

BATRACHIANS AND LAND REPTILES OF THE BAHAMA ISLANDS

BY

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INTRODUCTION.

The present account of the terrestrial herpetological fauna of the Bahama Islands is the result of a request by Dr. George B. Shattuck for a general herpetological sketch of the archipelago from a zoogeographical standpoint. Realizing the inadequacy of the material hitherto gathered for an attempt of this kind, I undertook the writing of this article with considerable reluctance. The batrachians and reptiles of the Bahamas are only very imperfectly known, as collections have been made in not more than fifteen of the numerous islands which compose the archipelago. Moreover, the islands from which reptiles have been recorded are very unequally explored. Thus we know now fourteen species from the small island of New Providence, while from the big island of Inagua only five species are recorded. As a matter of fact, not a single island has been thoroughly explored, and the circumstance that New Providence stands out with such a preponderance of species is only due to the fact that practically everybody who has collected in the archipelago visited that island and spent most of the time there. Under such circumstances generalizations must be made and accepted with the utmost caution, and it should be distinctly understood that whatever of the kind may be submitted in the following account must be received as preliminary statements only, subject to later revision when we shall know the Bahama land fauna better.

The Director of the Expedition of the Geographical Society of Baltimore had hoped to remedy this unfortunate state of affairs, but owing to unfavor-

¹ By permission of the Secretary of the Smithsonian Institution.

*historical record; C. rileyi rileyi;
C. scirinata scirinata; C. epibatrachus
epibatrachus.*

*pages 329-343. in G. B. Shattuck (ed.) The Bahama Islands:
1905. Geographical Society of Baltimore. Johns Hopkins Press
Baltimore, Md. 630pp.*

able sailing conditions the exploration of the more southerly islands of the group, such as Inagua, Caicos, and Turks Islands, which are so essential to a full understanding of the zoogeographical relations of the Bahamas, was not practicable. Mr. J. H. Riley, the member of the Expedition whose duty it was to attend to the reptiles, was obliged to devote his energies to birds and mammals as well, and owing to the fact that his time on shore was frequently limited, the reptiles did not receive as much attention as was expected. Mr. Riley, nevertheless, secured some very interesting specimens, such as the *Cyclura baolopha* Cope the new *Cyclura rileyi* Stejneger, of which he brought home a fine series.

During the summer of 1904, some months after this paper had been sent to the editor, Mr. Thomas Barbour, of the Museum of Comparative Zoology in Cambridge, Mass., together with several other gentlemen, made extensive collections on a number of the northern islands and keys, some of which had not been explored herpetologically before. His paper² contains many valuable additions to our knowledge, and it is extremely unfortunate that more extensive references to it could not be made in the following account.

SYSTEMATIC AND NOMENCLATURAL NOTES.

Before approaching the zoogeographical problems, it will be necessary to discuss the systematic as well as the nomenclatural status of a number of species occurring in or said to occur in the archipelago.

BATRACHIANS.

HYLA SEPTENTRIONALIS Boulenger.

Hyla septentrionalis Boulenger, 1832, Cat. Batr. Sal. Brit. Mus., p. 368.

This name must be dated from Boulenger, as both Schlegel's *Hyla septentrionalis* of 1837, and Tschudi's *Dendrohyla septentrionalis* of 1838, are absolute *nomina nuda*. Should Cope's *Trachycephalus insulsus*³ really be identical with the present species, which I greatly doubt, this name would take precedence, as *Hyla marmorata*, based upon Bibron's *Trachycephalus marmoratus*⁴ is antedated by *Hyla marmorata* Daudin, 1803.

² Barbour, Thomas, Batrachia and Reptilia from the Bahamas, Bull. Mus. Comp. Zool. Cambridge, xvi, No. 3, Dec., 1904, pp. 55-61.

³ Proc. Acad. Nat. Sci. Phila., 1863, p. 43.

⁴ Hist. Fis. Pol. Nat. Cuba, Zool., iv, Rept., x, 1834, p. 133.

a color in life different from red.¹⁰ From my own personal experience with the *Anoles* in Porto Rico I am inclined to attach great weight to the color of the dewlap, and I found it constant even in very closely allied species. I shall therefore follow Garman in calling the northern Bahama specimens *A. ordinatus*, those from Cuba *A. sagrei* and those from Turks Islands *Anolis* sp.?

ANOLIS LEUCOPHÆUS Garman.

Anolis leucophæus Garman, 1888, Bull. Essex Inst., vol. xx, p. 9.

Cope's *A. cinnamomeus* is six years younger than *A. leucophæus* of Garman, who informs me of their identity. He writes that he is in doubt whether *A. moorei* Cope is really distinct.

CYCLURA CYCLURA (Cuvier).

Iguana cyclura Cuvier, Regne Anim., 2nd ed., ii, p. 45. (?)

No uncertainty exists concerning the status and relationships of the species *Cyclura baolopha* Cope, *C. carinata* Harlan, and *C. rileyi* Stejneger, respectively from Andros, Turks Islands and Watlings; they are easily distinguished *inter se* and from the species inhabiting the adjoining larger Antilles. Cope's reference of an iguana from Cat Island to the typical species *Cyclura cyclura*, or *C. nubila* as he calls it,¹¹ is therefore highly dubious, but as the specimen upon which the record is made appears to be lost,¹² I am at present unable to settle the question.

LEIOCEPHALUS CARINATUS Gray.

Leiocephalus carinatus Gray, 1827, Phil. Mag., p. 208.

When describing *L. virescens*, the only other Bahama specimens of this group accessible to me were a few without definite locality collected by Bryant. Since then I have examined true *L. carinatus* from Andros, collected by Mr. Riley during the Expedition of the Geographical Society of Baltimore, and a specimen from Cat Island. It follows that *L. virescens* is a local form from

¹⁰ Mr. Riley in his field notes speaks of a "black" *Anolis* "with an orange-colored throat frequenting old fences and bushes along the road and the more open woods." This is probably *A. ordinatus* Cope.

¹¹ Proc. U. S. Nat. Mus., x, 1887, p. 437.

¹² In the record book of the Division of Reptiles, U. S. Nat. Mus., a specimen from Cat Island is entered under No. 14576 as *Cyclura nubila*. The specimen so tagged is not a *Cyclura*, however, but *Leiocephalus carinatus* Gray.

DISTRIBUTION OF BATRACHIANS AND REPTILES (EXCEPT MARINE TURTLES)
OCCURRING IN THE BAHAMA ISLANDS.

The distribution of batrachians and reptiles occurring in the Bahama Islands will now be given. In reading these tables it should be understood that M denotes that specimens are in the U. S. National Museum; C, that occurrence is recorded by Cope; G, that occurrence is recorded by Garman; B, that occurrence is recorded by Barbour; + that the identical species occurs outside the Bahamas; — that species is represented by a closely allied form; ? that the relationship of the Bahama species to the form inhabiting the island is doubtful.

SPECIES.	Little Abaco.	Great Abaco.	Great Bahama.	Stranger Cay.	Eleuthera.	New Providence.	Andros.	Cat Island.	Long Island.	Green Cay.	Crooked Island.	Watlings.	Rum Cay.	Turks Islands.	Great Inagua.	Florida.	Cuba.	Haiti.	ADDITIONAL LOCALITIES.
1 <i>Hyla septentrionalis</i> Boulenger	B					M	B						G				+	+	S. E. North America.
2 <i>Hyla squirella</i> Latreille			B														+	+	
3 <i>Eleutherodactylus ricordii</i> (Duméril & Bibron)						CB	B										+	+	
4 <i>Sphærodactylus notatus</i> Baird	B	C	B			M											+	+	
5 <i>Sphærodactylus asper</i> Garman							G										—	—	
6 <i>Sphærodactylus corticolus</i> Garman												M	G				—	—	
7 <i>Sphærodactylus decoratus</i> Garman						B	B						G				—	—	
8 <i>Sphærodactylus flavicaudus</i> Barbour							B										—	—	
9 <i>Mabuia sloanii</i> (Daudin) (?)														C				+	Porto Rico; Virgin Isls.
10 <i>Ameiva thoracica</i> Cope		C			M	M	C								CG		—	—	
11 <i>Ameiva maynardii</i> Garman															CG		—	—	
12 <i>Anolis porcatus</i> Gray		C		C	M	B	M								CG		+	—	
13 <i>Anolis porcatus brunneus</i> (Cope)									C								—	—	
14 <i>Anolis ordinatus</i> Cope	B	M	B	M	M	B	M						M				—	—	
15 <i>Anolis</i> (sp)														C				?	
16 <i>Anolis leucophæus</i> Garman															CG		—	—	
17 <i>Anolis moorei</i> Cope															C		—	—	
18 <i>Anolis oligaspis</i> Cope					C												—	—	
19 <i>Anolis distichus</i> Cope		C			M	B	M										—	—	
20 <i>Cyclura baolopha</i> Cope						M												—	
21 <i>Cyclura cyclura</i> (Cuvier) (?)								C										+	?
22 <i>Cyclura rileyi</i> Stejneger												M						—	
23 <i>Cyclura carinata</i> Harlan														C				—	
24 <i>Leiocephalus carinatus</i> Gray	M	B	B		C	M	C				C							+	
25 <i>Leiocephalus virescens</i> Stejneger									M									—	
26 <i>Leiocephalus lozogrammus</i> Cope												M	M					—	
27 <i>Leiocephalus schreiberii</i> (Gravenhorst)															G			—	
28 <i>Leptotyphlops albifrons</i> (Wagler)												M						—	Caribbean Isls.; S. Amer.
29 <i>Typhlops lumbicalis</i> (Linné)		M																+	British Guiana; Antilles generally.
30 <i>Epicrates chrysogaster</i> (Cope)														C				—	
31 <i>Epicrates striatus</i> (Fischer)						M	G											+	
32 <i>Tropidophis pardalis</i> (Gundlach)					C	CB												+	
33 <i>Tropidophis cana</i> (Cope)															M			—	
34 <i>Leimadophis</i> (?) <i>rubescens</i> (Cope)						C												?	
35 <i>Alsophis angulifer vuatii</i> (Cope)					M	M		C	M									—	
Total	3	7	1	4	5	14	12	6	1	1	2	4	5	4	5	4	18	15	4

Leiocephalus schreibersii (Gravenhorst).

Epicrates chrysogaster (Cope).

Tropidophis cana (Cope).

Of these *Mabuia sloanii* has a distribution extending beyond Haiti, but the significant fact about it is that it does not occur in Cuba, and as not even the genus is represented in the latter island, it matters comparatively little that the specific identity of the Turks Islands skink is not settled beyond a shadow of a doubt.

It will be seen that all the above seven species so closely related to the exclusively Haitian fauna are confined to Turks Islands and Great Inagua. These islands are separated from the islands on the great bank not only by deeper water (1000 to 1500 fathoms), but by wider channels less obstructed by small islands or keys. To the south of them Haiti is the nearest land though separated by a very deep channel more than 2000 fathoms deep. Great Inagua, moreover, is nearly as close to the east end of Cuba as to Haiti.

Opposing the fact that the islands situated on the same bank and nearest to Cuba have a fauna most closely allied to that of Cuba, we have the corresponding fact that the islands nearest to Haiti, though not on the same bank as the latter, have a fauna most closely allied to Haiti.

RELATIONS OF RUM CAY AND WATLINGS ISLAND.

The herpetological relations of these islands to the rest of the archipelago as well as to Cuba and Haiti are not quite clear. This unfortunate state of affairs is due not only to our defective knowledge of their own fauna in particular but of that of the other islands both east and west of them. In a measure their situation is intermediate between the two groups of islands treated of above. On the other hand, they are quite peripheral and their isolated location in deep water outside of the great bank gives them a certain independent status. Scanty as our knowledge of their reptiles is, these points are also indicated in their fauna, though possibly somewhat obscurely.

The following species have been recorded from Rum Cay and Watlings:

Watlings Island.

Rum Cay.

Hyla septentrionalis Boulenger.

Sphaerodactylus corticolus Garman.

Cyclura rileyi Stejneger.

Sphaerodactylus decoratus Garman.

Leiocephalus loxogrammus Cope.

Leptotyphlops albifrons (Wagler).

Anolis ordinatus Cope.

Of these *Hyla septentrionalis* and *Sphaerodactylus decoratus* seem equally close to Cuba and Haiti. *S. corticolus* appears to lean more to Haiti. *Leiocephalus loxogrammus* and *Anolis ordinatus* are of decidedly Cuban relationship. *Cyclura rileyi* is uncertain, but probably closer to Cuba than to Haiti. Finally *Leptotyphlops albifrons* is a South American species which has not hitherto been found in the Greater Antilles, the Virgin Islands or any other island in the Bahamas. There would be nothing surprising, however, if it were found later in all these islands, especially in Haiti.

As will be seen, nothing definite can be concluded from the above.

CONCLUSIONS.

The first and most obvious result of the above attempt to analyze the herpetological fauna of the Bahamas is the conviction that the archipelago is as yet far too imperfectly explored, and that exhaustive collections from many islands which have not yet been visited as well as from those already superficially examined, are necessary before a correct picture of their reptile world can be drawn.

It may be well to summarize, however, the preliminary conclusions at which we have arrived:

1. The herpetological fauna of the Bahamas is derived directly from the nearest islands of the Greater Antilles.
2. The islands situated on the great bank which is connected with Cuba by the 500-fathom line are directly and closely allied herpetologically to the latter island.
3. Great Inagua and Turks Islands show similarly strong relationships to the island of Haiti.
4. There is no direct connection between the herpetological fauna of the Bahamas and Florida.
5. The isolation of the various species on the separate islands has been sufficiently complete and protracted to have resulted in a considerable amount of specialization.

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