Rept.
- Occhipinti, N.A. and J. Villa. In Press. Diploglossus bilobatus. Cat. Amer. Amphib. Rept.
- Occhipinti, N.A. and J. Villa. In Press. Diploglossus montisilvestris. Cat. Amer. Amphib. Rept.
- Oftedal, O.T. 1974. A revision of the Genus Anadia (Sauria: Teiidae). Arq. Zool. 25:203-265.
- Oliver, J.A. 1942. A check list of the snakes of the Genus Leptophis, with descriptions of new forms. Occ. Pap. Mus. Zool., Univ. Mich. 462:1-19.
- Ortleb, E. and H. Heatwole. 1965. Comments on some Panamanian lizards with a key to the species from Barro Colorado Island, C. Z. and vicinity. Carib. J. Sci. 5:141-147.
- O'Shea, M.T. 1986. Nothopsis rugosus: distribution. Herpetol. Rev. 17:27.
- Quintero, J. M. 1959. Algo sobre serpientes venenosas de Panama. Publicaciones de La Revista "Lateria" #10. 22 p.
- Parker, H.W. 1926. The neotropical lizards of the Genera Lepidoblepharis, Pseudogonatodes, Lanthrogecko, and Sphaerodactylus, with the description of a new genus. Ann. Mag. Nat. Hist. Ser. 9:17:291-301.
- Pefaur, J.E. 1992. Checklist and bibliography (1960-85) of the Venezuelan herpetofauna. Smithsonian Herpetol. Inf. Serv. 89:1-54.
- Peracca, M.G. 1896. Rettilli et amphibi raccolti nel Darien et a Panama dal Dott. E. Festa. Boll. Mus. Zool. Comp. Anat. Univ. Torino 11(235):1-4.
- Perez-Santos, C.E. 1986. Zoogeografia de los Ophidia en Colombia. Univ. Complutense, Madrid, 2 vols. 971 p.
- Perez-Santos, C.E. and A.G. Moreno. 1988. Ofidios de Colombia. Monografie VI. Museo Regionale di Scienze Naturali. Torino, Italy. 517 p.
- Peters, J.A. 1960. The snakes of the Subfamily Dipsadinae. Misc. Publ. Mus. Zool. Univ. Mich. 114:1-224.
- Peters, J.A. and B. Orejas-Miranda. 1970. Catalogue of the Neotropical Squamata. Part 1. Snakes. U.S. Nat. Mus. Bull. 297:1-247.

- Peters, J.A. and R. Donoso-Barros. 1970. Catalogue of the Neotropical Squamata. Part 2. Lizards and Amphisbaenids. U.S. Nat. Mus. Bull. 297:1-293.
- Peters, W.C.H. 1874. Note of Poriogaster grayi Smith. Proc. Zool. Soc. London 1874:307.
- Picado, T.C. 1931. Serpientes Venenosas de Costa Rica. Reprinted ed. 1976. Univ. Costa Rica. San Jose. 241 p.
- Pickwell, G.V. and W.A. Culotta. 1980. Pelamis, P. platurus. Cat. Amer. Amphib. Rept. 255:1-4.
- Porras, L. J.R. Mccranie, and L.D. Wilson. 1981. The systematics and distribution of the hognose viper Bothrops nasuta Bocourt (Serpentes: Viperidae). Tulane Stud. Zool. Bot. 22:85-107.
- Powell, R. and S.A. Maxey. 1990. Hemidactylus brookii Gray. Cat. Amer. Amphib. Rept. 493.1-3.
- Pritchard, P.C.H. 1980. Dermochelys coriacea. Cat. Amer. Amphib. Rept. 238.1-4.
- Pritchard, P.C.H. and P. Trebbau. 1984. The Turtles of Venezuela. Soc. Stud. Amphib. Rept. Contrib. Herpetol. 2:1-403.
- Rand, A.S. 1968. A nesting aggregation of Iguanas. Copeia 1968(3):552-561.
- Rand, A.S. 1972. The temperatures of iguana nests and their relation to incubation optima and to nesting sites and seasons. Herpetologica 28(3):252-253.
- Rand, A.S. 1983. Physalaemus pustulosus. Pp. 412-414 In: Janzen, D.H. ed. Costa Rican Natural History. Univ. Chicago Press. 816 p.
- Rand, A.S. 1984. Clutch size in Iguana iguana in Central Panama. Univ. Kansas Mus. Nat. Hist. Special Publ. 10:115-122.
- Rand, A.S. and H. Marx. 1967. Running speed of the lizard Basiliscus basiliscus on water. Copeia 1967(1):230-233.
- Rand, A.S. and E.P. Ortleb. 1969. Defensive display in the colubrid snake Pseustes poecilonotus shropshirei. Herpetologica 25(1):46-48.
- Rand, A.S. and M.H. Robinson. 1969. Predation on iguana nests. Herpetologica 25(3):172-174.
- Rand, A.S. and B.A. Dugan. 1980. Iguana egg mortality within the nest. Copeia 1980(3):531-534.
- Rand, A.S. and M.J. Ryan. 1981. The adaptive significance of a complex vocal repertoire in a neotropical frog. Z. Tierpsychol. 57:209-214.
- Rand, A.S., S. Guerrero, and R.M. Andrews. 1983. The ecological effects of malaria on populations of the lizard Anolis limifrons on Barro Colorado Island, Panama. pp. 455-471. In: Rhodin, A.G.J. and K. Miyata, eds. Advances in Herpetology and Evolutionary Biology. Mus. Comp. Zool. Cambridge, Mass. 725 p.
- Rand, A.S., B.A. Dugan, H. Monteza, and D. Vianda. 1990. The diet of a generalized folivore: Iguana iguana in Panama. J. Herpetolog. 24(2):211-214.
- Rand, A.S. and C.W. Myers. 1990. The herpetofauna of Barro Colorado Island, Panama: An ecological summary. Pp. 386-409. In A.H. Gentry ed. Four Neotropical rainforests.

- New Haven. Yale Univ. Press.
- Rand, A.S., M.J. Ryan, and K. Troyer. 1983. A population explosion in a tropical tree frog: Hyla rufitela on Barro Colorado Island, Panama. *Biotropica* 15(1):72-73.
- Robinson, D.C. 1983. Rana palmipes. Pp 415-416 In: Janzen. D.H., ed. Costa Rican Natural History. Univ. Chicago Press. 816 p.
- Robinson, D.C. 1983. Sceloporus malachiticus. Pp. 421-422 In: Janzen, D.H., ed. Costa Rican Natural History. Univ. Chicago Press. 816 p.
- Rodda, G.H. 1984. Movements of juvenile American crocodiles in Gatun Lake, Panama. *Herpetologica* 40(4):444-451.
- Roze, J.A. 1966. La Taxonomia y Zoogeografia de los Ofidios de Venezuela. Univ. Central Venezuela. 362 p.
- Roze, J.A. 1967. A checklist of the new world venomous coral snakes (Elaphidae) with descriptions of new forms. Amer. Mus. Novitates 2287:1-60.
- Roze, J.A. 1983. New world coral snakes (Elaphidae): a taxonomic and biological summary. Mem. Inst. Butantan 46:305-338.
- Ruibal, R. 1952. Revisionary studies of some South American Teiidae. *Bull. Mus. Comp. Zool.* 106(11):477-529.
- Ruiz-Carranza, P.M. and J.D. Lynch. 1991. Ranas Centrolenidae de Colombia I. Propuesta de una nueva clasificacion generica. *Lozania* 57:1-30.
- Ryan, M.J. 1985. The Tungara Frog. Univ. Chicago Press. 230 p.
- Ryan, M.J., G.A. Bartholomew, and A.S. Rand. 1983. Energetics of reproduction in a neotropical frog, Physalaemus pustulosus. *Ecology* 64(6):1456-1462.
- Savage, J.M. 1960. Evolution of a peninsular herpetofauna. *Syst. Zool.* 9(3):184-212.
- Savage, J.M. 1963. Studies on the lizard family Xantusiidae IV: The genera. Los Angeles Co. Mus. Contrib. Sci. 71:1-38.
- Savage, J.M. 1966. The origins and history of the Central American herpetofauna. *Copeia* 1966(4):719-766.
- Savage, J.M. 1968. The dendrobatid frogs of Central America. *Copeia* 1968(4):745-776.
- Savage, J.M. 1968. The distribution and synonymy of the neotropical frog, Eleutherodactylus moro. *Copeia* 1968(4): 878-879.
- Savage, J.M. 1970. On the trail of the golden frog: with Warszewicz and Gabb in Central America. *Proc. Calif. Acad. Sci.* 38(14):273-288.
- Savage, J.M. 1972. The harlequin frogs, Genus Atelopus, of Costa Rica and Western Panama. *Herpetologica* 28:77-94.
- Savage, J.M. 1973. Herpetological collections made by Dr. John F. Bransford, Assistant Surgeon, U.S.N. during the Nicaragua and Panama Canal Surveys (1872-1885). *J. Herpetol.* 7(1):35-38.
- Savage, J.M. 1973. The geographic distribution of frogs: patterns and predictions. Pp. 351-445. In *Evolutionary biology of the anurans*. J.L. Vial (ed.). Univ. Missouri Press. 470 p.

- Savage, J.M. 1974. The isthmian link and the evolution of neotropical mammals. Nat. Hist. Mus. Los. Angeles Co. Contrib. in Sci. 260:1-51.
- Savage, J.M. 1974. Type localities for species of amphibians and reptiles described from Costa Rica. Rev. Biol. Trop. 22(1):71-122.
- Savage, J.M. 1975. Systematics and distribution of the Mexican and Central American stream frogs related to Eleutherodactylus rugulosus. Copeia 1975(2):254-306.
- Savage, J.M. 1981. A new species of the secretive colubrid snake Genus Geophis from Costa Rica. Copeia 1981(3):549-553.
- Savage, J.M. 1981. The systematic status of Central American frogs confused with Eleutherodactylus cruentus. Proc. Biol. Soc. Wash. 94:413-420.
- Savage, J.M. 1981. The tadpole of the Costa Rican fringe-limbed tree-frog Hyla fimbriemembra. Proc. Biol. Soc. Wash. 1980(93):1177-1183.
- Savage, J.M. 1982. The enigma of the Central American herpetofauna: dispersals or vicariance? Ann. Missouri Botan. Garden 69:464-597.
- Savage, J.M. 1986. An introduction to the herpetofauna of Costa Rica. Soc. Stud. Amphib. Rept. Contrib. Herpetol. 3:1 -207.
- Savage, J.M. 1987. Systematics and distribution of the Mexican and Central American rainfrogs of the Eleutherodactylus gollmeri group. Fieldiana: Zool., New Ser 33:1-57.
- Savage, J.M. and B.I. Crother. 1989. The status of Pliocercus and Urotheca (Serpentes: Colubridae), with a review of included species of coral snake mimics. Zool. J. Linn. Soc. 95:335-362.
- Savage, J.M. and J.E. DeWeese. 1981. The status of the Central American leptodactylid frogs Eleutherodactylus melanostictus (Cope) and Eleutherodactylus platyrhynchus (Gunther). Proc. Biol. Soc. Wash. 93:928-942.
- Savage, J.M. and M.A. Donnelly. 1988. Variation and systematics in the colubrid snakes of the Genus Hydromorphus. Amphibia-Reptilia 9:289-300.
- Savage, J.M. and M.A. Donnelly. 1992. The second collection of, and variation in, the rare neotropical toad Bufo peripatetes. J. Herpetol. 26(1):72-74.
- Savage, J.M. and S.B. Emerson. 1970. Central American frogs allied to Eleutherodactylus bransfordii (Cope): a problem of polymorphism. Copeia 1970(4):623-644.
- Savage, J.M. and C. Guyer. 1989. Infrageneric classification and species composition of the Anole Genera, Anolis, Cenonotus, Dactyloa, Norops, and Semiurus (Sauria: Iguanidae). Amphibia-Reptilia 10:105-116.
- Savage, J.M. and W.R. Heyer. 1967. Variation and distribution in the tree-frog Genus Phyllomedusa in Costa Rica, Central America. Beitrage zur Neotropischen fauna V(2):111-131.
- Savage, J.M. and W.R. Heyer. 1969. The tree-frogs (Family Hylidae) of Costa Rica: diagnosis and distribution. Rev. Biol. Trop. 16(1):1-127.

- Savage, J.M. and A.G. Kluge. 1961. Rediscovery of the strange Costa Rican toad Crepidius epioticus Cope. Rev. Biol. Trop. 9(1):39-51.
- Savage, J.M. and P.N. Lahanas. 1991. On the species of the colubrid snake Genus Ninia in Costa Rica and Western Panama. Herpetologica 47(1):37-53.
- Savage, J.M. and R.W. McDiarmid. 1992. Rediscovery of the Central American colubrid snake Sibon argus with comments on related species from the region. Copeia 1992(2):421-432.
- Savage, J.M. and N.J. Scott. 1987. The Immantodes (Serpentes: Colubridae) of Costa Rica: Two or three species? Rev. Biol. Trop. 33:107-132.
- Savage, J.M. and J.B. Slowinski. 1992. The colouration of the venomous coral snakes (Family Elapidae) and their mimics (Families Aniliidae and Colubridae). Biol. J. Linn. Soc. 45:235-254.
- Savage, J.M. and J.J. Talbot. 1978. The giant anoline lizards of Costa Rica and Western Panama. Copeia 1978(3):480-492.
- Savage, J.M. and J.L. Vial. 1974. The venomous coral snakes (Genus Micrurus) of Costa Rica. Rev. Biol. Trop. 21(2): 295-349.
- Savage, J.M. and J. Villa. 1986. Introduction to the Herpetofauna of Costa Rica. Soc. Stud. Amphib. Rept. Contrib. to Herp. 3:1-207.
- Savage, J.M. and M.H. Wake. 1972. Geographic variation and systematics of the Middle American caecilians, Genera Dermophis and Gymnopis. Copeia 1972(4):680-695.
- Schmidt, K.P. 1933. Amphibians and reptiles collected by the Smithsonian Biological Survey of the Panama Canal Zone. Smithsonian Misc. Coll. 89(1):1-20.
- Schmidt, K.P. 1946. Turtles collected by the Smithsonian Biological Survey of the Panama Canal Zone. Smithsonian Misc. Coll. 106(8):1-9.
- Schmidt, K.P. and A.S. Rand. 1957. Geographic variation in the Central American colubrine snake Ninia sebae. Fieldiana: Zool. 39(10):73-84.
- Schwartz, A. 1973. Sphaerodactylus Wagler. Cat. Amer. Amphib. Rept. 142.1-2.
- Schwartz, A. and D.C. Fowler. 1973. The anura of Jamaica: a progress report. Studies of the Fauna of Curacao and other Caribbean islands. XLIII(142):50-142.
- Schwartz, A. and R.W. Henderson. 1991. Amphibians and reptiles of the West Indies: descriptions, distributions, and natural history. Univ. Florida Press. Gainesville, 720 p.
- Schwartz, J.J. 1991. Why stop calling? A study of unison bout singing in a neotropical treefrog. Anim. Behav. 42(4):565-577.
- Schwartz, J.J. and A.S. Rand. 1991. The consequences for communication of call overlap in the Tungara frog, a neotropical anuran with a frequency-modulated call. Ethology 89(1):73-83.
- Scott, N.J. 1969. A zoogeographic analysis of the snakes of Costa Rica. Ph.D. Diss. Univ. S. California. 390 p.
- Scott, N.J. and A. Starrett. 1974. An unusual breeding

- aggregation of frogs, with notes on the ecology of Agalychnis spurrelli (Anura: Hylidae). Bull. S. Calif. Acad. Sci. 73:86-94.
- Scott, N.J. J.M. Savage, and D.C. Robinson. 1983. Checklist of reptiles and amphibians (of Costa Rica). Pp 367-374. In Janzen, D.H. ed. Costa Rican Natural History. Univ. Chicago Press. 816 p.
- Seidel, M.E. and H.M. Smith. 1986. Chrysemys, Pseudemys, Trachemys (Testudines: Emydidae): did Agassiz have it right? Herpetologica 42:238-244.
- Sexton, O.J. and H. Heatwole. 1965. Life history notes on some Panamanian snakes. Carib. J. Sci. 5:39-43.
- Sexton, O.J., H. Heatwole, and D. Knight. 1964. Correlation of microdistribution of some Panamanian reptiles and amphibians with structural organization of the habitat. Carib. J. Sci. 4(1):261-295.
- Sexton, O.J., H. Heatwole, and E. Meseth. 1963. Seasonal population changes in the lizard Anolis limifrons in Panama. Amer. Midl. Nat. 69:482-491.
- Shreve, B. 1935. On a new tocid and amphibia from Panama, Ecuador, and Paraguay. Occ. Pap. Boston Soc. Nat. Hist. 8:209-218.
- Silverstone, P.A. 1975. A revision of the poison-arrow frogs of the Genus Dendrobates Wagler. Nat. Hist. Mus. Los Angeles Co. Sci. Bull. 21:1-55.
- Silverstone, P.A. 1976. A revision of the poison-arrow frogs of the Genus Phyllobates Bibron in Sagra (Family Dendrobatidae). Nat. Hist. Mus. Los Angeles Co. Sci. Bull. 27:1-53.
- Slevin, J.R. 1942. Notes on a collection of reptiles from Boquete, Panama, with the description of a new species of Hydromorphus. Proc. Calif. Acad. Sci. (4.Ser.) 23:463-480.
- Solis, F.A. 1991. Clelia scytalina. Herpetol. Rev. 22(4):135.
- Smith, H.M. 1939. The Mexican and Central American lizards of the Genus Sceloporus. Field Mus. Nat. Hist., Zool. Ser. 26: 1-397.
- Smith, H.M. 1958. Handlist of the snakes of Panama. Herpetologica 14(3):222-224.
- Smith, H.M. 1987. Current nomenclature for the names and material cited in Gunther's Reptilia and Batrachia volume of the Biologia Centrali-Americana. Pp. xxiii-li. In: 1987 reprint ed. Soc. Stud. Amphib. Rept. Facs. Rep. Herp. 575 p.
- Smith, H.M. and C.B. Bumzaham. 1955. The identity of the trans-isthmic populations of the Malachite tree-lizard (Sceloporus malachiticus Cope). Herpetologica 11(2):118-120.
- Smith, H.M., K. Fitzgerald, G. Perez-Hilgareda, and D. Chizar. 1986. A taxonomic rearrangement of the snakes of the Genus Scaphiodontophis. Bull. Maryland Herpetol. Soc. 22:159-166.
- Smith, H.M. and C. Grant. 1958. New and noteworthy snakes from Panama. Herpetologica 14(3):207-215.
- Smith, H.M. and C. Grant. 1961. The Mourning gecko in the Americas. Herpetologica 17(1):68.
- Smith, H.M., K.L. Williams, and G. Perez-Hilgareda. 1986. The

- specific name for the Linnaean Oxyrhopus, or the Calico False Coral snake. Bull. Maryland Herpetol. Soc. 22:10-13.
- Smith, R. E. 1968. Studies on reproduction in Costa Rican Ameiva festiva and Ameiva quadrilineata (Sauria: Teiidae). Copeia 1968(2):236-239.
- Stejneger, L. 1911. Descriptions of three new batrachians from Costa Rica and Panama. Proc. U.S. Nat. Mus. 41:285-288.
- Stuart, L.C. 1941. Studies on Neotropical Colubridae. VIII. A revision of the Genus Dryadophis Stuart, 1939. Misc. Publ. Mus. Zool. Univ. Mich. 49:1-106.
- Stuart, L.C. 1963. A checklist of the herpetofauna of Guatemala. Misc. Publ. Mus. Zool., Univ. Mich. 122:1-150.
- Stuart, L.C. 1966. The environment of the Central American cold-blooded vertebrate fauna. Copeia 1966(4):684-699.
- Stull, O.G. 1935. A checklist of the Family Boidae. Proc. Boston Soc. Nat. Hist. 40:387-408.
- Swanson, P.L. 1950. The iguana Iguana iguana iguana (L.). Herpetologica 6(7):187-193.
- Telford, S.R. Jr. 1969. A new saurian malarial parasite Plasmodium balli from Panama. J. Protozool. 16(3):431-437.
- Telford, S.R. Jr. 1970. Saurian malarial parasites in Eastern Panama. J. Protozool. 17(4):566-574.
- Telford, S.R. Jr. and H.W. Campbell. 1970. Ecological observations on an all female population of the lizard Lepidophyma flavimaculatum (Xantusiidae) in Panama. Copeia 1970(2):379-381.
- Thomas, R. 1975. The argus group of West Indian Sphaerodactylus (Sauria: Gekkonidae). Herpetologica 31(2):177-195.
- Trapido, H. 1953. A new frog from Panama. Fieldiana 34(15):181-187.
- Trapido, H., P. Galindo, and S.J. Carpenter. 1955. A survey of forest mosquitoes in relation to Sylvan yellow fever in the Panama isthmian area. Amer. J. Trop. Med. Hygiene 4(3):525-542.
- Trueb, L. and D. Cannatella. 1986. Systematics, morphology and phylogeny of the Genus Pipa (Anura: Pipidae). Herpetologica 42(4):412-449.
- Tuttle, M.D. and M.J. Ryan. 1982. The role of synchronized calling, ambient light, and ambient noise in anti-bat predator behavior of a treefrog. Behav. Ecol. Sociobiol. 11(2):125-131.
- Uzzell, T.M. 1965. Teiid lizards of the Genus Echinosaura. Copeia 1965(1):82-89.
- Vanzolini, P.E. 1951. Amphisbaena fuliginosa. Contribution to the knowledge of the Brazilian lizards of the Family Amphisbaenidae Gray, 1825. 6. On the geographical distribution and differentiation of Amphisbaena fuliginosa Linn. Bull. Mus. Comp. Zool. 106:1-67.
- Vanzolini, P.E. 1977. An annotated bibliography of the land and fresh-water reptiles of South America (1758-1975). 2 vol. 316 p.

- Vanzolini, P.E. 1986. Addenda and corrigenda to the Catalogue of Neotropical Squamata. Smithsonian Herpetol. Info. Ser. 70:1-25.
- Vanzolini, P.E. and W.R. Heyer. 1990. The American herpetofauna and the interchange. pp. 475-487. In: Stehli, F.G. and S.D. Webb, eds. The Great American Biotic Interchange. Plenum Press. New York, London. 532 p.
- Vial, J.L. 1968. The ecology of the tropical salamander, Bolitoglossa subpalmata, in Costa Rica. Rev. Biol. Trop. 15:13-115.
- Vial, J.L. and J.M. Jimenez-Porras. 1967. The ecogeography of the bushmaster, Lachesis muta, in Central America. Amer. Mid. Nat. 78:182-187.
- Villa, J. 1983. Nicaraguan fishes, amphibians and reptiles a checklist and bibliography. Escuela de Ecología y Recursos Naturales, Universidad Centroamericana. Managua, Nicaragua. Also Wildlife Publ., Inc. Hollywood, Florida. 53 p.
- Villa, J. 1988. Rana vibicaria (Cope). Cat. Amer. Amphib. Rept. 437.1-2.
- Villa, J. 1990. Rana warszewitschii (Schmidt). Cat. Amer. Amphib. Rept. 459.1-2.
- Villa, J. 1990. Hydromorphus Peters. Central American watersnakes. Cat. Amer. Amphib. Rept. 472.1-2.
- Villa, J. and N.A. Occhipinti. 1988. Diploglossus montisilvestris Myers. Cat. Amer. Amphib. Rept. 444.1
- Villa, J. and L.D. Wilson. 1990. Ungaliophis Muller. Central American Dwarf boas. Cat. Amer. Amphib. Rept. 480.1-4.
- Wake, D.B. 1970. The abundance and diversity of tropical salamanders. Amer. Nat. 104(936):211-213.
- Wake, D.B. 1980. Reproduction, growth, and population structure of the Central American caecilian Dermophis mexicanus. Herpetologica 36(3):244-256.
- Wake, D.B. 1987. Adaptive radiation of salamanders in Middle American cloud forests. Ann. Missouri Botan. Garden 74:242-264.
- Wake, D.B. and A.H. Brame. 1963. The status of the plethodontid salamander Genera Bolitoglossa and Magnadigita. Copeia 1963(2):382-387.
- Wake, D.B. and P. Elias. 1983. New genera and a new species of Central American salamanders, with a review of the tropical genera (Amphibia, Caudata, Plethodontidae). Contrib. Sci. Nat. Hist. Mus. Los Angeles Co. 345:1-19.
- Wake, D.B. and J.F. Lynch. 1976. The distribution, ecology and evolutionary history of plethodontid salamanders in tropical America. Nat. Hist. Mus. Los Angeles Co., Sci. Bull 25:1-65.
- Wake, M.H. 1988. Gymnopis Peters. Cat. Amer. Amphib. Rept. 411.1-2.
- Webb, S.D. 1976. Mammalian faunal dynamics of the Great American Interchange. Paleobiol. 2(3):220-234.
- Wellman, J. 1963. A revision of the snakes of the Genus Conophis. Univ. Kansas Publ. Mus. Nat. Hist. 15:251-295.

- Wells, K.D. 1979. Reproductive behavior and male mating success in a neotropical toad, Bufo typhonius. *Biotropica* 11(4):301-307.
- Wells, K.D. 1980. Behavior ecology and social organization of a dendrobatid frog (Colothethus inquinalis). *Behav. Ecol. Sociobiol.* 6:199-209.
- Wells, K.D. 1981. Vocal responses to conspecific calls in a neotropical hylid frog, Hyla ebraccata. *Copeia* 1981(3):615-624.
- Wells, K.D. and K.M. Bard. 1988. Parental behavior of an aquatic-breeding tropical frog, Leptodactylus bolivianus. *J. Herpetol.* 22(3):361-364.
- Wells, K.D. and J.J. Schwartz. 1982. The effect of vegetation on the propagation of calls in the neotropical frog Centrolenella fleischmanni. *Herpetologica* 38(4):449-455.
- Wells, K.D. and J.J. Schwartz. 1984. Vocal communication in a neotropical treefrog, Hyla ebraccata: advertisement calls. *Anim. Behav.* 32:405-420.
- Wells, K.D. and T.L. Taigen. 1989. Calling energetics of a neotropical treefrog, Hyla microcephala. *Behav. Ecol. Sociobiol.* 25:13-22.
- Werman, S.D. 1984. Taxonomic comments on the Costa Rican Pit viper Bothrops picadoi. *J. Herpetol.* 18(2):207-210.
- Wiest, J.A. 1978. Revision of the neotropical snake Genus Chironius Fitzinger (Serpentes: Colubridae). Ph.D. thesis, Texas A. and M. Univ. 336 p.
- Wilczynski, W. and E.A. Brenowitz. 1988. Acoustic cues mediate inter-male spacing in a neotropical frog. *Anim. Behav.* 36(4):1054-1063.
- Williams, E.E. 1984. New or problematic Anolis from Colombia III. Two new semiaquatic anoles from Antioquia and Choco, Colombia. *Breviora Mus. Comp. Zool.* 478:1-22.
- Williams, E.E. 1991 (manuscript). The morphological characters used in Anole key described, defined and illustrated.
- Williams, K.L. 1988. Systematics and natural history of the American Milk snake Lampropeltis triangulum. Mil. Publ. Mus. 2nd. ed. 176 p.
- Wilson, L.D. 1973. Masticophis Baird and Girard. *Cat. Amer. Amphib. Rept.* 144:1-2.
- Wilson, L.D. 1975. Drymobius. *Cat. Amer. Amphib. Rept.* 170:1-2.
- Wilson, L.D. 1975. Drymobius chloroticus. *Cat. Amer. Amphib. Rept.* 171:1-2.
- Wilson, L.D. 1975. Drymobius margaritiferus. *Cat. Amer. Amphib. Rept.* 172:1-2.
- Wilson, L.D. 1982. A review of the colubrid snakes of the Genus Tantilla of Central America. Milwaukee. Publ. Mus. Contrib. Biol. Geol. 52:1-77.
- Wilson, L.D. 1982. Masticophis mentovarius (Dumeril, Bibron, and Dumeril). *Cat. Amer. Amphib. Rept.* 295.1-4.
- Wilson, L.D. 1982. Tantilla. *Cat. Amer. Amphib. Rept.* 307.1-4.
- Wilson, L.D. 1985. Tantilla reticulata Cope. *Cat. Amer. Amphib. Rept.* 370.1.
- Wilson, L.D. 1985. Tantilla albiceps Barbour. *Cat. Amer. Amphib. Rept.* 377.1.
- Wilson, L.D. 1985. Tantilla annulata (Boettger). *Cat. Amer.*

- Amphib. Rept. 379:1.
- Wilson, L.D. 1986. Tantilla alticola (Boulenger). Cat. Amer. Amphib. Rept. 400:1.
- Wilson, L.D. 1987. A resume of the colubrid snakes of the Genus Tantilla of South America. Mil. Publ. Mus. Cont. Biol. Geol. 68:1-35.
- Wilson, L.D. 1987. Tantilla schistosa (Bocourt). Cat. Amer. Amphib. Rept. 409:1-2.
- Wilson, L.D. 1988. Amastridium Cope. Cat. Amer. Amphib. Rept. 449.1-3.
- Wilson, L.D. and J.R. McCranie. 1984. Bothrops nasuta Bocourt. Cat. Amer. Amphib. Rept. 349.1-2.
- Wilson, L.D., J.R. McCranie, and L. Porras. 1977. Taxonomic notes on Tantilla (Colubridae) from tropical America. Bull. S. Calif. Acad. Sci. 76:49-56.
- Wilson, L.D. and C.E. Mena. 1980. Systematics of the melanocephala group of the colubrid snake Genus Tantilla. San Diego Soc. Nat. Hist. 11:1-58.
- Wilson, L.D. 1969 and J.R. Meyer. A review of the colubrid snake Genus Amastridium. Bull. S. California Acad. Sci. 68:145-159.
- Wilson, R.V. and G.R. Zug. 1991. Lepidochelys kempii (Garman) Kemp's Ridley Sea Turtle, Tortuga Lora. Cat. Amer. Amphib. Rept. 509.1-8.
- Woodring, W.P. 1957. Geology and paleontology of Canal Zone and adjoining parts of Panama. Geol. Sur. Prof. Paper 306-A: 1-145. U.S. Gov. Printing Office, Washington, D.C.
- Wright, S.J. 1979. Competition between insectivorous lizards and birds in Central Panama. Amer. Zool. 19:1145-1156.
- Yingling, P. 1972. A review of the colubrid snake Imantodes gemmistratus. M.S. thesis. San Diego St. Coll. California. 87 p.
- Zug, G.R. and A.S. Rand. 1987. Estimation of age in nesting female Iguana iguana: testing skeletochronology in a tropical lizard. Amphibia-Reptilia 8(3):237-250.
- Zug, G.R. and P.B. Zug. 1979. The marine toad, Bufo marinus a natural history resume of native populations. Smithsonian Contrib. Zool 284:1-58.
- Zweifel, R.G. 1964. Life history of Phrynohyas venulosa (Salientia: Hylidae) in Panama. Copeia 1964(1):201-208.
- Zweifel, R.G. 1964. Distribution and life history of the Central American frog, Rana vibricaria. Copeia 1964(2):300-308.
- Zweifel, R.G. 1965. Distribution and mating calls of the Panamanian toads, Bufo coccifer and B. granulosus. Copeia 1965(1):108-110.





