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NEW AND NOTEWORTHY AMPHIBIANS AND
REPTILES FROM BRITISH HONDURAS

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NEW AND NOTEWORTHY AMPHIBIANS AND REPTILES FROM BRITISH HONDURAS

WILFRED T. NEILL¹

SYNOPSIS. *Syrrophopus leprus cholorum* new subspecies, *Ficimia publia wolffsohni* new subspecies, and *Kinosternon mopanum* new species are described. *Eleutherodactylus stantoni*, *Micrurus affinis alienus*, *Bothrops atrox asper*, and *Crocodylus moreleti barnumbrowni* are reduced to synonymy. *Anolis sagrei mayensis* is removed from synonymy. *Mabuya brachypoda* is recognized. *Ameiva undulata hartwegi* and *A. u. gaigeae* interdigitate rather than intergrade.

Eleutherodactylus r. rugulosus, *Hyla picta*, *Anolis nannodes*, *Corytophanes hernandesii*, *Sibon n. nebulata*, *Micrurus nigrocinctus divaricatus*, *Bothrops nasutus*, and *Kinosternon acutum* are added to the British Honduras herpetofaunal list. *Phrynohyas modesta*, *Anolis intermedius*, *Scaphiodontophis annulatus carpincinctus*, *Bothrops yucatanicus*, and *Staurotypus salvini* are deleted from the list. New records are presented for species whose existence in British Honduras was either recently discovered or inadequately documented: *Rhinophrynus dorsalis*, *Leptodactylus labialis*, *Hyla microcephala martini*, *Phrynohyas spilomma*, *Eumeces schwartzei*, *Clelia clelia*, *Elaphe flavirufa pardalina*, *Oxyrhopus petola aequifasciatus*, *Tropidodipsas s. sartorii*, and *Kinosternon c. cruentatum*.

Natural history notes are presented for 69 species of amphibians and reptiles, and a British Honduras checklist is appended.

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INTRODUCTION

In the summer of 1962 Thomas P. C. Monath and a party of friends collected amphibians and reptiles in British Honduras. The material they obtained was deposited in the Museum of Comparative Zoology at Harvard College and, through the kindness of Dr. Ernest E. Williams, was sent to me for study. The present paper analyzes this material, as well as pertinent specimens in the collections of the University of Florida and in my own collection.

Also included in the discussion are certain lizards and snakes, originally collected for a study of their protozoan parasites, and given to the Museum of Comparative Zoology by Major R. Hill. These reptiles were taken within a 10-mile radius of Central Farm, an agricultural station at Baking Pot, Cayo District, British Honduras. Major Hill's specimens are listed herein as from "Vicinity of Baking Pot."

Distances, directions, and place names in British Honduras were determined from the following maps: War Office GSGS 4767, Sheets 1-3, Edition I; Surveyor General's 1933 map of forest types in British Honduras; Surveyor General's undated map of the entire country; the end map in Anderson (1958); and the detailed maps of the Direc-

torate of Overseas Survey, Series 449 and Misc. 8. A map (Fig. 8) shows localities mentioned in the present article.

Collecting dates have been omitted except where they provide information relating to seasonal activity or to the timing of reproductive cycles, but collectors' field notes pertaining to habits or habitat have generally been included.

Elsewhere I have categorized the major plant communities of British Honduras with special reference to the occurrence of amphibians and reptiles (Neill, 1960b; Neill and Allen, 1959a). These communities have been considered in detail by Bartlett (1935), Charter (1941), and Lundell (1934, 1937, 1940). My remarks here on habitats or on habits relate solely to British Honduras, and all localities mentioned are in British Honduras unless otherwise noted.

Herpetological collections have been abbreviated as follows: CNHM = Chicago Natural History Museum; MCZ = Museum of Comparative Zoology; UF = University of Florida; WTN = Wilfred T. Neill.

It is sometimes stated that the herpetofauna of British Honduras is virtually identical with that of the adjoining Guatemalan department, El Petén. While many species inhabit both regions, at least 18 amphibians and reptiles not reported from El Petén have been taken in British Honduras, and each collecting trip to British Honduras has revealed distributional and taxonomic phenomena that could not have been anticipated from the Guatemalan literature. It is felt that further studies in British Honduras will be useful; such studies are in progress.

ACKNOWLEDGMENTS

I am especially indebted to Dr. Ernest E. Williams of the Museum of Comparative Zoology for conveying to me the material taken by the Monath party. Thanks are also due to the personnel of that party—Messrs. Thomas P. C. Monath, John Monath, Michael Touff, John French, William Russell, Jeff MacNelly, and Robert Burgess—for their efforts. My thanks are likewise extended to Dr. Walter Auffenberg of the Florida State Museum for permission to examine material in his care; to Mrs. Anne M. Rick of the National Museum of Canada for bringing to my attention the material she collected at Tikal; to Mr. Ross Allen of Silver Springs, Florida, for his encouragement of my British Honduras studies; and to Mr. Anthony Wolffsohn of the British Honduras Forestry Department for specimens and information.

On behalf of the Monath party I wish to thank Messrs. A. Frith and O. N. D. Phillips of the British Honduras Forestry Department for permission to collect and to use the rest house at Augustine; the Belize Estates and Produce Company, and especially Mr. Colin Brooks, for permission to collect on company property and for the use of company guest houses, as well as for assistance in obtaining guides and transportation; Mr. Don Owen-Lewis, formerly Amerindian Development Agent in Toledo District, for arranging a stay in certain Kekchi villages; Mr. and Mrs. Harrison Burgess, of the American Consulate at Belize, for their hospitality and for many favors; and Dr. Williams for encouragement and support of the trip.

Finally, on behalf of the Museum of Comparative Zoology I should like to thank Major R. Hill, formerly of Central Farm, for the gift of reptiles taken in that vicinity.

ANNOTATED LIST

RHINOPHRYNIDAE

Rhinophrynus dorsalis Duméril and Bibron

MATERIAL EXAMINED. Cayo District: WTN 2708, Benque Viejo.

The species was but recently reported from British Honduras, at Gallon Jug (Fugler, 1960: 9).

BUFONIDAE

Bufo marinus (Linnaeus)

MATERIAL EXAMINED. Corozaal District: MCZ 37903, Corozaal, behind log beside house. Orange Walk District: MCZ 37904-06, Hill Bank, in wet, low grass be-

gin of the palatine fenestra begins turning inward to form the anterior margin of the opening. Mook stated that the fenestra must not have extended as far forward in the fossil as in the modern skull, yet also stated that in the fossil the opening extended at least as far forward as the level of the posterior border of the 8th maxillary alveolus. These interpretations are contradictory, as in the modern skull the fenestra extends anteriorly only to the level of the posterior border of the 9th maxillary alveolus. Actually only a small part of the fenestral border was preserved, and accurate interpretation of fenestral shape is impossible.

The other diagnostic character of the fossil was the angular external border of the maxillary bone, which did not appear in the modern skull he compared it with. This, as mentioned above, was a small one. Individuals of the modern population comparable to the fossil in size commonly exhibit an angular exterior border of the maxillary bone, as shown in Figure 5, a living adult of *Crocodylus moreleti* from Orange Walk District. Thus I consider *Crocodylus moreleti barnumbrowni* Mook a synonym of *C. moreleti* Duméril and Duméril.

EMYDIDAE

Geoemyda areolata (Duméril and Bibron)

MATERIAL EXAMINED. Orange Walk District: MCZ 71632, 8 miles north of Gallon Jug, 20 July 1962, in rain puddle of logging road; MCZ 71633, 1 mile north of Gallon Jug, on logging road bordered by rainforest.

MCZ 71632 is a juvenile, carapace length 64 mm. It is interesting to note its occurrence in a rainwater pool, for the adults are terrestrial.

MCZ 71633, a medium-sized adult, has a tick attached to the seam between the fourth marginal and first lateral on the right side. Schmidt (1946: 8) called attention to the turtle-shell ticks that parasitize *Geoemyda*.

Pseudemys scripta ornata (Gray)

MATERIAL EXAMINED. Stann Creek District: MCZ 71641, 3 miles south of Waha Leaf Creek, in roadside rain pool; MCZ 71642, 2 miles south of Waha Leaf Creek, in puddle of pine savanna.

I follow Williams (1956) in considering this turtle to be a subspecies of *Pseudemys scripta*.

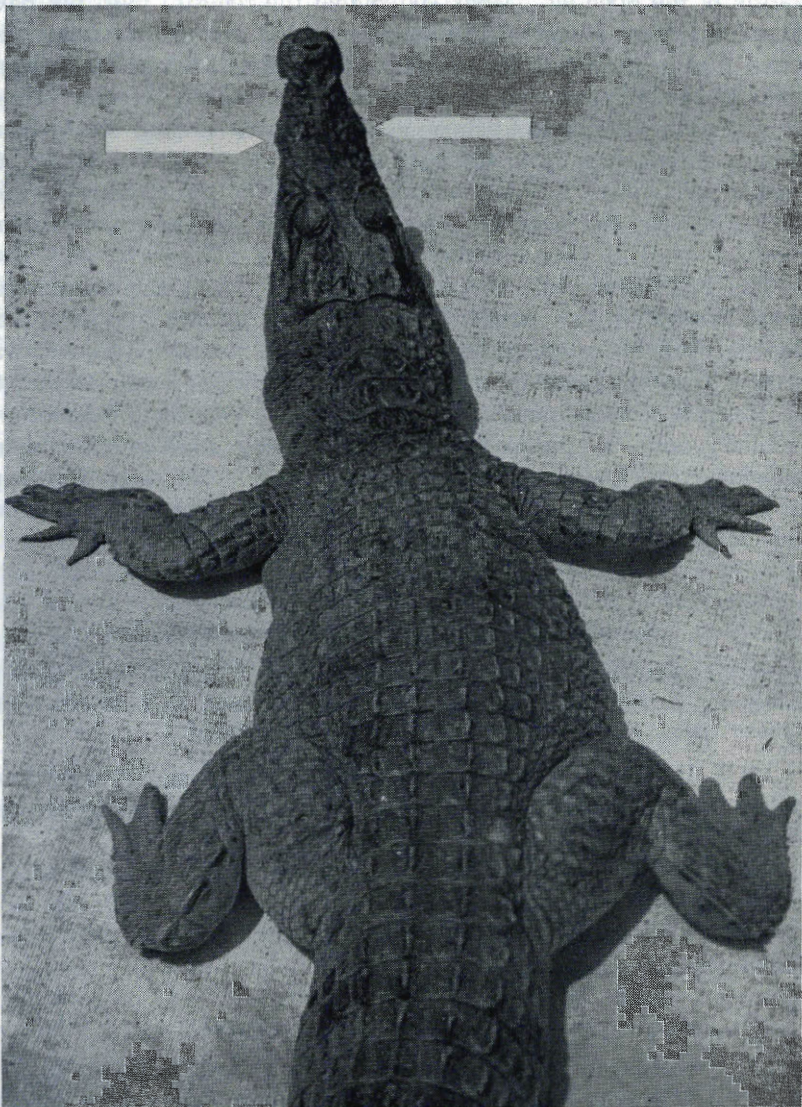


Fig. 5. Living *Crocodylus moreleti* from Orange Walk District, British Honduras. Total length about 5 feet. Arrows indicate angular external border of maxillary bone.

KINOSTERNIDAE

Kinosternon acutum Gray

MATERIAL EXAMINED. Orange Walk District: WTN 2858, Gallon Jug.

The present concept of this species is based largely upon Mexican material. Smith and Taylor (1950: 23) restricted the type locality to Cosamaloapam, Veracruz. Schmidt (1941: 488) included *Kinosternon acutum* in the herpetofaunal list for British Honduras, but no actual specimen has previously been reported from there. When Gray (1831: 34) described this species he did not know the type's source, but thought it might have been from either Honduras or South America. Stejneger (1941: 458) supposed Honduras to have been more likely because F. Siebenrock had seen material from El Petén. Schmidt (*supra cit.*) then assumed that by "Honduras," Stejneger meant British Honduras.

WTN 2858 is shown in Fig. 6. The species is discussed further in connection with the description of a new *Kinosternon* below.

Kinosternon cruentatum cruentatum Duméril and Bibron

MATERIAL EXAMINED. Stann Creek District: MCZ 71639-40, Mango Creek, in mud puddle.

In both specimens the anterior lobe of the plastron is decidedly longer than the fixed portion. The color of the light head markings in life cannot be determined as the preservatives have bleached them.

Belize is the only other definite locality known for the species in British Honduras (Schmidt, 1941: 488).

Kinosternon leucostomum Duméril and Bibron

MATERIAL EXAMINED. Orange Walk District: MCZ 71634, Gallon Jug, found at night. Stann Creek District: MCZ 71636, 3 miles south of Waha Leaf Creek, in roadside ditch. Toledo District: MCZ 71637-38, Swasey Branch, swimming in stream.

MCZ 71634, an adult male, shows three small eroded areas near the midventral line of the plastron. Such areas have been reported in other species of the genus, but what causes them is unknown. In *Kinosternon subrubrum* the holes are sometimes infested with dipteran larvae, but these might be secondary invaders.

Kinosternon mopanum new species

TYPE. MCZ 71635, adult female (Fig. 6, righthand specimen; Fig. 7). Waha Leaf Creek, southern Stann Creek District, British

Honduras; 3 August 1962. Collected by the Monath party. Field number 14267.

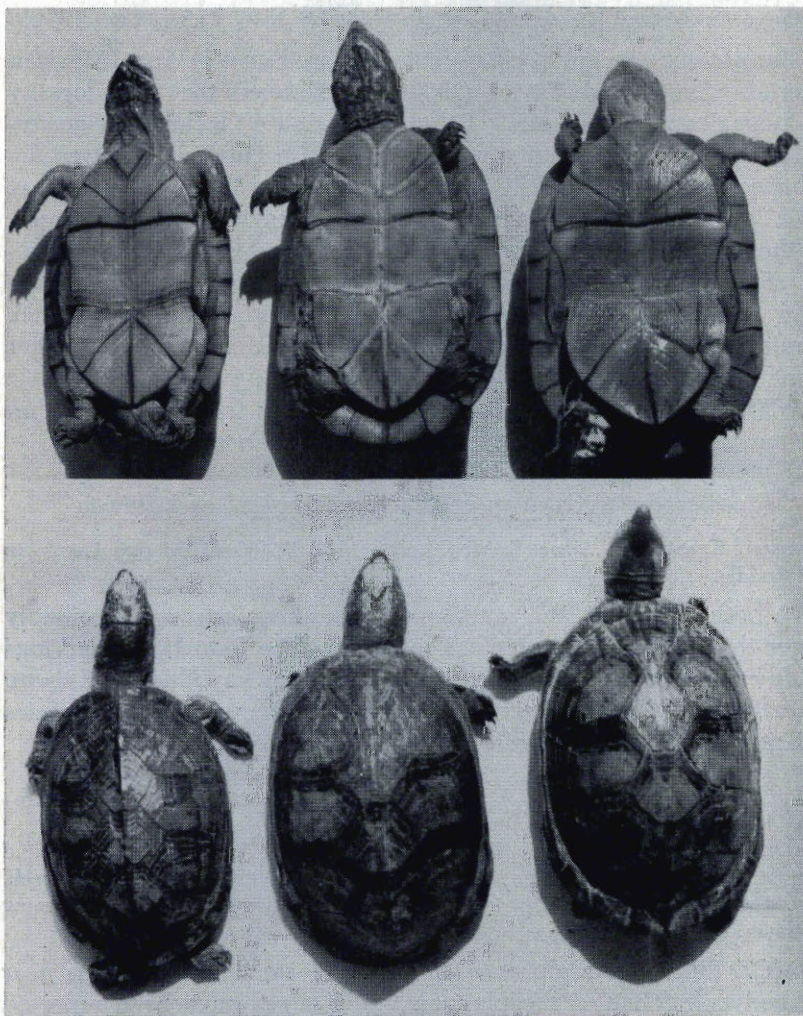


Fig. 6. Upper row, left to right: WTN 2858, *Kinosternon acutum*, showing long midportion of plastron; WTN 2859, *K. leucostomum*, near San Andrés Tuxtla, Veracruz, Mexico, showing small gular, large hands and feet, and axillary-inguinal contact; MCZ 71635, *K. mopanum* new species, type specimen, showing large gular, small hands and feet, and lack of axillary-inguinal contact. Lower row: same specimens in dorsal view, showing head patterns. All to same scale.

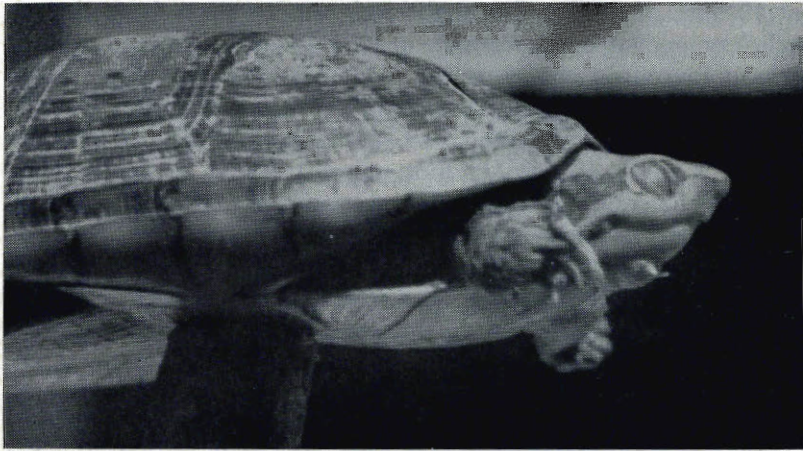


Fig. 7. MCZ 71635, *Kinosternon mopanum* new species, type specimen. Lateral view to show postorbital markings.

DIAGNOSIS. A mud turtle resembling *Kinosternon leucostomum* in size and general conformation, also in that the carapace bears a single longitudinal keel, and that the moveable anterior lobe of the plastron is decidedly longer than the fixed mid-portion of the plastron. Differing from *K. leucostomum* in that (1) the gular is much larger and longer, its length exceeding one-half the length of the anterior lobe of the plastron; (2) the axillary scute is separated from the inguinal; (3) the head in both juvenile and adult is a clear, light yellowish-brown with a sharply defined black postorbital stripe and a sharply defined sagittate figure on the crown; and (4) the hands and feet are proportionately much smaller.

The new species seems less closely related to *Kinosternon acutum* in which the anterior lobe of the plastron is shorter than the fixed midportion and the head pattern of the adult is reticulate. *K. acutum* also has a more flattened carapace than *K. mopanum*.

Comparison might also be made with *Kinosternon creaseri* Hartweg, supposedly a vicariant of *K. acutum* in Yucatán and Quintana Roo. Unlike *K. creaseri* the new species has a small head and a weakly developed beak, as well as axillary-inguinal separation. The head markings of *K. creaseri* are whitish flecks on a blackish ground.

Kinosternon cruentatum is not closely related to any of the above-mentioned species; its carapace bears three longitudinal keels and it has a blood-red or bright yellow postorbital streak.

DESCRIPTION OF TYPE. Carapace length 102, width 67.4, height

about 39 mm. Carapace but slightly elevated posteriorly, and with a single low median keel. No trace of lateral keels. Laminae of carapace with concentric growth rings. First nine supramarginals thickened. Plastron large, filling the carapace. Plastron length 93 mm. Gular length 17 mm. Length of moveable anterior lobe of plastron 32.3 mm. Length of fixed midportion of plastron 22 mm. Hind lobe of plastron obtusely rounded posteriorly, not notched or emarginate. Axillary scute separated from inguinal scute by 2 mm. on right side, 3 mm. on left. Head length to posterior margin of tympanum 22.7, head width 19 mm. Tail minute, terminating in a needle-like spine.

Carapace black. Plastron, axillary and inguinal scutes, and under side of marginals yellowish-brown, the laminae black-bordered. Exposed portions of limbs black above, whitish below. Head clear yellowish-brown; a black triangle on the crown, the point directed anteriorly, the base extending back onto neck and fading posteriorly. Black speckling on top of snout. A black stripe beginning at the posterior margin of the orbit and extending posteriorly through the tympanum, thence continuing along the sides of the neck as three or four narrow rows of black flecks and dashes. Horny beak clear yellowish-white. A short, black median line on the throat beginning behind the horny beak and extending posteriorly between the chin barbels.

VARIATION. Additional specimens are as follows:

Toledo District: WTN 3961, Machaca Creek Forestry Station, 9 miles northwest of Punta Gorda, 28 October 1959, collected by Wilfred T. Neill, Ross Allen, and Thomas C. Allen, under log by day, in wet, grassy seepage area on hill; WTN 3962, same collecting data as WTN 3961, climbing up clay bank of a small stream, by day.

WTN 3962 is an adult female. It is slightly smaller than the type and does not differ significantly from it. WTN 3961 is a juvenile 36.3 mm. in carapace length. The anterior lobe of the plastron has not attained moveability. The axillary scute is well separated from the inguinal on each side. The carapace bears no trace of lateral keels; a low median keel is present. The head pattern is much as in the adults except that dark stripes on the neck are more numerous and better defined. The shell above and below is colored as in the adults except that there is a small, poorly defined, yellowish-brown spot at the outer edge of the upper surface of each marginal, and that faint brownish spots are sprinkled over the plastron, bridge shields, and the under surface of the marginals.

REMARKS. The head pattern of *Kinosternon mopanum* is present in juveniles of several other species of the genus, and may be a primitive character.

The Machaca Creek area is mostly forested. Waha Leaf Creek arises in a stretch of forest that is continuous with the forest of the Machaca Creek locality. Although Waha Leaf Creek cuts through a coastal savanna belt on its way to Placentia Lagoon, the stream banks are forested.

In the type the seams of the carapace were impacted with reddish clay. Evidently the reptile had been burrowing in mud.

The name "*mopanum*" alludes to the Mopan Maya, an Indian group living south of the Maya Mountains uplift in Toledo District.

Staurotypus triporcatus (Wiegmann)

MATERIAL EXAMINED. Belize District: WTN 2860, Belize River near Boom.

The specimen is a male, carapace length 267 mm. In life the jaws were dull greenish-black with vague upright streaks of yellowish, these streaks better defined on the upper jaw. The head was reticulated with greenish-black and yellow. The carapace was dark brown; a few darker streaks and spots could be made out.

Staurotypus triporcatus is generally considered a species of the Caribbean drainage, replaced by *S. salvini* Gray on the Pacific slope. I referred turtles of the Belize River drainage to *S. salvini* (Neill and Allen, 1959a: 28) on the basis of three shells without soft parts or laminae, compared only with the confused literature relating to this genus. Stuart (1963: 49) has recently diagnosed the Caribbean and Pacific species by color characters. WTN 2860 is somewhat intermediate between the two, although closer to *Staurotypus triporcatus*. Pending a revision of the genus, it seems better to use *triporcatus* for all British Honduras material.

CHECKLIST

Although a detailed herpetology of British Honduras is in preparation, it may be useful now to list the amphibians and reptiles so far discovered in that country. Additions to the list will doubtless be made, and several taxonomic changes are to be expected. A few species or subspecies have been reported from British Honduras but not in convincing fashion; the names of these forms are placed in brackets in the following list.

Family CROTALIDAE

[*Agkistrodon bilineatus bilineatus* Günther]*Bothrops atrox* (Linnaeus)*Bothrops nasutus* Bocourt*Bothrops nummifer nummifer* (Rüppel)*Bothrops schlegeli* (Berthold)*Crotalus durissus tzabcan* Klauber

Order CROCODILIA

Family CROCODYLIDAE

Crocodylus acutus Cuvier*Crocodylus moreleti* Duméril and Bibron

Order TESTUDINATA

Family DERMATEMYDIDAE

Dermatemys mawei Gray

Family KINOSTERNIDAE

Claudius angustatus Cope*Kinosternon acutum* Gray*Kinosternon cruentatum cruentatum* Duméril and Bibron*Kinosternon leucostomum* Duméril and Bibron*Kinosternon mopanum* new species*Staurotypus triporcatus* (Wiegmann)

Family EMYDIDAE

Geoemyda areolata (Duméril and Bibron)*Pseudemys scripta ornata* (Gray)[*Terrapene mexicana yucatana* (Boulenger)]

Family CHELONIIDAE

Caretta caretta caretta (Linnaeus)*Chelonia mydas mydas* (Linnaeus)*Eretmochelys imbricata imbricata* (Linnaeus)

Family DERMOCHELYDIDAE

Dermochelys coriacea coriacea (Linnaeus)

The above British Honduras list includes 2 salamanders, 23 frogs, 39 lizards, 51 snakes, 2 crocodylians, and 14 turtles, a total of 131 species and subspecies, as compared with Schmidt's 1941 total of 98 for this country.

British Honduras measures 174 miles from north to south and not over 70 miles in greatest width. Its herpetofauna is moderately large and notably diverse for so small an area; it includes not only some widespread Mexican and Central American species but also West Indian and Yucatán Peninsular forms, as well as a number of endemics associated with the Maya Mountains uplift.

LITERATURE CITED

- Allen, Ross, and Wilfred T. Neill
1959. Doubtful locality records in British Honduras. *Herpetologica*, vol. 15, no. 4, pp. 227-233.
- Alvarez del Toro, Miguel, and Hobart M. Smith
1958. Notulae Herpetologicae Chiapasiae II. *Herpetologica*, vol. 14, no. 1, pp. 15-17.
- Amaral, Afranio do.
1954. Contribução ao conhecimento dos ofidios neotrópicos. XXXV. A propósito da revalidação de *Coluber lanceolatus* Lacépède, 1789. *Memorias do Instituto Butantan*, vol. 26, pp. 207-214.
- Anderson, A. H.
1958. Brief sketch of British Honduras. 7th ed. British Honduras Printing Dept., Belize. 102 pp., end map.
- Barbour, Thomas
1923. Notes on reptiles and amphibians from Panama. *Occ. Papers, Mus. Zool. Univ. Mich.*, no. 129, pp. 1-16.
- Bartlett, H. H.
1935. A method of procedure for field work in tropical American phytogeography based upon a botanical reconnaissance in parts of British Honduras and the Peten forest of Guatemala. Pp. 1-25 and pls. 1-14 in *Botany of the Maya area: Miscellaneous papers*. Carnegie Institution of Washington, Publ., no. 461.
- Boulenger, George A.
1894. Catalogue of the snakes in the British Museum (Natural History). Vol. 2. London. XI and 382 pp., 20 pls.
- Charter, C. G.
1941. Reconnaissance survey of the soils of British Honduras. Govt. Printer, Trinidad. 69 pp.
- Clay, William M.
1953. Protective coloration in the American sparrow hawk. *Wilson Bull.*, vol. 65, no. 3, pp. 129-134.
- Cott, Hugh B.
1940. Adaptive colouration in animals. Oxford Univ. Press, London. XXXII and 508 pp.
- Dixon, James R.
1960. The discovery of *Phyllodactylus tuberculatus* (Reptilia: Sauria) in Central America, the resurrection of *P. xanti*, and description of a new gecko from British Honduras. *Herpetologica*, vol. 16, no. 1, pp. 1-11.
- Dowling, Herndon G.
1952. A taxonomic study of the ratsnakes, genus *Elaphe* Fitzinger II (*sic*).

The subspecies of *Elaphe flavirufa* (Cope). Occ. Papers, Mus. Zool. Univ. Mich., no. 540, pp. 1-14, 1 pl.

Duellman, William E.

1958. A review of the frogs of the genus *Syrrophus* in western Mexico. Occ. Papers, Mus. Zool. Univ. Mich., no. 594, pp. 1-15.
1961. The amphibians and reptiles of Michoacán, México. Univ. Kansas Publ., Mus. Nat. Hist., vol. 15, no. 1, pp. 1-148.
1963. Amphibians and reptiles of the rainforests of southern El Petén, Guatemala. Univ. Kansas Publ., Mus. Nat. Hist., vol. 15, no. 5, pp. 205-249.

Duméril, A. H. A.

1853. Memoire sur les Batraciens Anoures des la famille des hylaeformes ou rainettes comprenant la description d'un genre nouveau et de onze especes nouvelles. Annales des Sciences Naturelles, vol. 3, no. 19, pp. 135-179.

Dunn, Emmett R.

1931. The amphibians of Barro Colorado Island. Occ. Papers, Boston Soc. Nat. Hist., no. 5, pp. 403-421.

Firschein, I. Lester

1951. Rediscovery of the broad-headed frog, *Eleutherodactylus laticeps* (Duméril), of Mexico. Copeia, no. 4, pp. 268-274.
1954. Definition of some little-understood members of the leptodactylid genus *Syrrophus*, with a description of a new species. Copeia, no. 1, pp. 48-58.

Fugler, Charles M.

1960. New herpetological records for British Honduras. Texas Jour. Sci., vol. 12, nos. 1-2, pp. 8-13.

Garman, Samuel

1883. The reptiles and batrachians of North America. Mem. Mus. Comp. Zool., vol. 86, no. 3, pp. I-XXXI, 1-185, pls. 1-9.

Gray, John E.

1831. Synopsis reptilium. Treuttel, Wurtz, and Co., London. VIII and 85 pp.

Hecht, Max K.

1951. Fossil lizards of the West Indian genus *Aristelliger* (Gekkonidae). Amer. Mus. Novitates, no. 1538, pp. 1-33.

Lundell, C. L.

1934. Preliminary sketch of the phytogeography of the Yucatan Peninsula. Carnegie Institution of Washington, Contr. Amer. Archeology, vol. 2, no. 12, pp. 255-321.
1937. The vegetation of Petén. Carnegie Institution of Washington, Publ., no. 478, pp. 1-244.

1940. The 1936 Michigan-Carnegie Botanical Expedition to British Honduras. Pp. 1-57 and pls. 1-4 in *Botany of the Maya area: Miscellaneous papers*. Carnegie Institution of Washington, Publ., no. 522.
- Maturana, H. R.
1962. A study of the species of the genus *Basiliscus*. *Bull. Mus. Comp. Zool.*, vol. 128, no. 1, pp. 1-33.
- Mook, C. C.
1959. A new Pleistocene crocodylian from Guatemala. *Amer. Mus. Novitates*, no. 1975, pp. 1-6.
- Neill, Wilfred T.
- 1960a. The caudal lure of various juvenile snakes. *Quart. Jour. Florida Acad. Sci.*, vol. 23, no. 3, pp. 173-200.
- 1960b. Nature and man in British Honduras. *Maryland Naturalist*, vol. 30, no. 1-4, pp. 2-14.
1962. The reproductive cycle of snakes in a tropical region, British Honduras. *Quart. Jour. Florida Acad. Sci.*, vol. 25, no. 3, pp. 234-253.
1963. Polychromatism in snakes. *Quart. Jour. Florida Acad. Sci.*, vol. 26, no. 2, pp. 194-216.
- Neill, Wilfred T., and Ross Allen
- 1959a. Studies on the amphibians and reptiles of British Honduras. *Publ. Research Div., Ross Allen's Reptile Inst.*, vol. 2, no. 1, pp. 1-76.
- 1959b. Additions to the British Honduras herpetofaunal list. *Herpetologica*, vol. 15, no. 4, pp. 235-240.
1960. Noteworthy snakes from British Honduras. *Herpetologica*, vol. 16, no. 3, pp. 145-162.
- 1961a. Further studies on the herpetology of British Honduras. *Herpetologica*, vol. 17, no. 1, pp. 37-52.
- 1961b. Colubrid snakes (*Tantilla*, *Thamnophis*, *Tropidodipsas*) from British Honduras and nearby areas. *Herpetologica*, vol. 17, no. 2, pp. 90-98.
1962. Reptiles of the Cambridge Expedition to British Honduras, 1959-60. *Herpetologica*, vol. 18, no. 2, pp. 80-91.
- Noble, G. Kingsley
1954. *The biology of the Amphibia*. McGraw-Hill Book Co., Inc., New York. 577 pp. (Reprint of 1931 edition.)
- Schmidt, Karl P.
1924. Notes on Central American crocodiles. *Field Mus. Nat. Hist., Zool. Ser.*, vol. 12, no. 6, pp. 79-92, pls. V-IX.
1933. Preliminary account of the coral snakes of Central America and Mexico. *Field Mus. Nat. Hist., Zool. Ser.*, vol. 20, pp. 29-40.
1936. Notes on Central American and Mexican coral snakes. *Field Mus. Nat. Hist., Zool. Ser.*, vol. 20, pp. 205-216.
1941. The amphibians and reptiles of British Honduras. *Field Mus. Nat. Hist., Zool. Ser.*, vol. 22, no. 8, pp. 475-510.

1946. Turtles collected by the Smithsonian Biological Survey of the Panama Canal Zone. *Smithsonian Misc. Coll.*, vol. 106, no. 8, pp. 1-9, 1 pl.
- Schmidt, Karl P., and Robert F. Inger
1957. *Living reptiles of the world*. Doubleday and Co., New York. 287 pp.
- Schmidt, Karl P., and W. F. Walker, Jr.
1943. Peruvian snakes from the University of Arequipa. *Field Mus. Nat. Hist., Zool. Ser.*, vol. 24, no. 26, pp. 279-296.
- Smith, Hobart M.
1958. Handlist of the snakes of Panama. *Herpetologica*, vol. 14, no. 4, pp. 222-224.
1959. Herpetozoa from Guatemala, I. *Herpetologica*, vol. 15, no. 4, pp. 210-216.
- Smith, Hobart M., and Edward H. Taylor
1941. A review of the snakes of the genus *Ficimia*. *Jour. Washington Acad. Sci.*, vol. 31, no. 8, pp. 356-368.
1950. An annotated checklist and key to the reptiles of Mexico exclusive of the snakes. *Bull. U. S. National Mus.*, no. 199, pp. I-V, 1-253.
- Stejneger, Leonhard H.
1941. Notes on the Mexican turtles of the genus *Kinosternon*. *Proc. U. S. National Mus.*, vol. 90, no. 3115, pp. 457-459.
- Stuart, L. C.
1941. Studies of Neotropical Colubrinae VIII. A revision of the genus *Dryadophis* Stuart, 1939. *Misc. Publ. Mus. Zool. Univ. Mich.*, no. 49, pp. 1-106, pls. I-IV.
1948. The amphibians and reptiles of Alta Verapaz Guatemala. *Misc. Publ. Mus. Zool. Univ. Mich.*, no. 69, pp. 1-109.
1955. A brief review of the Guatemalan lizards of the genus *Anolis*. *Misc. Publ. Mus. Zool. Univ. Mich.*, no. 91, pp. I-III, 1-31.
1963. A checklist of the herpetofauna of Guatemala. *Misc. Publ. Mus. Zool. Univ. Mich.*, no. 122, pp. 1-150, end map.
- Taylor, Edward H.
1954. Further studies on the serpents of Costa Rica. *Univ. Kansas Sci. Bull.*, vol. 36, pt. 2, no. 11, pp. 673-801.
1956. A review of the lizards of Costa Rica. *Univ. Kansas Sci. Bull.*, vol. 38, pt. 1, no. 1, pp. 3-322.
- Taylor, Edward H., and Hobart M. Smith
1943. A review of the American sibynophine snakes, with a proposal of a new genus. *Univ. Kansas Sci. Bull.*, vol. 29, pt. 2, no. 6, pp. 301-337.
- Williams, Ernest E.
1956. *Pseudemys scripta callirostris* from Venezuela with a general survey of the *scripta* series. *Bull. Mus. Comp. Zool.*, vol. 115, no. 5, pp. 145-160, 3 pls.

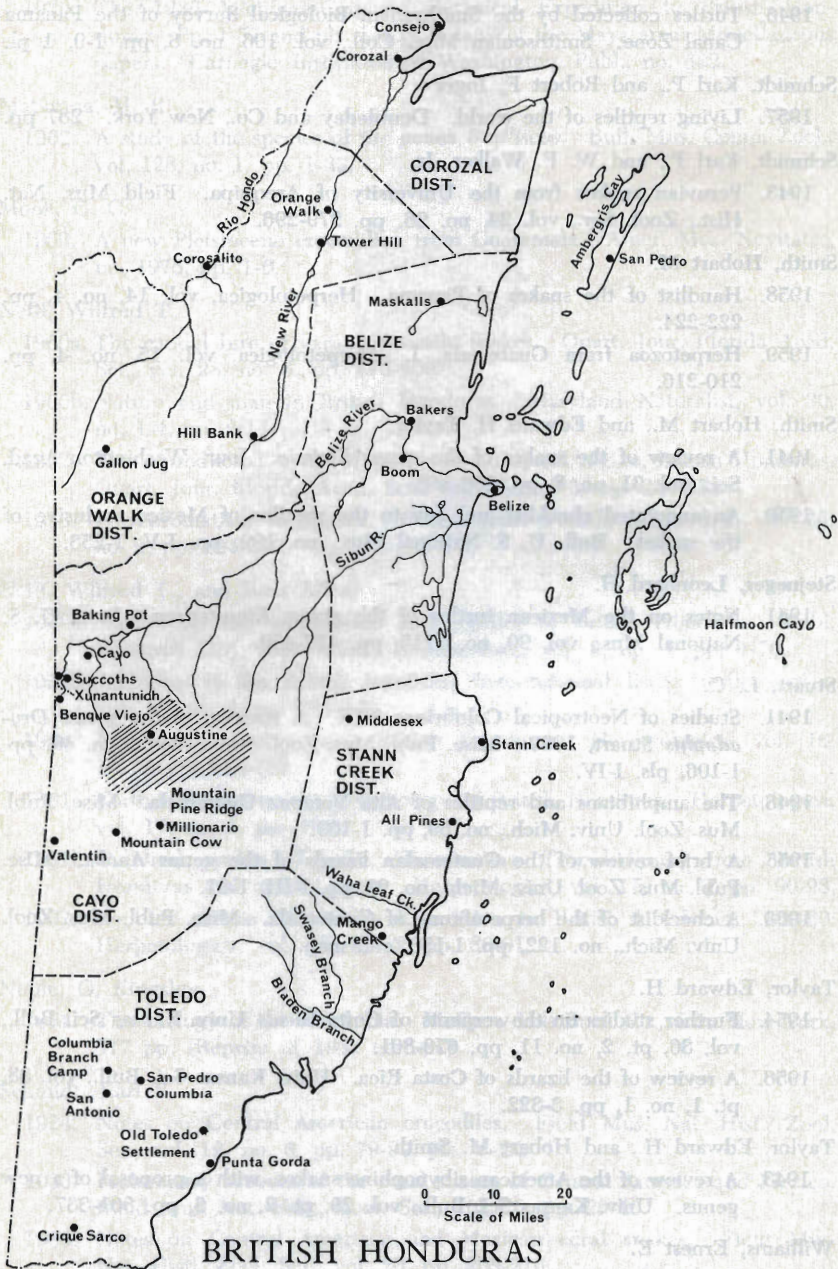


Fig. 8. Map of British Honduras, showing localities mentioned in the text.